

UNIVERSITY OF CAPE TOWN

**A COASTAL ZONE MANAGEMENT FRAMEWORK
FOR THE ERONGO REGION OF NAMIBIA**

University of Cape Town

Dissertation by Karen Hattingh

A project in partial fulfilment for the Masters of Philosophy degree in
Environmental Science, Department of Environmental and Geographical
Science, University of Cape Town

July 1996

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

Recommendations are made to facilitate effective coastal zone management in Namibia. The recommendations are made in terms of Namibia, and not only for the Erongo Region of Namibia, because they concern general issues such as the adoption of an overall Coastal Zone Management Framework for the country as a whole.

The recommendations made in the dissertation with regard to coastal zone management in Namibia are the following:

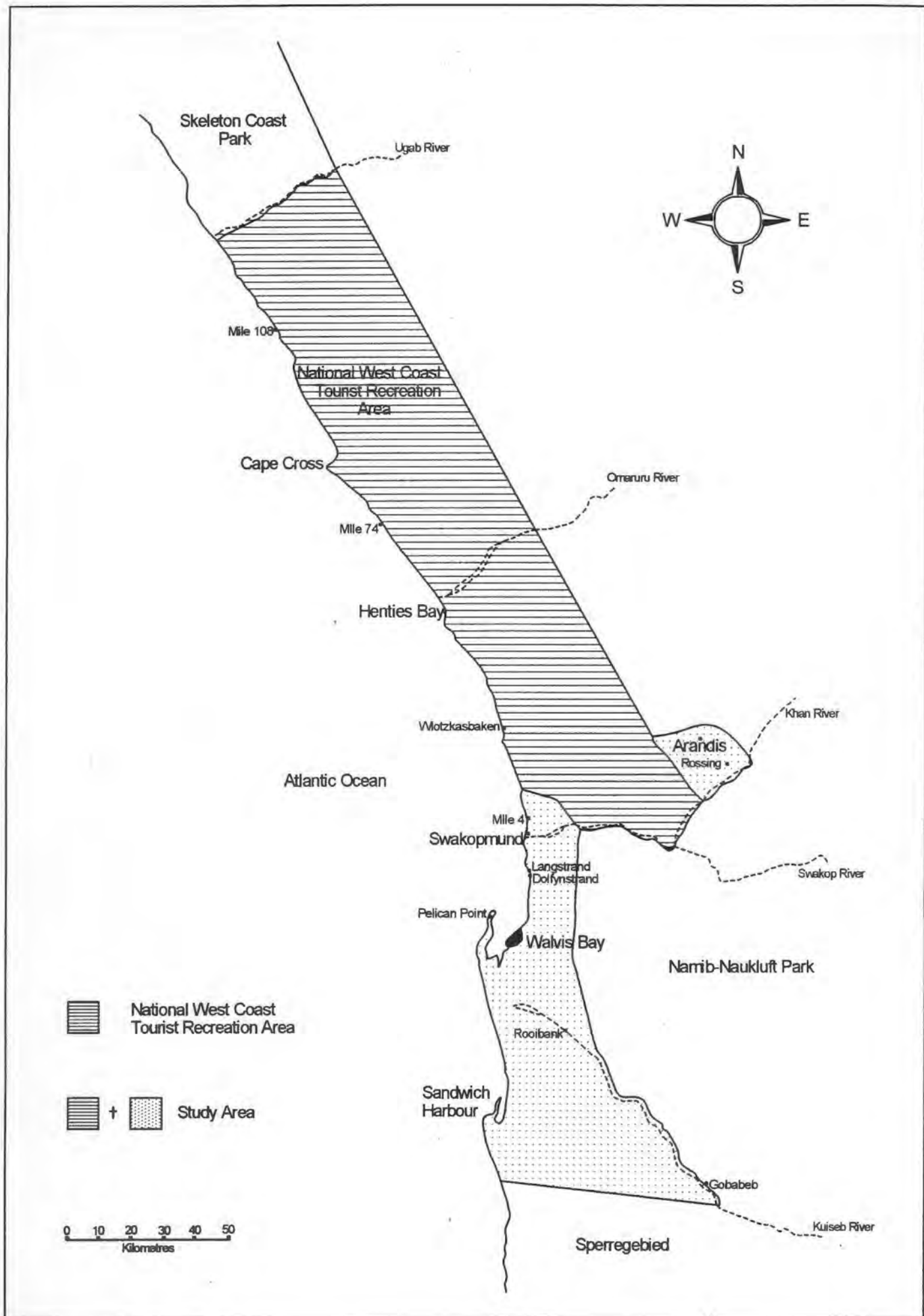
- plan and implement an overall Coastal Zone Management Framework for Namibia, which has as one of its primary objectives the coordination of CZM planning at national, regional, and local level;
- define CZM in terms of its primary functional components of Land-Use Planning; Development Assessment and Regulation; and Day to Day Resource Management;
- formulate the policies suggested by the Management Framework;
- enact a CZM Act;
- appoint a steering committee to oversee the implementation of the Coastal Zone Management Framework adopted for the country;
- extend the role traditionally played by environmental assessment in the country to the areas suggested by the Management Framework;
- pass the draft Environmental Assessment Act which has already been formulated into law, thereby making environmental assessment of projects, programmes and policies a legally enforceable requirement in the country.

The contention of the dissertation is not that Namibia adopt the Coastal Zone Management Framework presented in the dissertation, as the socio-political process of developing and implementing the suggested Management Framework will inevitably result in changes to it. Therefore, the contention of the dissertation is simply that a Coastal Zone Management Framework be adopted for the country as a whole.

4.2.1	Strategic Management Plans.....	32
4.2.2	Coastal Policy Plans.....	33
4.2.3	Structure Plans.....	34
4.2.4	Town Planning Schemes.....	35
4.2.5	Strategic Environmental Assessment.....	36
4.2.6	Environmental Impact Assessment.....	39
4.2.7	Environmental Management System.....	41
4.2.8	Coastal Zone Management Plan.....	42
4.2.9	Integrated Environmental Management.....	45
4.3	Reason for developing a CZM Framework.....	46

5. DEVELOPMENT PRESSURE ON, AND CZM IN, THE ERONGO REGION OF NAMIBIA

5.1	Development Pressures on the Erongo Region.....	48
5.2	Coastal Zone Management in the Erongo Region.....	52
5.2.1	Planning decisions and management actions taken at national level.....	53
5.2.1.1	Lack of coordinated directives issued from national level.....	53
5.2.1.1	Uninformed decision-making, the duplication of tasks, and uncertainty in regard jurisdiction.....	58
5.2.2	Planning decisions and management actions taken at regional level.....	60
5.2.3	Planning decisions and management actions taken at local level.....	61
5.2.4	Conclusion.....	62



Map 2 Study Area

6. A Coastal Zone Management Framework for the Erongo Region of Namibia

6.1	Main characteristics of the proposed framework.....	63
6.1.1	Overall planning from national to local level.....	64
6.1.2	A Policy Framework.....	64
6.1.3	Specific CZM legislation.....	65
6.1.4	A single body with overall coordinating responsibility.....	67
6.1.5	Environmental Assessment.....	68
6.2	Diagrammatic outline of the proposed framework.....	69
6.3	Explanation of the framework.....	71
6.3.1	Step One: Policy Formulation at National Level, and Enactment of CZM legislation.....	71
6.3.2	Step Two: Regional Level Planning Process which incorporates SEA.....	74
6.3.2.1	The use of SEA extended into a non-traditional area.....	75
6.3.2.2	Regional Level Land-Use Policy.....	77
6.3.3	Step Three: National Level Planning Process.....	78
6.3.4	Step Four: Local Level Planning Process which incorporates SEA.....	81
6.3.4.1	The undertaking of SEA by local level authorities.....	81
6.3.4.2	Local Level CZM Policies.....	83
6.3.5	From Policy Level to Project Specific Level	86
6.3.5.1	National Level Policy to Local Level Policy.....	86
6.3.5.2	EIA.....	89
6.3.5.3	EMS.....	90
6.4	The successful working of the framework.....	91

7. Application of the Coastal Zone Management Framework to CZM in Namibia .

7.1	Analysis of Namibia in terms of the suggested CZM Framework.....	93
7.1.1	Overall planning from national to a local level.....	94
7.1.2	CZM Policies.....	96
7.1.3	CZM legislation.....	98
7.1.4	A single body with overall coordinating responsibility.....	99
7.1.5	Environmental Assessments.....	100

8. RECOMMENDATIONS

8.1	Overall planning from a national to a local level.....	102
8.2	CZM Policies.....	103
8.3	CZM legislation.....	103
8.4	A single body with overall coordinating responsibility.....	104
8.5	Environmental Assessment.....	104
8.6	Summary.....	105

9. CONCLUSION106

REFERENCES108

PERSONAL COMMUNICATIONS.....117

LIST OF MAPS

1. Erongo Region and the Study Area of the Erongo Baseline Reportiii
2. The Study Area of the Erongo Baseline Reportiv

LIST OF FIGURES

- Figure 1: Functional Components of Coastal Zone Management30
- Figure 2: The structure of NAMPAB55
- Figure 3: The structure of IMSCLUP57
- Figure 4: Coastal Zone Management Framework for the Erongo Region
of Namibia70

LIST OF TABLES

- Table 1: Factors contributing to success of CZM Programmes in
developed and developing countries around the world25
- Table 2: Factors contributing to failure of CZM Programmes
in developed and developing countries around the world26

LIST OF ABBREVIATIONS

CZM	Coastal Zone Management
DANCED	Danish Cooperation for Environment and Development
UNEP	United Nations Environment Programme
EIA	Environmental Impact Assessment
EMS	Environmental Management System
EPZ	Exclusive Processing Zone
ICZM	Integrated Coastal Zone Management
ICZMP	Integrated Coastal Zone Management Plan
IDC	International Development Corporation
IEM	Integrated Environmental Management
ISO	International Organisation for Standardisation
IMSCLUP	Interministerial Committee for Land-Use Planning
MAWRD	Ministry of Agriculture, Water and Rural Development
MET	Ministry of Environment and Tourism
MFMR	Ministry of Fisheries and Marine Resources
MLRR	Ministry of Lands, Resettlement and Rehabilitation
MWTC	Ministry of Works, Transport and Communication
NAMPAB	Namibian Planning Advisory Board
NDP1	National Development Plan 1
NPC	National Planning Commission
SEA	Strategic Environmental Assessment

TABLE OF CONTENTS

ABSTRACT	i
LIST OF MAPS	v
LIST OF FIGURES	v
LIST OF TABLES	v
LIST OF ABBREVIATIONS	vi
ACKNOWLEDGEMENTS	vii

1. INTRODUCTION

1.1	Definition of the problem	6
1.2	The need for a Coastal Zone Management Framework.....	8
1.3	Purpose of this dissertation	9
1.4	Boundaries of the study area	9
1.5	Approach	10
	1.5.1 Approach to the Baseline Information Report.....	10
	1.5.2 Approach to the Dissertation.....	11
1.6	Assumptions and Limitations	11

2. BASELINE REPORT

2.1	Background	13
2.2	IEM principles applied in the Baseline Report	14
2.3	IEM process applied to the Baseline Report	15

3. METHODS USED IN DISSERTATION

3.1	Method used to identify the problem	17
	3.1.1 Justification of conclusion drawn	17
3.2	Method used to develop a model to address the problem	19
	3.2.1 Literature review of coastal zone management tools	19
	3.2.2 Interviews	20
3.3	Method used to evaluate the current Namibian situation	20

4. DEVELOPMENT OF THE CZM FRAMEWORK

PROPOSED IN DISSERTATION

4.1	Literature review of integrated coastal zone management	21
	4.1.1 Definition, Aims and Objectives of ICZM	21
	4.1.2 Key characteristics of a comprehensive CZM programme	24
	4.1.3 Functional components of CZM	27
	4.1.3.1 Primary and Secondary Functions of CZM	28
4.2	Literature review of coastal zone management tools	30

ABSTRACT

Management of the coastal environment of the Erongo Region of Namibia is currently fraught with difficulty because of a lack of cohesive planning at national, regional, and local level; a multiplicity of agencies responsible for the management of coastal activities whose planning and management actions are not integrated; and, fragmented environmental legislation which suffers from a lack of coordination. The lack of integrated planning and management has resulted in an uncoordinated and fragmented approach to coastal zone management (CZM) in the Region.

Development pressure exists on the coast of the Erongo Region because of factors such as high migration numbers into the area; an increased need for housing and employment; proposed dune mining activity; and, growth of the tourism industry with associated increases in infrastructural provision and the number of people visiting the area. Without effective planning, over-exploitation of coastal resources could occur. This could place at risk the resource base on which the Region depends as a source of income.

To achieve better management of the coastal environment of the Erongo Region, the dissertation proposes a Coastal Zone Management Framework for the Region. The suggested Management Framework is applied to coastal zone management in Namibia. The analysis concerns Namibia, and not the Erongo Region, because the framework involves management planning at a national level, and not only at a regional level and local level; the setting in place of national level CZM policies, and not only regional level and local level CZM policies; the adoption of CZM legislation; the establishment of a steering committee to oversee implementation of the framework at national level; and the extension by national level authorities of the role of Strategic Environmental Assessment.

ACKNOWLEDGEMENTS

Numerous people were consulted in the development of this dissertation and I gratefully acknowledge the time, thought and expertise so willingly provided. I would especially like to thank **Mr Richard Hill**, University of Cape Town, and **Mr Muller Coetzee**, Watermeyer Prestedge Retief, in this regard.

The financial assistance of the **Center for Science Development** towards this research is hereby acknowledged. Opinions expressed and conclusions arrived at, are those of the author and are not necessarily to be attributed to the Center for Science Development.

I thank my Father whose grace sustained me, and to whom be the glory.

1. INTRODUCTION

This chapter defines the problem which the dissertation relates to, discusses the need for an integrated coastal zone management strategy, and states the purpose of the dissertation. The approach which was adopted to the compilation of the Baseline Information Report and the dissertation is explained. Finally, the assumptions and limitations of the dissertation are listed.

1.1 Definition of the problem

Management of the coastal environment of the Erongo Region of Namibia is currently fraught with difficulty because of a lack of cohesive planning at national and regional level, a multiplicity of agencies responsible for the management of coastal activities, and inadequate environmental legislation (Ramboll, 1995; Erongo Baseline Report, 1996).

The lack of integrated planning has resulted in an uncoordinated and fragmented approach to coastal zone management. The fragmented approach to coastal management has, in turn, led to problems of inter-ministerial and inter-municipal conflict regarding management issues. For example, an overlap of jurisdiction between the high and low water mark has created management conflicts between the Ministry of Environment and Tourism (MET) and the Ministry of Fisheries and Marine Resources (MFMR) (Erongo Baseline Report, 1996). The relationship between the municipalities of Swakopmund and Walvis Bay has also been subject to conflict. The municipalities have different development aims: Swakopmund Municipality favours tourism development while Walvis Bay Municipality favours industrial development. In the past, the municipalities have tended to compete with each other rather than to coordinate development (Ramboll, 1995).

The multiplicity of agencies responsible for the management of coastal activities has contributed to the uncoordinated and fragmented approach to coastal management. This is because there is a lack of effective inter-ministerial linkages. This results in poor communication, lengthy time delays, uninformed decision-making and the duplication of certain tasks. For example, the cleaning of beaches on state land is the responsibility of MET and MFMR (Ramboll, 1995). Because of a lack of communication and cooperation between the Ministries, the consequence of the overlap in responsibility has been that beach cleaning has not been effectively undertaken (Ramboll, 1995).

The lack of comprehensive, easily accessible legislation regarding the coast, and the management thereof, has also contributed to the uncoordinated and fragmented approach to coastal management in the Erongo Region. At present, the environmental law framework is fragmented, uncomprehensive and incomplete. A plethora of acts exist, and it is difficult to know, without detailed investigation, which acts apply to the coastal zone. For example, the legislation pertaining to pollution control and waste management is contained in seven different statutes (Erongo Baseline Report, 1996). Furthermore, the administration of environmental laws is uncoordinated. The legislation pertaining to pollution control and waste management is administered by at least eight Ministries, with no coordination between them with regard to uniform standards, areas of responsibility, and cooperation in areas of overlap (Erongo Baseline Report, 1996).

Should the situation, as outlined above, continue in future and should effective planning not occur, development pressure on the study area will result in the environment being detrimentally affected. Development pressure on the study area exists because of factors such as high migration numbers into the area, an increased need for housing and employment, proposed dune mining activity, and growth of the tourism industry which involves increased infrastructural needs and an increase in the number of people visiting the area. Without effective planning, the resource base on which the Erongo Region depends as a source of income is placed at risk. This is because of the danger of the over-

exploitation of coastal resources. If this occurs, the cost¹ for the human population, and the environment will be large. Better planning will facilitate the effective regulation and management of development activities, and in so doing, will facilitate environmental protection.

The section which follows proposes a solution to the problem of ineffective coastal zone planning in the Erongo Region, and suggests a way of achieving better planning.

1.2 The need for a coastal zone management framework

Solutions needed to prevent the deterioration of the coastal environment of the Erongo Region of Namibia are hampered by the diversity of uses the area lends itself to, the lack of comprehensive planning at national and regional level, the multiplicity of agencies responsible for the management of coastal activities, and the fact of inadequate legislation. Given this situation, there is no alternative but to encourage integration and cooperative management of the coastal zone through the implementation of an integrated coastal zone management strategy. To this end, this dissertation proposes a Coastal Zone Management Framework. The dissertation aims to develop a holistic management framework as a necessary precursor to the integrated and coordinated management of the resources of the Erongo Region.

It was realized that in order to give effect to the goals of holism², integration and coordination, that coastal zone management (CZM) planning for the Erongo Region can not be undertaken in isolation. This is because actions at regional and national level influence how coastal zone management occurs at a local level. If actions at regional and

¹ The cost referred to here is the social and environmental cost of the over-exploitation of coastal resources.

² Holism refers to over-all, integrated planning. In this context, it means the adoption of a systems approach to the planning of coastal zone management. The approach results in planning from national to a local level. Sorenson and McCreary (1990) support a systems approach in the formulation of a coastal zone management strategy.

national level occur in an uncoordinated manner, coastal zone management at a local level will be fraught with difficulties. Hence, it was concluded that the national, regional and local levels should be viewed as a single system when CZM planning occurs. A Management Framework which encompasses the national, regional and local level is presented in the dissertation³.

1.3 Purpose of this dissertation

To achieve better management of the coastal environment of the Erongo Region of Namibia, the dissertation proposes a Coastal Zone Management Framework for the Region. Comparisons are made between the proposed Management Framework and the current situation in the Erongo Region, and recommendations are made for improving the existing situation.

1.4 Boundaries of the study area

The dissertation proposes a Coastal Zone Management Framework for the Erongo Region of Namibia (see Map 1). The study area of the Erongo Baseline Information Report (Erongo Baseline Report, 1996) comprises the coastal belt of the Erongo Region (see Map 1). Similarly, this area constitutes the study area of the present dissertation.

The exact location of the area is described in the Baseline Report as follows (see Map 2):

“ The northern boundary of the study area is formed by the Ugab River, with Sandwich Harbour delineating its southern border. The northern section of the study area takes its inland boundary from the easterly border of the National West Coast Tourism Recreation Area. The southerly portion of the eastern

³ The framework set in place in the dissertation can be used as a Coastal Zone Management Framework for Namibia, because it comprises national, regional and local level.

boundary extends inland to include a small portion of the Namib Naukluft Park. The seaward boundary is defined by the three nautical mile limit from shore. The municipal areas of Walvis Bay, Swakopmund, Henties Bay and Arandis are included within the study area, as well as Rossing Mine and its immediate environment."

(Source: Erongo Baseline Report, 1996)

1.5 Approach

The section that follows describes the approach adopted to the compilation of the Baseline Information Report, and to the writing of the dissertation. The discussion highlights differences in approach to the documents.

1.5.1 Approach to the Baseline Information Report

Data collection and report writing were carried out by the Environmental Science Masters Group of 1995-1996 (University of Cape Town), which comprised twelve students. Students worked as a multi-disciplinary team, simulating environmentally related project-work in practice. Principles of Integrated Environmental Management were followed in the conducting of research necessary for compilation of the Baseline Report, and in the final writing of the report. A wide range of literature was reviewed for the purposes of the report, and two field visits were undertaken to the study area, during which data was collected, interviews were held with interested and affected parties, and site visits were undertaken. The final report was compiled in March 1996. The aim of the report, as a baseline information document, was to present information in a descriptive rather than analytical manner.

1.5.2 Approach to the Dissertation

Whereas the Baseline Report was compiled by a team of researchers, the dissertation is an individual interpretation of data. The aim of the dissertation is to present information in an analytical manner. Principles of Integrated Environmental Management, such as interpreting the term 'environment' widely so as to include biophysical as well as socio-economic factors, were followed in the writing of the dissertation. Data presented in the Baseline Report was used, but the dissertation is not limited to the data contained in the said report. Additional literature sources were consulted, and personal communication in the form of meetings and interviews were held in order to supplement the data of the Baseline Report (the list of interviewees appears after the References List).

1.6 Assumptions and Limitations

For the purposes of the dissertation, the following assumptions have been made:

- information contained in the Ramboll Report, *Draft Project Proposal: Integrated Coastal Zone Management Plan, Walvis Bay Area, Erongo Region, 1995*, is used on the assumption that it is accurate and correct.
- information presented in the Erongo Baseline Report, 1996, is used on the assumption that it is accurate and complete.
- that the reader has read and is familiar with the Erongo Baseline Report. Data contained in that report will be repeated only where it is essential.

Limitations to this study are outlined below.

- A management framework which claims to be comprehensive and which will be accepted, and successfully adopted, in practice requires the participation of all

stakeholders. This becomes even more important in the case of a management framework of the size and nature proposed in the dissertation (a complex management framework is proposed which comprises national, regional and local level). The dissertation is limited by the fact that, because of time-constraints, it was compiled by an individual, and did not entail the involvement of stakeholders.

The dissertation is also limited by the fact that it was written in partial fulfillment of degree purposes. Because a 3-month time limit was imposed on dissertation writing, there was not sufficient time to circulate the dissertation for comment to interested and affected parties in South Africa and Namibia. Nevertheless, it is hoped that the ideas presented in the dissertation will stimulate discussion on the issue of coastal zone management in Namibia, and will be helpful in generating solutions to current management problems.

The chapter which follows discusses the Baseline Information Report, and the IEM principles and process applied to it.

2. BASELINE REPORT

This chapter presents the background to the Baseline Information Report, lists the principles of Integrated Environmental Management (IEM) applied in the report, and discusses IEM process used in the compilation of the report.

2.1 Background

The Danish Cooperation for Environment and Development (DANCED) was requested by the Ministry of Fisheries and Marine Resources, the Ministry of Environment and Tourism, and other key stakeholders to assist in the drawing up of an environmental management plan for the Erongo Region of Namibia (DANCED, 1995). It was felt that, because of the ever-increasing number of factors which exert pressure on the Region, there is a need for better environmental management of the resources of the Region (Ramboll, 1995).

DANCED commissioned the compilation of a baseline information report which would assist the drawing up of an Integrated Coastal Zone Management Plan (ICZMP) for the area, and requested the Environmental Science Masters Group 1995-1996 of the University of Cape Town to compile this report. The purpose of the report was to discuss the present state of the environment in the Erongo Region, and to outline issues in the Region which would have to be addressed in an ICZMP (Erongo Baseline Report, 1996).

The Baseline Report will be supplemented by 12 individual dissertations, each written in partial fulfillment of a Masters of Philosophy degree in Environmental and Geographical Science. Dissertation topics relate to issues which arose during the compilation of the

Baseline Report. All 12 dissertations, upon completion, will be submitted to DANCED so that the information presented in each can assist the formulation of the intended ICZMP.

2.2 IEM principles applied in the Baseline Report

Principles of Integrated Environmental Management (IEM) guided the process of information gathering and report writing. Some of the basic principles of IEM which informed the Baseline Report are the following: a broad meaning given to the term 'environment' (to include physical, biological, social, economic, cultural, historical and political components); an open participatory approach; and consultation with interested and affected parties (Department of Environmental Affairs, 1992a). A brief discussion follows of how these principles were given effect to in the Baseline Report.

The aim of IEM is to ensure that the environmental consequences of development proposals are adequately considered in the planning process (Department of Environmental Affairs, 1992a). Consequences of development proposals do not only include biophysical consequences, but socio-economic consequences as well. Because of this, IEM uses the term 'environment' in its broad sense, to encompass biophysical and socio-economic components (Department of Environmental Affairs, 1992a). Even though the Baseline Report was compiled in order to assist the formulation of an ICZMP, and not a development proposal, the principle is equally applicable. This is because the philosophy behind the principle remains unchanged, regardless of context. As such, the principle was adhered to in the compilation of the Baseline Report, and the report was not approached from a solely biophysical perspective. Developmental needs, social concerns and economic considerations were also investigated, and were presented in the Baseline Report as factors of as much importance as biophysical considerations.

An open participatory approach was adopted to the writing of the Baseline Report. Key stakeholders and interested and affected parties at national, regional and local level were

consulted throughout the process of compilation of the Baseline Report⁴. Information gathered as result of interviews was relied on extensively in the report.

2.3 IEM Process applied to the Baseline Report

IEM is a process which aims to balance environmental considerations with developmental needs. A procedure has been set out which seeks to ensure that environmental considerations are taken into account when development is planned (Department of Environmental Affairs, 1992a). The IEM process was not intended to have a rigid, set nature, but was intended to be a flexible process, with adherence had to its principles rather than to a said application of it⁵ (Hill & Fuggle, 1988; Hill, Pers.Comm., 28/03/95). This approach allowed the application of the principles of IEM to the Baseline Report.

The approach was also the reason why the process of scoping, which is central to IEM, could be used in the compilation of the Baseline Report. It was the principles of scoping, rather than its application to the field of impact assessment, that were applied to the Baseline Report in the identification of issues which merited investigation. Scoping is defined as a procedure for determining the extent of and the approach to an impact assessment (Department of Environmental Affairs, 1992b). The main purpose of scoping is to focus the impact assessment to ensure that only the significant issues are examined (Department of Environmental Affairs, 1992b).

Report requirements, and guidelines for report writing (Department of Environmental Affairs, 1992c) were referred to in the drafting of the Baseline Report.

⁴ Authorities responsible for coastal zone management on national, regional and local level were interviewed, as well as non government organisations and affected communities. See Appendix 12 of the Erongo Baseline Report (1996) for a list of those interviewed.

⁵ Reference, here, is to the application of IEM to the evaluation of development proposals.

The chapter which follows discusses the methods used in the dissertation.

3. METHODS USED IN DISSERTATION

This chapter describes the methods used to identify the problem which the dissertation relates to; to develop a model to address this problem; and to evaluate the current Namibian situation in regard coastal zone management as envisaged by the dissertation.

3.1 Method used to identify the problem

The problem the dissertation relates to was identified in the course of compilation of the Erongo Baseline Report, and upon consideration of the finished report and literature on the subject of coastal zone management.

In short, a problem of ineffective management of the coastal zone of the Erongo Region was identified. The impediment to effective management of the area was identified as a lack of overall, holistic planning.

3.1.1 Justification of conclusion drawn

The following facts were noted during the writing of the Erongo Baseline Report:

- an absence of inter-Ministerial linkages, which results in poor communication, uninformed decision-making, the duplication of tasks, and in some cases, a failure to address issues of mutual concern;
- the fact that, at local level, management conflicts exist between Ministries;
- the fact that, at local level, conflict regarding development exists between municipalities (the relationship between the municipalities of Swakopmund and Walvis Bay has been subject to conflict because of a difference of opinion on favoured types of development);

- the fact that a plethora of legislation which apply to the coastal zone exist;
- the fact that the current legal framework, because of its fragmented and uncoordinated nature, does not facilitate a knowledge of the set of laws which apply in the coastal zone;
- the fact that the administration of legislation is uncoordinated. This results in a multiplicity of Ministries, with little or no coordination between them, being responsible for the enforcement of a single act (legislation pertaining to pollution control and waste management is administered by at least eight Ministries).

Heydorn, Glazewski and Glavovic (1994) state that the following factors hinder effective coastal zone management: a plethora of legislation and fragmented and uncoordinated administration; legislation not specifically aimed at promoting effective coastal zone management; a multiplicity of authorities involved in various aspects of coastal zone management, with responsibility for specific aspects of legislation.

Given the factors Heydorn, Glazewski and Glavovic mention, and the facts noted during the writing of the Baseline Report, the conclusion was reached that effective management of the coastal zone of the Erongo Region is not occurring. A lack of holistic, overall planning was identified as the cause of the problems experienced.

The findings of the Erongo Baseline Report supports this conclusion. It is stated in the conclusion of the report that only through holistic planning will all issues relevant to the coastal area of the Erongo Region be addressed in a coordinated manner (Erongo Baseline Report, 1996). It is also stated that planning in such an integrative manner is not presently being implemented in the area (Erongo Baseline Report, 1996).

3.2 Method used to develop a model to address the problem

The method used to develop a model to address the problem of ineffective coastal zone management in the Erongo Region was a literature review of coastal zone management tools, and interviews held with acknowledged coastal zone management experts. Each of these methods is discussed in the following section.

3.2.1 Literature review of coastal zone management tools

The problem which the dissertation concerns is the effective management of the coastal zone of the Erongo Region. Ways in which coastal zone management is currently achieved around the world in developed and developing countries were investigated, by way of literature review. It was noted that, generally, management of the coastal zone is effected through the use of tools such as,

- environmental assessment (such as environmental impact assessment, and strategic environmental assessment); and
- plans (such as regional plans, coastal zone management plans, special area plans, coastal area permit programs, critical area designations, structure plans, and town planning schemes).

(Sansom, 1984a; Allen, 1984; Council for the Environment, 1989a; Watermeyer Prestedge Retief, 1994; Sowman, 1994 citing Brandani and Schnack, 1987; Sowman, 1994; Pappas, Post & Lundin, 1994).

Literature on, and practical examples of, coastal zone management tools was reviewed (see Section 4.2). In short, the literature reviewed in this regard provided the base from which the Management Framework proposed in the dissertation was developed.

3.2.2 Interviews

Interviews were held with acknowledged experts (one of which has more than 20 years experience in the professional field of coastal zone management⁶). Interviews were held in order to gain insight into coastal zone management in practice, to enhance what would otherwise have been a purely theoretical review of the discipline. The insight gained as a result of interviews was used extensively in the development of the Management Framework suggested in the dissertation (interviews held with Mr Muller Coetzee (Watermeyer Prestedge Retief, Cape Town) and Mr Erik Botha (CSIR, Stellenbosch), in particular, were very helpful in this regard). A list of interviewees is presented after the References List.

3.3 Method used to evaluate the current Namibian situation

The method used to evaluate the Namibian situation in regard coastal zone management as envisaged by the dissertation, was an application of the Management Framework presented in the dissertation to the current management approach in Namibia.

The chapter which follows discusses the development of the Coastal Zone Management Framework presented in the dissertation. The framework was developed through a literature review of coastal zone management, and an account is given of the literature reviewed.

⁶ The interviewee referred to is Mr. J.D.M. Coetzee, of Watermeyer Prestedge and Retief, Cape Town, South Africa.

4. DEVELOPMENT OF THE CZM FRAMEWORK PROPOSED IN DISSERTATION

This chapter presents the findings of a literature review undertaken of integrated coastal zone management, and of coastal zone management tools. The literature reviewed provided the base from which the Coastal Zone Management Framework proposed in the dissertation was developed. Finally, an explanation is given of the fact that a Management Framework was developed to address the problem of ineffective coastal zone management in the Erongo Region.

4.1 Literature review of integrated coastal zone management

The purpose of this section is to define integrated coastal zone management, and to list the aims and objectives thereof. Thereafter, characteristics of a comprehensive CZM programme are examined, and the functional components of CZM are discussed.

4.1.1 Definition, Aims and Objectives of ICZM

Terms such as coastal management, coastal resources management, coastal zone management, and coastal area management and planning are used interchangeably to describe the activity of managing a coastal area or resource (Sowman, 1994). The term integrated coastal zone management (ICZM) encompasses all these meanings⁷ (Sowman, 1994 citing CAMPNET, 1991).

⁷ The terms integrated coastal zone management (ICZM) and coastal zone management (CZM) are used interchangeably in the dissertation.

CAMPNET (1991) defines ICZM as *"a dynamic process in which a coordinated strategy is developed and implemented for the allocation of environmental, socio-cultural and institutional resources to achieve the conservation and sustainable use of the coastal zone"*.

Watermeyer Prestedge Retief (1994) defines coastal zone management (CZM) as an ordered process which allows informed decisions to be made and implemented, and the results to be monitored, so as to promote sustainable development⁸ of the coastal zone in the interest of the public at large.

According to the Council for the Environment (1989a), the overall aim of CZM is to ensure that development in the coastal zone is regulated in a manner which benefits the greatest number of people possible, while at the same time safeguarding the intrinsic environmental features and ecological processes of the coast.

In short, the objective of CZM is to provide a balance between the protection of the quality of the environment and providing for the social and economic needs of people (O'Brien, 1984; Watermeyer Prestedge Retief, 1994). Thus, CZM encompasses the concept of both optimal utilization and protection of the coastal environment (Council for the Environment, 1989a).

Generally, comprehensive coastal zone planning and management depend on factors such as sound land-use planning; the establishment of a close relationship between land-use planning and resource management; and the integration of management planning with coastal engineering, soil conservation and development control mechanisms (O'Brien, 1984; Sansom, 1984b; Council for the Environment, 1989a; Watermeyer Prestedge Retief, 1994).

⁸ Sustainable development in this context means a way of improving the quality of human life while living within the carrying capacity of supporting ecosystems.

Management strategies employed in countries around the world to further ICZM efforts include the following:

- national economic planning
- sectoral planning
- regional planning
- land-use planning
- environmental impact assessment
- resource conservation and management
- special area planning, critical area protection
- the acquisition of coastal land which has conservation value or which is needed to achieve the goals of coastal planning proposals
- environmental guidelines
- shoreline restriction
- participation in the Regional Seas Programme⁹
- public participation
- coastal environmental education and awareness
- research and information (atlases and data banks).

(Sowman, 1994 citing Brandani & Schnack, 1987)

Of these strategies, the most commonly employed in developing countries have been sectoral planning, environmental impact assessment, designation of protected areas, environmental guidelines, shoreline restriction, and coastal atlases and data banks (Sowman, 1994).

⁹ This programme, initiated by the United Nations Environmental Programme, is concerned with the development of an action plan to address transboundary issues such as coastal and marine pollution (Sowman, 1994).

4.1.2 Key Characteristics of a comprehensive Coastal Zone

Management programme

Effective management depends on the extent to which functions are integrated, coordinated and subject to overall planning (Sansom, 1984b). Effective coastal management usually involves the development of a coherent national coastal zone management system, in the form of an ICZM programme (Watermeyer Prestedge Retief, 1994; Sowman, 1994).

A comprehensive ICZM programme has the following features (Watermeyer Prestedge Retief, 1994 citing Sowman, 1992; Watermeyer Prestedge Retief, 1994; Sowman, 1994):

- an overall policy statement which determines the nature and direction of any decision which may impinge upon the coastal environment;
- a clear definition of the boundaries of the coastal zone;
- an overall coordinating agency for all coastal zone matters¹⁰;
- a management strategy which indicates how stated goals and objectives may be achieved;
- institutional arrangements for the implementation of the policy statement and management strategy;
- a system to evaluate the extent to which the CZM programme is achieving its policies and objectives.

The tables below list some of the key factors contributing to the success or failure of CZM programmes in both developed and developing countries around the world.

¹⁰ According to Sansom (1984) and Watermeyer Prestedge Retief (1994), it is essential that a mechanism be developed to coordinate the formulation, implementation and review of the various components of a CZM programme.

Table 1: Factors contributing to success of CZM Programmes in developed and developing countries around the world.

Factors contributing to success	State/Country
1. Single body with overall coordinating responsibility	Oregon, Washington
2. Local government involved in policy-making, with training programmes and checks on land allocation procedures	Australia, Washington
3. Incentive, rather than strict regulatory-based approach	California
4. Focus on issues widely perceived as relevant	Ecuador, Philippines
5. Multi-faceted environmental education programme, including training of personnel and capacity-building	West Africa, Philippines, Queensland
6. Financial and legislative backing for implementation of programmes	Sri Lanka, California
7. Ongoing monitoring and assessment of programme	Australia, Ecuador

(Source: Watermeyer Prestedge Retief, 1994).

Table 2: Factors contributing to failure of CZM Programmes in developed and developing countries around the world.

Factors contributing to failure	State/Country
1. Lack of a central coordinating agency	Philippines
2. Excessive responsibility to local governments with a lack of expertise and a poor conservation record	Australia, Oregon, Washington
3. Lack of involvement and education of local communities and coastal managers on the ground	Mediterranean, Sri Lanka
4. Too much focus on issues not central to the livelihood of local communities, not perceived as crucial	Sri Lanka
5. Insufficient financial contributions by national governments	Philippines, West Africa, East Africa
6. Research not made available to coastal or translated into concrete management strategies	Mediterranean
7. Lack of commitment by government, failure to develop clear objectives in relation to national development plans	East Africa, Philippines

(Source: Watermeyer Prestedge Retief, 1994).

In summary, then, key characteristics of some of the more successful CZM programmes around the world are that,

- they are tailored to suit the needs and objectives of a specific country's coast¹¹;
- they are issue orientated and issue-driven;
- they have a strong lead body responsible for overall coordination;
- there exists strong political will on the part of the administrator and legislature.

(Watermeyer Prestedge Retief, 1994 citing Sorensen, 1990; Watermeyer Prestedge Retief, 1994 citing Sowman, 1993; Watermeyer Prestedge Retief, 1994)

Furthermore, according to Watermeyer Prestedge Retief (1994), it is important that CZM efforts receive ongoing review and revision. Because CZM is an ongoing process aimed at implementing policy, it is important that CZM efforts receive review and revision both in terms of policy formulation and policy implementation. Ecological variability and social changes render once-off planning and management efforts obsolete after a short time interval.

The information presented in the afore-going section, and in Tables 1 and 2, was used to develop the components of the Coastal Zone Management Framework presented in the dissertation (see Chapter 6 in this regard).

4.1.3 Functional components of CZM

One of the key elements of a comprehensive CZM programme is an overall policy statement which determines the nature and direction of any decisions which may impinge upon the coastal environment¹² (Watermeyer Prestedge Retief, 1994 citing Sowman, 1992). In the view of Watermeyer Prestedge Retief (1994 citing Sowman, 1993), the key

¹¹ However, while it may be important to compile a nation-wide coastal zone management programme, bio-geographic and cultural differences must be taken into account, and reflected in regional policies and plans.

¹² See Section 4.1.2 in this regard.

shortcoming in the process of declaring and formally implementing a CZM programme has often been the absence of this policy framework within which various CZM efforts can be guided.

Watermeyer Prestedge Retief (1994) states that the policy objectives for CZM should be phrased in terms of the functional components of CZM in order to ensure that the policy will be implementable. Thus, it becomes important to identify the functional management components in terms of which a future CZM policy should be formulated in order to ensure that it will be implemented.

4.1.3.1 Primary and Secondary Functions of CZM

The primary functional components identified for CZM include :

- Coastal Planning
- Development Assessment and Regulation
- Day to Day Management

(Watermeyer Prestedge Retief, 1994; Council for the Environment, 1994).

Coastal Planning refers to *"the process of determining the preferred allocation of different human activities in the coastal zone. In this context reference is made to coastal planning in terms of spatial parameters and/or economic criteria, on large scale (national and regional) with a long time horizon (e.g. more than 5 years). This component can be considered as the key to successful implementation of the other two primary functional components. Efforts in the past, aimed mainly at urban and regional planning at provincial and local level, did not take any significant account of ecological principles (Fuggle & Rabie, 1983). Thus, environmentally based land-use planning which reflects the wishes of affected communities, is considered a prerequisite for successful coastal zone management."* (Watermeyer Prestedge Retief, 1994).

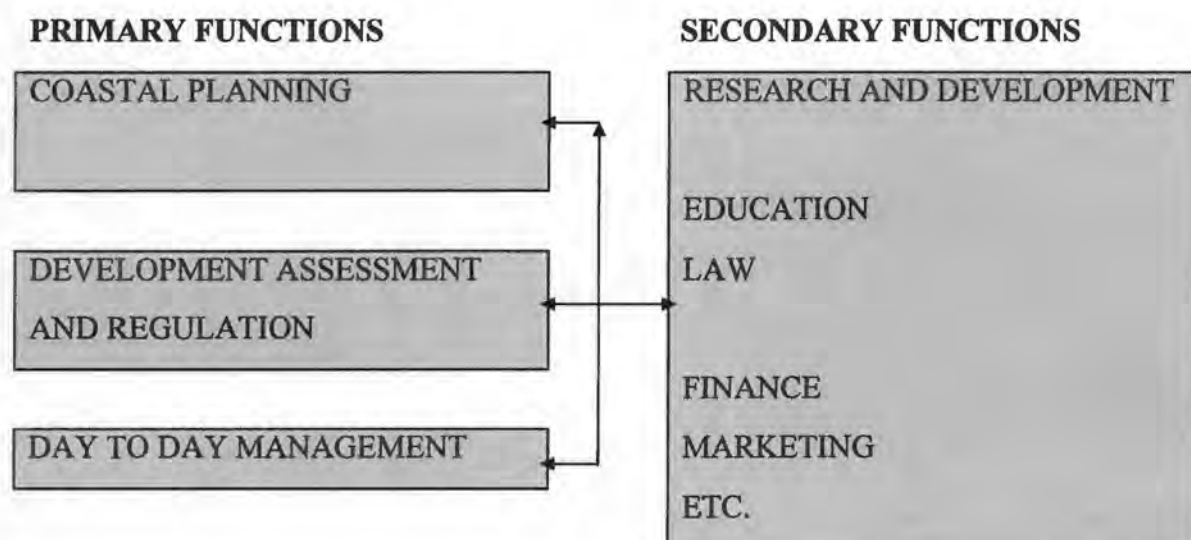
Development Assessment and Regulation refer to *"the process of restricting and/or promoting various human activities within the framework of coastal planning. Where no coastal planning effort has been initiated, consideration should nonetheless be given to the wider planning implications of development proposals or application for a change in coastal resource use. The philosophy of Integrated Environmental Management (IEM) constitutes an important tool in this regard (DEA, 1992)." (Watermeyer Prestedge Retief, 1994).*

Day to Day Management refers to *"the process of maintaining and rehabilitating or restoring where necessary or appropriate, coastal resources; and administering and regulating human activities having a potential impact on those resources." (Watermeyer Prestedge Retief, 1994).*

These primary functions of CZM are supported by and interact with a range of support and enabling functions such as Research and Development, Education, Law, and Finance (Watermeyer Prestedge Retief, 1994).

Figure 1, on page 30, illustrates the various inter-related functional components of CZM. The primary functions of CZM are referred to in the dissertation as the three 'pillars' on which CZM rests.

Figure 1: Functional Components of Coastal Zone Management.



(Watermeyer Prestedge Retief, 1994).

4.2 Literature review of coastal zone management tools

Generally, management of the coast is effected through the use of tools such as environmental assessment, and plans¹³ (Sansom, 1984a; Allen, 1984; Council for the Environment, 1989a; Watermeyer Prestedge Retief, 1994; Sowman, 1994 citing Brandani and Schnack, 1987; Sowman, 1994; Pappas, Post & Lundin, 1994). These tools are used to effect the primary functions of CZM, i.e. the tools are used in coastal Land-Use Planning, Development Control, and Day to Day Resource Management.

While some coastal zone management tools relate to only one functional component of CZM, the use of others is not so restricted. For example, while Coastal Policy Plans are

¹³ See Section 3.2.1 in this regard.

used to effect Land-Use Planning; environmental assessment is used in both Land-Use Planning, and in Development Assessment and Regulation.

Examples of coastal zone management tools which relate to each of the three primary functional components of CZM are discussed below. Time restraints allowed only an explanation of examples of each, and not of all the tools mentioned afore in Section 3.2.1.

For Land-Use Planning, the following coastal zone management tools are examined: Strategic Management Plans, Coastal Policy Plans, Structure Plans, Town Planning Schemes, Strategic Environmental Assessment, Coastal Zone Management Plans, and Integrated Environmental Management.

For Development Assessment and Regulation, the following coastal zone management tools are examined: Town Planning Schemes, Strategic Environmental Assessment, Environmental Impact Assessment, and Integrated Environmental Management .

For Day to Day Resource Management, the following coastal zone management tools are examined: Environmental Management System, Coastal Zone Management Plans, and Integrated Environmental Management.

Each of these management tools are discussed, in turn, in the section which follows. The discussion of the tools will give the reader insight into the theoretical background which was used to develop an effective way of managing the coastal zone of the Erongo Region.

4.2.1 Strategic Management Plans

Strategic Management Plans are used to effect Coastal Planning ('pillar' one of the three primary functional components of CZM).

Schnyder (Pers.Comm., 1996) states that currently no set definition of this type of plan exists, and that because of this, the definition of it is open to interpretation. Claasen and Milton (1994) define strategic planning as "*a systematic way to manage change and create the best possible future - a creative process for identifying and accomplishing the most important actions in view of strengths and weaknesses, threats and opportunities*". In short, it is seen as a method by means of which problems can be analysed, and a mechanism for addressing these problems can be created. In the discussion below, further explanation of strategic management plans is drawn from a practical example.

An example of a strategic management plan found in practice is *The Strategic Plan For The Management Of The Coastal Zone Of The Masoala Peninsula Of Madagascar* (Odendaal, Kroese and Jaomanana, 1995). The purpose of this report was to provide guidelines for the effective management of the coastal zone of the Peninsula. The plan provides broad guidelines for the following:

- the writing of specific management plans for the different coastal resources of the Peninsula,
- the management of ecosystems, such as mangrove forests and seagrass beds,
- the management of fishing resources,
- the management of marine reptiles and mammals,
- reserve management, and
- the development of a responsible ecotourism industry.

The plan suggests a management strategy which, if it is implemented, seeks to ensure the sustainable use of resources on the Masoala Peninsula. In the plan, current management

issues and problems are noted, and management objectives for each of these are stated. Based on the management objectives, guidelines and recommendations for effective management of the resource are developed.

It is important to understand that the strategic plan, with its guidelines, is not a substitute for specific and detailed management plans (Odendaal et al, 1995). It is simply a way of setting an effective management strategy in place, which should then be used to develop specific management plans for the different coastal resources of a region.

In practice, then, it seems that strategic management plans have been used to analyse management issues and problems, and to provide guidelines for the better management of the problems experienced. Its role is to guide the action intended to alleviate management problems.

4.2.2 Coastal Policy Plans

Coastal Policy Plans are used to effect Coastal Planning ('pillar' one of the three primary functional components of CZM).

In South Africa, a Coastal Policy Plan is used to effect comprehensive future planning of a specific coastal area. Policy is used in the plan to guide the decision maker in the planning of future development (Muizenberg to Monwabisi: Coastal Policy Plan, City of Cape Town, 1987). General policy is set out on future development in the area subject to the plan. A detailed analysis of the area is made and within the framework of the policies set out, detailed proposals for future development are developed. Thus, the detailed proposals suggested in the plan are a consequence of the application of a set of general policies to the area (Muizenberg to Monwabisi: Coastal Policy Plan, City of Cape Town, 1987).

This type of plan does not set policy in general, but only sets policy for the area it concerns.

The *Muizenberg to Monwabisi: Coastal Policy Plan* (City of Cape Town, 1987) is an example of a Coastal Policy Plan. The plan was drawn up with the aim in mind of guiding the Cape Town City Council in the planning of recreational development along the coastal area between Muizenberg and Monwabisi. The plan has the following format. Firstly, it provides a detailed description of the area and identifies the opportunities and constraints for future recreational development. It then presents a set of general policies and proposals as an overall guide to future planning and environmental management. Lastly, the detailed proposals for future development and environmental management of the area are set out. To summarize, general policies on issues such as development and environmental management provided the framework within which specific proposals for future development and management were developed. Hence, policy was used to inform and guide the decision-making process.

The *Muizenberg to Monwabisi: Coastal Policy Plan* illustrates the use of policy to influence and guide the planning of future development in an area.

4.2.3 Structure Plans

Structure plans are used to effect Coastal Planning ('pillar' one of the three primary functional components of CZM).

A structure plan (guide plan) is a town planning management tool which is less regulatory and control orientated, and more flexible and future orientated, than a town planning scheme (Simon, 1995). A structure plan is not a statutory document like a town planning scheme and is not required by law (Simon, 1995). Hence, it does not confer or withdraw land-use rights (Sowman, 1994).

The purpose of a structure plan is to provide guidelines (formulate policy) for the future development of the area to which it relates (Sowman, 1994; Fuggle & Rabie, 1994; Simon, 1995). A structure plan indicates broadly and conceptually the form future development should take, and the areas to be conserved (Sowman, 1994). In setting out development policy for an area, it establishes a framework for consistent and rational decision making (Sowman, 1994; Simon, 1995).

In South Africa, structure plans have been used at a local and sub-regional level (Watermeyer Prestedge Retief, 1994; Sowman, 1994; Fuggle & Rabie, 1994).

In short, structure plans are used to effect forward planning by indicating the form which future development should take in an area.

4.2.4 Town Planning Schemes

Town Planning Schemes are used to effect Coastal Planning, and Development Assessment and Regulation ('pillars' one and two, of the three primary functional components of CZM).

Town Planning Schemes are statutory plans. A statutory plan is a legal document enforceable by law and binding on the local authority, the State and the inhabitants living in the area covered by such a plan (Simon, 1995).

Town Planning Schemes (zoning schemes) are used in development and land-use control. A local authority prepares a town planning scheme in order to obtain a comprehensive policy framework for the physical structure of the town, its land-use zones and the direction of its future development (Simon, 1995). This policy framework is used to ensure the harmonious development of the town and the control of future development (Simon, 1995). Town Planning Schemes only apply to urban land (Sowman, 1994), and

confer legal rights to property owners to develop land according to the purpose it was zoned for (Sowman, Pers.Comm., 17/04/96).

In short, then, the general purpose of Town Planning Schemes is to indicate for what purpose land may be legally utilized, and through scheme regulations, determine the manner and scale of development that may be permitted in each zone (Sowman, 1994).

Town Planning Schemes have not always served the interest of environmental conservation (Sowman, 1994). This is because most schemes were compiled when awareness of environmental issues was limited, which resulted in many inappropriate zonings which persist today (Sowman, 1994). Another criticism which has been leveled against Town Planning Schemes is that the emphasis of these schemes is on land-use control, and not forward planning (Sowman, 1994).

4.2.5 Strategic Environmental Assessment

Strategic Environmental Assessment (SEA) can be used in Coastal Planning¹⁴, and in Development Assessment and Regulation ('pillars' one and two, of the three primary functional components of CZM).

Strategic Environmental Assessment is a process by which environmental implications are integrated into decision-making above the project level (Goodland & Tillman, 1995). Goodland & Tillman (1995) argue that because of the extent to which environmental quality has deteriorated in so many parts of the world, the project-by-project approach of conventional environmental assessment is no longer sufficient to ensure prudent environmental standards. SEA extends environmental assessment into non-traditional areas such as entire sectors; policies and programmes; structural adjustment;

¹⁴ The dissertation extends the use of SEA to Coastal Land-Use Planning. See Sections 6.2.2.1 and 6.2.4.1 in this regard.

privatization; international treaties; and national budgets (Goodland & Tillman, 1995).

The following is a list of basic steps in SEA¹⁵ (UNDP, 1995):

- The objectives, and the priorities, of the policy, plan, programme, project are listed; and constraints are identified.
- Scoping occurs¹⁶, and existing environmental issues / problems, and protection objectives are analyzed.
- Feasible options for planning decisions are specified, and the environmental consequence of each option is identified.
- Consultations with key stakeholders are undertaken to obtain their views on the SEA before a decision on implementation is made.
- Measures to mitigate significant environmental impacts are identified, and the preferred option is suggested.
- Any monitoring necessary is set up.
- Finally, areas of difficulties and uncertainties are identified.

The extension of environmental assessment into policy, plans and programmes has begun in developed countries, although not yet commonplace (Goodland & Tillman, 1995). Goodland and Tillman (1995 citing Wilson, 1993) notes that SEA has been used most successfully in water supply, civil aviation, power supply and waste disposal. The record for developing countries is scant, because financial and human resource constraints hamper adoption of SEA (Goodland & Tillman, 1995). Namibia is an example of a developing country who has, in its Environmental Assessment Policy, stressed the need for the environmental assessment of programmes and policies (Republic of Namibia, 1994).

¹⁵ These steps are used in Sections 6.2.2.1 and 6.2.4.1 as part of the SEA process suggested in the Management Framework proposed in the dissertation.

¹⁶ Scoping is a procedure for narrowing the scope of an assessment, and ensuring that the assessment remains focused on significant issues or impacts (Department of Environmental Affairs, 1992d).

Sectoral Environmental Assessment, the most common form of SEA, offers an opportunity for sector-wide environmental analysis before development priorities have been determined (Kjorven (ed.), 1993). It involves an examination of the potential environmental and social implications of the development projects proposed for a sector¹⁷ (Goodland & Tillman, 1995). Goodland & Tillman (1995) state that the strength of Sectoral Environmental Assessment lies in the fact that it helps rank potential development projects in an environmental sequence, so that environmentally better projects are taken up before environmentally weaker projects.

While project-level environmental assessment can not influence project selection within a sector, Sectoral Environmental Assessment assists in project selection. Sectoral Environmental Assessment does so by providing an environmental ranking of all the proposed projects in a sector before pre-feasibility (Goodland & Tillman, 1995). It begins with a development objective, and then evaluates the numerous possibilities of meeting the stated objective (Goodland & Tillman, 1995). For example, instead of beginning with a pre-conceived proposal of a 200 MW coal-fired power plant at spot "x" on the map, a Sectoral Environmental Assessment of the power sector would begin with the premise of meeting projected power needs by optimal methods, including energy conservation and development of renewable energy (Goodland & Tillman, 1995). Sectoral Environmental Assessments reduce the costs of subsequent project-level environmental assessments, but do not obviate the need for them (Goodland & Tillman, 1995; McDonald, 1995).

In short, Strategic Environmental Assessment is pro-active, and involves the integration of environmental concerns into development planning before development priorities have been finalized.

¹⁷ For instance, the power sector, the transport sector, the mining sector, the agricultural sector, and so on.

4.2.6 Environmental Impact Assessment

Environmental Impact Assessment (EIA) is used in Development Assessment and Regulation ('pillar' two of the three functional components of CZM).

The use of Environmental Impact Assessment as a planning and management tool is common practice in many developed and developing countries around the world¹⁸ (Sowman, 1994). There is no universally accepted definition of EIA, but most definitions suggest that EIA is a procedure concerned with the identification, assessment, and communication to decision makers, of the environmental consequences of development projects, plans, programmes, and policies (Sowman, 1994).

In short, the primary purpose of EIA is to ensure that the environmental implications of development proposals inform the planning and decision-making process. The following key principles underpin the stated purpose of EIA (Sowman, 1994):

1. *Full disclosure of information relevant to the proposed action, its impacts and implications;*
2. *Effective involvement of the public throughout the planning, assessment and decision-making process;*
3. *Consideration of alternative courses of action to meet the stated need of the proposal;*
4. *Integration of environmental considerations and community concerns throughout the planning and decision-making process;*
5. *Accountability for decisions taken;*
6. *An iterative process involving feedback of EIA findings and modifications to the planning and design stages."*

¹⁸ Developed and developing countries which use EIA as a tool of environmental management include the United States of America, the Netherlands, Germany, Australia, India, Namibia, Botswana, Malawi, Swaziland, Zambia and Tanzania (UNEP, 1994, Roe, Dala-Clayton & Hughes, 1995).

In contrast to this, the main focus of EIA in developing countries has been the identification of impacts and possible mitigatory measures of courses of action already decided upon (Sowman, 1994 citing Moreira, 1988).

Sowman (1994), in a review of the practice of EIA in developing countries, states shortcomings which reduce the effectiveness of EIA as a coastal zone management tool.

These include the following:

- weaknesses inherent in the EIA process itself, such as procedural and methodological inadequacies. For example, an inadequate consideration of alternatives, insufficient attention given to a consideration of the positive impacts of development proposals, and lack of public participation at various stages of the EIA process;
- the practice of undertaking EIA as a separate activity from the planning process;
- undertaking project specific EIAs in the absence of broader policies, programmes and plans which have themselves been subject to environmental evaluation;
- weaknesses in the application of EIA, including lack of political will, inadequacies in the institutional arrangements for implementing EIA, shortage of appropriately trained staff, as well as limited resources, technical competence and data.

(Sowman, 1994 citing Biswas & Geping, 1987; Sowman, 1994 citing Rees, 1988; Sowman, 1994 citing Lee & Colley, 1990; Sowman, 1994 citing Sorensen & West, 1992)

To conclude, the rationale for advocating the use of EIA in coastal zone management has been that the application thereof will lead to a more sustainable use and development of coastal areas and resources (Sowman, 1994). However, in practice, the influence of EIA on the planning and design process in developing countries has been negligible, and Sowman (1994) argues that the practice of EIA has to be strengthened first to address the shortcomings listed above, before it will become an effective tool of coastal zone management.

4.2.7 Environmental Management System

Environmental Management Systems (EMS) are used in Day to Day Resource Management¹⁹ ('pillar' three, of the three primary functional components of CZM).

The British Standards Institution (1992) defines an Environmental Management System as the "*organizational structure, responsibilities, practices, procedures, processes and resources for implementing Environmental Management*". The International Organisation for Standardisation (ISO) (1995) defines EMS as "*that part of the overall management system which includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy*". An EMS enables an organisation to establish procedures to set an environmental policy and objectives, achieve compliance with them, and demonstrate such compliance to others (ISO, 1995). The success of a system of this kind depends on commitment from all levels, especially from the highest level of management (Seman, 1995).

International environmental management standards, such as the British Standard (BS 7750) and the European Community standard (EMAS), provide organisations with a methodology to effectively initiate, improve or maintain EMSs (Seman, 1995). The standards act as guidelines, and provide organisations with the elements of an effective environmental management system (ISO, 1995). These elements are,

- a stated environmental policy (such a policy would set the desired level of environmental performance);
- an organisational structure (the responsibilities, authority, lines of communication, and the resources needed to implement the EMS are determined and set out);

¹⁹ For example, if a company proposes the mining of a sand dune complex in the coastal zone for its mineral content, authorities may suggest that the mining company put an EMS in place to guide the day to day business activities on ground level (whether it be construction activities, or management activities). In so doing, the EMS will guide the day to day management of the resource, and is thus used in coastal zone management. See Section 6.2.5.3 for an illustration of the use of EMS as a coastal zone management tool.

- an environmental management programme (this programme stipulates environmental objectives and targets to be met and work instructions and controls to be applied in order to achieve compliance with the environmental policy);
- periodic audits and reviews of the environmental performance of the organisation, and of the effectiveness of the EMS.

(Kilbert, 1994; Hill, Bowen, Bergman, & O'Beirne, 1994; ISO, 1995)

Standards of environmental performance are not imposed on organisations from without, but are set by organisations for themselves (ISO, 1995). However, compliance with applicable legislation and a commitment to the continuous improvement of environmental performance are required (ISO, 1995; Seman, 1995).

In short, an EMS aims to integrate environmental concerns into business activity. It is a tool which enables an organisation to achieve and systematically control the level of environmental performance that it sets itself (ISO, 1995).

4.2.8 Coastal Zone Management Plans

Coastal Zone Management Plans are used to effect Coastal Planning, and Day to Day Management ('pillars' one and three, of the three primary functional components of CZM).

A Coastal Zone Management Plan is action orientated (Ramboll, 1995). It is a tool for management of the coastal zone, the application of which varies. This is shown by the discussion below, which illustrates the use of Coastal Zone Management Plans at a local level to address specific problems experienced in an area; and at a regional and national level to provide a broad coordinating mechanism for coastal management efforts:

O'Brien (1984), Western Australia, views the role of Coastal Management Plans as that of addressing specific local issues.

According to O'Brien (1984), in order to achieve the goals of CZM, a close relationship has to be established between land-use planning and resource management. He argues that it is through the medium of a Coastal Zone Management Plan that land-use planning and resource management are fused together as an effective tool of development control and resource protection (O'Brien, 1984). He states that a Coastal Zone Management Plan guides the development of a particular area (O'Brien, 1984). Specifically, it provides guidance on matters such as subdivision and development control, works programmes, road construction, regulation of off-road vehicles, declaration of soil conservation districts, creation of marine reserves, and so on (O'Brien, 1984). In order to perform this role, the provisions of a Coastal Zone Management Plan have to be more extensive than that of a conventional Land-Use Plan or Town Planning Scheme:

" In addition to establishing a pattern of zones and reservations, coastal management plans make specific management recommendations necessary to achieve objectives for the utilisation, conservation, protection or restoration of coastal resources." (O'Brien, 1984).

The Sri Lanka Coastal Zone Management Plan (Sri Lanka Coast Conservation Department, 1990) is an example of a Coastal Zone Management Plan which addresses specific problems experienced at the local level. The plan addresses the problem of coastal erosion. Watermeyer Prestedge Retief (1994) states that it does so by regulation of development activities; construction of protection works against erosion; research into particular problems; coordination of different agencies' activities; education to mobilize public support for management measures; and by plan and policy development of new actions, guidelines and area-specific plans.

Sansom (1984a) agrees with O'Brien on the role of Coastal Zone Management Plans, but adds that there needs to be an overall assessment of coastal resources and likely management needs. Thus, he states that Coastal Zone Management Plans, in addition to addressing specific local issues, should provide a regional context and a broad coordinating mechanism for management and funding programmes.

In the Philippines, a regional context is provided by Coastal Zone Management Plans. Coastal zone management in the Philippines is called Coastal Resources Management. Coastal Resources Management Plans are drawn up for each province in the country (Watermeyer Prestedge Retief, 1994 citing White and Lopez, 1991). The Plans are generated through site-specific planning processes in twelve priority bay areas, based on ecological, cultural, legal and institutional assessments (Watermeyer Prestedge Retief, 1994). The Coastal Resources Management Plans define management problems and their causes, and formulate policies and strategies for each province (Watermeyer Prestedge Retief, 1994).

The Council for the Environment (1989a), South Africa, states that regional coastal management should take place within the framework of a national CZM Plan. It is argued that this will allow cohesive coastal zone management for the country as a whole (Council for the Environment, 1989a).

Brazil is an example of a country which adopted the framework of a national CZM Plan in order to manage their coastal zone. In 1988, the Brazilian government established a National Coastal Zone Management Plan, comprising national policies for the Environment and for Sea Resources (Watermeyer Prestedge Retief, 1994). Each state has the power to develop its own Coastal Management Plan, but all plans must fit in with a common methodology established at the national level (Watermeyer Prestedge Retief, 1994). Further decentralization is achieved by using Regional Councils to make decisions about resource management and projected uses of areas (Watermeyer Prestedge Retief, 1994).

In short, based on the experience in countries such as Western Australia, Sri Lanka, South Africa, the Philippines, and Brazil, the emphasis placed in practice on Coastal Zone Management Plans has been the use thereof in local scale planning as well as regional, and national scale planning.

4.2.9 Integrated Environmental Management

Integrated Environmental Management (IEM) can be used in Coastal Planning, Development Assessment and Regulation, and in Day to Day Management²⁰ (in all the primary functional components of CZM).

Integrated Environmental Management is a generic procedure developed in South Africa for integrating environmental considerations into the planning and decision-making process (Sowman, 1994). IEM provides an overall framework within which the environmental consequences of policies, programmes, plans, and projects may be identified, assessed and communicated to decision makers (Sowman, 1994). The procedure was developed to guide rather than impede the development process (Fuggle & Rabie, 1994). It is aimed at identifying the most appropriate proposal or alternatives, rather than only highlighting the negative impacts associated with a proposal (Sowman, 1994).

The key principles which underpin IEM are that a broad meaning is given to the term 'environment' to include biophysical as well as socio-economic considerations; an open, participatory approach is adopted in the planning process; decision-making is informed;

²⁰ IEM principles and process can be applied to Coastal Planning Development Assessment and Regulation, and to Day to Day Resource Management. Because it sets an approach to environmental planning and decision-making, it is relevant to all three primary components of CZM. Both the principles which underpin IEM, and IEM process, can be used to guide coastal zone planning and management.

and that there is accountability for decisions taken (Department of Environmental Affairs, 1992a).

4.3 Reason for developing a CZM framework

Currently, management of the coastal environment of the Erongo Region is fraught with difficulty because of a lack of cohesive planning at national and regional level, a multiplicity of agencies responsible for the management of coastal activities, and inadequate environmental legislation (Ramboll, 1995; Erongo Baseline Report, 1996). There is a need for more effective management planning which encourages integrated and coordinated coastal zone management.

Watermeyer Prestedge Retief (1994) and Sowman (1994) state that effective coastal management planning usually involves the development of a coherent coastal zone management system. Sansom (1984b) states that effective planning depends on the extent to which functions are integrated, coordinated and subject to overall planning. In light of these suggestions, a Coastal Zone Management Framework for the Erongo Region is proposed in the dissertation. The aim was to develop a holistic²¹ management framework in order to be able to control development and manage the resources of the Erongo Region in an integrated and coordinated manner. Coastal zone management tools, such as environmental assessment and structure plans, are used at various stages of the framework, but the framework is not restricted to the use of one of these tools. This is because it is felt that use of specific tools of coastal zone management, without overall planning and management framework, will not result in integration and coordination.

In short, an integrated approach to coastal zone management is adopted which involves holistic, overall planning. A management framework is provided into which coastal zone

²¹ Holism, in this context, means the adoption of a systems perspective to coastal zone management. A holistic management framework entails overall planning from national to local level. Sorenson and McCreary (1990) support a systems approach in the formulation of a coastal zone management strategy.

management tools fit. Because the framework facilitates coordination, it gives better voice to the aims of holism and integration than use of tools of CZM by itself.

The chapter which follows describes the development pressures on the Erongo Region of Namibia, and the current manner in which coastal zone management is undertaken. In conclusion, the chapter states a need of more effective CZM in the Region.

5. DEVELOPMENT PRESSURE ON, AND CZM IN, THE ERONGO REGION OF NAMIBIA

This chapter discusses the development pressures which the Erongo Region currently faces, and the CZM structure it has in place to deal with these pressures.

5.1 Development Pressures on the Erongo Region

The human population figures for Swakopmund, Walvis Bay, Henties Bay and Arandis (towns located within the study area) increased from 46 602 in 1991 to 93 500 in 1995 (Erongo Baseline Report, 1996). A major factor causing this increase is the high migration of job-seekers to the study area (Erongo Baseline Report, 1996). A large number of these people migrate from rural areas in Namibia's northern regions, where conditions for employment are not as favourable as in urban areas. Furthermore, the increased industrialisation of Walvis Bay (see below) is expected to increase the number of people migrating to the area (Erongo Baseline Report, 1996). The continuing influx of people, particularly young unemployed males, results in high unemployment levels, housing shortages, and increased crime (Erongo Baseline Report, 1996). The Central Statistics Office (1994) stated that the highest development priorities of the Region are housing and employment creation. The need for housing and employment exert development pressure on the Erongo Region, and it is reasonable to expect increased development activities in the area in future.

The transport infrastructure in the Erongo Region is well developed, and with the completion of the Trans-Kalahari and Trans-Caprivi Highways, increased trade is expected between Namibia and its neighbouring countries (Erongo Baseline Report, 1996). The highways will also allow for increased trading through Walvis Bay Harbour,

enabling it to operate closer to capacity (Erongo Baseline Report, 1996). The harbour will serve Zambia, Zimbabwe, Botswana, southern Angola and South Africa (Erongo Baseline Report, 1996). The study area could experience unprecedented economic development and demographic growth as a result.

It is forecast that the sustainable extraction of water in the study area, from underground aquifers, will not be possible beyond 1997 (Erongo Baseline Report, 1996). As a result, the construction of a desalination plant at Paaltjies, near Walvis Bay, has been recommended and approved (Erongo Baseline Report, 1996). The desalination plant will place an increased electrical demand on the power line supplying Walvis Bay and Swakopmund, which will then have to be upgraded to meet the increased demand (Erongo Baseline Report, 1996).

The economy of the Erongo Region is based primarily on fishing, mining and tourism (Erongo Baseline Report, 1996). These sectors have the potential to expand further in future (see discussion below). Furthermore, the Government is planning to promote these sectors and other industrial development, in a bid to improve the Region's economy, and assist with the creation of job opportunities (Erongo Baseline Report, 1996). Future economic plans for the Region include plans for increased industrial development (an Export Processing Zone (EPZ) for Walvis Bay has been approved by Cabinet) (Erongo Baseline Report, 1996). The discussion which follows discusses fishing, mining, tourism, and the planned EPZ in turn.

Deep-sea fishing is the most important commercial **fishing activity** in the study area (Erongo Baseline Report, 1996). It is foreseen that this industry will expand when Total Allowable Catches are increased²² (Erongo Baseline Report, 1996). The International

²² Total Allowable Catches will be increased once fish-stocks have recovered from the over-exploitation suffered in the past, and once the adverse environmental conditions which have existed since 1993, and which have resulted in a decreased availability of fish, have passed (Erongo Baseline Report, 1996).

Development Corporation (IDC) has stated that the real value of Namibia's fish resources lies in the value adding activities of the secondary sector²³, and that this sector has the potential to create the employment so urgently needed in the country (Erongo Baseline Report, 1996). If the Government gives heed to the IDC's call for development of the fishing related manufacturing industry, the study area will experience an increase in development activity in this regard.

According to the Erongo Baseline Report (1996), the study area is host to a very rich **mineral potential**, much of which has not yet been exploited. In future, a possible increase in mining activities in the study area, depending on world demand, is foreseen (Erongo Baseline Report, 1996). Mining activity in the area could also expand with the planned introduction of local product processing (Erongo Baseline Report, 1996). Other mining activities currently undertaken in the study area include prospecting for heavy minerals in the sand dunes between Swakopmund and Walvis Bay, and exploration for off-shore oil and gas (Erongo Baseline Report, 1996). Should these prospecting activities prove successful, and economically viable deposits of heavy minerals, oil or gas be found, proposals to mine these finds will be made.

The coastal area (Walvis Bay, Swakopmund, and Henties Bay) has experienced a general increase in **tourists** visiting the area (Erongo Baseline Report, 1996). For example, in 1993, a study undertaken by Hoff and Overgaard ranked Swakopmund and Walvis Bay third, after Etosha National Park and Windhoek, in terms of the number of tourists the towns hosted (Erongo Baseline Report, 1996). In 1994, tourist numbers to Swakopmund had increased to such an extent that a similar study undertaken ranked the town second in terms of number of tourists hosted (Erongo Baseline Report, 1996). The coastal area was visited by 90 516 tourists in 1994, and the potential of the area as a tourist destination is expected to expand further in future with increased marketing and improvements to the tourism infrastructure (Erongo Baseline Report, 1996). Furthermore, the Government

²³ The secondary sector comprises of the fishing related manufacturing industry.

intends to promote tourism in the country. Tourism has been declared a development priority sector, and a framework (the White Paper on Tourism, 1994) has been set in place to direct development within the industry (Erongo Baseline Report, 1996). As a result of the above mentioned factors, the tourism industry in the study area can only be expected to grow.

The growth of the tourism industry in the study area has resulted in a growth of service-oriented businesses, such as hotels and restaurants, and wholesale and retail trade industries (Erongo Baseline Report, 1996). Because the growth of the tourism industry in the study area is expected to continue in future, the assumption can be made that the growth of secondary industries (such as car-hire, handicrafts and curios, and so on) can also be expected to continue.

In 1996, Cabinet approved the establishment of an **EPZ** in Walvis Bay. This will result in increased industrial development in the town in future. Typical EPZ activities include the following: the manufacture and export of garments; the assembly of electronic and electrical goods; value-added processing in the agro-industry; mineral beneficiation; and storage and warehousing activities (Erongo Baseline Report, 1996). Furthermore, Henties Bay and Arandis have also applied for EPZ status (Erongo Baseline Report, 1996). Thus, it can reasonably be expected that, in future, the Erongo Region will experience an increase in industrial development.

The Erongo Region is not only experiencing development pressures from without, but also pressures to expand from within. The following examples serve as an illustration of this. The Municipality of Swakopmund plans to improve its tourism and recreational facilities, and is planning a possible marina waterfront development to the north of Swakopmund, and possible development in the Swakop River Bridge Area (Erongo Baseline Report, 1996). The Municipality of Walvis Bay is developing Dolphin Park and Langstrand as a tourism node, and in future further residential and recreational developments can be expected in this area (Erongo Baseline Report, 1996). Furthermore,

should Walvis Bay become a major center for industrialization, the harbour will need to be deepened (Ramboll, 1996). The local authority of Wlotzkasbaken, a holiday settlement with no permanent population, is under pressure to upgrade the settlement's limited infrastructure in order to accommodate recreational demands being made on it. The attractiveness of Henties Bay as a holiday resort and 'retirement village' is resulting in an increase in residential erven being developed along the coastline, and is creating a problem of urban sprawl (Erongo Baseline Report, 1996).

The above-mentioned factors exert development pressure on the Erongo Region. Unless development is planned, managed and regulated in an integrated manner, the danger exists of the over-exploitation of coastal resources, and environmental degradation.

The following section looks at CZM in the Erongo Region in a bid to see whether it has the necessary structure in place to deal effectively with the development pressures the Region faces.

5.2 Coastal Zone Management in the Erongo Region

The success of efforts at coastal zone management in the Erongo Region is to a large extent determined by decisions, and actions, taken at regional and national level. If management planning and management efforts at regional and national level are undertaken in a fragmented and uncoordinated manner, coastal zone management in the Erongo Region will be fraught with difficulties. For this reason, the section which follows looks at management planning and management efforts that have taken place at national and regional level. The section is concluded by reviewing CZM efforts at local level.

5.2.1 Planning decisions and management actions taken at national level

The following section discusses difficulties at national level which act as a constraint on local level efforts to achieve integrated coastal zone management. These difficulties include: a lack of coordination of national level planning, uninformed decision-making, the duplication of tasks, and uncertainty between Ministries in regard jurisdiction over certain issues.

5.2.1.1 Lack of coordinated directives issued from national level

This section focuses on Ministries responsible for land-use and/or natural resource planning and management in order to illustrate the difficulties faced by local level authorities in achieving integrated coastal zone management²⁴. The section firstly lists Ministries responsible for this type of planning and management, and then discusses the forums which Government has created to coordinate the Ministries' decisions and actions.

The following is a list of Ministries involved in land-use and natural resource planning and management²⁵ (not all responsibilities of Ministries are highlighted):

- Ministry of Lands, Resettlement and Rehabilitation, who is responsible for resettling displaced and landless citizens, land administration, and the management and monitoring of resettlement schemes.
- Ministry of Regional/Local Government and Housing, who is responsible for the planning and administration of urban areas, regional land use planning, and the administration of Regional Councils.

²⁴ Not all Ministries are listed whose planning and management activities at national level impact on coastal zone management at local level, see Section 7.1.1 in this regard.

²⁵ Decisions and actions taken at national level influence the success of CZM efforts taken at local level. If these decisions and actions are taken in an integrated and coordinated manner, integrated coastal zone management at local level is facilitated. Coordination of the actions of the Ministries listed in Section 5.2.1.1 and Section 7.1.1 will, to a large extent, determine the success or otherwise of CZM efforts at local level in the Erongo Region.

- Ministry of Agriculture, Water and Rural Development, who is responsible for bulk water supply and water distribution.
- Ministry of Environment and Tourism, who is responsible for promoting sustainable development, protecting biotic diversity, democratising environmental planning, and promoting and managing tourism.
- Ministry of Fisheries and Marine Resources, who is responsible for the sustainable utilization of marine resources, and economic and social development through fisheries.
- Ministry of Mines and Energy, who is responsible for increasing mineral production and energy supply, encouraging mineral beneficiation, and creating employment.
- Ministry of Works, Transport and Communication, who is responsible for providing effective and efficient transport systems, and maintaining transport infrastructure.

(Source: Tarr, 1995)

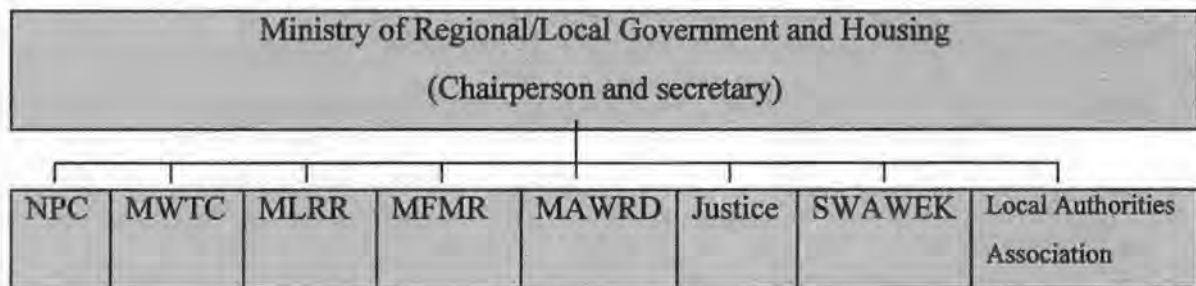
Should the planning and management actions of the above-mentioned Ministries not be coordinated, the potential exists that competing interests will result in discordant decisions, which will make local authority efforts at integrated CZM difficult. The Government, in consideration of the potential overlap with regards to land-use planning within sector Ministries, established the National Planning Commission (NPC) to coordinate all planning (Tarr, 1995). However, in practice the NPC merely compared the planning policies and activities of sector Ministries, and engaged in macro-economic planning for the government as a whole (Tarr, 1995).

This made the appointment of some other coordinating body necessary to address the problem of integration between Ministries. The Government established a number of smaller coordinating bodies to address the problem and to facilitate the necessary integration (Tarr, 1995). These coordinating bodies are the Namibian Planning Advisory

Board (NAMPAB) and the Interministerial Committee for Land-Use Planning (IMSCLUP) (Tarr, 1996).

NAMPAB consists of a maximum of ten members (see Figure 2 below) (Tarr, 1995). The ten members are drawn from the National Planning Commission (NPC); the Ministry of Works, Transport and Communication (MWTC); the Ministry of Lands, Resettlement and Rehabilitation (MLRR); the Ministry of Fisheries and Marine Resources (MFMR); the Ministry of Agriculture, Water and Rural Development (MAWRD); Justice; SWAWEK²⁶; Local Authorities Association; and a chairperson and secretary (Tarr, 1995). NAMPAB receives support from the Division Town and Regional Planning within the Ministry of Regional/Local Government and Housing (Tarr, 1995).

Figure 2: The structure of NAMPAB



(Source: Tarr, 1995)

The functions of NAMPAB are to advise Cabinet on matters relating to town planning, to formulate National Town Planning Policy, to undertake surveys and assign plans, to

²⁶ SWAWEK is the National Electricity Supply agency, which is a parastatal under the Ministry of Mines and Energy (Tarr, 1995).

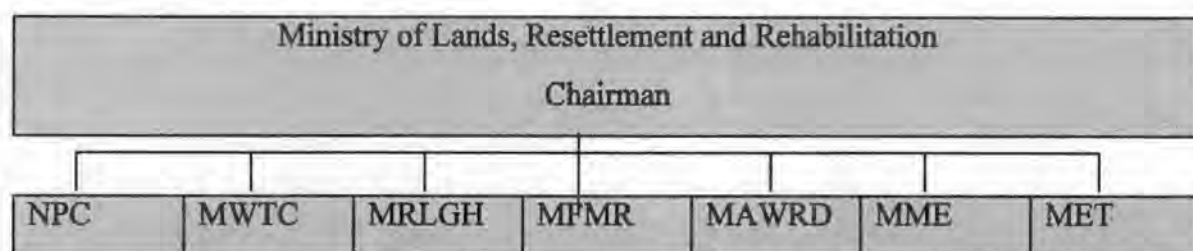
advise and assist local authorities with town planning, to advise Cabinet on the establishment of townships and subdivision of land < 25 ha in extent, and to encourage the study of town and regional planning (Tarr, 1996). NAMPAB's actions have so far been confined to urban planning (Tarr, 1995).

NAMPAB was originally established to coordinate and integrate the land-use planning and management actions of Ministries. However, if one considers the above-mentioned functions of NAMPAB, it seems that the body does not play a coordinating role but has rather become involved in town planning at an urban level. Furthermore, even if in future NAMPAB starts to coordinate Ministerial land-use planning and management, efforts in this regard will prove difficult. This is because two major stakeholders are not represented on NAMPAB, namely the Ministry of Environment and Tourism, and the Ministry of Mines and Energy. The planning and management actions of these Ministries are in as much need of coordination and integration as the planning and management actions of other Ministries who influence land-use planning and management at local level.

The failure of NAMPAB to facilitate the integration of land-use planning in rural areas, prompted the formation of the Interministerial Committee for Land-Use Planning (IMSCLUP) (Tarr, 1995). Tarr (1995) states IMSCLUP was initiated with the objective of coordinating land-use planning as an interim measure.

The IMSCLUP was initiated by the Ministry of Lands, Resettlement and Rehabilitation, and consists of eight members (see Figure 3 below) (Tarr, 1995). The members are drawn from the National Planning Commission (NPC); the Ministry of Works, Transport and Communication (MWTC); Ministry of Regional/Local Government and Housing (MRLGH); the Ministry of Fisheries and Marine Resources (MFMR); the Ministry of Agriculture, Water and Rural Development (MAWRD); the Ministry of Mines and Energy (MME); the Ministry of Environment and Tourism (MET); and a chairperson (Tarr, 1995).

Figure 3: The structure of IMSCLUP



(Source: Tarr, 1995)

The following is a list of IMSCLUP functions (not all of its functions are mentioned): to provide a discussion forum on plans and projects initiated by member Ministries, to exchange information and promote networking, and to assess land-use options and screen proposals (Tarr, 1995).

Unlike NAMPAB, the functions of IMSCLUP enable it to act as a coordinating body with regard to Ministerial land-use planning and management. Furthermore, the two Ministries (i.e. MET and MME) not represented on NAMPAB are included in IMSCLUP. It would seem that in IMSCLUP, Namibia finally has the coordinating body it needs to integrate Ministerial land-use planning and management. However, Tarr (1995) states that many Ministries have shown limited interest in forwarding their development proposals to IMSCLUP, fearing interference with their functions rather than seeing the forum as an opportunity to achieve better integration with other organisations. In addition, IMSCLUP has taken on a re-active rather than pro-active role, concentrating on land-use planning in response to development pressures rather than undertaking forward planning on a national level (Tarr, 1995).

Therefore, it seems that adequate coordination of Ministerial land-use planning and management actions is not taking place. The two coordinating bodies put in place by

Government (i.e. NAMPAB and IMSCLUP) to integrate Ministerial land-use planning and management have not been able to satisfactorily achieve this function, because of the constraints the bodies suffer in practice.

It is evident that there exists a multiplicity of bodies responsible for land-use planning and management, whose decisions and actions are not adequately coordinated (bodies responsible for land use planning and management include at least 7 Ministries, the National Planning Commission (NPC), the Namibian Planning Advisory Board (NAMPAB), and the Interministerial Committee for Land-Use Planning (IMSCLUP)). Furthermore, more coordinating bodies are to be added to the number already in existence. A Land Use and Environmental Board (LUEB) is to be established at national level, under the auspices of the NPC (Ramboll, 1995). The responsibility of this Board will be to coordinate the functions of NAMPAB, the MRLGH, and the rural functions that fall under the jurisdiction of the MLRR (Ramboll, 1995). All these bodies are created by Government in a bid to address the uncoordinated inter-Ministerial structure. However, in spite of all the efforts at achieving coordination, the problem of fragmentation remains (a lack of Ministerial coordination and cooperation has been reported still to exist (Erongo Baseline Report, 1996)).

Because of inadequate coordination of Ministerial land-use planning and management, efforts at integrated coastal zone management in this regard at local level will prove difficult. This is because local authorities will not receive integrated, coordinated directives from ministerial level, but rather uncoordinated, discordant decisions.

5.2.1.2 Uninformed decision-making, the duplication of tasks, and uncertainty in regard jurisdiction

The lack of coordinated directives given to local level from Ministerial level (see Section 5.2.1.1) is not the only difficulty which frustrates efforts at integrated coastal zone

management at local level. Other difficulties which act as a constraint on local efforts at integrated planning are listed below.

Decision-making between Ministries is re-active due to an absence of effective inter-Ministerial linkages, such as the notification of new projects which may involve the inputs of different Ministries (Ramboll, 1995). Because of insufficient communication between Ministries regarding issues of mutual concern, uninformed decisions are taken (Ramboll, 1995).

Furthermore, because of insufficient communication between Ministries, two or more Ministries may be responsible for the same task (Ramboll, 1995). For example, the uncertainty between MET and MFMR as to who is responsible for the control of the area between the low and high water mark at the coast (Ramboll, 1995).

Uncertainty, at national level, of the responsibility of different Ministries results in a lack of monitoring of certain issues at local level. For example, the Ministry of Fisheries and Marine Resources is responsible for the control of angling; while the Ministry of Environment and Tourism is responsible, down to the low water mark, for conservation in reserves. Uncertainty between the Ministries of jurisdiction over the area between the low and high water mark results in a lack of monitoring of activities in this area (Ramboll, 1995). Another area where uncertainty exists is in regards air pollution control. The Ministry of Environment and Tourism argues that air pollution control falls under the jurisdiction of the Ministry of Health and Social Services (Von Kent, Pers.Comm., 16/02/96; Tarr, Pers.Comm., 16/02/96). The Ministry of Health and Social Services, on the other hand, states that its responsibility lies only in the control of air pollution in so far as it affects occupational health issues (Burkhardt, Pers.Comm., 15/02/96). The uncertainty in regards this issue has resulted in a lack of monitoring in regard air pollution.

The difficulties at national level, discussed above in Section 5.2.1.1 and 5.2.1.2, act as a constraint on local level efforts to achieve integrated coastal zone management.

5.2.2 Planning decisions and management actions taken at regional level

The main bodies dealing with planning at a regional level are the Regional Councils and the Ministry of Regional/Local Government and Housing (Erongo Baseline Report, 1996). The Ministry of Regional/Local Government and Housing administers the Regional Councils (Tarr, 1995).

The Regional Councils are responsible for planning in a region (Erongo Baseline Report, 1996). However, decision-making has remained at Ministerial level because of the requirement that Regional Councils send plans as recommendations to relevant national bodies rather than implementing these plans themselves (Erongo Baseline Report, 1996).

One of the considerations a Regional Council must take into account when planning for a region is national planning strategies and policies (Erongo Baseline Report, 1996). In the past, however, because of poor coordination between the Erongo Regional Council and central government Ministries, the Erongo Regional Council has been unaware of many projects and plans for the Region (Erongo Baseline Report, 1996). The lack of awareness of projects and plans for the Region by the Erongo Regional Council hinders clear directives in regard to future development of the Region being given by it to local authorities. Thus, local authorities do not receive notification of planned future development activities for the Region, nor guidance in terms of the planning decisions they face daily.

Furthermore, there is a lack of coordination between the planning efforts of local authorities and Regional Councils which acts to hinder planning on a local level (Erongo Baseline Report, 1996).

In summary, it seems that local authorities in the Erongo Region can expect little guidance from the Regional Council in regard to the future development planned for the Region. Because of a lack of clear directives issued in this regard, efforts at integrated coastal zone management at local level will prove difficult.

5.2.3 Planning decisions and management actions taken at local level

It seems that local authorities in the Erongo Region are left to attempt integrated coastal zone management in very limiting circumstances, i.e. no integrated or coordinated directives can be expected from Ministerial level, and little guidance is expected from the Erongo Regional Council. The section which follows discusses the structures in place to guide local authorities in achieving integrated coastal zone management.

A land-use policy does not exist to guide local authorities in coastal zone management. Namibia's Green Plan (1992) talks of a national land-use policy, but none has yet been finalized (Tarr, 1995). Should the local authorities turn to the country's environmental law framework for guidance, they will find a set of fragmented, uncomprehensive and uncoordinated laws (Erongo Baseline Report). For example, legislation pertaining to pollution control and waste management is contained in seven different statutes, and administered by at least eight different Ministerial agencies, with no coordination between them in regard to uniform standards, areas of responsibility, and cooperation in areas of overlap (Erongo Baseline Report, 1996).

Furthermore, local authorities have different development aims, and operate in relative isolation of one another. For example, the Municipality of Walvis Bay favours industrialization while the Municipality of Swakopmund favours tourism-related development (Erongo Baseline Report, 1996). Currently, these two Municipalities are developing Town Planning Schemes and Structure Plans in relative isolation of one another (Erongo Baseline Report, 1996). Different municipal development aims, and

planning actions taken in isolation make the already arduous task of integrated coastal zone management at local level even more difficult, if not near impossible.

5.2.4 Conclusion

Coastal zone management by local authorities in the Erongo Region is currently fraught with difficulty because of factors such as the following:

- a lack of coordinated inter-Ministerial planning;
- uninformed decision-making at national level;
- the duplication of tasks by Ministries;
- uncertainty between Ministries of jurisdiction over certain issues;
- a lack of coordination between the national level and the regional level which results in a lack of knowledge at local level regarding plans and projects planned for the Region;
- a multiplicity of agencies responsible for the management of coastal activities (at national, regional, and local level);
- the lack of a national land-use policy;
- an environmental law framework which is fragmented, uncomprehensive and uncoordinated;
- differing municipal development aims at local level;
- local level Municipalities taking planning actions in isolation of one another.

Should the above situation continue in future and should effective coastal zone planning not occur, the development pressure on the Erongo Region will result in the environment being detrimentally affected. Currently, the Region does not seem to have the necessary structure in place to deal effectively with the development pressures it faces. For this reason the Integrated Coastal Zone Management Framework proposed in this dissertation was developed. The framework is presented in the chapter which follows.

6. A COASTAL ZONE MANAGEMENT FRAMEWORK FOR THE ERONGO REGION OF NAMIBIA

The Management Framework suggested in the dissertation as a way to address the current uncoordinated and fragmented manner in which coastal zone management occurs in the Erongo Region of Namibia is presented below. The main characteristics of the framework are discussed in Section 6.1. This is followed by Section 6.2 which presents a diagrammatic outline of the framework. A detailed explanation of the framework is given in Section 6.3, and finally, in Section 6.4, aspects are listed which are needed for the successful working of the framework.

6.1 Main characteristics of the proposed framework

The Management Framework²⁷ proposed in the dissertation was developed from suggestions made in literature on comprehensive CZM programmes. The framework has the following main characteristics:

- planning from a national level to the local level;
- a policy driven process;
- specific CZM legislation (in the form of a CZM Act);
- a steering committee to oversee the process;
- environmental assessments, in the form of Strategic Environmental Assessment and Environmental Impact Assessment.

A discussion of this format follows.

²⁷ The terms *management framework* and *management programme* are used interchangeably in the dissertation.

6.1.1 Overall planning from national to local level

Kjorven (1994) states that overall planning from the national level down to the local level and project level will improve environmental and natural resources management.

Clayton (1995) states that only where responsibility for the coast is placed at a national level is an effectively managed system found. The Netherlands is cited as an example of a country with a strong and centralized coastal zone management system which has proved very effective in practice (Clayton, 1995). However, he argues that a compromise should be found between a strongly centralized system of CZM, and a pattern that allows for regional differences and the involvement of local people in decision-making (Clayton, 1995). The British system of coastal zone management is cited as a typical example of CZM programmes that seek to involve local communities in decisions about their coastline, whilst using central funding, in particular, to impose some common standards and techniques (Clayton, 1995). In short, the argument Clayton makes is for shared governance of the coastal zone with a *"sophisticated administrative marriage of local, regional and national authorities"* (Clayton and O'Riordan, 1995).

Watermeyer Prestedge Retief (1994) states that, while it is important to compile a nationwide Coastal Zone Management programme, bio-geographic and cultural differences have to be taken into account and reflected in regional policies and plans. The Council for the Environment (1989) states that it is equally important that the reverse be done i.e. that regional coastal management takes place within the framework of national CZM planning.

6.1.2 A Policy Framework

The development of a national CZM policy to ensure the sustainable use and development of coastal areas has been recommended by the World Conservation Union

(1980, 1991) and by Agenda 21 (Sowman, 1994). According to Watermeyer Prestedge Retief (1994 citing Sowman, 1992, 1994), an overall policy statement is a characteristic of a comprehensive CZM Framework. This policy statement is crucial because it determines the nature and direction of any decision which may impinge upon the coastal environment. Watermeyer Prestedge Retief (1994 citing Sowman, 1993) states that the key shortcoming of a CZM system is often the absence of such a policy framework within which various CZM efforts can be guided. Heydorn, Glazewski and Glavovic (1994) similarly state that a comprehensive national CZM policy, to guide the activities of the State and private developers, should be included in a CZM programme. Nayak, Chandramohan and Desai (1992) state that CZM policies should be formulated and implemented in the planning and management of the coastal zone.

Examples of countries which have adopted a policy approach in coastal zone management are South Africa, India, and Australia (Council for the Environment, 1989a; Nayak, Chandramohan & Desai, 1992; Watermeyer Prestedge Retief, 1994).

6.1.3 CZM legislation

The declaration of a CZM Act is widely advocated by experts in the field of coastal management (President's Council, 1991; Watermeyer Prestedge Retief, 1994; Sowman, 1994; Heydorn, Glazewski & Glavovic, 1994; Council for the Environment, 1994). It is said that such an Act would streamline the existing plethora of legislation, establish clear administrative responsibilities, and institute effective control over environmentally undesirable development in the coastal zone (Watermeyer Prestedge Retief, 1994; Heydorn, Glazewski and Glavovic, 1994). The Council for the Environment (1994) recommends the enactment of a national CZM Act for South Africa (please turn page).

The following points are listed in favour of a national CZM Act:

- national control is desirable as regional and local authorities may lose sight of the broader environmental and custodianship criteria in their pursuit of coastal development which will generate regional and local revenue;
- existing legislation may be limited in its application and inadequate to deal with the economic and social pressures on the coastline.

(Council for the Environment, 1994)

O'Brien (1984) states that coastal planning and management in Western Australia is operated on an informal coordinating basis, with no statutory control except for the Land Act, the Town Planning and Development Act, and the Soil and Land Conservation Act. The Acts are administered by separate agencies which do not have an overall approach (O'Brien, 1984). He states that an attempt has been made to coordinate coastal planning and management through policies, but that these have largely been misunderstood and misinterpreted. O'Brien (1984) concludes that, given this situation, the enactment of a CZM act may be the only way of achieving overall coastal planning and management.

The United States of America is an example of a country which has enacted CZM legislation in the form of a Coastal Zone Management Act (of 1972). Watermeyer Prestedge Retief (1994) states that the Act sets goals and performance standards. It incorporates a broad range of national policy objectives, and creates a framework and set of incentives for flexible, voluntary state responses to those policies (Owens, 1992; Godschalk, 1992). The act sired what proved to be a durable CZM programme (Godschalk, 1992). The success of the programme varies from state to state, but according to Archer (1988), significant results have been achieved in general.

6.1.4 A single body with overall coordinating responsibility

Watermeyer Prestedge Retief (1994 citing Sorensen, 1990; & citing Sowman, 1992, 1993), and Sowman (1994) state that a key characteristic of some of the more successful CZM programmes around the world are that they have a strong lead body responsible for overall coordination. Watermeyer Prestedge Retief (1994) states that the administrative complexity of the coastal zone requires a high degree of coordination. It is said that, because of this, it is essential that a mechanism be developed to coordinate the formulation, implementation, monitoring and review of the various functional components of CZM (Watermeyer Prestedge Retief, 1994).

Watermeyer Prestedge Retief (1994, citing Sowman, 1993) states that because of the need for coordination between agencies responsible for coastal zone management, a 'lead agency' or coordinating body should be appointed at central government level. Such a body would facilitate the development of policies and strategies required to achieve the objectives of CZM; guide implementation of the overall CZM programme; ensure the compliance of other departments and the private sector with established CZM principles and procedures; review policies and programmes affecting the coastal zone; and monitor and evaluate the effectiveness of the overall programme (Watermeyer Prestedge Retief, 1994 citing Sowman, 1993).

Nayak, Chandramohan and Desai (1992) state that there is a need for the establishment of a central CZM authority at the national level to coordinate and implement the CZM programme of the country.

The establishment of a single body with overall coordinating responsibility has contributed to the success of CZM efforts in Oregon, and Washington (Watermeyer Prestedge Retief, 1994). In the Philippines, the lack of a central coordinating agency contributed to the failure of CZM efforts (Watermeyer Prestedge Retief, 1994).

6.1.5 Environmental Assessment

Sowman (1994) and Botha (Pers.Comm., 25/04/96) state that environmental assessment, in the form of Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA), form part of a comprehensive CZM programme. This is because the application of environmental assessment leads to a more sustainable use and development of coastal resources and areas - fundamental goals of CZM (Sowman, 1994). EIA, as a procedure for identifying, assessing and communicating to decision makers the environmental consequences of proposals, is said to be an integral management strategy of any CZM programme (Sowman, 1994 citing Clark, 1989; Sowman, 1994 citing Sorensen and McCreary, 1990; Sowman, 1994 citing Sorensen and West, 1992). However, because the project-by-project approach of EIA is said to be no longer sufficient for ensuring prudent environmental standards (see Section 4.2.5), the Management Framework proposed in the dissertation supplements EIA practice with the use of SEA. This approach is supported by Goodland and Tillman (1995). Furthermore, Namibia, in its Environmental Assessment Policy, similarly stress the need for the environmental assessment of programmes and policies, i.e. SEA (Republic of Namibia, 1994).

Goodland & Tillman (1995) state that financial and human resource constraints hamper adoption of SEA in developing countries. For this reason, the Management Framework proposed in the dissertation calls for the allocation of sufficient funds and manpower, as well as capacity building, to ensure the suggestions made by the framework is implementable.

The Management Framework proposed in the dissertation is presented diagrammatically in Section 6.2.

6.2 Diagrammatic outline of the proposed framework

A brief discussion follows which will facilitate a better understanding of the framework presented diagrammatically in Figure 4 below.

In the framework, CZM is divided into the three functional components suggested by Watermeyer Prestedge and Retief (1994) namely: Land-Use Planning; Development Assessment and Regulation; and Day to Day Resource Management. National, regional and local level policies are used to guide management of these key components of CZM.

Policy in the framework moves from a higher level down to the local level, i.e. policy at national level (i.e. the national Environmental Policy) influences the policy set at regional level, which in its turn influences the policy set at local level²⁸. Furthermore, the level of detail in policies increases as one moves from the national (the level of the national Environmental Policy) to the local level (the level of the policies set by local authorities for the three primary components of CZM).

The framework process is mainly policy driven, however, when the local authority sets policy in place for the Day to Day Resource Management component of CZM, an overlap is found between a policy and an issue driven process. From here, the CZM process is issue driven. An issue driven CZM process contributed to the success of CZM programmes in countries such as Ecuador and the Philippines, and a lack thereof contributed to the failure of CZM efforts in countries such as Sri Lanka (see Tables 1 and 2 in Section 4.1.2) (Watermeyer Prestedge Retief, 1994).

²⁸ Policy set at regional level not only influences policy set at local level, but also policy set for the primary components of CZM at national level. This is done in order that the characteristics of a region can be incorporated in CZM planning done for the region at national level (the characteristics referred to are the environmental, economic, political, and social characteristics of the region). However, for the sake of the point made in the paragraph, this is not mentioned.

Finally, a combination of a 'top-down' and a 'bottom-up' approach is followed in the Management Framework. Though policy is used extensively at all levels of the framework (policy is associated with a 'top-down' approach), self-regulation is also advocated (this is associated with a 'bottom-up' approach). Self-regulation is suggested through the use of Environmental Management Systems at project level, during the construction and operation of projects. It is felt that if CZM were approached from purely a top-down perspective, the result would be the using of an iron fist in management and regulation, which would leave little scope for flexibility. Hence, the Management Framework proposed in the dissertation has methods of CZM which are both 'top-down' and 'bottom-up'.

The Management Framework is outlined diagrammatically in Figure 4 (see back of the dissertation). Please fold the page out, and read alongside text.

6.3 Explanation of the framework

The various components of the Management Framework proposed in the dissertation are discussed in this section of the dissertation. The steps of the framework are set out in chronological sequence, and an explanation of each step is given.

6.3.1 Step One: Policy Formulation at National Level, and Enactment of CZM legislation

The first step of the Management Framework involves the preparation and implementation of a national Environmental Policy²⁹. The national Environmental Policy is a general statement of intent in respect of the country's resource base (Botha, Pers.Comm, 25/04/96). The scope of application of this policy is not limited to one region only, because it is intended to be used as a guide to planning in all regions of the country.

Namibia's constitution and what it provides in respect of resource conservation and utilization, can be used to formulate principles for the national Environmental Policy (please see next page).

²⁹ Throughout the proposed Management Framework, mention is mostly made of the **formulation** of policies (see Sections 6.3.1; and 6.3.2; 6.3.3; 6.3.4; 6.3.5). However, it is not only policies that are put into place, but also organisational structures and programmes for **implementing** the policies. For the sake of simplicity, given the complexity of the Management Framework, mention is not made of this point every time policy formation is proposed.

The country's Green Plan³⁰ can be similarly used. For example, the Namibian Constitution, in article 95(1), calls on the State to adopt policies aimed at the maintenance, and sustainable utilization of the country's natural resources. Namibia's Green Plan, chapter 11 (j), states that there is a need for economic development, foreign investment and poverty alleviation. These principles can be used to formulate a national Environmental Policy for the country which states that whilst there is a need for economic development, sustainability should guide decision-making in this regard so that natural resources are utilized on a sustainable basis.

The policy should be no more detailed than a general statement of intent (Botha, Pers.Comm, 25/04/96). This is because it is intended to be used as a guide to management planning. It is intended to determine the nature and direction of planning decisions.

The national Environmental Policy, because it is intended as a guide to planning in all regions of Namibia, should be developed through a public participatory process to ensure broad support and a commitment to it by all the regions of the country.

The national Environmental Policy is applied to the coastal zone by a CZM Act. The policy which the CZM Act sets is informed by the national Environmental Policy, but is specific to the coastal zone. Because a policy is set specifically for the coast, it is more detailed than the national Environmental Policy. To illustrate this specificity: inclusion of the points listed below in the coastal zone policy would make the policy specific to the coastal zone, and more detailed than the national Environmental Policy:

- recognition of the coast as a national heritage;
- acknowledgment of the distinctive character of the coastal zone;
- adherence to the carrying capacity of coastal resources and ecosystems;

³⁰ Namibia's Green Plan is a document which sets out the goals and objectives of the Namibian government with regard to the United Nation's Conference of the Environment, and the Agenda 22 Convention (Erongo Baseline Report, 1996).

- the promotion of environmentally sensitive attitudes and practices.

(Watermeyer Prestedge Retief, 1995)

However, even though the policy set by the CZM Act is more detailed than the national Environmental Policy, it is still phrased in general terms. This is because it is intended to be a guide for management planning in all the coastal regions of Namibia.

Coetzee (Pers.Comm., 23/04/96), an expert in the field of CZM, states that the coastal zone policy should stress the inter-relationship and interdependency of everything in nature, and should draw the goals of conservation and development together. For example, the policy should state that, while the country's fishing resources will be harvested, exploitation should not occur at the cost of the sustainability of fish stocks.

In addition to setting a coastal zone policy, Coetzee (Pers.Comm., 23/04/96) states that a CZM Act should facilitate cooperation between authorities responsible for CZM. To this end, the CZM Act establishes a steering committee to coordinate CZM efforts. The steering committee also oversees the implementation of the CZM programme. Responsibilities of the CZM steering committee include the following:

- coordinate between authorities responsible for CZM;
- ensure proper communication and liaison between authorities responsible for coastal zone management (on a national, regional and local level); and between authorities, non government organisations, and affected communities;
- coordinate the formulation, implementation, monitoring and review of the functional components of CZM³¹;
- facilitate the development of policies and strategies required to achieve the objectives of CZM;
- review policies and programmes affecting the coastal zone;

³¹ For the functional components of CZM, see Section 4.1.3.

- ensure the compliance of other Government departments and the private sector with established CZM principles and procedures;
- monitor and evaluate the effectiveness of the overall CZM programme.

(Watermeyer Prestedge Retief, 1994 citing Sowman, 1993; Watermeyer Prestedge Retief, 1994)

In short, the CZM Act is enabling, 'umbrella-like' legislation (Coetzee, Pers.Comm., 23/04/96). In addition to setting a coastal zone policy, it also establishes a steering committee to oversee the whole process of coastal management. In order to prevent stagnation, and a rigid and unchangeable situation developing, other pieces of legislation are used to support the CZM Act (Coetzee, Pers.Comm., 23/04/96). For example, specific legislation on water, mining, fisheries, environmental assessment etc., would be used to support the CZM Act, but would be updated more often than the CZM Act.

Finally, the CZM Act makes Strategic Environmental Assessment (SEA) a legal requirement of the CZM process by stating that SEA is an integral part of the CZM Framework, and must be conducted on regional and local level as part of the CZM planning process. This will ensure that SEAs, crucial to the successful working of the Management Framework, are conducted and that they are conducted at the stages recommended by the Management Framework.

6.3.2 Step Two: Regional Level Planning Process which incorporates SEA

Once a CZM Act has been put in place, the second step of the Management Framework involves regional level planning. The goal of the regional level planning is to formulate a Regional Level Land-Use Policy. Regional level policy formation occurs before national level planning takes place so that the environmental characteristics of the region under consideration can influence, and be incorporated in, the planning process for the region from the start, i.e., before any planning decisions have been taken (see Section 6.3.3). The

Regional Level Land-Use Policy guides CZM planning done at national level, and formulation of this policy should thus precede national level planning.

The process followed to formulate the Regional Level Land-Use Policy is presented below in Sections 6.3.2.1 and 6.3.2.2.

6.3.2.1 The use of SEA extended into a non-traditional area

SEA is a process by which environmental implications are integrated into decision-making above the project level (Goodland & Tillman, 1995). In practice so far, it has been proposed as a method of evaluating plans, policies and programmes in order to indicate the most environmentally suited option from amongst a range of alternatives. However, it is proposed here that SEA be extended into another non-traditional area, i.e., that of using it to evaluate a region for the development activities the region can support environmentally³². In this case, rather than an evaluation of **existing** plans, policies or programmes, evaluation occurs of the type of activities **a region** can support environmentally. Just as more traditional SEA, this type of SEA involves a consideration of alternatives; it examines the environmental implications of different developmental options for a region. It then ranks these options in an environmental sequence, so that environmentally better development options are taken up before environmentally weaker ones (Goodland & Tillman, 1995).

In short, the SEA proposed here offers an opportunity for an environmental analysis of a region **before** development priorities are formulated.

The Management Framework proposes SEA along the lines suggested above. The SEA is undertaken in order to determine the particular environmental characteristics of the region

³² Principles which underpin SEA, as well as the practice of SEA in the evaluation of plans, policies, and programmes were used to extend the use of SEA to the field of evaluating a region to identify the developmental activities it is most suited for from an environmental perspective.

under consideration. The aim of the SEA is to identify types of activities which the region can support from an environmental perspective (Botha, Pers.Comm., 25/04/96). Conducting of the SEA is a legal requirement of the Management Framework (see Section 6.3.1).

The SEA has a wide scale, and low detail (Botha, Pers.Comm., 25/04/96). An overall analysis of the region is done in order to identify the strengths and weaknesses of the region, and the opportunities and threats to the region (Botha, Pers.Comm., 25/04/96). The following is a list of the steps which the SEA will involve (the basic steps of SEA recommended by the UNDP (1995), which is listed in Section 4.2.5, were adapted for use here):

- List the development objectives and priorities, of the region. Identify constraints.
- Undertake scoping, and analyze existing environmental issues/problems, and protection objectives.
- Specify feasible options for development, and identify the environmental consequences of each option.
- Undertake consultations with key stakeholders to obtain their views on the options before any decision is taken on a preferred alternative.
- Identify measures to mitigate significant environmental impacts, and make decision on the environmentally preferred option.

The SEA is undertaken by regional level authorities. The reason for this is that regional authorities, because of their dealings with the region on a day to day basis, will have a better knowledge of the environmental characteristics of the region than national level authorities.

6.3.2.2 Regional Level Land-Use Policy

The Regional Level Land-Use Policy provides guidelines on the type of development activity to be promoted in the region.

The coastal zone policy, set in the CZM Act, will inform the process of formulating the Regional Level Land-Use Policy, and will guide it in a certain direction. The SEA done of the region will incorporate environmental considerations into the Regional Level Land-Use Policy by highlighting the type of activity the region can support environmentally. The coastal zone policy and the findings of the SEA constitute the environmental input into the process of formulating a Regional Level Land-Use Policy. The environmental component will not be the only input into this process, but will only be one of a number of inputs thereto. Other inputs to the process include economic, political, and social considerations.

Regional level authorities are responsible for the formulation of the Regional Level Land-Use Policy. Formulation of the policy is entrusted to the regional level authorities rather than national level authorities because of the proximity of the authorities to the region under their care. This proximity enables them to be in a better position to know the particular issues and problems experienced in the region.

To summarize, the Regional Level Land-Use Policy provides guidelines on the type of development activity to be promoted in the region. Regional authorities consider the coastal zone policy and the findings of the SEA, in conjunction with regional economic, political, and social factors when formulating the Regional Level Land-Use Policy.

The Regional Level Land-Use Policy is used to guide coastal zone management planning at a national level. Watermeyer Prestedge Retief (1994) and the Council for the Environment (1994) identify the three primary components of CZM as Coastal Land-Use Planning; Development Assessment and Regulation; and Day to Day Management. The

Regional Level Land-Use Policy will be used to guide planning for these key components of CZM at national level (see Section 6.3.3).

Another aim of the Regional Level Land-Use Policy is to influence planning decisions at a lower level, i.e. at the local authority level. To achieve this end, the Regional Level Land-Use Policy is used to draw up guidelines for Sub-Regional Structure Plans (see Footnote 34, and Section 6.3.4.1).

6.3.3 Step Three: National Level Planning Process

Step Three of the Management Framework involves CZM planning at national level. The goal of planning at this level is to coordinate the actions of agencies responsible for the management of coastal activities³³. The lack of integrated planning in this regard at national level is currently one of the causes of the uncoordinated and fragmented CZM experienced in the Erongo Region (Erongo Baseline Report, 1996).

Coordination between agencies responsible for CZM is achieved in the Management Framework by viewing CZM in terms of its three primary functional components, and by setting a policy in place for each of the components. The three primary components of CZM have already been mentioned, and are Land-Use Planning; Development Assessment and Regulation; and Day to Day Resource Management (Watermeyer Prestedge Retief, 1994). The aim is to put policy in place which will guide decision-making. Decision-making will be guided because agencies responsible for CZM will be bound to follow the policy on each of the three components, and will have to formulate their planning decisions in light of the stated policy. For example, five agencies may be responsible for Land-Use Planning (one of the primary components of CZM). The Land-Use Planning Policy for the region, set at national level, will guide the planning decisions

³³ Agencies responsible for management of the coastal zone include Ministries, the National Planning Commission, and National Level Planning Boards (Erongo Baseline Report, 1996).

for the region made by all five agencies. The decisions made by the five agencies will be better coordinated because one policy will be guiding all the decisions; and because the steering committee established by the CZM Act will oversee the process, and will ensure communication and liaison between the agencies. In this manner, the duplication of tasks will also be avoided.

The Regional Level Land-Use Policy, formulated earlier on by regional level authorities (see Section 6.3.2), is used to guide the Land-Use Planning Policy set for the region at national level. The Regional Level Land-Use Policy is used to guide the setting of policy for the region at national level in order to fulfill one of the most important objectives of the Management Framework, i.e. that CZM planning at national level is influenced by the characteristics of the region for which management planning occurs (the characteristics referred to are the environmental, economic, political, and social characteristics of the region).

A Land-Use Planning Policy will have to be set, at national level, for each of the coastal regions of Namibia. This is because the regions have different sets of environmental strengths and weaknesses. The regions are also subjected to different economic, political, and social pressures, and as a result, experience different opportunities, and threats. For example, the Erongo Region, because of the presence of Walvis Bay, an industrial focal point, faces different economic, political, and social pressures than the Kunene, Hardap and Karas Regions (other coastal regions in Namibia). Thus, management planning for each coastal region will be unique because it will be based on the specific set of characteristics of the region.

To reiterate, the Regional Level Land-Use Policy is used to guide the Land-Use Planning Policy set for a region at national level. The Regional Level Land-Use Policy was formulated after a consideration of the environmental characteristics of the region, and regional economic, political and social factors. The Regional Level Land-Use Policy will

be used in conjunction with national economic, political and social factors, to guide the setting of a Land-Use Planning Policy for the region at national level.

Once the Land-Use Planning Policy for the region, at national level, has been set in place, the policy for Development Assessment and Regulation is put in place (the second functional component of CZM). The Development Assessment and Regulation Policy aims to achieve what the Land-Use Planning Policy provides (Botha, Pers.Comm., 25/04/96). Once the Development Assessment and Regulation Policy has been set in place, the policy for Day to Day Resource Management is set in place (the third functional component of CZM). The Day to Day Resource Management Policy aims to achieve what the Development Assessment and Regulation Policy provides, and through it, what the Land-Use Planning Policy provides (Botha, Pers.Comm., 25/04/96). In short, the Land-Use Planning Policy is set in place first, then the Development Assessment and Regulation Policy, and lastly the Day to Day Resource Management Policy (Botha, Pers.Comm., 25/04/96). The steering committee referred to in Section 6.3.1 will be responsible for ensuring that all agencies responsible for CZM comply with the set policies.

To summarize, the Regional Level Land-Use Policy is used to guide all three primary components of CZM. It directly informs Land-Use Planning (the first primary component of CZM), and through it, influences the other two primary components of CZM. Because the Regional Level Land-Use Policy plays an important role in the planning process, it ensures that regional characteristics influence policy set in place for the region at national level.

The next step of the Management Framework takes CZM from the Regional and National Level to the Local Level, and to the level of local authorities.

6.3.4 Step Four: Local Level Planning Process which incorporates SEA

The fourth step of the Management Framework involves local level planning. The first step of local level planning is the undertaking of a SEA, and the formulation of Local Level CZM Policies. Local level policy formation occurs once regional and national level planning has been effected.

6.3.4.1 The undertaking of SEA by local level authorities

It is proposed here that SEA be used to determine where the development activities to be promoted in the region are to be located in the region (the development activities to be promoted in the region were identified earlier in the process, when the Regional Level Land-Use Planning Policy was formulated. See Section 6.3.2).

The aim of the SEA is to influence planning decisions at a lower level, i.e. at the level of individual local authorities, and to this end, the findings of the SEA is used to draw up Sub-Regional Structure Plans³⁴. These plans ensure that the findings of the SEA influence land-use planning by individual local authorities (see Section 6.3.4.2).

Section 6.3.2.1 also suggested the undertaking of a SEA. The SEA suggested there was undertaken by regional level authorities with the aim of influencing the Regional Level Land-Use Policy set for the region. The SEA undertaken had a wide scale, and low detail, and was used merely to identify types of activities the region can support environmentally. The aim of the SEA suggested here is different to the aim of the SEA undertaken by the regional level authorities. The objective of the SEA undertaken by local level authorities is to indicate where the development to be promoted in the region is to be located, and a map pointing out the findings of the SEA may be an outcome of

³⁴ The Regional Level Land-use Policy, formulated earlier in the process, was used to draw up guidelines for Sub-regional Structure Plans. These guidelines are used in conjunction with the findings of the SEA undertaken at local level, to draw up the Sub-Regional Structure Plans.

the process. To summarize, while the aim of the SEA conducted by regional level authorities is to identify types of activities the region can support environmentally, so as to influence the Regional Level Land-Use Policy set for the region; the aim of the SEA conducted by local level authorities is to indicate where the development activities, identified by the Regional Level Land-Use Policy for promotion in the region, are to be located in the region, so as to coordinate the planning decisions of all local authorities in the region. Moreover, in this way, regard will be had of the environmental characteristics of the region when land-use planning occurs by individual local authorities. This is because individual local authorities are bound to follow the findings of the SEA undertaken collectively by the local authorities of the region.

The SEA is undertaken by the local authorities of the region. The reason that local authorities undertake the SEA is that these authorities have an intimate knowledge of the characteristics of the region. All local authorities of the region are to work together when the SEA is undertaken because the SEA concerns the whole region (the region is looked at as a whole), and because the outcome of the SEA will affect all local authorities (it will indicate where the development activities to be promoted in the region are to be located in the region)³⁵. All local authorities are included in the SEA, and decisions are not imposed on these authorities from without, in order to ensure adherence, in practice, to the finding of the SEA.

Conducting of the SEA by local level authorities is a legal requirement of the Management Framework (see Section 6.3.1).

³⁵ Land use in the region is looked at as a whole, because it is felt that local authorities should not consider only their own municipal areas when planning land-use, but should, in conjunction with other local authorities of the region, plan land-use for the whole region. In this way, the land-use planning decisions of the local authorities in the region will be better coordinated, and it will be possible to have better regard of the environmental characteristics of the region.

The following is a list of the basic steps which the SEA will involve (the basic steps of SEA recommended by the UNDP (1995), listed in Section 4.2.5, were adapted for use here):

- List the development objectives and priorities of the local authorities in the region. Identify constraints.
- Undertake scoping, and analyze existing environmental issues/problems, and protection objectives.
- From an environmental point of view, specify different location options for the development activities to be promoted in the region (each of these constitutes an option to be considered).
- Undertake consultations with key stakeholders to obtain their views on the options before any decision is taken on a preferred alternative (the key stakeholders will identify economic, political, and social factors which pertain in the region. The decision-maker considers these factors when deciding on a preferred alternative).
- Make a decision on the preferred option (the preferred option will be a trade-off between environmental, economic, political, and social factors).

The SEA involves a consideration of alternatives: it examines the implications of different location options of the development activities to be promoted in the region. It ranks these options in an environmental sequence, so that environmentally better options are taken up before environmentally weaker ones (Goodman & Tillman, 1995).

6.3.4.2 Local Level CZM Policies

Local level policy formation is conducted individually by local level authorities (i.e. by local municipalities). Individual Local CZM Policies are suggested in the Management Framework because it is felt that it would not be practical to have one Local Level CZM Policy³⁶ for all the municipalities in the region. This is because local circumstances and

³⁶ A single Regional Level Land-use Policy is set for the region during regional level planning (Step Two of the Management Framework).

decision factors will differ from municipal area to municipal area. For example, although the towns of Walvis Bay and Swakopmund are close to each other, the Municipality of Walvis Bay favours industrialization while the Municipality of Swakopmund favours tourism development (Ramboll, 1995; Erongo Baseline Report, 1996). An overall Local CZM Policy set for the region as a whole would not be able to capture these kind of differences. Because it is felt that the differing circumstances of individual municipal areas should be taken into account when Local CZM Policy is set, it suggested that Local CZM Policy be set by individual municipalities. The findings of the SEA conducted by local level authorities will act as a guide to individual local authorities when they set Local CZM Policy for the municipal area under their control.

The local authority (i.e. a Municipality) divides CZM into its three primary functional areas (i.e. Land-Use Planning; Development Assessment and Regulation; and Day to Day Resource Management), and sets policy for each of the components. Thus, Local CZM Policy will comprise a set of three policies for each municipal area, namely a Land-Use Planning Policy, a Development Assessment and Regulation Policy; and a Day to Day Resource Management Policy. These policies will be used to guide the local authority in CZM decision-making.

The Land-Use Planning Policy for the municipal area is formulated upon a consideration of the coastal policy set by the CZM Act, the findings of the SEA conducted on a local level, and economic, political and social factors pertaining in the municipal area under consideration. Once the Land Use Planning Policy has been set in place, the policy for Development Assessment and Regulation is put in place. The latter policy aims to achieve what the Land-Use Planning Policy provides (Botha, Pers.Comm., 25/04/96). Once the Development Assessment and Regulation Policy has been set in place, the Day to Day Resource Management Policy is set in place. The policy set for Day to Day Resource Management involves the development of detailed policies on specific

management issues. For example, if the Land-Use Planning Policy of a municipal area state that mining activity will be allowed at a specific location, a detailed policy for regulation of this activity is now developed, and a list of do's and don'ts formulated.

The local authority uses the Local CZM Policy it formulated, and the Sub-Regional Structure Plans (formulated earlier on in the process, see Section 6.3.4.1), to draw up a Local Structure Plan for the municipal area. The aim of drawing up a Local Structure Plan is that the plan, in setting out development policy for an area, establishes a framework for consistent and rational decision-making (Sowman, 1994; Simon, 1995). The plan will provide guidelines for the future development of the area, and will indicate broadly and conceptually the form such development should take, and the areas to be conserved (Sowman, 1994; Fuggle & Rabie, 1994; Simon, 1995).

To summarize, individual local authorities divide CZM into its three primary functional areas (i.e. Land-Use Planning; Development Assessment and Regulation; and Day to Day Resource Management), and set policy for each of the components for the municipal area under their direction. The Land-Use Planning Policy for a municipal area is set in place first, then its Development Assessment and Regulation Policy, and lastly its Day to Day Resource Management Policy. Finally, the formulated Local CZM Policy and the Sub-Regional Structure Plans are used to draw up a Local Structure Plan for the municipal area. The Local Structure Plan provide guidelines for the future development of the area.

The planning process was mainly policy driven until the point where policy is developed for Day to Day Resource Management. At this point, the planning process becomes issue driven. An issue driven approach to coastal zone management is advocated by authors such as Sorensen (1990), Sowman (1993), and Watermeyer Prestedge Retief (1994) (Watermeyer Prestedge Retief, 1994).

6.3.5 From Policy Level to Project Specific Level

Section 6.3.5.1, below, presents a summary of all the policies set in place by the Management Framework, and describes how the policies are used to guide decision-making in practice, i.e. how one moves from the policy level of the framework to a project specific level. This move is important because of the fact that environmental management does not happen at policy level, but at project level with the person who, for example, controls gaseous emissions into the atmosphere (Botha, Pers.Comm., 25/04/96). Sections 6.3.5.2. and 6.3.5.3 discusses the use of Environmental Impact Assessment and Environmental Management Systems in coastal zone management.

6.3.5.1 National Level Policy to Local Level Policy

The Management Framework sets policy at national, regional and local level. Each of the policies set by the framework are briefly summarized below in order to show the pathway of national level policy to local level policy.

The **national Environmental Policy** is set in place first, and is intended as a guide to planning in all regions of the country. It is a general statement of intent in respect of the country's resource base, and is not specific to one region only.

The national Environmental Policy is applied to the coastal zone by a CZM Act. The **coastal zone policy** which the CZM Act sets is informed by the national Environmental Policy, but is more specific and detailed than the former because it concerns a specific area. However, even though the policy set by the CZM Act is more detailed than the national Environmental Policy, it is still phrased in general terms. The coastal zone policy is intended as a guide to management planning in the coastal regions of Namibia.

The coastal zone policy will inform the process of formulating a **Regional Level Land-Use Policy**, and will guide it in a certain direction. Regional level policy formation

occurs before national level policy formulation takes place because the Regional Level Land-Use Policy is used to guide CZM planning at national level. In this way, the characteristics of a region can be incorporated in CZM planning done for the region at national level (the characteristics referred to are the environmental, economic, political, and social characteristics of the region). Another aim of the Regional Level Land-Use Policy is to influence planning decisions at the local authority level. To achieve this end, the Regional Level Land-Use Policy is used to draw up **guidelines for Sub-Regional Structure Plans**.

The Regional Level Land-Use Policy, formulated after a consideration of the environmental, economic, political and social characteristics of the region, is used to guide the key components of CZM at national level. It directly informs **the Land-Use Planning Policy** (the first primary component of CZM), and through it, influences the **Development Assessment and Regulation Policy**, and **the Day to Day Resource Management Policy** (the second and third primary components of CZM). Once the Land-Use Planning Policy has been set in place, the Development Assessment and Regulation Policy, and the Day to Day Resource Management Policy are put in place. The aim is to put policy in place which will guide decision-making at national level. Decision-making will be guided because agencies responsible for CZM will be bound to follow the policy on each of the three components, and will have to formulate their planning decisions in light of the stated policy.

Local level planning takes place once regional and national level planning has been effected. **Sub-Regional Structure Plans** are drawn up, and **Local Level CZM Policies** are formulated. Because it is argued that the differing circumstances of individual municipal areas should be taken into account when Local CZM Policy is set, Local CZM Policy is set by local authorities for individual municipal areas.

The municipality sets a policy for each of the primary functional components of CZM. The **Land-Use Planning Policy** for the municipal area is set in place first, upon which

the **Development Assessment and Regulation Policy** is put in place. The **Day to Day Resource Management Policy** involves the development of detailed policies on specific management issues.

The local authority uses the Local CZM Policy for the municipal area and the **Sub-Regional Structure Plans** to draw up a Local Structure Plan for the municipal area. The plan provides guidelines for the future development of the municipal area.

The following example illustrates how Local Policy on CZM is used to guide a local authority's decision-making: a proposal to mine the dunes between Walvis Bay and Swakopmund is presented to the Municipality of Walvis Bay. The Municipality will evaluate the proposal in light of the Land-Use Planning Policy it formulated for the municipal area, and the Local Structure Plan. The Development Assessment and Regulation Policy the Municipality formulated will guide it in the manner of evaluation of the proposal.

Should the Land-Use Planning Policy and the Local Structure Plan state that mining is a development activity that is promoted in the municipal area, the Municipality will give provisional permission for the project. However, before the developer can go ahead with the proposal, environmental assessment of the project is required in terms of the next step of the Management Framework (see Section 6.3.5.2).

It is clear that the Municipality of Walvis Bay could not, if it were to follow the steps of the Management Framework, decide to allow the proposed mining project solely on financial grounds. This is because the Municipality will have to act within the scope of the Local Land-Use Planning Policy. The setting of this policy was influenced by the environmental characteristics of the region (the findings of the SEA conducted on a local level, amongst other factors, influence the Land-Use Planning Policy set in place for the municipal area. See Section 6.3.4.2 for other factors which influenced a Land-Use Planning Policy set in place). Thus, the decision of the local authority will not only be

guided by economic considerations, but also by the environmental characteristics of the region the municipal area falls within.

The following two sections discuss the use of environmental impact assessment, and environmental management systems in CZM.

6.3.5.2 Environmental Impact Assessment

Once the project has been reviewed in light of the Land-Use Planning Policy and the Local Structure Plan, and provisional permission for it has been granted, the Management Framework requires the developer to undertake an EIA. EIA is a procedure concerned with the identification, assessment, and communication to decision makers, of the environmental consequences of development projects (Sowman, 1994).

Sowman (1994), in a review of the practice of EIA in developing countries, states shortcomings which reduce the effectiveness of EIA as a coastal zone management tool. These shortcomings are presented in Section 4.2.6, and include the following:

- weaknesses inherent in the EIA process itself, such as procedural and methodological inadequacies. For example, an inadequate consideration of alternatives, insufficient attention given to a consideration of the positive impacts of development proposals, and lack of public participation at various stages of the EIA process;
- the practice of undertaking EIA as a separate activity from the planning process;
- weaknesses in the application of EIA, including inadequacies in the institutional arrangements for implementing EIA, shortage of appropriately trained staff, as well as limited resources, technical competence and data.

(Sowman, 1994 citing Biswas & Geping, 1987; Sowman, 1994 citing Rees, 1988; Sowman, 1994 citing Lee & Colley, 1990; Sowman, 1994 citing Sorensen & West, 1992)

Sowman (1994) concludes that the practice of EIA has to be strengthened first, before it will become an effective tool of coastal zone management.

Botha (Pers.Comm., 25/04/96) like-wise criticizes current EIA practice, albeit on different grounds. Botha criticizes current EIA practice because its focus has been the prediction of impacts (a list of potential impacts of the proposal under consideration is presented, and the decision whether to proceed with the project or not, is based on whether the impacts are acceptable or not). Botha (Pers.Comm., 25/04/96) states that the aim of EIA should rather be to present the decision-maker with a list of performance standards. This would include the following: the significance of the impacts, the manageability of the impacts, the level to which the proponent can be expected to manage the impacts, and the impacts on which money should be spent (Botha, Pers.Comm., 25/04/96). The decision-maker has to decide whether these findings present an acceptable situation or not.

Whatever the outcome of the debate on EIA practice, the fact remains that EIA is stated to be, and will continue to be, an integral management strategy of any CZM effort (Sowman, 1994, citing Clark, 1989; Sowman, 1994, citing Sorenson and McCreary, 1990; Sowman, 1994, citing Sorenson and West, 1992).

Environmental Impact Assessment of proposals will be a requirement of the Development Assessment and Regulation component of CZM (at national and local level).

6.3.5.3 EMS

Once an EIA has been conducted and the local authority has stated that the project can be proceeded with, the local authority will encourage the development of an Environmental Management System (EMS) by the proponent. An EMS is a tool which enables the proponent to control and systematically achieve the level of environmental performance

proponent to control and systematically achieve the level of environmental performance that it sets itself (ISO, 1995). However, compliance with applicable legislation and with the findings of the EIA, and a commitment to the continuous improvement of environmental performance are required (ISO, 1995; Seman, 1995). A system of self-regulation, through the use of EMS at project level, is supported by Botha (Pers.Comm., 25/04/96) and Von Kent (Pers.Comm., 16/02/96).

- Elements of an effective Environmental Management System are set out in Section 4.2.7, and are the following:
- a stated environmental policy (such a policy would set the desired level of environmental performance);
- an organisational structure (the responsibilities, authority, lines of communication, and the resources needed to implement the EMS are determined and set out);
- an environmental management programme (this programme stipulates environmental objectives and targets to be met and work instructions and controls to be applied in order to achieve compliance with the environmental policy);
- periodic audits and reviews of the environmental performance of the organisation, and of the effectiveness of the EMS.

(Kilbert, 1994; Hill, Bowen, Bergman, & O'Beirne, 1994; ISO, 1995)

When the proponent adopts an EMS to guide actions taken at project level, EMS becomes part of the Day to Day Resource Management component of CZM (see Section 4.2.7 in this regard).

6.4 The successful working of the framework

The following is a list of factors which are needed for the successful working of the Management Framework in practice:

- commitment to it by stakeholders on national, regional, and local level;

- sufficient human resources and funds allocated to the implementation of the framework in practice;
- sufficient human resources and funds allocated to the steering committee established in terms of the CZM Act, to coordinate CZM efforts and oversee the implementation of the framework, to enable them to carry out their responsibilities;
- environmental education and capacity building to enable local authorities to carry out their responsibilities in terms of the framework.

The chapter which follows applies the Coastal Zone Management Framework which the dissertation proposes to Namibia.

7. APPLICATION OF THE COASTAL ZONE MANAGEMENT FRAMEWORK TO CZM IN NAMIBIA

This chapter evaluates the current Namibian situation with regard to coastal zone management in terms of the main characteristics of the Management Framework presented in the dissertation³⁷. Because the main characteristics of the Management Framework concern issues such as CZM planning and the presence of CZM Policies at national, as well as at regional and local level; and the enactment of legislation; the evaluation is made in terms of Namibia, and not only for the Erongo Region.

The identified shortcomings of the current approach to CZM in Namibia form the basis of a set of recommendations for improving coastal zone management in Namibia (see Chapter 8).

The contention of the dissertation is not that Namibia adopt the Coastal Zone Management Framework presented in the dissertation, because the socio-political process of developing and implementing the suggested Management Framework will inevitably result in changes to it. The contention of the dissertation is simply that a Coastal Zone Management Framework be adopted for the country as a whole.

7.1 Analysis of Namibia in terms of the suggested CZM Framework

The Management Framework presented in the previous chapter has the following main characteristics:

³⁷ Time constraints necessitated that evaluation only be made of the main characteristics of the Management Framework proposed in the dissertation, and the current Namibian position in such regard.

- overall planning from a national level to a local level;
- predominantly, a policy driven process (the presence of CZM Policies);
- specific CZM legislation (in the form of a CZM Act);
- a steering committee to oversee the process;
- environmental assessments, in the form of Strategic Environmental Assessment and Environmental Impact Assessment.

In the discussion which follows, the current Namibian situation is discussed in terms of each of these main characteristics.

7.1.1 Overall planning from a national to a local level

The dissertation proposes integrated and coordinated national, regional, and local level CZM planning. Currently, planning in Namibia suffers a lack of integration and coordination which is experienced at national level, at regional level, and at local level.

There are at least 11 governmental Ministries whose planning and management activities at national level impact on coastal zone management at local level, but whose decisions are presently not coordinated³⁸. The lack of integration between these Ministries has resulted in uninformed decision-making by Ministries (due to a lack of awareness of projects which have been planned); the duplication of tasks (for example, both the Ministry of Environment and Tourism, and the Ministry of Fisheries and Marine

³⁸ The following is a list of Ministries whose planning management activities at national level impact on coastal management at local level:

- Ministry of Environment and Tourism
- Ministry of Fisheries and Marine Resources
- Ministry of Mines and Energy
- Ministry of Agriculture, Water and Rural Development
- Ministry of Regional/Local Government and Housing
- Ministry of Lands, Resettlement and Rehabilitation
- Ministry of Works, Transport and Communication
- Ministry of Trade and Industry
- Ministry of Health and Social Services
- Ministry of Labour and Human Resources
- Ministry of Finance and the National Planning Commission

(Source: Ramboll, 1995; Erongo Baseline Report, 1996)

Resources are responsible for the control of the area between the low and high water mark at the coast); and uncertainty in regard the jurisdiction of different Ministries in areas of overlap (for example, the uncertainty that exists between the Ministry of Environment and Tourism, and the Ministry of Health and Social Services concerning the jurisdiction over air pollution monitoring and control) (Ramboll, 1995; Erongo Baseline Report, 1996). The uncoordinated planning and management actions of Ministries also result in discordant decisions, which frustrate local level efforts at integrated CZM.

Moreover, poor coordination exists between national level authorities (Government Ministries) and regional level authorities (Regional Councils) (Erongo Baseline Report, 1996). This results in Regional Councils not being aware of projects and plans for the region, which hinders planning at local level (Erongo Baseline Report, 1996).

Furthermore, there is a lack of coordination between the planning efforts of regional level authorities (Regional Councils) and local level authorities (local municipalities) (Erongo Baseline Report, 1996). A lack of coordination also exists between the planning efforts of the various local level authorities themselves. For example, Walvis Bay and Swakopmund are currently undertaking future development planning in isolation of the other's planning efforts (Erongo Baseline Report, 1996). This leads to conflict, because the authorities tend to compete with each other rather than to coordinate development activities to promote the general development of the Region (Ramboll, 1995).

Government has created various bodies to address the problem of uncoordinated planning and management. For example, three bodies were established to coordinate Ministerial land-use planning, namely, the National Planning Commission (NPC); the Namibian Planning Advisory Board (NAMPAB); and the Interministerial Committee for Land-Use Planning (IMSCLUP) (Tarr, 1995). However, because these bodies suffer constraints in practice (Tarr, 1995), a lack of coordination remains. Furthermore, the number of coordinating bodies created by Government, in a bid to facilitate the necessary integration of planning efforts, are steadily increasing. For example, the NPC was created to

coordinate inter-Ministerial land-use planning, and when it failed to fulfill this function, NAMPAB was established (see Section 5.2.1.1). When NAMPAB, in turn, failed to facilitate the coordination of rural land-use planning, IMSCLUP was established (see Section 5.2.1.1). Presently, the creation of a Land-use and Environmental Board (LUEB), and Regional Planning Advisory Committees (RPAC), as coordinating bodies, are contemplated (Tarr, 1995; Erongo Baseline Report, 1996). However, despite the existence of all these coordinating bodies, a lack of integration remains (Erongo Baseline Report, 1996).

In 1995, Namibia published a National Development Plan (NDP1) (Erongo Baseline Report, 1996). The Plan provides a broad framework for all levels of planning in the country (Erongo Baseline Report, 1996). It recognizes the lack of integration between national and regional level authorities as problematic, and aims to coordinate the planning efforts of these authorities (Erongo Baseline Report, 1996). However, although efforts were made to include regional submissions into the various sector drafts of the Plan, the Plan is said to be a Central Government plan for regional development, rather than a plan based on regional strategies, initiated at the regional community level (Erongo Baseline Report, 1996). Thus, though the Plan aims to coordinate between different levels of Government, it was not able to follow its own suggestions of an integrative approach in the drawing up of its submissions.

In short, it seems that, in spite of Government's efforts at coordination of national, regional, and local level planning, the problem of fragmentation remains.

7.1.2 CZM Policies

The Management Framework is mainly policy driven (it only becomes issue driven when a local authority sets policy in place for the Day to Day Resource Management component of CZM at local level). This section examines what Namibia has in place in terms of CZM policy.

Ramboll (1995) states that, where possible, legislative vacuums in Namibia have been filled by policy statements which, once they are approved by Cabinet, become policy documents. The latter supplements existing laws and ordinances, and become guidelines for the Ministries (Ramboll, 1995). Examples of such policy documents are the White Paper on Fisheries ("Towards Responsible Development of the Fisheries Sector", approved in 1991); the White Paper on Tourism (approved in 1994); and Namibia's Environmental Assessment Policy (approved in 1994). However, the policy documents are only guidelines, and as such, are not enforceable by Namibian courts of law.

Furthermore, Namibia has no clearly defined policy framework regarding integrated management of the coastal zone (Ramboll, 1995). This results in a situation where Ministries only define environmental standards once proposals for new development projects are submitted within coastal areas (Ramboll, 1995).

But for the policy documents mentioned, the only policy document to turn to for guidance in regards CZM in Namibia is Namibia's Green Plan.

Namibia's Green Plan sets out the goals and objectives of the Namibian Government with regard to environmental issues (Ramboll, 1995). Stated objectives include the development of appropriate policies for land-use, fisheries, mining, tourism, trade and industry, toxic and hazardous waste, and water (Namibia's Green Plan, 1992, Ramboll, 1995). Policies have, subsequent to the Green Plan, been set for fisheries, tourism, and environmental assessment (see above); and guide decision-making for these activities. The other policies mentioned in the Green Plan have yet to be developed, and in the absence thereof, common sense seems to be guiding Ministries in decision-making (Heyns, Pers.Comm., 07/02/96).

Furthermore, the Green Plan merely acts as a guideline to Ministries in the setting of policy, and adherence to its principles are not a legal requirement. Thus, when policies

are developed in future, there is no guarantee that the provisions of the Green Plan will influence the policies set in place.

In short, Namibia has very few of the policies called for by the Management Framework proposed in the dissertation. It seems only to have policy in place similar to the National Environmental Policy proposed in the framework (Article 95(1) of the Namibian Constitution calls on the State to adopt policies aimed at the maintenance and sustainable utilization of the country's natural resources. As such, the article constitutes a general statement of intent in respect of Namibia's resource base, and can be used as a National Environmental Policy³⁹). Namibia does not have a specific Coastal Zone Policy, nor any other specific policies for coastal zone management. Though the Green Plan calls for the development of appropriate policies for land-use, fisheries, mining, tourism, trade and industry, toxic and hazardous waste, and water; to date, only three of these policies have been set in place (see above). Furthermore, the provisions of the Green Plan act merely as guidelines to Ministries in the setting of policy, and as such there is no guarantee that the provisions of the Plan will influence the policies set in place in future.

7.1.3 CZM legislation

The Management Framework recommends the enactment of CZM legislation, in the form of a CZM Act. Namibia does not have such an act. In its stead, it has legislation pertaining to the coastal zone which is fragmented (a plethora of acts exist which bear on management of the coastal zone), uncomprehensive, and uncoordinated (Erongo Baseline Report, 1996).

The Ministry of Environment and Tourism and the office of the Attorney-General have recognized the need for an environmental law reform process, and have initiated a three

³⁹ Alternatively, the provisions of Namibia's Green Plan can be used in conjunction with Article 95(1) to formulate a National Environmental Policy. See Section 6.2.1 in this regard.

year project aimed at reviewing and revising environmental legislation⁴⁰ (Erongo Baseline Report, 1996; Namibia Environment, 1996). However, no mention has been made of the development of specific legislation pertaining to coastal zone management.

In short, in the absence of the enactment of CZM legislation, revised environmental laws, developed for the country as a whole, and not specifically for the coastal zone, will have to serve the legislative needs of coastal zone managers as well.

7.1.4 A single body with overall coordinating responsibility

The Management Framework proposes the establishment of a steering committee to oversee the implementation of the framework, and to coordinate CZM efforts.

Steering committees, usually under the direction of a lead Ministry, are currently used in Namibia to oversee big, 'cross-cutting'⁴¹ programmes (Brown, Pers.Comm., 06/02/96). Membership of the steering committee usually comprises Ministries affected by the planned programme, non-government organizations, and interested and affected parties (Brown, Pers.Comm., 06/02/96). Brown (Pers.Comm., 06/02/96) states that steering committees are responsible for the implementation of the proposed programme, for 'trouble-shooting' during duration of the programme, for planning which becomes necessary, and for review of the programme. However, Namibia does not yet have an steering committee in place to oversee coastal zone management in the country. To date, this responsibility has been borne by the Ministry of Environment and Tourism, and the Ministry of Fisheries and Marine Resources. It was these Ministries, in conjunction with other key stakeholders, who called for the formulation of a coastal zone management plan

⁴⁰ The development of an umbrella act is foreseen which will encompass the following areas: resource utilization; pollution control and waste management; land use planning; and the workplace environment (Erongo Baseline Report, 1996).

⁴¹ A cross-cutting programme affects the interests of more than one sector.

for the Erongo Region of Namibia (DANCED, 1995), and who involved an external donor agency (DANCED) to prepare the management plan.

In short, at present, there is no coordinating body with overall responsibility for coastal zone management in Namibia. Government Ministries have initiated CZM efforts when they have been made aware of possible environmental degradation at local level if no coastal zone management is undertaken. In the absence of such notification, coastal zone management is left to the discretion of local authorities.

7.1.5 Environmental assessments

One of the most important components of the Management Framework proposed in the dissertation is the undertaking of environmental assessments in the form of Strategic Environmental Assessments (SEA) and Environmental Impact Assessments (EIA). Both SEAs and EIAs are legal requirements of the Management Framework. However, SEAs in particular, are crucial to the successful working of the framework.

Namibia has an Environmental Assessment Policy which was approved by Cabinet in 1994 (Bessinger, 1994; Tarr, 1995). This Policy has been applied to a range of development proposals, such as the construction of roads, dams, water projects, and the granting of licenses for offshore oil exploration and mining activities (Tarr, 1996).

Environmental assessment in the country has focused on individual projects (Tarr, 1996). However, the EA Policy also stresses the need for the assessment of programmes and policies which may have significant impacts on the environment (Bessinger, 1994; Corbett & Glazewski, 1996). This type of environmental assessment constitutes what has traditionally been called Strategic Environmental Assessment. However, Tarr (1996) states that progress has been slow in subjecting programmes and policies to environmental assessment, and that although projects are assessed on an ongoing basis,

the application of the principles of environmental assessment to regional and national planning has remained an elusive goal.

The EIA procedure in Namibia only has policy status (Ramboll, 1995), and can thus be bypassed. For example, it is optional for individual municipalities to request EIAs when new developments are proposed, and it is not compulsory to follow the subsequent recommendations of the EIA (Ramboll, 1995). However, the Government is committed to the development of Environmental Assessment legislation, and provisional legislation in this regard has already been drafted (Bessinger, 1994; Tarr, 1995; Erongo Baseline Report, 1996; Namibia Environment, 1996).

In short, there is a broad consensus in Namibia of the need for environmental assessment (Bessinger, 1994; Tarr, 1995). Furthermore, Namibia already has a structure in place for the undertaking of environmental assessment: EIAs are undertaken on a regular basis, and provisions has been made in the country's Environmental Policy for the undertaking of 'traditional' SEAs (the Management Framework extends the use of SEAs further, into non-traditional areas, see Section 6.3.2.1 and 6.3.4.1 in this regard). Although environmental assessment of development proposals, programmes and policies are not yet a legal requirement in the country (as suggested by the Management Framework), the Government is strongly committed to providing a legal basis to the environmental assessment process.

Having discussed the extent of the adoption of the main components of the Management Framework in Namibia, recommendations are now presented for improving the practice of coastal zone management in Namibia.

8. RECOMMENDATIONS

This chapter sets out recommendations for improving coastal zone management in Namibia. Because the recommendations concern general issues such as the adoption of a Coastal Zone Management Framework, overall planning, and legislative requirements, the recommendations are made in terms of Namibia, and not only for the Erongo Region. The recommended changes are necessary at national level in order to enable more effective coastal zone management in the Erongo Region in terms of the Coastal Zone Management Framework proposed in the dissertation.

Because of time constraints, recommendations are only made with regard to the main components of the Management Framework discussed in Chapter 7.

8.1 Overall planning from a national to a local level

Currently, planning in Namibia suffers from a lack of coordination and integration. To date, the coordinating bodies created by Government to facilitate integration have not been able to fulfill the task given them. One of the Namibian Government's objectives, in future, is to decentralize Central Government and devolve planning powers to the regional and local levels (Erongo Baseline Report, 1996). Unless action is taken to integrate the planning efforts of authorities at all levels of government, the lack of coordination between these authorities will frustrate the successful transfer of planning powers from national level to regional and local level.

In short, should coordination mechanisms not be incorporated into the current planning structure in Namibia, it is unlikely that integrated coastal zone management at local level will be possible. As such, the planning and implementation of an overall Coastal Zone

Management Framework for Namibia is recommended, which has as one of its primary objectives the coordination of CZM planning at national, regional, and local level.

8.2 CZM Policies

CZM, in the Management Framework, is divided into three functional components: Land-Use Planning; Development Assessment and Regulation; and Day to Day Resource Management. National, regional and local level policies are used to guide these key components of CZM.

Coastal zone management in Namibia is yet to be defined as comprising of the three functional components listed above. However, as proposed in the suggested Management Framework, Namibia intends using a policy driven process to achieve environmental management, as demonstrated in its Green Plan (1992) and its National Development Plan (NDP) (1995). Furthermore, in the NDP (1995), Namibian policy makers have stated their willingness to implement environmental policies. Because of this, the remaining course of action to Namibia with regard to policy is to define CZM in terms of its primary functional components, and to set the policies in place suggested by the Management Framework (see Section 6.3.5.1 for a summary of these policies). Both Article 95(1) of the Constitution and the provisions of the Green Plan can be used to guide the formulation of the suggested policies.

8.3 CZM legislation

As legislation in Namibia pertaining to coastal zone management is considered to be fragmented, uncomprehensive, and uncoordinated, it is recommended that a single CZM Act be enacted. The Act could be used to streamline the existing plethora of legislation bearing on coastal zone management, to coordinate the legislation, and to supplement areas of current legislative oversight.

8.4 A single body with overall coordinating responsibility

Because steering committees are currently used in Namibia to oversee big, 'cross-cutting' programmes, Namibia will not find the idea new of using a steering committee to coordinate the implementation of a programme such as the Coastal Zone Management Framework proposed in the dissertation. Therefore, all that remains to be done in this regard is to appoint a steering committee to oversee the implementation of a Coastal Zone Management Framework for Namibia.

8.5 Environmental Assessment

The Management Framework proposes that environmental assessment, in the form of SEAs and EIAs be legally required as part of the process of coastal zone management. In this way, the Framework ensures that environmental assessment, which is crucial to the successful working of the Management Framework, is conducted, and that it is conducted at the stages recommended by the Management Framework. Namibia has stated its commitment to legalizing the environmental assessment procedure it has put in place, and the only recommendation made is that the draft Environmental Assessment Act that has already been formulated be passed into law, thereby making environmental assessment of projects, programmes and policies a legally enforceable requirement in the country.

Moreover, because environmental assessment is already undertaken on an ongoing basis in Namibia, the country has the necessary structure in place to execute environmental assessment along the lines suggested by the Management Framework. The framework merely extends the roles of SEA and EIA further, into non-traditional areas. The only course of action which remains to Namibia in regard the type of environmental assessment suggested by the Management Framework is to, like-wise, extend the roles of SEAs and EIAs.

8.6 Summary

In summary, the recommendations made in the dissertation with regard to coastal zone management in Namibia are the following:

- plan and implement an overall Coastal Zone Management Framework for Namibia, which has as one of its primary objectives the coordination of CZM planning at national, regional, and local level;
- define CZM in terms of its primary functional components of Land-Use Planning; Development Assessment and Regulation; and Day to Day Resource Management;
- formulate the policies suggested by the Management Framework;
- enact a CZM Act;
- appoint a steering committee to oversee the implementation of the Coastal Zone Management Framework adopted for the country;
- extend the role traditionally played by environmental assessment in the country to the areas suggested by the Management Framework;
- pass the draft Environmental Assessment Act which has already been formulated into law, thereby making environmental assessment of projects, programmes and policies a legally enforceable requirement in the country.

The purpose of the chapter which follows is to summarize the most important findings, recommendations, and conclusions of the dissertation.

9. CONCLUSION

Integrated Coastal Zone Management (ICZM) emphasizes the need for adopting a comprehensive and holistic perspective when the planning and management of coastal resources are undertaken. ICZM requires an approach which is integrated across institutions, through the different tiers of government, and across different sectors of activity. It also requires integration across different disciplines, to incorporate information from natural, as well as socio-economic sciences. In Namibia, the lack of an overall framework for coordinating and integrating the decisions and actions of agencies responsible for coastal zone management, has resulted in uncoordinated and fragmented coastal zone management at local level, as experienced in the Erongo Region.

Should effective coastal zone planning and management not occur, development pressure experienced at local level will result in the environment being detrimentally affected. Better CZM planning will not only facilitate the effective regulation and management of development activities, but will afford the environment protection.

In light of these conclusions, the dissertation proposes the adoption of a Coastal Zone Management Framework by Namibia. The contention of the dissertation is not that Namibia adopt the Management Framework presented in the dissertation, as the socio-political process of developing and implementing the suggested Management Framework will inevitably result in changes to it. Therefore, the contention of the dissertation is simply that a Coastal Zone Management Framework be adopted for the country as a whole.

In setting a Coastal Zone Management Framework in place, decision makers in Namibia should be mindful that a management framework will only be successful in practice if it

is based on the active participation of all the relevant stakeholders in the planning process⁴². Furthermore, successful coastal zone management requires strong political commitment to the process of development planning and coastal resource management. It also requires the allocation of sufficient financial and human resources to the process of coastal management planning, and to actual coastal zone management undertaken. Moreover, it is equally important that the Coastal Zone Management Framework adopted be afforded a legal basis, because without formal recognition of the framework, it is unlikely that its recommendations will be implemented in practice.

Finally, the necessary commitment already exists in Namibia for the adoption of a framework along the lines suggested by the dissertation. In its Green Plan (1992) and National Development Plan (1995), the Government has states its commitment, amongst other objectives, to environmentally responsible decision-making, improved coordination within and between environmental agencies and developmental organisations, and the promotion of integrated planning and management of the country's natural resources. Government is also committed to the principle of sustainable development⁴³. Hence, what remains to be done is the planning and implementation of a Coastal Zone Management Framework for the country which has as its aim the sustainable utilization of Namibia's coastal resources.

⁴² Stakeholders include the authorities, non-governmental organisations, local coastal zone dwellers, and interested and affected parties. The direct involvement of the local coastal zone dwellers in coastal zone management is important if changes in behaviour patterns and attitudes are to be achieved.

⁴³ NDP1 (1995); Art. 95(1) of the Namibian Constitution.

REFERENCES

- Allen M.R. 1984. Coastal Management Planning and its Relation to Statutory Planning. In: *Proceedings from the Coastal Planning and Management Seminar*. Perth, 19-21 November 1984. Department of Conservation and Environment, Western Australia. 1985.
- Ambio*. 1995. The Royal Swedish Academy of Sciences. Vol. XXIV, No. 7-8, December 1995.
- Archer J.H. 1988. *Coastal Management in the United States: A Selective Review and Summary*. International Coastal Resources Management Project, Coastal Resources Center, University of Rhode Island.
- Bessinger N. 1994. In: *Namibia's Environmental Assessment Policy*. Ministry of Environment and Tourism, Windhoek, Namibia, January 1995.
- Biswas A.K., Geping Q. (eds.) 1987. *Environmental Impact Assessment for Developing Countries*. London: Tycooly International.
- Brandani A., Schnack E. 1987. The coastal zone of Argentina: Environmental, governmental and institutional features. *Journal of Shoreline Management* 3:191-214.
- CAMPNET (Coastal Area Management and Planning Network). 1989. *The status of integrated coastal zone management: a global assessment*. A Preliminary summary report of a workshop convened at Charleston, South Carolina (USA), 4-9 July 1989. Rosenstiel School of Marine Sciences, University of Miami.

Central Statistics Office. 1994. *1991 Population and Housing Census: Basic Analysis and Highlights*. National Planning Commission. Windhoek.

City of Cape Town. 1987. *Muizenberg to Monwabisi: Coastal Policy Plan*. Draft Report. Cape Town.

Claasen P.E., Milton J.R.L. 1994. Land-use planning. In: *Environmental Management in South Africa*. Fuggle R.F., Rabie M.A., Juta & Co, Ltd, Cape Town, 1994.

Clark J.R. (ed.) 1991. *The status of integrated coastal zone management: a global assessment*. CAMPNET, Rosenstiel School of Marine and Atmospheric Sciences, University of Miami.

Clayton K. 1995. Predicting sea-level rise and managing the consequences. In: *Environmental Science for Environmental Management*. O'Riordan T. (ed.), Longman Scientific & Technical, 1995.

Clayton R., O'Riordan T. 1995. Coastal processes and management. In: *Environmental Science for Environmental Management*. O'Riordan T. (ed.), Longman Scientific & Technical, 1995.

Corbett A., Glazewski J. 1996. An Overview of Namibia's Environmental Legislation. In: *Namibia Environment*. Ministry of Environment and Tourism, Windhoek, Namibia, Vol. 1, January 1996.

Council for the Environment. 1989a. *A Policy for Coastal Zone Management in the Republic of South Africa*. Part 1. Principles and Objectives.

Council for the Environment. 1994. *Management of South Africa's Coastal Resources*. Pretoria. November 1994.

DANCED. 1995. *Terms of Reference for a DANCED project proposal mission to Namibia*. October, 1995.

Department of Environmental Affairs. 1992a. *The Integrated Environmental Management procedure*.

Department of Environmental Affairs. 1992b. *Guidelines for Scoping*.

Department of Environmental Affairs. 1992c. *Guidelines for Report Writing*.

Department of Environmental Affairs. 1992d. *Glossary of terms used in Integrated Environmental Management*.

Fuggle R.F., Rabie M.A. 1994. *Environmental Management in South Africa*. Juta & Co, Ltd, Cape Town.

Godschalk D.R. 1992. Implementing Coastal Zone Management: 1972 - 1990. *Coastal Management Journal*. Hershman M.J. (ed.) Vol. 20, 1992.

Goodland R., Tillman G. 1995. *Strategic Environmental Assessment*. Paper presented to the International Association for Impact Assessment, International Conference on Impact Assessment. Durban, South Africa, EA Congress, 12 June 1995.

Heydorn A.E.F., Glazewski J.I. & Glavovic B.C. 1994. The Coastal Zone. In: *Environmental Management in South Africa*. Fuggle R.F., Rabie M.A., Juta & Co, Ltd, Cape Town, 1994.

Hill R.C., Bowen P.A., Bergman J.G., & O'Beirne S. 1994. The implementation of sustainable construction in the building and construction industries in South Africa:

selected case studies. In: *Proceedings of the First International Conference of CIB TG 16*, Tampa, Florida, USA, 6-9 November, 1994.

Hill R.C., Fuggle R.F. 1988. *Integrated Environmental Management of Development in South Africa*. Paper presented to the Eighth Quinquennial Convention of Saice in cooperation with 1988 Annual Transportation Convention, University of Pretoria, South Africa, 4-8 July 1988.

International Organisation for Standardisation (ISO). 1995. *ISO/DIS 14001: Environmental Management Systems - Specification with Guidance for Use*. June, 1995.

Kilbert C.J. (ed.) 1994. Sustainable Construction. In: *Proceedings of the First International Conference of CIB TG 16*, Tampa, Florida, USA, 6-9 November, 1994.

Kjorven O. (ed.) 1993. Sectoral Environmental Assessment. *Environmental Assessment Sourcebook Update*, World Bank, Environment Department, No. 4, October 1993.

Lee N., Colley R. 1990. *Reviewing the quality of environmental statements*. Occasional paper no. 24, EIA Center, Department of Planning and Landscape, University of Manchester.

Mcdonald G.T. 1995. *Integrating Environmental Impact Assessment into the Planning Process*. Paper presented to the International Association for Impact Assessment, International Conference on Impact Assessment. Durban, South Africa, EA Congress, 12 June 1995.

Moreira I.V. 1988. EIA in Latin America. In: *Environmental Impact Assessment Theory and Practice*, Wathern P. (ed.), Unwin Hyman, London.

MPhil Environmental and Geographical Science Students 1995-1996. 1996. Erongo Baseline Report: *Coastal Zone Management Plan for the Erongo Region, Namibia*. Danish Cooperation for Environment and Development, University of Cape Town. Unpublished, March 1996.

Namibia Environment. 1996. Ministry of Environment and Tourism, Windhoek, Namibia, Vol. 1, January 1996.

Namibia's Green Plan (draft). 1992. Ministry of Wildlife, Conservation and Tourism (ed.), Windhoek, Namibia, 1992.

National Development Plan (NDP). 1995. Government of Namibia, Windhoek, 1995.

Nayak B.U., Chandramohan P., Desai B.N. 1992. Planning and Management of the Coastal Zone in India - A Perspective. *Coastal Management Journal*. Hershman M.J. (ed.) Vol. 20, 1992.

O'Brien R.J. 1984. Framing the Problems, Strategy and Players of Coastal Planning and Management in Western Australia. In: *Proceedings from the Coastal Planning and Management Seminar*. Perth, 19-21 November 1984. Department of Conservation and Environment, Western Australia. July 1985.

Odendaal F.J., Kroes M., & Jaomanara. 1995. *The Strategic Plan For The Management Of The Coastal Zone Of The Masoala Peninsula, Madagascar*. Madagascar Working Paper No. 4. Eco-Africa Environmental Consultants, Observatory, Cape Town, South Africa.

Owens D.W. 1992. National Goals, State Flexibility, and Accountability in Coastal Zone Management. *Coastal Management Journal*. Hershman M.J. (ed.) Vol. 20, 1992.

Pappas E., Post J. & Lundin C.G. 1994. Coastal Zone Management and Environmental Assessment. *Environmental Assessment Sourcebook Update*, World Bank, Environment Department, Number 7, March 1994.

President's Council. 1991. *Report of the three Committees of the President's Council on a national environmental management system*. PC 1/1991. Government Printer, Cape Town.

Ramboll. 1995. *Draft Project Proposal: Integrated Coastal Zone Management Plan, Walvis Bay Area, Erongo Region, Namibia*. Danish Cooperation for Environment and Development. November 1995.

Rees W.E. 1988. A role for environmental assessment in achieving sustainable development. *Environmental Impact Assessment Review* 8:273-291.

Republic of Namibia. 1994. *Namibia's Environmental Assessment Policy*. Ministry of Environment and Tourism. Directorate of Environmental Affairs. Windhoek. January 1994.

Roe D., Dala-Clayton, B. & Hughes R. 1995. *A Directory of Impact Assessment Guidelines*. Environmental Planning Group. International Institute for Environment and Development. London. June 1995.

Sansom G. 1984a. Coastal Planning and Management Seminar - Summary. In: *Proceedings from the Coastal Planning and Management Seminar*. Perth, 19-21 November 1984. Department of Conservation and Environment, Western Australia. July 1985.

Sansom G. 1984b. Coastal Management Planning - The Australian Context. In: *Proceedings from the Coastal Planning and Management Seminar*. Perth, 19-21

November 1984. Department of Conservation and Environment, Western Australia. July 1985.

Seman P.O. 1995. *Environmental Management - International Standards*. Workshop on Industrial Pollution Control. Ministry of Environment and Tourism, Namibia. 1995.

Simon E.A. 1995. *Manual on Town and Regional Planning Practice in Namibia (Consultation Draft)*. Vol. 1: Reference Book. TRP Associates, Town and Regional Planning Consultants. Windhoek.

Sorensen J. et al. 1990. *Institutional Arrangements for Managing Coastal Resources and Environments*. Coastal Publication No. 1, Research Planning Institute Incorporated.

Sorensen J.C., McCreary S.T. 1990. *Institutional Arrangements for Managing Coastal Resources and Environments*. 2nd ed. Renewable Resources Information Series, Coastal Publication No.1. Washington DC: National Park Service and US Agency for International Development.

Sorenson J., West N. 1992. *A Guide to Impact Assessment in Coastal Environments*. International Coastal Resources Management Project. Rhode Island, USA: Coastal Resources Center, The University of Rhode Island.

Sri Lanka Coast Conservation Department. 1990. *Coastal Zone Management Plan*. Sri Lanka: Government Press.

Sowman M.R. 1992. *The status of Coastal Zone Management in South Africa*. Environmental Evaluation Unit, University of Cape Town.

Sowman M.R. 1993. The status of Coastal Zone Management in South Africa. *Coastal Management*. Vol. 21, 1993.

Sowman M.R. 1993. The status of Coastal Zone Management in South Africa. *Coastal Management*. Vol. 21, 1993.

Sowman M.R. 1994. *An Environmental Evaluation Procedure for Coastal Township and Resort Development Proposals in South Africa*. Ph.D. dissertation, Department of Environmental and Geographical Science, University of Cape Town, March 1994.

Tarr P. 1995. *Namibia's Country Report on Environmental Impact Assessment*. Presented to the African High Level Ministerial Meeting on Environmental Impact Assessment. Durban. 24-25 June 1995.

Tarr P. 1996. Namibia's Environmental Assessment Policy. In: *Namibia Environment*. Ministry of Environment and Tourism, Windhoek, Namibia, Vol. 1, January 1996.

United Nations Development Programme (UNDP). 1995. *Integrating Development and Environment. Broadening the tools of environmental assessment to enhance all decision making*. Proceedings of Short Course, Cape Town, June 1995.

United Nations Environment Programme (UNEP). 1994. *A sub-regional workshop on environmental impact assessment for commonwealth countries of Eastern and Southern Africa*. Workshop Report. Environmental Economics Series, Paper No. 10, March 1994.

Watermeyer Prestedge Retief. 1994. *Understanding coastal zone management and its application to South Africa*. Coastal Action Strategy (COAST), Report No. 6, Prepared on behalf of the Department of Environmental Affairs and the Foundation for Research Development, March 1994.

Watermeyer Prestedge Retief. 1995. *Towards a Coastal Zone Management Policy for South Africa*. Reference Document. Second Draft. Prepared on behalf of the Department of Environmental Affairs and Tourism.

White A.T., Lopez N. 1991. *Coastal Resources Management Planning and Implementation for the Fishery Sector Program of the Philippines*. University of Rhode Island.

Wilson E. 1993. Strategic environmental assessment of policies, plans and programs. *European Environment* 3(2):2-6.

PERSONAL COMMUNICATIONS

Botha E. Project Manager, CSIR, Stellenbosch, South Africa, 25/04/96.

Brown C. Head of the Directorate of Environmental Affairs, Ministry of Environment and Tourism, Windhoek, Namibia, 06/02/96.

Burkhardt ?. Unit Head, Primary Health Care. Ministry of Health and Social Services, Windhoek, Namibia, 15/02/96.

Coetzee J.D.M. An Associate of Watermeyer, Prestedge and Retief, Cape Town, South Africa, 23/04/96.

Heyns P. Director: Investigations & Research, Department of Water Affairs, Ministry of Agriculture, Water and Rural Development, Windhoek, Namibia, 07/02/96.

Hill R.C. Lecturer on Integrated Environmental Management, Department of Environmental and Geographical Science, University of Cape Town, South Africa, 28/03/95.

Schneier S.M. Department of Environmental Affairs, Coastal Section, Cape Town, South Africa, 16/04/96.

Sowman M.R. Environmental Evaluation Unit, Department of Environmental and Geographical Science, University of Cape Town, South Africa, 17/04/96.

Tarr P. Directorate of Environmental Affairs, Ministry of Environment and Tourism, Windhoek, Namibia, 16/02/96.

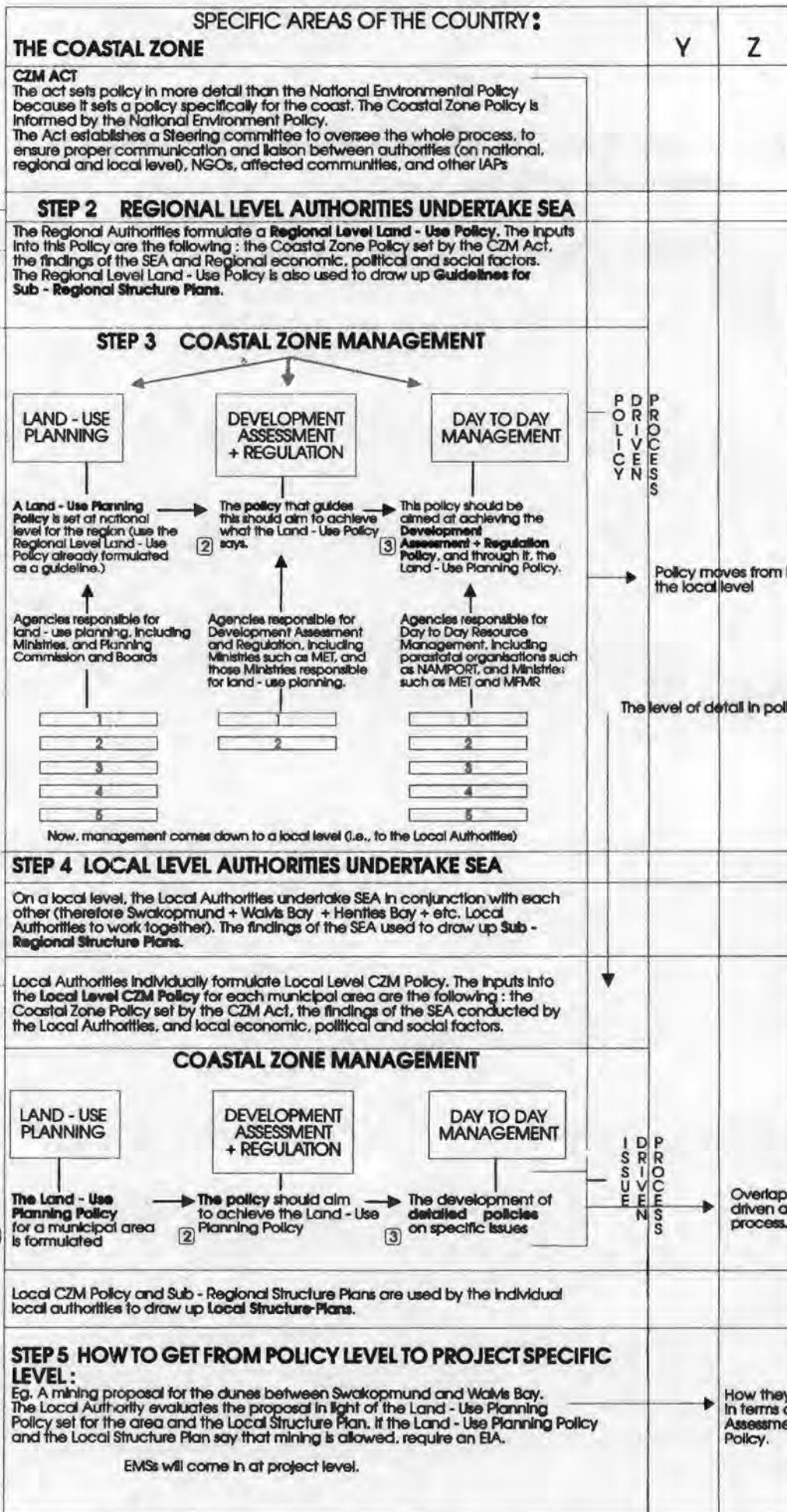
Von Kent A. Directorate of Environmental Affairs, Ministry of Environment and Tourism, Windhoek, Namibia, 16/02/96.

Figure 4: Coastal Zone Management Framework for the Erongo Region, Namibia.

Please fold page out, and read figure alongside text.



STEP 1 NATIONAL ENVIRONMENTAL POLICY



The SEA will be one of a number of inputs into the Regional Level Land - Use Policy

NATIONAL LEVEL AUTHORITIES DO THIS

LOCAL AUTHORITIES DO THIS

Thus, the local Authority (the local level of Government) uses the Local CZM Policy for project evaluation + for the drawing up of local structure plans (this equals policy implementation).