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**AN INTEGRATED NATIONAL STRATEGY  
FOR RESOURCE AND ENVIRONMENTAL MANAGEMENT  
IN POST-APARTHEID NAMIBIA**

A thesis presented in partial fulfilment of the requirements  
for the degree of Master of Philosophy  
in Development Studies  
at Massey University

***Field of focus: Development Planning***  
(Specialisation Area: *Strategic Development Planning and Scenario Evaluation*)

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## Abstract

This thesis presents a structure for integrated strategic planning across levels of government in Namibia. The study advocates necessary preconditions for the preparation of *An Integrated National Strategy for Resource and Environmental Management in Post-Apartheid Namibia*. Because the diagnostic nature of an integrated national strategy requires a condensed assessment of the state of the economy, people, institutions and natural resources, this study commences with a critical examination of the impact of German genocide and South African apartheid policies on the people, and natural and physical resources of Namibia, and illustrates how Namibia has begun to develop out the problems associated with colonial influence. Current underdevelopment and poverty in Namibia is mainly due to unsustainable extraction of resources which has generally benefited South Africa and its provincial satellites. In order to understand Namibia's economic situation, its profile is analysed in comparative study with other SADC member states.

Namibia needs to encourage sustained economic growth in order to achieve human development objectives. It is especially important to integrate environmental management at all levels of government to achieve unity of the people and sustainable exploitation of natural and physical resources. Namibia's current state of natural and physical resources is analysed by taking into consideration the immediate actions of the current Government which succeeded colonial oppression. Adverse effects of past exploitation are compiled, and recommendations of various theorists are offered as supportive evidence of the requirements for an integrated national strategy for resource management.

The absence of planning at the local level of government is the major cause of inconsistency in both policy-making and plan preparation, and is also identified as major threat to the achievement of sustainable economic development in Namibia. Changes regarding the strengthening of institutional capabilities, application of economic instruments in management of natural resources, methods of plan preparation, strategic policies, including integrated monitoring procedures are proposed. Suggestions are made about means by which these recommendations could be implemented to achieve sustainable development of natural and physical resources in Namibia.

The conclusion of this study suggests also that development planning of natural and physical resources need to be nationally diversified by devolving planning authority to sub-national and sub-regional levels of government. The idea is to relieve Namibia's National Planning Commission from the burden of planning at the local level of government and to efficiently spread administrative responsibility across a multinuclear umbrella of private and public sectors involved in strategic planning.

## Declaration

*I in person declare this thesis as an original product of my own effort. The conclusion drawn in respect to strategic development planning of natural and physical resources in Namibia is influenced by my own personal observations resulting from a careful analysis of a variety of development strategies and theorisation of a variety of authors who theorised about the requirements of an integrated national strategy.*

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## Dedications

This thesis is dedicated to those who bare the destiny of my human existence as a unique and unavoidable entity in their authentic thinking.

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## Acronyms

ASEAN - Association for South East Asian Nations  
 BCITES - Conservation on International Trade in Endangered Species.  
 ET - Best Estimated Time  
 Dep.Kn - Depletion of Natural Capital.  
 Deg.Kn - Degradation of Natural Capital.  
 EEC - European Economic Commission.  
 EIA - Environmental Impact Assessment.  
 FAO - Food and Agricultural Organization.  
 GATT - General Agreement on Trade and Tariffs.  
 GIS - Geographical Information Systems  
 gNNP - green Net National Product.  
 IDAF - International Defence and Aid Fund for Southern Africa.  
 ILO - International Labour Organisation.  
 IUCN - International Union for Conservation of Nature.  
 MEC - Marginal Extraction Cost.  
 MSB - Marginal social Benefits.  
 MSC - Marginal Social Cost.  
 MUC - Marginal User Cost.  
 NADREPs - Namibia District Resource and Environmental Plans.  
 NANGOF - Namibia Non-governmental Organisation Forum.  
 NANSO - Namibia National Student Organisation.  
 NANTU- Namibia National Teachers' Union.  
 NAREA - Namibia Resource and Environmental Act.  
 NAREPS - Namibia Resource and Environmental Policy Statement.  
 NARREPSs - Namibia Regional Resource and Environmental Policy Statements.  
 NARREPs - Namibia Regional Resource and Environmental Plans.  
 NAVRED - Namibia Village Resource and Environmental Documents.  
 NGOs - Non-governmental Organisations.  
 NPC - National Planning Commission.  
 OECD - Organization for Economic cooperation and Development.  
 PLAN - People's Liberation Army of Namibia.  
 SACU - Southern African Customs Union.  
 SARCCUS - Southern African Regional Commission for Conservation and Utilisation of Soils.  
 SADC - Southern Africa Development Community.  
 SIDA - Swedish International Development Agency.  
 SWAPO - South West Africa People's Organisation.  
 TNDP - Transitional National Development Plan.  
 UNDP - United Nations Development Programme.  
 UNCED - United Nations Conference on Environment and Development.  
 UNEP - United Nations Environmental programme.  
 UNIN - United Nations Institute for Namibia.  
 UNICEF - United nations Children's Fund.  
 WHO - World Health Organisation.  
 WPNSP - White Paper on National and Sectoral Policies.  
 WTO - World Trade Organisation.  
 WWF - World-wide Fund.

## Glossary

Apartheid - Separation or discrimination policy  
 Biodiversity - Across a broader spectrum of species  
 Ceteris paribus - While other economic factors remain the same or constant  
 Contractionary policy - Policy to squeeze economic dynamics  
 Expansionary policy - Policy to expand economic activities and output  
 Externalities - Environmental effects outside the market  
 Genocide - Deliberate killing of the people or nation  
 Intergenerational equity - Equitable distribution of resources across generations  
 Mission - An assignment to conduct periodical government activities  
 Multidimensional - A broader scope of influence  
 Multinucleation - A number of sectors collaborating to achieve particular objectives  
 Plan - A rational choice between alternatives  
 Policy - A plan of action adopted by individuals or government  
 Strategy - The art of a long-term plan for success  
 Sub-national - Geographical regions of the national State.

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## CHAPTER ONE

### INTRODUCTION

*'The planner cannot abdicate to pure administrators administering the law as it stands. Neither can he/she leave the future of our national state to the legions of community action, self-help, and resistant groups, to anarchy and the threat of civil war. Nor, lastly can he/she withdraw in favour of the total chaos ..... The planner is him/herself the creation of a new order of society which had its modest beginnings 150 years ago' (Eversley, cited by Conyers & Hills, 1986:249)*

#### 1.1. Background

Article 95(1) of the Constitution of the Republic of Namibia states that:

*'The State shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at the maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future....'*

The problem facing the nation is that this goal must now be translated into government policy and actions. Traditionally, the economy has operated on 'boom and bust' cycles which have affected patterns of growth. A striking feature of the Namibian economy during German and South African occupation has been the frequency and magnitude of the shocks to many economic sectors resulting from changes in consumption behaviour and the availability of natural and physical resources. The continued depletion of natural resources, environmental degradation and ignorance about the effects of people's activities, as inherited from colonial philosophies of the past, have to a large extent denuded the wealth of the national state, leading to 'internal colonialism' with extreme poverty in Namibia (Branganca & Wellerstein, 1982:54). This vicious cycle of poverty,

as reflected in almost all the sectors of the country's dwindling economy can be attributed to Namibia's lack of a strategy for resource and environmental management. The diminishing economic returns are reflected in the fall and stagnation of added-value exports, and the rise in imports is partially due to over-exploitation of Namibia's domestic natural and physical resources.

These indicators are warnings that economic calamity is inevitable if national strategic plans for economic reform and development are driven by the need to fix economic symptoms which are not leading to sustainable development. The word 'sustainable' is derived from the Latin word *sus-tenere*, meaning to uphold (Redclift, 1994:17). It has been in use as an English word since 1290. The Brundtland Report defines sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Blowers, 1993:5). If the use of resources is not sustained to accommodate future economic demands, preferred living standards of the people will be marred. From this perspective, Shivute (1991:70) warns that 'we are living in an increasingly hostile economic environment'.

Sustainable development depends to a large extent on sustainable management. The New Zealand Resource Management Act (1991) define sustainable management as referring to the use, development, and protection of natural and physical resources in a way which enables people and communities to provide for their social, economic and cultural well being and for their safety while:

*(a) sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations, and (b) safeguarding the life-supporting capacity of our air, water, soil and ecosystems, and (c) avoiding, remedying or mitigating any adverse effects on the environment.*

Sustainable management of resources is therefore a consecutive process maintained by consistent development planning at all levels of planning. Development planning implies a consciousness of the future, and an attempt to influence the future. It is a consciousness based upon interpretations or prognoses about future reality; it recognises the makings of the next historical period; and it identifies beliefs, knowledge and values which are realisable in the future (Hoogveldt, cited by Kotze, 1983:11).

Unless development planning is integrated and augmented to address specific political, economic and social issues of national interest, it will hopelessly remain open-ended and will fail to serve its purpose. The collapse of Namibia's natural resources has been due to the country's lack of an integrated national strategy for resource and environmental management (Hangala, 1985; Moorson 1982).

*An integrated national strategy can be defined as a strategy incorporating desirable principles of national interest drawn from many nationally or sectorally oriented strategies to serve the common good in restoring the notion of sustainable development (IUCN/UNEP/WWF, 1991: 65).*

The origin of an integrated national strategy can be traced immediately after World War II which caused 'Great Depression' in Western Europe. Opinion in the United States called for a fuller 'integration' of Western Europe as a solution to its national economic, social and political problems (Felling, 1988:7). This state of affair influenced the origin of the Marshall Plan in 1947. It was the necessity and need for an integrated strategy which influenced the American secretary of State, George C. Marshall to present his strategic speech at Harvard University on 5 June 1947. Marshall's plan advocated for the collaboration of development agencies at both national and international levels of planning (Horgan, 1947:145).

Though the Marshall Plan is according to the Truman Doctrine: a program to stop communism (Gimbel, 1976:1), it has important lessons for Namibia which made America what it is today. For Namibia, an integrated national strategy should be a program and mission to restore natural ecosystems, to achieve sustainable economic development and to frustrate poverty.

The components and structure of integrated national strategy for environmental management will be influenced by the principles recommended by the International Union for the Conservation of Nature and Natural resources (IUCN), Agenda 21, Namibia's Green Plan, and international recommendations about the structure of national strategies. The National Development Strategy for sustainable economic development in Namibia will also be considered as an existing national strategy. Furthermore, an integrated national strategy will also be affected by theoretical views of what makes an effective national strategy.

The achievement of sustainable development in Namibia is of great concern to national and subnational leaders, planners and policy makers (Namibia Ministry for the Environment, 1994:1). Therefore, the future of the Namibian economy also depends on the effectiveness of integrated planning across levels of management of natural and physical resources. It should also be noted that an integrated national strategy is being developed in a 'post-apartheid' system. The term 'post-apartheid' refers to the time of governance succeeding the era of colonial rule in which land, political participation, education facilities, job opportunities, salaries and wages are not equally distributed (Kotze:1983:136). The economy of Namibia has been subject to apartheid policies for over one-hundred years with resulting adverse effects on economic development and the achievement of social objectives.

Namibia's resource and environmental management can only be approached through proper understanding of how German and South African's economic policies influenced the current status of the country's domestic physical and natural resources. Both German and South Africa's occupation of Namibia has been both a blessing and a curse to the entire country. First, it was a blessing to the minority elite, and to a handful of colonial masters who abused managerial powers to enrich themselves using Namibian resources. Second, it was a curse to the majority of the population who suffered from resource deprivation, inequality, injustice and deliberate dictatorship (ILO, 1977:48).

German's introduction of civilisation through missionaries was a reward to a few Namibians who managed to carry instruction inspired in a foreign tongue. The outstanding infrastructure, linking Windhoek City to other towns such as Grootfontein and Otjiwarongo is an important memorial to colonial contribution to the development of Namibia (see map 2.1). However, Germany's administrative policies also resulted in oppression of Namibians. One example is the illegal acquisition of indigenous land (Pitswane, 1991:109).

The South African government introduced the capitalist economic system to Namibia. More than sixty percent of Namibia's working class acquired a South African education which is generally modelled on a British system. Despite minor contributions to Namibia's development, the South African government has exploited Namibia's natural and physical resources for the development of Johannesburg, Pretoria, Cape Town and Bloemfontein. For example, Hangala (1985:18) argued that environmental resources of Namibia were being 'ruthlessly plundered by the racist regime' of South Africa, and he warns that any future planning should take note of these historic events. Additionally, Braganca & Wellerstein contends that:

*'For the three financial years of 1968, 1969, 1970, the State received an average of \$22 million in direct taxes, and a further \$6 million from the diamond export duty. Between 1948 and 1969, the Tsumeb Corporation alone paid out \$60 million in taxes; and the manager I.A. Ratledge claimed that this had enabled the construction of the Cape Town - Luanda road. Since 1969 taxation is paid directly into the South African Treasury' (Braganca & Wallerstein, 1982: 53).*

Namibia's major economic sectors are agriculture, fishing, mining and tourism. The natural and physical resources on which these industries are based have been severely degraded by migrant settlers who monopolised management for their own gain. Mining and fisheries management were considered to be occupations exclusively suitable for those whites who had access to appropriate higher education. What actually keeps memories of apartheid fresh in the minds of Namibian people is that for over hundred years South Africa has failed to establish one university for the Namibian people, neither was there a success in training a physician, but instead Namibia's economy remained tied to that of South Africa (Braganca & Wallerstein, 1982:113). Profits accumulated from exploiting Namibian natural resources have been used in educating South African doctors, miners and other professionals providing expertise which contributes to South Africa's highly successful economy.

Since independence, the Namibian Government is still grappling with land reform in pastoral Namibia. A further issue from the colonial and apartheid era, is that much of the rich arable land is still possessed by a five percent of the population (whites), leaving the majority of black people in tribal clashes over bits and pieces of land in dry areas such as the Kalahari and the southern part of the central plateau. For example, the country's basic natural resource, land, has been expropriated by whites who occupy ninety-six percent of the farmland (Asombang, 1991:57).

In addition to the land monopoly, agricultural production in Namibia is also affected by poor soils, shortage of water and occasional droughts. Marine fisheries in Namibia are exploited by foreign fleets allowed to do so with the permission of the Namibian Government. The transition period, in which control has been transferred from South Africa has tended to result in over-exploitation of fisheries. The exclusive 2 tones per year in the 1960s is now slightly over 1 tone per year, and the proportion of the pilchard catch has fallen drastically (Lasch, 1990).

The management of Namibian mining resources is jointly controlled by foreign multinational corporations and the Namibian Government. An effective and smooth relationship between the management groups is maintained. However, there is no direct supervision imposed by the Namibian Government over the rate at which these non-renewable resources are mined and the adverse environmental effect of health hazards are also severe and leads to 'increasing anxiety' which badly affect sustainable management (Asombang, 1991:59).

## **1.2. Aim of the study**

This study addresses some of the critical issues which continue to undermine the sustainable utilisation of Namibia's natural and physical resources. The current economic, social and political state of Namibia provides an opportunity to include in our renowned policy of 'national reconciliation', the reconciliation of the Namibian people with their natural and physical resources. Therefore, the aims of this thesis are twofold:

*To identify major resource and environmental management constraints affecting integrated development planning in post-apartheid Namibia; and,  
To develop a national strategy which facilitates integrated sustainable development.*

### **1.3. Objectives**

\*To identify and discuss problems affecting integrated management of natural and physical resources in post-apartheid Namibia.

\*To critically analyse existing resource and environmental planning and policy-making in Namibia, and identify major weaknesses of the existing strategy.

\*To recommend changes to the existing strategy which will contribute to sustainable development of Namibia's natural and physical resources.

\*To show how Namibia's National Strategy can contribute to IUCN and Agenda 21 objectives and targets for sustainable development in individual member countries.

### **1.4. Value of research**

It is anticipated that this research will, in the first place, assist in understanding problems affecting resource and environmental planning in post-apartheid Namibia, and to show how planning should be directed to address national and international needs of the country. The thesis should assist Namibians in caring for their environment and in changing inappropriate personal attitudes and environmental practices. It is hoped also that implementation of the thesis findings would enable Namibian technical staff to contribute to Southern African Development Community (SADC) and Organisation for African Unity (OAU) forums discussing resource management problems affecting development in Africa.

### **1.5. Methodology**

A socio-economic approach will be used to show the relationship between resource management and economic development. In other words, the idea is to achieve economic development through the efficiency of resource allocation and distribution based on

effective planning and appropriate management of the available natural and physical resources. This study will therefore be approached from both economic and planning point of view.

#### **1.5.1. The questionnaire on environmental awareness**

A general survey on economic development indicators and environmental awareness was conducted from 18 November 1993 - 14 February 1994 in Lewis and Piggery compounds, the two major squatter settlement areas within the borders of Katima Mulilo in Caprivi Region. A representative sample of 210 respondents was interviewed. Since it was hard to draw a general national agenda on people's preferential to migrate to cities, it became conducive that a fractional survey of this nature could likely serve as a point of departure or even as a mirror through which tentative hypotheses could be crowned the status of solid facts. The purpose, objectives and methods used to conduct the survey are discussed in Appendix 1.

#### **1.5.2. Literature review**

The literature review will cover the era of colonial Namibia, current state of natural resources and also the theoretical recommendations proposed by various authors. Three distinctive theories will be used to explain the nature of resources and how these can effectively be managed. These are: economic theory, natural and physical resource management and planning theory. The study is centred on the notion that economic development can only be achieved through sustainable management of both natural and physical resources. From a planning point of view, development is not simply a step towards economic growth, but is seen as a continuous process involving policy-making, financing, staffing, organising, procedure and control. It is also a cyclical process

involving continued evaluation of outcomes. Therefore, planning theory provides resource management guidelines necessary to achieve sustainability.

### **1.5.3. Review of IUCN/UNEP/WWF recommendations for national strategies**

Table 5.1 column A indicates IUCN and UNCED actions necessary for the preparation of an integrated national strategy. Such actions will be used to assess Namibia's current role in resource management. The manner in which such recommendations need to be implemented by local authority levels of government will also be taken into consideration, and where necessary, a combination of such recommendations with those of other successful national states will be applied.

### **1.6. Research design**

This thesis is designed in such a way that the opening chapters which are based on the assessment of resource and environmental problems will lead to the understanding of economic problems affecting sustainable development in Namibia, and finally suggest appropriate recommendations that will hopefully address adverse effects. Figure 1.1 shows the relationship and organisation of chapters. Chapters of this thesis are organised as follows:

Chapter ONE introduces the general background to the study and also how the thesis is organised. To be noted is that each chapter is opened by a brief introduction and is closed with a brief conclusion. A general perspective of these chapters is given below.

Chapter TWO is a socio-economic perspective review of Namibia. Sections 2.2 and 2.3 of this chapter will demonstrate how the impact of both German and South Africa's oppressive policies have affected sustainable development in Namibia. Section 2.4 shows

how adverse effects, identified in section 2.2 and 2.3 have affected Namibia's economic performance among the nine member states of Southern African Development Community (SADC). It is demonstrated in this section that resource depletion together with environmental degradation have to a large extent contributed to Namibia's economic crisis in Southern Africa.

Chapter THREE is an assessment of the current state of natural and physical resources as inherited from the colonial era. The chapter will also examine current efforts made to bring about environmental quality country-wide. The last section of this chapter refers to a detailed report and discussion of the survey questionnaire conducted in the two major squatters in the Cprivi region of Namibia. The questionnaire results will be used to back-up theoretical evidence related to the cause of environmental problems in Namibia.

Chapter FOUR will emphasise on theoretical context of natural and physical resources in developing countries, with particular reference to Namibia. This chapter will take into consideration the economic value of ecosystems, the importance of the Ricardian demographic model to resource management, possible resource management dynamics and the basic factors determining sustainable management. Finally, the theoretical requirements for the preparation of a national strategy will be outlined.

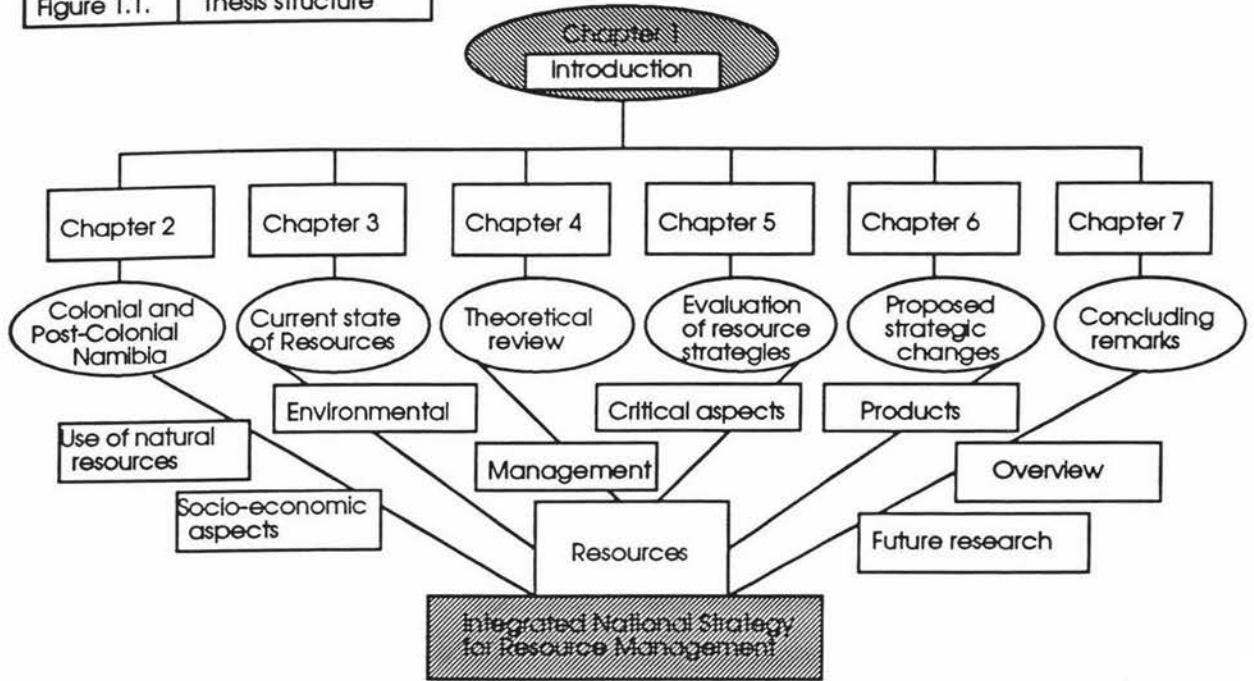
Chapter FIVE concentrates on analysing Namibia's development strategy. The chapter analyses the structure of Namibia's resource management strategy. For instance, consistency in plan preparation and policy-making is not maintained. Regulations enforcement, economic instruments to consider, principles or policies, including functions and powers of various ministries as they relate to resource management, will also be analysed in terms of their effectiveness.

Chapter SIX will be a provision of recommendations about the structure of a national strategy, principles to be incorporated, regulations to be enforced, and also the type of agencies to be consulted, and how they should be consulted. Furthermore, a recommendation of actions and principles to be considered during the formulation of policy statements, pertaining to resource management, will be provided. Additionally, mechanisms through which the strategy would be implemented are suggested.

Emphasis will be on the allocation of responsibilities across public and private institutions. The coordination of activities, participation of NGOs, together with the indigenous community will be viewed as a prerequisite for the implementation of an integrated national strategy for resource and environmental management in the democratic Republic of Namibia. Possible management instruments which are essential for the conservation of natural resources will be suggested for development planners and environmental managers.

Chapter Seven will be the conclusion followed by a proposal of research areas which need further research so that resource management can become more effective in the future. This conclusion indicates the extent to which this study has achieved the objectives proposed earlier in chapter ONE.

Figure 1.1. Thesis structure



## 1.7. Conclusion

The adopted approach to this research is given above merely as a point of departure into the critical details underpinning the dynamics of planning in a resource and environmental sphere of development. Although different chapters are selected to address particular resource issues, the reader is reminded that the common denominator to which every effort is geared is simply the advocacy of an integrated national strategy for development planning in Namibia. At this juncture, it need also to be noted that this introduction is just a preamble to profound details underpinning the influence to the preparation of an integrated national strategy in Namibia's post-economic enclave. For more information about the political, economic, social and environmental impacts of colonial policies, and also how such policies have shaped post-apartheid Namibia's economic status, planners, policy analysts and politicians are referred to Chapter 2 which influence the direction of policy-making.

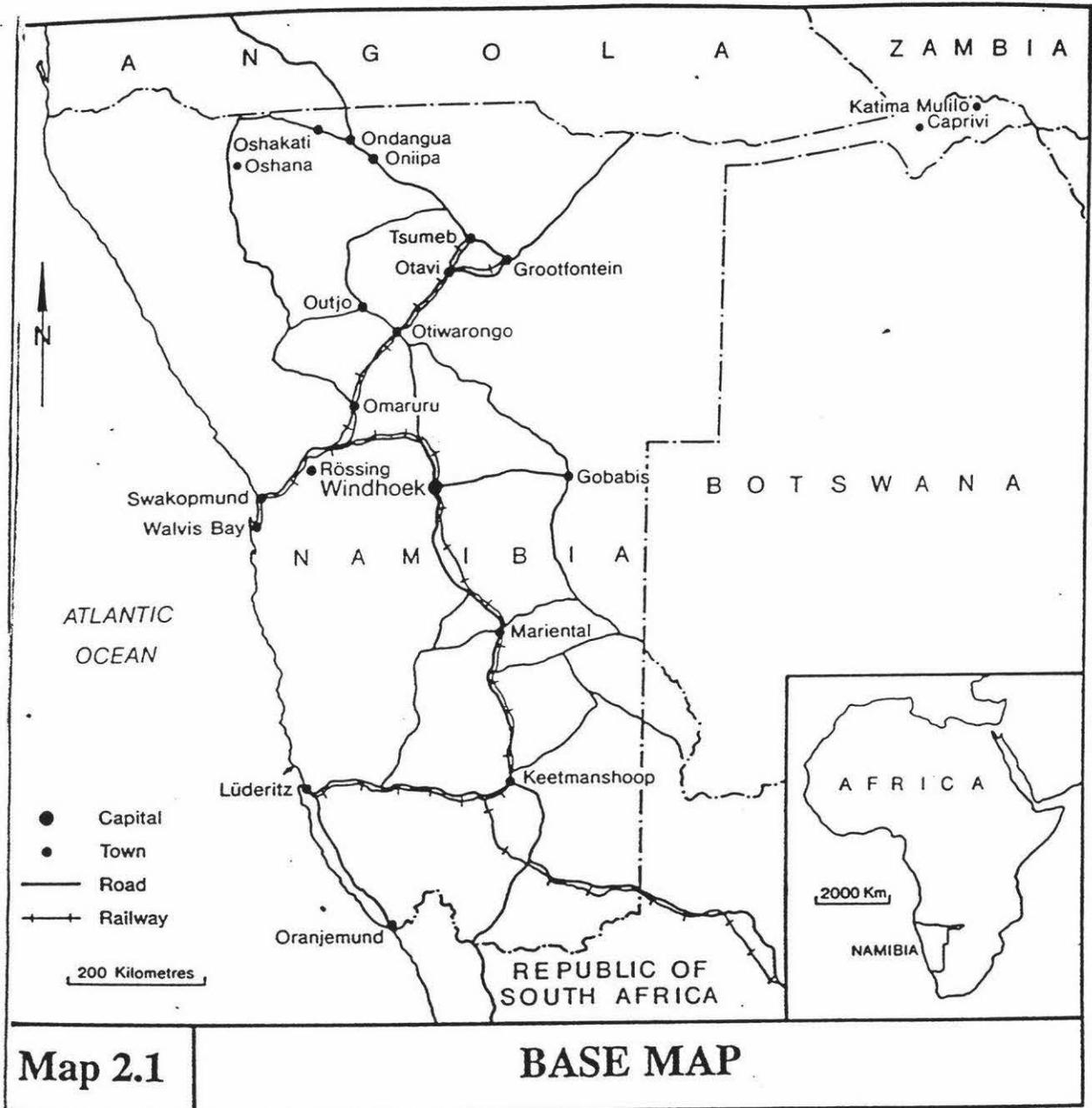
## CHAPTER TWO

### COLONIAL AND POST-COLONIAL NAMIBIA: A SOCIO-ECONOMIC PERSPECTIVE REVIEW

#### 2.1. Introduction

This chapter is a conglomeration of dramatic issues which affected Namibia's natural and physical resources. The chapter begins with an historic evaluation of the era in which resource depletion and degradation were exacerbated by colonial policies, genocide in the case of German and apartheid in the case of South Africa. It will also be demonstrated that the interest of colonial powers in colonies was mainly influenced by the wealth of those colonies. To many African countries which resisted colonialism, the result was a tug of war between colonial masters and indigenous people. Since Namibians resisted both Germany and South African rule, measures were adopted by colonists to destroy indigenous people just for the sake of natural and physical resources which they occupied.

Since Namibians were without sophisticated weapons to defend themselves, maximum casualties still mark the history of their colonial experience, resulting to its population which is only 1.5 million. It will also be shown that when a country is colonised, it is not only a fraction of the resources that are affected, but the general structure and state of the economy are also distorted. The natural resource base, which is the source of most wealth, is extensively put to asunder without concern of its limited carrying capacity. The Cabinet, government officials, and also the man/woman in public streets are all responsible and should be accountable for future resource maladies or economic doom's day which may likely affect the lives of the Namibian people.



Since the impact on resources is not attributed to one industry or sector, the IUCN/UNEP/WWF (1991:206) states that:

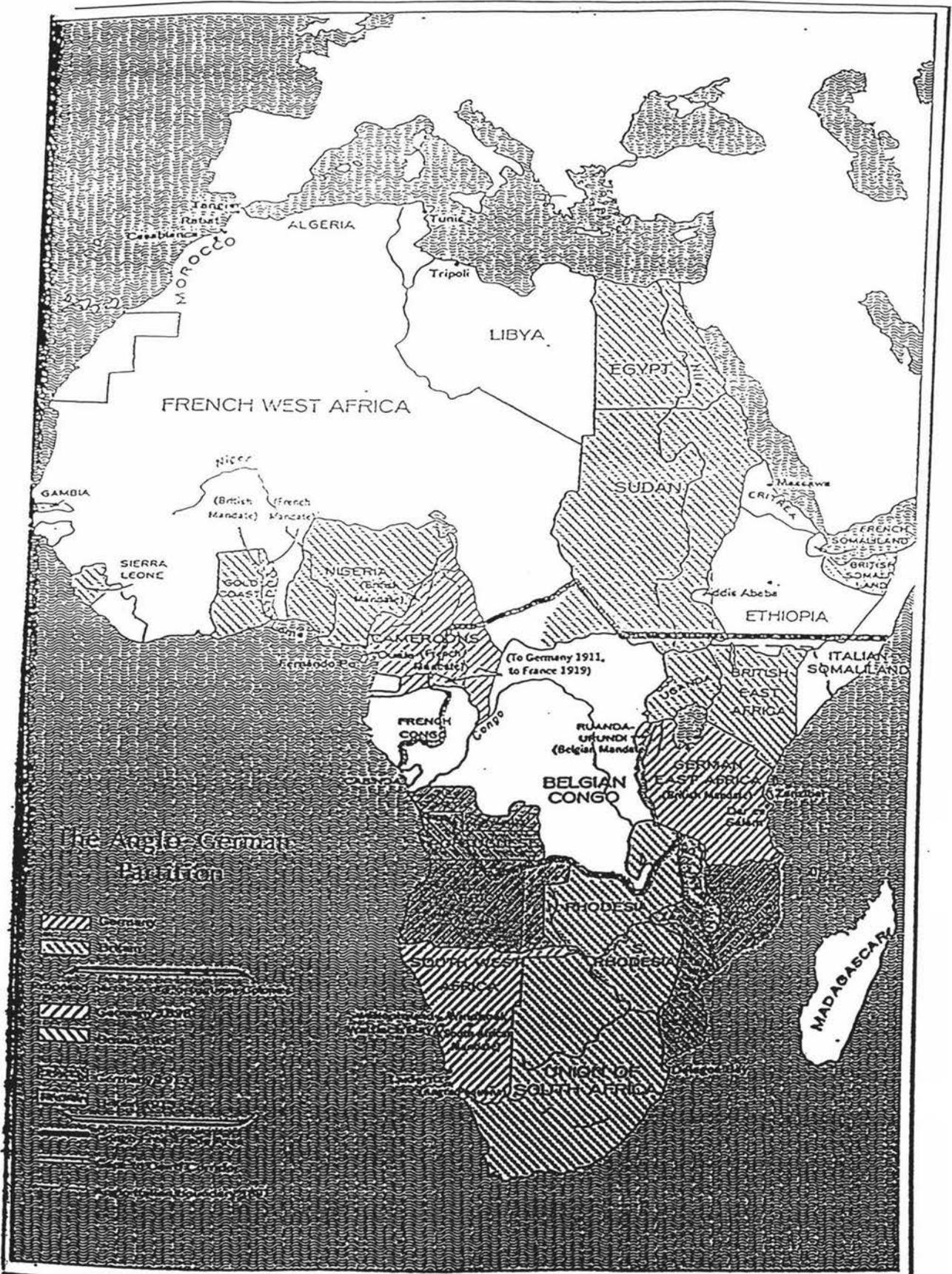
*'A key step in the development of a strategy is the preparation of the strategy document. This provides a summary description and analysis of the people, economy, environment, and institutions of the area; and sets out the agreed policies and action plan' (IUCN/UNEP/WWF, 1991: 206).*

Given the above recommendation, it is important for every planner to understand the state of the economy in which a particular strategy is being developed. In order to satisfy this requirement, a closer but brief examination of Namibia's economic profile in post-apartheid rule will be briefly outlined in relation to resultant impact of environmental degradation on natural and physical resources. Since Namibia is a member of the Southern African Development Community, it is important to briefly view its economic progress within that context and arrive at solid facts necessary to devise a national resource management strategy.

## **2.2. Colonial implications of the Germany Empire in Namibia**

Germany was the first colonial master of Namibia. It began on 24 April 1884 when a German flag was hoisted for the first time in Agra Pernguera, a small bay on Namibia's Atlantic coast (see map 2.2). The map shows two other African German colonies, Cameroon and Tanzania. Lack of resources and experience in colonial administration were the reasons behind Germany's failure in furthering its empire expansion in Africa.

On the 21st of October 1885 Emperor Commissioner, Dr Heinric Goering (father to Herman Goering, a Nazi war leader), landed in Namibia with a secretary and a police superintendent (Soggot, 1986:2). For Namibia, this was the introduction to human



Map 2.2

Former African German colonies

Source: Louis (1967).

misery sandwiched with dehumanisation, subjugation, and over-exploitation of natural and physical resources by aggressive and merciless colonists (Braganca & Wallerstein, 1982:5).

In 1904, German colonial government conducted a *genocide policy* objectively aimed at securing land ownership for German colonists. The concept genocide means the deliberate killing of people or nation. Practical implementation of the genocide policy was accomplished by not only machine-gunning the indigenous people but also by poisoning their water-holes. This is confirmed by the German soldier's description of the pursuit of the Herero people that:

*'The next morning we ventured to pursue the enemy. In the path of their flight lay women's ornaments, cattle and men - dead and dying and staring blankly....A number of babies lay helplessly languishing by mothers whose breasts hung down long and flabby.... At noon we halted by water-holes which were filled to the brim with corpses' (Melber, cited by IDAF, 1989:11).*

The above statement is confirmed by the German governor, Leutwein who remarked that between 1904 and 1907 his troops destroyed two thirds of the potential labour force of Namibia (IDAF, 1989:13). The application of genocide policy was principally aimed at securing German's interest in natural and physical resources of the country. Indigenous people's resistance movements against colonialism were seen by Germans as an obstacle to the accumulation of wealth, particularly land-ownership. For instance, legislation depriving Namibians of the right to own land was introduced. Namibians were finally removed from arable land and sent into the Kalahari desert where they were left to perish (Jones, 1991:188).

Germany's brutal treatment of the Namibian people made it difficult to recruit labour. Therefore, prisoners captured in military expeditions against the natives became forced labour. Despite the seizure of land, most Namibians were still able to survive through traditional subsistence farming and herding systems in concentrated areas (IDAF, 1989:10).

Armed German colonialists moved into the southern and central zones of Namibia depriving Namibians of land vital for grazing their livestock. Germans also instigated differentials by making and breaking economic agreements with various communities to further their control of natural and physical resources in the country. In regard to Walvis Bay, Namibia's international harbour, Hardique wrote in 1907 that:

*'if German had possessed that port (which by then was annexed to Cape Town by the British) we should have had as much difficulty as at Delagoa Bay' (Louis, 1967:32).*

The education policy of the Germans was perpetuated by a segregated curriculum. Education of nationals was placed in the hands of the missionaries, who in commercial terms lacked financial resources to maintain fundamental education needs in black schools. German children were educated using Namibian resources. This is affirmed by German's occupation of Tsumeb Copper Mine in which it exploited the resources of the mine at the expense of indigenous people (IDAF, 1989).

German education policy for Namibians was oriented towards the establishment of a typical unskilled labour capable to carrying out instructions from Germans without question. As a result, academic poverty became a chronic disease that would be transferred from generation to generation. One feature of this educational treatise, is that the environment is analysed as an element outside the real economic transactions. In

other words, environmental awareness was never taken to be a serious issue. Despite the fact that Namibia was colonised in the late nineteenth century by German, which that time was the leading country in environmental management, particularly forest management, no Namibian environmental experts were trained (Erkkila & Siiskonen, 1992:181).

The German colonial administration had three main economic objectives: To guarantee a constantly pool of labour; to lower labour costs by transferring the burden of welfare and employment from the commercial to the peasant sector; and to regulate competition for labour between groups of employers of great differing economic strengths (Moorson, 1982:25).

Colonialism policy, with its targets of displacing people from their traditional mode of life has created social wounds which are difficult to heal. The European mode of life has dominated and replaced traditional lifestyles, resulting in loss of traditional knowledge about the environment and its management (Green & Kiljunen,1981:32). For example, traditional family planning has been replaced by the use of contraceptives which ultimately contributed to unwanted pregnancies in communal settings, especially where people did not understand the concept. This has also resulted in record population growth which today has become the threat on principled factors concerning planning for sustainable development.

The long hours of work introduced by colonialism, especially in mining barracks, restricted formal love relations between couples, and contributed to a high rate of divorces which also impose a boost on juvenile delinquency in society. As a result, the youth have lost environmental knowledge which would have been taught to them by their parents. Women position was seriously suppressed (IDAF, 1989:31).

### **2.3. Apartheid of South Africa**

South African forces invaded Namibia in 1915, defeating the German colonists who were still in control of the territory. Apartheid government along with policies further prejudicing Namibian nationals were introduced. This era of political and economic reform was marked by a shift from German genocide policy to South African apartheid policy. 'Apartheid' is an Afrikaans word meaning 'separate' or 'divide' (Kotze, 1983). It received popular attention in 1962 when the South African Government appointed the Ordendaal Commission to investigate the conditions under which a system of separate development would be established (Kotze, 1983:129).

Separate development meant that the development of the whites in their respective areas was not to be compromised for the development of the black areas and their people. In his observation of the implications of separate development, Legassic, (cited by Kotze, 1983:130), argued that racial discrimination and capitalism were in the name of separate development developing simultaneously and fast in South Africa. Apartheid therefore, meant separate environmental policies; separate education systems; and separate economic benefits.

When the South African government took control of Namibia, the windfall of the German land theft presented a golden opportunity for achieving two political objectives: Consolidating its hold over Namibia by the settlement of loyal colonialists, and for finding an outlet for the growing number of landless rural Afrikaners. As a result, rural Namibians were reduced to destitution by the South African commercialisation system (Moorson, 1982:30).

In 1960, the South West Africa People's Organization (SWAPO) was formed. Its major and common objective was to liberate both the people of Namibia and their physical and

natural resources from subjugation and inappropriate exploitation by South Africa. This is confirmed by the 1979 statement given by the Swapo President, Sam Nujoma, currently President of Namibia, that:

*'It must be borne in mind that the Namibian people are shedding blood to liberate each and every inch of the Namibian soil, thus each and every inch of the Namibian land must and will belong to the Namibian people' (Green, et al.1981:1).*

In 1966, SWAPO began military operations against the South African forces (Green, et al. 1981:172). However, South Africa illegally remained in the occupation of Namibian territory until 21 March 1990, when SWAPO won the 1990 democratic elections which were 'free and fair' because of UN intervention. During his Pretoria court case in which he was sentenced for twenty years imprisonment, Mr Andimba Toivo Ya Toivo, currently Minister of Mines and Energy, stated categorically that:

*'We are Namibians not South Africans. We do not now, and will not in the future recognise your right to govern us; to make laws for us in which we had no say; to treat our country as if it were your property and us as if you were our masters. We have always regarded South Africa as an intruder in our country' (United Nations, 1974:1).*

Apartheid policy was based on racial discrimination (Kotze, 1983), occupational segregation (ILO, 1977) and environmental monopoly (Jones, 1991). There were administrations for Whites, Coloureds, Hereroes, Wambos, Caprivians, Kavangos, etc. These policies were applied as strategies for furthering apartheid domination and control in all sectors of natural and physical resources. Justification of segregated, other than integrated administration was enshrined in Act No.46 of 1953 (Brooks, 1968:48).

The outbreak of war between South African forces and People's Liberation Army of Namibia (PLAN) in 1964, paved the way for a tournament of national conflict between and within racial groups. Most of those who condemned the apartheid system were regarded by the South African regime as Protestants against what was regarded as 'native law'.

Many Namibians who died in fighting were the nation's intellectuals who could have contributed to the country's management of its resources. Other intellectual environmentalists were forced to discover a different type of life in exile. For instance, environmentalists such as John Muafanjejo, who in 1984 became an international artist, got killed by the South African forces in 1987 (IDAF, 1989:54).

The loss of traditional knowledge about the environment was significant. Imported knowledge from South Africa had two shortcomings: (a) It was not disseminated to the majority of the people, and (b) it was not suitable for traditional decision-making in Namibia about Namibian natural resources. In this regard, Jones (1991:194) states that before the arrival of the whites local Namibians had their own structures which imparted comprehensive education about the conservation of endangered species such as elephants and rhinos.

Namibia's economy has since the introduction of apartheid been linked to that of South Africa. The integration of the two economies left Namibian people without choice other than paying tribute to the dictates of the South Africa regime. The accumulation of taxes and their transfer into the South African Reserve Bank, deprived Namibians from an equal opportunity to administer and obtain benefits of their own natural and physical resources. This increased Namibia's dependence on South Africa (Green, et al.,1981:220)

The apartheid policy also resulted in the eviction of indigenous people from their land. For instance, Jones (1991: 187) explains the impact of land monopoly by contending that 'the resulting land squeeze on indigenous inhabitants laid the foundation for overgrazing'. By being squeezed into areas with limited carrying capacity, indigenous people became blinded to the need for sustainable environmental management, and finally resorted to environmental abuse, mainly to supplement their demand for food. Green (1993) states in this respect that over sixty percent of the Namibian people are concentrated in the northern part of the country and are contributing to maximum environmental degradation of the area. Those who resisted subjugation were often arrested, harassed and imprisoned (Soggot, 1986:30).

It need to be clearly stated here that the idea of killing indigenous people was not simply to punish, or merely to reinforce colonial oppression but rather to completely destroy every tribe of their kind and have the resources accrue to colonial headquarters (Broganica & Wallerstein, 1982 :52-3. For instance , South Africa's extraction of Namibia's mineral resources reached international attention and was rebuked by the United Nations as illegal (United Nations, 1974:20). The distribution of Namibia's mining profits amounting to US\$59.4 million for 1971 aroused many questions from abroad. The distribution was divided as follows: 'US\$9.8 million was forwarded to America, US\$1.3 million to Britain, and US\$46.3 million to South Africa' (United Nations, 1974: 20). It is also interesting to note that Namibian tax revenues were collected by the South African treasury. For instance:

*The powers over taxation which were regulated by the Namibian Affairs Act of 1969, were together with the Act removed from the Administration at Windhoek and were annexed under the guise of South African financial manipulations in Pretoria (Broganica & Wallerstein, 1982: 52).*

In assessing such resource distribution, the United Nations confirmed that there was a high degree of natural and physical resource exploitation in Namibia. The Department of Foreign Affairs for the Republic of South Africa (1975:19) records that in 1974 the United Nations Council for Namibia passed Decree NO.1 which prohibited South Africa from exporting Namibian resources without UN permission. Following Decree NO.1 was the pass of Resolution 264 which called upon South Africa to immediately withdraw its administration from the territory (Department of Foreign Affairs for South Africa, 1975:19).

Additional to inappropriate distribution of resources is the education system which was not environmentally oriented. The education curriculum for Namibians as compared to that of the White South Africans was inadequate to address economic needs of the country. For instance, 'Bantu education' system was deliberately structured to expand primary education and to increase the number of literate workers. Secondary and tertiary education were suppressed to prevent black economic and social advances (Haines & Tapscott, 1991:178).

A serious problem with the apartheid education system was that economically oriented subjects such as Environmental Management, Economics, Mathematics, Physics and Chemistry were not included in a Bantu education curriculum, and were only fully introduced in secondary schools in 1993 by the SWAPO Government. Responding to this type of education system, United Nations critics asserted that 'the slow progress of non-white education could be a policy design to be advantageous to the whites' (Wellington, 1966:412).

State organisation of marketing was also vital. Successful exports were central to the whole apartheid enterprise, and agricultural exports were essential if the strategy of settler farming was to be economically viable (Moorson, 1982:32). Internal rates of

return, which resulted from external trade ventures were on a daily basis transacted for the benefit of the Government of discrimination which perpetuated injustice in resource distribution.

Apartheid policy created separation between families. The wage labourers who were employed in mines were denied the opportunity to migrate to their occupational zone areas with their families. Apart from its creation of barrier lines between families, lower wages contributed to poverty, which together with high divorce rates contributed to juvenile delinquency and environmental abuse in society (Green, 1992). Access to health care and education was virtually not existent (Moorson, 1982:33).

Separate development was a very clear and distinctive colonial formula which created disunity between blacks and whites. Indigenous community regarded settlers as thieves who came to steal their land. Instead of reconciling common differences and misunderstandings between races, the South African colonialists affirmed segregated rules and regulations which were anathema to traditional public morals (Braganca & Wallerstein, 1982). In this light, apartheid policy created a divided society which ultimately had clashed on 'bits and pieces' of of exclusively degraded indigenous land.

The bitter period of the political struggle for independence separated many people from their families. Again, local knowledge about the environment was lost when residents of many villages were often lined up and shot to death. This best illustrates the political, social and moral destruction of apartheid (from focus, IDAF Bulletin, Nov - Dec., 1982, cited by IDAF, 1989:73). These issues have shaped the state of Namibia's post-apartheid environment and will for a long period of time continue to impact on people's lives. An approach towards strategic planning and scenario evaluation of the general economic profile would be misguided if colonial issues and their resultant impact on people and natural resources are not influencing current formation of policies.

## **2.4. Namibia's Economic Position in Southern Africa: A comparative perspective review**

Given the above-mentioned adverse effects, it is indeed necessary to identify how these have affected Namibia's economic position within the Southern African region. It should be noted that if Namibia's natural and physical resources had been effectively managed, its current economic position, especially in regard to agriculture, would not be so poor. The fragile economy of the country, together with deliberate tempering on the limited resources by former colonial masters has caused Namibia's economic status to fluctuate.

Namibia became the tenth member of the Southern African Development Community (SADC) on 4 September 1990. SADC was established under the Arusha Declaration in 1980. The purpose of this organisation was originally to liberate economic dependency of the Southern African states from continued manipulation by South Africa. Other nine member states of SADC are Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe. Since independency, economic growth in these countries has been staggering between negative and positive. But the negative side of economic performance has continuously been overriding the positive side. In this perspective, Namibia, the youngest state in the region, is undoubtedly operating under economic threats from the experienced economic giants of the region. For instance, selected statistics depict Namibia as a country with the least productive capacity in agriculture (African Development Bank, 1993).

Namibia's affiliation with SADC could be a blessing only when regional declarations on resource conservation could bring progressive changes to the domestic economy. Uneven economic development within the region, which is influenced by environmental degradation, leading to domestic economic decay in some countries, is also a common problem to the Namibian economy.

According to Pitswane (1991:122), SADC member states are today individually and collectively far more dependent on the South African economy than when the organisation was first established in 1980. Major reasons to the cause of this dependency are associated with the mismanagement of domestic resources within the member states. How this has affected Namibia's progress is a major concern in this section of the study.

From a regional point of view, Namibia's population growth rate is indeed a matter of concern to the development planner. Though the country's 1991 population record of 1.5 million is one of the lowest, ranking second after Botswana, the growth rate of 3.2, is one of the highest in the region (African Development Bank, 1993). Since the rate of population growth will in a decade double the GNP growth, currently floating at 3 percent, pressure on natural and physical resources will also double. This will finally shift Namibia's regional population record from second to a third, fourth or fifth position. The impact will be a fall in real GNP, a fall in GNP per capita and a fall in the quality of human life.

Table 2.1		Namibia's Population Perspective among SADC member countries							Average Annual Growth
Country	Area (000'km <sup>2</sup> )	1985	1986	1987	1988	1989	1990	1991	1987-91
Angola	1246.7	8	8.2	8.4	8.6	8.9	9.2	9.5	3.2
Botswana	600.4	4	1.1	1.1	1.2	1.2	1.2	1.3	3
Lesotho	30.4	1.5	1.6	1.6	1.7	1.7	1.7	1.8	2.5
Malawi	118.5	7.3	7.7	8.2	8.7	9.1	9.6	10	5.1
Mozambique	801.6	13.5	13.7	13.8	13.9	14	14.2	14.5	1.3
Namibia	823.1	1.2	1.3	1.3	1.4	1.4	1.4	1.5	3.2
Swaziland	17.4	0.7	0.7	0.7	0.7	0.7	0.8	0.8	2.6
Tanzania	945.1	21.9	23.4	23.4	24.3	25.1	26	26.9	3.5
Zambia	752.6	6.9	7.4	7.4	7.6	7.9	8.1	8.4	3.3
Zimbabwe	390.6	8.4	8.7	9	9.3	9.6	9.9	10.3	3.4

Source: African Development Bank, 1993.

Table 2.1 shows Namibia's population profile among SADC member States. At the moment the rate of increase has already exceeded the maximum employment capacity of the country. The currently unemployed surplus has resorted to environmental destruction for a living. The situation is likely to be worse if strategies to curb galloping growth rates are not developed and implemented now.

#### 2.4.1. State of the Gross Domestic Product (GDP)

While it is economically misleading to use the GNP in judging the economic performance of different countries, it is important to note the annual growth rate of each country in the regional economy. Namibia's real GDP per capita (at 1985 market price) is \$US1500. This gives it a fourth position after Botswana, Lesotho and Swaziland - See Table 2.2 below.

Table 2.2. per Capita GDP at Constant 1985 market prices

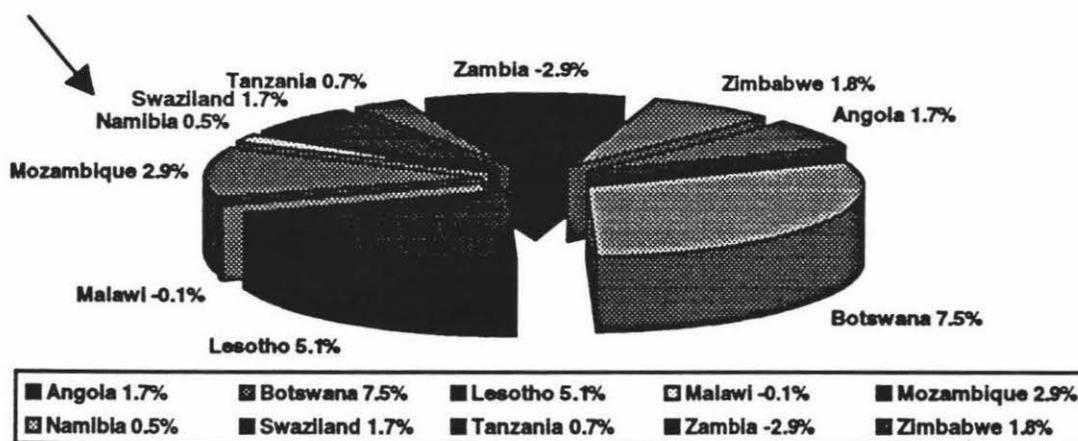
Year	1983	1984	1985	1986	1987	1988	1989	1990	1991
Angola	667	757	730	800	867	965	952	954	927
Botswana	950	1025	1064	1109	1172	1312	1442	1481	1565
Lesotho	153	160	161	155	162	178	190	193	198
Malawi	151	154	154	146	140	136	136	135	139
Mozambique	278	279	251	251	263	276	289	293	295
Namibia	1079	1050	1019	1028	1035	1062	1015	1038	1055
Swaziland	496	500	556	561	539	571	580	577	576
Tanzania	308	311	315	319	320	325	328	329	330
Zambia	350	334	328	317	316	322	309	295	281
Zimbabwe	550	522	540	535	512	539	554	547	549

Source: Compiled from *African Development Bank, 1993*.

Namibia's gross domestic savings as percentage of GDP indicates a growth average -0.9 from 1983 - 1987 and 3.9 percent in a period 1987-1991. When such domestic savings are compared to Zambia with 14.3, Zimbabwe with 21.9, and Tanzania with 11.3, Namibia's efforts to stimulate its domestic economy through environmental protection becomes crucial. Furthermore, Namibia's contributions towards Southern Africa's

nominal GDP for 1990 was only 1.6 percent, ranking number 6 from maximum to minimum. According to the 1991/92 Budget Speech by the Honourable Minister of Finance, Dr Otto Herrigel, Economic growth, as measured by the annual increase in the gross domestic product at constant 1985 prices, reached a respectable 3 percent during 1990...'. However, this growth rate is still very low when compared with that of other developing countries within southern Africa. Furthermore, emphasis on growth expectations without effective resource management to which economic growth and development depends, is a narrow vision towards economic reconstruction and reform in Namibia.

Figure 2.1. per Capita average annual growth rate (constant 1985 market prices) 1987-91



According to Figure 2.1, Namibia's average per capita annual GDP growth rate of 0.5 is among the least in Southern Africa. While this GDP remains stagnant, both environmental degradation and population growth are increasing at an alarming rate. It is also important to note that negligence and delays in developing appropriate development strategies and plans to ameliorate adverse impacts, can also affect the achievement of sustainable development.

Table 2.3. Namibia's GDP profile within Southern Africa (*at constant 1985 price*)

(in millions of US dollars)							Average growth rate 1987-	
Country	1985	1986	1987	1988	1989	1990	1991	1991
Angola	5823	6550	7290	8339	8478	8775	827	4.9
Botswana	1137	1222	1331	1534	1735	1834	1996	10.7
Lesotho	247	245	263	295	323	337	355	7.8
Malawi	1131	1125	1144	1177	1239	1297	1393	5.0
Mozambique	3395	3438	3633	3829	4040	4164	4277	4.2
Namibia	1259	1309	1358	1436	1416	1494	1568	3.7
Swaziland	366	380	375	480	425	433	444	4.4
Tanzania	6904	7225	7512	7898	8246	8543	8864	4.2
Zambia	2252	2256	232	2456	2434	2401	2358	0.3
Zimbabwe	4522	4640	4599	5013	5333	5443	5639	5.2

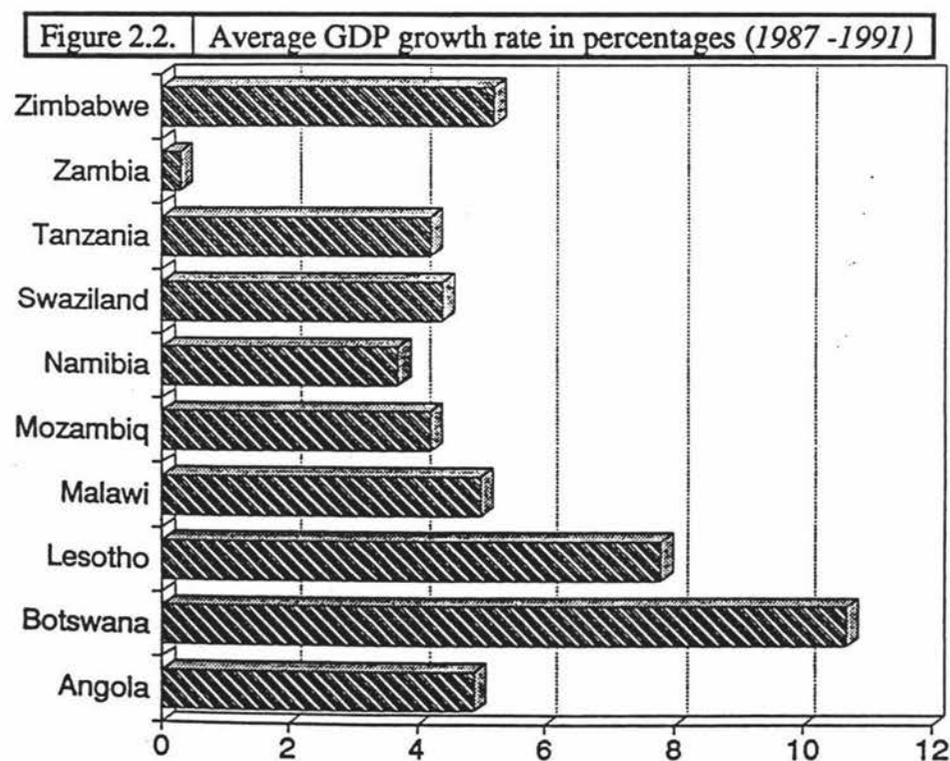
Source: African Development Bank, 1993.

Namibia's real GDP had not fared well during the 80s which only records an average growth of 3.7 between 1987 to 1991 (see table 2.3). In 1992, a significant decline from 3.8 in 1991 to 3.5 percent in 1992 was reflected. However, the 3.5 percent growth in 1992 was a greater achievement and progress for Namibia, but this still leaves Namibia in a critical position in which the maintenance of this rate for the next five year time span of the Development Plan will inevitably be a drawback in both economic growth and development.

For instance, when adverse effects of the landscape, droughts, water shortage, absence of strategic plans, etc., are taken into consideration, the 3.5 percent or more will hardly be achieved. During 1992 real GDP expenditure rose marginally by 0.4 percent (Ministry of Finance, Economic Review 1993). It came to light also that the expansion in real consumption expenditure in 1992 had a negative multiplier impact on household incomes. This was reflected in general economic surveys taken in Windhoek of which significant results were driven from consumer or household-basket analysis. For instance:

*'the decline in real disposable incomes of households, reflecting a slower growth in nominal wages, combined with an intensified tax burden, rising consumer prices and an increase in consumer debt servicing, has caused real private consumption to contract by 4.5 percent in 1992 (Ministry of Finance, Economic Review 1993).*

This dwindling economic record reflects in reality that Namibia's economic bone-marrow, the domestic impulse, is disorganised and is unable to stand economic challenges within Southern Africa. Since the economic base, the ecological support system is in shambles, the need to rehabilitate the economy will only be met by redirecting planning strategies toward the management of the natural and physical resources. It is therefore, worthwhile to note that Namibia's economic progress has since 1980 never shifted. This stagnation, as clearly shown by Figure 2.2., is to a large extent attributed to the impact of resource depletion.



Source: Figures derived and compiled from *World Bank report, 1989; Development Bank of Southern Africa; and African Development Bank, 1993.*

Among other factors, severe decline in economic growth has been due to the poor quality of the environment which failed to attract foreign capital into the country. The ravages of war were for decades a threat to the tourism industry in the country. This has reduced tourism's contribution to GNP, and the impact of such loss is still afflicting Namibia's economic performance within Southern Africa. Figure 2.2 shows that during the heavy war of 1986 to 1990, Namibia's GDP growth became the second lowest in the region, and it will take a long time to experience a sustainable recovery.

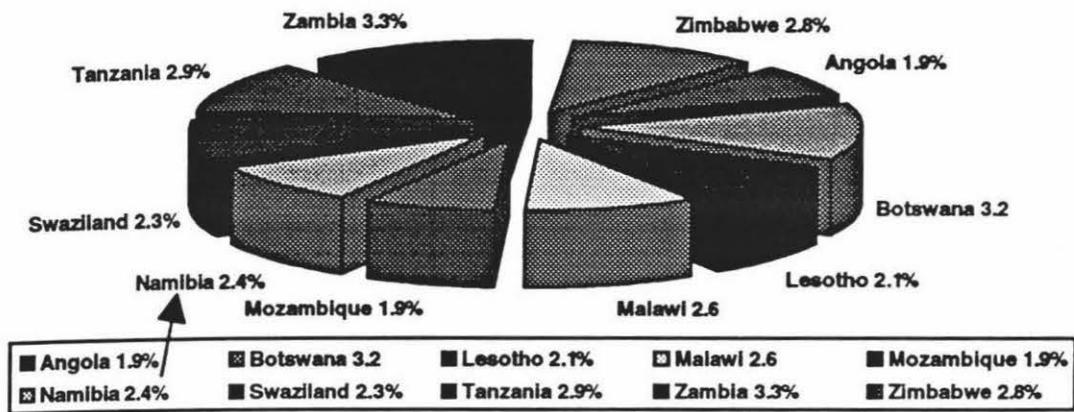
#### **2.4.2. Human Resource Development**

Human development implies the upgrading of human skills by eliminating poverty, inequality and dependence through the application of social justice and democratic values in resource distribution, the aim being to increase improvement to the quality of life of those living in the vicious cycle of absolute poverty. According to Frederick Harbison:

*'Human resources.... constitute the ultimate basis for wealth of nations. Capital and natural resources are passive factors of production; human beings are the active agents who accumulate capital, exploit natural resources, build social, economic and political organisations, and carry forward national development'* (Todaro, 1989:330).

Namibia's human capital is severely underdeveloped. According to the Report of a Labour Force Sample Survey (August 1991), 'Namibia inherited an economy which had experienced declining real per capita GDP throughout the 1980'. Figure 2.3 shows that from 1985 to 1990, the country's human capital (as related to its GDP growth and other factors of production) appears to be a retarded one. This creeping growth in labour force is also another handicap to sustainable development in Namibia (see Figure 2.3 below).

Figure 2.3. Average annual growth rate of labour force (1985-1990)



Additionally, the impact of racial discrimination, which at an exaggerated rate favour the white minority at the expense of the indigenous black majority, has randomly supported an equal distribution of resources. With the fact that Namibia only achieved its independence nearly at the close of this century, a possibility of lagging behind other SADC member countries is indeed undeniable.

According to Haines & Tapscott (1991:178), the nature and forms of education in contemporary Namibia has been extensively shaped by the policies of German and South African rulers. This state of affair, as compared to other SADC member states which obtained their independence ten or twenty years ago, leaves Namibia with a wider task to accomplish. The Human Development Index as demonstrated by Table IIA in Appendix II. Table IIA shows that Namibia's human development index is only 0.295, ranking the fifth from the least. The adult literacy rate is only 40 percent, as compare to 72 percent in Swaziland, 65 percent in Tanzania, 72.8 percent in Zambia, 66.9 percent in Zimbabwe and 78 percent in Lesotho. In other words, Namibia is the second country with the least developed human resources. The first one is Mozambique with an index of 32.9. percent (World Bank, 1992; African Development Bank, 1993).

It need to be mentioned here that the higher the illiteracy rate, the larger is the number of people who are environmentally unaware. A shortage of human resources is normally also associated with lower productivity. Lower productivity of the population is also associated with a shortage of skills in the management of natural and physical resources. It is hard for an unskilled labour to confront poverty and its causes (Todaro, 1989).

### **2.4.3. International economic relations**

Resources, both natural and physical, are an important source of income without which a country's competitive advantage at an international scale is at stake. Namibia's achievement of independence on 21 March 1990 is an adventure to the opening of a new chapter for global recognition in matters concerning resource management, human development, trade relations and negotiation.

This pride in the unfolding of economic social and political relations with the neighbouring South Africa, Angola, Botswana, Zambia Zimbabwe, and the rest of the world is an adventure of progress, but may likely cast the country's economic and political well-being into a vicious cycle of economic dependency. For instance, the unchecked bilateral economic relations between Namibia and South Africa is likely to cost Namibia an infinite price of economic freedom. It has been argued that:

*Namibia's involuntary membership of Southern African Customs Union (SACU) has made it a captive market sheltered against outside competition by substantial outside tariff walls, while Namibian producers have found it difficult to compete with South Africa's sophisticated industries, economies of scale and, more recently South Africa's industrial incentive scheme' (Hartmann, 1991:159).*

The above quotation can be related to an African proverb which says that when elephants are fighting, it is the grass and shrubs that reap the pain - meaning, when the highly industrialised countries are trading globally, it is the less industrialised countries which are adversely affected. The only method by which Namibia could survive the impact of foreign trade is to strengthen its domestic economy, through appropriate environmental management and economic planning.

Table 2.4. Namibia's value of export and import within SADC

(in millions of US dollars) Country	Value of exports							Average Growth Rate 1987- 1991
	1985	1986	1987	1988	1989	1990	1991	
Angola	2238	1303	2302	2494	2989	3884	3228	8.8
Botswana	744	711	1587	1473	1902	1779	1821	3.5
Lesotho	23	26	40	40	69	59	57	9.3
Malawi	249	248	277	288	267	417	472	14.3
Mozambique	77	80	97	103	104	127	128	7.2
Namibia	727	879	883	947	1104	1069	1184	7.6
Swaziland	176	267	406	453	443	565	575	9.1
Tanzania	255	343	241	275	317	331	317	7.1
Zambia	784	517	873	1179	1334	1292	1014	3.8
Zimbabwe	959	1054	1427	1643	1620	1726	1828	6.4
	Value of imports							
Angola	658	525	1302	1372	1338	1578	1677	6.5
Botswana	583	713	937	1194	1514	1780	1960	20.3
Lesotho	363	400	420	430	611	687	737	15.1
Malawi	285	260	295	406	503	581	703	24.2
Mozambique	424	543	625	715	699	807	813	6.8
Namibia	578	680	888	861	1260	1222	1238	8.7
Swaziland	323	352	435	516	581	663	730	13.8
Tanzania	1017	868	817	823	990	698	572	-8.5
Zambia	654	648	816	835	928	1242	906	2.6
Zimbabwe	1031	1132	1205	1301	1484	2124	2338	18.9

Source: African Development Bank, 1993.

Among all SADC member states, Namibia ranks fifth in exports and sixth in imports (African Development Bank, 1993) - see table 2.4. Though this can be seen as a fair deal to begin with, opportunities to liberalise the economy will continue to be illusive if development strategies are conceived outside the carrying capacity of the country's natural and physical resources.

Greater opportunities in foreign trade will only be unfolded by Namibia's effort to strengthen its manufacturing sector. At this stage, Namibia's manufacturing sector is so small that it can not at its own support an export industrialisation strategy. In 1991, the share of the manufacturing sector in GDP was 4 percent, while it employed only 5 percent labour force in 1989 (Bank of Namibia, 1991:7).

Viewed within the SADC perspective, Namibia's manufacturing sector's growth rate of 6.1 percent is far too small when compared to 27.4 percent for Zimbabwe, 36.1 percent for Zambia, and 8.0 percent for Angola (African Development Bank, 1993). The government's reaction to this situation has been the development of a set of policies that aim at creating a conducive environment to support the growth and development of the sector.

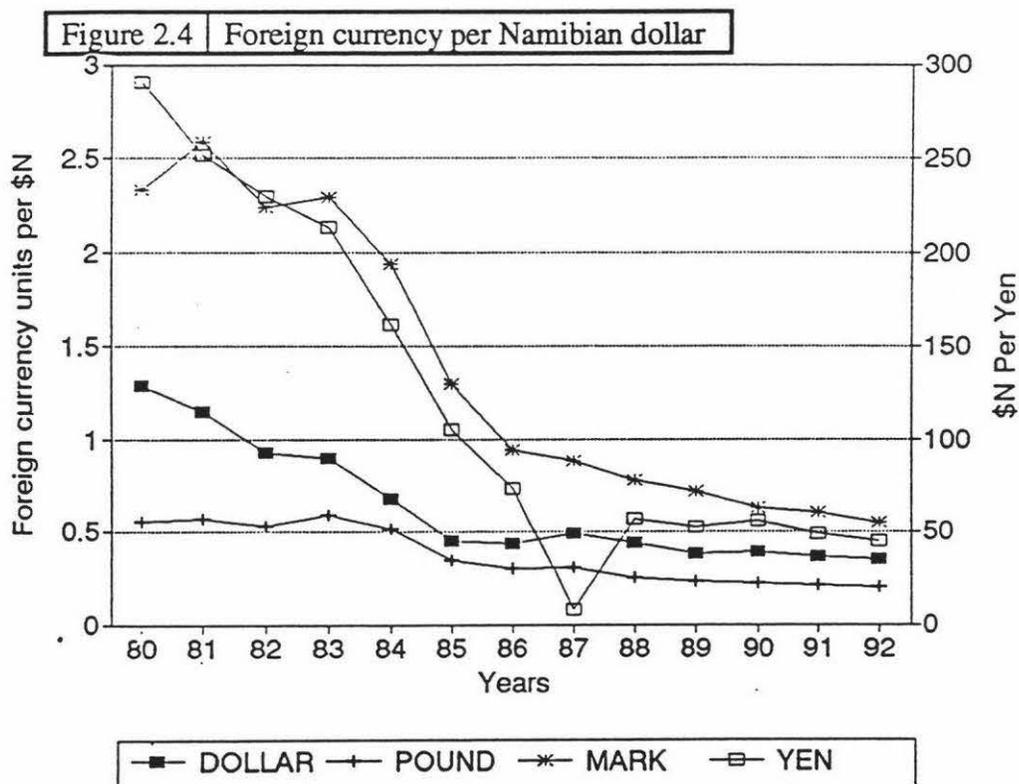
The Bank of Namibia (1991:7) contends clearly that 'it is noteworthy to observe that the structure of the manufacturing industry is related to the country's natural resources'. So, policies that do not reflect the conservation of natural and physical resources will hardly give Namibia a fair deal in the international 'gambling game' of economic development.

The structure of imports and exports in Namibia is liberated through two trading partners: trade within the Southern African Customs Union (SACU), and trade with the rest of the world. The unhealthy state of the trade balance with a record surplus of 59.5 in 1986 is shown in Table 2.5. Within this trade environment, it is important to note that Namibia imports only 6 percent by value of merchandise goods from SACU. Over 75 percent of export in merchandise goods is traded outside the union (Hartmann, 1991:159).

At current prices	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>Agricultural:</b>												
Cattle	72.2	119	74.3	48	51.6	64.7	83.2	138.9	148.9	154.9	111	112.4
Karakul pelts	42.8	20.1	13.3	10.2	16.2	19.7	18.4	34.6	34.6	25	13.8	15
Small stock	9.1	25.8	22.2	10.7	15.5	30.5	40.7	53	57.6	95.4	97	104.9
other	7.4	9.2	10.7	8.8	11.8	12.6	14.6	15.4	17.3	18.4	20.2	22.2
<b>TOTAL</b>	<b>131.5</b>	<b>174.1</b>	<b>120.5</b>	<b>77.7</b>	<b>95.5</b>	<b>127.5</b>	<b>156.9</b>	<b>241.9</b>	<b>258.4</b>	<b>293.7</b>	<b>242</b>	<b>254.5</b>
Unprocessed fish	1.6	8.7	15.1	9.6	13.9	24.4	8	15.3	15.3	11.6	86.4	324.2
<b>Mineral products:</b>												
Diamonds	519.9	271.2	258	281.3	279.9	497.9	256.5	535	817.8	1027.6	846.6	1216.5
Uranium	283	288	379.9	300.9	417.2	584.7	762.2	603.4	454.3	694.8	440	340.8
Other	178.6	138	158.2	179.4	202.3	291.1	267.6	272.3	446.9	518	502.6	417.9
<b>TOTAL</b>	<b>981.5</b>	<b>697.2</b>	<b>795.2</b>	<b>761.6</b>	<b>899.4</b>	<b>1373.7</b>	<b>1786.3</b>	<b>1410.7</b>	<b>1719.9</b>	<b>2240.4</b>	<b>1789.2</b>	<b>1975.2</b>
<b>Manufactured products:</b>												
<b>Fish products:</b>												
Luderitz	10.3	10.9	23.1	35.7	28.4	27.1	28.6	25.6	29.6	27	29.2	37.1
Walvis Bay	38.0	42.7	47.9	62.5	44.6	69.1	105.7	169.4	221.4	127.4	327.8	330.9
Meat products	41.3	32.9	37.9	43.5	47.1	49.7	60.1	87	110.7	131.9	158.5	189
Other	41.2	55	59.2	61	62.8	62.8	64.1	65	71.1	101.5	122	143.3
<b>TOTAL</b>	<b>130.8</b>	<b>141.4</b>	<b>168.1</b>	<b>202.7</b>	<b>182.9</b>	<b>208.7</b>	<b>258.5</b>	<b>347</b>	<b>432.8</b>	<b>387.8</b>	<b>637.5</b>	<b>700.3</b>
Electricity	-	-	0.0	1.3	4.2	3.9	6.1	6.6	9.1	9.3	10	9
<b>TOTAL EXPORTS</b>	<b>1245.4</b>	<b>1021.5</b>	<b>1098.9</b>	<b>1052.9</b>	<b>1195.5</b>	<b>1738.2</b>	<b>2215.8</b>	<b>2021.5</b>	<b>2434.6</b>	<b>2942.8</b>	<b>2765.1</b>	<b>3263.2</b>
<b>TOTAL IMPORTS</b>	<b>-1257.7</b>	<b>-1409.6</b>	<b>-1462.9</b>	<b>-1391.8</b>	<b>-1557.8</b>	<b>-1753.9</b>	<b>-2156.3</b>	<b>-2466</b>	<b>-2878.1</b>	<b>-3296.6</b>	<b>-3161.3</b>	<b>-3410.6</b>
<b>TRADE BALANCE</b>	<b>-12.3</b>	<b>-388.1</b>	<b>-364</b>	<b>-338.9</b>	<b>-362.3</b>	<b>-15.7</b>	<b>59.5</b>	<b>-444.5</b>	<b>-443.5</b>	<b>-353.8</b>	<b>-396.2</b>	<b>-147.4</b>

Source: Bank of Namibia, Annual Report 1991, p. 58.

Namibia's major exports are mining and agriculture. The fact that a larger share of exports is traded outside SACU is simply because there are no reliable markets within the region. The tendency to cling on trading with the outside world needs to be handled with greater care. In most cases it happens to be fatal to those countries with weaker domestic economies, especially those whose trade is based on a single product. For instance, Namibia's poor performance in 1990 diamond production resulted into 3 percent decline in merchandise exports (Ministry of Finance Economic Review, 1994). Additionally, the decline of the country's currency from 1980 to 1993, as reflected in Figure 2.4, indicates no sign of recovering.

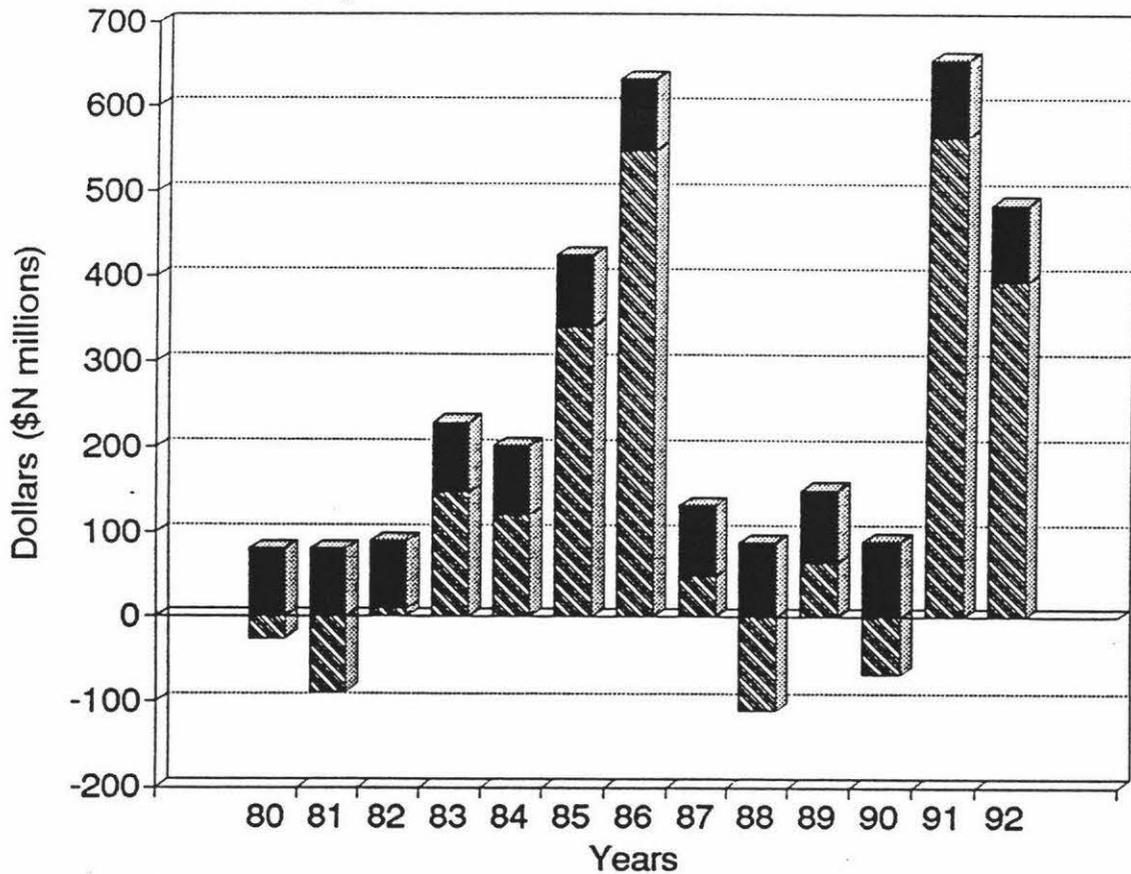


Source: Figures obtained from *Ministry of Finance: Economic Review, 1993*.

Having witnessed Namibia's economic constraints, it is convincingly important for the country to seek strategic means by which the future can be re-ordered to meet the concerns of the next generation. The ups and downs of Namibia's economy are warnings pointing to the collapse of the economy in the near future. For instance, the balance on

current account, as shown by Figure 2.5, indicated only two successful years - 1986 and 1991. It need to be mentioned that Namibia is one of the African countries whose integration into the international trade cycles of development is progressively based on formulating comprehensive and integrated resource management strategies.

Figure 2.5. Namibia's current account balance (1980-1992)



Source: Figures derived from *Ministry of Finance, Economic Review 1993*.

Schumacher noted that one of the causes of poverty and underdevelopment is the lack and mismanagement of natural and physical resources, capital and infrastructure (Kotze, 1983: 7). Therefore, the economic gap between Namibia and its SADC partners will become wider if management efforts are not sacrificed for the preparation of national resource management strategies.

## **2.5. Namibia's Current Political Structure**

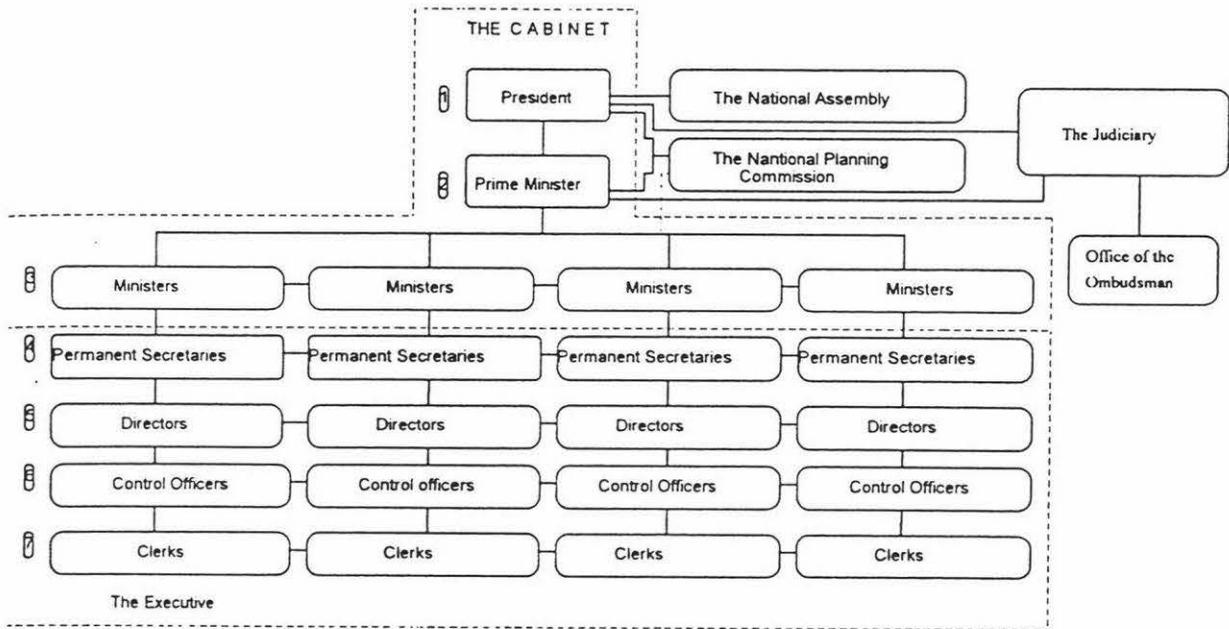
Previous introductory sections have demonstrated Namibia's colonial experiences and the resulting impact of war on both natural and physical resources. Davidson (1991:3) contends that despite termination of the League of Nations by the United Nations, supplemented by increased internal and external pressure, South Africa continued illegal occupation of the territory until reverses in the Angolan war, plus the cost in men and money (R5 million per day on military expenditure), led to the reluctant acceptance of Resolution 435 and a cease-fire in 1988. Section 2.4 has also shown that by the end of the colonial period, Namibia's economic status has extremely dwindled, while those of other SADC member states have dramatically improved. At this stage it is necessary to provide an outline of the political administrative structure which was established on independence to redress and amend possible development pitfalls created by former colonial administrations. It will also be essential to take a brief reiteration on recent developments made by the SWAPO government in the first five years of independence.

### **2.5.1. Political administrative set-up**

The Namibian Government is established as a sovereign, secular, democracy and unitary State founded upon the principles of Democracy, the rule of law and justice for all (Constitution of Namibia, 1991). The current political structure, shown summarily by Figure 2.6, is headed by the President, elected democratically under the United Nations Resolution 435 supervision. This presidential election was seconded by a unanimous vote of parliament on 16 February 1990.

The Prime Minister functions as head of government machinery. His main task is to enhance coordination among different ministries (White Paper on National and Sectoral Policies (WPNSP), 1991). To achieve coordination, the Cabinet which is occupied by

Figure 2.6 Namibia's Political structure



Ministers is used by the Prime Minister to direct Government toward national development. Another task of the Prime Minister's Office is the promotion of political atmosphere based on basic freedoms, internal peace and security (WPNSP, 1991:9). Each Minister is seconded by his/her deputy Minister. In each ministry there is a Permanent Secretary whose function is to efficiently coordinate the activities of the ministry with those of the Minister. Permanent Secretaries function also as advisers to the their respective ministers.

The Permanent Secretary heads a board of divisional directors within his/her ministry. The function of directors and their deputies is to implement political policies formulated by Cabinet and passed in parliament. Chief Control Officers function as assistants to directors and are seconded by Control Officers and clerks. This brief structure of government can be a good start for an integrated national strategy for resource and environmental management in Namibia. Currently, the newly elected Government of Namibia has already started to implement the national policy of reconciliation which strategically was installed immediately on the eve of independence to pragmatically

dramatise the reality of freedom, justice and prosperity in Namibia, and also to put a signature to the promise made by SWAPO during electoral campaigns for independence.

### **2.5.2. Recent developments**

After hundred years of colonial rule, the people of Namibia finally managed to confront and displace the schizophrenia of separate development which was enshrined in the apartheid constitution of South Africa in 1953. In order to heal the wounds of segregation in working places, and disunity in communities, the SWAPO Government was elected to redeem the land of the indigenous people from occupation by a handful of colonists who currently still enjoy the monopoly and cartel syndicate of land throughout Namibia. However, the redemption of land by government has been a technical issue which currently is being digested in consideration of the balance of interests and economic well-being of the Namibian people. The ministry of Lands Resettlement and Rehabilitation has been established to administer the rehabilitation programme and also to allocate land to the landless.

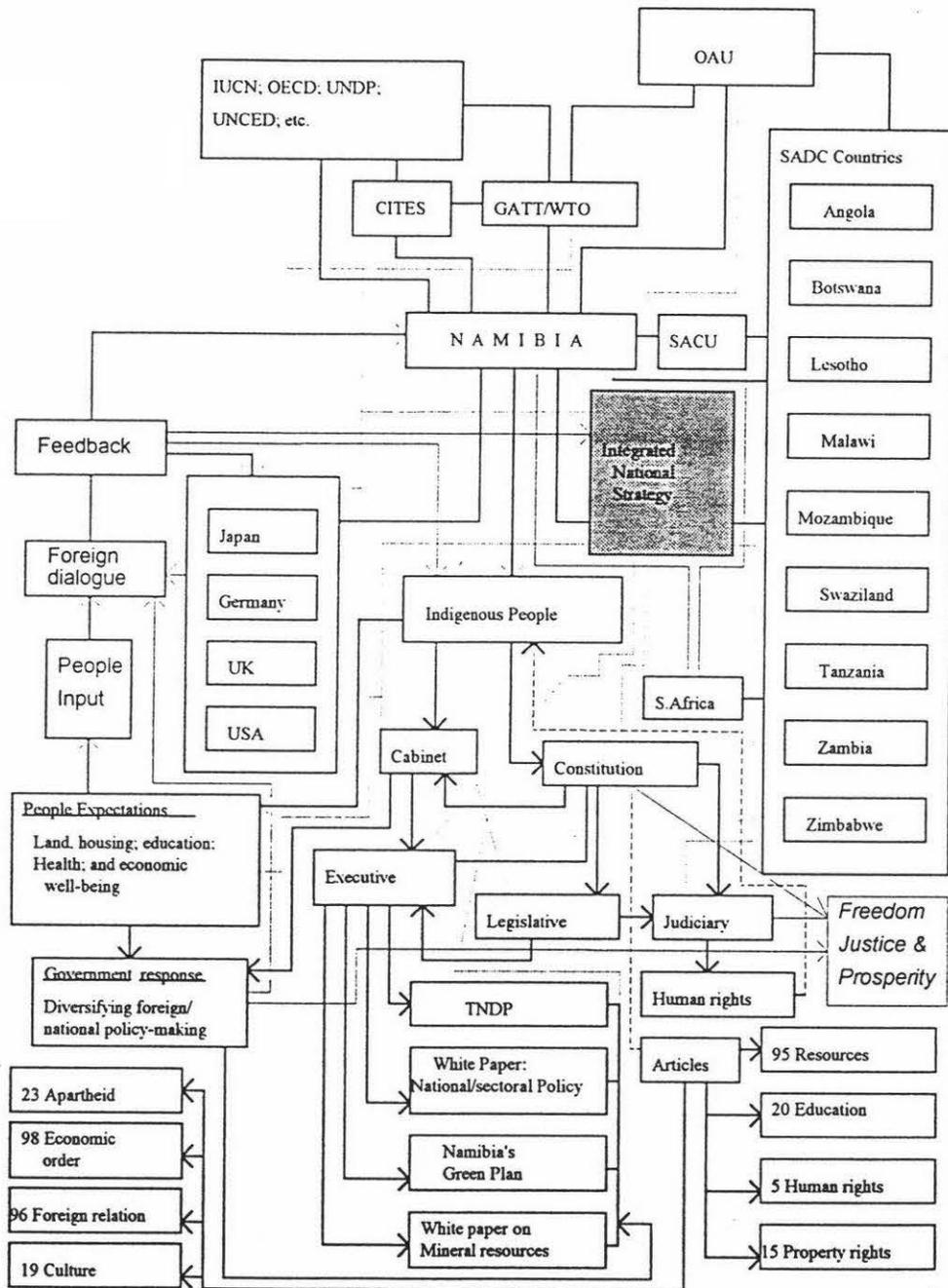
Other significant and positive development efforts made by the current government include: victory over South Africa-Namibia-Walvis Bay debates which ultimately resulted to incorporation of Walvis Bay (Namibia's International Strategic Seaport) into Namibia on 28 February 1994; introduction of a successful national literacy program for adults; effective administration of the self-help housing scheme for low income groups; internationalization of resource issues of Namibia by liaison with IUCN; establishment of regional development structures; etc. Furthermore, this study identifies the SWAPO Government's commitment to meet development expectations of the people of Namibia. For instance, Figure 2.7 demonstrates how the current government has linked Namibia to the international organisations such as the Convention on International Trade in Endangered Species (CITES), General Agreement on Trade and Tariffs (GATT) or

World Trade Organisation (WTO) IUCN, etc. Figure 2.7 shows also that Namibia is linked to both Organisation for African Unity (OAU) and to Southern African Development Community. The purpose of international linkages is mainly to create a reliable trade-off environment, and also to abate strategic sanctions which may likely result from industrial protection by particular economies.

At the moment Namibia's major international trade partners are Japan, Germany, UK and USA. At the same time the current Government has created smooth trade relationships within SACU. All these efforts are being pursued to respond to the expectations of the Namibian people prior to independence. The two arrows (in Figure 2.7) from indigenous people to Cabinet and Constitution, indicates that the Cabinet is established by the majority of the indigenous people of Namibia, and that the existing Constitution was drafted by full political, economic, social and cultural representation of the nation. The role of the SWAPO government is also demonstrated in Figure 2.7 by constitutional articles and policy documents which are currently being implemented. In respect to the state of the Cabinet, 'President Sam Nujoma underlined his commitment to the policy of national reconciliation that had seen him appoint non-SWAPO members and White citizens to his first Cabinet' (African Connexion International, 1991).

An Integrated National Strategy for Resource and Environmental management shown at the heart of Figure 2.7 is suggested to contribute to current developments expressed in the Transitional development Plan for Namibia, and also in other strategic documents such as Namibia's Green Pan (1992). The integrated national strategy would need to be diversified in respect to both national and international inputs. The aim is to resolve those impediments hindering the achievement of sustainable development in Namibia (enshrined in Chapter 3). Note that Namibia's international dialogue on trade issues is affected also by people's input and expectations at home. This study acknowledges also

Figure 2.7 The significance of Namibia's reconstruction and development process



the SWAPO Government's democratic syllables expressed heroically as *freedom, justice and prosperity*. These are enshrined in Namibia's constitution as a golden promise bestowed for both present and future generations of Namibia. The current review and analysis of all colonial laws which are enshrined in statute volumes is enthusiastically encouraged by government so that freedom, justice and prosperity can practically be experienced and acknowledged by all people and beyond the 'race and colour syndrom.'

In order to establish an appropriate development base, the Namibian government embarked on full support of the regionalisation policy in which Namibia became the tenth member State of SADC. It is regionally hoped that through effective collaboration of SADC states, a strong economic base likely similar to that of ASIAAN will be established in southern Africa, and member countries will experience maximum benefits. However, an appropriate analytical approach to Namibia's economic dynamics of the past decade needs a careful comparative analysis with other nine member states of SADC. This analysis should indicate the state of economic development in Namibia by relating Namibia's performance to other countries engaged in trading within SACU. For instance, Namibia's current constrained industrial capacity fails to absorb 60 percent of the total labour force. The government is still the main employer and is severely burdened with a higher responsibility to alter the existing underdevelopment and poverty in the country.

Namibia is recorded as the world's leading producer of gem-quality diamonds, accounting for some 30 percent of world output. However, the shortage of human resources (demonstrated in section 2.5.2) with appropriate planning skills to reverse the ongoing process of environmental degradation is a serious problem potentially able to affect the government's ability to achieve sustainable economic development objectives. In addition, this section of the thesis highlights that unless environmental degradation and possible resource depletion are sustainably controlled by current political structure, Namibia's international trade links (shown in Figure 2.7) will be badly affected. It is the task of the government of Namibia (supported by a diversity of agencies) to make development a reality in the lives of all the people of Namibia, and also to make Namibia a reliable development model for the rest of Africa.

## 2.6. Conclusion

The strategy of both Germany genocide and South African apartheid policies to enforce separate development has been crucial in ensuring that development in Namibia is economically and ecologically sustainable. Adverse impacts of these policies have by date of independence remained stumbling blocks to Namibia's reconstruction and development process. Due to Namibia's long and bitter revolutionary cycle for independence, natural and physical resources have during this period fallen victim to colonial masters' control, who lacked the courtesy for educating communities.

Because much attention was on war rather than resource management, Namibian people are now victims of their own environmental ignorance. The impact of this ignorance is critical to the entire economy. As it has been indicated, Namibia's economic performance in Southern Africa is indeed below acceptable levels of economic development. Environmental degradation, resulting from the unhealed spiritual and political wounds of war has constrained the growth of the GNP; increased unemployment; increased poverty; increased water and air pollution; increased death rate, and general underdevelopment.

A society develops economically as its members increase jointly their capacity for dealing with the environment. This capacity for dealing with the environment is dependent on the society's environmental understanding of the laws of nature and also on the extent to which society put that understanding into practice (Rodney, 1972: 12). But putting integrated environmental management practice into planning at all levels will still take time to be fully realised. The impact of colonialism during the past decade needs a special understanding of both the economy and the environment. Any strategy without enough information and knowledge of both the overall economy and the environment is likely to fail. The first step at the moment is to examine the current state of the environment in Namibia, and this is a task to be undertaken in Chapter 3.

## CHAPTER THREE

### CURRENT STATE OF NATURAL AND PHYSICAL RESOURCES IN NAMIBIA

*'Economic development in both industrialised and developing countries relies crucially on natural resources and on the productivity of natural systems. Valuation of natural systems and environmental quality effects can be carried out only after the physical, chemical and biological impacts of economic activities have been identified' (Hutschmidt, et al., 1983:286).*

#### 3.1. Introduction

In addition to the ravages of war and foreign occupation, Namibia's ability to use natural and physical resources is also adversely affected by climatic events. Monsoon winds are generally critical to sustainable management, and prevent consistent rainfall patterns in most parts of the country, affecting both agricultural production and the recovery of natural ecosystems. The two main factors which limit water supply to Namibian agriculture are: Unreliability of rainfall which varies from year to year, causing frequent short-term droughts and occasional damaging floods; and, severe prolonged droughts (up to 15 years) which devastate grain production and make sustainable agriculture difficult (Moorson, 1982:14).

In order to understand the problems associated with economic development, and how they relate to agricultural production and conservation, it is essential to consider Namibia's landscape types, climatic conditions, sources of water, population growth, soil conditions, flora and fauna, mining and tourism. All these factors influence sustainable management of resources. Tempering with their long-term viability can be catastrophic to human development and well-being. Their location and the resultant effects on population dispersal and infrastructure development are crucial to the establishment of a sustainable environmental atmosphere in Namibia. An assessment of their utility should

determine the causes of misuse; state of regulations and institutional capability; cost to society; and the state of management policy (Cleave, 1988:44).

### **3.2. Structure of the landscape**

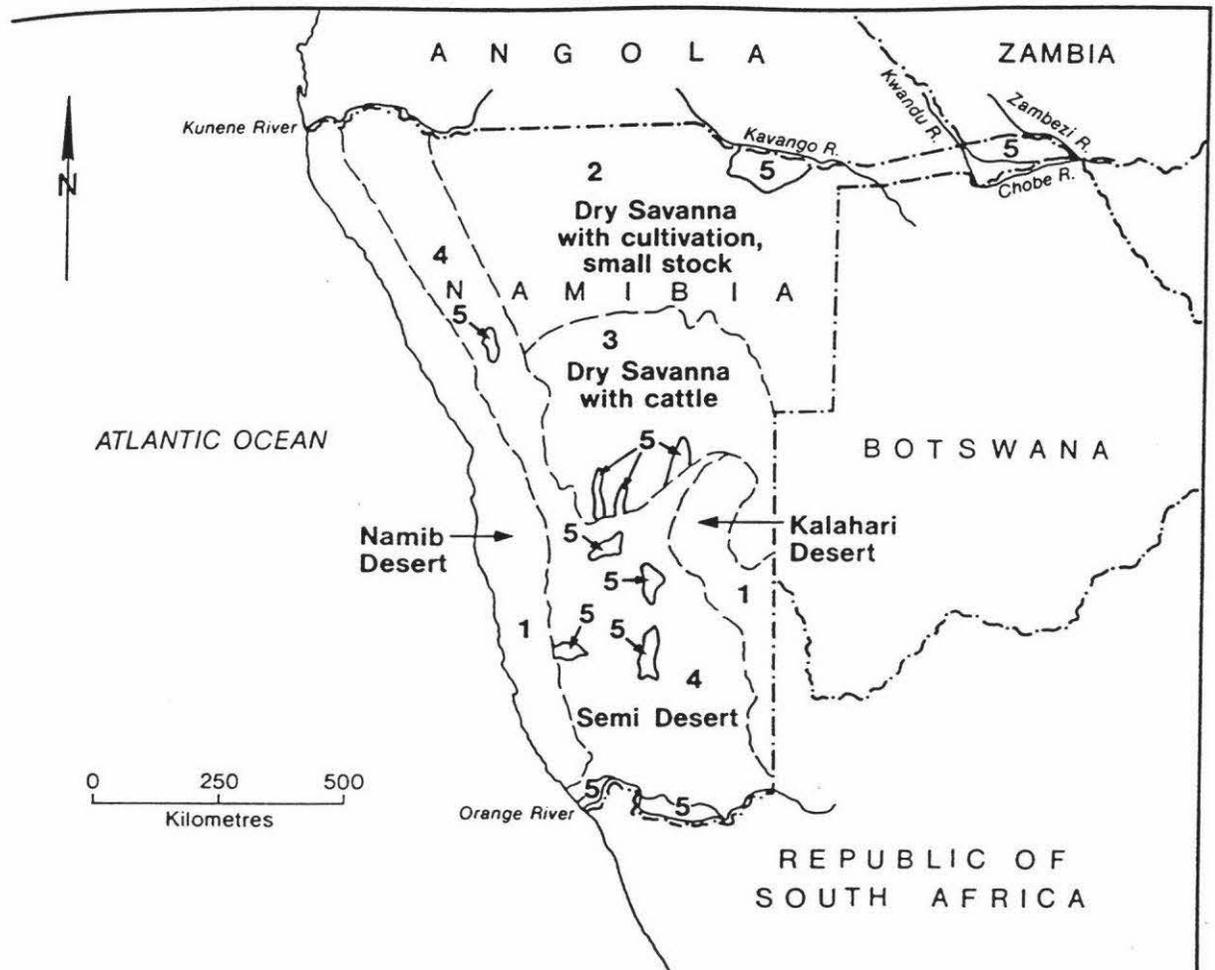
Map 3.1 illustrates Namibia's landscape types. It is fundamentally important for a development planner to understand the landscape affected by development activities. Out of 824,269km<sup>2</sup> of the total area of Namibia, 20 percent is covered by dry woodlands, 29 percent by savannah with thorn trees, another 29 percent by sparse savannah with scattered trees and bush-vegetation, whilst the remaining 22 percent is covered by deserts (Transitional National Development plan (TNDP), 1991/1992-1993/1994:152). This harsh environment creates limited potential for economic use. However, the northern part of Namibia has good soils and is favourable for agricultural production. The central region of the country is also favourable for animal stocks such as sheep, goats, and cattle.

The dry environment of the overall country is a threat to effective management of the country's natural and physical resources. Dry Southern region has barren soils which are unsuitable for biological life (Marsh & Seely, 1992:8). Drought is a natural disaster in semi-arid areas. Droughts may occur when the normal standard of rainfall is not received, or is received at times which are unfavourable for irrigation (Marsh & Seely, 1992:9).

Productivity in Namibian traditional agricultural areas is, by most measures, substantially lower than in the urban areas of the territory. Biological productivity is severely being restricted by Namibia's aridity (TNDP, 1991/1992 - 1993/1994). In the traditional agricultural areas, this in turn, is exacerbated by cultural behaviours,

## Map 3.1 Landscape





1. Namibia's landscape is characterised by two marginal deserts: the Namib Desert - west and the eastern Kalahari Desert.
2. The dry Savanna (grass and trees) with cultivated and small stock.
3. Dry Savanna with cattle breeding.
4. Semi-desert, scarce vegetation with goats and sheep breeding.
5. Cultivation and intensive stock breeding with irrigation.

**Map 3.1**

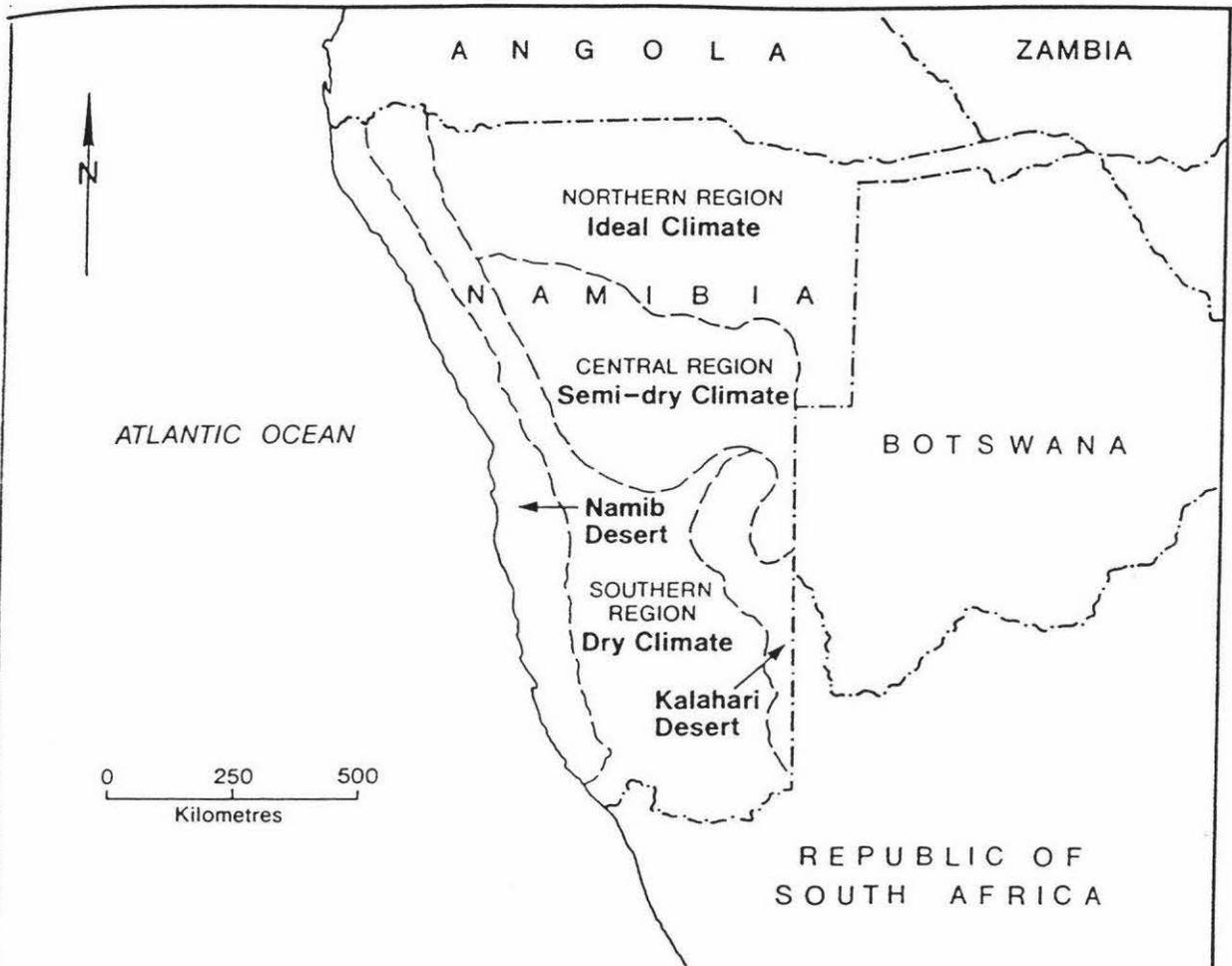
**LANDSCAPE MAP**

culminating in progressive loss of both soil fertility and useable moisture (Wilkin, 1989). The result is a destruction of the 'output backbone' of the agricultural sector. As the United Nations Institute for Namibia (UNIN) (1986:150) has noted, environmental issues are 'all embracing' that any degradation happens to filter steadily into all the sectors, causing severe harm to our notion of sustainable development. In this dictum, the landscape remains a senior catalyst in backing factors which limits institutional progress in environmental planning and management.

The desert with its unfavourable agricultural environment is for Namibia an important area for tourism. It serves as a breeding ground for ostriches, snakes and wildlife, etc. It is also a heaven for endangered wildlife species. Currently, the Government of Namibia is continuing to tighten the security of the desert ecosystem. Measures have recently been taken to develop a desert management strategy (Brown, 1992). It is worthwhile to mention that the ecological state of the Namib desert, has been shaped by excessive poaching throughout the seventies and eighties, and degeneration in many species such as rhinoceroses and elephants is still persisting. 'If man's war against nature continues, we'll end up in a blighted and decaying wasteland' (Reardon, 1982:20). This warning by Reardon was influenced by degrading natural environment of the Namib Desert and is still applicable today.

### **3.3. Climatic conditions**

One of the factors that determine the success and failure of plans and strategies affecting arid countries of Southern Africa is climate. Map 3.2 illustrates variations of climate in Namibia. Namibia experiences a dry, warm climate with the rainfall maximum during the summer and a precipitation distribution that ranges from virtually zero in the hyper-arid zone of the Namib desert to about 600mm per annum in the northern regions (Janson, 1991:1)



The Northern Region of Namibia is known by its ideal climate characterised by wet summers and dry winters. The region tends to experience droughts, depending on climate fluctuations.

The Central Region is semi-dry with cattle breeding, but is likely to become a threat to livestock during droughts. The region is covered by grass with thorn shrubs.

The Southern Region is characterised by a dry climate reflecting the barren Namib Desert. However, the region is favourable for small stock breeding. Sheep and goats have often proved to survive in the Southern region.

**Map 3.2**

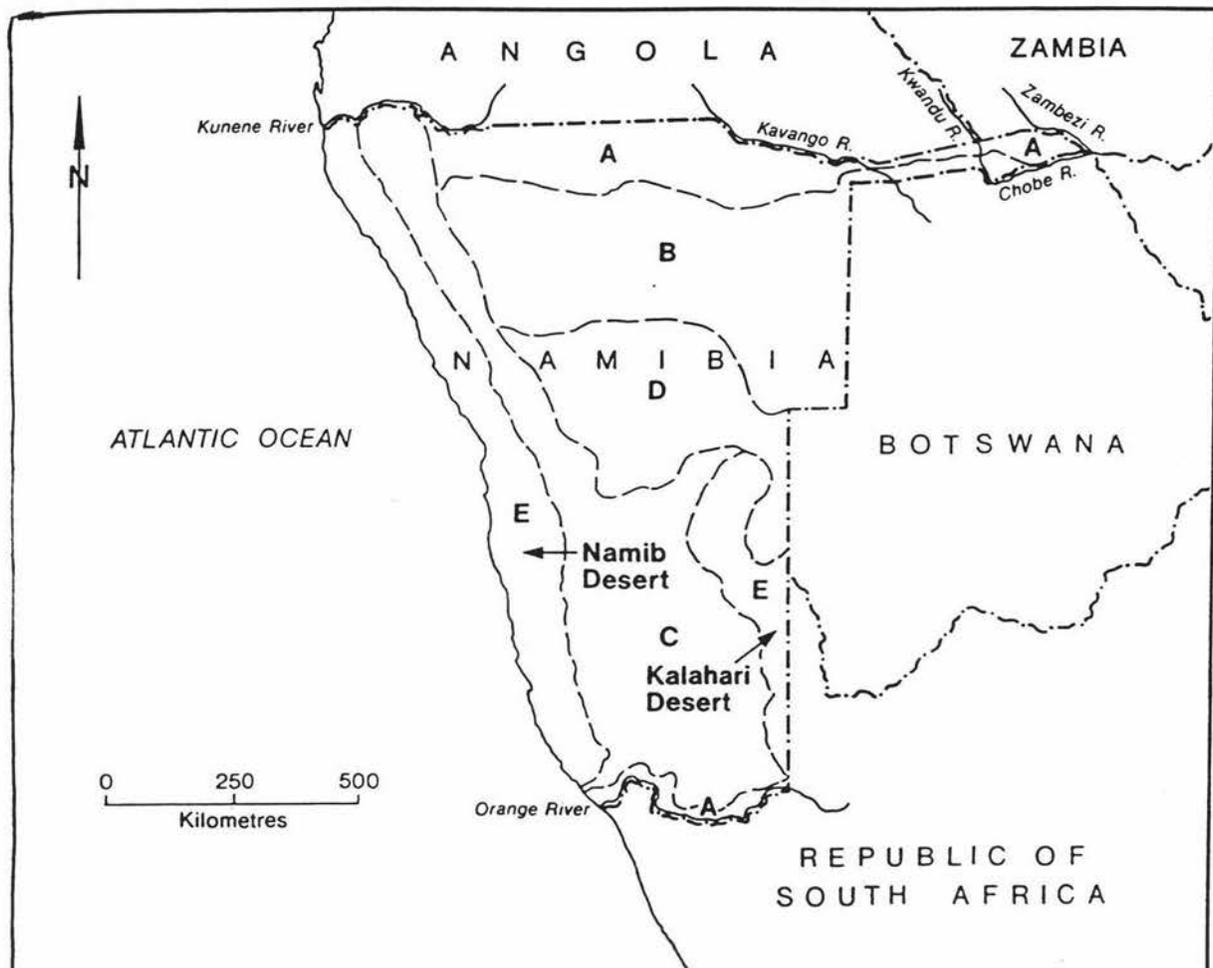
**CLIMATE MAP**

Rainfall, as influenced by the already discussed landscape, increases from south and west towards the north and east. Only 8 percent of Namibia receives over 500mm per annum. Variation in rainfall is a critical challenge for development planners, policy analysts, land managers and politicians, particularly in the more arid areas of the country. Since Namibia's rainfall is unpredictable and difficult to incorporate into future development plans, arid regions are vulnerably subject to over-exploitation by people, and which leads to desertification.

Despite the harsh climate of Namibia, the northern and north-eastern parts of the country receive rainfall up to a maximum of 700mm per annum. This amount of rain is annually perceived as a blessing that revitalises both the natural environment and cultivation. However, the limited amount of rainfall is a major limitation to sustainable development. Additional to the limited amount of rainfall is the shortage of perennial rivers flowing through the country. Limited rainfall contributes significantly to the failure of development projects in Namibia (Janson, 1991:1).

The critical environmental limits in Namibia are a threat to development and result in lower agricultural productivity (Adams, 1990:80). As a result, these constraints need to be incorporated into Namibia's national strategy for resource and environmental management. Another challenge facing Namibian planners is the impact of climatic variations which limits water availability in almost all parts of the country.

Rainfall shortage in Namibia does not only reduce people's standard of living, but natural resources such as grass, forestry, wildlife, soil, including microbial earthworks, all happen to adversely affected, while others experience sudden destruction from droughts. Because environmental degradation is increased in areas of frequent drought, an integrated national strategy should be the answer to problems effecting sustainable conservation of Namibia's natural resources (UNIN, 1986:150).



- A** Namibia North is surrounded by five rivers which to a large extent provide water to local inhabitants. However, these rivers do not penetrate the country. As a result, only marginal areas are supplied with water. There is still a shortage of water in most areas of the region.
- B** The area marked B is semi dry. However, there are periodic rivers and swamps used for irrigation purposes.
- C** The dry southern region has few periodic rivers which supply water to the inhabitants of the area. The region has scarce water sources and is always dry.
- D** Area D is semi-dry with swampy waters which may be used for minor agricultural and domestic purposes.
- E** Water in the Namib Desert is marginal, mainly from tributaries emerging from the Atlantic Ocean but such tributaries end in the sandy dunes. In real terms, there is no water in the deserts. Rainfall in these areas is prevented by dry winds.

**Map 3.3**

**WATER MAP**

The seriousness of water shortages in Namibia is aggravated by the country's arid natural landscape, shown in Map 3.3. Additional to natural constraints is the unsustainable use of water within the country for various purposes. For instance, 'excessive mining of ground-water' for industrial activities has been identified in Swakopmund and Walvis Bay where water demand of the Rosing-Swakopmund-Walvis Bay (RSW) pole is met by 'pumping out the beds of the Kuised and Omaruru rivers' (Jansson, 1991:16).

Namibia receives about 57 percent of ground-water. Only 23 percent is supplied by perennial rivers. The geology of Namibia has a significant influence on the rainfall becoming available as surface water. In the sand areas of the Kalahari and the Namib, rain-water tends to infiltrate rather than run-off (UNIN, 1986:28). Sustainable use is the key issue when considering a limited and finite resource such as ground-water. Before, expounding on the critical impact of water and water-use, it is first essential to use the table below to show the capacity of water consumption by various consumers.

Table 3.1 Water supply by water schemes 1985-1992.							
Year	1985	1986	1987	1988	1990	1991	1992
Domestic	29.69	31.67	33.86	36.69	41.33	42.35	45.87
Stock	1.81	1.79	3.62	4.19	5.97	5.40	6.85
Irrigation	26.75	28.34	30.44	28.90	32.51	30.60	29.07
Mines	7.76	6.48	8.03	11.20	7.79	7.46	6.10
Total	66.01	68.28	75.95	80.98	87.60	85.82	87.89

Source: Swawek., in *Statistical Abstract No. 2*, 1993, p. 100.  
Million cubic metres.

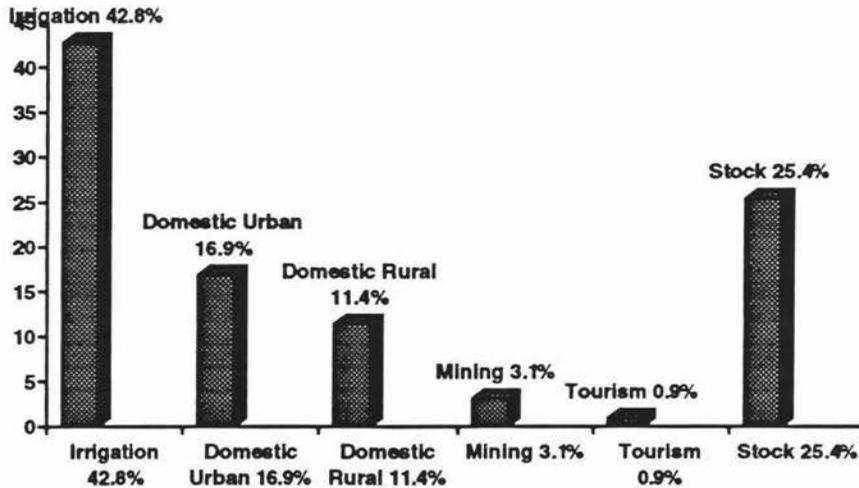
Table 3.1 indicates that water consumption from 1985 to 1992 has dramatically increased by 25.4 percent. If consumption patterns are not changed, increase in water consumption capacity is likely to rise by 50 percent or more in 1999. Arnon (1981:30) contends that the increase in water requirements must be far more considerable in the dry regions than in the humid regions for two main reasons:

*(a) water is the limiting resource in the dry regions and therefore determines the extent to which other resources can be developed, and (b) an increase in water requirement is concomitant with a rise in the standard of living.*

A problem indicated by Table 3.1 is that domestic water supply increased by an average of 3 cubic metres from 1985 to 1992. This figure can be related to the rate of population increase which was recorded to be 3.0 percent in 1990. In this regard, it should be noted that the faster the population happens to grow, the more water is consumed. Additionally, large areas of land with good grazing lands are reported to be under-utilised or to be over-exploited because of lack of water (Janson, 1991:4). For example, under-utilisation of land in Namibia is also influenced by the shortage of water that limits or even hinders people's access to unfavourable parts of the country. On the other hand, over-utilisation is caused by few canals, few boreholes, and few rivers which influence over-grazing resulting from over-population in selected areas with enough water and good soils for irrigation practices.

Table 3.1 and Figure 3.1 show that irrigation consumes the highest capacity of water than any other sector in Namibia. This means that any management of water will remain unsustainable if farmers are not included in water management programmes. Domestic urban water consumption is the third largest consumer of water after stock farming. From this perspective, it is possible to argue that the water problem in Namibia is intersectoral and need to be addressed from that angle. That is, household users are suppose to be consulted when making decisions affecting consumption capacity of water. In other words, water management should begin at home and not in the Cabinet. The Cabinet should only suggest financial means and policies necessary to make the engine going, but the ball (management action) need to be played at regional and local fields.

Figure 3.1 Water Consumption in Namibia



Source: Data compiled from Brown (1992)

Issues in the management of the water resource are exacerbated by lack of appropriate incentives for wise water management. There is also a shortage of coordinated strategies to monitor the misuse of water in selected parts of the country. The neglect of social and environmental considerations in traditional agricultural areas is also contributing factor to the abuse of the water resource. Additionally, no environmental impact assessment strategies are used within regional and local government structures to analyse effects of development projects on water resources. Disposal of toxic substances by farmers and also by medical institutions raise the level of contaminated water and contribute extensively to water shortages in the country (Adams, 1990:83).

Furthermore, sustainable development is affected by water boreholes which are located sporadically without concern of their adverse impact on wildlife, flora and fauna, caused by people migrating to areas which are environmentally sensitive. The availability of water is the most influential environmental determinant of land-use in the commercial districts, and will be crucial constraint on agrarian reform (Adams & Werner, 1990: 80). It has also been noted that farming practices have a negative impact on ground-water. The application of toxic substances as fertilisers and also as remedies against pests are

reducing the amount of clean water necessary for human consumption. Toxic substances include:

*the use of DDT in the northern part against malaria; the use of deltridin and alpha methrin against tsetse flies; the use of 10-80 strychnine by farmers against predators; the irregular use of chemicals against locusts; and toxic and hazardous wastes from industry , mining, hospitals, and laboratories, (TNDP, 1991/1992 -1993/1994: 262).*

In the 1980s, many ranches in Windhoek had seasonal open water and no erosion galleys, nor the impacted, impermeable surface soil that caused them. Proposals for deep ploughing, levelling with heavy equipment and setting up standard irrigation channel systems have been made in respect of the Oshana country. Given the specific complex structure of the natural ridges and channels this would be much more likely to reduce than to enhance soil fertility (Green, 1992:471).

Owamboland areas west of line 50 km east of the Ruacana-Oshivelo road are far too saline to be of use. Where water quality is relatively better, the sand is so fine that expensive well-screens are needed in the boreholes (UNIN, 1986:29). It also need to be noted that water resources are not evenly distributed. For instance, areas which are viable for irrigation are since the colonial legacy still occupied by white farmers (UNIN, 1986:30).

The Chobe, Zambezi, Kwando and Kunene are perennial rivers which currently play an important role in minimising the impact of water shortages in the north. However, unless all concerned agencies and individual users are brought into a single umbrella for water management, strategies for sustainable development will remain a dream in Namibia.

### **3.4. Population growth and environmental abuse**

The growth of the population from 1970 to 1991 is indeed a matter of concern imposing a threat to the already fragile natural and physical resource base. Talks with prominent politicians revealed that population growth in Namibia was a strategic aspect deliberately encouraged to back the struggle for independence. At this stage, it is argued that Namibian people are recovering from genocide and apartheid afflictions of the past.

Despite mixed feelings about the state of the population in Namibia, and most of which are influenced by torments of war, it is essential to single out facts by analysing the impacts of population growth and try to relate those impacts to the nation's expected economic well-being in the future. Planners see population growth in Namibia as an overriding issue which might be beyond human control in the next century (TNDP, 1991-1994; The World Year Book, 1992.). Table 3.2 shows that 57 percent of the residential places have an average population growth of 3 percent. Therefore, population growth is currently a national problem affecting sustainable development of natural and physical resources, and is likely to alter Namibia's expected GNP recovery.

The 1991 population and housing census reflected about 1.4 million people, which means that the average population density is about 1.7 people per km<sup>2</sup> (TNDP, 1991-1994). Namibia population growth rate of about 3% per year is a major obstacle to sustainable development, especially when compared to GNP growth which is stagnant at 3 percent. 'For example, about 115 additional children qualify for entry to schools each day, requiring additional classrooms to be added each and everyday of the year' (Brown, 1992:2).

Table 3.2 Implications of population growth (1970 -1991)

District	Area/(km sq) ( <sup>000</sup> )	1970	1981	1991	Increase %	P/A Rate %	P/A Rate%
Bethanie	18.5	4.2	2.8	2.9	3.67	3.54	0.35
Bushmanland	11.5	0.5	2.5	3.9	58.99	4.14	4.57
Caprivi	46.6	26.2	37.9	71.0	87.22	3.27	6.18
Damaraland	46.6	12.6	24.2	33.0	36.28	5.75	3.05
Gobabis	41.4	23.4	22.1	28.1	27.27	-.51	2.38
Grootfontein	26.5	22.1	22.0	34.3	55.99	-.04	4.38
Hereroland/E	51.9	11.4	18.9	25.4	36.26	4.51	2.90
Hereroland/W	16.5	8.9	15.4	19.4	25.88	4.81	2.27
Kaokoland	58.2	12.8	16.6	26.2	57.48	2.34	4.47
Karasburg	38.1	9.1	9.5	11.3	18.75	0.39	1.69
Karibib	13.2	10.0	9.0	12.2	36.27	-0.96	3.05
Kavango	51.0	54.8	105.7	136.2	28.87	5.80	2.50
Keetmanshoop	38.3	21.9	17.6	21.0	19.26	1.94	1.74
Luderitz	53.1	16.8	14.3	17.5	22.08	1.43	1.97
Maltahohe	25.6	5.2	4.8	4.2	-11.60	-0.77	-1.21
Marianta	47.7	21.2	20.6	24.8	20.52	-0.27	1.84
Namaland	21.1	..	12.8	16.3	27.68	..	2.41
Okahandja	17.6	10.5	13.3	21.2	58.97	2.12	4.57
Omaruru	8.4	5.3	5.5	7.4	35.43	0.32	2.99
Otjiwarongo	20.6	15.9	16.1	23.5	45.73	0.13	3.71
Outjo	38.7	13.5	8.9	12.6	42.12	-3.72	3.46
Owambo	51.8	305.6	452.0	618.1	36.74	3.46	3.08
Rehoboth	14.2	23.5	27.7	34.1	23.26	1.43	2.06
Swakopmund	44.7	7.6	15.5	20.6	33.14	86.24	2.82
Tsumeb	16.4	18.7	19.4	22.6	16.21	0.33	1.48
Windhoek*	33.5	75.7	118.1	162.0	46.42	3.36	3.76
Total	823.1	737.5	1025.7	1409.9	37.46	2.92	3.13

Source: Central Statistic Office, Windhoek.

\* Unspecified recordings of 7.5 for 1981 have been included in Windhoek.

E = East; W = West; P/A = per annum.

Nearly half of Namibia's population is concentrated in the north. The reason being the availability of rainfall there, which makes agriculture a possibility. Since the northern part of the country is suitable for subsistence agriculture, those who could not manage a successful life in cities have decided to migrate to the north where environmental degradation is already in access. *Unless the growth rate is reduced*, the well-being of

future generations of Namibians is unlikely to improve on that of the present generation, and the environment and resource support system is likely to be further degraded.

Namibia has a diversity of cultures with different modes of lifestyles. The northern part of the country is dominated by four cultures. These are Caprivians, Owambos, Bushmen and Kavangos. The central and southern parts of the country are occupied by the Hereros, Namas, Damaras, Rehobothers and Coloureds, etc., mainly in small units (Green, et al., 1982:27). The difficult in population planning is caused by population strategies which fail to link historical and cultural beliefs with strategic development.

The current 3 percent population growth is threatening the recovery of the environment in future. Among those interviewed, 33 squatter families were asked to state the total number of loaves of bread they could consume per day. This was done to show the relationship between population growth and environmental degradation (see Table 3.3 below).

Table 3.3 Analysis of population increase and consumption capacity		
FAMILY UNIT	1 2 3	Loaves of bread
2*1000 = 2000	1*1*2 = 2/2 = 1	*1000 = 1000
3*1000 = 3000	2*1*2 = 4/3 = 1.3	*1000 = 1300
4*1000 = 4000	2*2*2 = 8/4 = 2	*1000 = 2000
5*1000 = 5000	3*2*2 = 12/5 = 2.4	*1000 = 2400
6*1000 = 6000	3*2*3 = 18/6 = 3	*1000 = 3000
7*1000 = 7000	3*3*3 = 27/7 = 3.8	*1000 = 3800
8*1000 = 8000	3*4*3 = 36/8 = 4.5	*1000 = 4500
9*1000 = 9000	4*4*3 = 48/9 = 5.3	*1000 = 5300
10*1000 = 10000	3*4*5 = 60/10 = 6	*1000 = 6000
11*1000 = 11000	4*5*5 = 100/11 = 9.1	*1000 = 9100

Note the criteria of analysis in the table. Under family unit, 2 indicates two persons (e.g., husband and wife), and 3 represents couple with one child. Since the computer can not work with smaller numbers, family numbers were multiplied by a thousand to get 2000,

3000, etc. A family of 11 became a population of 11000 people. Categories 1, 2, 3., represents three families interviewed. All were couples without children but had different consumption capacity. For instance, family 1 consume 1 loaf of bread per day, family 2 consume 1, but family 3 consume 2 loaves. To get 1 we have to multiply 1 by 1, by 2 and divide the answer by 2 (number of families) which equals 1, and 1 multiplied by a thousand equals 1000 (shown by Table 3.3 above).

Dependent variable		Independent variable
ROW	C1	C2
1	1000	2000
2	1300	3000
3	2000	4000
4	2400	5000
5	3000	6000
6	3800	7000
7	4500	8000
8	5300	9000
9	6000	10000
10	9100	11000

**Figure 3.2 Resource demand and population relationship**

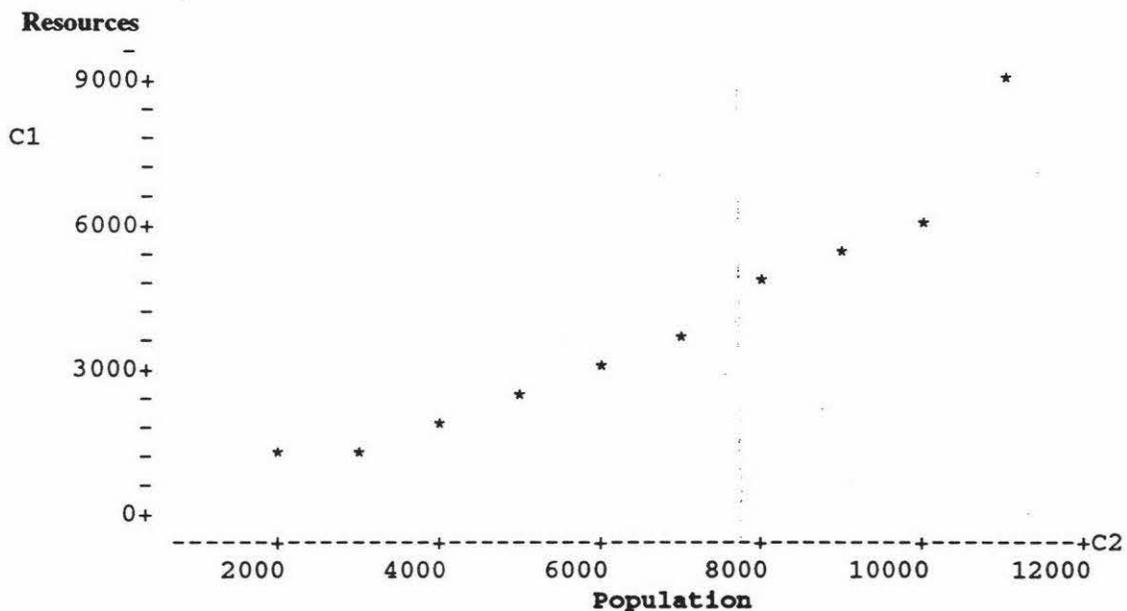


Figure 3.2 (note the X-axis conversion) explains table 3.3 by showing that 2000 people require 1000 loaves of bread, 3000 require 1300, etcetera. A lesson derived from this

experiment indicates that the larger the population, the greater is the demand for environmental resources. For instance, concentration of the population in Katima Mulilo, Oshakati and Rundu is already a threat to environmental recovery and development. Attempts to develop population management strategies have been difficult and ineffective because those who are involved, especially, women have not been consulted.

### **3.5. Economic Perspective for the agricultural environment**

Since Namibia is more than keen for achieving equitable economic development, endeavours and programmes in the agricultural sector, have become more frequently one of the main considerable elements of economic development. The major idea of such endeavours has often been an attempt by the National Government to counteract adverse effects of the processes of excessive concentration of large amounts of agricultural land in the hands of the few. This creates options for the many to ignore environmental constraints. Having witnessed this state of environmental affair, Topscott (1993: 34) argues that the 'egalitarian distribution of land in Namibia continues to be a source of social and political discontent among the majority of the country's citizens'.

Agriculture is the most reliable economic sector in Namibia. Any adverse effect that tend to reduce the productive capacity of this sector can cause poverty in the rural areas where sustainable living depends mostly on subsistence agriculture (Leistner, 1991:13). In this respect both exogenous and endogenous variables for agriculture are tied tightly to the fundamentals of managing environmental quality.

War, drought, overgrazing and unscientific farming methods have all had adverse effect on the agricultural sector. Such adverse effects from colonial regimes were at independence taken over by the new Government. They are still with us today. At the centre the environment 'dictates' development (Adams, 1990:80). Namibia's fragile

ecology is limited to the support of livestock. The major agricultural activities are the procession of meat and other livestock products, and more than 90 percent of commercial agricultural output comprises livestock, beef being the dominant product.

In the southern half of Namibia, where rainfall happens to be a crucial problem, farming is based on karakul sheep. The collapse on the international market for karakul pelts since the 1980s is a national threat to the sustainability of Namibia's pelt industry. Namibia's main subsistence crops such as beans, maize and potato are severely dependent on optimum rainfall. The seriousness of the impact of the 1991/92 drought over subsistence crops made President Nujoma in May 1992 to appeal to the international donor community for drought relief aid (Africa Connexion International Trade Promotion, 1991; The Europa World Year Book 1992).

The main problems within the agricultural sector are: soil erosion, bush-encroachment, and desertification, all resulting from overgrazing, overstocking and poor land management. This results to soil erosion and leads to poor agricultural performance (Janson, 1991:3). Furthermore, management of agricultural activities at the local levels of government is not well coordinated with other levels of management.

Land allotment in Namibia is dramatised at the traditional levels with subsistence agriculture being the major source of living. The impact of customary law in which traditional land allotment is vested, has a negative impact on women's rights. In Caprivi, for instance, land is regarded as the property of the respective clans under the custodianship of the chiefs and was confirmed by the Supreme Court in 1985 (Andima, 1993:106). Ruling by Supreme Court has a negative impact on women because in the Caprivian tradition, inheritance of property by women is compromised. From these traditional and subsistence farming practices, no attempt is made to transform traditional agricultural activities into sustainable commercial agriculture. Since agricultural research

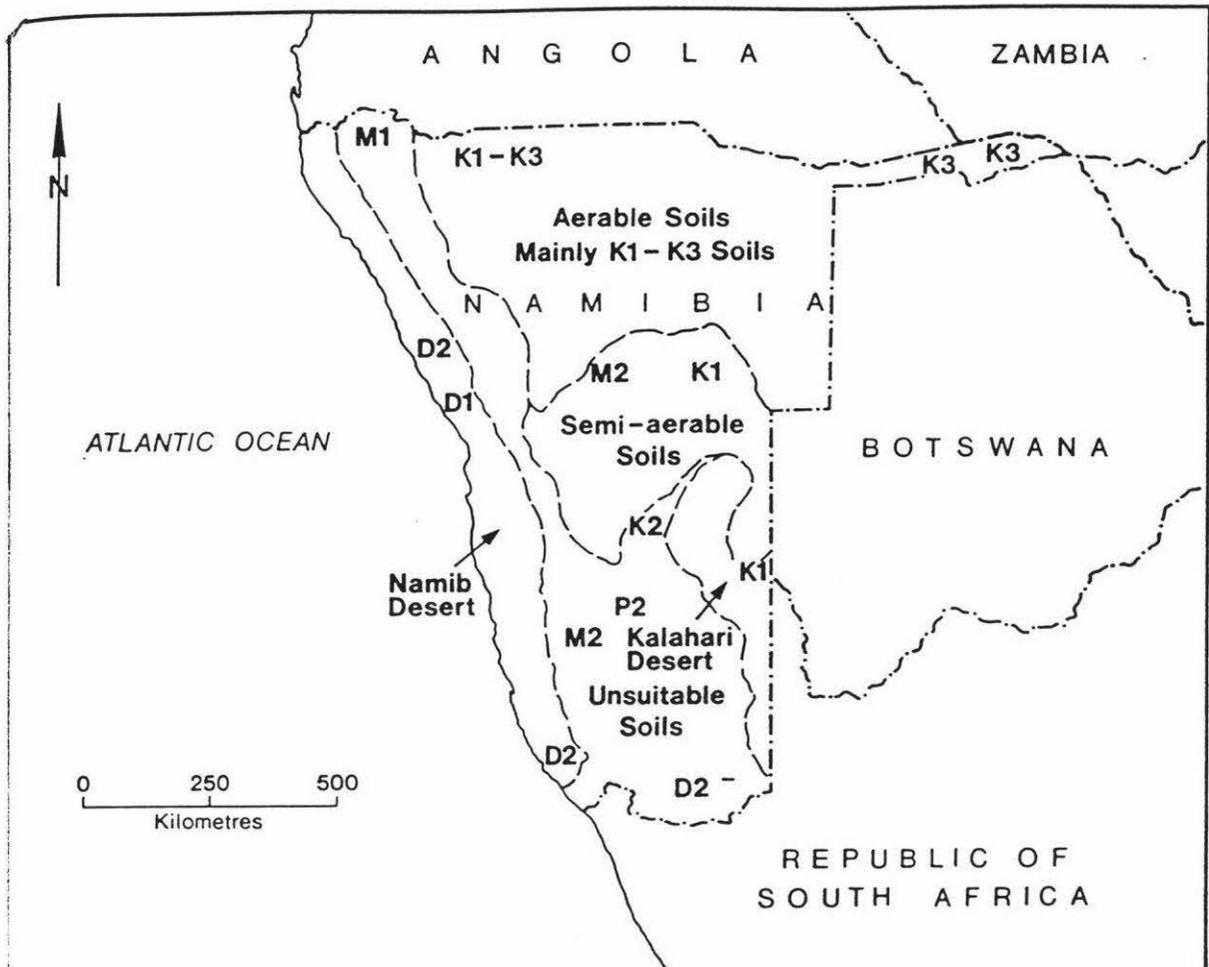
in Namibia was developed to serve the needs of large scale production, it is not well suited to address new concerns for the subsistence sector, Okello (1992:21).

Year	GDP	Commercial	Communal	Shares	Percentage
1980	2766.3	265.3	29.6	294.9	10.78
1981	2767.9	268.6	30.1	298.7	10.8
1982	2723.9	231.5	31.2	262.7	9.6
1983	2651.9	174.6	32.3	206.9	7.8
1984	2626.9	156.8	33.2	190.0	7.3
1985	2604.2	162.9	34.3	197.2	7.6
1986	2686.8	167.7	35.4	233.1	7.6
1987	2780.3	216.9	36.5	253.4	9.1
1988	2828.2	210.9	37.4	248.3	8.8
1989	2786.0	238.3	38.5	276.8	10.0
1990	2872.5	241.0	39.7	280.7	9.0
1991	3020.2	237.8	40.0	278.6	9.2

Source : *Transitional Development Plan, 1991/1992-1993/1994*, p. 64.

Table 3.4 indicates that agricultural productivity is limited to a maximum of 10 percent per annum. Leistner (1991:13) views this rate of production as being very low. Namibia north is the only area which receives optimum rainfall for agricultural purposes. The central part of the country is good for animal husbandry but water-shortage still remains a problem. The southern part of the country is ever-dry and has large areas of soils unsuitable for agriculture.

Map 3.4 shows that the southern region is dominated by M1; M2; P1 and P2 types soils. All these soils are classified as barren and are unsuitable for agricultural purposes. In other words, they are less economic and are stumbling blocks to development programmes concerning equitable land distribution and rehabilitation. Research in problems related to Namibian soils is at the moment at an infant stage. As a result, implementation of government policies concerning soil issues are confronted by lack of enough information about the state of soils, and this shades no light on possible alternative policies to rehabilitate the general environmental sphere of development.



**K1 - K3** These soils are mainly found in the northern and north-eastern part of the country. The soils are hospitable to particular crops. Some of the K1 soils are common in the Kalahari Desert.

**D1 - D2** These soils are regarded as barren and are usually, unsuitable for cultivation purposes. Such soils are common in the Namib Desert.

**M1 - M2** Soils are common in the central and southern regions but are often found in small quantities. Their environmental condition is unfavourable to biological activities.

**P1 - P2** Soils of this kind are agriculturally poor, with a special deficiency of phosphates (Wellington, 1967: 67). Such soils are scattered between the central and the southern region.

**Map 3.4**

**SOILS MAP**

The mismanagement of land as inherited from the colonial past is the most crucial problem affecting agricultural production. The present unbalanced land tenure system is also a major problem. Adams & Davitt (1992) contends that since independence the Government of the Republic of Namibia is grappling with land reform in pastoral Namibia. About 4,000 large commercial ranches, almost all white-owned; 20,000 African stock raising households, compressed into central and southern reserves; and 120,000 black families practicing mixed farming on just 5 percent of the viable farmland in the north and north-eastern Namibia.

Additional to the land issue are Namibian soils (see Map 3.4) which determine the type of product to produce. Once soil quality is inappropriate for agricultural purposes, the amount of land for cultivation is also reduced and production is constrained. Their importance is based on the fact that they are needed for a variety of human existence.

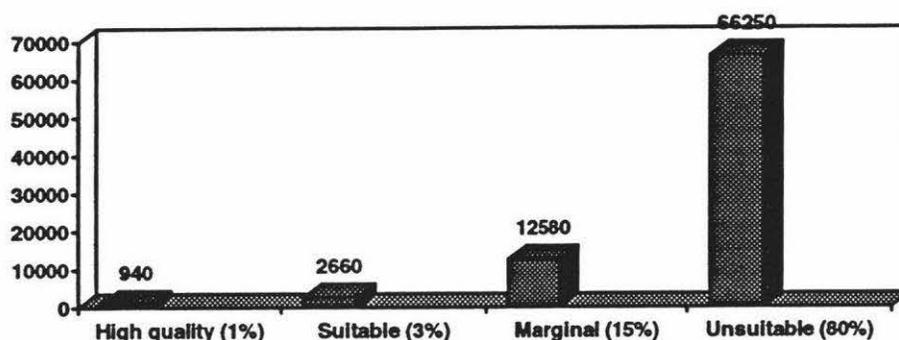
About 80.4 percent of Namibia's soils is unsuitable for irrigation. It is only 1.1 percent of the soils which are highly suitable for irrigation purposes (see Table 3.5 and Figure 3.3 below). Common types are: (a) Brown soils of arid and semi-arid tropical regions; (b) The plateau sub-desert soils; (c) Brown arid and semi-arid tropical soils on loose parent materials; (d) Ferruginous tropical soils on sandy parent materials; (e) Mineral hydromorphic soils; (f) and the Oshana soils of Ovamboland. The situation of most soil types is even worsened by overgrazing and deforestation (Wellington, 1967:63).

Table 3.5 Amount of soil suitable for irrigation purposes		
Classification	Area (ha)	Percentage
Highly Suitable	940,000	1.1
Suitable	2,660,000	3.2
Marginal	12,580,000	15.3
Unsuitable	66,250,000	80.4
Total	66,430,000	100.0

Source: *Transitional National Development Plan 1991/1992 -1993/1994*, p. 136.

Soils which are classified under K1-K3 are suitable for agricultural purposes, and mainly available in the north and northern-eastern parts of the country. The 1% high quality soil is a critical issue when divided among people in need of land for irrigation. Only a handful-few will benefit from the limited soil stock. The majority of the population, especially the rural residents of the southern regions are likely to remain in a vicious circle of landlessness.

**Figure 3.3** A view of the current state of Namibian soils



There are no integrated policies concerning soil conservation at the local level of government, neither are they said to be applicable at the regional level. Despite the existence of the Soil Conservation Act 1969 (No. 76 of 1969) within the Ministry of Agriculture, this act has never been applied (TNDP, 1991/1992 - 1993/1994:258). The reason for not applying Act 76 of 1969 are associated with the former government's reluctance in financing major projects in Namibia.

Soils are also affected by uncontrolled burning. Burning of bush and grass is used by the Namibian rural population to prepare land for crop production. Unfortunately, burning is often practised beyond limits. The most common adverse effects of burning noted, especially in the northern and north-eastern parts of the country are the current destruction of the surface cover of vegetation or organic matter, baring the soil surface to the effects of rain, wind, trampling by stock and game, and thereby reducing its resistance to erosion and breakdown in structure (Arnon, 1981:115).

### 3.6. Wildlife resource management

Wildlife is an important source of income to many developing countries of Southern Africa. For instance, R16 million were generated through game cropping in 1981 - most of it in foreign exchange earned from trophy hunting and export (UNIN, 1986:44). Wildlife can be a fundamental source of income to supplement Namibia's agricultural output which currently operates at a minority scale compared to neighbouring Zimbabwe, Zambia and South Africa. Namibia's bust in tourism development is influenced by the existing biodiversity of flora and fauna.

However, the viability of the wildlife resource base was adversely affected by South Africa's illegal occupation of Namibia. Wildlife values have been eroded by colonial oppression and have led to the alienation of environmental education (UNIN, 1986:45). The sound of military helicopters which on a daily basis continued fire at wild animals and birds in the swamps and green valleys of Ihaha, Evilivinzi, Ikaba, Schuckmannsburg, Mbalasinte, and other areas is still fresh in the minds of the inhabitants of these areas. A villager from Muyako argued:

*'From the time the whites came, they shot game from helicopters and cars with automatic rifles. We saw them chasing the wild animals. Some transported the meat to South Africa in helicopters. Many wild animals fled to Botswana'*  
(Jones, 1991:195)

The Northern part of the country has a favourable climate for almost 80 percent of wildlife. It is also in this area of the country with the greatest animal population. Apart from the degraded environment, illegal poaching is one of the most crucial problems affecting the sustainability of wildlife in Namibia (Reardon, 1982:12).

Management of wildlife is dominated by governmental institutions with a wider exclusion of the community in which wildlife regulations are enforced. This disunity between government and the community is likely to be the reason for plan failure in the preservation of natural and physical resources (Reardon, 1982:22). Wildlife in Namibia is available in all parts of the country, especially in the north and north-east where water available, and need to be managed by all individuals and sectors of Namibia.

### **3.7. Forest resource and management constraints**

Forest as a resource is a habitat which has a high level biodiversity. It is home for wildlife species and sustains the integrated balance of ecosystems. It imbues humankind's intrinsic values of nature. For economists, it can be said to be a valuable entity necessary to achieve marginal utility of the ecosystem. Commercially, it is an active economic sector of Namibia. It is a major source of energy and shelter construction for rural Namibia (UNIN, 1986: 41). High grade furniture wood attracts foreign currency into the economy. However, environmental quality of forests in Namibia is adversely affected by inappropriate human behaviour (Janson, 1991).

Deforestation is one of Namibia's almost critical environmental challenges. It is brought about by over-exploitation resulting from population pressure and frequent wild fires. Erkkilä & Siiskonen (1992:65) contends that establishment of the colonial economy in the Namibian territory considerably increased the demand for wood products. Despite dictation and technical manipulation of the environment brought by colonial technology which failed to transform and rebuild African economies, failure to integrate modern with traditional forestry technology is among the causes of forestry decay in Namibia.

Indigenous forests were during colonial administrations extracted both for self-enrichment and also to meet development objectives of the colonist, but at the expense

of the indigenous people. Galton noted that prior to colonial afflictions, fine dense forests were scattered everywhere over the country (Erkkilia & Siiskonen, 1992: 81). In 1866, the missionary Hugo Hahn reported that between the communities of Ondonga and Uukwanyama existed a forest area about 60km wide (Erkkilia & Siiskonen, 1992:174). The truth of this report is today just the opposite. The destruction of the forest resource in the entire Namibia is a major factor contributing to environmental degradation. In Owambo, 90 percent of households use wood as their principal cooking fuel and 11 percent use it for lighting.

In 1885-1886, a European botanist, Hans Schinz visited Owambo and warned that deforestation would be a problem in Owambo in 50 years if population growth continue to follow the same path, and if the pattern of wood consumption remained unchanged (Erkkilia & Siiskonen, 1992: 174). The truth of this prophecy today is confirmed by the significance of the traditional Ovambo building style which consumes more wood than any other form of traditional construction in southern and central Africa. As a result of deforestation, people are now forced to walk longer distances for fire wood.

Additionally, the destruction of forests in Namibia can be observed in many areas of the Caprivi region which during the 70s had still a favourable forest environment. The situation is today getting worse. For instance, Villages such as Ivilivinzi, Nanzala, Mwemba, Kabulabula, Mbalasinte, Kasika, and Ikaba's extended areas, including the Schuckmannesburg area, were in 1972 flourishing in a remarkably sustainable forest environment. Today the situation is just the opposit. Having witnessed this current state of the forest environment in Caprivi, Janson (1991:8) contends that 'the veld-types of Eastern Caprivi are particularly susceptible to interference by ill-timed or complete absence of wild fires, overgrazing, and uncontrolled timber exploitation'.

If sporadic burning and overgrazing are not controlled, Lianshulu forests and also the areas of Choi, Linyanti, Sibbinda and Sangwali will, in 50 years, experience severe desertification. Namibian forests are mainly exploited by the rural inhabitants. There are no local committees responsible for the conservation of forests, or regional government committees coordinating forest standards to the national level of government. Since this common property is regarded as a resource outside the economic transaction, exploitation is done without concern.

Lessons from colonial experience reveals that botanist Kurt Dinter in 1897, von Wieldenburg in 1901 and Dr Gerber in 1901, all failed to bring about sustainable forest management simply because management was dominated by foreign experts who excluded the indigenous people from managing their own forest resources (Erkkilä & Siiskonen, 1992:66). It is now that integration need emphasis at all levels of planning.

### **3.8. Fishing and the politics of over-exploitation**

Fishing contributes not only to economic development in Namibia, but it is also a source of food to the entire Namibian population. The effects of its mismanagement results in lower export levels and in hunger and poverty for Namibians. If this sector was to be sustainably managed, over-exploitation in other sectors would be reduced by fishing incomes which would have been used to restore degraded environments.

Potentially, Namibia has one of the richest fisheries in the world and the fishing industry is second in importance to mining. Namibia has both inshore and offshore fisheries. The inshore fishery (mainly pilchards) is still being controlled by South African companies, based in Luderitz and Walvis Bay. In this manner, the marine resources in the Namibian sea have been controlled and exploited by South African and other foreign interests, and very few benefits are going directly to the people of Namibia (UNIN, 1986:35).

Table 3.6 Fishing Fleets in Namibian water 1991		
VESSEL TYPE	NUMBER	OWNERSHIP
PERSE SEINERS	38	NAMIBIAN
FREEZER TRAWLERS	24	REGISTERED FOREIGN
MIDWATER TRAWLERS	39	FOREIGN OWNED + OPERATED
CRAYFISH BOATS	43	NAMIBIAN
LINE BOATS	20	NAMIBIAN
DEEP SEA CRAB BOATS	4	FOREIGN OWNED + OPERATED
TOTAL	168	

Source: UNIDO Report, 1992., in *Transitional National Development Plan, 1991/1992 - 1993/1994*, p.80.

Table 3.6 shows that out of 168 fleets operating in Namibian waters, 67 are foreign owned and operated. This accounts for about 40 percent of the fleets engaged in the fishing pool activity. Foreign giant fleets are the dominant stockholders in Namibian waters. This neo-colonial and domination of the sea resources is imposed as a technical suppression to local initiatives. Table 3.7 shows huge volumes of fish catches by these fleets, which since colonial times perpetrates over-fishing (Namibia Review, 1993: 4).

Table 3.7 Physical volume of fish catches (in tons)								
	1985	1986	1987	1988	1989	1990	1991	1992
<b>1. PURSE-SEINE</b>								
NET FISHING	135812	152790	477245	351118	1874346	247017	172435	238731
Anchovy	55936	53087	66578	62162	75996	92408	68854	80874
Horse Mackerel	26233	82951	33542	168885	30820	85175	83156	115874
Other	2941	1241	1003	3137	1872	18929	3328	3162
<b>1. TROWLING</b>								
and other								
Coasal fishing	36389	27723	26119	40081	23850	153364	411876	379400
Hake	31595	19970	19626	30333	13856	53345	53164	84400
Horse Mac	166	280	288	1629	1202	93283	352568	290000
Other	46268	7473	6205	8119	8792	6736	6144	5000
<b>3. RING And ROW</b>								
net fishing	1788	1817	1436	1354	1321	3078	1180	700
Rock lobster	1772	1757	1360	1320	829	516	375	100
Crab	16	60	76	34	492	2562	805	600
<b>4. LINE FISHING</b>								
	1321	880	427	843	1651	767	4353	5000
<b>TOTAL</b>	<b>175310</b>	<b>183210</b>	<b>505227</b>	<b>393396</b>	<b>1901168</b>	<b>404226</b>	<b>589844</b>	<b>623831</b>

Source: Bank of Namibia, Annual Report, (1992:6).

The typical traditional fishing style practised in Caprivi region destroys almost 95 percent of everything in the way of the net. The net is thrown into the river by at least 15 strong men. Since the net is cast with stones tied to it so that it settles down, the process of pulling this net out of the river causes destruction to small species, fish eggs and the bed of the river. These practices need immediate transformation of traditional life-styles.

Furthermore, effective and efficient management of the fishing resource is hampered by a shortage of nationally skilled human resource base. As a result, the fishing resource is dominated by foreign companies which care little about the depletion of this resource (Green & Kiljunen, 1981:40). It is important that future policies should focus at promoting fisheries education and development of all Namibians.

### **3.9. Mining Resources**

Namibia is Africa's fifth most important mining country, producing, most importantly, uranium, diamond, refined lead and zinc concentrates (Leistner, 1990: 13). About 52 mines are currently in operation. Table 3.8 shows that the mining sector experienced continued decline in its contribution to the GDP from 37 percent in 1986 to 33 percent in 1992 (Bank of Namibia, 1992:7). This decline has generally lowered overall economic output of the country. If sustainable management of mining environments is not pursued, adverse impacts will be much greater.

The depletion of mineral resources in Namibia is attributed to foreign companies which prior to independence were free to extract minerals such as gold, diamond, uranium and copper without being monitored. In 1974 the United Nations Councillor Namibia passed Decree No.1 which prohibited the extraction of mineral resources by South Africa without UN permission (United Nations, 1974:20).

After independence, mines became incorporated into the Ministry of Mines but operations are still controlled by American, British, and South African corporations. The so called 'decolonisation' of the mining industry has instead fallen victim to neo-colonial interest of foreign companies which continues to function in tribute to Namibia's former colonial masters. This is due to the fact that 'the Government plays no direct part in mining production' (TNDP, 1991/1992 - 1993/1994:102).

There are no clear instruments to measure sustainability exploitation in Namibia. The diamond fields at Oranjemond are controlled by Consolidated Diamond Mines (CDM), a subsidiary of Anglo-American's De Beers conglomerate, and are marketed through De Beers's market in London. Control by government is insufficient and need adjustment.

Products	Unit	1985	1986	1987	1988	1989	1990	1991	1992
1. Diamonds	000 ct	910.5	1011.2	1030.1	974.6	931.7	761.3	1186.9	1548.1
2. Uranium	# ton	4391.2	4502.3	4391.2	4554	3991.9	4174.2	3185.3	2174.7
3. Copper	ton	47611	50145	37653	42163	37978	33190	31928	37656
4. Zinc	ton	57495	65518	75977	71655	79805	72411	68099	71897
5. Gold	kg	200.7	184	172	239.6	335.6	1605	1851.2	1964
6. Lead	ton	385110	40047	40634	44447	44183	35129	33367	31656
7. Silver	ton	98	105.1	95.4	108.5	108.2	91.6	91.3	88
<b>TOTAL</b>		<b>495816.4</b>	<b>161512.6</b>	<b>159952.7</b>	<b>164141.7</b>	<b>167333.4</b>	<b>147362.1</b>	<b>139708.7</b>	<b>146983.8</b>

Source: Bank of Namibia, Annual Report (1992:7)

Table 3.8 shows also the performance of minerals from 1985 - 1992. The mining industry has always been dominated by a few foreign and multinational companies, which have exploited Namibia's natural and human resources in medium to large-scale operations under the loose supervision of the administering authority of the day, (TNDP, 1991/1992 - 1993/1994:100). Most of the mines are located along the coast. Only the Tsumeb Copper Mine is located in the central part of the country.

There is no genuine criteria to monitor the exploitation of minerals by foreign companies. Furthermore, institutional framework and other areas creates a serious problem. Diamond resources have been seriously denuded by CDM's efforts to extract the maximum possible profit from the diamond fields without regard to their long-term viability (IDAF, 1989:30).

### **3.10. Environmental Issues and Tourism**

Tourism can be defined as:

*the means by which people seek psychological benefits that arise from experiencing new places, and new situations that are of a temporary duration, whilst free from the constraints of work, or normal patterns of daily life at home (Ryan, 1991:6).*

The extent to which tourism contributes to both regional and national development is mingled with negative effects which it imposes on the sustainability of the environment. Overcrowding, cultural shocks, and environmental abuse by tourists are some of the factors debasing the value of tourism in a national sphere of development. Such adverse effects have imbued confusion among those who walk 'bare-footed', the rural-poor of Namibia, and also to those in the industrialised city of Windhoek and Swakopmund.

The crux of confusion between users is stimulated by the commercial sector needing a maximum economic growth level but fails to understand that the rural poor in communal environment have no mercy to spare the environment without being subsidised. Because life in the rural areas in where tourism is suppose to benefit depends on 'the survival of the fittest', the environment is severely compromised. In such critical conditions of management, the evaluation of carrying capacities is a crucial issue needing careful

assessment (Brown, 1992:72) of the link between tourism and the environment. Tourism itself is determined by the quality of the natural environment. Environmental degradation in the rural areas of the country tend to inhibit successful international tourism. Many Namibians are at the moment lacking sufficient knowledge about their role in tourism promotion. The government of Namibia understands this problem and measures to 'create a national tourism awareness' programme are being pursued (TNDP, 1991/1992 - 1993/1994:183).

Despite the most well-developed transport routes and accommodation, the state of the environment necessary to give a boost to tourism sustainability is in shambles and the link between achievement and loss is unpredictable. As a result, tourism benefits remain unequally shared among different regions. Regions with the favourable tourist environment tend to attract more visitors than those with limited eco-touristic features (Williams & Shaw, 1988:7). However, such attraction appears to be an environmental degrading factor affecting the all northern regions of Namibia.

With regard to the current environmental status of the country, benefits from tourism need a 'National Action plan' to implement sustainable development. Such a plan must measure progress in terms of the quality of life of the poor without necessarily compromising the quality of the environment (Brown, 1992:6). Empirical evidence indicates that the poor performance of tourism in East African parks as compared to European National parks is the result of the environment that is not geared to eco-tourism (Western, 1986). While mechanisms to plan for tourism sustainability can be created at the national level to provide coordination and guidance to agencies, a significant role by international organisations to strengthening sustained use of natural and physical resources need to be enhanced.

### 3.11. Conclusion

Namibia's ecology is threatened by scarce information which at the same time is scattered and full of gaps. The required sustainability of natural and physical resources is also hindered by a number of constraints stemming from apartheid legacies of the past to post-apartheid pitfalls and deliberate negligence by responsible authorities.

In summary, Namibia's landscape is dominated by dry lands which are detrimental to sustainable development. The harshness of this environment is aggravated by scarce water resources. The scarcity of water is critical to agricultural productivity, wildlife sustainability and environmental quality. Mining operations, together with agricultural operations exacerbate environmental degradation, which seriously lead to 'mass poverty' in rural Namibia. Population growth and over-concentration in few fertile and rain-receiving places is continuously promoting desertification. The country's shortage of skilled human resources is also the cause of poor or no management activities at the local level of government.

The lack of coordinated institutional bodies which should develop plans to be implemented at all levels of government. For instance, Namibia does not have a Resource and Environmental Management Act to guide processes of management from national to the village level of government. Instead, there are several Acts which are said to be available and likely to be enforced by particular ministries. Unfortunately, both regional and local councils are inconsistent with such Acts. This is caused by lack of regional policy statements and plans, and district plans and strategies across levels. Tables 3.9-13 shows priority issues to be considered by planners in Namibia.

<b>Table 3.9 NATIONAL SECTORAL ENVIRONMENTAL EFFECTS</b>					
<b>Issues</b>	<b>Agriculture</b>	<b>Forestry</b>	<b>Fishing</b>	<b>Mining</b>	<b>Tourism</b>
Land- scape	Destroy landscape	Expose soils to wind erosion	Fishing vessels remove soils	Destroy Landscape shape	Destroy natural character of landscape
Cli- mate	Exacerbate drylands	Forest clearance increase CO2	Fishing vessels pollute air	Ozone defection	Degradation alter natural character of climate
Soils	Reduction in soil quality	Create soil erosion	Destroy base soils	Reduce soil quality	Create soil erosion
Water	Over- consumption	Reduce holding capacity of water	Pollution by fishing vessels	Pollution/ over-use	Suppress carrying capacity
Wild- life	Displace wildlife	Forest removal cause displacement	Coastal fishing threaten wildlife uses	Disregard wildlife potential	Noise generation threaten wildlife
<p><i>Comment: Namibia is a semi-arid country and is entirely affected by problems ranging from water shortage, mining adversaries, inappropriate harvesting behaviours to environmental unawareness and in appropriate management methods country-wide. Measures to establish an integrated national strategy which provides an integrated framework and guidance to local authority levels should be taken.</i></p>					

\* See Table 3.13 for adverse effects of population on management.

## NORTHERN REGION

### Region A

**Table 3.10** Sectoral effects

Issues	Agriculture	Forestry	Fisheries	Mining	Tourism
Land- scape	Clearance for cultivation	Clearance for energy expose landscape to natural hazards	Offshore landscape, river and lake beds devastated	Destroy natural character of landscape by creating undesirable excavations	Coastal tramping destroy natural character of landscapes and lead to erosion
Climate	Poor land management by farmers exacerbate dry climate	Forest harvesting increase co2 and affect ozone layer		Mining at Tsumeb rises co2 output and affect ozone layer	Exacerbate desertification and influence dry climate
Soils	Arable k1-k2 soils are affected by overpopulation	Clearance change k1 soils to D2 (barren)	illegal fishing nets destroys small species	Copper drilling at Tsumeb mine reduce soil quality	Crowding impose adverse effects on soil quality
Water	Concentration of farming reduce carrying capacity of water	Plant removal subjects water retention soils to vulnerability	Users exploit water by dumping rotten fish species in water	Pollute water by chemical disposals by industrial output	Overcrowding reduces carrying capacity of water
Wildlife	People concentration for cultivation limit wildlife access to land	Removal of forests exposes wildlife to human abuse and harassment	coastal fishing is also associated with poaching by coastal users	Displace wildlife	Noise generation displace wildlife

**Comment:** *The environmental situation of the northern region is adversely affected by sectoral activities causing environmental degradation and pollution. This issue can be approached by appropriate policies and methods. Lack of planning at the local level of government is a stumbling bloc for effective implementation of development policies country-wide. As a result, measures should be taken to develop regional and district policy statements and plans which will specifically address environmental issues affecting particular regions and districts of Namibia.*

**CENTRAL REGION**  
**Region B**

**Table 3.11.**  
**Sectoral effects**

<b>Issues</b>	<b>Agriculture</b>	<b>Forestry</b>	<b>Fishery</b>	<b>Mining</b>	<b>Tourism</b>
Land-scape	Over-grazing continues to distort natural landforms characteristics	Natural land-formations and recovery is distorted by over-population	Fishing is not an issue in the central plateau	Mining creates unnecessary excavations and destroys landscape	Central plateau tourism is discouraged by dry climate
Climate	Desertification resulting from over-grazing and bush encroachment exacerbate drought climates and soil erosion	A semi-desert climate is aggravated by harvesting of forests for energy purposes	See above	Humid and dry winds from mining operations adversely alter climatic conditions	Tourism contributes to the already limited carrying capacity of land
Water	Higher demand of water for irrigation force people concentration along western and southern borders of Hereroland	Degraded forest environment has destroyed soil texture necessary for rain-water retention, and constrains agricultural output	See above	Over-consumption of ground water by Rossing-Windhoek pole exceeds recharge rate by 3 million m <sup>3</sup> per year	Availability of water is limited and insufficient for eco-tourism
Soils	Higher demand for land leads to widespread erosion and diminished carrying capacity	The destruction of flora and fauna of the central plateau exhibits soils to loss of quality	See above	Soils within mining operations are vulnerable to loss of fertility	Opportunities to promote tourism without affecting soil quality are open
Wildlife	High concentration of livestock agriculture has also led to ecological degradation	Clearance of forests on which wildlife depends for shelter endangers future economic well-being	See above	Generation of noise by mining equipment displaces wildlife	Tourism development in central Namibia isn't negatively affecting wildlife

**Comment:** *Central Namibia is semi-dry. Environmental degradation is further exacerbated by shortage of water to back-up the recovery of the degraded environment. Because the state of the environment is subjectively prone to over-exploitation by unsustainable mining operations, agricultural and forestry operations. It is therefore, suggested that appropriate research supported by comprehensive inventories describing the state of the environment in particular sites and places be undertaken. The absence of regional plans and policy statements within this region is a crucial issue for attention and action.*

**SOUTHERN REGION**

**Region C**

**Table 3.12. Sectoral effects**

<b>Issues</b>	<b>agriculture</b>	<b>Forestry</b>	<b>Fisheries</b>	<b>Mining</b>	<b>Tourism</b>
<b>Land- scape</b>	Primitive farming methods influence landscape deformation	Scarce vegetation with semi-dry desert makes landscapes unbearable for crop farming	An increase in the number of fishing boats and ships distorts coastal landscapes	Concentration of mining in the Southern region has displaced agricultural potentials	Tourism activities are conflicts with other user species
<b>Climate</b>	Clearance for agricultural farming extend desertification	Scarce vegetation confines farmers in restricted shrub environments with increased degradation	Not an issue	Mining operations stimulates dry-climate	Not an issue
<b>Water</b>	Carrying capacity of water is suppressed by domestic livestock population	Shortage of rainfall contributes to desertification	Marine fishing contribute to water pollution	Excessive mining at Oranjemund dominate water usage	The dry south limits tourism development potentials
<b>Soils</b>	Overstocking destroy structural stability of soils and exacerbate soil erosion	Domestic efforts to raise cattle farming affect soil quality and threaten flora	Not an issue	Drilling and underground operations makes rich top-soils poor	Barren soils adversely alter the natural character of the environment, unattractive for tourism
<b>Wildlife</b>	Overstocking of sheep and goats provide no land reservations for wildlife	Not a serious issue	Concentration of fisheries around Walvisbay area has become a threat to wildlife conservation	Mining has displaced wildlife	Promotion of coastal tourism conflicts with wildlife uses in the south

**Comment:** *Namibia South has inherited its overall environmental character from the Namib Desert. Though extremely dry, it is this part of Namibia which is economically rich in minerals. Mining operations are severe in this region, and severe destruction to natural landscapes has already exceeded the recovery of landforms. Measures to cover former open-cast mines need to be taken, and effort to research the possibility of establishing afforestation in those areas should be harnessed.*

<b>Table 3.13</b>		<b>Environmental Limits to management</b>		
<b>Environment</b>	<b>Ecological</b>	<b>Sociological</b>	<b>Institutional</b>	<b>Economic</b>
<b>Land use</b>	Ecological life such as flora and fauna is threatened	Amenity values of landscapes happen to be adversely affected	Limits recreational opportunities	Reduce production capacity
<b>Climate</b>	Dry climate is harmful to biodiversity of ecosystems	Undermine resource capability to sustain landuses	Narrows development decision-making processes	Limit output and constrain foreign trade
<b>Water</b>	The health of ecological species is depressed	Adversely affect the health of the nation	Constrains policy making processes	Suppress agricultural productivity
<b>Population</b>	Overconsumption patterns threaten ecological well-being	Social welfare is constrained by excessive demand	Conflicting uses impose pressure on institutional capability	Rising rate of unemployment
<b>Soils</b>	Toxins are harmful to life-support system of the earth	Degraded soils reduce opportunities for quality land-uses	Poor soil quality raise management costs	Low production and low profits
<b>Agricultural adversaries</b>	Irrigation displace natural character of ecosystems	Landlessness undermine socio-economic status	Degradation generate extra management costs	Promote underdevelopment and poverty
<b>Land reform problem</b>	Ecological quality is impaired by user conflict	Landlessness creates social discomfort	Constrains land policy implementation	Expansion of degraded environment
<b>Deforestation</b>	Create desertification of ecosystems	Distort aesthetic values of nature to humanity	Suppress sectoral planning initiatives	Timber input into the economy is discouraged
<b>Over-fishing</b>	Destroy sea-and-river beds	Reduce future consumption capacity	Constrain macroeconomic decisions	Debase out-ward industrialisation strategy
<b>Poor wildlife management</b>	Extinction of ecologically valuable species	Handicap intrinsic values of ecosystems	Limit policy-making on biodiversity	Distort foreign trade of wildlife species
<b>Mining</b>	Destroy ecological habitation systems	Mar human environment relationship	Destroy future land use planning opportunities	Impair export processing zones
<b>Poor Tourism management</b>	Displace ecological flora and fauna species	Undermine ecotourism	Constrain recreational opportunities	Shrink economic development

**Comment:** *The ultimate development of an integrated national strategy is affected by environmental impacts which impose limits on: ecological nourishments, sociological aesthetics, institutional broad policy-making, and also on economic output. The response should be a clear calculus of policy formulae supporting both economic productivity and environmental rejuvenation.*

However, there is still more room for planners to diversify their planning strategies by

adjusting them to fit into Namibia's critical natural environment. The same dry land area can be optioned to function potentially in conserving desert animals. Namibian planners are seriously challenged to subsidise the amount of rainfall needed for maximum production and environmental healing. The few perennial rivers in the north should be sustainably managed, and be made to serve the entire nation. Subsidisation of rainfall shortages might call the attention of macro-economic means, but precautionary measures against inflationary evils should be prioritised. From a 'forward looking' point of view, the formulation and implementation of an integrated national strategy should also utilise current theoretical contributions to development and conservation, and the recommendations of various United Nations strategies.

## CHAPTER FOUR

### THEORETICAL CONTEXT FOR NATURAL AND PHYSICAL RESOURCE MANAGEMENT

#### 4.1. Introduction

The purpose of this chapter is to provide a theoretical context for the preparation of an effective, integrated national strategy for the management of natural and physical resources in Namibia. The discussion combines socio-economic and environmental considerations. It also aims to bridge between identified current state of natural and physical resources in Chapter 3 and the critique of the Namibian strategy in the next chapter. The chapter is composed of seven related sections. Section 4.2 is an exposition of the dynamics underlying the need for resource protection. Section 4.3 discusses the determinants for sectoral management and their relevance to both Namibia and the strategy to be developed in chapter 6. It also provides possible alternative solutions to environmental adverse effects identified in chapter 3. Section 4.4 builds on this by outlining basic determinants of sustainable management. Before embarking on concluding remarks, various authors in section 4.5 suggest particular requirements necessary to constitute an integrated national strategy.

The role of theory is to expand global thinking and to create viable avenues for approaching critical issues underpinning resource and environmental management. It is another kind of consultation mainly used by researchers to hear what others have said, and finally to digest such evidence by adding 'bolts and nuts' to arrive at solid facts necessary to redeem nature and its human components from the peril of environmental decay. Because an integrated national strategy is a complex industry of resource issues, it is hoped that theoretical inputs would minimise complexity by providing basic guidance.

## 4.2. Resource protection

Government interest in resource protection is influenced by three factors: the nature of ecosystems and their influence on the economy, Ricardian model and the impacts of resource depletion, and the possible outbreak of poverty if existing resources happen to be mismanaged. These topics are selected because preparation of an integrated national strategy needs to be aimed at the protection of ecosystems, the eradication of poverty, and also the effects of resource depletion from generation to generation.

### 4.2.1. Ecosystems as economic zones

The concept 'ecosystem' can be defined from an anthropological point of view as referring to

*people as part of a life-support system composed of the air, water, minerals, soil, plants, and micro-organisms, all of which function together and maintain the whole (The New Encyclopedia Britannica, vol. A, 1985:979).*

'Ecosystem' as a term was first coined by a British ecologist, Arthur George Tansley, in 1935. The concept is based on the idea of unity between organisms and the environment. In Tansley's view, oneness of people and nature is fundamental to the study of resource economics (Bartelmus, 1994:81). The survival of people is identified as being closely related to the availability of the natural and physical resources.

According to Hufschmidt (1983:1), economic development in both industrialised and developing countries relies on the use of natural resources and on the productivity of natural systems to sustain economic growth. Ecosystems are containers in which life and life-support systems are housed. They are the economic bases without which human life

would be unsustainable. Therefore, depletion of resources within ecosystem is a major concern for planners and decision-makers.

Related to the word ecosystem are the two concepts, ecology and holism. Ecology is derived from the Greek word meaning 'house'. It has been extended to the study of people and the environmental house - the ecosystem. Viewed from this perspective, the ecosystem is regarded as common property, hence the 'law of the commons'. Therefore, the abuse of ecosystems by humans has been the greatest cause for the need to conserve and protect endangered species within ecosystems (Bartelmus, 1994:118).

Holism is based on the theory that living components and non-living ones function together as a whole according to well-defined physical and biological laws. This view is taken further by advocates of the functionalist theory who argue that people are a component of the ecological system (Bartelmus, 1994:118). Their functional role in the ecological system, together with the roles of other components, is to contribute to the maintenance and survival of the ecosystem. That is, to manage the environment, and to avoid environmental degradation where possible. A higher philosophical understanding of the ecosystematic nature of the earth is advocated by Aristotle who in philosophical tension with Plato argued that the earth is the ultimate source of life to humankind. Tempering with its limited capacity to supply can be catastrophic to those who depend on it (Gore, 1992: 250).

Functionalists contend that human behaviour which is inappropriate in resource management, is considered by ecologically dysfunctional to the whole system. This causes malfunctioning which later leads to the collapse of the whole system. The collapse of the ecosystem is their associated with the potential collapse of a national economy (Bartelmus, 1994: 16). A common scenario is that the impact of a fall in economic output would lead to a higher demand of imported goods over exports. As a result, the expansion of industry would be inhibited. In such a situation, import tariffs would rise,

trade barriers extended and the local exchange rate would probably depreciate, making import goods more expensive (Bartelmus, 1994:91). Furthermore, the depreciated environment would inhibit tourism, causing a reduction in the flow of foreign currency into the economy.

#### **4.2.2. Why poverty prevails**

The World Commission for Environment and Development argues that:

*Poverty is both the major cause and effect of global environmental problems. It would therefore be futile to approach these problems without taking into account the adjacent factors of poverty and international inequality in a larger perspective (Falloux & Talbot, 1993: 247).*

How then can poverty be defined and what input does it have in planning in a country such as Namibia? The founding theorists of planning have been concerned mainly with what actually causes poverty. In their view poverty or 'absolute poverty' (World Bank, 1989; Webster, 1990) has been the greatest factor among all factors influencing strategic planning. Biblical records holds that King Pharoah had a dream which in Joseph's interpretation, pointed to an era of poverty and hunger in Egypt (Genesis 41 verse 30). The Government responded by developing planning strategies based on the preservation of more food to sustain people's lives for the seven years. It appears that the contemporary world is still repeating the history of the biblical eras. Fears about the future state of life (with chronic poverty world-wide) have been the major issue in both the Brandtland Report *Our Common Future* (1987) and the IUCN *Carrying for the Earth Strategy* (1991). The effective conservation of natural and physical resources is linked in both by the IUCN/UNEP/WWF documents, with the need to deal with existing poverty, especially in developing countries, and to avoid future poverty.

Poverty in this study is defined as a condition in which basic needs are hardly met (Burki, 1993: 4). Poverty is a complex multidimensional problem' caused by environmental degradation, deforestation and unsustainable sectoral operations (UNCED, 1992: 25). It is also caused by the mushrooming population in developing countries, destruction of landscape environment, and poor management of coastal and marine resources. Effective means to address adverse effects of poverty and its associated issues are a priority in national strategies. It is vital for the Namibian Government to affirm that:

*'an effective strategy for tackling the problems of poverty, development and the environment simultaneously should begin by focussing on resources, production and people and should cover demographic issues, enhanced health care and education, the rights of women, the role of youth and indigenous people and local communities and a demographic process in association with improved governance' (UNCED, 1992: 25).*

Poverty prevails because methods of policy implementation are not effectively integrated to strengthen sustainable management programmes for resource mobilisation, employment and income generation (Falloux & Talbot, 1993: 25). Poverty results if planners do not focus in national development plans on investment in human capital in national development plans and budgets. There is generally a lack of special policy programmes directed at the rural areas where poverty usually results in damage to the environment. For instance, all the new African nation were involved in the production of five-year plans following independence. However, 'the results have been voluminous piles of paper gathering dust on the shelves in the Ministers of Planning Offices with no action on the ground (Falloux & Talbot, 1993: 3).

Poverty provides basic lessons about the characteristics of a good national strategy. Most strategies have narrow short-term objectives. Such strategies often fail to establish

the best conditions of sustainable local, regional and national development. These strategies are often marked by failures in eliminating poverty and inequality between different population groups (Sage, 1994: 52). For instance, Redclift (1984: 64) notes that artificial environmental change in Africa involves few references to structural underdevelopment. This is also generally evident in places such as the Sahel (Redclift, 1984: 64) and also in Uganda's 16-year period of dictatorship (Chambers, 1993: 101).

Important factors which should be included to alleviate poverty include empowerment of women, establishment of grassroots mechanisms such as international support linkages, and support of 'traditional methods' of agriculture which are environmentally sustainable. This is achieved by using collective learning which enables the inclusion of local people in planning and implementation of plans (Friedmann, 1992: 78).

In conclusion, the vital challenge of alleviating poverty need to be included as strategic planning issues. Equally important is for planners to note that development policies that tend to focus merely on increasing production of goods without addressing the sustainability of natural and physical resources on which production is based, will sooner or later cause a decline in productivity, which would inevitably increase poverty.

#### **4.2.3. People participation**

It is widely acknowledged nowadays that participation of target groups in applied research, decision-making and implementation is often a key condition for research efficiency and for making a design implementable at all (Groot, 1992:376). Because of this value, the concept has made its way into problem oriented environmental science. The term 'Participation' is associated with values shared by almost everybody. To complicate matters, the term is much vaguer, and it may therefore be easily used to

legitimise transactions between government and citizens in which the latter exert only a negligible influence (Groot, 1992:376). According to Groot:

*Participation in environmental management may be defined as the voluntary involvement of target groups in collective action with an environmental objective, be it formulation or implementation, and be it supportive or redirective (Groot, 1992:382).*

Participation is a means for policies to be effective. As such, it is a central factor without which resource and environmental management will remain uncollaborated. Within this perspective, Cohen & Uphoff distinguish between steps on the participatory power ladder of environmental management. These are: formal and traditional government; organisations with direct or permanent access to the government; other high-status categories, inter-mediate status categories; and low-status categories (Groot, 1992:386). At the top is the government with all its internal differences. The terms 'formal' and 'traditional' have been added to highlight the fact that there is often a parallel structure of traditional (often pre-colonial) or informal leadership, operating through long-standing privileges and patron-client ties (Groot, 1992:386).

Groot (1992) notes traditional organisational structures may have more status and power than the formal government, particularly at the village level of management, and may thus be of crucial importance for participatory approaches, adopted in developing countries. Companies, senior members of senior political parties, the judiciary, the army, unions, churches, employers' organisations, the mass media also have the power to exert pressure on governments (Hofmann-Lange, 1987).

It is certainly not appropriate to argue that the participation of village groups are the only appropriate form of participation. This is a violation of fundamental principles of an

integrated national strategy. Groot (1992:387) believes that 'when drawing up a national environmental plan, the participation of municipalities, or non-environmental government agencies and departments is a major step forward compared to designing plans in an ivory tower'. Therefore, the success of national strategies depend on unity (1992:387).

If endeavours towards the achievement of economic development continue to exclude people's participatory rights in decision-making processes, then both sustainable management and sustainable development are meaningless concepts. Development planning will only be integrated if the people at national, subnational or local level of decision-making are persuaded to increase their personal and institutional capabilities. Ideas to incorporate a wide range of information into the planning process have generally been derived from principles of democracy, justice and human rights. Economic democratisation creates avenues for broad participation in the control of productive assets, and is seen by its advocates as a foundation for economic reform and environmental sustainability. Korten (1990:173) argues that

*'when people own property near their residence and depend on it for their future livelihood, they are likely to be concerned with maintaining its value and with the consequences of its use for the beauty and well-being of the community'.*

Property rights, as tied to the human rights principle, are a pragmatic means of delivering managerial power into the hands of the people, who at their own discretion implement the strategies according to their own prospective plans. In this situation, appropriate technologies of the indigenous community should be liberated from colonial hang-overs. The purpose is to break down structural boundaries and class conflict. Therefore, environmental democracy should yield to the social, economic, political, and spiritual development of the people themselves (Rumulika,1991:44).

The alternative step is to move from linear and monologous management indicators dominated by the few elites to a new chapter in which voices of the masses (including those living in absolute poverty) are included. At this level of management, property is administered as a common property. Any mutual declaration of such resources as common is an entitlement for every individual to be responsible for their management, and this should at the same time provide people with ample opportunity to participate in policy development.

Participation used to be the rallying cry of radicals (Dudley, 1993:7). Its presence is now effectively obligatory in most policy documents and project proposals in national structures. The justice of people participation may have won the war of words, but beyond the rhetoric, its success is less evident. Part of the problem is political. True participation is often a threat to vested interests. The most fundamental split is between those who see participation as a means to an end and those who advocate it as a means in itself. 'At present, participation is seen as a means to a more effective realisation of the objectives of sustainable management of resources' (Croll & Parkin, 1992:133).

People participation appears necessary to stimulate individual and collective well-being. It is a sharp tool for carrying out a task. In areas of both politics from above and from below, participation has been successful in bringing people together to lobby the state to side with the governed. People begin to support the state only after feeling and believing that it is their own efforts that are driving the development process (Burkey, 1993:50). A fair deal in achieving mutual support of plans by people is simply to create room and consideration of their development vision. This simple formula is of cardinal importance in harmonising the relationship between environment management and economic development.

The idea to incorporate a wide range of information into the planning process is generally derived from principles of democracy, justice and human rights. Democracy refers to the government in which people govern themselves. This freedom for self-governance and self-actualisation is the focal point for the human rights principle. But justice is often confused with equity. Justice before the law is acceptable. But justice in resource distribution is equivocal because it connotes the distribution of resources by using the capitalist equation where the owner of the means of production takes the lion's share. This equation though accepted by capitalists, has never balanced because it only expects plan inputs to be dominated by those who are economically well-off.

A new definition of equity which need to be justified refers to the 'doubling of Noreen's share in resources and participatory rights without increasing or reducing Hec's share'. Economic democratisation which creates avenues for broad participation in the control of productive assets is seen by its advocates (such as Korten, 1990:173) as a foundation for economic reform and environmental sustainability.

Property rights, as tied to the human rights principle, are a pragmatic means of delivering managerial power into the hands of the people, who at their own discretion implement the strategies according to their own respective plans. In this situation, appropriate technologies of the indigenous communities are liberated from colonial hang-overs. The purpose is to breakdown structural boundaries and class conflict. Therefore, environmental democracy should yield social, economic, political, and spiritual development of the people themselves (Rumulika,1991:44).

The alternative step is to move from an elite dominated management system to consultative management involving all active groups. At this level of management, property ownership is administered as a common property. Any mutual declaration of

such resources as common is an entitlement for every individual to be responsible for their management, and this should at the same time provide people with ample opportunity to participate in all policy deliberations.

#### **4.2.4. Ricardian scarcity model**

David Ricardo's contribution to the management of natural and physical resources is in the analysis of limits to the earth's carrying capacity. His argument is that economic growth is a dependent variable determined by the availability of natural and physical resources. Such resources are however limited and their long-run viability depends on effective planning and management. Since these resources are heterogeneous in terms of quality and quantity, they have also been identified as being used according to 'economic declining quality schedule' (Rudawski, 1986:38).

Resource depletion and environmental decline adds costs to the overall economy. According to this model, maximum resource extractions are associated with maximum resource decline. Over-exploitation of natural resources is seen to result in serious impacts obscuring the real cost of extractive products per unit, which will increase through time due to limitations in the available quantities and qualities of natural resources (Barnett, cited by Rudawski, 1986:40). It is for this reason that integrated resource management becomes a national concern focusing on the rehabilitation of any declining resources.

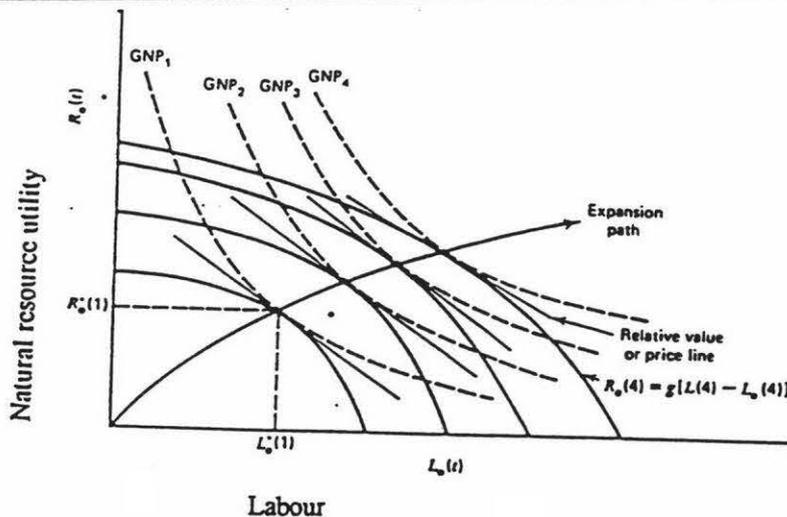
In terms of the Ricardian model, an integrated national strategy would demand additional inputs of labour and capital into the management system. This would modify general production. Rudawski (1986:39) analyses the Ricardian model with a particular emphasis on functional components (e.g., labour and capital) needed for resource management. However, he acknowledges that labour and capital combinations are also critical to the

maximum resource depletion. In this regard, increased discoveries of mineral resources, associated with increased exports and need for development have all stimulated negative ideologies which assume that resources are unlimited. Ideologies of this nature can only be refuted by empirical evidence about environmental impacts of population growth, food production, industrial output, mismanagement of non-renewable resources, and pollution emissions (Willums, 1990: 79). Ricardo's scarcity model goes further to maintain that efficiency in resource management is the best response to the diminishing marginal returns to scale. This is supported by the belief that:

*'...natural resources are scarce; that the scarcity increases with the passage of time; and that resource scarcity and its aggravation impair levels of living and economic growth....' (Bernett, cited by Howe, 1979:61).*

Reasons which may qualify the validity of the above statement are that industrial capital stock is often subject to growth that requires the doubling of input resources (see Figure 4.1 below). When inputs are doubled, the output level is more than doubled. In the event of extreme growth, the depletion of resources is exacerbated beyond their recovery.

Figure 4.1. Simplified Ricardian model for resource management



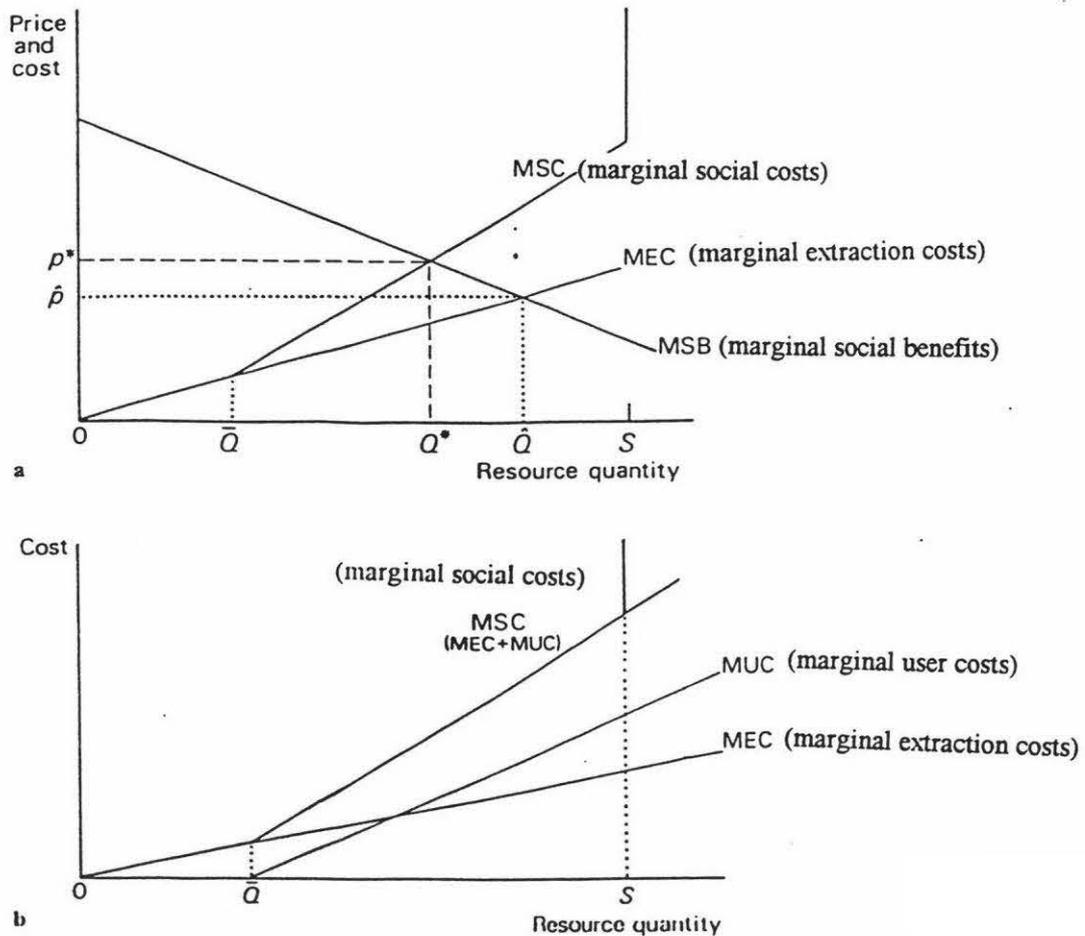
Source: Howe (1979 :65).

This diagram illustrates that when labour ( $Lo(1)$ ) is increased for growth purposes, resources will also be sacrificed without concern for future generations. In this case, natural resource utility will rise. Note also the increase in labour capital input. Initially, the economy will reach an expansionary level indicated by  $GNP_4$ , but will later begin to dwindle as resources reach depletion level. Once depletion begins, capital labour will follow the dwindling path, and the result will be a high level of unemployment with maximum inflation in the economy. As trade-offs erodes, recession gap will also expand.

From the above factors it is obvious that the economic importance of natural and physical resource management is tightly linked to threats imposed by diminishing resources which ultimately lead to economic decay. Productive efforts which aim at exhausting the base levels of natural resources through the use of more labour and capital can lead to resource depletion, leaving only an invalid fraction to be invested for future growth and development (Bartelmus, 1994:92). Long-run industries which happen to grow will no longer advance at the same pace as before. This decline in industrial output could also lead to population decline as the death rate is driven up by lack of food and health services, causing severe stress to the whole economy.

Figure 4.2 shows that adverse environmental impacts are also going to affect future generations. The concept intergenerational equity implies also that the distribution of resources need to be spread equally across all generations, present and future. However, the Dilemma in the equity formula is that it is not known how much of resources need to be spared for future generations. It is also not known by how much the present generation should reduce its rate of consumption to meet future demands. Another dilemma is that consumption capacity is diverse, and differs from country to country. It also need to made clear as to whether both the highly industrialised countries and the less need to reduce their rate of consumption at an equal footing. However, empirical evidence shows that resources are not everlasting but are instead limited (see Figure 4.2).

Figure 4.2 Resource depletion and intergenerational equity



Source: Owens (1991:34).

Figure 4.2(a) shows that when resource stock ( $S$ ) is to be allocated in two discrete time periods: present and future, increased consumption of that resource will lead to progressively diminishing marginal social benefits encouraging depletion. The diagram shows that sustainable management of resources will occur at ( $Q^*$ ) where marginal social cost equals marginal social benefits. This is achieved by adjusting economic instruments from price ( $\hat{p}$ ) to price ( $p^*$ ). In this case, resources between quantity ( $Q^*$ ) and ( $S$ ) will need to be spared for future generations while those between ( $\bar{Q}$ ) and ( $Q^*$ ) are to be consumed now. Figure 4.2(b) shows that if all resources between ( $\bar{Q}$ ) and ( $S$ ) are to be depleted now, then social, ecological and economic benefits for future generations are compromised. In this case, marginal extraction costs plus marginal user

costs will be equal to marginal social cost throughout the next generations. Advocates of the Ricardian argue that:

*'...If the present growth trends in world population, industrialisation, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometimes within the next one hundred years....' (Meadows, et al., 1974:24).*

#### **Relevance of this model to Namibia and its contribution to the national strategy**

*This issue is a priority reflected in sections 2.5 and 3.4.*

#### **Suggested theoretical methods:**

*Namibia is warned that maximum utilisation of resources, especially in the overpopulated northern regions, will lead to economic decline over the long-term. To counteract this perilous future state, an integrated national strategy for Namibia would need to be developed considering all factors influencing the manner in which natural and physical resources are used by millions of individuals in the course of their domestic economic activities.*

### **4.3. Determinants for sector management**

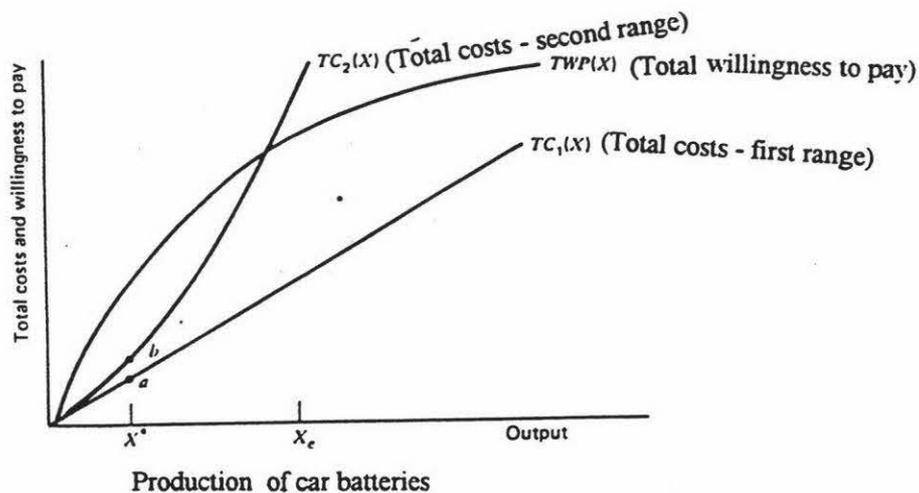
Because resource management is a dynamic process characterised by addressing inefficiency in managing natural and physical stocks, it is necessary to consider managerial options which influence effects summarised in tables 3.9, 3.10, 11, 3.12, and 3.13 of Chapter 3. A list of issues can therefore be driven from those tables and be dealt with here as matters needing appropriate solutions. These challenging issues: Strategic approaches to water management, land-use planning, agricultural sustainability, deforestation, coastal marine management, tourism planning scenarios, biodiversity, and mining. Since the adverse effects resulting from these sectoral operations form the heart of Namibia's constraints towards sustainable development, it is hoped that proposed management suggestions by various theorists would assist Namibia to prepare a

successful national strategy in the future. Each of the topics discussions is concluded with a box relating its relevance to preparation of a Namibian national strategy to be developed in Chapter 6. At the end of this section it will be possible to compile a list of the determinants for sustainable management (Section 4.5). This section will also highlight the required components for an integrated national strategy (Section 4.6).

### 4.3.1. Strategic approaches to water management

The widespread, gradual destruction and pollution of fresh water resources in most developing countries, along with the progressive encroachment of incompatible sectoral activities, are clear symbols affirming the fact that integrated water resources planning and management is needed (Adams & Werner, 1990: 80; IUCN/UNEP/WWF, 1991). Many theorists are of the opinion that water management problems are propagated by poor management strategies, lack of proper assessment of the water resource, Lenient protection of the resource, and unsustainable urban development (Arnon, 1981: 31; Brown, 1992:39). Figure 4.3 shows a pollution model in which untaxed activities of polluters are harmful to society.

Figure 4.3 The pollution model



Source: Howe (1979: 249).

In figure 4.3 X represents the production of car batteries which causes water pollution and affects the community's health. TC1 represents privately production costs, while TC2 incorporates damage from pollution. Production capacity is shown by  $X^*$ , where  $TWP=TC2$ . In this model, water pollution at  $X^*$  would cause negative net benefits to society, as they are at  $X_e$ , where TC1 is not equal to  $TWP(x)$  (Howe, 1979:249). It is suggested that to motivate appropriate behaviour taxes need to be used to correct these inefficiencies (Cleave, 1988). Additional to taxation, integration of sectoral water plans within the framework of national economic and social policy are of paramount importance to achieve sustainability (Falloux & Talbot, 1993).

A multisectoral approach to water management in the context of socio-economic development may still be incompatible to the notion of sustainability if it is not supported by awareness programmes within local communities. A prerequisite for sustainable management of water as a scarce resource, particularly in arid regions, is the obligation to acknowledge environmental protection and operational costs (Arnon, 1981: 33). As populations continue to grow above their expected average, water carrying capacities are threatened with congestion and pollution respectively. Therefore, from the beginning of the planning process, planners and decision-makers should take into consideration how water dependent sectors (e.g. agriculture) will be affected by constraints on use of water resources, and also how sectoral activities need to be adjusted to achieve sustainability.

It is acknowledged that an effective national environmental strategy seeking to incorporate water management policies would also need to take into account two primary factors on which water management depends: These are integration of sectoral water resource management programmes, and the provision of information to local communities. Furthermore, 'water planning should be coordinated with wider land-use and environmental issues, particularly with regard to agricultural development, community development and mining activities' (UNIN, 1986: 33).

### **Relevance to Namibia and contribution to strategy**

*This is a priority issue reflected in Chapter 3, section 3.3.*

#### ***Suggested theoretical methods:***

*In reference to the water pollution model cited above, Namibian society is also victimised by externalities born by unpunishable industrial and marketing activities. Because water is used by all sectors in the country, it is necessary for an integrated national strategy to be developed on the basis of policies which integrate water utilisation activities of all sectors into an umbrella of common regulations. Enforcement of regulations designed to deal with production externalities should be a priority across sectoral management.*

#### **4.3.2. Land-use planning**

Land is normally defined physically in terms of its topography and spatial nature (UNCED, 1992:124), including natural resources such as water, wildlife, soils and minerals. Viewed from this perspective, land can be said to be an integrated whole composed of a diversity of components whose sustainability requires also an integrated management system (Richardson, 1989: 4). Mismanagement of land resources is not only fatal to land alone, but also to those resource components which it embraces. Land is the heart of the earth from which biodiversity is sustained. However, land is subject to degradation. As shown in the previous chapter, expanding human demand and economic activity generally impose pressure on land. The resultant increase in conflict and competition between users is usually accelerated at the expense of the land's carrying capacity. This is a fundamental challenge requiring integrated physical and land-use planning. Theoretical evidence states that:

*If land-use planning is to be used efficiently to support sustainable development, there must be a clear and coherent structure of communication and responsibilities, from policy direction to day-to-day management and decision-making, in every land-related public programme (Richardson, 1989: 3).*

One of the fundamentals applicable to land-use planning and management is to adopt the most efficient trade-offs and to harmonise social and economic development with environmental protection and rehabilitation (Richardson, 1989: 28). Fundamentally speaking, integration is achievable when environmental, social and economic factors are responsive to the demands of sustainable management. That is, balance should be maintained, and over-consumption reduced. It is also necessary to upgrade environmental standards for using land by resolving disputes and conflict among users (UNCED, 1992).

Land as a resource is also affected by arrangements about property rights under the 'property right principle'. For example, mineral extraction from a privately owned land resource, requires mutual understanding between the owner of land and the national government. Since much of the confusion in environmental policy stems from a fundamental misunderstanding about legal status about property ownership (Bromley, 1991: 22), it is important for an integrated national strategy to have clear management principles. Management is said to be integrative if regulatory frameworks are supported by state agencies, private agencies, the community and individual. Land-use management can be integrated if political leadership is willing to respond to recommendations such as:

Internationalisation of land management which extends beyond national boundaries, especially on same continental areas is necessary for strengthening the uniformity of land-use principles. This will require international negotiations and diplomatic advocacy. Negotiated land resources should be confirmed by conventional agreements and supported by international codes of conduct. At this juncture, it should be noted that integrated planning and management processes are, where necessary, akin to international standards (IUCN/UNEP/WWF, 1991: 81).

## **Relevance to Namibia and contribution to national resource strategy**

*This issue is priorities in Chapter 3, section 3.5.*

### **Suggested theoretical methods:**

*The newly elected Government of Namibia is grappling with the national politics of land tenure. Tribal clashes and the resulting hatred over the limited carrying capacity of the Liambezi Lake are practically evident in the Caprivi Region. Inequality in land-ownership is even severe in the southern regions where a handful of individuals own kilometres of land. Current parliamentary debates are dominated by the dilemma to redress the issue of land monopoly by vanguard commercial farmers. An integrated national strategy would therefore need to be a document of countenance in respect to land tenure reforms. The national strategy should include: Review of day-to-day management and decision-making processes; Explicitly acknowledge trade-offs and implications of contingent activities; Clarify priority rights; and Clarify land issues and activities emerging from South Africa, Botswana, Angola and Zambia border areas. Finally, 'Governments at the appropriate level, in collaboration with national organisation, and with the support of regional and international organisations, should establish innovative procedures, programmes, projects and services that facilitate and encourage effective participation of those affected in the decision-making and implementation process' (UNCED, 1992: 128*

### **4.3.3. Advocating agricultural sustainability**

Agricultural activities are said to be sustainable if their operations are pursued without restraining the environment on which future productivity depends. Sustainable living, as advocated by the IUCN, refers to the improvement of human life by enabling human beings to realise their potential capacities (IUCN/UNEP/WWF, 1991). This potential should be established by adopting policies that integrate agricultural policy analysis and review, people participation, productivity systems and land sustainability, including water quality and supply, with resource and environmental needs.

Many national policy frameworks for sustainable agriculture and rural development are deficient widespread in developing countries because of less time devoted to strategic planning. Coherence of national agricultural policies incorporating environmental considerations are needed for the restoration of transitional economies leading to self-sufficiency in food production (UNCED, 1992). Land need to be treated as an integral

and concomitant component to agricultural productivity.

**Relevance to Namibia and contribution to strategy**

*This is a priority issue identified in Chapter 3, section 3.5.*

***Suggested theoretical priority methods:***

*Agricultural operations of Namibian farmers are due to modern technological ignorance perpetuated by inappropriate diffusion of information. Agricultural sustainability is achievable only if non-governmental organisations and their communities are empowered (Wellard & Copestake, 1993); if international and regional corporation in ecological and trade policies are environmentally coherent (UNCED, 1992)); if human resource development is aimed at avoiding further agricultural expansion onto marginal lands and encroachment on fragile ecosystems (Adams & Werner, 1990); and also if land degradation is alleviated by treating the land resource as an integral part of agriculture (Tapscott, 1993). This means therefore that an integrated national strategy for Namibia need to be developed in such a way that adverse effects caused by agricultural activities are minimised by advocating the balance between agricultural productivity and environmental quality. This should be done by introducing effective monitoring strategies which avoids inappropriate irrigation methods and the misuse of grazing rights.*

**4.3.4. Redressing deforestation**

The impact of deforestation adversely affects agricultural productivity, impose a reduction in soil quality, affects wildlife sustainability, and constrains economic development. Deforestation perpetuates desertification, causes a change in climatic conditions and impairs the natural character of landscape. Forest sustainability is also affected by mining activities and enfastructural development (Pearce, et al., 1990: 101). Because deforestation affects sustainability across a number of sectoral activities, integration in management should be a priority.

The United Nations Institute for Namibia States that:

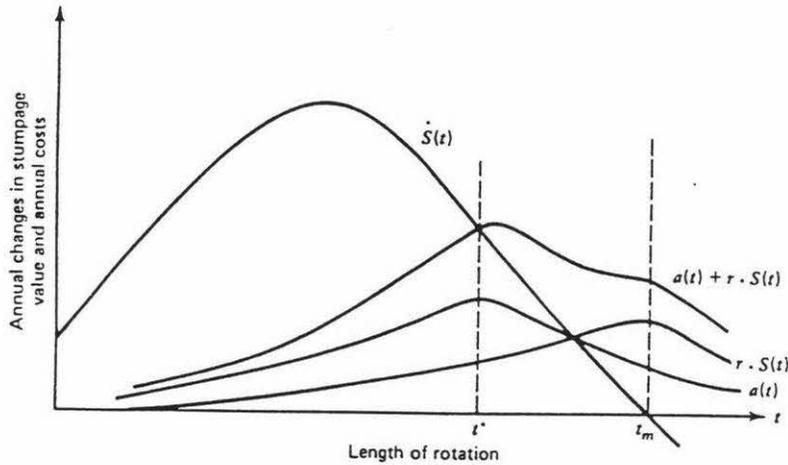
*'Future developments of forestry must be based on environmental planning principles with an emphasis on coordination with development efforts in population settlement and agricultural development, water and energy development, and wildlife conservation' (UNIN, 1986: 42).*

Sectoral coordination, integrated research ventures, rationalisation and strengthening of private and public sector agencies can rehabilitate environmentally degraded forests. The development and implementation of plans can only minimise deforestation if integration takes the form of correlating, systematising and mutually effective review of national, regional and sub-regional policies across sectors (Buck, 1993: 132). In this case, government should with other resource agencies initiate the supply of expertise to undertake research jointly with experts in countries with developed forestry practices.

Because integration is rooted in mutual participation, the rehabilitation of environmentally degraded rural areas should be addressed with the support of the local community, by improving education and awareness, and by providing appropriate information. For instance, the Sukhomajri project of India suggests that social control by local communities can be a mechanism for avoiding local people from over-exploitation of natural resources (Drijve, 1992:143).

The development of industrial and non-industrial planted forests in order to support and promote national ecologically sustainable forestry can enhance the rejuvenation of degraded forests (Pearce, et al., 1990: 111). The best example of sustainable management of the forest resource is one in which the optimum rotation is planned as shown in Figure 4.4. Optimum rotation is essential for determining an effective biomass production sandwiched with consistent reforestation after harvesting.

Figure 4.4. Determination of optimum rotation



Source: Howe, 1979, p. 227 .

In Figure 4.4,  $S(t)$  represent the stumpage value of timber (IUCN/UNEP/WWF, 1991);  $\dot{S}(t)$  represent the time rate of change of stumpage value;  $k$  represent the cost of replanting an acre after harvesting, in which case costs may double in the case of degradation;  $t^*$  represent optimum rotation point; and  $t_m$  is the length of effective rotation where the greatest benefits of harvesting timber happen to be achieved. If the annual costs of timber management exceed the annual value in its increases, then the prospects for sustainability are in vain (Howe (1979:228)).

Relevance to Namibia and contribution to strategy

*This is a priority issue identified in Chapter 3, section 3.7.*

***Suggested theoretical methods:***

*Further research into wood supply and utilisation, improvement of extension services to rural dwellers, and transformations of institutional frameworks within the government can be reliable managerial options to achieve sustainable forestry development. The government and the rural people living in forest environment need to work hand-in-hand so that information and knowledge about the forest resource can be equally shared, creating maximum benefit for both commercial purposes and domestic use of the village.*

Finally, the study team led by Whitsum Foundation, a profit development organisation in Zimbabwe, found that to achieve an increase in the number of trees growing in the rural areas, projects will need inputs to stimulate public awareness of the need for expanded wood supplies (Mvududu, 1993: 39). Extended and effective awareness across a diversity of sectors and individual users would also need commitment to mobilisation of grassroot communities in which the use of forests constitute the greater part as a livelihood.

#### **4.3.5. Coastal marine management**

Coastal and marine areas are vital for the supply of life-support to coastal and marine inhabitants. They contain some of the most ecologically significant natural systems, all of which are closely interrelated (Commonwealth of Australia, 1992: 24). Degradation of marine environments results from pollution while marine transport and dumping of waste disposals by industrial activities defile water quality (Richardson, 1989, 26). Most of waste substances are harmful for human consumption, and adversely affect marine species.

Inefficiency in coastal and marine management can be attributed to lack of integrated management and substantial development of coastal areas and the marine environment (Department of the Arts, Sport, the Environment and Territories, 1992: iii). It is also acknowledged that the promotion, development and application of methods such as national resource accounting, that reflect changes in value resulting from uses of coastal marine areas are reliable directives to be pursued (UNCED, 1992:236). The strengthening and coordination of local, national and international policy and planning mechanisms is likely to alter 'bottlenecks' to coastal and marine sustainability (Australia Department of the Arts, Sport, the Environment and Territories, 1992).

IUCN/UNEP/WWF (1991:152) suggest that integrated coastal management can be maintained by using the resources and services provided by marine environment to met development objectives without degrading the state of the environment or exhausting stocks of living resources. Figure 4.5 below is derived from IUCN/UNEP/WWF (1991) strategy's approach to coastal and marine resource management.

Figure 4.5 Integrated coastal marine management

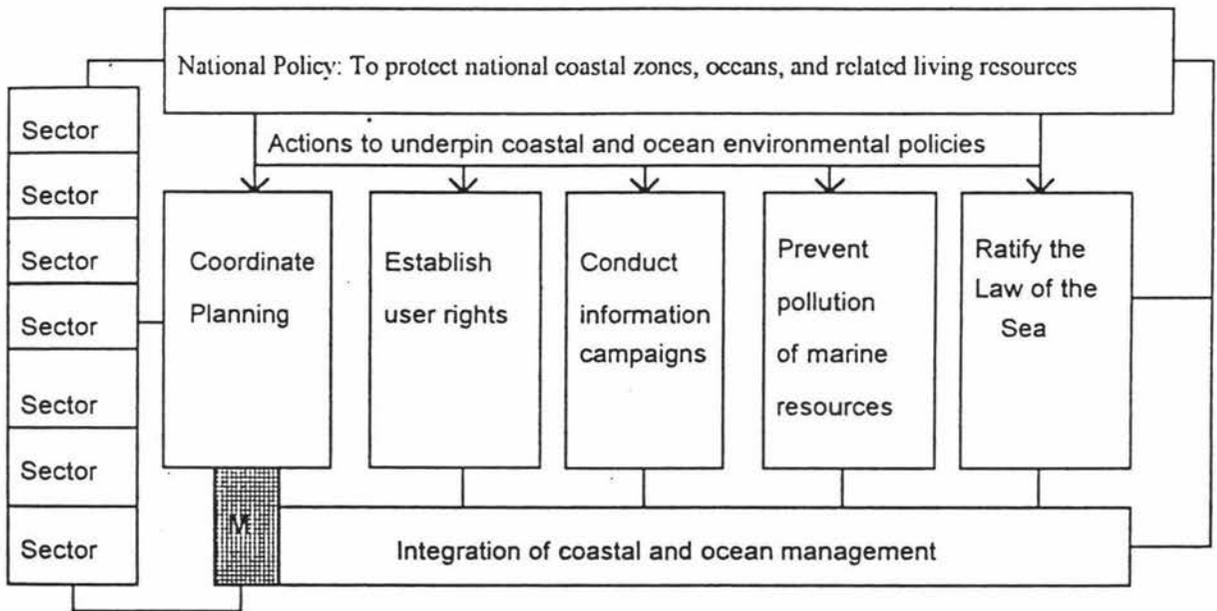


Figure 4.5 shows that policies for coastal management need to be underpinned by integrated actions for sustainable management. The symbol M indicates that sectoral activities need to be monitored through the process of integration and coordination of actions. This approach is reliable because it allows mutual interaction with other environmentally active users and managers in both private and government settings.

National state plans should comply with the provisions of the United Nations Convention of the Law of the Sea which protects and conserve coastal marine environments worldwide (UNCED, 1992: 270). Fisheries species are an important source of food to local communities and indigenous people, and are likely to suffer over-exploitation which results to serious depletion (Sandlund, 1992: 179).

### **Relevance to Namibia and contribution to strategy**

*This is a priority issue identified in Chapter 3, section 3.8.*

#### **Suggested theoretical methods:**

*Planning and management of resource stocks of marine environments is a burden confined to the Ministry of Fisheries and Marine Resources alone. Extensive managerial influence to regional and local institutional capabilities is handicapped by lack of appropriate devolution in the mandated sector. It should therefore be a golden opportunity for planners to develop strategies based on an ecosystem approach for management of marine resources. Integration involves consolidated linkage to effective utilisation of stocks and species, improving quality and training of personnel to manage and conserve marine resources in a legally sustainable manner. Marine environmental adverse effects can be resolved by minimising competition of marine fishing activities of larger fleets. Additionally, public access along and to the coast should be managed sustainably without compromising the quality of the coastal environment (RMA, 1994).*

#### **4.3.6. Scenarios of tourism planning**

Western (1986) noted that the poor performance of tourism in East African parks results from practices not geared to the environment. Inskeep (1991: 77) suggests that sustainable tourism management should in the first place take into account the 'carrying capacity' of the existing environmental infrastructure.

Because tourism planning is interwoven with environmental planning and management, it is advisable to treat it as an integral part of a glossary of environmental components. Inskeep (1991: 344), insists that tourism management will remain problematic if water pollution, air pollution, noise generation and ecological disruption are not avoided. Increasing environmental awareness is important for better environmental results in places where residents currently have little or no interest in the natural environment. According to the IUCN/UNEP/WWF (1991) tourism planning should be compatible with the principles of the Environmental impact assessment (EIA) which are: applicable to regional and sectoral programmes; concerned with the evaluation of the impact of projects on the environment; and reliable in respect to monitoring of social, economic

and environmental behaviours.

While mechanisms to plan for tourism sustainability can be created at the national level to provide coordination and guidance for involved agencies, there is significant role for international assistance in strengthening such mechanisms, and should be the common denominator for enhancing attractive coastal marine areas, sustained use of natural and physical resources, unpolluted environmental space, and revitalised ecosystems. In this view, national, regional, subregional and village structures need to be coherently compounded.

**Relevance to Namibia and Contribution to strategy**

*This is a priority issue identified in Chapter 3, section 3.10.*

***Suggested theoretical methods***

*Maximum benefits from tourism planning are only possible if the integrative process of management ensures that natural environment is not degraded, archaeological and historical sites are conserved, and socio-cultural impacts are minimised (Inskeep, 1991: 173).*

**4.3.7. Vital challenges of biodiversity**

Flora and fauna fulfil ecological functions and are used for human consumption and well-being. Within this context, resource consumption should be increased as much as possible, but the rate of increase in consumption capacity should be twofold lower than the conservation capacity of the resource. This is a vital challenge in which consumption capacity is restricted from yielding degraded outcomes. In this case the Canadian approach suggests that:

*Areas should be identified, designated and conserved for renewable resource production, utilisation and preservation by outlining: (a) areas of existing prime wildlife habitat; (b) existing exceptional forest value areas; (c) areas of existing prime fish habitats; (d) and other areas of renewable resource significance (Richardson, 1989: 31).*

Strategies should be concerned with the recovery and maintenance of soils, waters, rangelands, forests and other vegetations. The challenge is to define the role of biodiversity in a country's development, to develop a government and popular constituency for biodiversity conservation, and to provide consistent policies and specific plans which are well coordinated by vital constitutional bodies (Falloux & Talbot, 1992: 216).

**Relevancy to Namibia and contribution to strategy**

*This is a priority issue identified in Chapter 3, section 3.6.*

***Suggested theoretical methods:***

*A national strategy which aims to address biodiversity issues should be based on building a broader constituency for conservation; bringing local people into the conservation movement; broadening the availability of information; applying science to conservation; stimulating far greater investments in conservation; and devising new institutional approaches to conserving biological diversity (Sandlund, 1992: 21-5)*

Because biodiversity is also based on a diversity of ecosystems, and because it affects more than one sector, it should be covered by 'a combination of measures to safeguard species and genetic stocks' (IUCN/UNEP/WWF, 1991: 36). The establishment of conservation areas and broad strategic policies that amalgamate economic initiatives and regional conservation laws should be seconded by an establishment of professional agencies to provide leadership and management infrastructure.

#### 4.3.8. Resolving mining operational adversaries

Planning for mineral use is of special concern because of the often considerable side effects of extraction, especially in countries where economic development is based on mineral extraction. The extraction of minerals highlights a particular development problem, that of damaging landscape values and polluting rivers and coastal waters. one option is restoration by taxing derelict land in which mining activities take place(Blowers, 1993: 48).

Minerals, oil, gas and coal are non-renewable and the yield from mining is often unpredictable. Because the amount of mineral reserves underground are unknown, sustainability of mining is difficult to justify in relation to needs for future generations. Despite this state of human ignorance about mineral quantities, it is commonly understood that over-exploitation is a violent human action and can lead to 'exhaustion' of the mineral reserve base (Howe, 1979: 106).

#### **Relevance to Namibia and contribution to strategy**

*This is an priority issue identified in Chapter 3, section 3.8.*

#### ***Suggested theoretical methods:***

*The currently distorted landscape of the southern regions is being extended by dynamic events in a competitive mineral industry. Corrective measures to such a grotesque environment would need a resource strategy that prioritises tree planting, and coverage of open excavations in mineral fields. The IUCN/UNEP/WWF (1991: 10) states that non-renewables can effectively be managed by recycling, or by switching to renewable substitutes where possible. Adverse effects such as landscape destruction by mining activities can be addressed by policies which support long-term planting of trees as part of strategic planning (Blowers, 1993: 49). Such planting is assumed to restore top-soil surfaces of landscapes.*

Unless nature is restored through the implementation of appropriate policies, the general structure of the environment will continue to lose its quality and poverty will continue to prevail in all parts of the developing world, including Namibia..

#### **4.4. Basic Determinants of Sustainable Management**

The forgoing section has provided insights into what actually determines whether development is sustainable. The social, ecological, political and economic factors are all important in discussing resource protection, people participation, environmental quality and the built environment. Negligence in handling any of the above issues will lead to serious environmental problems (Bojo, et al., 1992:14).

##### **4.4.1. Resource protection**

Sustainable development involves the supply of resources into the future. It means the efficient exploitation of both renewable and non-renewable energy and mineral resources through optimum productivity, recycling, development of alternative technologies, and substitution where this is possible (Green, 1991). Resource protection is essential if such protection is spread across the scenario to benefit current and future generations.

Sustainable management of resources should also be seen as an alternative to the familiar 'boom-bust' cycles seen in many economies. The enormous scale of natural resource exploitation is often a major concern rather than a monetary shock to an economy (Pearce, et al., 1990). In order to meet desired sustainability objectives, management should be coupled with 'regulations issued, control measures put in place, enforcement action taken, and actual physical improvements in environmental quality' (Portney, 1990:275).

##### **4.4.2. Maintenance of environmental quality**

Natural and physical resources are only important to a country's economy if their use is carried in accord with the principles of sustainable development. The air we breathe, the water we drink and the land we cultivate are all oriented to the economic quality of our

lives (Brown, 1992). If these life-support components are suppressed by vanguard consumption behaviours, the human race is unconditionally doomed.

Environmental quality is said to be enhanced when regeneration and future viability are not threatened. Over-exploitation of resources beyond their productive capacity is unequivocally a deliberate effort to reduce the quality of the environment, and hence an invitation for chronic mass poverty associated with a decline in the quality of life. Weizsacker (1994:83) contends that when the rural poor are pressured by lack of resources they often have no choice other than to slash and burn the forest, to adopt shifting cultivation and to finally abandon the land for new areas once land can not produce their needs.

Since the earth's physical and natural resources are finite, degradation and the depletion of non-renewable resources is often the result of over-use, inefficiently use of resources will lower income levels and the environment is more likely to be damaged. Effective management and use through the application of appropriate methods, policies, economic instruments and regulations needs to become an integrated consideration.

#### **4.4.3. Built environment**

The aim is to adopt scenarios in which built environment is in harmony with the surrounding natural environment without denuding landscapes and degrading the capacity of ecosystems. This is achievable by preserving the stock of natural assets. The re-use of buildings with intent to create balanced and un-threatened circumstantial environment is according to Blowers (1993) a rewarding ideal. However, proposed uses must be commercially viable. Within the context of the built environment, sustainable energy use should be maintained. Renewable energy that promises to be capable of making a significant contribution to meeting energy requirements without adversely

harming the environment is sustainably necessary for development efforts being pursued in Africa (Webb & Gassop, 1993:60).

Infrastructure developments such as transportation and housing operations are responsible for degradation. They also accused of disregarding the need for environmental protection. Webb & Gassop (1993: 125) recommends that sustainable management will be in support of the built environment and reduce average commuting distances. environmental strategic plans at the regional and local level are geared at providing appropriate balance of homes and employment to secure local job opportunity.

Alternative measures include tree planting as a remedy to growth of CO<sub>2</sub> and provide multiple benefits if supported by local and regional initiatives (Willums, 1990: 176). It is necessary also to ensure that existing buildings are inspected and decisions made about upgrading old buildings for extended life so that capital available for energy conservation remains sustainable (Vale, 1993: 105).

#### **4.5. Requirements for an Integrated National Strategy**

Theorists such as Bojo et al., (1992: 14) argue that the economic importance of natural and physical resource will not be realised if basic requirements needed to develop an integrated national strategy are not satisfied. Therefore, an integrated national strategy that seeks to achieve sustainable economic development is bound to priorities those ordained developmental principles which are appropriate in preserving the natural character of the environment (Bartelmus, 1993). The fact that resources are limited, and that they are a national common property, affirms that effective management will respectively need joint effort from all concerned parties, institutions and associations (Archer, et al., 1984:22).

#### **4.5.1. Structure of a strategy**

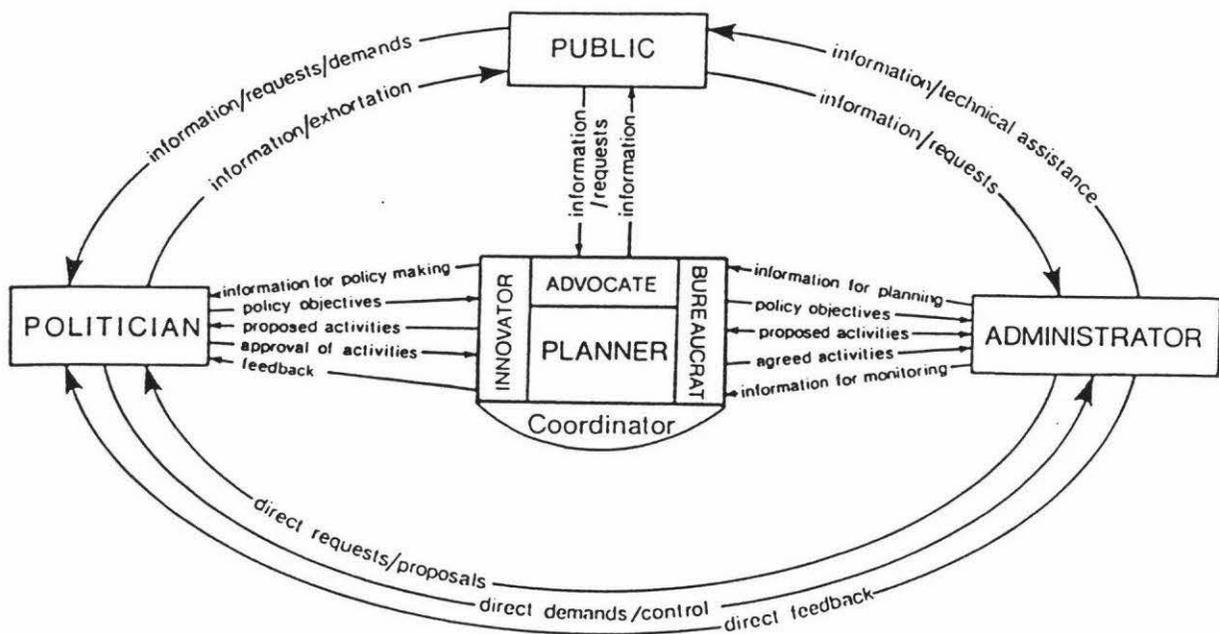
According to IUCN/UNEP/WWF (1991:206), a national strategy should be a government policy statement reflecting the interests of the average majority of the people to be affected by its results. Its structure should indicate the levels of government involved in its implementation. Additionally, it should provide a clear relationship between international, national, regional and territorial plans. Consistency among various plans should enhance integration. The following components which are unlikely followed by most developing countries are theoretically recommended for national strategies.

##### **Consultation procedure:**

The importance of consultation is mainly to expand the scope of planning, to reduce the bias of planners, and to enhance a wide range of factual evidence to guide planning processes. The target group for consultation should be people with experience in the planning profession, international bodies, voluntary and NGOs, indigenous communities, women's groups, national, regional and local authorities. Clause 3 of the first schedule for the New Zealand Resource Management Act 1991 provides a list of those who should be consulted. The Minister of Conservation, Minister for the Environment, Minister for fisheries, and Iwi authorities are among those on the list.

The way of consultation should be through publicity. Publicity may take the form of the mass media (radio, TV, and press). If publicity form of consultation is adopted, enough time for public response to a particular environmental issue should be allowed. In this case, policies should accordingly be drafted with regard to public opinions. Where possible, satisfactory reasons for taking particular decisions at the expense of other public proposals need to be furnished. Figure 4.6 shows the realistic view of planning.

Figure 4.6. Interrelationships of politicians, planners, administrators and the public



Source: Conyers & Hills (1986: 246).

The diagram displays reciprocal consultation. This is shown by the flow of information between politician and public, between public and administrator, between administrator and politician, and between coordinator and the advocate, etcetera. The planner is located at the centre of planning. His/her major role is that of mobilising and organising, including also the coordination of plan activities within their gallery infrastructure.

#### Information gathering and analysis:

Information gathering on the state of the environment is fundamental in the development of a strategy. Because a strategies seek to answer particular questions of development, they need to address issues about the people, the state of the economy, state of the environment, and the structure of the implementing institutional framework (IUCN, 1991; UNCED, 1992).

**People:** This takes into account the status and trends in population and their relation with the natural and physical environment of the area. Redclift (1987:133), contends that in discussing the transformation of the environment it is necessary to examine suitable and unsustainable approaches to development within the context of the people's choices and interests, as well as ecological principles. More attention is given to the imbalance in the standard of living among different people while measures to support the most affected groups should be prioritised.

**Economy:** Status and trends of the main sectors of the economy, especially those which are resource based (for example, agriculture, fisheries, mining, etc.) need to be critically analysed. Possible negative effects to the natural character of the environment need to be remedied. Experience has shown that sustainable development requires a commitment to sound policies. These will be meaningful if they happen to give new impulses both to economic decision-making and to the solution of environmental dilemma (Gore, 1992:185).

**Natural and physical resources:** Assessment of environmental quality and resource-base systems, and also the analysis of carrying capacity limitations and rate of resilience in respective ecological areas. Most of the threats arising from uses that may require limitations are threats to individual species which subsists in a world of mutual interests. If an endangered resource is poached or used beyond its point of possible rejuvenation, threats of depletion to the resource are higher (Dixon, et. al., 1990:66).

**Institutions:** Evaluation of the effectiveness of existing institutional policies, regulations, objectives and methods by taking into consideration the integration aspect of these institutions. Pearce, et al., (1990:147), noted that whenever policies relating to incentives and output encouragement are pursued, they will have no effect unless there are effective institutions responsible to coordinate information between different agencies.

**Policy formulation:**

The development of a sustainable economy in which the coordination and allocation of resources among different sustainably developing sectors depends much on the quality of information gathered and how such information relate to problems affecting environmental quality. Pearce, et al. (1990:147), notes that when policies relating to incentives and output encouragement are pursued, they have no effect unless there is appropriate coordination of active group interests.

**Action planning and implementation:**

An integrated national strategy requires a large number of actors and the few mentioned below are important in implementing the strategy. There has been a tendency to think that the planner's role ends when he/she has produced a plan. The reverse of this idea is true in implementing an integrated national strategy. The role of the planner in the process of plan implementation is thus concerned with mobilising, organising, and managing the resources needed to undertake the actions embodied in the plan (Conyers & Hills, 1986: 155). see figure 4.7. above. It is therefore imperative that all groups be active during plan development and be also involved in its implementation. This is simply so because the implementation phase of planing takes a collaborative process.

**4.5.2. Human resource development and planning**

As shown in chapter two, Namibia is one of the countries with limited-skilled human resource base. The implementation of Namibia's Green Plan is currently pending. One of the problems causing delay in implementation is the shortage of human resources with the capability of drafting planning strategies at the local level of government. Bartelmus (1994:108) states that 'human resources have now become the latest battle-cry of growth-based development'. The lack of ecologically skilled planners is making it impossible for many environmental tasks to be implemented. Human development is seen

as 'an area of critical importance' without which plan implementation is impossible (UNCED, 1992:47).

In order to meet sound environmental results, incentives should be used to encourage environmental production patterns, supporting in particular the application of appropriate environmental technology (Bartelmus, 1994:109). International assistance in training and development of environmental technologies should be supplemented with the improvement of the quality of human capital through information and education policies (UNCED, 1992).

#### **4.5.3. Environmental action groups**

A progressive national strategy for resource management is likely to be unsuccessful government effort is not supplemented collaboration with local communities, business associations and NGOs. The process of plan implementation requires groups of actors to put plan activities into motion. Blaise Pascal once argued that:

*It will not be a satisfactory environment without local mobilisation, without vigilant press, without vigorous associations, without enterprise conscious of their duties, and without individual and collective civic duty (Falloux & Talbot, 1993: 81).*

#### **Indigenous community roles**

It was in the early seventies when an Indian villager educated his government. During this era, agricultural productions showed consecutive symptoms of low returns. Soil erosion, environmental degradation, forest denudation, etc., all reminded commoners living in shanty villages to have themselves engaged in sustainable development programmes. Tribal courts began to fine those who unlawfully took part in setting

communal land on fire. Indigenous people demonstrated to be successful in enforcing regulation by imposing fines. The Indian Government had a problem in building catchment strategies against soil erosion. These were intentionally destroyed by the indigenous people who argued that contour trenches affected the hooves of their cattle. The problem was simply because the government did not provide information to the indigenous people about the importance of contour. No wonder, one villager told the official who was trying to stop soil erosion that 'the problem does not lie there, it is in the villages, in the destitution of the village' (Chopra, et al., 1990:39).

It was then that the government began to allow villagers to participate in decision-making processes pertaining to resource management and development projects. This lesson became known as the Sukhomarji model. The role of one of the village residents, late Daulet Ram, in identifying the problem, suggesting the solution, and even point out the site for the dam is recognised, and he made the role of indigenous people an acceptable option (Chopra, et al., 1990:40).

Shifting focus onto participation of the indigenous community innovation process inevitably leads also to a preoccupation with participation (Dudley, 1993:7). The purpose for indigenous community involvement in resource planning is to develop methods of systems by which its members can capture and use locally available resources to meet individual and collective needs. It is the tendency of many governments of developing countries to exclude participation of the indigenous people in matters affecting their lives. In so doing, the state has undermined existing local capacities, created burdens on national treasury, and exacerbated inequalities by transferring resources and power from local to national elites while doing little to enhance productivity (Korten, 1986:1).

### **Non-governmental Organisations (NGOs)**

Korten (1998:23) argues that the tendency of national governments to exclude NGOs in their planning for development reforms has left a vacuum in planning processes and has led to unsatisfactory results. Planning will only serve the interests of the people when voluntary and non-governmental organisations are involved in strategic planning.

The role of NGOs in development is in this section opened by a brief synoptic overview of their importance in Africa. This brief generalistic overview will be followed by making a specific focus on the role NGOs should play in Namibia. In this regard, specific reference to women's organisations, business community, farmer's organisations, indigenous community, multinational organisations, and international aid agencies. How these organisations should assist Namibia in achieving sustainable economic development is a matter of concern.

NGOs refer to privately owned, profit and non-profit organisations. IUCN/UNEP/WWF (1991:211) define NGO as any organisation that is not part of the government and includes private voluntary organisations, corporations, educational institutions and labour unions. UNCED (1992:387) states that NGOs can play an important role when allowed to participate in national mechanisms or procedures, and can make the best use of their particular capabilities in the fields of education, poverty alleviation and environmental protection and rehabilitation. Since NGOs are community based it is imperative that their purpose on behalf of all sectors of society be taken into consideration.

Many international and national organisations such as the World Health Organisation (WHO), United Nations Children Fund (UNICEF), General Agreement for Tariffs and Trade (GATT), and the Food and Agricultural Organisation (FAO) are good examples of NGOs involved in different development activities in Africa. In particular, NGOs play

an important role in agricultural extension and research in Africa. Most of them have a smooth coordinated relationship with national governments in which they operate. In Zimbabwe, NGOs are involved in presenting their plans for consideration by village, district and provincial committees (Mungate 1993:29). These tasks are legally carried out in cooperation with the government of Zimbabwe. NGOs have often shown interest in forestry and agroforestry development activities in rural areas of the African environment. Their participation in providing materials for tree planting, forestry courses, organisation of workshops and seminars on plant sciences, and the dissemination of management techniques to public sectors are lessons for Namibia which unfortunately have been ignored. Research on agroforestry, wood energy and general surveys on indigenous tree knowledge are some of the activities handled by developmental NGOs in Africa.

In Kenya, the Ministry of Environment and Natural resources has created a favourable environment for the establishment of a coordinated body of NGOs (Arum, 1993:153). In collaboration with the responsible ministry, NGOs offers technical advice to farmers and women's groups engaged in tree planting and supplies planting material for propagation (Charles & Wellard, 1993:106).

**Business community:**

It is the business and industrial institutions who severely use natural and physical resources to produce consumable goods. The dumping of waste products from finished products which 'endanger our natural resources' is a duty of economic interest done by industrialists (Willums, 1990: 23). The market, though functioning also in the interest of consumers, is a vehicle through which profits to consumers are channelled. An integrated national strategy requires therefore that:

*Governments should encourage business to use such tools as environmental audits and environmental impact assessments as a management tool to check that environmental equipment, management systems and procedures are being properly applied (Willums, 1990:185).*

**Women's groups:**

Measures to eliminate illiteracy among women in developing countries by strengthening and empowering their bureaux is likely to improve their contribution to the management of their own resources. Since women are closely linked to their families, education focusing on them is likely to trickle-down to their children. Low-status groups such as women or rural poor are of special relevance to environmental management (Groot, 1992:387). Some practical experience shows that, due to weaker governments of the developing countries, planners need to come to terms with local people to achieve anything substantial in countervailing the environmental tragedy of forests, water and soils. This effort to contact concerned parties can be a serious blunder if women are bypassed and their decisions not taken. In Zimbabwe for instance, measures on land reform have ensured women's rights to land as an important aspect of integrated land management (Afshar, 1991:138).

**Interest groups:**

David Truman argues that political analysts should focus on group interests that struggle to influence governmental processes (Blaser, 1984:78). When a group is formed, it serves to extend its relational calibre with other management organs. In this regard, integration through communication is eventually enhanced and secondary disturbances perceive joint corrective measures.

### Farmer's unions:

Farmer's unions can play an important role in implementing national strategies. Since they are directly involved in the exploitation of land for agricultural purposes, their cooperation with other management bodies can bring acceptable changes in many areas which are severely degraded. UNCED (1992) states that, the to the successful implementation of these programmes lies in the motivation of individual farmers and government policies that would provide incentives to farmers to manage their natural resources effectively.

### Public sector agencies:

Government departments are the means through which national objectives can be achieved. For integration to be realised, a cross-sectoral approach to resource management should be opted. Once a cross-sectoral approach is adopted, assistance to planners in identifying most urgent environmental needs become a possibility. IUCN/UNEP/WWF (1991:169) contends that public institutions function as cornerstones in building institutional capacity to handle complex environmental issues.

Figure 4.7 Resource management in the public sector

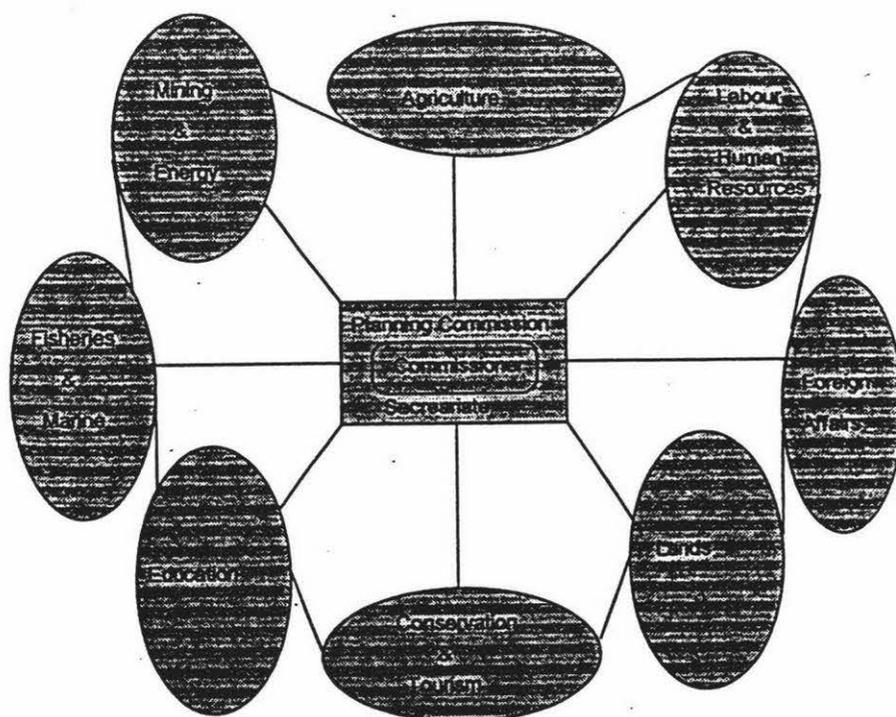


Figure 4.7 shows that resource management need to be treated as a national for which every government sector is accountable. According to this figure, a full-time Secretariat supported by the National Planning Commission 'must undertake day-to-day management of the strategy's preparation' (IUCN/UNEP/WWF, 1991:207). The Minister for the Environment must appoint a Resource and Environmental Commissioner who would be located in the National Planning Commission to advocate environmental concerns across ministries, (Brown, 1992). He/she should also create opportunities for international support.

#### **4.5.4. Regulation and economic instruments**

Both regulations and economic instruments are receiving increased attention in national resource and environmental policy statements of many developing countries. It is appreciable for Namibia to take into account the importance of economic instruments in strengthening the enforcement of regulations in society. Regulation refers to the means in which rules and economic instruments can be applied to control adverse effects on natural and physical resources.

Sustainable economic development in Namibia cannot be achieved without putting emphasis on the formulation of regulations aimed at changing people's behaviour on natural resources. The effective application and enforcement of regulations in matters concerning the perfection of operational and managerial standards of resources is likely to bring improvement in all efforts seeking the achievement of sustainable development. Necessities associated with regulation needs include:

***Effectiveness:*** According to Wasserman (1992:22) regulation seen as 'critical to realising the benefits envisioned by environmental policy, statutes, regulations, standards, and permits'. Regulatory instruments which at present are in force to protect the

depletion and degradation of natural and physical resources should be enforced to contribute to effective management.

**Efficiency:** It is a basic criterion in planning and improving the quality of human life. Regulation accompanied by compliance is the bottom line of effective management. Since Namibia can not deny the limited nature of its resources which in real economic terms are threatened by mushrooming population growth, the basic good is efficiency.

**Equity:** The distribution of regulatory measures among communities should be accorded to the principle of fairness and should not benefit other groups at the expense of others. Normally, in Namibia regulations are currently enacted without sufficient regard to cultural differences, social and economic realities.

**Credibility:** The expectation that regulation violation will generate predictable and proportionate enforcement response is essential to the credibility of government regulation (Wasserman, 1992:22). An important function of regulations is the application of sanctions to those who break them. In this regard, standards are set, and both public and administrative attitudes moulded.

Economic instruments which should commonly be used to back-up the country's regulations on resource utilisation should include charge systems, subsidies, deposit-refund systems, market creation and enforcement incentives (Horstmann, 1992:45-46). These are meant to enhance controlled use of resources with minimal over-exploitation. The advantages of economic instruments for natural and physical instruments suggest that they are also useful in project-related cost-benefit analyses, structural adjustment programmes, environmental action plans, government advisory programmes, and also in education and training programmes. Environmental economics as a rapidly evolving area takes into consideration the following measures:

*New deposit refund schemes:* Major efforts are needed to find policy instruments to guide the economy away from the current linear production process to emphasis on the recycling of resources. Deposit refund schemes are important because the user is encouraged to maintain sustainability or may forfeit his/ her dues.

*Green taxes:* Subsidisation of roads, dams, fuel and many other goods and services which tend to maximise pollution and resource depletion is indeed a good focus toward sustainable economic development. However, these should be implemented in view of their impact on the demand and supply-side of the country's general economy. Baumol & Blinder (1991) are of the opinion that inappropriate taxation is likely to cause lower production capacity of firms.

*Governing the commons:* Regulation which opts for taxing those abusing common property rights is likely seen to be an alternative solution to free access that leads to overgrazing in common property area zones. Meister & Rosier (1992:5) define common-property as referring to 'property owned by some defined groups of people - a community, a nation'.

Economic growth and suitable protection of natural and environmental resources are compatible goals. Nonetheless, when resources are heavily devoted to the protection of the environment they may not be available to pursue particular development objectives. It is for this reason that environmental protection should be pursued at the lowest possible cost.

*Other methods:* Methods such as, do nothing, education and advocacy, community action, best management practices, public works and awareness promotion are reliable in achieving sustainable development. However, these can be meaningless and confusing because each of them is importantly necessary when fused into an integrated umbrella.

Given the above requirements for an integrated national strategy, it necessary to argue that economic development and resource management are inseparable entities. The integrity of economic policies with management policies is barely seen by theorists to be a vehicular for a sustained environmental health whose multiplier is a shuttle to a sustainable economy. Bartelmus (1994:81) contends that 'the incorporation of environmental concerns in development planning and policy formulation requires the introduction of space as an explicit dimension of an integrative framework'. For him these are 'bolts and nuts' to the survival of the ecosystem.

#### **4.6. Conclusion**

Viewed from an integrated planning perspective, the foregoing theoretical dimensions are crucial to any approach intended to address development issues in both Namibia and other African countries seeking the achievement of economic development through effective and sustainable transformation of natural and physical resources. It is necessary to conclude this chapter with a summary of tabulated theoretical recommendations. Tables 4.1 to 4.5 are suggested to portray expected roles which each environmentally action group is suppose to play in managing issues arising from the environment. Table 4.6 provides general theoretical management options which are vital for bettering the effects of adjusted policies, and for designing policy interventions accordingly, with the support of research, policy development, evaluation and training programs. Table 4.7 includes general approaches which are reliable for preparing an integrated national strategy. These tables are hoped to be of assistance in evaluating national strategies across levels of resource management.

Table 4.1	Recommended roles for indigenous communities
<b>Indigenous community:</b>	<b>Expected roles</b>
Landscape	Revive traditional environmental methods which are necessarily meant to avoid inappropriate harvesting of indigenous forests which negatively torment the natural character of landscapes, causing everlasting degeneration of landforms.
Climate	Reduce traditional grazing practices which aggravate the viciousness of droughts, causing drastic changes and the booming of climate horizons to negative parameters which are anathema to human appreciation.
Water	Monitor the extent to which water is being used at both district and village levels, and propose sustainable consumption capacity behaviour based on the application of appropriate technology.
Agriculture	Advocate the introduction of alternative land tenure systems which support and contribute to the maintenance of soil quality by avoiding negative effects of soil erosion resulting from lack of crop rotation.
Land-use	Support the introduction of land-use rights legislation which takes into account the fundamental role of the indigenous community in land-use decision-making process coupled with appropriate consultation of the general community.
Deforestation	Protect indigenous flora and fauna by introducing traditional regulations based on penalising inappropriate deforestation practices which are harmful to the general recovery of forests.
Biodiversity	Improve traditional knowledge and management practices necessary to sustain the existing biological environment to the level recommended by universal principles of ecological sustainability, by giving momentum to continued environmental awareness in the community.
Mining	Create room for intervention into mineral management affairs and proclaim indigenous rights to know how the distribution of profits accumulated from mining activities benefit both the people and the environment.
Tourism	Improve cultural and traditional practices which are environmentally sustainable for tourism attraction, and provide information about the impact of tourism development on indigenous habitation.
Marine resources	Support government by providing information on the state of coastal marine environments located within the jurisdiction of the tribal authorities.
Population	Accept modern methods of family planning which support the reduction of families aimed at relieving the environment from being compromised and suppressed by the growing population.

Table 4.2	Recommended theoretical roles for NGOs
NGOs	Expected roles
<i>Landscape</i>	<i>Undertake research and propose effective alternative actions to be pursued by government to rehabilitate current degraded landscapes.</i>
<i>Climate</i>	<i>Assist government to plan and draft integrated drought oriented strategies aimed at minimising adverse impacts of droughts which adversely exacerbate climate conditions in arid regions.</i>
<i>Water</i>	<i>Promote sustainable use of water in rural communities and provide methods by which appropriate rural technology based on the use of borehole-water can be integrated into national strategies for water management.</i>
<i>Agriculture</i>	<i>Disseminate information about the effective use of farmlands and persuade government to provide credits and incentives to farmers whose activities are sabotageous to the environment.</i>
<i>Land-use</i>	<i>Advocate for an introduction of an effective legislation which takes into account the traditional right to land-use and how such rights need to be modified to achieve sustainable use and allocation of land.</i>
<i>Deforestation</i>	<i>Support government in research and development of forest zones which are currently degraded and need rehabilitation to support economic objectives and natural environmental well-being.</i>
<i>Biodiversity</i>	<i>Monitor the extent to which development projects and particular policies affect national biodiversity and provide alternative actions by which negative impacts can be reversed to achieve sustainability.</i>
<i>Mining</i>	<i>Support government in maintaining an effective mining operational sphere and strive to avoid ambitious actions which are pioneered by economic growth motives without environmental sensitivity.</i>
<i>Marine resources</i>	<i>Participate and contribute to matters related with the protection of endangered species of the marine environment, and suggest necessary actions to avoid immediate depletion particular resources.</i>
<i>Population</i>	<i>Assist government to develop appropriate population policies and strategies which are effective enough to stabilise skyrocketing growth rates by providing comprehensive balance between economic development and population growth.</i>

Table 4.3	Recommended theoretical roles for Business and industry
Business community	Expected roles
Landscape	<i>Form national and international networks to fund research proposals aimed at finding possible means in which degraded landforms can be transformed into beneficial land for future use.</i>
Climate	<i>Support measures that aim at reducing the amount of CO2 resulting from unsustainable business and industrial operations of particular sectors.</i>
Water	<i>Ensure that effort is being maintained to conserve water, especially in areas which are prone to adverse impacts of droughts.</i>
Agriculture	<i>Develop anti-toxic and environmentally safe agricultural chemicals, and compile a comprehensive package of information to enlighten farmers as to how such chemicals can be sustainably applied.</i>
Land-use	<i>Propose effective measures to safeguard industrial land-use operations for development, and avoid land-use conflicts which may result to over-exploitation of the environment.</i>
deforestation	<i>Take sound steps in mobilising private and public sectoral collaboration keen enough to pursue possible measures necessary for the recovery of forests, and where possible fund reforestation projects.</i>
Biodiversity	<i>Unfold national and international joint ventures imbued with appropriate industrial technology which prioritises the conservation of the biosphere on which the booming of industry depends.</i>
Mining	<i>Provide safe environmental standards which counteracts inappropriate waste disposals resulting from mining technological operations, and where possible integrate the operation of mining into a sustainable conservation movement.</i>
Marine resources	<i>Develop marine monitoring systems to assist the supply of information about the possible consequences resulting from pollution of the marine environment, and suggest alternative means on how a sustainable coastal environment can be maintained for future benefits.</i>
Population	<i>Take into account the impact of humans on the vulnerability of natural ecological systems and the vital challenge to confront resource depletion emanating from the galloping growth of populations.</i>

Table 4.4	Recommended theoretical roles for women's groups
Women's groups	Expected roles
<i>Landscape</i>	<i>Since they are the main users of land for local agricultural production, women have the ability to condemn user activities which distort the natural character of landscapes and their ecosystems.</i>
<i>Climate</i>	<i>Women as environmentally working groups can influence the government to establish green farms necessary to absorb CO2 emissions affecting the ozone layer by causing stress to the climate.</i>
<i>Water</i>	<i>Active participation in decision-making processes concerning improved methods for the use of water for both irrigation and domestic purposes, and suggest favourable conditions in which the use of water will remain sustained and beneficial to women's basic needs.</i>
<i>Agriculture</i>	<i>Encourage government to subsidise small-scale rural agricultural operations in which women are actively involved, thereby, reducing environmental pressure and poor production capacity resulting from lack of support.</i>
<i>Land-use</i>	<i>Consolidate women's position in regard to land-use rights by lobbying for government and business community back-ups, and to support measures aimed at rehabilitating land prone to environmental disasters.</i>
<i>Deforestation</i>	<i>Introduce new methods aimed at relieving women labour at the traditional village levels of resource management, and provide appropriate information to village women about the importance of forests which often happen to be cleared to give way for some kinds of developments.</i>
<i>Biodiversity</i>	<i>Parade voluntary action to impart biodiversity information to their children, teaching them not only to conserve nature, but also to love the vital composition of natural ecosystems and their relation to the human race.</i>
<i>Mining</i>	<i>Take initiatives in pursuing mining operations training and contribute fully to policy-making regarding sustainable conditions in which mining activities deserve to be ventured without marring acceptable environmental patterns.</i>
<i>Marine resources</i>	<i>Contribute to effective monitoring of marine environments, particularly those whose coastal marine belts lie within village jurisdictions to which women have greater access for supervision and control.</i>
<i>Population</i>	<i>Support family planning approaches which are likely to benefit both the environment and women's time for total participation in socio-economic development which often happen to be deterred by family concerns.</i>

Table 4.5	Recommended theoretical roles for farmers
<b>Farmers organisations</b>	<b>Expected roles</b>
<i>Landscape</i>	<i>Protect possible destruction of natural landscapes by adopting unanimous decisions which support and advocate for the abolition of farming practices whose clearance of land for agriculture purposes happen to create unwanted landscape disasters.</i>
<i>Climate</i>	<i>Promote sound environmental practices to confront the viciousness of droughts and their contribution to climatic change.</i>
<i>Water</i>	<i>Participate actively in the formulation of water management policies applicable to the management of fragile agricultural environment, and maintain a sustained mode of rural development.</i>
<i>Agriculture</i>	<i>Establish networks based on sharing information about modern agricultural technology and adopt measures which are environmentally health and economically viable for future development needs.</i>
<i>Land-use</i>	<i>Develop policies which are environmentally oriented to the needs of farmers in respect to land-use, and suggest reliable methods to minimise tribal conflicts over rural land lacking legal demarcations.</i>
<i>Deforestation</i>	<i>Adopt both individual and collective monitoring of the state of forests and promote their recovery by undertaking and supporting the sustainability of forest farmlands.</i>
<i>Biodiversity</i>	<i>Strengthen the conservation of flora and fauna located in farmlands owned by individual farmers and treat such biological ecosystems as national commodities classified under the principle of common property.</i>
<i>Mining</i>	<i>Develop solid groupings which are environmentally sensitive and powerful enough to counteract adverse outputs of mining operations which lowers both soil quality and agricultural productivity of the land.</i>
<i>Marine resources</i>	<i>Establish effective unions which have the capability to develop a conspicuous vision of national development dynamics by supporting government in the integration of marine resource conservation issues with basic economic needs of the people.</i>
<i>Population</i>	<i>Support strategies aimed at effective management of population planning, and where necessary, propose for a coordinated farmer approach to population problems, and aim to reduce the higher demand of land resulting from population pressure.</i>

Table 4.6.	General theoretical management options
<i>Landscape</i>	<i>Joint and consistently nationalised and localised research, monitoring and protection of degraded landscapes should be prioritised.</i>
<i>Climate</i>	<i>Tree planting need to be encouraged to minimise the amount of CO<sub>2</sub> (Willums, 1990).</i>
<i>Water</i>	<i>National water planning must begin with screening of all existing potential water development projects. A careful assessment and ranking of priorities need to be taken (Agnew &amp; Anderson, 1992: 265).</i>
<i>Agriculture</i>	<i>Revegetation and the protection of remnant vegetation are also important as a means of making up some of the ground lost over the years of agricultural expansion (Common Wealth of Australia, working groups, 1991).</i>
<i>Land-use</i>	<i>Guidance to public agencies as to the nature, location and timing of their operations, such as the construction of roads, including coordination of land related programmes together with their associate regulations and developmental activities are vital land-use approaches (Richardson, 1989: 60).</i>
<i>Defore- station</i>	<i>Streamlined, integrated and consistent regional and local guidelines for environmental impact assessment for major forest development projects are sound strategies (Commonwealth Forest Working Groups, 1991).</i>
<i>Biodiversity</i>	<i>An integrated monitoring function in the wildlife authority will be vital to ascertain, through aerial survey and other method, the progress of wildlife populations within the context of many changes, such as drought and people movements (UNIN, 1986: 45).</i>
<i>Tourism</i>	<i>The Tourism ministry should function in collaboration with the wildlife conservation authorities and should extend its functional sphere to include a small department for art, architecture and archaeology conservation (UNIN, 1986: 47).</i>
<i>Marine resources</i>	<i>A national marine education programme which aims to inform and educate residents about the importance of marine conservation and the sustainable use national resources should be introduced (Commonwealth of Australia, 1992:15).</i>
<i>Over- population</i>	<i>Awareness need to be increased by improving the status of women and demographic dynamics, particularly through women's access to education, primary and productive health care programmes, economic independence and participation in all levels of decision-making (UNCED, 1992:39).</i>
<b>Comment:</b> <i>Measures should be taken to integrate environmental considerations with economic and sectoral planning and policies and to encourage action groups to evaluate environmental effects of their programmes and policies.</i>	

<b>Table 4.7 Theoretically suggested ingredients for an integrated national strategy</b>	
<b>Factors</b>	<b><i>Theoretically proposed actions</i></b>
<i>Information</i>	<i>Information regarding environmental status and also the provision of this information to action groups should be a principle in a national strategy.</i>
<i>Consultation</i>	<i>Consultation procedures need to be specific to cover the most important target groups, especially those who are directly affected by environmental adversaries.</i>
<i>Policy</i>	<i>The formulation of policies should be in consistent with goals and priorities, and their implementation should be commenced with NGOs, private agencies and community signatories.</i>
<i>Action</i>	<i>The implementation of actions agreed up by group consensus should be a collaborative departure by all action groups, including support and persuasion from skilled individuals.</i>
<i>Participation</i>	<i>The participation of people and other agencies should be instilled by democratic advocacy and awareness campaigns.</i>
<i>NGOs</i>	<i>Government-NGOs collaboration should be prioritised and be part of the principles governing the success of the strategy.</i>
<i>Indigenous people</i>	<i>Each strategy should provide the means and options for traditional management know-how of the indigenous communities to be integrated with public institutional decisions.</i>
<i>Farmers' unions</i>	<i>Technology regarding modern use of fertilisers, with the knowledge of its impact should form part of the information package to be disseminated. Farmer's initiatives should also give direction to the implementation of the strategy.</i>
<i>Women groups</i>	<i>Every environmentally oriented strategy should be compiled with the input of women groups. Their possible interaction to the governance of the strategy should be noted as a principle.</i>
<i>Businesses</i>	<i>A national strategy should provide favourable cooperative environment between the industrial community and the government.</i>
<b><i>Comment: An integrated national strategy will achieve desired results if its development is completed with input and support from a wider representation of agencies.</i></b>	

The Theoretical context of natural and physical resource management is influenced by the fact that human life is impossible if environmental resources are pursued to the point of extinction. Despite the fact that resource depletion will threaten future economic growth and development, extrinsic values of ecosystems will also be marred. Planning and management need to be strengthened to such an extent effective economic viability of resources would in

the long-term continue to sustain the lives of future generations. It has been observed in this chapter that economic development and environmental quality are compatible entities which need to be mutually treated. However, the achievement of sustainable economic development in Namibia is conditional and depend much on appropriate planning. A variety of authors such as the IUCN/UNEP/WWF (1991) have shown that integrated management is never practiced by developing countries (of which Namibia is part of). As a result, inappropriate management activities are being pursued at the cost of environmental quality. A critical approach to the Namibian strategy in the next chapter will be assessed with the background of this chapter in mind, and it will be important to demonstrate the extent to which integration is being put to practice at national, regional and local levels of government.

## CHAPTER FIVE

### CRITIQUE OF NAMIBIA'S RESOURCE MANAGEMENT STRATEGY

#### 5.1. Introduction

This section of the study concentrates on the details involved in preparing an integrated national strategy for resource and environmental management. It builds on previous theoretical views developed in Chapters 3 and 4. At the outset it should be noted that Namibia does not have a national resource management strategy. The existing Green Plan (1992) is still a draft document, which is potentially subject to major change.

However, since Namibia's Green Plan (1992) and the Transitional National Development Plan (1991/92 - 1993/94) are the only major documents which provide details of Namibia's direction toward sustainable development, they will be treated as major political statements of intent. Consensus and endorsement of these documents by all political parties should be taken as commitment for each party to effectively contribute to the implementation of plans. The critique will concentrate on the manner in which regulations, policies, objectives and institutional control are being applied, in the development and implementation of these strategic documents.

Furthermore, consistency in plan hierarchy and integration of policy with those of private and non-governmental organisations will be critically examined. In order to analytically address these crucial managerial issues, Table 5.1 together with theoretical recommendations from other national planning strategies will be used. The survey questionnaire results (discussed in Appendix I) will also be applied to justify particular arguments. From this it should be possible to compile the basic components necessary to develop a national strategy which facilitates both development and conservation.

<b>Table 5.1.</b>		<b>Actions, policies regulations and targets</b>		
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>Actions: IUCN/UNEP/ WWF (1991) AGENDA 21</b>	<b>Namibian Strategic Policies</b>	<b>Current Regulations</b>	<b>Suggested NGO Roles</b>	<b>Methods and Targets for Government</b>
1. Implementing the ethic for sustainability in all sectors of society	*The rural society is not away of environmental actions in force	Observation of the policy of National Reconciliation (Constitution of Namibia, 1991)	Encourage religious organisations to communicate environmental standards in society	Develop policies that relate ethical values with environmental issues (2000)
2. Increase economic growth to advance human development	Promotion of appropriate technology for rural productivity (TNDP, 1991/94)	Monitor and advise government on growth that adversely affect the environment	NGOs to show interest in forming economic growth strategies (UNCED, 1992)	Expand credit services to small farmers and industries (Korten, 1980: 80)
3. Provide the services that will promote a health long life	Promote personal and environmental hygiene (TNDP, 1991/94)	Regulation of environmentally harmful activities of medical institutions	Government to support NGOs that restructure health care systems TNDP, 1991/94: 204)	Including the determinants of healthier life into national policies (Streeten & Burki, 1978)
4. Provide universal/national primary education for all children, and reduce illiteracy	Basic education reform to include environmental education (Brown, 1992: 102)	Compulsory education for all children (Constitution of Namibia, 1991)	Allow NGOs to take initiatives in sponsoring primary and tertiary education	To improve adult rate from 40% to 60% (2000)
5. Enhance security against natural disasters and social strife	Promotion of relief programmes during drought seasons	Penalise unnecessary fires on land	NGOs need to assist in drafting national strategies for drought relief	Complete surveying the country and define areas vulnerable to disaster (2000)
6. Adopt a precautionary approach to pollution	Develop policy and legislation for hazardous wastes (TNDP, 1991/94)	Adopt measures to penalise industrial and farmers	Assist in the building health infrastructures (UNCED, 1992: 50)	Precautionary measures for pollution prevention to be taken
7. Cut emissions of sulfur dioxide, nitrogen oxides, carbon dioxide and hydrocarbons	See 6 above	Adopt measures to support pollution control measures	NGOs to support government in lowering waste cost disposals	Reduction of sulphur dioxide by at least 90%, and nitrogen oxide emissions by 75%

8. Reduce Green-house gas -emissions	See 6 above	As in 7 above	NGOs to be engaged in gas-emissions research	Achieve rapid decline in the use of chlorofluorocarbons (2000)
9. Prepare for climate change	Provision of water for all, people and animals.	Water Act 54 of 1956	Cooperate and address constraints of semi-arid climate (Marsh & Seely, 1992:9)	Complete drafting Plan for coping with climate changes
10. Adopt an integrated approach to land and water management	Provision of water for all people and animals	Water management Act 54 of 1956	NGOs to reinforce their effectiveness as actors in implementing sustainable development (UNCED, 1992: 385)	(2005 ), Integrated system for land and water, supported by appropriate legislation, to be in operation
11. Maintain Namibia's natural and modified ecosystems	Protection of agricultural ecosystems (TNDP, 1991-1994:68)	Environmental Conservation Act 73 of 1989	NGOs to apply their understanding of socio-cultural environment by contributing to ecosystem protection (OECD, 1983:62)	(2000), Complete strategy for Conservation of national biological diversity
12. Take pressure off natural and modified ecosystems by protecting the best farm-land and managing it in ecologically sound ways	Administration of State-owned National Parks, recreation areas, nature reserves, and recreation resorts (WPNSP, 1991:51)	Preservation of Trees and Forests under Ordinance 37 of 1952	NGOs need to share management responsibility of ecosystems with government	(2000), develop policies that encourage sustainable land-use in the interest of local populations
13. Halt net deforestation and maintain a permanent estate of modified forest	Conservation and sustained utilisation of indigenous forests	As in 12 above	NGOs to provide information and mobilise community support (Buck, 1993:124)	(2000), net forest depletion should have ceased and conservation strategies drafted
14. Complete and maintain a comprehensive system of protected areas	Reserve key areas for economic purposes (WPNSP, 1991)	Nature Conservation Ordinance 4 of 1975	NGOs to assist government in promoting understanding of land values (Buck, 1993:127)	(2000), a system of protected areas covering more than 10% of the main ecological regions should be established

15. Improve conservation of wild plants and animals	Creation of monitoring functions within wildlife authority	Animal protection Act 71 of 1962 and also 11 above	Engage in research design implementation and evaluation of wild plant and animal related programmes	(2000), Namibia should have set targets to conserve native species threatened with extinction
16. Improve knowledge and understanding of species and ecosystems	No campaigns for environmental awareness in operation	Regulation by education of the park residents (WPNSP, 1991:51)	NGOs and local authorities to unfold dialogue on public education about ecosystems	National and international strategies to be combined (2010).
17. Apply a combination of internal and external policies to maintain species and genetic resources	*Unintegrated policies on genetic resource conservation	*Unintergrated regulations	NGOs and private agencies to establish world-wide corporate environmental policies of sustainable development of genetic resources	As in 16 above
18. Harvest wild resources sustainably	Protection of wild resources by appropriate legislation to prohibit poaching	Animal Protection Act 71 of 1962	Participate in public debates about endangered animal species (Tomboc & Reyes, 1993: 262)	(2010), all depleted wildlife resources should e recovering, and no further over-exploitation
19. Support wildlife renewable resources by local communities and increase incentives to conserve biological diversity	*Lack of community participation in wildlife conservation	*Regulation by empowerment of people not in place	National policy implementation to be supported by NGOs (Tomboc & Reyes, 1993: 262)	(2000) Government should have empowered local people to manage their resources (UNCED, 1992: 210
20. Integrate resource conservation and population issues in national development policies and planning	Integrated resource management policies not in place	Regulations not integrated	NGOs to collaborate with Government to develop population control strategy	Demographic and sustainable developmental education to be integrated

21. Develop, test and adopt resource-efficient methods and technologies	Introduction of an environmental education in Schools	Creation of monitoring functions within the conservation authority	Assist government in planning strategies for the management of resources (Ferrington, et al., 1993: 215)	Establish mechanisms to promote environmentally sound indigenous technologies
22. Ensure that national strategies for sustainability are motivative, educative, and informative	*Policies to motivate and educate lack integration	*Inconsistent regulations with minimal enforcement	NGOs within community reach should promote environmental awareness	(2000), national plans should be promoting sustainable living within Namibia
23. Determine the planning needs for a sustainable society and plan to meet them	*Due to lack of consultation, a diversity of needs lack integration in strategic plans	*Regulation and control by indigenous people lack enforcement	NGOs should provide basic environmental needs of a given community (Ferrington, 1993: 214)	(2000), should have commenced assistance to indigenous capacity building (UNCED, 1992: 383)
24. Provide communities and individuals with secure access to resources and share in managing them	Articulation of plans for the development of strategies for local wildlife utilisation (WPNSP, 1991: 51)	Access to property rights and ownership (Constitution of Namibia Article No. 16)	International and local NGOs should by government authority advocate common property principles	As in 23 above
25. improve exchange of information, skills and technologies	*Community participation limited in resource management is limited	*empowerment regulation not in force	NGOs should by government authority impart resource management information	(2000), Namibia should implement a people-resource participation and management strategy
26. Enhance participation in conservation and development	*Lack of participatory policies - see questionnaire discussion in chapter 3	*Regulation inappropriate (Marsh & Seely, 1992: 47)	NGOs should present people-oriented resource and environmental management proposals to government	By 2000, government should empower local people and NGOs (Rondnelli & Ruddle, 1983: 35)
27. Develop more effective local government	*Namibia local authorities lack planning capabilities	*Planning regulations not fully applicable in the local government structures	NGOs should on permission assist government to establish effective local agencies	(2010), local councils should be fully engaged in strategic planning and supply of needed and necessary community services

28. Care for the local environment in every community	*The distribution of environmental tasks to local communities is not in operation	*Property rights regulation on resource and environmental issues not in force	NGOs should where appropriate provide educational incentives to local communities	(2000), review national strategies for sustainability with consideration of local communities's management capability
29. Provide financial and technical support to community environmental action	*Programmes to finance environmental action by communities not in place	No regulation is required	NGOs should when possible provide financial assistance to local communities	(2000), Namibia should secure commitments by development assistance agencies to support community action plans
30. Strengthening the role of indigenous people and their communities	Indigenous people utilize resources unsustainably	Empowerment by regulation is not in force	NGOs to assist indigenous communities to understand their roles in resource management	(2000), measures to involve indigenous people in national and local resource management strategies should be completed
31. Adopt an integrated approach to environmental policy	*Integrated environmental policy within ministries not in place ( TNDP, 1991-194: 265)	*Regulations lack integration and coherence	NGOs need to integrate their sustainability programmes with those of the government	(2000), National Environmental Action Plan to be developed and coordinated
32. Develop strategies for sustainability and implement them through local and regional planning	*Regional and local councils are in operation but a lack of planning expertise prevails countrywide	Regional Councils Act (No. 22) 1992 and Local Councils Act (No. 23) 1992 are in operation	NGOs and voluntary organizations should evaluate the nature of national strategies	(2000), a national strategy guiding information on environmental quality of adopted
33. Propose programmes and policies to environmental impact assessment and to economic appraisal	Improve capacity for training and research	Develop national policy legislation	NGOs should prepare strategies that support national resource management actions	Introduction of effective procedures for environmental impact assessment

34. Establish a commitment to the principles of sustainable society in constitutional and other fundamental statements of national policy	Improve the quality of life of the people through sustainable development (TNDP, 1991-1994: 267)	Article 95 (1) of the Constitution of the Republic of Namibia refers	NGOs should be committed to the principle of a sustainable society	(2000), system of environmental law to be completed
35. Establish a comprehensive system of environmental law and provide for its implementation	Adopt measures to enhance training in law related matters for efficiency purposes	*A comprehensive environmental system not yet established	NGOs should assist i in identifying possible actions for reducing legislation ambiguity	As in 34 above
36. Review the adequacy of legal and administrative controls, implementation and enforcement	Adopt measures to review colonial legal framework	Inadequate policy and legislation (TNDP, 1991-1994: 265)	NGOs to lobby for authority to evaluate environmental policy statements	(2000), reviews of economic and environmental administrative policy completed
37. Double family planning services with sustained environmental standards	Appropriate internationally acceptable norms and standards	Regulation monitoring pollution by dumping medical equipments unmonitored	International health NGOs to support family planning strategies (WPNSP, 1991: 47)	(2010), adopt doubled or tripled expenditures on family planning
38. Ensure that national policies and plans take full account of their effect on the environment	*Inadequate consideration of the environment in strategic plans (TNDP, 1991-1994: 265)	*Environmental policies and plan procedures unregulated	NGOs should acknowledge their role in strategic development plans	(2000), develop an integrated national environmental strategy
39. Use economic policy to achieve sustainability	*Policies pertaining to economic instrument not yet developed	*Regulation by economic instruments not yet applicable	AS in 38 above	As in 38 above
40. Strengthen the knowledge base and make resource information more accessible	*Lack of adequate technical relevant information on environmental and resource issues (TNDP, 1991-1994: 265)	Measures to ensure effective community participation to be pursued (Naibia's Green Plan, 1992)	NGOs to review government education system and submit recommendations (UNCED, 1992: 387)	(2000), integrated global system to monitor a set of agreed educational indicators appropriate to human development to be implemented

41. Strengthen existing international agreements to conserve nature	Become a signatory to the Convention on International Trade in Endangered Species (WPNSP, 1991)	International Law and joint conventions considerations, and membership to IUCN (TNDP, 1991-1994).	Balanced NGOs government conservation policies to be effectively liaison	(2010), coherence to cites, the World Heritage Convention and the Bonn Convention
42. Strengthen the United Nations system as an effective force for global sustainability	Unfolding membership with IUCN and other international organizations	As in 41 above	NGOs to advise government on matters related to ratification of particular environmental issues	Effective integration of action on environmental issues within the UN system
43. Develop explicit national energy strategies	Proper research and administration of petroleum fuel supply (WPNSP, 1991)	Oil pollution Act 6 of 1981 and proclamation 93 of 1985.	Energy policy strategies should be included in NGO policies	2025), A comprehensive energy strategy including business input to be adopted
44. Reduce the use of fossil fuels and pollution from commercial energy generation	As in 43 above	Regulation by Petroleum Products and Energy Act, 1990 (WPNSP, 1991)	Energy strategies should be completed with NGO support	(2025), commence annual publication of energy status in the country
45. Develop renewable and other non-fossil-fuel energy resources	Overall development and implementation of national energy policy (WPNSP, 1991)	Regulation of exploration, exploitation and use of energy resources (TNDP, 1991, 1994: 156)	NGOs should commit themselves with energy evaluation operations	(2000), an energy exploratory monitoring strategy to be adopted
46. Use energy more efficiently in the home, industry, business premises and transport	*Policies pertaining to awareness in domestic energy consumption by rural homes not developed	Prevention of uncontrolled dispersal of used mineral oil , Act 1990, Clause 2(1) Regulation No. 112	NGOs should participate in deciding which resources need to be renewed and how the action policy should be implemented (Arum, 1993:151)	(2000), a reduction in the use of noxious emissions by using wind and solar energy to be completed
47. Conduct publicity campaigns to promote energy conservation and the sale of energy efficient products	An environmental impact assessment to be launched within the Ministry of Mines and energy	Atomic Energy Act 90 of 1967 and Act 6 of 1981 for combating pollution of the sea	NGOs should support Government policies which provides options for cooperative energy inputs (Arum, 1993:149)	(2000), effective use of energy sources should be achieved

48. Promote sustainability through dialogue between industry, government and environmental movement	Maintain a coordinated sphere of environmental influence with private agencies	Develop legislation for hazardous wastes	Dialogue between NGOs, government and the business community to be enhanced	(2000), collaborative policy that bring government, industry and environmental advocates to be established
49. Adopt high environmental performance standards backed- up by economic incentives	*Measures to implement economic instruments not fully operating	*No legislation is at the moment enforcing the application of economic instruments	NGOs should lobby for recognition in environmental decision-making processes	(2000), user-pays principle to be adopted within environmental cycles
50. Commit each business to sustainability and environmental excellence	Resource utilization by industries should include recycling	Regulation securing business	Corporate environmental policies to be harmonised with government objectives	(2000), improve and apply environmental impact assessment within industries (UNCED, 1992: 118)
51. Identify hazardous industries and operate them with stringent safeguards	Identification of hazardous industrial activities and control measures to be applied	Hazardous Substances Ordinance No. 14 of 1974	Voluntary organizations should campaign against emission and dumping of harmful chemicals by industries	(2000), Encourage industrial development in ways that minimize adverse impacts on the atmosphere (UNCED, 1992: 117)
52. Develop effective national and international systems for waste management	To become a signatory to international conventions, as per Lome Connection No. 4 , where article 39 prohibit radio-active transmissions	Transport of hazardous wastes to be regulated in accordance with international practice	NGOs should pursue maximization of environmentally sound waste recycling and re-use	(2000), adopt convention on the control of transboundary hazardous wastes
53. Ensure that all industries that are based on the use of natural resources use them economically	As in 50 above	Formulate regulation enhancing environmental efficiency in business	NGOs should by government authority coordinate and report industrial activities in economic terms (Salish & Frrington, 1993: 141)	(2000), ensure the development of the manufacturing sector and complete industrial planning , focusing and indicative planning

54. Adopt and implement an ecological approach to human settlements planning	To provide sustainable settlement areas to the needy	*Land-use regulation is at the moment not restricting adverse effects to the environment	Ecological aspects should by NGOs be interpreted in economically a comprehensive ways	National strategies for shelter, incorporating an ecological approach to human settlements to be prepared
55. Undertake a national strategy for sustainability	Partnership with NGOs to be created	*Lack of Namibia Resource and Environmental Management Act	NGOs representing communities should comment on contents of national strategies (Ndiveni, 1993: 82)	By 2000, Local Government to establish planning activities locally
56. Protect the best farm land for agriculture	Establish an efficiently operational research unit on agricultural land	Soil Conservation Act No. 76 of 1969	NGOs should by research recommend necessary policies on the best farm-land	(2000), a re-evaluation of existing research and production breeding farms
57. Promote effective soil and water conservation through proper land husbandry	Undertake research on the state of soils in respect to agricultural productivity	Soil Conservation Act No. 76 of 1969	NGOs should promote research and conservation of soils and water	(1996), all high income countries should have began promoting information about good-land husbandry
58.Reduce the impact of agriculture on marginal lands already in production	*Marginal agricultural land are vulnerable to overgrazing with lenient policy protection	Fertilizer Act No. 36 of 1947)	NGOs to support in training concerning efficient use of fertilizers	(2000), ensure the conservation and recovery of natural resources through need oriented research
59.Encourage the adoption of integrated crop and livestock farming system and raise the efficiency of fertilizer use	Adopting measures to integrate cropping techniques and farming methods	*Crontrrol of inappropriate farming methods by farmers is currently not enforced	NGOs to embark on strategies aimed at enhancing cropping methods among farmers	(2000), ensure effecitive management of fragile ecosystems (UNCED, 1992: 405)
60. Increase the productivity and rainfed farming	Improve productivity by adopting rewarding balance between environmental protection and productivity	Maintaining a state of balance between trade and environmental protection of rainfed farming activities	NGOs should provide technical information relative to effective land production (Jonjuasong & Hwai-Kham, 1993: 293)	(2000), equip with strategies fostering the provision of drought aid (WPNSP, 1991: 63)

61. Promote integrated pest management	*Pest management policies are uningranted and confined to agriculture	Agricultural Pest Act No. 36 of 1983	NGOs to should submit idea and suggestions relating to national policy on pests (Salish & Vardham 1993, 112)	(2000), implement land-use plans as a tool for sustainability
62. Control the use of fertilizers, pesticides and herbicides through regulations and incentives	Control inappropriate harmful fertilizer application by farmers	Fertilizer , Farm Feed, agricultural remedies and stock remedies Act No. 46 of 1947	NGOs should assist in promoting sustainable farming practices	(1997), expand national and international programmes on chemical risk assessment
63. Promote international action to conserve genetic resources	as in 41 above	Ensure sustainability of natural resource use by legislation	Local NGOs with other foreign bodies to undertake research on conservation of genetic resources	(1995), become a signatory to the convention on International trade in Endangered Species
64. Provide for in suttee conservation of wild genetic resources	Protection of wildlife resources, animal, plant, water, soil and bird species	Animal Protection Act No. 71 of 1962, and Bird species Act No. 46 of 1973	NGOs should by government be encouraged to finance the management of protected areas rich in wild genetic resources	(1996) be in possession of a national plant genetic resource programme
65. Attempt to increase non-farm employment for small farmers and the landless	Promote credit and marketing services in rural areas to increase productivity	Protection of soils for agricultural purposes, Act No. 76 of 1969	NGOs to assist government in devising new methods to create job-opportunities outside the agricultural industry (Mvududu, 1993: 43)	(2000), establish small and medium scale industries for employment needs of the rural people (Korten, 1990: 80)
66. Switch from price supports to conservation supports	Ensure conservation of natural resources within the agricultural sector	Nature Conservation Ordinance No. 4 of 1975	NGOs should promote sustainable conservation programmes	(1997), adopt conservation methods based on efficient conservation of land and the resources therein
67. Promote primary environmental care by farmers	To carry forestry and environmental awareness campaigns	Environmental conservation Act No. 73 of 1989	Farmer's unions should support the protection of ecosystems within production farm-lands (Mvududu, 1993:41)	(1998), promote farmers' programme in managing fragile ecosystem and agricultural water

68. Establish a permanent estate of natural and modified forests in Namibia and manage it to meet the needs of all sectors in society	Preservation of key forest areas for economic and sustainability reasons	Ordinance 37 of 1952	NGOs should collaborate with government to ensure effectiveness in forest conservation	(1997), a system of sustainability criteria for timber production should have already been established
69. Increase the area of planned forests	Establishment of a pole wood plantation in the North	Ordinance 37 of 1952	Forest as a renewable resource should be managed jointly with NGOs to enhance sustainability	(2005), a well funded network of protected forests to be secured
70. Increase national capacity to manage forests sustainably	Establishment of afforestation programmes countrywide	Preservation of Trees and Forests Ordinance 37 of 1952	NGO to assist in promoting programmes of national interest in sustaining the forest ecosystem (Mvududu, 1993:39)	As in 68 above
71. Stengthen community management of forests	Promote managerial forest awareness of community groupings	*No regulation enforcing community participatory measures to be undertaken by planning agencies	NGOs should influence government to formulate participatory regulation	(2000), carry research to identify indigenous and exotic tree species that need community management
72. Expand efforts to conserve forest genetic resources	Conserve and sustain the utilisation of forest resources	Preservation of Forests and Trees Ordinance No. 37 of 1952	NGOs to support and strengthen forest management structures (Thapa 1993: 220)	(2000), Strengthen capabilities institutions to to acquire necessary knowledge for the protection of forests (UNCED, 1992:132)
73. Create a market for forest products and use wood more efficiently	Carry out national forestry and environmental awareness campaign	Carry out environmental analysis using remote sensing	NGOs should be encouraged to provide economic incentives necessary to build up trade based on sustainable forest management	(2000), promote more efficiency and sustainable use of forest for fuel wood and energy supplies (UNCED, 1992: 141)
74. Set stumpage prices to reflect timber's full value	Plan and initiate the establishment of alternative timber and fuel wood resources	Establish forest fire prevention and fighting facility (WPNSP, 1991: 70)	NGOs to advise government on timber royalties at international markets (Thapa, 1993: 222)	By (2000), develop forest-based processing industries

75. Improve international cooperation in forest conservation	Establish measures to unfold international cooperation in wood trading and forestry protection	Preservation of Trees and Forests Ordinance 37 of 1952	NGOs to develop adequate data-bases baseline information for planning (UNCED, 1992: 134)	(2000), adopt international cooperation on forest conservation
76. Improve the information base for sustainable water management	*Unintegrated management of water across ministries and sectors	*No integrated regulation to coordinate water management across sectors	NGOs to assist in monitoring and evaluation of water and land-uses policies (Cema & Miclat-Tives, 1993:251)	(2000), improve both harvesting and efficient use of water (Okello & Eyzaguirre, 1992: 22)
77. Undertake awareness campaigns and education on sustainable use of water	*Awareness campaigns have still not trickled to the rural areas - integration remain compromised	Reulations status as in 76 above	NGOs should campaign to improve awareness of water usage (IUCN/UNEP/WWF, 1991:140)	2000), develop a water management strategy and give attention to managing demand
78. Provide training in the management of the water cycle	Measures to train Namibians in water related areas still underestimated, yet it is water which is the most limiting resource in Namibia	*Regulation pertaining to the inclusion of water management into the education curriculum underestimated	Government to promote NGOs fund programmes for integrated water management and design (Cema & Miclat-Teves, 1993: 248)	As in 78 above
79. Include water engineering and management in the education curriculum	As in 78 above	as in 78 above	NGOs to assist in research and management of water in Namibia	(2000), establish a full research unit for water management country-wide
80. Manage water and demand to ensure efficient allocation of water among users	Efficient utilization of water resources is encouraged	Water Act 54 of 1956	NGOs encourage and assist in providing training for water management (Ferrington, et al., 1993: 159)	As in 78 above
81. Give greater emphasis to the drainage basin as the unit of water management	*Drainage basins happen to drained beyond their carrying capacity (Jenssen, 1991)	*Regulations not evenly spread across sectors	NGOs should actively participate in the control of health hazards affecting water quality	As in 83 above

82. Integrate the development of water resources with conservation of ecosystems that pay a key role in the water cycle	Integration of water management systems across sectors remain compromised	As in 83 below	NGOs should provide information related to management of catchment forests and wetland areas (Ferrington, et al., 1993: 159)	As in 78 above
83. Establish a cross-sectoral mechanism for water integrated water management	*No integrated sectoral system for water management in operation	*Regulations unintegrated and confined within the Directorate of Water Affairs	NGOs assist in coordinating water and management activities across sectors (Compton & Pecs, 1984: 123)	(2000), integrated system for land and water management should be operative
84. Establish procedures to act rapidly in response to natural and human-caused hazards	Drought Committee dealing with natural hazards in full operation	Regulation controlling human-caused degradation which exacerbate natural hazards unintegrated	NGOs monitor and report hazardous outputs effecting water quality (Compton & Pecs, 1984: 119)	(2000), develop methods to capture, and use locally available resources to meet individual and collective needs
85. Give local communities greater control over the management of aquatic resources	*Local communities not fully empowered to manage their own resources	*Regulations still inappropriate and fail to support traditional management systems	NGOs to educate indigenous people how to manage domestic aquatic systems effectively	As in 84 above
86. Strengthen the capacity for more effective international cooperation on water and aquatic ecosystems.	As in 87 below	As in 89 below	NGOs should incorporate international management principles in their programmes for aquatic health	(1996), negotiate agreements to manage major transboundary wastes not now covered by such agreements
87. Identify and protect aquatic species that are rare and threatened	Carry research on resources that are being exploited in Namibia EEZ (WPNSP, 1991: 74)	As in 89 below	With support from government, NGOs should take initiatives in research and development of marine resources	(2000), carry out the control and reduction of over-exploitation of marine resources (Moorson, 1982: 81)
88. Develop a national policy on the coastal zone and ocean	Declaration of marine protected areas through regional cooperation (TNDP, 1991 - 1994: 89)	As in 89 below	NGOs should be given the responsibility to assist government on policy matters related to coastal zones and marine management	(1996), develop policy guidance for relevant global funding mechanisms (UNCED, 1992: 242)

89. Establish a mechanism to coordinate the planning and allocation of functions of the coastal zone	Establishment of Sea Fisheries Advisory Council to facilitate coordination of coastal zone functions (TNDP, 1991 - 1994: 89)	Territorial Sea and Exclusive Economic Zone of Namibia Act 1990 (WPNSP, 1991: 75)	NGOs should establish forums which coordinate their activities with those of the government	(1997), carry out control and reduction of marine environmental degradation from land-based activities (UNCED, 1992: 241)
90. Allocate marine resource user rights more equitably by giving more weight to the interests of local communities	Ensure that social impacts of the development of fisheries are equitable in their distribution (TNDP, 1991 - 1994: 89)	Fisheries Amendment Act 1990 provide the imposition of a quota levy (WPNSP, 1991: 75)	NGOs should support the education of communities on matters related to marine resource management	(1997), expand fishing conditions and establish broad policies pertaining to licensing of foreign fishing fleets (Moorson, 1998: 89)
91. Use an ecosystems approach for the management of marine resources	Exploitation of marine resources will be affected with due consideration of the limited carrying capacity of ecosystem (TNDP, 1991 - 1994: 86)	Sea Fisheries Act 58 of 1973	NGOs should assist government in allocating funds for the management of particular ecosystems (Selim, 1983: 278)	(2000), all depleted marine resources should be recovering
92. Conduct information campaigns to raise the profile of coastal and marine issues, and introduce marine education	Facilitate the training of Namibians in various aspects of the fisheries and marine industry and promote affirmative action	Regulation pertaining to marine and coastal environmental awareness not enforce	NGOs should disseminate information on matters related to coastal and marine issues	(2000), an environmental programme in schools should be operating (Brown, 1992)
93. Promote marine protected areas	Declare a 200 nautical miles Economic Exclusion Zone (TNDP, 1991 - 1994: 77)	Control inappropriate foreign intervention	Media agencies should in the interest of the public report the state of the environment within marine areas	(1998), a global system of coastal and marine protected areas should be established
94. Conserve and protect key marine threatened species and gene pools	Minimize exploitation of limited marine species	Become signatory to International Law on Endangered Species	NGOs to provide fair comments on the state of endangered marine species	(1996), all depleted fish-stocks should be recovering

95. Place high priority on preventing marine pollution from land-based resources	Control and avoid the pollution of the Sea by marine fleets	Prevention and Combating of Pollution of the Sea Act 6 of 1981 and Proclamation 93 of 1985.	As in 96 below	(2010), avoid fishery to threaten public health with pathogens or chemical pollutants
96. Adopt procedures for effective prevention of pollution from ships and off-shore installations, and urgent response to oil spills	Monitor and report adverse effects related to sea pollution by ships (WPNSP, 1991:73)	Sponsor regulation prohibiting waste disposal and oil spills from shipping (WPNSP, 1991:73)	NGOs should participate in initiating effective monitoring strategies	(2000), integrate National Fisheries Corporation and the Government Fisheries, (Moorson, 1982: 92)
97. Ratify or accede to the UN on the Law of the Sea and develop effective regime for sustainable use and open-ocean resources	Cooperate with foreign interests to attract investment and expertise from abroad (TNDP, 1991 - 1994: 87)	Conclude international obligations	NGOs should with government permission participate in the ratification of international legal instruments	(1996), Internationalise fisheries and implement UN Conventions on Sea and Off-shore matters (Moorson, 1982: 92)
98. Establishment of fully village-based management programmes	*No strategies integrating village with national government are in operation	*No related regulation is in force	NGOs to assist government in establishing integrated village strategies.	(2010), develop strategies to integrate village management know-hows with other strategies
99. Promote and prioritise women-resource management programmes at both national and local levels of government	Enabling women to play equal and effective role in national development (Namibia Constitution, 1991: 14)	Affirmative Action Article 23 of the Constitution of Namibia (1991)	UNDP to establish women's environmental bodies within its information centres (UNCED, 1992: 374)	(2000), establish national and sub-national planning bodies with full representation of women interests and concerns
100. Strengthen conservation and environmental monitoring strategies at the village level.	*No appropriate policies in respect to the villagization policy are in operation.	Promotion of cultural modes of resource management (Constitution of Namibia, 1991: 12)	NGOs should establish and strengthen environmentally village-based programmes	(2010), establish environmental monitoring strategies at the village level of resource management

**(2000) = Target year**

**\* = Shortcomings**

## 5.2. Structure of the Table

The contents of the table were drawn from the IUCN/UNEP/WWF (1991) Caring for the Earth Strategy, Agenda 21 (1992), Transitional National Development Strategy for Namibia (1991/1992 - 1993/1994), and also from a wide range of theorists. IUCN/UNEP/WWF and Agenda 21 recommended actions are included because such international actions are recognised by both Government and industry (Brown, 1991). It should also be noted that Namibia is a member of world conservation bodies such as the IUCN, WWF, Conservation on International Trade in Endangered Species (CITES), Southern African Development Community (SADC) and the Southern African Regional Commission for Conservation and Utilisation of Soil (SARCCUS) (Brown, 1991:155). Furthermore, actions recommended by the above organisations are undoubtedly comprehensive and relevant to problems affecting resource and environmental management in Namibia.

Table 5.1 is divided into five columns: Column A lists actions which need to be considered when constructing a national strategy. These actions are drawn from a variety of theoretical principles derived from chapter 4, and will be used to analyse the compatibility of Namibia's existing strategy with IUCN recommendations. Actions are used to identify and analyse possible omissions or variations within the Namibian National strategy for resource and environmental management.

Column B analyses the current Namibian national and sectoral policies. The aim is to examine if the policies enshrined in the existing national strategy are environmentally and economically compatible with the IUCN and Agenda 21 strategies. These policies are discussed in section 5.3.4. In cases where the Namibian strategy happens to be incompatible with the IUCN strategy, a comment is entered in the corresponding column. Where the Namibian strategy has provided a sound policy in relation to a given

IUCN objective and recommended action, it is also shown by stating the policy.

Column C provides information about existing regulations and their compliance with recommended IUCN/Agenda 21 actions governing particular issues. The analysis will also examine both the validity and reliability of environmental laws controlling the management of resources. These protects water quality, fauna and flora, the sea, use of the coastal marine area, air, mining, and forestry. The table highlights any lack of regulation where it is suggested that regulation is imperative.

Column D reflects tasks such as provision of information, which may be undertaken by NGOs in conjunction with the Namibian government to implement the IUCN/UNEP/WWF strategy (1991) and Agenda 21 actions respectively. Since the IUCN/UNEP/WWF and Agenda 21 are not providing detailed responsibility for NGOs, supplementary suggestions relevant to the African situation were drawn from a variety of authors who have theorised on national planning (see Chapter 4). The relationship between NGOs and Namibian Planning institutions will also be analysed.

Column E of the table provides details of actions to be taken by public sector agencies. In cases where the IUCN and Agenda 21 are unable to provide suggestions relevant to the Namibian situation, reliable evidence is drawn from other African national strategies which have proved to be successful. In other areas this chapter will continue to build on theoretical evidence given in Chapter 4 where it is relevant to Namibia. Furthermore, the results of the questionnaire conducted in the two squatter settlements of Caprivi region will be used to justify factors which will stand the test of efficiency.

### **5.3. Implementation**

An implementation method can be defined as a generic and strategic action mainly applicable to the nature of handling particular issues to achieve particular objectives (Archer, et al., 1984). Methods are often demanded when environmental managers and planners need to combat discrepancies, deviations and inefficiency in resource management is experienced. Methods of implementation include the role of Non-governmental organisations, role and activities of women, Business and industrial community organisations, indigenous people and the nation's extraordinary communities.

In this study, strategies differ from ordinary plans in that a strategy is committed to the achievement of particular objectives at a given time. Namibia's Transitional National Development Plan is a strategy committed to the achievement of particular objectives in a 5-year period of time. When a targeted time period elapses it is always said that the strategy has failed and reasons for the failure are stated so that future alternatives can be decided upon. Given this picture, a target can be defined as a goal towards which a given strategy strives to reach, and not to achieve. The critique will in this area examine the extent to which the Namibian strategy is committed to its targets, especially those which were set on independence (TNDP, 1991/1992 - 1993/1994).

Specific reference to NGOs, including women's organisations, business community, farmer's organisations, the indigenous community, multinational organisations, and international aid agencies. The manner in which these organisations should assist Namibia in achieving sustainable economic development is a matter of concern and should be considered in the preparation of development strategies. It will also be noted that there are pitfalls in the integration of government activities with those of NGOs.

### **5.3.1. The Role of NGOs in Namibia**

Any discussion about the role of NGOs in development and conservation should be preceded by a brief synoptic overview of their importance in Africa. This brief general overview has been covered in Chapter 4. In this section, attention is drawn away from a general perspective regarding the role of NGOs in Africa to the specific role in Namibia and to their sphere of influence in contributing to the development of a national strategy for resource management.

NGOs refer to privately owned, profit and non-profit organisations. IUCN/UNEP/WWF (1991:211) strategy defines an NGO as any organisation that is not part of the government and includes private voluntary organisations, corporations, educational institutions and labour unions. UNCED (1992:387) states that NGOs can play an important role when allowed to participate in national mechanisms or procedures, and can make the best use of their particular capabilities in the fields of education, poverty alleviation and environmental protection and rehabilitation. Since NGOs are generally community based, it is imperative that their purpose on behalf of all sectors of the Namibian society be taken into consideration.

There are 170 NGOs in Namibia, with at least 25 being concerned about environmental issues and there are 19 NGOs which can be described as fully Environmental NGOs (Namibia's Green Plan, 1991:152). Appendix III provides a list of some of these NGOs. If these NGOs are to be coordinated and be linked on a strategic scale with government activities, progressive results would be the ultimate outcome of an integrated national strategy. However, the paradox lies in the preference of some NGOs' preference to avoid government interventions in their activities. This ideal for alienation is critical to the survival of future strategic movements in Namibia. Nevertheless, there is a great deal of positive NGOs operations in Namibia. Some NGOs are involved in the provision of

information and service to various groups in society. Endeavours to strengthen environmental partnership between the NGOs and the government are seen as a boost to the whole nation's effort to achieve sustainable economic development.

Many Namibian NGOs are able to assist the national government and its agencies to plan for the management of resources, as demonstrated by NGOs such as OXFARM-UK, OXFARM-Canada, Unicef, UNDP, Unesco, and SIDA. It needs to be mentioned here that Namibia's environmental quality will only be maintained and enhanced if the current role of NGOs is supported and coordinated with the public sector activities and policy. 'Namibian NGOs have also been transformed to meet the challenges of a new era' by acquiring status to utilise their lobbying power (Namibia Trade Directory 1992/1993: 138). The government can be engineered to accept alternative methods to strategic development and implementation. For instance, the current opportunity for NGOs to participate in government decision-making processes can be used to veto proposed resource management laws. Another change is the ultimate establishment of NGO forums which in the context of the National Policy of Reconciliation advocate to embark on a resolution of differences by upholding the common purpose in community support.

Namibia's Non-Governmental Organisation Forum (NANGOF), the umbrella organisation for several NGOs, believes that participation of communities in development of natural resources is a 'must' in order to ensure sustainable development. NGOs in Namibia are committed to the establishment of a development culture in which individual communities are capable of managing natural and physical resources. They believe this is compatible with public promotion of the concept of the 'commons' (Powell, 1993: 35).

The prime concern of NGOs is to encourage and develop local potential, whether communal or individual. Their generosity is confirmed by their practical aid which is not

tied to the purchase of goods and services from the donor country, nor do they hire sophisticated personnel of a particular nationality. In fact, they are anti-apartheid and are interested in development that brings change. Their importance is further demonstrated by Swedish International Development Assistance (SIDA) which has funded environmental research on 'common natural resource management in Kaokoland (Powell, 1993).

Namibian NGOs normally operate by backing a local initiative and help to enhance mobilisation of local resources, including labour expertise (OECD, 1983:18). They are characterised by flexibility and a willingness to engage themselves in tasks which are sometimes risky and time consuming. Namibian NGOs tend to specialise in particular fields of development and are often linked to government agencies which have related functions. For example, the United Nations Development Programme (UNDP) of Namibia works concomitantly with the Ministry of Education. Its major task in this area is to update teacher skills, creating vocational training centres, improving the administration of the education system and developing adequate physical infrastructure and curriculum reform (Trade Directory, 1992/1993: 50). Despite improving on-job, skills the organisation is engaged in granting bursaries to the tertiary education programme.

The Namibian Government has already discovered the important role of NGOs and measures to broaden relationships are being carefully examined by strategic technical panels and committees for Namibia. These measures, are promoted by the National Planning Commission's endeavours to redefine Namibia's appropriate path towards sustainable development. The government has already adopted national measures in relation to NGOs, by stating that: 'The government is committed to building effective partnerships with NGOs and the private sector to more effectively manage and protect natural resources and ensure their sustainable use' (Brown, 1992: 153).

Table 5.1 line 31 shows that Namibia's national development strategy has its own limitations. The strategy lacks specific methods able to be used in encouraging environmentally oriented NGOs. Brown (1992:153) states that the government is committed to building effective partnerships with NGOs and the private sector to manage and protect natural and physical resources. However, there is no mention as to whether NGOs will be required to incorporate principles of the National development strategy into their individual development strategies in Namibia.

Furthermore, the strategy does not give guidance as to how NGOs plans could fit into the existing national strategy. As recommended by UNCED (1992:388) the strategy still lacks a legal framework which protects the rights and interests of NGOs. The strategy does not state NANGOF will be represented in the predicted inter-ministerial committee to be established within the National Planning Commission.

### **5.3.2. Namibian women's role in resource management**

In Chapter Four, a general theory about the role of women in achieving development objectives is outlined. In this chapter, the focus is shifted and is more specific about the role of Namibian women in Government strategies and development planning, particularly, in resource management. The historic marginalisation of Namibian women has been a stumbling block to the achievement of sustainable development, and will be analysed in respect to its impact on strategic development and implementation.

Before commencing an assessment of National resource strategy in respect to women in Namibia, it should be mentioned that Namibia, as compared to its colonial predecessors, has immediately promoted equal pay for equal work, particularly in employment sectors, where income differentials between males and females have been immediately abolished (Constitution of the Republic of Namibia, 1990). Although this does not dilute the

general trends of prejudice in other sectors, it deserves to be noted as a significant achievement towards cultural and environmental reform.

Namibian women are traditionally known for their farming skills. Access to resources such as land, livestock, water and fuel wood is determined by women among most cultural groups in Namibia (Andima, 1993:102). The fact that Namibian women have a paramount access to land shows that they are the major producers of food for their family. Their lonely operational endeavours are de-linked from sectoral integration. They are therefore supposed to play a leading role in Namibia's national, regional and local planning processes. However, lack of appropriate education and training are a major problem facing women. This problem is not been practically taken serious in the nation's resource management strategy.

Brown (1992:100) advocates the strengthening of education but does not mention actions that will be taken to improve the quality of education for women, ensuring that they become active participants in drafting and implementation of development plans at all levels of the Government. Despite the Government's efforts in reconstituting inappropriate gender relations in working places (Table 5.1, line 99), Namibian women are still displaced from decision-making arenas at all levels of Government. They have been marginalised in many communities. Article 23(3) states that:

*'it shall be permissible to have regard to the fact that women in Namibia have traditionally suffered special discrimination and that they need to be encouraged and enabled to play a full, equal and effective role in the political, social, economic and cultural life of the nation' (The Constitution of the Republic of Namibia, 1991).*

Women should not only be invited to join decision-making, but critical issues related to their position in respect to property rights need to be resolved. Though Namibia's Green Plan (1992) attempts to incorporate women's initiatives in the implementation of the strategy, little has been done to consult women when drafting plan strategies. For instance, in Sikabongo's 1993/94 survey (Appendix 1) conducted in the two major squatters of Katima Mulilo, Lewis and Piggery, about 61.5 percent women indicate that they have never been consulted on issues related to environmental protection, neither are they aware of their rights in resource management (see Table 3.10). This lack of formal consultation is shown by the Government's current measures to investigate ways of continuing the consultation process so that as many as possible Namibians can be involved (Brown, 1992:154).

Existing policies and plans to increase the proportion of women involved in decision-making tend to be lopsided and unspecific to women concerns. For instance, the disadvantaged position of women in the formal labour market stems in considerable measure from the relative lack of educational opportunities for females (Morgan, 1992: 491). Programmes to increase environmental awareness and the active participation of women, especially in remotest areas of the country are still failing to meet the requirements of women in planning. For instance, family planning is not fully implemented (see Table 5.1, line 37). The status of Namibian women in respect to the existing management strategy are able to be compared to that in Uganda where their access to political power is far away from recognition (Nalwanga-Sebina, 1991:156). The existing resource management strategy continues to sustain male-domination of planning process and strategies. In his parliamentary workshop speech on Women and Health, Prime Minister Hage Geingob stated that discrimination against women was manifested in their denial of education, in their lack of investment in planning services, and male dominance in all decision-making processes, including the determination of family size. (Kavari, 1994).

It is therefore important for Namibian planners to support Hannan-Andersson (1993:121)'s general advocacy for women rights that 'in the area of environment, women's roles, needs and rights are often not given sufficient attention in planning and implementation'. Measures towards integrating women roles in Namibia's planning processes, and the manner in which they will be integrated in planning and implementation could be discussed in the next two chapters.

### **5.3.3. Business and industrial community organisations**

Most of the profit-making organisations in Namibia operate independently and are free to pollute the environment without being held accountable for externalities resulting from manufacturing processes. The relationship between business institutions and the government is very flexible. No appropriate measures are currently taken to enforce laws in respect to illegal dumping of wastes by industries and mining operations (Brown, 1992: 474). One of the major reasons associated with the government's reluctance to address business and industrial activities is the fear that such measures will discourage economic growth (Brown, 1992:80). The regulating problem is that development is likely to be pursued at the expense of the environment.

The crux of the matter is that economic development and environmental management often appears to many developing countries as conflicting approaches to economic progress and prosperity. This was expressed in the Rio conference by most leaders of developing countries who argued that their attention to sustainable management is conditional, and deserves to be postponed to the time when they will achieve economic development. The same argument appears to be shared by the Namibian Government. The limits of this argument are twofold: First, it is not known when these countries will achieve development, and start to address environmental issues seriously, and secondly, the impact of environmental degradation on economic development is undermined.

A certain number of sectors play an important role in the strategic development process of Namibia. This creates a dilemma in whether to suspend their operation and limit economic growth, or enhance freedom of production and suppress environmental quality. For instance, the agricultural sector is the largest sector in the economy, providing a livelihood to more than two thirds of the Namibian population. The sector's contribution to GNP at factor cost is about 9 percent and it is the second (after mining) most important contributor to total mechanised exports (Bank of Namibia, 1992).

In addition to agriculture sector, there are other important sectors such as fishing (a domestic consumption support sector); mining (the major economic source for Namibia); and tourism (a driving force for generating employment and the attraction of foreign exchange earnings). However, excessive promotion of these sectors as business cornerstones of the economy are at the moment suppressing environmental quality. For instance, an aggravation of fisheries operations for export purposes creates a dramatic threat to fisheries sustainability in the future (Namibia Review, 1993).

Economic progress has typically been interpreted as growth and advancement in human well-being (Pearce, 1993:32). However, human advancement has not been carefully related to factors or inputs to which it depends. National economic accounts which reflect nothing about depletion or degradation of natural capital are not helpful if valuation of depreciation of natural capital is taken into consideration. If depletion of natural capital (Dep.Kn) and degradation of natural capital (Deg.Kn) are added and netted out of the current preferred GDP plus green net national product (gNNP), then assumptions about real GDP are likely to be meaningful. The implications of resource depletion and environmental degradation, resulting from inappropriate behaviour of industries can be explained by using a simplified macro-economic expenditure schedule below:

**Figure 5.1 | Macroeconomic impact of resource depletion**

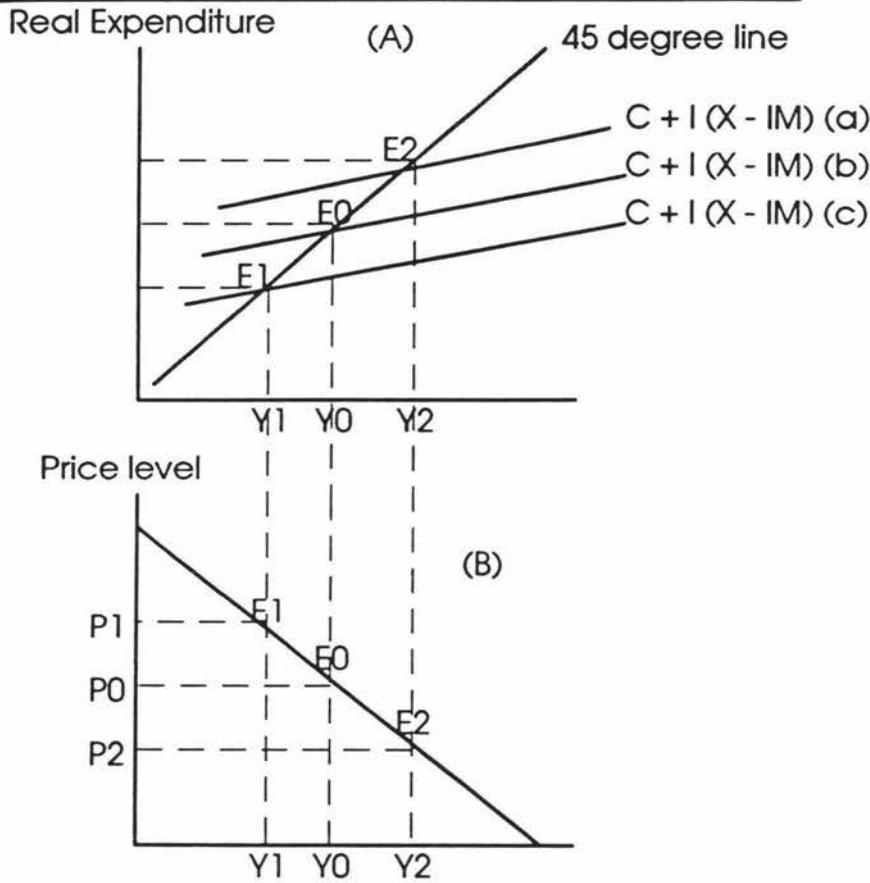


Figure 5.1 demonstrates that resource depletion resulting from maximum exploitation by industrial operations will force the government to spend less in cases of economic inducement. This situation will cause a shift from  $Y_2$  at consumption (a) to  $Y_1$  at consumption (c) in Diagram A. The impact is not only that of recession in government, but inflation will rise and the buying power of the Namibian dollar will get eroded by higher prices shown at  $P_1$  in diagram B. Calculated on the basis of 1985 market prices, galloping inflation resulting from skyrocketing prices has already been identified in Windhoek by the Ministry of Finance (Ministry of Finance, Economic Review, 1994).

To avoid these impacts, Namibia has to establish a new method for measuring sustainable economic growth. A method of natural resource accounting should be introduced at national, regional and local levels of government, and be accounted into

the GNP annual economic reports (Brown, 1992: 159). If resource accounting measures are not taken, it is impossible to anticipate the multiplier state of degradation, and is difficult to deliver a convincing argument to the operation of business industries and firms of Namibia.

#### **5.3.4. Indigenous people and their community**

Indigenous people refers to *bonafide* native people of Namibia who share some homogeneous traditional and cultural life-styles in a given locality, say a village, district, or region. They are the people who have a justified ancestral-inheritance of the land and its waters, its places and sites. These are people whose ancestors inhabited Namibia prior to European intervention in Africa in the early fifteenth century. Their identity as nationals is not by registration or by proclamation, neither is it by marriage, but by naturalness. Therefore, they are the major and priority target group in strategic development and planning. To exclude them from national decision-making processes is a violation of national indigenous law, and hence a nullify any scientific or business approaches to sustainable development.

Namibia strategy to achieve environmental sustainability is currently being implemented with no direct participation of the indigenous people. This is indicated by the fact that no structure of planning portrays the existence of indigenous communities in Namibia. This state of management has resulted to criticisms that 'conservation for conservation's sake' was the modus operand of the Ministry of Conservation (Jansson, 1991:20). The 'villagization' strategy as introduced by the former Tanzanian President Nyerere (Conyers & Hills, 1986) proved to be a success but is neglected by many countries, especially those which fall under an autocratic rule.

Since the Namibian Strategy does not contribute to the endeavours and efficiency of indigenous people and their communities in resource management and conservation, coherent and coordinate incorporation of views and ideas is suppressed. This shortcoming proves that 'major development schemes are currently taking place in the absence of an overall coordinate plan' (Marsh & Seely, 1992:4). It should also be affirmed here that the Namibian strategy for resource management is again not compatible with action 26 of table 5.1, which advocates the enhancement of participation in conservation and development. It is imperative that every strategy should aim at strengthening the role of indigenous people and their community (action 30, Table 5.1).

Results from the survey questionnaire (appendix I) showed indicate that 127 of 10 respondents have not been consulted in any matter related to resource and environmental management. This total equals 60.5 percent of people interviewed. Of those who were not consulted, 57 were business dealers, 29 were government employees and 41 were economically inactive. So, effort to amend limits will need a redress of the entire national strategy.

#### **5.4. Regulation and enforcement of economic instruments**

This section will cover the following four areas: economic instruments and regulation; monitoring; structure, preparation and contents of plans; and environmental education. It is advisably important for an integrated national strategy to be administered within the context of the four regulatory factors mentioned above. However, there are difficulties in the application of both regulations and economic instruments in Namibia. A segregated administration of resource management laws still dominates the system.

#### **5.4.1. Regulation and economic instrument**

Part B of table 5.1 concerns environmental regulation in Namibia. Namibian regulations are generally of South African origin and have an apartheid connotation associated with their application. This is demonstrated by Jansson (1991:20) who argues that these 'laws have been enacted with the South African environment in mind'. It is, of course, correct to argue that a large number of these laws are now outdated.

Marsh & Seely (1991:46) note that laws which function as regulatory mechanisms in strategic frameworks of Namibia 'are at present inadequate to assuring sustainable use of the environment and should be replaced by laws which adopt a more integrated approach'. For instance, the implementation of the Conservation Act 73 of 1989 (Janssen, 1991: 36) is at the moment regarded as a task to be accomplished by the Department of Conservation alone. A development approach of this kind is even detrimental to the National Policy of Reconciliation. Stated broadly, Reconciliation policy should be taken as referring also to the reconciliation of separate regulations and sectoral policies. Brown (1992:29) states that Namibia needs a national policy and legislation on waste management.

Apart from the fact that the existing laws are generally irrelevant to the Namibian situation, a wide range of Acts and Ordinances concern themselves with individual sectors of the environment (Jansson, 1991:24). A scattered range of regulations often leads to disintegration and solitude operation of individual sectors. The result of less coordinate laws is maladministration, and cause conflict and confusion among both users and implementers. For instance, the legislation which protects game, wild mammals, birds and fish in inland waters does not at present adequately address the conflict of interest between the need for wildlife conservation and the interest of farmers, particularly farmers in communal areas (Marsh & Seely, 1992:47).

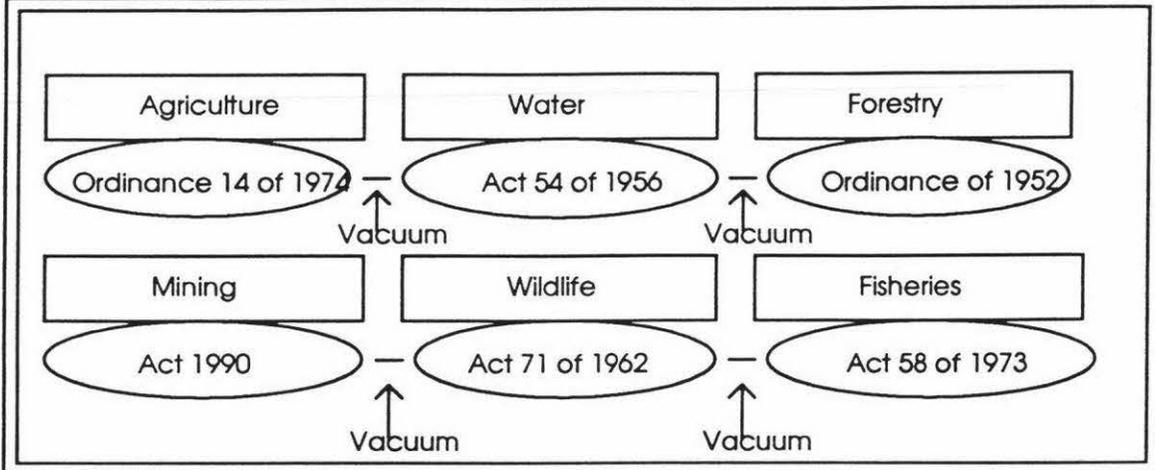
Given the shortcomings of the Namibian Resource Management Strategy in respect to regulation and enforcement, it is necessary to argue that planning in Namibia is not compatible with the IUCN/UNEP/WWF (1991) recommendations. Therefore, action 35 (in table 5.1) which requires national governments to establish a comprehensive system of environmental law and provide for its implementation and enforcement, needs to be achieved in Namibia. Results of Sikabongo's survey support this fact in that, only 39.5 percent of people interviewed have knowledge about the possibility of environmental laws in Namibia. Most of the respondents are only aware of wildlife regulations. In fact they are unaware of regulations concerning water quality, air pollution, erosion, toxic, etc. A need for a Namibia Integrated Resource Management Act could be seen as an alternative, and this will be proposed in the forthcoming chapter.

Resource management law reform in Namibia is receiving optimum attention of the Government. Namibia's White Paper on National and Sectoral Policies (1991: 39) states that measures to carry out law reform are being pursued on a continuous basis. For instance, legislation aimed at encouraging industries to comply with certain minimum standards of waste production such as emissions and effluents is soon to be drafted (Brown, 1992). Additionally, the Ministry of Health and Social Services has already proposed that legislation regulating radio-active materials be drafted.

However, resource management law reform has a mission statement in line with national restructuring processes following the achievement of independence, but is being administered outside the ambit of an integrated management system (Jansson, 1991). Current law reforms leaves a wider vacuum space in regard to integration and continues to shadow prospects for a coherent reform and administration of the law. Figure 5.2 shows the existing unintegrated resource management law:

Figure 5.2

## Structure of unintegrated Resource Management Law



This diagram shows that Namibia's resource management law is scattered and is administered separately by individual sectors. The vacuum space in the diagram indicates disintegration of resource management law. Brown (1992:30) notes also that 'the most important shortcoming is the lack of effective legislation to control the disposal of hazardous waste produced in Namibia'. The lack of an integrated resource and environmental Act is critical to the state of environmental management in Namibia.

**Economic instruments:** Namibia does not currently use economic instruments as implementation methods to achieve sustainability and deal with resource management issues. This is one of the reasons why the dumping of environmentally harmful substances continue to interfere with the health and economic well-being of people (Marsh & Seely, 1991). The government tends to believe that the application of economic instruments will discourage the growth of industries, and hence a negative impact on the country's overall development. This is supported by Brown (1992:80) which argues that the main reason for the government's reluctance in increasing environmental protective measures is due to fear of the possible reduction in industrial development and economic growth. The impact of this approach to resource management is that environmental resources are likely to be sacrificed at the expense of long-term use.

Managing the environment without the application of economic instruments means equally that action 44 of table 5.1 which according to IUCN/UNEP/WWF (1991) is a precautionary measure in reducing the use of fossil fuels, wastage in energy distribution, and pollution from commercial energy, is not complied with. Additional to this is the outcome from Sikabongo's survey which shows that among all those who were environmentally unaware, 22.8 percent are employed by government or by a company, 44.9 percent are self-employed, and 32.3 percent completely unemployed, but none of these people receive any kind of incentives to reduce maximum environmental degradation.

#### **5.4.2. Monitoring**

Environmental monitoring is necessary to keep the quality of the environment at an acceptable standard. It also needs to be an integrated effort by all resource users. However, Namibia does not currently have an integrated monitoring strategy to compile concise reports on the national state of the environment. Problems of effective monitoring are interwoven with those of the country's lack of an integrated environmental legislation (Janson, 1991). Because monitoring follows the hierarchical pattern of plans from village to national level, the absence of such plans in Namibia leaves a wider gap to be filled by some kind of plan transformation or state of environmental reports.

The current problem affecting Namibia's attempt towards effective monitoring results also from lack of coordination between the Department of Conservation, individual sectors, and the general community. The philosophy to proper understanding of the concept monitoring (in practice) need to be redefined. To many planners, monitoring is often confused with control. Because of this technical confusion, the act to resource and environmental monitoring is considered to be a duty assigned to public servants in work

environments. In reality monitoring should be understood as a communal duty involving all individual, at work and out of work, including children in their daily activities. In this view monitoring in Namibia should simply refer to mere observation and reporting of a particular environmental state of affair. Since all individuals in a democratic society have the ability to report and be heard, rural residents have a fundamental role in reporting adverse environmental effects within their own environmental sphere of influence.

Monitoring need to be well articulated across geographical and sectoral spheres of natural and physical resources. Ruddle & Rondinelli (1983:59) argues that self-sustaining economic growth and an equitable distribution of the benefits of growth in geographic space cannot occur in the absence of a well-articulated hierarchy of widely dispersed yet closely integrated human settlements with monitoring capability. In this perspective, the villager's role is to inform the cabinet (situated in the city) about environmental abuse at the outskirts of the city. Unless monitoring is seen and treated as a combined effort involving various extraordinary agencies, sustainable development will remain a dream to the Namibian society.

#### **5.4.3. Structure, preparation, and contents of plans**

Those genuine and comprehensive recommendations given in Namibia's Green Plan (1992) and the policies subsisting in the Transitional National Development Plan (1991-1994) are impossible and costive without plan frameworks at all levels of government. At the moment Namibia has not implemented plans at the sub-national levels which form the heart of an integrated national strategy. As a result, there are gaps and inconsistencies in policy formulation and implementation between levels of planning. The country's lack of national policy statements, regional policy statements and plans, district plans, and village documentations perpetuates serious environmental problems. Namibia is currently delimited into 13 regions. According to the Namibian Local Government Act



The establishment of 13 regions provides a clear picture that there should at least be 13 regional policy statements and plans in the country. Because each region has at least one district with its jurisdictional sphere of influence, there is also a need for at least 13 district plans. It should also be noted that the majority of Namibian people live in villages located in remote rural areas. To achieve optimum integration and representation of their development ambitions, it is necessary for each regional or district plan to be supported by planning initiatives from the village level of planning. This is based on recognition of the village authority and its indigenous community.

The critical dilemma confronting Namibian strategic planners is that none of the mentioned plans and policy statements is in operation, neither are these documents proposed elsewhere in policy statements. As a result, national planning process is retarded by lack of support from the local level of government. The preparation and content of local and plans and policy statements is detailed in Chapter 6. I should also be noted that the preparation of local plans and policy statements will in the first place need preparation of Namibia Resource and Environmental Act (NAREA), a new strategic document which for the first time in Namibia will combine natural and physical resources in one perspective of policy-making.

#### **5.4.4. Environmental education**

Action 22, requires the Government of Namibia to ensure that national strategies for sustainability include action to motivate, educate and equip individuals to lead sustainable lives. Namibia's Green Plan (1992) is compatible with this requirement (Brown, 1992:101). At the moment the Ministry for the environment has already appointed an environmental education coordinator in the curriculum planning unit.

However, education on environmental issues is still a dream to many Namibians. Inappropriate methods to reach users in rural areas partially result from a lack of environmental knowledge. It hereby appears clearly that mere construction of plan statements is meaningless if the pragmatic part such statements does not bring desirable changes in a given society. Problems facing Namibia's development strategy result mainly from plan monopoly by planners. For instance, the survey questionnaire revealed that 62.5 percent of those who were environmentally unaware aged 26 and above, and 55.2 percent was under 26 years.

## **5.5. National and Sectoral Policy Analysis**

*The general aim of policy analysis is to discover the external and internal environmental factors which play a part in strategic policy-making, and to ascertain the effectiveness of a given facet of resource management policy-making: either the effectiveness of policy-making itself, or the effectiveness of policy outputs (Hannekom, 1991:88).*

The South West Africa People's Organisation (SWAPO) Government initiated the sweeping reorganisation of the machinery of government ever undertaken in Namibia. Its objectives ranged from need for improved efficiency and accountability to greater contestability in provision of both policy advise and government services. This section briefly explores the merits of the new structural arrangements, focusing in particular on the purpose, and method used by each machinery in achieving environmental sustainability. The critique is centred on assessing policy coherence, methods of implementation, and their impact on the existing resource management strategy.

Aims and functions of Namibian government ministries have their origin in the values, needs, desires and demands of a resource-oriented society. Through institutional

framework, values, desires, needs and wishes of actively involved citizens are transformed into policy decisions which prioritises integrity and freedom of people on their resources. For the freedom of the people to be realised, policy evaluators and policy-makers are suppose to unconditionally distance their ambitious contentions from public policy. Hannekom (1991:88), argues that a policy evaluator should bear in mind that the quality of information regarding resource and environmental policy impacts obtained through policy evaluation could be distorted by personality traits of the evaluator and of the policy-maker, vested interests and premature evaluation. A policy can be defined as a guide to the realisation of a particular goal (Hannekom, 1991:7).

This analysis is centred on a number of Government sectors in which national goals and policies related to preparation of national strategies are formulated. These sectors are National Planning Commission; Finance; Education and culture; Local Government and Housing; Mining and Energy; Lands, Resettlement and Rehabilitation; Works, Transport and Communications; Wildlife, Conservation and Tourism; Youth and sport; Foreign Affairs; Justice and Human rights; and the Office of the Prime Minister. The area of focus is on efficiency and consistency in policy formulation, evaluation and implementation. These are screened by assessing the purpose of an institution, its tools of implementation, relationship with NGOs, and also its extent of devolution. Table 5.2 provides a summary of these issues.

<b>Table 5.2</b>	<b>Sectoral evaluation</b>			
<b>Public Sectors</b>	<b>National Purpose</b>	<b>Implementation tools</b>	<b>NGOs Relationship</b>	<b>Possible Devolution</b>
<b>National Planning Commission</b>	To enhance the coordination of various ministries engaged in management of natural and physical resources within local economies of Namibia	Macro-economic forecasts (TNDP, 1991-1994)	In order to expand its capability capacity, liaison with prominent NGOs is frequently synthesised - Director-General of NPC speech refers (Marsh & Seely, 1992: 2)	Ministerial establishments at local levels of Government provide collective reporting of development differentials to NPC
<b>Ministry of Finance</b>	To advise Government on appropriate fiscal and monetary policies to achieve sustainable economic development	Macro-economic techniques are applied to project the direction of policy in regard to Government expenditures	Relationship with NGOs is enhanced by the flow of foreign currency in form of grants and concessions from donor agencies	Devolution of authority is characterised by a constellation of regional revenue offices, e.g, Regional Home Affairs dept., collects border fees which by end of the day are filtered into the country's national account.
<b>Education and Culture</b>	To state, re-orient, reform and redirect Namibia's education system	The teacher is regarded as a basic tool through which knowledge and environmental awareness can be imparted to communities	Funding of particular school projects by NGOs and private organisations keeps the relationship 'a burning' reality	The devolution of authority is overseen by Regional Directors while the decentralisation process is efficiently monitored by the central authority
<b>Agriculture, Water and Rural Development</b>	To maximise food production, quality and sufficient water supply, and to promote development and Afforestation in rural areas	Need-oriented basic applied research in possible avenues to increase sustainable production capacities is being pursued	A strong relationship with rural development oriented NGOs is being maintained	The sector maintains a spatial exposure to environmental issues afflicting output and has a full bench of directors across regional set-ups
<b>Local Government and Housing</b>	To create necessary infrastructural development throughout the country, and to provide basic services such as water, electricity, sewage, housing, etc.	Under the Local Government Directorate, Regional Councils are employed as instruments for local planning and research	Directory of Community Development strives to strengthen liaison and co-ordination with NGOs, and is encouraging enhanced relationship (TNDP, 1991/1992-1993/1994:295)	Devolution of authority is maintained according to Regional Council Act No. 22 of 1992, and Local Authority Act No. 23 of 1992. 15 municipalities, 25 peri-urban areas, and 34 communal towns are all housed within 13 regional establishments countrywide

<b>Table 5.2</b>		<b>continues</b>		
<b>Public Sectors</b>	<b>National Purpose</b>	<b>Implementation Tools</b>	<b>NGOs relationship</b>	<b>Possible Devolution</b>
<b>Labour and Human Resource Development</b>	To enhance effective relationship between employer and employee, and to improve human skills with the objective of poverty alleviation in Namibia	Regional offices handle labour disputes and report the extent and level of employment in each region. Aggregation of outcomes through the amalgamation of regional employment profiles are centrally made to project the state of inequality, poverty and underdevelopment.	Greater influence to NGO to enhance community development by upgrading and encouraging self-employment initiatives is being adhered	Regional representation in all regions of the country exists
<b>Health and Social Services</b>	To improve health conditions for the Namibian people by eradicating unhealthy domestic environment in homes and industrial work places.	Research and social environmental projections are annually included in health catalogue reports	Effective relationship with health oriented NGOs is evidenced by appropriate liaison with WHO and UNICEF	A decentralisation structure of health institutions in each region exists
<b>Fisheries and Marine Resources</b>	To rebuild depleted fisheries resources and the protection of the coastal marine area	Marine environmental monitoring, zoning and scaling of sustainable fish-catches	An ongoing process to encourage private companies and NGOs to support the education of Namibians in commercial fishing is being prioritised	Regional representation of this ministry is suppose to subsist within the context of regional coastal plans, which at the moment, do not exist.
<b>Mines and energy</b>	To promulgate policies related to optimisation of the development of and utilisation of Namibia's mineral and energy resources in the national economy	Monitoring and control by regulations which impose conditions for sustainable operations are adhered to.	The ministry encourage effective relationship with NGOs related to mining environmental issues. A smooth environment in managing mineral resources with private companies is also encouraged	Domination of mineral operations by private companies is a limit to regional devolution of authority
<b>Lands Resettlement and Rehabilitation</b>	To provide land to the landless, resettlement to the homeless (including returnees from exile), and to cater sustainable life to the disabled.	Feasibility studies and field surveys are used to identify areas which are environmentally sensitive and inappropriate for resettlement	Relationship with NGOs, especially in the Rehabilitation Directorate, is maintained to improve the quality of life of the disabled	Regional Resettlement and Rehabilitation offices are established

**Table 5.2** continues

Public Sector	Purpose	Implementation Tools	NGO Relationship	Possible Devolution
<b>Works, Transport &amp; Communications</b>	This Ministry is responsible for road-network constructions, maintenance and improvement of effective transport and communication facilities in the country	Regulations and research are used to adjust infrastructural policies in this ministry.	Relationship with NGOs is minimal and ineffective to environmental considerations	Regional Councils are empowered to carry out regional functions in accordance with rules and regulations of the Ministry
<b>Wildlife, Conservation and Tourism</b>	To promote tourism, protects and conserve natural and physical resources from inappropriate harvesting	General and broad environmental surveys and research by NGOs and also by the ministry itself are applied as reliable instruments	An effective relationship with environmentally oriented NGOs exists and effort to strengthen further co-ordination is being encouraged	Nature Conservation Departments are spread through out the country to improve management
<b>Trade and Industry</b>	Promote growth of trade, commerce and industry by formulating appropriate policies and strategies	Regional surveys and locally based departments are the major tools used to gather information pertaining to local trade ventures, and the possible demand to induce foreign investment	Private and initiatively active business industries are fully co-ordinate to expand avenues for the establishment of export processing zones	Devolution of power to regional authorities is being enhanced throughout the country
<b>Youth and Sports</b>	To promote and develop youth opportunities, including environmental awareness opportunities	Surveys on the state of the youth are nationally conducted and indicative profiles are used for policy making and analysis	NGOs are encouraged to support the development of the Namibian youth by providing appropriate information regarding both the environment and other national related issues	Devolution of executive authority is maintained by the establishment of locally based offices
<b>Foreign Affairs</b>	Internationalises the system of governance and lobbies for international support in both national and foreign issues	Foster International Law and Treaty obligations related also to environmental issues	Relationship with NGOs is encouraged at international levels to support Namibia's internal and external affairs	Extension of this Ministry to regional areas is served indirectly by its relationship with other ministries from which information affecting their international operational calibre is obtained

<b>Table 5.2</b>	<b>continues</b>			
<b>Public Sector</b>	<b>Purpose</b>	<b>Implementation Tools</b>	<b>NGO Relationship</b>	<b>Possible Devolution</b>
<b>Office of the Prime Minister</b>	To co-ordinate the work of the Cabinet and to assist the Office of the President in the execution of the functions of the Government	Sectoral ministries are commissioned to put into effect the policies necessary to achieve sustainable development	A relationship with NGOs is channelled and operationally made through particular ministries to which they have a likely common objective and interest	The Office is regionally served by its ministerial agents on a national scale of operation
<b>Justice and Human Rights</b>	To maintain justice of nature, justice in resource distribution, human rights opportunity and justice before the law	Magistrate's courts are used to apply legal instruments to change inappropriate behaviour	Relationship with NGOs in respect to reform of environmental laws is not strong	Devolution of authority to regional magistrates prevails
<b>Ministry of Home Affairs</b>	To re-enforce the maintenance of law and order in society, and regulates strange human behaviour	Law enforcement and penalties by legal court of justice	Ineffective relationship with NGOs exist	Devolution of authority to regional inspectorates and public relations offices exists

A scroll through the possible dynamics underlying existing policies and methods in the public sector has shown that major reformatory alternatives to policy and monitoring instruments need to be made. For instance existing resource management strategies do not provide guidelines by which the National Planning Commission can create room for NGOs representation in matters affecting national strategic plans. Another limit to progress, which is not emphasised by many resource strategies is that, most of the policies which were created by the Planning Commission have since been very difficult to implement. The reason being the country's underdeveloped human resources which have been inherited from 'German and then South African rule' (TNDP,1991/1992 - 1993/1994). For example, since the activities of the National Planning are supposed to be carried out by regional and district authorities, the absence of such planning activities at the local level of government has made the achievement of an integrated planning difficult.

Table 5.2 provides possible instruments used by different sectors to implement their policies. Most of these instruments are inappropriate for achieving sustainable development. The most reliable tool used by the Ministry of Finance to implement its policies is called monetary valuation technique. This technique is likely reliable in projecting fiscal policy outcomes in a given period of years. However, monetary valuations are generally inappropriate to assess environmental impacts. Because the cost-value of the degraded environment is often not netted from GDP, the currently transacted real GDP is unreliable and convincingly deceiving. Additionally, techniques such as external scanning, recreational opportunity spectrum, limits of acceptable change, and ultimate environmental threshold are all not used by both the Ministry for the Environment and its collegiate ministries.

## **5.6. Powers and functions of the levels of government**

Planning involves not only a hierarchy of plans but also a sequential hierarchy of authority. Viewed from the classical perspective of planning theory, this hierarchy has since been pyramidal in structure. However, contemporary planning still acknowledges the pyramidal structure, but autonomy in decision-making is through democratic tenants devolved and decentralised. In this way, all plan authorities have at their level of jurisdiction as much power as the central authority, hence the division of plan functions by Act of parliament affirms such autonomy. This means that the village authority is much superior than central authority in matters concerning to the village, and so is the central authority in respect to central issues. These responsibilities are stipulated below.

### **5.6.1. The national authority**

National authorities should take the lead in shaping national planning operations. The major task is to formulate national plans and to coordinate resource management

activities between private and public sector organisations. It is at the national level of planning where principles to guide the formulation of regional and local strategic plans are provided.

National planning inspectorate function mainly with the ability of ensuring that regional and local strategic plans for water, drought, land, fisheries, forestry, wildlife, population, mining and the natural environment, are evaluated and systematically accorded to national development goals. Significant complications in resource management are simply the result of ineffective measures which were not taken to: Consolidate and where necessary develop environmental policies, legislation and programmes; develop national environmental objectives and standards in order to ensure that a consistent level of environmental quality is maintained across the country; ensure that effective strategies are developed to address environmental issues of national and international importance ....' (Brown, 1992: 152).

#### **5.6.2. The regional authority**

Management of resources at this level is vested in the hands of the management council which is empowered by the national authority to formulate plans of regional interest. Regional councils' main role is to serve as a link between the local population and the central government. In this regard, provision is made for a regional planning commission on which representatives of all relevant government departments have seats. In this way planning and management are coordinated horizontally across levels of various departments, whose headquarters are situated elsewhere in the central government. All major projects requiring government funding are subject to approval by the regional management committee.

### **5.6.3. The local authority**

Powers of the local authorities are ceded by the central government through decentralised, deconcentrated, devolved and delegated policies. Local councils are vested with the power to plan for the development of natural and physical resources at the local level of government. Local councils are responsible for making rules and regulations necessary for the conservation of local coastal areas which are environmentally sensitive; the protection of local wildlife and local marine resources; preservation of cultural values of the indigenous people and the allocation of land resources sustainably.

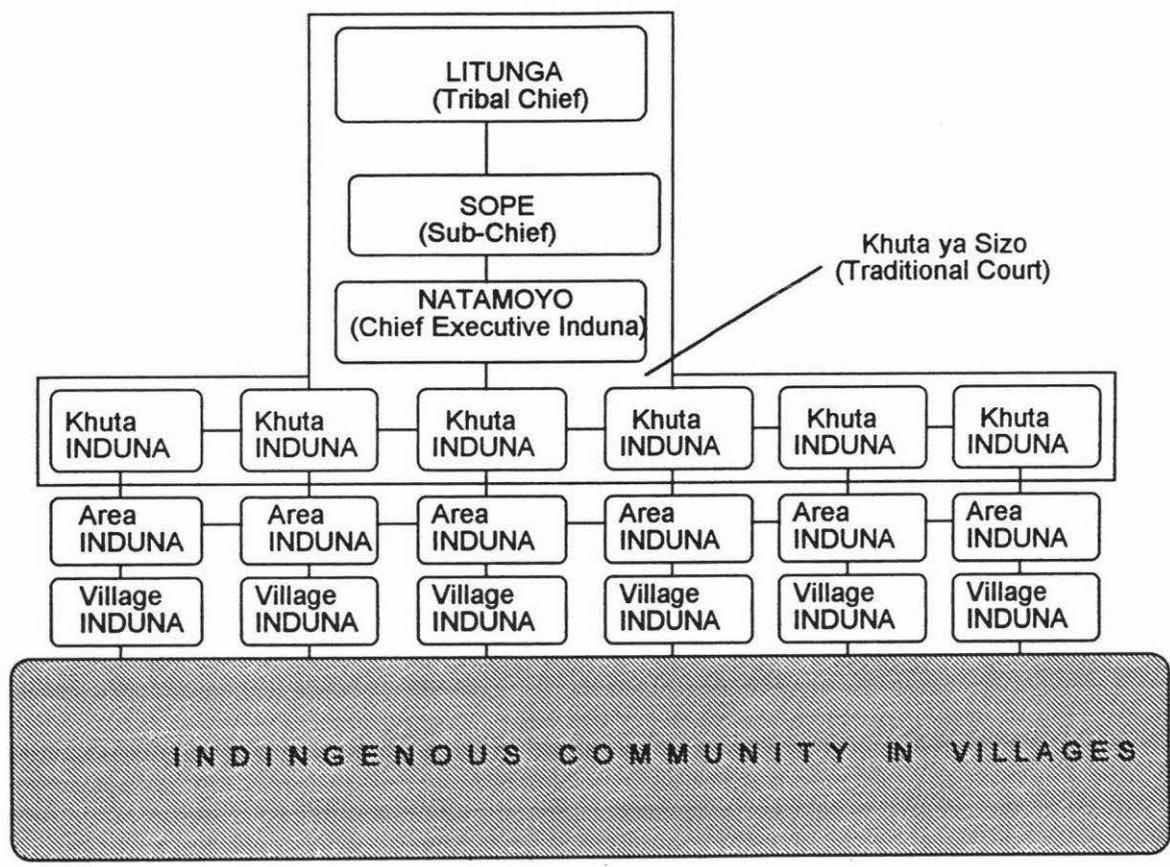
### **5.6.4. The village authority**

In many African countries, village authorities are vested in the hands of the indigenous people, who are headed by their own appointed leaders to enforce law and order on the utilisation of natural resources within village localities. The khuta on which Litunga, Natamoyo, and Indunas have seats, is an important link between the indigenous community and various government institutions. The village hierarchy of authority, shown by Figure 5.3 is a clear evidence that this institution is well organised and is capable of managing its resources effectively. As Brown 1992:154) notes that, in any communities there is some form of basic organisation or leadership with the potential to mobilise community members on environmental issues. However, the intervention of modern technology has not been sympathetic to the emergence and evolution of African traditional technology.

New African leaders who were born in remote villages have also turned their back against their own foundation - the village. They have failed to copy from the Chinese and the Japanese who remained clinging to their ancestral technology. Even the Hiroshima atomic bomb of the Americans failed to displace the genesis of Japanese educational

technology. As a result, Japan is now experiencing booming economies of scale founded on aiwa, toyota, akai and suzuki industries. It is now that the village need to be revived.

Figure 5.3 Hierarchical structure of the village authority in Namibia (with special reference to the Caprivian culture)



The three authority levels of the village are the khuta, the area or district and the individual village. In the case of the Caprivian culture, the individual village induna is responsible for handling environmental disputes in his village (see Figure 5.3). In the case of a serious offence such as the killing of an elephant, the matter is reported to the area or district induna who if possible may appeal to the tribal khuta, the highest authority of the village. It is however, shocking to note that the village has lost its powers over the management of natural resources. Its position in Namibia's resource management strategy is undermined by informal consultation. This has been due to the impact of modernisation which to a large extent has displaced some institutional structures while at

the same time making others even more stronger. The exclusion of the village from other planning agencies has led to over-exploitation of natural resources at the local level.

### **5.7. Conclusion**

Namibia's resource management strategy is to a large extent dominated by uncoordinated policies, methods and targets. This situation is further aggravated by the country's shortage of human resources to handle sensitive tasks involving the development of management strategies at the local level of government. The shortage of regional and territorial district planners is a serious problem which creates planning gaps between the central and local government planning. The impact of uncoordinated plans is at the moment demonstrated by the entire country's mushrooming environmental degradation, inequality in resource distribution, underdevelopment, and mass poverty.

It should be clearly acknowledged that Namibia is one of the most rich countries in Southern Africa, and that the country can be an outstanding development model to the rest of Africa. However, the direction towards prosperity or towards absolute poverty will be determined by the Namibian people themselves. This means that Namibian people will only escape the vicious hell of hunger, general corruption, muddling, and chronic self-suppression if purposeful commitment to planning at all levels of government is triggered towards the redemption of our natural and physical resources, which prior to independence were victims of colonial development strategies.

It is threatening to summarise that none of the Namibian planning strategies is compatible with the IUCN recommendations for National development strategies. The following fallacies are identified: Plans are not scientifically structure; inconsistency between and with plans prevails. Goals, policies and methods are not consistent to each other. Methods of implementation are also not stated. Lack of a comprehensive resource

management Act contributes to the existence of scattered and ineffective regulations and rules. NGO responsibilities are not specified and no regulation protects their activities. NGOs are not coherently coordinate with public sectors. Sectoral policies do not reflect environmental issues. Environmental unawareness is broadly spread in society. Namibian women are suppressed by regional leadership (see also summary Tables 5.3(a) and (b)).

Furthermore, procedures to guide regional and territorial plan preparation are not stipulated. Monitoring and consultation is inhibited by lack of planning at the local level of Government. Additionally, the village authority is cut from national, regional, and territorial planning. It is finally suggested that NGOs be encouraged and coherently be tied to appropriate ministries. Because resource and environmental issues are not confined in a single ministry or department, Government departments and ministries should liberalise and extend the scope of policies to encompass environmental issues. Furthermore goals should be linked with policies, policies with methods, and methods with rules and regulations. As a result of above-mentioned limitations of Namibia's resource management strategy, the next chapter will dwell on a detailed catalogue of recommendations which are suggested to be reliable in rehabilitating particular strategic constraints hampering the achievement of sustainable development in Namibia.

Table 5.3 (a) Summary of identified limitations affecting planning in Namibia	
Strategic element	Limitations
Participation	Lack of policies promoting people participation at all planning levels
Consultation	Inadequate and un-procedural consultation processes
NGOs role	Lack of legislation binding NGOs activities with those of the Government
Women role	Lack of policy statements on the need for providing incentives to women activities
Industry + business role	Strong measures to empower business community planning are inhibited
Farmers unions	Persuasive mechanisms that support farmer activities un-stipulated
Indigenous community	Information provision to indigenous people is inappropriate
Economic instruments	Means and ways in which economic instruments are to be applied unspecified
Regulation	Unintegrated legislation and unspecified planning instruments
Plan preparation	Procedures to plan preparation and types of required plans unspecified
Monitoring	Integrated monitoring methods and related principles unspecified
Policy formulation	Distinction between objectives and policies is not clear. Disintegration of environmental policies within environmentally oriented ministries. No methods of policy implementation stipulated.
Role of the national authority	National resource management strategies do not provide guidance as to what types of plans and policy statements need to be developed at the local level of government. The procedure in which these documents have to be processed is not stated.
Role of the local (regional/district) authority	Local authorities roles are confused by absence of Namibia Resource and Environmental Policy Statement (NAREPS), and are often characterised by guess work supplemented by significant range of blunders.
Role of the village authority	Resource and environmental strategies do not recognise the role of the village authority. As a result, village management capabilities are suppressed.

Table 5.3 (b) Other limitations affecting integrated planning

- ~Costly and ineffective choice of measurement instruments for detecting adverse impacts of growth.
- ~Delegation to foreign experts and inappropriate intervention of local experts and communities.
- ~Difficulties in involving intended beneficiaries, especially those living at the grassroots level of development.
- ~Inflexibility and unnecessary delays from local planners coupled with inappropriate training and skills.
- ~Reluctance of development sectors to engage in evaluation and error detection of management status.
- ~Difficulties in defining sectoral functions and responsibilities as they relate to resource planning.
- ~Lack of appropriate and adequate data relative to current resource management across levels.
- ~Inadequate understanding of social and cultural conditions relative to their impact on economic output.
- ~Weak incentives or control to guide sectoral behaviour in respect to natural and physical resources.
- ~Low levels of administrative capacity, particularly at lower levels of Government.

**Comment:** Because national, regional, district and village authorities are not integrated and function disjointedly, it is essential to embark on a proposal for an integrated national strategy which incorporates ministerial and NGOs activities with those of the different levels of government.

The above limitations can be addressed by using a variety of approaches. Linked to theoretical views expressed in Chapter 4 (Ricardian model), Keynes argued that any time the economy is in equilibrium at less than full employment, the monetary authority should increase the quantity of money enough to cause a significant reduction in the interest rate. He believed that if the interest rate is forced down to a sufficiently low point on the schedule of the marginal efficiency of capital, then the inducement to invest will be strengthened and the equilibrium level will be raised to full employment (Hill, 1995:26).

The above view is theoretically correct. However, post-Keynesian thinkers argue that there is a significant relationship between the stock of money and the quality of the environment. Freeman had already investigated this statistical context in the cities Kansas City, St Louis and Washington DC. He noticed that diminishing environmental quality causes a major decrease in incomes, and hence a greater effect on the value of money (Spillmann, 1995:3). It is therefore important to understand that if the environment is not placed at the centre of policy-making, all strategies will remain irrelevant to the reality of life and will fail to improve the standard of life in society.

Integrated strategic planning which takes into consideration the appropriate combinations of models need to be adopted (see Appendix V which shows the proposed combination of models). A clear understanding of the six generic models (normative, learning or interactive process, functional, blueprint, rational and disjointed incremental) and how they fit into the integrated modeling scenario need to be properly related to proposals to be suggested in the next chapter. In this regard, the Namibian Government should concern itself with the reduction of unbalanced resource management practices which affect national development.

## CHAPTER SIX

### PROPOSED RECOMMENDATIONS TOWARDS INTEGRATION:

#### *A condensed strategic National Framework*

*'At each level there should be an environmental plan, a policy statement of objectives that sets targets, identifies methods for achieving them, and establishes criteria for the regular monitoring of progress. The national Environmental Plan would also provide the framework for subsidiary regional and local plans, setting targets to be achieved through local action'*  
(Blowers, 1993:16).

### 6.1. Introduction

It has been shown in previous chapters that Namibia has started on a long path towards achieving integrated resource management. The Government has already begun to change entrenched attitudes to planning for sustainable development. While it is not possible to address all problems affecting the Namibian planning system, it is possible to suggest some changes which have been shown by theorists to be important and useful in preparing an integrated national strategy for sustainable development. The proposed strategy should be structured to provide for a gallery of coordinated plans at all levels of government. This research indicates that approximately fifty-three policy statements and plans are needed in Namibia. Because an integrated national strategy has its roots in local government structures, it is impossible to achieve sustainable economic development without initiating modifications to existing planning practice at national, regional and local levels of government.

The purpose, process of preparation and content of each type of strategic document is covered in section 6.2 of this chapter which deals with the structure of the proposed national strategy. The main purpose is to present for planners, at all levels of government, a clear picture of what is needed to achieve sustainable development in

Namibia. Sections 6.3 will respectively suggest actions and principles to be incorporated into an integrated national strategy for future development in Namibia. The means of implementing changes advocated in this chapter are suggested in section 6.4. It is hoped that the suggestions and recommendations to be proposed will be useful to Namibian planners and policy-makers.

## **6.2. Structure of the Strategy**

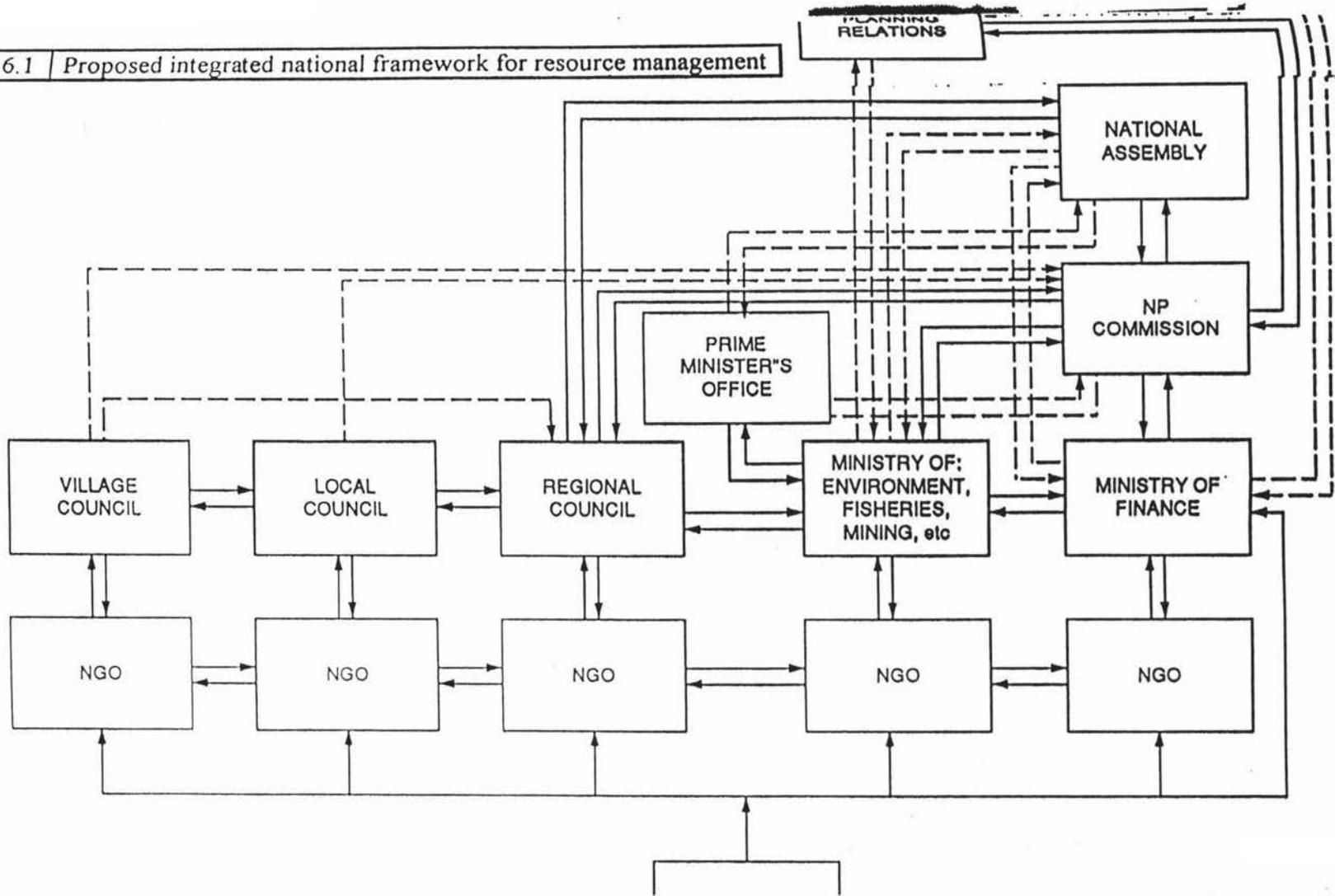
It is important for the Government of Namibia to have a national strategy for resource and environmental management which works to eliminate confusion during implementation, and should provide a clear hierarchy of plans and policy statements. Each planning agency need to clearly represented. A strategy of this kind also provides for the tasks and roles of each agency in the planning and management of natural and physical resources. When the structure is clearly presented it is often possible to allocate responsibilities to different agencies.

Taking development and use of natural and physical resources as the focal point of this study, an integrated national strategy for Namibia should also incorporate IUCN principles and actions for sustainable development. Issues in developing a national framework includes discussion of an appropriate institutional approach, economic policies, and environmental laws. These can also be used as instruments necessary change human behaviour on resources.

### **Institutional approach:**

The institutional approach to national planning is vitally important because it also involves coordination of the regional and sub-regional levels of planning. Devolution and delegation of authority from central to local government institutions are also established and maintained through the institutional approach to natural and physical resource

Figure 6.1 Proposed integrated national framework for resource management



management (Rogers, 1991:331). The establishment of decentralised institutional bodies is meaningful beneficial as government is brought closer to the people. Former chapters have shown that integrated management can be compromised by lack of national institutional framework for resource management. For this reason, an integrated national framework for resource management shown in Figure 6.1 is proposed for consideration by the Namibian Government.

Figure 6.1 provides for a national system of resource management which identifies the village as the most important level of planning. An ideal framework requires integration of village management initiatives with regional and local activities. There should also be mutually beneficial relationship between Village Councils, Local Councils, Regional Councils, NGOs and government ministries. The proposed framework also suggests that it is necessary to establish a strong relationship between the Regional Council and the National Planning Commission (NPC).

The indicated relationship between the NPC and other ministries suggests the establishment of an inter-departmental committee for resource management and planning within the NPC. The appointment of a commissioner for resource management as suggested by Namibia's Green Plan (1992) is compatible with the philosophy behind Figure 6.1. According to this framework, it would also necessary to have a Namibian Association of NGOs. The activities of these NGOs should be provided for in relevant legislation resulting from historically important contribution to social development (see Chapter 5).

Because of political influence, Figure 6.1 suggests a strong relationship between the Regional Council, NPC and the National Assembly. The approach preferred in this study relates the resource management framework to the political structure of the Namibian Government shown in Figure 2.7. In the case of international planning relations, the NPC

and other responsible ministries such as that of Finance or Environment may jointly lobby for supportive environmental inputs to both material and financial options for foreign investment and development in Namibia. Because this proposed national framework for resource management advocates sectoral interdependence in resource management, effective environmental results can only be achieved if integration across levels of planning and between sectors is successful. This will require the government to lead the development struggle by setting up a task force of national agencies to prepare plans based on unanimous collective decision-making process backed by effective consultation with the indigenous community, private institutions and voluntary organisations. The general public should also be motivated to take individual responsibility for present and future development.

**Economic policies:**

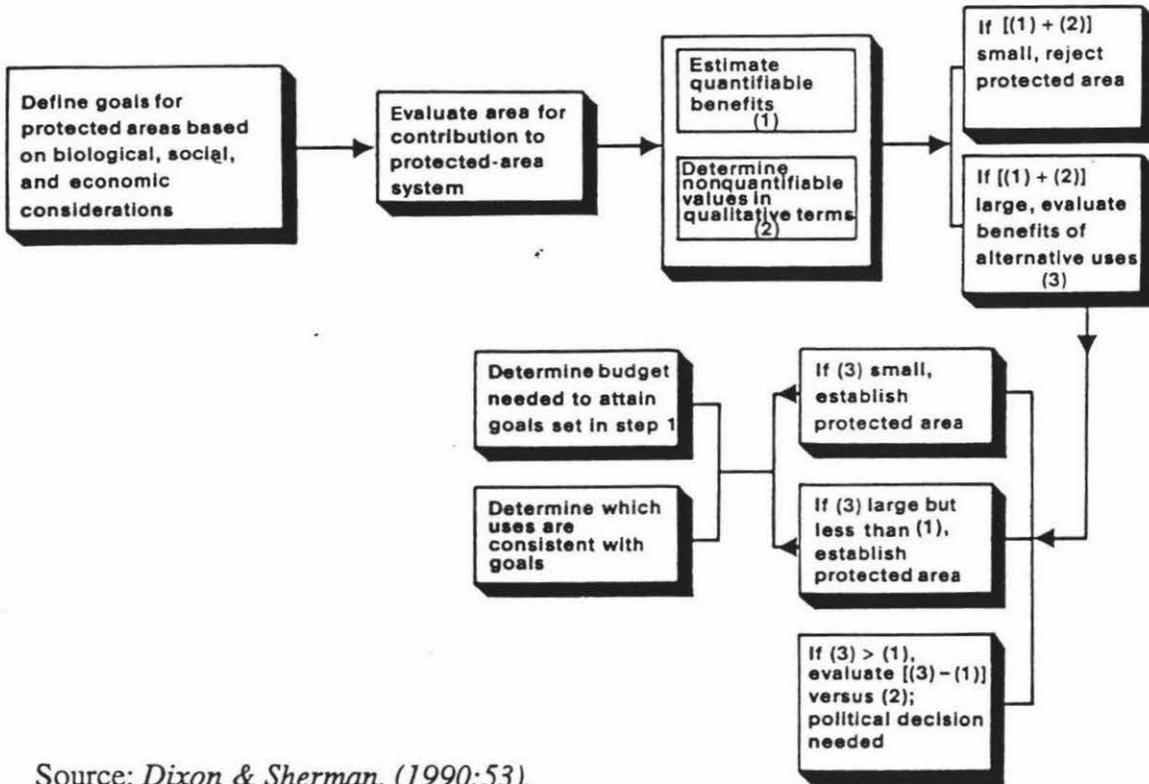
The IUCN/UNEP/WWF Strategy (1991:64), argues that environmental policy by national governments has seldom been coordinated with economic development decisions. Chapter 4 continues to argue that 'policies and regulations that aim to protect the environment and conserve resources without adequate economic incentives are fighting an 'up-hill battle'. Therefore, it is recommended that Namibia should apply a variety of resource taxes, subsidies, charges, environmental credits, and deposit/refund schemes in implementation of policy.

<b>Table 6.1. Optional environmental regulations and economic incentives</b>	
<b>Direct Regulation</b>	
Engineering Standards Performance Standards Quantity Limits Ambient Standards Prohibitions	* Regulate technology. * Control emissions by plants. * A quota on overall emission levels * Standards of environmental Quality * Prevent access to certain areas.
<b>Economic Incentives</b>	
Emission Charges Depletion Charges Product Charges Deposit-refunds Marketable Permits Information Systems	* Tax applied per unit of pollution. * Tax applied per unit of harvest. * Tax applied to polluting activity. * Tax on harmful products. * Harvest permits that can be used, sold, or leased. * Public disclosure of pollution
<b>Other Tools</b>	
Assurance Bonds Strict Liability Assign/Enforce Rights	* Returnable payment on undamaged environmental. * Polluters are liable for paying victims. * Full allocation and enforcement of rights to environmental goods.

Source: OECD, 1993:92

Table 6.1 highlights the possible combination of techniques, including an economic incentives approach to environmental management. Policy reforms are also needed at Namibia's national level of planning. Inappropriate combination and application of economic instruments can hinder economic development. For instance, heavy taxes on production capabilities of markets can threaten investment potentials of producers, and the supply-side of macro-economics can be retarded, causing severe stress on trade opportunities. In conflicting situations of this kind, it is advisable for planners to use a balanced combination of instruments which cater for both environmental sustainability and general economic well-being. Figure 6.2 below outlines a decision-making process which combines consideration of economics and ecological objectives.

Figure 6.2. The economic decision-making process



Source: Dixon & Sherman, (1990:53).

According to Figure 6.2, the evaluation of protected areas needs to be considered in terms of the relationship of physical areas to biological, social and economic progress. Where economic interments are applied, they should also contribute to environmental protection. This would require quantification of benefits (1) and the determination of non-quantifiable values (2). Figure 6.2 also shows that if the benefits resulting from the application of economic instruments in protected areas are small, then it is not necessary to evaluate such areas for further utilisation. But if the benefits are likely to be large, measures to evaluate protected areas for alternative uses should be taken. However, if alternative benefits (3) are substantial, the problem is made more acute as the net benefits of the protected area need to be weighed against the net benefits of the alternative uses (Dixon & Sherman, 1990: 54). In other words, protected areas are should be treated as common properties protected by the state from misuse. They may be leased for use if two conditions are satisfied: (1) if there is completely no alternative area for use and, (2)

if the use of a protected area will pay society benefits equivalent to the intrinsic value attached to the area by society.

The infringement of protected areas by development activities such as agricultural and mining operations needs to be addressed in a sustainable manner. For instance, areas such as Piggery and Lewis compounds (which were areas surveyed) in Katima Mulilo are made open to public use merely as residential areas for the homeless squatters. These areas are now prone to desertification resulting from deforestation (see Appendix I). It would be necessary for government to intervene by determining which uses are consistent with the maintenance of environmental quality. Areas with minimal resilience to damage by human activities should be protected by inventory.

#### **Environmental laws:**

Laws which protect the environment from inappropriate behaviour of users should be integrated with cross-sectoral policies for sustainable development. These should include rules regulating maximum adverse effects on natural and physical resources. Where degradation and the exploitation of natural resources has exceeded preferred standards, rules avoiding excessive plundering of resources should be integrated with appropriate policies for sustainability.

Resource management law reform should be also directed towards environmental protection. For this to be achieved law experts should analyse the diversity of regulation about the use of Namibia's natural and physical resources, and finally advocate which advocate an effective legal balance of regulation influencing consumption behaviours. The possible depletion of resources, as demonstrated by the Ricardian Model in Chapter 4, should be legally preventable by an Act of Parliament that takes into consideration the interwoven relationship between the environment and economic development (IUCN/UNEP/WWF, 1991).

Furthermore, four components are recommended to accompany a coordinated strategy for resource and environmental management in Namibia. Consultation and consensus building concerning final decisions to be taken in regard to policies and regulations adopted should be the main objective in developing consultation processes. A wider representative sample, including those affected by the impact of resource depletion in rural areas should be encouraged and supported, and consensus on policies, procedures and actions to achieve sustainability should include their input (Archer, 1984: 73).

Information should be collected from indigenous people, from business analysis of economic indicators, from the status of the environment and natural resources, and also from legal codes of environmental conduct. Information gathering may also include national resource surveys, collection of national statistics, social surveys and participant observations to enhance long-term development in Namibia (Conyers and Hills, 1986: 104). Unless information is collected and properly processed, strategies for sustainable development will remain narrow and play a minor role in enhancing long-term sustainable development in Namibia.

Policy formulation should be based on analysis of appropriate information and consensus building with other environmentally active groups. Development of policy should also consider the 'stage of the economy', effective and sustainable allocation of resources in society, the need to enhance conservation of natural and physical resources, resolution of conflict, and the maintenance of efficiency in both public administration and resource distribution. Tables 6.2 shows principles required to achieve sustainable development.

Table 6.2. Principles for sustainable development

- \* *Focussing on investments that enhance the rehabilitation of natural and physical resources.*
- \* *Provide economic incentives that favour the recovery of over-exploited resources.*
- ~ *Give preference to advanced information-intensive technologies over those that are materials-intensive and resource depletion.*
- ~ *Strengthen and support community links between people and the government.*
- \* *Promote industrial investment that use environmentally sound resource-conserving technologies.*
- \* *Give priority to the mobilisation of local resources savings and social energy by empowering local communities to manage their own resources.*
- \* *Develop strong local accountability, financed and democratically elected autonomous local government that give people mandate to voice conservatory decisions on matters affecting their resources.*
- ~ *Seek economic diversification at all levels of the economy, beginning with the rural-poor and get committed to issues that eradicate chronic effects of absolute poverty.*
- ~ *Give priority in allocating local resources to the reduction of goods and services to meet the basic needs of the Namibian population.*
- ~ *Allocate a portion of surplus local productive capacity to produce goods and services for export to national or international markets.*
- \* *Strengthen broad-based local ownership and control of resources by pursuing policies that give liberty to indigenous communities to substantially support individual and group procedures over the control of resources.*
- ~ *Give high priority to investments in education that build the capacity of people to take charge of their own lives, communities, and resources, and to participate in local national and international decision processes.*
- ~ *Encourage an acceptance of shared responsibility for the well-being of all community members and a reverence for the connection between people and their natural environment.*
- ~ *Encourage the development of independent, politically, conscious voluntary and people's organisations that strengthen the direct participation of citizens in both local and national decision-making processes, and provide essential planning grounds in democratic citizenship.*
- \* *Provision of an integrated national framework based on sustainable development.*
- \* *Integration of economic and environmental goals into policies and activities.*
- \* *Respect and care for the community of life by diversifying the vitality of biodiversity.*
- ~ *Ensuring that environmental assets are appropriately valued in economic accounts.*
- \* *Protection of areas of significant indigenous vegetation, flora and fauna.*
- \* *Protection of key natural features and landscapes from inappropriate exploitation.*
- ~ *Providing for equitable distribution of resources within and between generations.*
- \* *Maintaining environmental quality through rehabilitation and protection of key areas.*
- \* *Recognition and protection of the heritage values of ecosystems with support from people.*
- \* *Promotion and improvement of public awareness through effective information provision.*
- \* *Conserve the intrinsic values of Namibian ecosystems by mobilising candid public support.*
- \* *Protection of natural character of coastal environments with effective public access options.*
- \* *Efficient use, development and protection of natural and physical resources.*
- ~ *Extending international environmental linkages by concluding new agreements.*

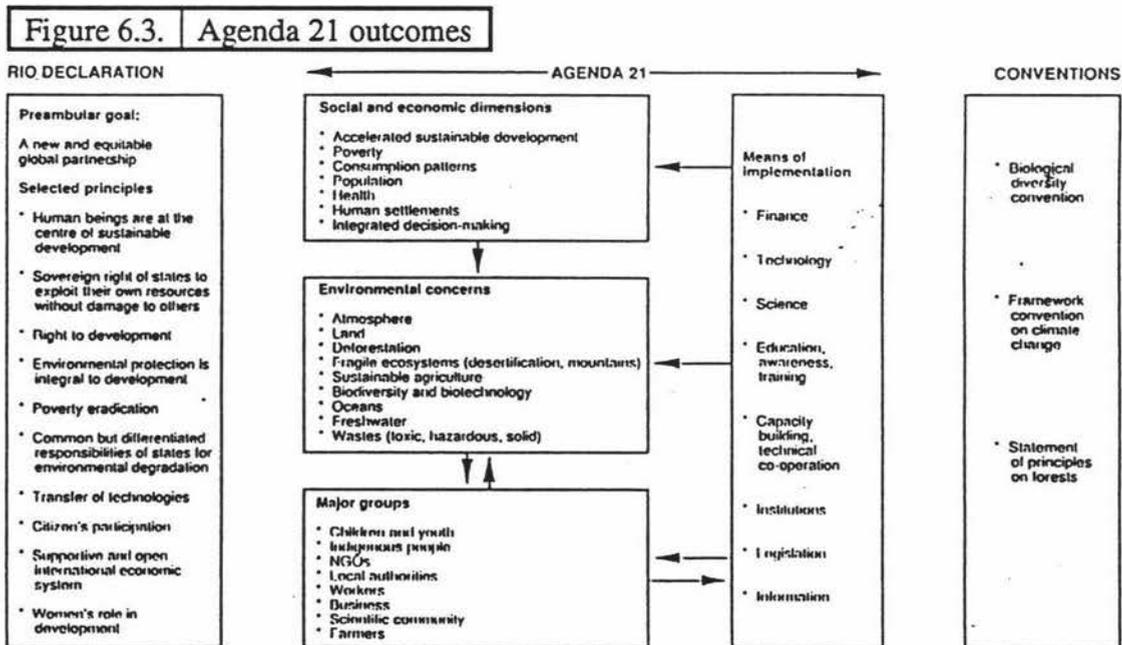
Source: IUCN/UNEP/WWF (1991), Korten (1992), World Bank Report (1989)

\* Principles relating to adverse effects identified in Chapter 3.

The relationship of the above listed principles with environmental assets identified in Chapter 3 needs to be understood so that implications underpinning social and economic dimensions are clear. In addition, Table 6.2 provides a set of principles which should also guide the Namibian Government in developing policies to achieve sustainable economic development, noting that:

*If planners are to adopt a policy formulation system and facilitate change, they must receive cognitive inputs and skills for dealing with the complex policy-making system that are not now incorporated in national, regional and local curricula (Rondinelli, 1975:259).*

The government should maintaining the spirit of sustainable development in society by avoiding immediate deterioration of the Namibian environment. Issues affecting landscapes, climate, water, soils, etc., need to be included in strategies addressing development. Figure 6.3 provides a brief summary of Rio Declarations adopted by UNCED on 14 June 1992.



Source: Bartelmus (1994:146)

The above table indicates also that indigenous people need to be included in the management process of natural resources. At the moment, traditional technology of the indigenous people is ignored in any form of planning in Namibia. Lack of access to resources to resources and know-how about conservation management are the major factors hindering appropriate integrated planning. Figure 6.4 suggests the necessary process to assist indigenous people to manage their own resources at the village level.

Figure 6.4. Adapted indigenous technology

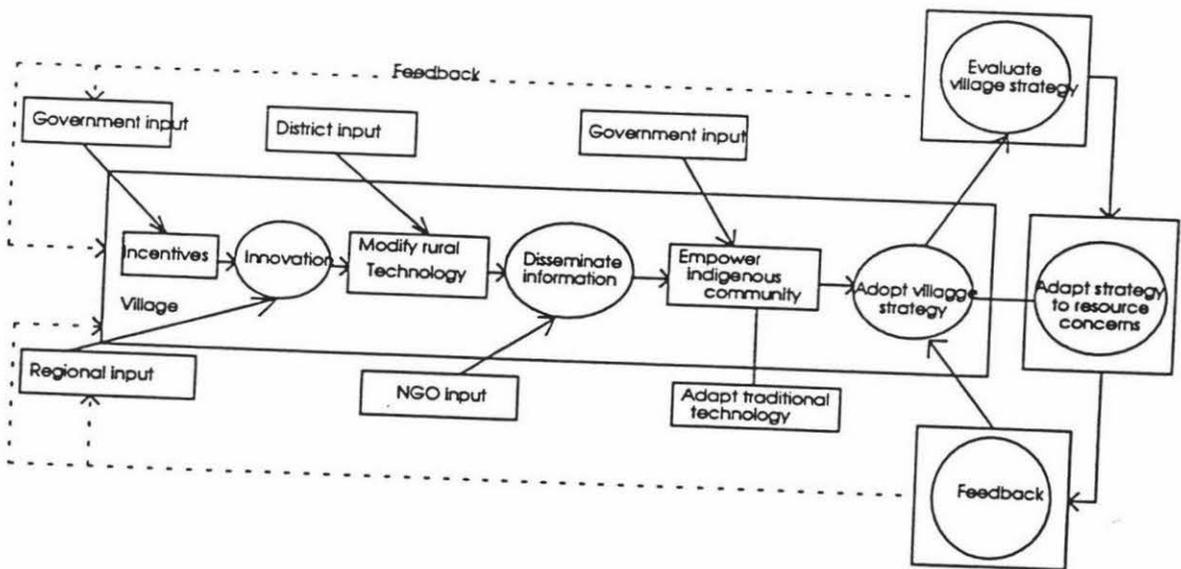


Figure 6.4 suggests that the government should provide indigenous people with incentives to boost their management capability. Regional input in form of promoting the diffusion of recent technological requirements for resource management. Since district authorities have direct contact with village councils, they should give support necessary to modify environmental perception behaviour of the local rural community. NGOs may also stimulate rural technology by disseminating appropriate information to install management confidence in the hearts and minds of indigenous people. Once people have confidence in themselves, the government should seek support to empower them and assist them to develop and adopt their own village strategy. The village strategy should be evaluated and be adapted to resource concerns of the community. Feedback is

necessary for re-enforcing modifications to the strategy and also for keeping the community informed about the effectiveness of the strategy.

#### **Action planning and Implementation:**

Government is responsible for devising and promoting reliable methods of implementing policies and decisions which are unanimously agreed. An action plan should include procedures for monitoring and evaluation of results. In the case of unsatisfactory results, alternative courses of action such as changing of methods and procedures of implementation should be the ultimate outcome. But because an integrated national strategy need pragmatic implementation at the local level of government by a diversity of action groups, it is necessary to provide regulatory guidance relative to procedures to be followed in implementation. Any proposal for an integrated national strategy needs to be guided by the Act of Parliament and should be pioneered and advocated by a senior Cabinet Minister (IUCN/UNEP/WWF, 1991:207). In this case, the Namibia Resource and Environmental Act (NAREA) is suggested as the principle act to guide planning.

#### ***The Namibia Resource and Environmental Act (NAREA)***

It has been found that Namibia's natural and physical resources are adversely affected by desegregated legislation (Jansson, 1989; Namibia's Green Plan, 1992). This has caused mismanagement of natural and physical resources by most sectors utilising natural and physical resources. Since there is no common law affecting sectoral operations, it is very difficult in Namibia to introduce an integrated national strategy without preparing a national resource management Act. The Namibia Resource and Environmental Act (NAREA) is therefore suggested to assist future preparation of various strategic documents from the village level of Government to the national level.

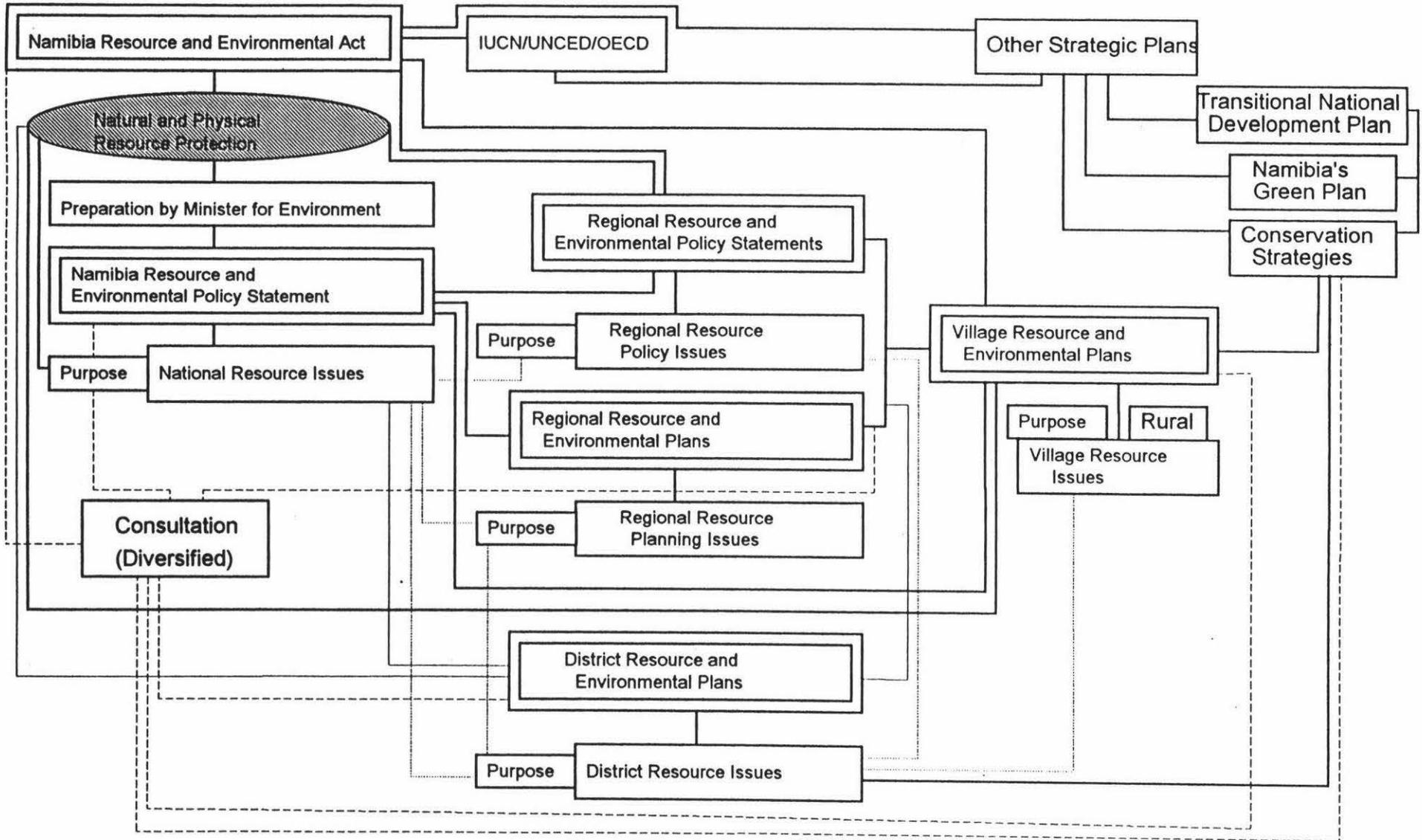
The purpose of NAREA is to ensure sustainable management of natural and physical resources within and along the borders of Namibia. Ultimately, NAREA should be an

amalgamation of all resource related Acts so that they can be implemented as one act. It should also be stipulated that there should be no inconsistency between or within plans and policies. This Act will only be meaningful if joint emphasis is placed on effective use, development and protection of Namibia's natural and physical resources. It should also be noted that the social, cultural, political and economic well-being of the Namibian people is experienced through effective development. The ecosystem, together with the life-support systems (air, soils, water, microbiological earth-works, minerals, etc.) should be efficiently utilised now while providing for the needs of future generations. This implies that business is seen as a partner of government, not a despoiler of the environment.

Additionally, the NAREA should provide guidelines for the preparation of resource and environmental policy documents at all levels of planning. It should maintain a system of consistency between plans. The contents of plans and the procedures necessary for their preparation and implementation should also be prescribed. It would also be necessary for the NAREA to clarify roles and functions of each level of planning and of the indigenous community in relation to recommended national and international obligations.

### **Plan Preparation**

Namibia has thirteen regions (shown in Figure 5.2) which are summarily categorised into three major regions: Northern, Central and Southern regions. Planning documents at a regional level should include a Namibia Regional Resource and Environmental Policy Statement (NARREPS); Namibia Regional Resource and Environmental Plan (NARREP); Namibia District Resource and Environmental Plan (NADREP); and Namibia Village Resource and Environmental Documents (NAVREDS). All the above-mentioned documents begin with the name 'Namibia'. This is broadly in consistency with suggestions which are meant for national development and planning. See the relationship and integration of policy statements and plans shown by Figure 6.5.



In practice, all plans should carry the name of a particular regional council by which they will be prepared and adopted. For instance, a plan policy statement prepared by the Oshikoto regional Council would be called 'Oshikoto Regional Policy Statement' or 'Omaheke Regional Policy Statement' for the Omaheke regional Council.

<b>Proposed Policy Statement/Plan</b>	<b>Purpose Policy Statement/Plan</b>	<b>Preparation of Policy Statement/Plan</b>	<b>Contents of Policy Statement/Plan</b>
<b><i>Namibia Resource and Environmental Policy Statement (NAREPS)</i></b>	<i>To state policies promoting sustainable management of natural and physical resources.</i>	<i>Preparation should be made by the Minister for Environment and Conservation.</i>	<i>Protection of Namibia natural features and landscapes, coastal marines from misuse.</i>
<b><i>Namibia Regional Resource and Environmental Policy Statements (NARREPSs)</i></b>	<i>To achieve sustainable development by providing appropriate overview of resource management issues of the region in tandem with the purpose of the NAREA.</i>	<i>To be prepared by Regional Councils (RCs) according to regional environmental concerns and be subject to approval by Minister for the Environment.</i>	<i>Should include significant resource issues with the jurisdiction and border limits of the region. Methods and means of implementation should also be stipulated.</i>
<b><i>Namibia Regional Resource and Environmental Plans (NARREPs)</i></b>	<i>To assist Regional Councils to carry out their regional resource functions by direct implementation of policies enshrined in the RARREPSs.</i>	<i>Preparation by RCs should be influenced by significant conflict between use, development and protection of natural and physical resources.</i>	<i>Issues, objectives, methods and reasons of adopting such plans, environmental results anticipated and process to be used to handle critical issues.</i>
<b><i>Namibia District Resource and Environmental Plans (NADREPs)</i></b>	<i>To assist district councillors to implement national and regional policies at the district level of resource management.</i>	<i>Should be prepared by territorial authorities in response to issues affecting the district, with input from district residents and agencies.</i>	<i>Rules and methods regulating adverse effects on the environmental and process by which they will be implemented.</i>
<b><i>Namibia Village Resource and Environmental Documents (NAVREDs)</i></b>	<i>To assist village authorities to effectively manage natural and physical resources within the geographical limits of the village.</i>	<i>Should be prepared by village authorities in consultation with district and regional councils of a particular area.</i>	<i>Contents should maintain the state of traditional and indigenous methods of resource management within villages.</i>

Since there may be regional reorganisations, depending on future decisions by the Delimitation Committee of Namibia, names should be used as an example. The suffix 'NA' instead of 'N' for Namibia has been decided in consistency with most Namibian abbreviations such as Namibia National Teachers' Union (NANTU), Namibia Non-governmental Organisation Forum (NANGOF) and Namibia National Student Organisation (NANSO). All 52 plans which Namibia needs to develop should be consistent with Namibia Resource and Environmental Policy Statement. This will bring the total of all documents needed to 54 (including NAREA).

It is necessary for all documents prepared under the guidance of the NAREA to be compatible to the requirements of the IUCN, and also to be consistent with all other plans such as Namibia's Green Plan and the Transitional National Development Plan. The Minister for the Environment should have an overall administration of all plans to be prepared under the influence of the NAREA. In this perspective, the Minister of Conservation should establish Departments of Conservation in all the regions. These should keep the Minister of Conservation informed about the effectiveness of resource management at the local level of Government.

### **Plan preparation process**

*Consultation refers to the manner in which planners adopt a significant approach to gather information from resource concerned parties; to allow them sufficient time to decide, to listen and consider their point of view, and finally evaluate their advice and decide what to do ( Office of Parliamentary commissioner, 1988; Archer, et al., 1984:69).*

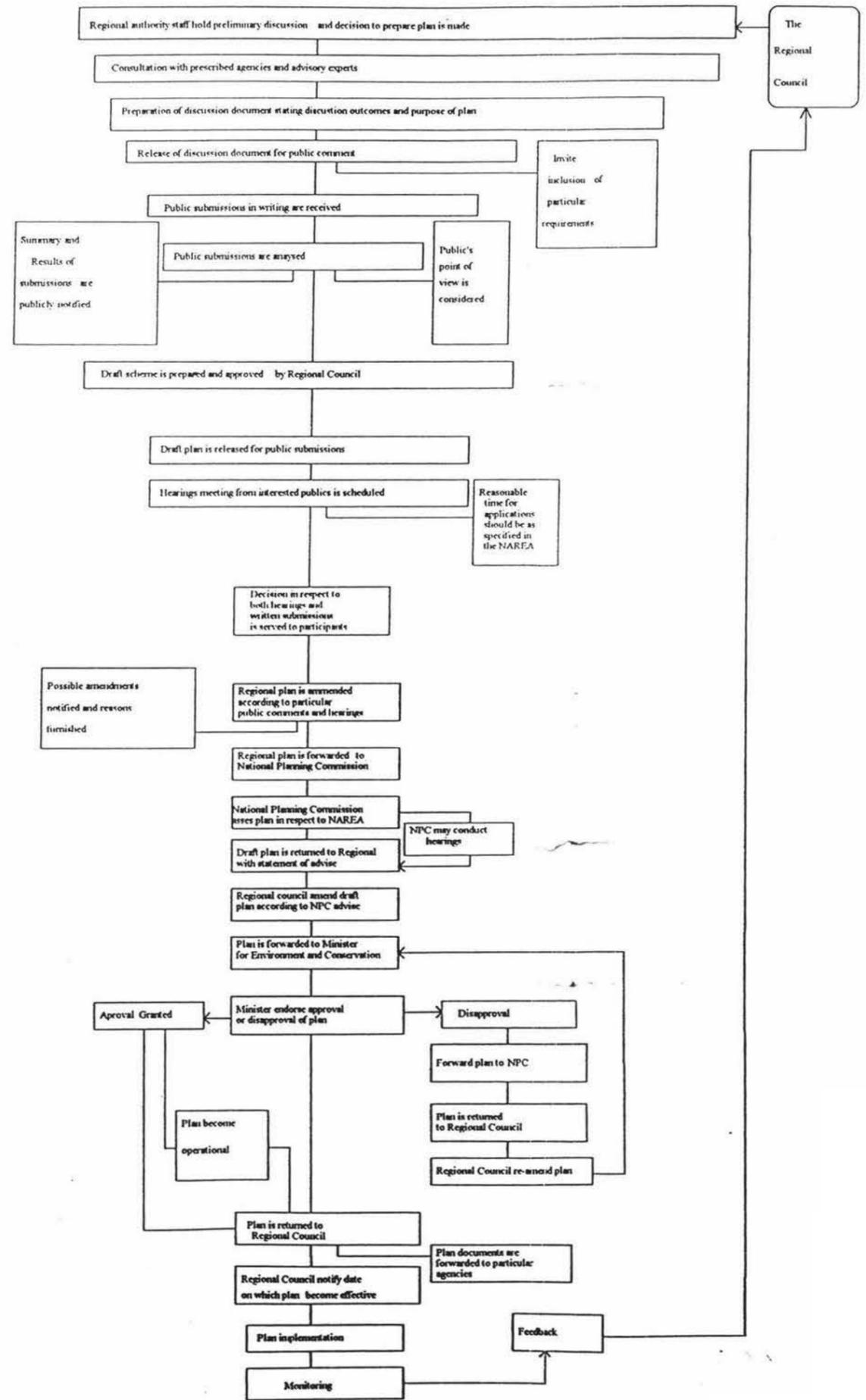
It is recommended that Namibia should adopt a consistent method of consultation. People would consulted before the making of decisions should categorically be listed in the Act (NAREA) guiding planning procedures at both national and local government

levels. For a national strategy to have an integrated input, all environmentally related ministries, and other non-governmental agencies have to be consulted prior to the making of any decision concerning environmental issues. It is for this reason that strategic plan preparations should begin with briefings of all parties on the purpose, scope, process and time-table (see proposed Gandt chart time table below) of the strategy (IUCN/ UNEP/WWF, 1991:208).

The government departments and other groups consulted will depend on the level of plan preparation, the type of plan and the issues involved. Among those to be consulted, the following list should be taken into consideration: Minister for the Environment and Conservation, Minister of Fisheries and Marine Resources, Minister of Transport and Communication, Minister of Agriculture and Rural Development, Minister of Mines and Energy, National Planning Commission, including those other ministries stated in Figure 6.6. Other consultants include local authorities who may be affected, indigenous communities through their village authorities and through submissions and hearings. NGOs, women's groups, private agencies, individual experts and resource users should also be involved. Planning agencies mentioned above need to be consulted because their operations take place at the heart of national planning. Without their input and action, implementation of any policy statement is likely to fail.

The process to prepare policy statements or plans by local authorities does not end when consultation is completed. The purpose of Figure 6.6 is to show the process to be followed when preparing regional plans and policy statement. It demonstrates also that effective preparation of plans requires appropriate consultation of all concerned parties, including the general public and the political cadres involved (eg the Minister of Conservation, Labour, Lands, Mining, etc.). For more information about the recommended path to be adhered to, see notes adjacent to Figure 6.6.

**Figure 6.6** Plan preparation process with particular reference to regional plans/policy statements



As shown in figure 6.6, it is recommended that the following path be adhered to when preparing strategic plans:

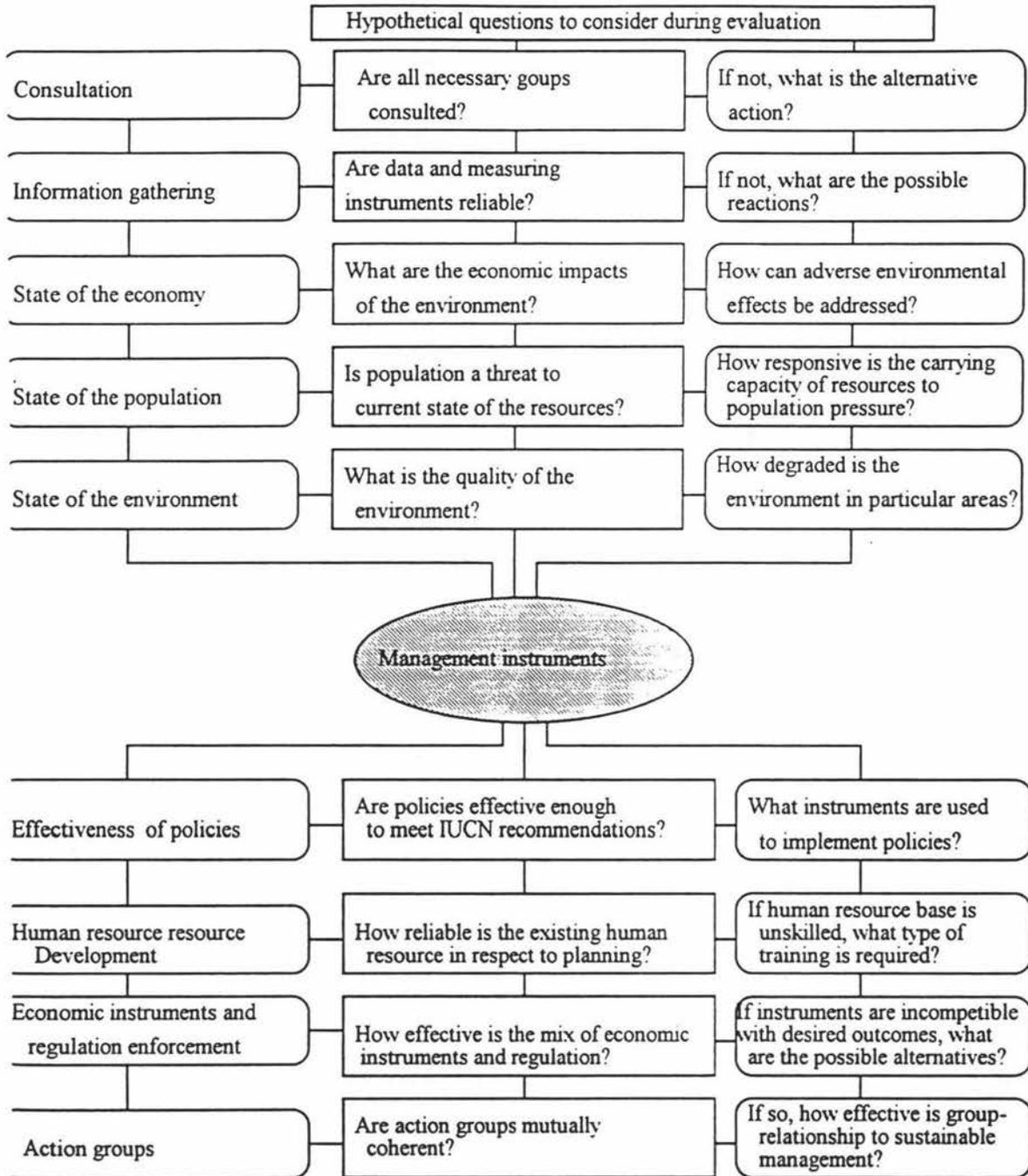
1. Preliminary discussion with local authority staff of the local authority concerned is held and an assessment of the need for a strategy is deliberated. Measures to promote the concept of the strategy are taken.
2. Discussion document should be prepared and be released for public comment. Appropriate period of time, usually 21 working days, should be allowed to elapse prior closing and a closing date for submissions should be stated in the most prominent advertisement.
3. Comments and submissions from the public are received and analysed. In the case of hearings, enough time should be given to every person who made a submission or submissions, and those who requested to be heard in public or in 'camera' should be treated as such. Closing dates and times should be publicly notified.
4. After the analysis of submissions and hearings, a draft regional plan or policy statement which is consistent with the national policy statement has to be prepared and be approved by the council according to conviction by public influence and other considerations. The draft should then be published for further public submissions and comments.
5. The draft is amended according to necessary comments and submissions and if forwarded to the Planning Commission. Planning commission make their decision in relation to the requirements enshrined in the NAREA. If unsatisfied with process adopted by regional authority, it may conduct hearings and provide recommendations to the local authority concerned.
6. Once policy statement or plan is received from Planning Commission, modifications are made, and plan or policy statement is then sent to Minister for the Environment and Conservation for approval.
7. The Minister may if unsatisfied forward (with reasons) the policy statement or plan to the Planning Commission for further review, or may adopt and approve the plan.
8. Once the local authority receives an approved policy statement or plan, the plan or policy statement becomes operative and operation is publicly notified in the most popular media channel.  
(For a detailed process: see IUCN/UNEP/WWF (1991: 208-9), Kierkland (1990:2); New Zealand RMA, 1994).

### ***Evaluation***

Evaluation is concerned with the appraisal of a strategy. It involves a review of performance, an impact analysis, an appropriate assessment, and institutional evaluation (Conyers & Hills, 1986: 172). Figure 6.7 suggests that evaluation process is meant to question the whole process of management, including the effectiveness of management instruments suggested above. For instance, Figure 6.7 provides a set of hypothetical questions which would be useful in evaluating consultation process, information gathering, state of the economy, etc.

Since evaluation questions whether environmental problems are exacerbated by ineffective consultation processes, it is necessary for Namibia to establish evaluation procedures which consider all aspects of the implementation programme. Evaluations should be independent and should compile reports about the causes of constraints in particular areas of the implementation process. Possible alternative actions should be preceded by evaluation outcomes. By the end of the plan process, planners can identify that all stages of planning have been accomplished and are subject to continuous evaluation. Table 6.4 provides important general considerations to be considered by Namibian planners in their development strategies needing implementation at regional and local government levels.

Figure 6.7 Processing evaluation



**Table 6.4. General considerations for national and regional development planning**

*\* Policy-making should maintain plan consistency, avoiding excessive centralisation of authority by maximising participation of local communities affected by new developments while ensuring that there is consistency between the details of proposed development and the broader policies of regional and national levels. (p)*

*\* Central government advice and appeal decisions must actively promote and support local planning authorities in their attempts to achieve environmental improvements and sustainability objectives through their local plans and development control decisions.(p)*

*\* Legislation should be amended to require regional and local authorities to prepare Integrated Environmental Plans, which state environmental objectives, policies, targets and responsibilities.(I)*

*\* Companies should be encouraged to include in their annual reports a summary of any contributions to profits made by reducing the use of energy and materials and by minimising waste and pollution.(I)*

*\* Planning powers should be used to encourage changes in the location of economic activity which match infrastructure and housing resources and which contribute to an equitable spread of employment opportunities. (p)*

*\* Organisational arrangements must be devised in regional and local agencies to enable genuinely integrated environmental policies to be formulated and implemented. (I)*

*\* Department of environment should develop new policies for the location of businesses and associated parking standards at all levels of government. (p)*

*\* Development control and other decisions which influence retail location should be based on a comprehensive assessment of environmental impact. (I)*

*\* Department of environment should develop new policies for the location of businesses and associated parking standards. (p)*

*\* New residential development should make positive provision for the full range of home-based activities. (p)*

*\* Effective implementation requires the establishment of Sustainable Land Development Fund, to be sourced from a betterment tax on the increase in land value that arises from the granting of planning permission. (I)*

*\* Land-use tax funds should be used for environmental improvements and community compensation. (I)*

*\* National planning policies (P) Planning related considerations*

*~Regional planning policies (I) Considerable Institutional issues*

**Table 6.4** | continues

\* *Environmental plans should encourage partnership between local industrialists and the authorities responsible for recycling in order to ensure a high added-value outlet for recycling material. (p)*

\* *Ministry of Trade and Industry should assist with information and advise about the practical use of life-cycle analysis and other tools necessary to develop and design green products.(p)*

\* *Environmental plans should investigate the contribution that telecommunications can make to achieve sustainable development, where appropriate, provide both for local teleworking centres and for new housing developments to be designed for home-working.(p)*

\* *Development control and other decisions which influence retail location should be based on a comprehensive assessment of environmental impact. (I)*

\* *Regional guidance by national authorities should give more detailed advice on environmentally sustainable development patterns within regions. (p)*

~ *A regional level of government should be established to prepare strategies for future development, with special need for effective implementation of national policies for environmental protection and future sustainability. (p)*

~ *A sustainably regional economic policy should be an integral part of the environmental process. (I)*

~ *Local economic development and planning policies should be reviewed for their environmental performance and green policies and strategies developed. (p)*

~ *All local councils should take the lead in promoting awareness and understanding of environmental issues, in developing council-wide programmes for at least a number of priority issues such as energy conservation and waste recycling, and in involving local resident, with support, as necessary, from the central government. (p)*

~ *Local environmental audits should be carried out and published regularly by the appropriate regional and local authorities in order to establish to what extent sustainable policies are having intended effect. (I)*

~ *Environmental strategic plans at the regional and local level should aim at providing an appropriate balance of homes and employment to secure local job opportunities and reduce average commuting distances. (p)*

Sources: Blowers (1993), Conyers & Hills (1986), IUCN/UNEP/WWF (1991), Falloux & Talbot (1993), and Bartelmus (1994).

\* *National planning policies (P) Planning related considerations*

~ *Regional planning policies (I) Considerable Institutional issues*

### *Suggested critical path for resource management and planning for Namibia*

Because development planning is goal oriented, it is important for Namibian planners to follow a logical path in planning for sustainable development and to acknowledge priorities of actions at the national level. The role of the critical path in planning is to integrate and coordinate priority actions of individual agencies into a coherent order. Therefore, the critical path of planning is in this strategy determined by those key actions without which efficiency in resource management is un-attainable. See Figure 6.5.

It is the responsibility of planning institutions to determine through consultation, the days weeks, months or years each priority activity will take. The formula to calculate time periods is shown in table 6.5 showing Best Estimated Time (BET). BET refers to the best estimated time used by strategic planners to predict the time needed to complete particular activities in the cycle of developing a national or regional strategy. Time is generated by consulting three respondents in each activity and the questions are classified three hypothetical options: shortest (S), medium (M) and longest (L) time anticipated to complete a given task. To obtain BET shown in table 6.5, three given times have to be plugged into the formula given at the bottom of table 6.5. For instance, activity A is calculated by substituting (S) with 1, (M) with 1 and (L) with 2. The answer is 1.4 and is rounded to 1 as shown in table 6.5 below.

BET can be used by resource managers to monitor the progress of strategies by allocating time to all activities in the life-cycle of a strategy. When BET is applied in resource management, it is possible to confirm whether targets are being met at the right time. It also avoids bigger blunders by persuading planners to follow the critical path at the right time. Since the BET process is logical and systematic, it can also be used to show the interdependency of activities to implementors and how combinations of critical and non critical path activities can be applied to achieve sustainable development.

<b>Table 6.5 Best Estimated Time (BET)</b>				
<b>Integrated strategic activities</b>	<b>S</b>	<b>M</b>	<b>L</b>	<b>BET</b>
A: Decision to develop a strategy (plan)	1	1	2	1
B: Consultation and information gathering	2	2	4	2
C: Assembling information and analysis	1	2	7	3
D: Undertake field survey	1.5	1.5	10	3
E: Formulation of policies and principles	0.5	2.5	7.5	3
F: Cross sectoral environmental analysis	2	2	4.5	2
G: Identification of management constraints	3	3	4.5	3
H: Establish programmes to resolve constraints	1.5	2	3	2
I: Establishment of actions and methods	2	2	4	2
J: Coordinate and allocate resources among sectors	1	5	5	4
K: Establishment of EIA within sectors	1	1	2	1
L: Establish inter-ministerial coordinating committee	1	2	3	2
M: State reasons for adopting methods of implantation	1	1.5	1.5	1
N: State anticipated environmental results	1	1	3	1
O: Establish an integrated management system	1	1	2	1
P: Develop environmental monitoring system	1.5	1.5	5	2
Q: Provide information to local authorities	2	3.5	3.5	3
R: Identify financial means of implementation	2	2	2.5	2
S: Promote education and culture	3	3	5	3
T: Provide information	3	3	4.5	3
U: Mobilise indigenous community and NGO support	4	4.5	4.5	4
Y: Facilitate awareness	2	2.5	2.5	2
W: Enhance mutual participation	3	3	3.5	3
X: Adopt integrated planning and management approach	1.5	1.5	5.5	2
Y: Establish local institutional capacity	3.5	2.5	4.5	3
Z: Strengthen the role of women in development	0.5	2.5	2.5	2
AA: Adopt continued environmental reporting procedure	4	4	4	4
BB: Evaluation of alternative strategies	3	3	3	3
CC: Implement strategy through regional and local support	3	4	5	4
DD: Apply economic instrument to achieve sustainability	5	7	9	7
EE: Monitoring and re-evaluation of the strategy	4	6	8	6
FF: Achieve sustainable development	7	9	9	9
xx: Develop objectives and identify targets	2	4	6	4

**BET has been rounded to the nearest month**

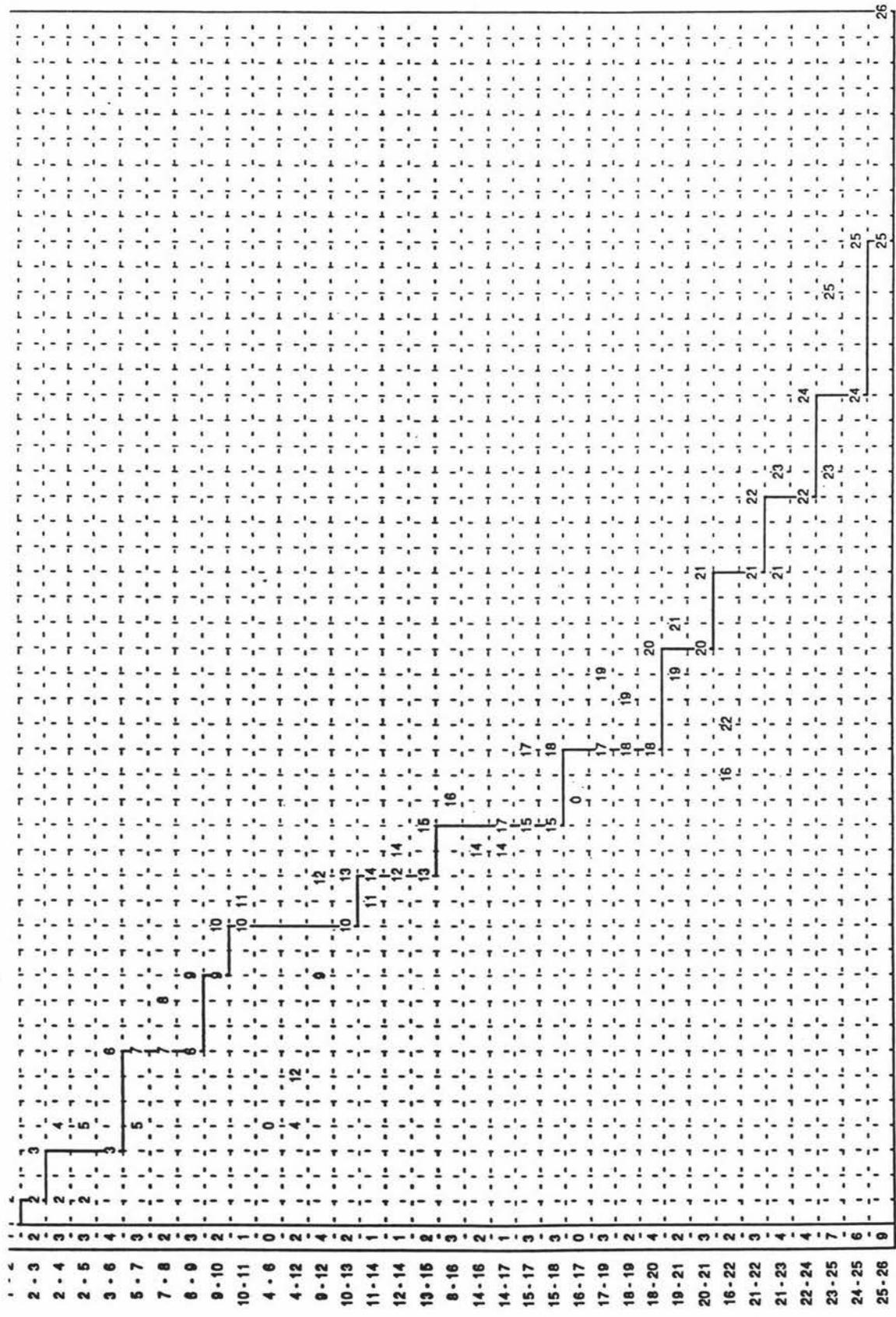
$$\text{Formula for BET} = \frac{(S + 4(M) + L)}{6}$$

**Critical Path:**

The critical path in this strategy is:

**A-B-XX-E-I-L-R-S-U-Y-BB-CC-EE-FF**





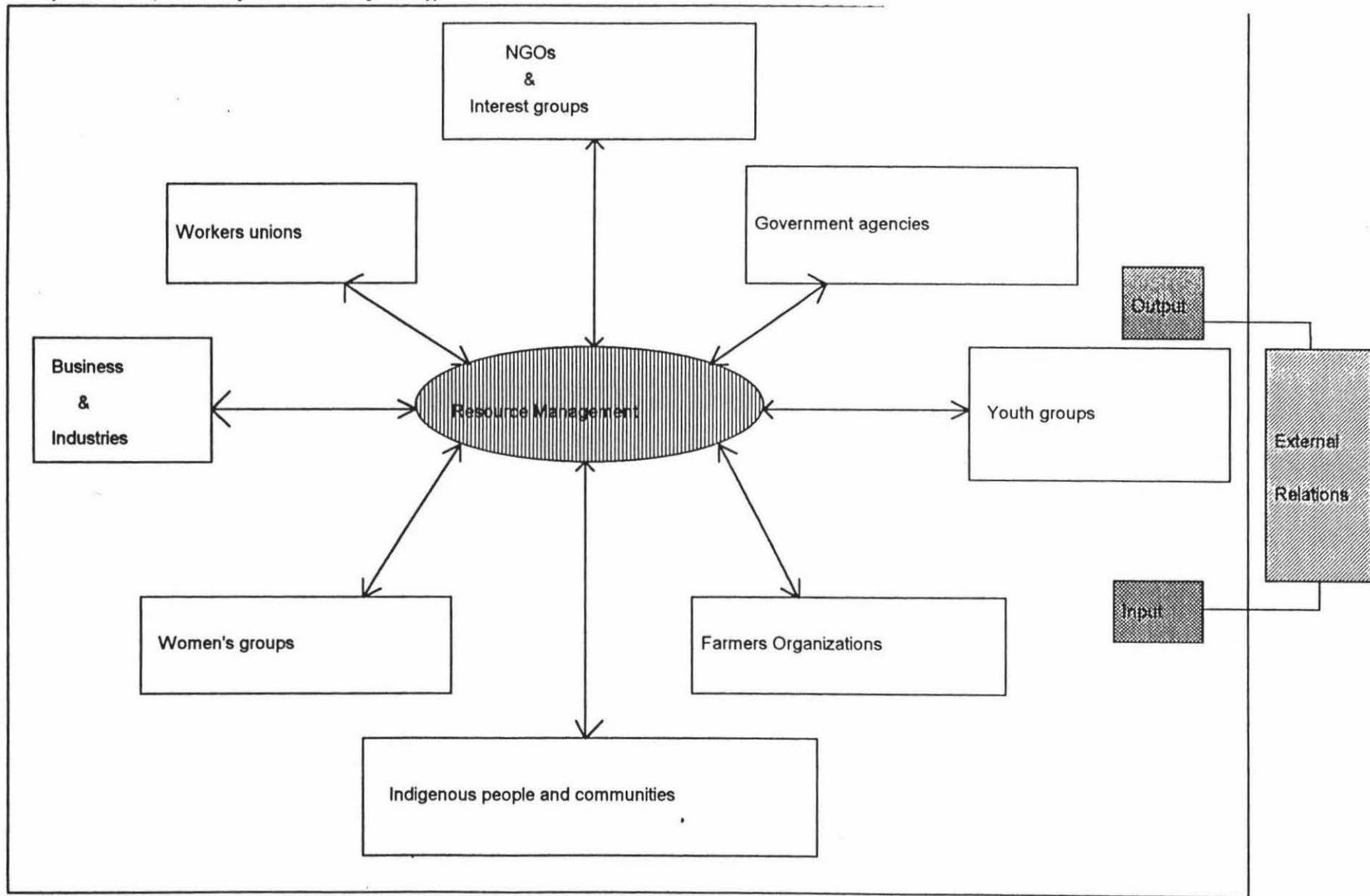
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Figure 6.8. Critical path for integrated resource management. The importance of the critical path is that, all activities necessary to achieve sustainable development will need to be prioritised first. It can also assist to determine the total number of workers needed for a particular activity. Because time for given tasks is specified, efficiency and time serving is maintained, and immediate environmental results are likely to be realised. Finally , both activity and duration time periods are displayed on a spread sheet called Ganhti Chart shown by Figure 6.9.

The Ganhti Chart is an extenuation of the critical path. Its purpose is to precisely indicate the period of time to be spent on a particular activity. Through appropriate use of the Ganhti Chart, planners can advise the Cabinet that a particular activity is behind the best estimated time (BET) or that implementation is in line with predicated time. For instance, if the Government is working on activity 18-20 shown by Figure 6.9, planners should observe that such an activity need to be completed in a period of 4 moths, beginning from the 19th to the 23rd month of a five-year plan. If more than 4 months are taken in activity 18-20, planners should immediately advise the concerned body politic that preceding activities are being compromised by delays, and that expected results are likely not to be achieved in time predicted. It is acknowledged here, that time taken will also depend on budget allocation and that different priorities may be allocated to activities when considered by Cabinet.

### **Integrated Monitoring**

Integrated monitoring entails a joint effort by all three levels of government: national, regional and local. Monitoring is the manner in which the progression of the strategy is observed by all planning agencies, and where appropriate, take steps to compensate for possible blunders. During the process of monitoring, provision should be made for supervision and control. Such supervision and control ensure that subordinates do not go beyond powers delegated to them, and that principles of the NAREA, are complied with.



Supervision and control, have always been used as instruments applied by the central authority to monitor the implementation of strategic policies in a devolution and decentralised context of management. At this stage, control and supervision should for Namibia not be dominated by the central organ of administration. What should be done is to nullify the intervention of corruption and corruptive ambitions of a singular administrative organ. It is necessary to adopt a 'multinucleation' of monitoring initiatives. The concept 'Multinucleation' refers to many agencies involved in the process of implementing policy. In this process, activities of individual agencies are coordinated, and collaboration of initiatives at the horizontal level of government is also maintained (Rondinelli, 1993: 44).

Figure 6.10 suggests an integrated monitoring strategy for resource and environmental management in Namibia. This Figure (6.10), displays a collaboration process by a number of agencies in the integrated monitoring umbrella. For the role of each monitoring agency within the monitoring perspective, and also for how integrated monitoring should be implemented, see section 6.6 of this Chapter about implementing monitoring. In this Figure (6.10), resource management is seen as a central issue to be monitored by a coordinated body of various agencies from both private and public sector backgrounds. The Figure shows that there should be an exchange of information by input and output mechanisms at the international level. An output channel of monitoring requires Namibia to contribute to global environmental standards, and hence to monitor its environment performance in the interest of the international community by creating a global alliance (IUCN/UNEP/WWF (1991: 77)). The input channel of monitoring suggests that all environmentally active groups should lobby for contributions and support from beyond national boundaries.

### 6.3. Proposed actions to underpin the strategy

The Government of Namibia should be committed implementation of actions supporting sustainable management of natural and physical resources. The common goal for an integrated national strategy for resource and environmental management should be to promote and support sustainable development in Namibia. This goal should be achieved by converting those policies suggested in section 6.3 into joint actions by all environmentally responsible groups suggested by Figure 6.7 about environmental monitoring. Below is a set of actions and policy recommendations respectively. These actions are suggested to assist Namibia in paving the way towards sustainable development of natural and physical resources.

#### **Unfold international linkages to induce sustainable development**

Recommendation:

*Namibia should aim at identifying means of achieving a better functioning and enhanced transparency of commodity markets, greater diversification of the commodity sector with a macroeconomic framework that takes into consideration the economic structure, resource endowments and market opportunities, and better management of natural resources that take into account the necessities of sustainable development.*

#### **Alleviation of rural poverty**

Recommendation:

*Since the majority of poor live in the rural area, and since it is rural Namibia which has the most degraded environment, national strategies for sustainability should aim at improving living conditions of those at the grassroots level of development.*

#### **Alteration of consumption capacity behaviours**

Recommendation:

*Sustainable utilisation of resources that takes into account the carrying capacity of the resource base should be adopted while a fair distribution of resources among competing sectors and peoples should be adhered to without compromising the quality of the environment.*

#### **Focus on sustainable patterns of production and consumption**

Recommendation:

*The production and consumption capacity of both renewable and non-renewable resources should be controlled and sustainable means to avoid resource depletion should at all costs be monitored. This should take the form of an integrated resource management from village level to national level of government.*

### **Integrate environment and development in decision-making**

**Recommendation:**

*Environmental protection should be seen as another form of investment on which decisions affecting macro-economic policies for present and future projections depends. Environmental issues should be affectively accounted to reflect clear economic impacts on society.*

### **Promote sustainable agriculture and rural development**

**Recommendation:** *Comprehensive measures to assess the impact of existing policies on food and agriculture sector performance, food security, and rural welfare and international trading relations as a means for identifying appropriate offsetting measures.*

### **Conservation and management of resources for development**

**Recommendation:** *The ambition to achieve economic development should carry a sound provocative approach to sustainable development, taking into consideration the protection of natural and physical resources which stand as Namibia's key ecological-treasury, supported by viably sound regulations.*

### **Deforestation**

**Recommendation:** *A regionally oriented campaign system to restore degraded forestry environments should be preached with afforestation and reforestation as common denominators towards the achievement of economic development supported by sustainable forestry productive capacity-inputs.*

### **Management of fragile ecosystems**

**Recommendation:** *Namibia's environmentally fragile ecosystems, especially those locked in an ever arid environmental sphere should at all costs be handled with kid-gloves that nurtures them towards recovery, and this should be supported by ecologically integrated strategies across sectors*

### **Demographic dynamics and sustainability**

**Recommendation:** *A comprehensive assessment of the impacts of population growth highlighted by both Agenda 21 and the Ricardian model should be used with other inputs as a foundation for population planning, with the aim of minimising land degradation and resource depletion caused by over-population.*

### **Promotion of sustainable human settlement**

**Recommendation:** *Measures to stabilise resettlement tensions among the landless should be carried out, and should be backed by pragmatic legal instruments that support the balance of nature with human development.*

### **Promotion of education, training and public awareness**

**Recommendation:** *Educational authorities, NGOs, women's groups, business and indigenous communities should harmoniously promote environmental education programmes catering for both elementary, secondary and tertiary levels, and non-formal education and on-job training should be in effect at local, regional and national levels of government.*

### **Global action for women towards sustainable development**

**Recommendation:** *Women interventions in national and local government planning should be encouraged by incentives that aim at liberating women activities from suppression and dictatorship inherited from native colonial law. This means that women education curricula should be altered from an agenda of depressive courses which makes them submissive to their male counterparts, to courses that destiny them towards a liberal identity in thinking and action.*

### **Protection of coastal and marine resources**

**Recommendation:** *The Namibian Government together with its concomitant mentor groups for conservation and development should ensure that the conservation and sustainable use of marine ecosystems and resources feature more largely in national programmes for planning, pollution control, protected areas and development control.*

### **Environmentally sound management of toxic chemicals**

**Recommendation:** *Since sustainable development is a process that aims to promote a quality of life that is socially life-supportive, culturally vital, economically equitable and environmentally conservative, practical measures to promote national health by fighting toxic hazards from the Namibian environment should be nationalised by way of providing appropriate information to sectoral institutions and individual users.*

### **Strengthen the role of workers and their trade unions**

**Recommendation:** *Workers and their trade unions should be mobilised to effectively support, and where possible put into practice their adopted environmental knowledge and the management of natural and physical resources.*

### **Strengthen the role of business and industry**

**Recommendation:** *The skyrocketing consumption capacity of resources by businesses and industries is economically linked to development needs but is environmentally perilous, and should be controlled by creating good understanding and feeling of mutual trust between government and businesses. Government should also encourage industries to develop their own pollution-monitoring industrial strategies compatible enough with the national strategy.*

### **Recognition of the role of indigenous people**

**Recommendation:** *Because development is for the people, and by the people, all management strategies should take into consideration the important role played by the indigenous people in managing their own resources.*

### **Integration of NGOs initiatives into national environmental movements**

**Recommendation:** *Since many of the NGOs are locally based and are likely close to the local community of any given national state, it is necessary for the government to adopt an integrated national strategy which empowers NGOs to undertake research and community support in matters related to environmental concerns country-wide.*

### **Adoption of an integrated approach to utilisation of water resources**

**Recommendation:** *Since the greater part of Namibia is semi-arid, and since significant development of whatever kind is adversely affected by limited water capacity, effective fiscal policies which maximises expenditure levels for water resource development and protection should be prioritised, and an inter-sectoral water management strategy should be adopted.*

### **Protection and promotion of the standard of life**

**Recommendation:** *A joint national effort that integrates regional, sub-regional, village authorities and their indigenous communities, NGOs and private organisations should be encouraged and financially supported to address health issues common within the country.*

### **Conservation of Namibia's biological diversity**

**Recommendation:** *Sustainable development of bio-fauna and flora should be expanded by adhering to the Convention of International Trade in Endangered species, and strong action to improve its effectiveness at regional and national levels of government.*

The foregoing actions are dynamically fundamental to the current state of natural and physical resources of Namibia. Their application in redressing adverse effects to sustainable development of physical and natural resources can be a high achievement in Namibia's advent for restructuring and development process.

## **6.4. Implementation and monitoring**

In strategic planning, a mere proposal of policies, actions and principles without suggesting *how* such proposals would be implemented in practice is meaningless. Waterston (in Conyers & Hills, 1986:154) argues that the failure to implement policies and required actions contained in plans and programmes is widely recognised to be the major weakness in contemporary planning in developing countries. Associated with plan failures is the lack of appropriate methods (means) by which broad policy goals can be

translated into action. More than this, implementation is never treated as a consecutive process of monitoring and evaluation of plan outcomes. From this perspective, Pressman & Wildavsky (in Conyers & Hills, 1986:155) define the concept 'implementation' as 'a process of interaction between the setting of goals and action geared to achieving them'.

In this section, methods necessary to implement the recommendations in the earlier sections of this Chapter are outlined. Like plan preparation, plan implementation is not a one planning agency's job. The collaborative action of agencies is needed. It is worth noting that the implementation of plans, particularly in Namibia, would still be affected by all groups, governmental and non-governmental organisations, individuals and agencies active in the preparation of plans. The need for a collaborative relationship between NGOs and Government agencies is also demonstrated.

It is stated in chapters 4 and 5 that an implementation of an integrated national strategy for resource and environmental management in Namibia depends on the actions of developmental agencies with an influence in the preparation of strategies at all levels of planning. It is also argued that traditional planning theory views organisational complexity as a major cause of inefficiency in plan implementation. The solution to this dilemma is to install a division of functions which avoids duplication, allocates responsibilities through decentralisation of power, and hierarchically coordinates activities (Rondinelli, 1975:149).

#### **6.4.1. Government agencies (*ministries*)**

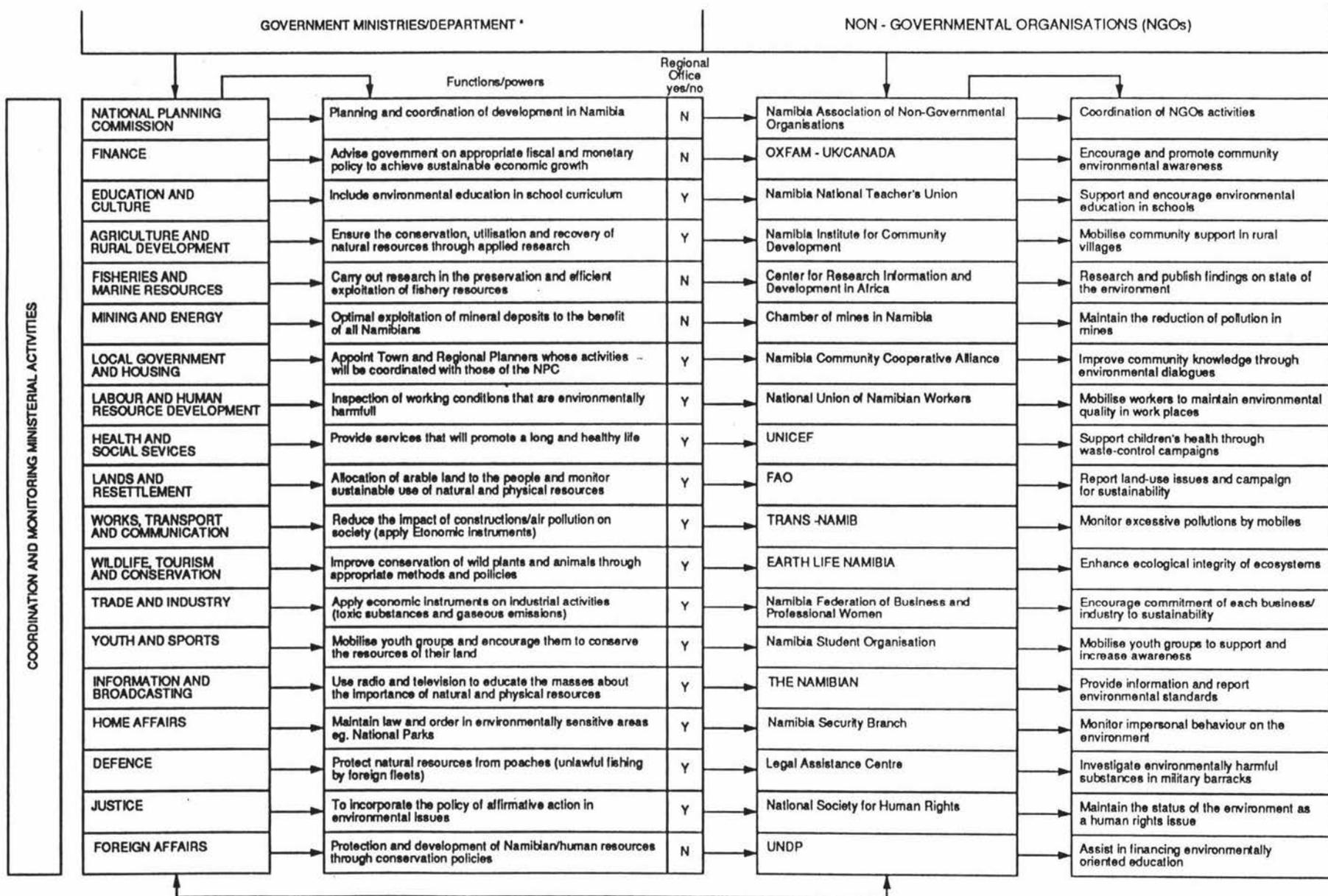
Table 5.2 of Chapter 5 has demonstrated the purpose, means of implementation, NGOs relationship, and possible devolution of each sector responsible for resource and environmental management in Namibia. Management pitfalls affecting integration have been identified and a need for a coherent administration of resources has been proposed

using Figure 6.10. Because the relationship between NGOs and Government agencies is randomly uncoordinated, it would be necessary for Namibia to implement an integrated national strategy by taking into consideration the collaboration and interdependence of NGOs and Government agencies as demonstrated by Figure 6.11. Since ministerial responsibilities are outlined in Figure 6.11, they will not be repeated in this section, but a discussion of the composition of this figure would surface.

According to Figure 6.11, a national strategy should be implemented in such a way that each government ministry has to fulfil a particular task in respect to resource management. Figure 6.11 indicates Namibian Government functions. For instance, the Namibian NPC coordinates planning activities at all levels of government in Namibia. This means that local coordination should also be devolved to regional and district planning structures. A planning institution that caters for the rehabilitation of planning scenarios of past decades needs to be established under the chairmanship of the NPC of Namibia. Such an institution would assist in training both part-time and full-time planners for all levels of government.

Figure 6.11 also shows that implementation of the national strategy for Namibia would be more comprehensive if each of the existing ministries would align itself with an appropriate NGO in the provision of public service. For instance, the Ministry of Health and UNICEF are both concerned with health issues, and can through effective collaboration, assist to bring about changes in improving environmental health of the people. It is also necessary to prepare regional and local government structures which are reliable in extending the implementation of national policies. Mere establishment of local government bodies without the devolution of planning capabilities is insufficient to encourage development, and manage adverse effects of development.

Figure 6.11 Integrated Government and NGOs functions



\* Office of Prime Minister will be responsible for control and coordination of ministerial activities

#### **6.4.2. Delegation of authority**

Decentralised development involves the delegation of authority from the national government to organisations at the regional or local levels: These include government agencies at the field level of administration; semi-autonomous public institutions (e.g. Posts and Telecom Namibia); local authorities (e.g., municipal administration of districts); and non-governmental, voluntary organisations (Cheema & Rondinelli, 1983: 204). Once power is devolved, each organisation can perform appropriate functions that assist in implementing national strategies and projects according to local and regional means.

For Namibia, decentralisation of resource management and planning needs to be extended by devolving authority. Since decentralisation without devolution is pragmatically naive in respect to strategic implementation, it is necessary to reduce a centralised 'remote control' system system of government. Proponents of change would obviously advocate total responsibility for planning to remain local and regional levels of government. 'The major thrust of decentralisation with devolution is to strengthen the authority and decision-making powers of the regions and to expand participation in local planning and administration' (Cheema & Rondinelli, 1983: 89). In Namibia, there are three levels of government to which should have powers to implement an integrated national strategy:

##### ***(1) The Regional Development Council Level***

Regional planning is already undertaken by regional development councils, which are composed of regional planners and regional directors of national ministries. These planners have the responsibility to translate national policies into action at a regional level. They are responsible for the preparation of regional policy statements and plans proposed in Chapter 6. The regionalization process 'enables regions to take decisions

more expeditiously' (Friedman, 1983:62). Decisions regarding environmental protection should be supported by other regional directorates of central ministries. Support from other field administrators, should be channelled by submitting policy proposals to regional bureaus of planning and also by enhancing effective dialogical participation in regional resource and environmental issues. Because each strategy should reflect local conditions and local needs (IUCN\UNEP\WWF, 1991: 170), regional councillors are responsible for the identification of resource and environmental issues significant to a given region, and to respond by attaching appropriate policy to their effect on natural and physical resources.

It is also the responsibility of the regional council to embark on persuasive mechanisms that aim at including communities and local district and Village Councils agencies into the conservation and protection of regional waters, flora and fauna, parks, coastal environments, sea and riverbeds, landscapes and key historical values of sites. The preservation of regional ecosystems is a task affecting a diversity of sectoral agencies. Because regional environmental machineries have inherited a segregated operational system, it is the responsibility of regional councils to establish coordinating bodies within their regional sphere of influence (Mathur, 1983: 62). The task of the coordinating body is to enhance mutual relationship of different sectors whose operations are directly affected by both regional policy statements and plans.

#### ***(11) The District Council Level***

The District Council is concerned with the activities taking place within their sphere of influence within a region. There can be more than one district in one region, depending on the size of the region and the kind of services needed. Namibian District Councils are responsible for implementing principles of the strategy by enforcing district rules regulating waste disposals, rules about public access to and along the coastal marine area, and rules concerning water quality. Measures to avoid adverse environmental

impacts caused by conflicting uses in respective districts should be avoided.

District Councils are accountable for any discontent about their operations and the operations of the village authorities. Coherent and mutually responsive actions in implementing the strategy need to be promoted. Sociocultural and political factors relative to the conservation of ecosystems should substantially be accommodated in Namibia District Resource and Environmental Plans (NADREPs). The secrecy of success in development is found to be in the hands of the district cadre whose bottom responsibility lies in the alleviation of economic ills at the district level of government (Rondinelli, 1975:61).

### *(111) The village Council Level*

Namibia's largest population lives in constellation of rural hamlets called villages. As seen in chapter 5, these villages are already well organised into village councils, all of which report directly to their mandated superiors throughout the hierarchy of authority. They are traditionally referred to as 'the eyes and ears' of tribal courts. It is at this level of management where the capacity to respond to people's knowledge, opinions and actions needs to be broadened in support to the success of the strategy (Groot, 1992: 400).

Because the village council directly represents the interests of the people in the country, it must also be responsible for effective management. Economic instruments in form of monetary fines can also be applied by regional councils as antidotes to inappropriate environmental behaviours of rural residents. Village councillors can contribute to the implementation of the strategy by demarcating land for appropriate uses. This may include a conceptualisation of programmes with a built-in flexibility and a long time horizon (Groot, 1992: 400). For instance, land degradation resulting from overgrazing is due to uncontrolled grazing rights of users on common property, coupled with unprogrammed environmental stimulus. Measures to introduce rules regulating the

number of stocks per farmer need to be enforced by village authorities. In so doing, severe pressure on the environment, resulting from over-stocking would be eliminated and environmental degradation rehabilitated.

There should also be a sound relationship between village authorities and other levels of government. The village council is also responsible for advocating policies which are appropriate to the concerns of the village environment and its people. They have also a duty to examine the impact of district, regional and national policies on village life. Village councils are also accountable for intensified degradation resulting from unintegrated villager activities. Villagers should be organised and be encouraged to analyse and solve local environmental problems (Groot, 1992: 401).

#### **6.4.3. Implementation action groups**

Like plan preparation, the implementation process requires an interdependence of effort. The government alone can not afford to satisfy basic requirements of the implementation process. Assistance from a glossary of private and voluntary agencies, as suggested from below, is of cardinal importance in making effective implementation of Namibia's integrated strategy a reality.

#### ***Non-Governmental Organisations***

Although the role of NGOs is in many African countries handicapped by general political ambitions expressed in policy statements which suppress the freedom of private voluntary organisations in taking responsibility for actions in existing strategies, the ambivalence with which governments fail to choose between two alternatives (to free NGOs to evaluate strategic policies, or to completely suspend their roles in public sector operations) should not affect the achievement of sustainable management in Namibia.

Namibian NGOs are responsible for fostering cooperation and communication among themselves and thereby reinforce their effectiveness as actors in the implementation of the suggested policy statements and strategies. NGOs promulgate a sense of common purpose on behalf of all sectors of society affected by the outcomes of the strategy. The amendments to the Namibian strategy require NGOs to lobby for democratic input of rural communities, who need to be mobilised and informed about their importance in national decision-making processes. In this perspective, they need to expand their operational field of formal and informal education, and public awareness (UNCED, 1992:387)

Because NGOs have the capability to evaluate and make recommendations to policy alternatives, they are also important in any system for monitoring and evaluation of the national strategy. In collaboration with the Government of Namibia, NGOs need to lobby for the coordination and implementation of national policies at the NGOs programme level of management (see Chapter 5). Their resources need to be used in the service of their own particular philosophy of development. However, NGOs efforts need also to be grounded in careful analysis of those public policies which can effectively rejuvenate or rehabilitate environmental decay society (Minear, 1984: 23).

### *Women's groups*

It has been argued in Chapter 5 that the position of women in resource management has been undermined in the past, and that their role in environmental policy-making and planning has been marginalised. It is necessary to allocate appropriate responsibilities which women need to accomplish in implementing an integrated national strategy for resource management in Namibia.

Women's organisations should be supported by government to diversify environmental policies which do not reflect women interests in their own settings. Women have a

shared responsibility as educators to establish environmental campaign groups which are effective in moulding the community's conceptual view of the environment. Women should also be aware of their role in this process and must consolidate their political leadership. Women should also be concerned with education (more than 60 per cent of rural Namibia are illiterate) and provision of information and motivation of the community to achieve general environmental health and family planning objectives (IUCN/UNEP/WWF, 1991).

### ***Business and industrial organisations***

Within the context of environmental protection, Namibian industries and business enterprises have both an economic and social responsibility. The economic responsibility is attributed to sustainable production and competition in national and international markets. On the other hand, the social responsibility counteracts competitive industrial activities which may endanger human health by resulting in environmental pollution in form of wastes and toxins.

Business and industrial organisations are nationally bound to apply sound environmental management practices and appropriate improved and tested technology. Priority should be given to environmental protective measures that have the highest ratio of community benefit to cost. Moreover, industry being an integral part of the community, should develop operations and products that are consistent with considerations of human health, property amenities and environment (Willums, 1990: 234).

Apart from environmental responsibilities associated with plant locations and design, harmful radiation, vibration and noise control, Namibian industries have to face a critical challenge regarding the harvesting of non-renewable resources. This should be supplemented by conservation advise to customers, environmental education to employees, research into the prevention of adverse environmental effects and exchange

of information on pollution abatement and conservation methods (Willums, 1990: 236).

An integrated national strategy will also need meaningful consultation and contact between industries and the Namibian Government. Because they are the central environmental operators, businesses and industries should provide input to the establishment of socioeconomic standards, legislation reforms, production emissions, and possible international obligations. In addition, businesses and industries should also incorporate into their programme the principles of sustainable management, and also the anticipated desires and possible proposals of the general community (Willums, 1990: 238).

### *Indigenous community*

It is the voluntary effort of the nation's 'common people' that must provide the energy and the markets to keep the process going (Minear, 1984: 29). The idea of the 'common people' begins with the identification of the responsibility of indigenous people in implementing the purpose of the strategy. Because indigenous communities form a necessary part of major groups for which development of each kind need to be geared, they must be stimulated and be charged with the duty of managing the destiny of their own resources. For this to be realised, villages, in which larger indigenous population live, have to be mobilised by establishing effective liaison between government and the indigenous Khuta (see Figure 5.3).

### *Farmers' organisations*

Peter Dorner affirms that the organising force in the development process is not provided solely by the investment plans, but by informed choice of farmers and their creative human energies are essential for any long-term development effort (Minear, 1984: 29). The presence of a well-motivated group of farmers belonging to farmer organisations should contribute to the implementation of the proposed national strategy by facilitating

the dissemination information and technical innovations which guarantee for environmental sustainability.

### *Youth organisations*

Children and youth organisation are destined to inherit the responsibility to caring for the earth. They also represent more than half of the population of Namibia. Therefore, national, regional and local youth conferences should act in harmony with the Ministry of Youth and Sports. They may influence and compile reports on resource and environmental status of Namibia. They should be empowered to submit recommendations about national measures to be taken in rehabilitating Namibia's current state of the environment. This can only be achieved if youth groups are motivated to take full participation in the country's resource and environmental debates. Task forces that include youth organisations should implement the national strategy by developing educational and awareness programmes at various levels of the government (Agenda 21, 1992: 377).

## **6.5. Implementation tools**

One of the problems associated with plan failures in the past, is the lack of appropriate implementation instruments. Many planners have devised good strategic plans, but such plans fail to achieve predicted purposes. The reason is simply because planners were reluctant to suggest tentative methods of implementation. In order to address this problem, a number of reliable implementation instruments are suggested with illustrations aimed at guiding implementors at national, regional and local levels of government.

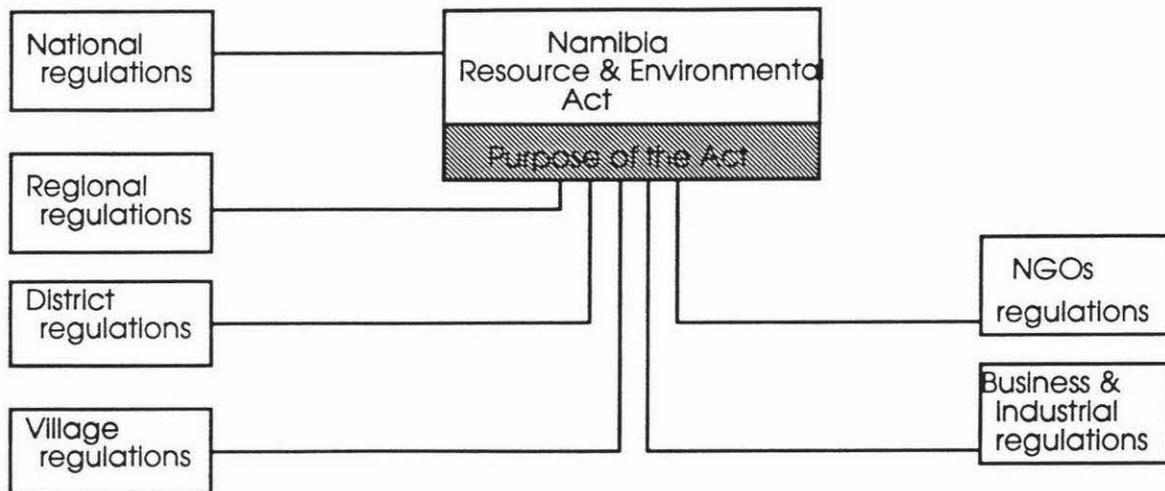
### ***Financial sources:***

There are three possible financial sources applicable to Namibia's implementation of the proposed strategic policy recommendations. These are the Government, international donor organisations and business and industrial organisations. It is the task of the Government of Namibia to apply fiscal policies that take into account the necessity to allocate funds for resource and environmental management. This is done by an increase in government expenditure *ceteris paribus*, or by increasing national income taxes at a reasonable rate that has a minimal impact on aggregate demand. International donor organisations can be influenced to support environmental programmes by providing an appropriate combination of grants and soft funds. Furthermore, businesses and industries should be mobilised to financially support particular environmental projects. They may even be encouraged to sponsor environmental research.

### ***Regulation enforcement/rules***

Environmental regulation should be diversified and be clearly stated to affect all sectors of the economy. A summary of regulations drawn from the NAREA should be compiled under supervision of the Minister of Conservation and be supported by the National Planning Commission. The summary of regulations should be distributed to all planning agencies free of charge. Resource and environmental regulations should be divided into national, regional, district and village levels of government. Although such regulations will need to be applied at different places by different authorities, they must be complementary and be reinforce the sustainable use of natural and physical resources. Figure 6.12 suggests that regulation enforcement should be applied at all levels of government.

Figure 6.12. Regulation enforcement



All regulation from national to village levels of management, including those regulations applicable to NGOs, business and industries, should be compatible with the provisions of the Namibia Resource and Environmental Act (NAREA). It is hoped that regulation across a diversity of management initiatives and capabilities would enhance effective implementation of the purpose of proposed integrated national strategy for resource and environmental management in Namibia.

***Economic instruments***

The IUCN/UNEP/WWF (1991), recommends that governments should use economic instruments to achieve sustainability. User and Polluter Pays principles need to be applied in the implementation of an integrated national strategy for resource management in Namibia. The first priority is to eliminate policies that have significant environmental costs or which encourage the depletion of resources and environmental degradation (Panayotou, 1991: 90). An integrated strategy can also benefit from establishing a link between resource scarcity and resource prices. This is critical to improving resource management and sustainable development. OECD (1991:94) provides a summary of conditions for effective use of economic instruments and other methods in environmental policy. These conditions are tabulated in table 6.6 below.

Table 6.6	Conditions related to economic instrument implementation
Methods	Key characteristics
<b>Knowledge</b>	# Of how economic activity affects the environment. # Of how changes in the environment affect economic activity . # Of how to formulate and implement incentive programmes. # Of how to respond appropriately to regulations.
<b>Legal Structure</b>	# Ensure clear and enforceable property rights in resources. # Provide legal authority to use economic instruments.
<b>Competitive Markets</b>	# Reasonable number of buyers and sellers. # Prices are responsive to changing conditions of resource scarcity.
<b>Administrative Capacity</b>	# Capacity to design and initiate economic incentive programme. # Capacity to monitor compliance with programmes. # Capacity to enforce compliance.
<b>Political Feasibility</b>	# Capacity to overcome potential resistance to economic incentive programmes. # Responsiveness to stockholders

Source: *OECD, 1993.*

When economic instruments are applied, it is necessary to ensure that their combination with rules do not affect the well-being of the people and the economy as a whole. More knowledge is needed on the impact of economic instruments. The enforcement of property rights through the application of legal frameworks should be implemented by ensuring outcomes do not suppress environmental quality nor reduce market productivity. For better results, market operations, administrative capacity and the political authority should be integrated by establishing common purpose actions gearing towards sustainable development of natural and physical resources.

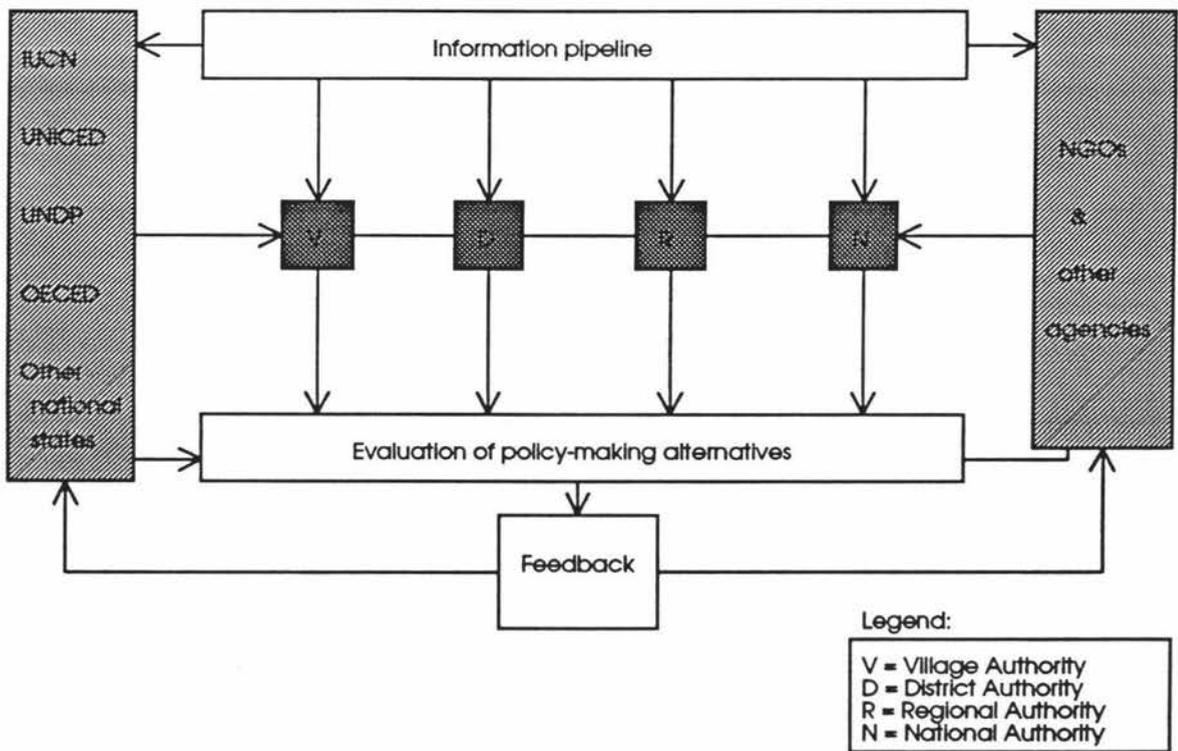
### ***Provision of information***

The collection and dissemination of appropriate information regarding the management of natural and physical resources by the populace is a leading factor in the redemption of the illiterate from human ignorance on resource management issues. It is a process of unlocking avenues for environmental dialogue between agencies and the 'consumer' community. Information building can be a fundamental instrument in the monitoring and evaluation of the performance of the strategy. In this regard it must be a national

instrument discernible from structural monopoly (Brown, 1992: 164). In other words, information should be freely provided and no cost need to be attached to its provision.

Information provision should be diversified to ensure nationwide implementation of the strategy. It must be disseminated across all sectoral operations and should follow a logical diffusion emanating from institutional dynamism to clan-communities and individuals. Figure 6.10 shows the integrated process of information provision.

Figure 6.13 Integral process of information provision



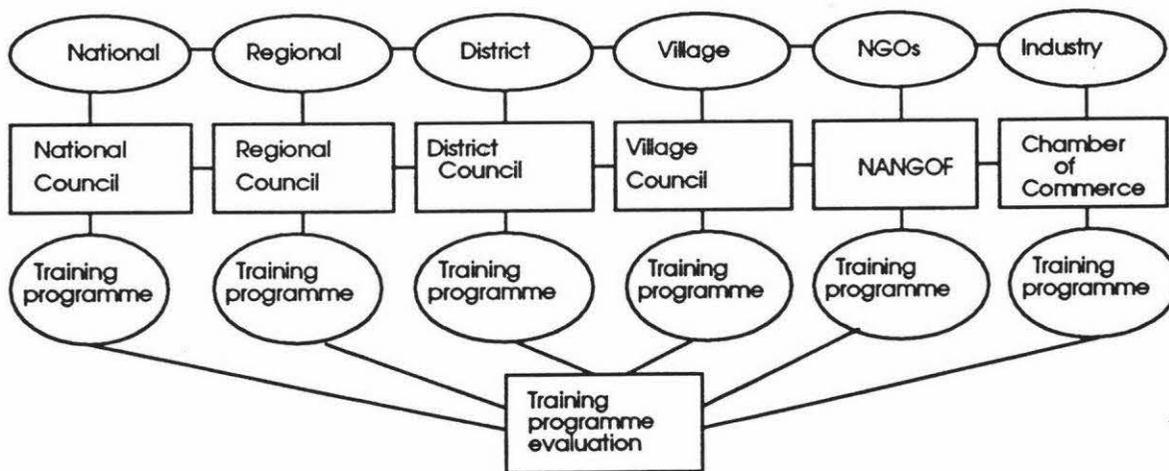
The above figure shows that information on environmental issues is received through the information pipeline and is integrally made communicable to communities, to authority levels of government and to NGOs. Once the information is digested, existing policy evaluation takes place, and possible policy alternatives are mutually decided upon by all action groups. In the case of particular decisions taken by authority structures, feedback

to communities and NGOs is provided for and comments are taken back into the information pipeline for review by Government. It will therefore be necessary for Namibia to apply this method when implementing the strategy.

**Human resources**

In any developing country, planning for sustainable development, the human resource development issue is fundamental to the transformation of policy into actions. It is therefore necessary to identify personnel development needs. Namibia needs to increase and expand its training programmes to accommodate graduate, postgraduate and post-doctoral, including technicians and engineers, lectures and scientists. Therefore, human development in regard to resource management need to be prioritised because strategies for environmental management will need to be improved first at the national level and then to the local level.

**Figure 6.14 | Resource management training programme**



It need to be stated that policies that tend to remedy major economic imbalances and incentive distortions and alleviate social and political constraints on environmental management can also have the multiple beneficial effect of appropriate implementation,

which ultimately impose modifications of planning skills (Todaro, 1989: 355). Figure 6.14 suggests that the development of human skills in resource management should be introduced by establishing formal or informal training programmes at all levels of the government. Figure 6.14 suggests also that training programmes need not be confined within government sectors, instead, NGOs, industries and other agencies should in collaboration with the government establish resource oriented training programmes in their own forums. The effectiveness of such programmes should be evaluated continuously by national government and appropriate reforms should be decided upon.

### **Monitoring**

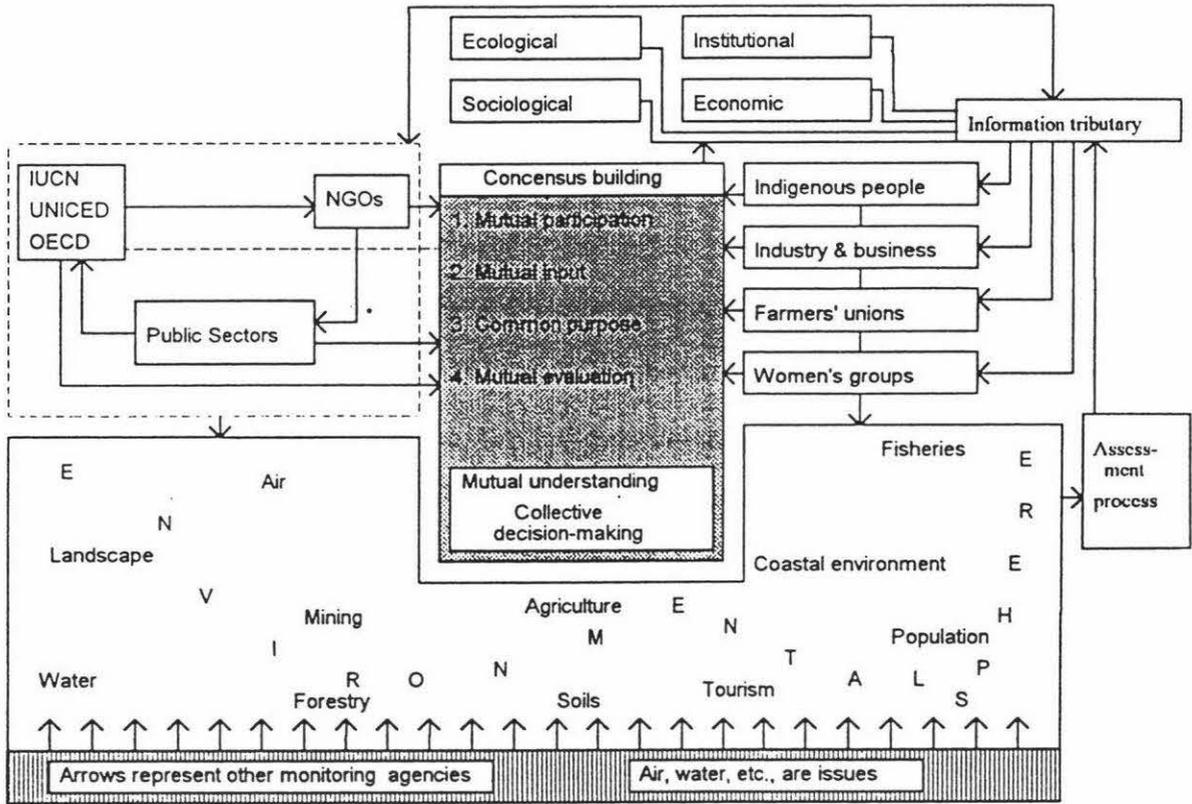
It has been suggested in elsewhere in this chapter that monitoring and evaluation are essential ingredients of planning to which attention should be given. Because planning is a cyclical process, these two components (monitoring and evaluation) of planning are often identified during the implementation of the plan, and are used mainly in administering the success of a strategy. Since evaluation has already been discussed in section 6.2, this section will discuss preconditions required to bring monitoring into an implementation perspective.

Monitoring refers to continued assessment and measuring progress in plan implementation (Conyers & Hills, 1986: 170). According to Figure 6.15, the process to implement integrated monitoring (suggested in Figure 6.10.) involves collective collection of information about what actually happens during the process of implementation. This is indicated by an information tributary in Figure 6.15. The main concern in monitoring is to find out how the inputs to the plan are being used, and how activities essential to implementation are proceeding. In this respect, Figure 6.15 suggests that information on ecological, sociological, institutional and economic indicators should be collected. Once information is collected, it need to be channelled through the information tributary so that other agencies (women, businesses, etc.) can

receive it and decide what to do prior to dialogical discussions and decision-making processes.

Figure 6.15 suggests that integrated monitoring should also be used for consensus building among planning agencies. Effective collaboration between international organisations such as IUCN, UNICED and OECD, with public sector and NGOs agencies is desirable to achieve competence in monitoring. Consensus building should be enhanced by mutual participation, mutual input, common purpose and mutual evaluation of those environmental issues affecting air, landscape, water, etc. Once mutual evaluation is completed, mutual understanding of outcomes supported by collective decision-making should be made. In Figure 6.15, it is also necessary to note that the environmental sphere represents the real world in which resource issues take place. Arrows pointing into the environmental sphere represents individuals, sectors and organisations engaged in resource and environmental monitoring. This can be a reliable approach to monitoring and can enhance environmental quality in Namibia.

Figure 6.15 Implementing integrated monitoring



Monitoring should therefore be seen as a continuous process and should provide information that assist planners to identify possible alternative actions required to make plan implementation a successful story. Collective inputs by agencies should be used to enhance coordination and cooperation necessary to eliminate bottlenecks affecting implementation.

### 6.7. Conclusion

This chapter has suggested alternative policy statements, plans and the manner in which they will make sustainable development a reality. These policies and strategic documents, as proposed in section 6.2, have also been backed by possible principles and

actions necessary for effective management of natural and physical resources of Namibia. An integrated critical path for sustainable management of resources is also proposed to give practitioners a reliable guidance in their everyday routine plan activities. In this regard, BET has been proposed to avoid delays that affect realisation of particular targets.

Although there has been significant changes and improvements in particular approaches such as consultation and monitoring, a wide range of issues concerning implementation, monitoring and evaluation of an integrated strategy for resource management have been discussed in this chapter. Perhaps the most important lesson which emerges from this chapter, is that plan implementation is a collaborative process requiring a diversity of inputs from different action groups. The chapter also shows also that effective implementation of national strategies is likely to be meaningful if each action group is assigned with responsibility to carry out a particular task. Since implementation of plans is always affected by inappropriate choice of management instruments, helpful tools to improve implementation of plans in Namibia are provided. It has also been shown that planning is a cyclical process requiring consecutive monitoring and evaluation of outcomes. At this juncture, it is now possible to put into practice the policies and actions suggested in this study.

## CHAPTER SEVEN

### CONCLUSION

#### 7.1. Concluding remarks

This study initially began with the decision to develop *An Integrated National Strategy for Resource and Environmental Management in Post-Apartheid Namibia*. This required an understanding of the manner in which the natural and physical resources of Namibia were being managed by colonial governments prior to independence, and how such management has subsequently affected sustainable development of the country's resources. However, both German and South African colonial governments have modernised the infrastructure of Namibia. For instance, Namibia's internal and external road network system is one of the best in Africa, and is one most preferred by foreign tourists (The Europa World Year Book, 1992). Colonial governments have also set-up Namibia's baseline industrial operations such as small-scale manufacturing and repair activities. Establishment of such infrastructure provides an important opportunity for future economic growth and sustainable development in Namibia, and should not be overlooked.

However, German and South African policies have mainly evolved to suit the interests of colonial governments. Very little attention, if any, was given to the protection of natural and physical resources of Namibia (as demonstrated in chapter 3). Neither were the indigenous people made aware of the impact of environmental degradation on their social well-being and on the country's economy over the long-term. This study shows that one major adverse effect of colonial leadership has been the displacement of indigenous people from their land. Apart from the practice of land theft, colonial authorities resorted to over-exportation of Namibian natural resources for their own gain (see Chapter 2 for details, and Appendix II for data showing illegal exportation of merchandise goods from 1950-1988).

The existing political structure of Namibia is a reliable foundation on which future changes in national development objectives and policies should be based. In the last five years, the Namibian Government has embarked on strategic programs aimed at improving the quality of life and environmental care across the country. This is demonstrated by efforts to prepare major documents such as Namibia's Transitional National Development Plan (1991-1994), Namibia's Green Plan (1992) and the White Paper on National and Sectoral Policies. The integrated national strategy for resource and environmental management has been suggested to complement current development efforts being pursued by government. The most serious issues discussed in Chapters 2 and 3 are that over-exploitation of natural and physical resources in Namibia has not been fully addressed by national policies to date.

At the moment, the maintenance of natural and physical resources is critical to our advocated notion of sustainable development in Namibia. Chapter 3 shows that sectoral activities adversely affect the maintenance of environmental quality in all parts of the country where development is being pursued. For example, the impacts of mining operations on landscapes, irrigation activities on water quality and overgrazing on soil quality are highly detrimental to progressive development. The study also notes that population increase in proportion to Namibia's real GDP, coupled with a lack of environmental awareness will continue to undermine preferred living standards of the Namibian people (compared to people in other African states).

To address priority issues dealt with in Tables 3.9-13, Chapter 4 offers ideas and theoretical concepts to guide planners and policy makers on how natural resource issues could be managed to achieve sustainability. It is noted in Chapter 4 that there are no short-cuts to sustainable development. Long-term processes, which require unity of popular support, need to be taken. Namibia needs to be united because the use of resources is interwoven with people's lives. Therefore, all people, regardless of their economic status are responsible and accountable for their activities on the environment. It is hoped adverse environmental effects

identified in Chapters 2 and 3 can be rehabilitated and avoided as long as theoretical requirements for an integrated national strategy are incorporated in national resource management strategies. In this respect, Chapter 4 concludes with recommendations for the role of individual agencies in dealing with different resource issues (see Tables 4.1-7). As this study shows, most of the issues raised in respect to resource management require an integrated approach to achieve desired objectives. For instance, water is used by all sectors of the economy. Therefore, the water resource needs to be considered as an intersectoral commodity requiring management across many sectors of production. Biodiversity which includes microbial earthworks depends also on water to contribute to soil quality. The theoretical context for resource management stipulates that sustainable management is a joint effort requiring interdependency and collaboration of initiatives and capabilities across all sectors of development.

The evaluation of current Namibian strategies and practices in resource management is based on the criteria derived from Chapter 4 incorporating recommendations of the IUCN/UNEP/WWF (1991) strategy, and Agenda 21. Namibia is doing its best to achieve sustainable management of natural and physical resources but this cannot be achieved overnight. There are still serious limitations to be resolved, especially in regulation enforcement, participation and collaboration of groups, monitoring, efficiency in policy-making, and plan preparation (note limitations shown by house-keeping in Table 5.1). According to Sikabongo's survey (1993/94), lack of environmental awareness is still a serious issue affecting sustainable management of natural resources among indigenous communities of Namibia. At the moment the Namibian strategy has not yet taken a significant step to address lack of environmental awareness.

It is noted that the current absence of policy statements and plans at the local level of government, including inappropriate consultation (stated also in Namibia's Green Plan 1992), is detrimental to integration which would result from effective collaboration of national

government operations and NGOs agencies. This study shows that devolution of authority in respect to planning is severely compromised in the absence of that collaboration and consultation. The Namibian Government's endeavour to introduce regional planning at the local level of governance is an important step towards effective decentralisation and planning in a spatial environmental sphere. However, regional scanning and scenario evaluation are still at an infant stage and more research into how regional structures would result in more effective implementation tools being developed at sub-national levels. The study also identifies (in Chapter 5) the problems faced by national ministries and departments in developing significant resource management techniques reliable enough to achieve sustainability over the long-term.

Namibia's National Planning Commission is currently burdened with national, regional and district and village planning. This approach to planning in a democratic environment is inappropriate because it is assumed that all regions are the same and have similar spatial characteristics for development. In this context, the extent to which village planning is incorporated in national planning policies is open for debate. The mere fact that Namibia's regions are demarcated according to geographical factors has much to say in respect to planning across regions, districts and villages. Since the gap between environmental management at the village level and that taking place at the national level is much wider, some kind of 'gap-filling' by integration at a regional level needs to be encouraged. The critical evaluation of the Namibian strategy for resource management is concluded with Table 5.3 which provides a summary of limitations identified.

Having noted the need for planning at all levels by government and NGOs, especially in respect to conservation of natural and physical resources, recommendations for an effective integrated national strategy are suggested in Chapter 6. Chapter 6 suggests that planning in Namibia should begin with the establishment of an appropriate resource management structure. Such a structure should provide a clear and consistent links between government

departments and NGOs. This link should enhance appropriate collaboration between village, district, regional and national authorities (note Figure 6.1). It also suggests that future development needs of the Namibian society would only be realised if strategies are pursued in consultation with village authorities. There should also be village strategies in which indigenous people in rural areas have greater freedom to express their own suggestions about issues affecting their sphere of management.

In order to address inconsistencies in plan preparation across levels of management, the introduction of Namibia Resource and Environmental Management Act (NAREA) is suggested to pioneer Namibia's current path towards sustainable development. The NAREA is required to guide the preparation of local, regional and national policy statements and plans for resource management. Namibia has recently received a grant of about N\$2 million from the Norwegian government which will be used to draft the new legislation on environmental protection (Motinga, 1994). This grant will only be efficiently utilised if the preparation of such legislation is not to be confined within the Ministry for the Environment. It should be a national legislation with profound influence across levels of management.

It is suggested in Chapter 6 that the devolution of authority should be prioritised. This should take into account the role of the local authority in strategic planning. In this regard, it is believed that executive powers concerning local plan preparation, monitoring and implementation should be devolved to regional, district and village councils. Planners concerned about spatial needs of species need to be more cautious about the process involved in adopting both decentralisation and devolution. This problem highlights the need for NAREA to clarify existing dilemmas in planning. Decentralisation and devolution are two distinctive steps to democratisation of planning. Decentralisation of authority can be achieved in a short-term, but devolution is a gradual aspect determined by the degree of institutional capability at the local level, which may vary across Namibian regions.

It is hoped that policies, principles, actions and methods suggested in this thesis would provide part of the basis for change at the national level of government by creating more effective links with NGOs and local government, to achieve greater efficiency in resource management. Effective strategic planning in Namibia will also require further analyses of priorities to change institutionalised attitudes of the past. Commitment by all involved becomes a national concern to confront resource and environmental issues caused by inappropriate sectoral and other activities. Integration in planning for sustainable development in Namibia will need the development of a multi-level government structure in which planning for the future can occur.

## **7.2. Suggested areas for further research**

The limitations of this study and the complexity of problems facing Namibia mean that some issues have not been dealt with adequately here. Therefore, a number of further research areas can be identified because of their interest and importance to Namibia's progress towards sustainable development of natural and physical resources.

The application of the BET technique needs to be developed further. In this study, the timing of each activity and priorities were derived from other studies. Further research is needed about the timing of projects and priorities in Namibia, especially when using BET as a monitoring strategy. BET can also be helpful in assessing the effectiveness of policies. More importantly, research is also needed to demonstrate how BET may be applied in the area of environmental impact assessment. It is relatively easy to record environmental scenarios on the Ganhti Chart in the BET process, but future research needs to focus on how the BET process will function as a supplementary process in developing the state of the environmental geographical information systems (GIS) inventories.

Since regional planning in Namibia is a recent phenomena, many Namibians do not understand the extent to which regional development planning can contribute to improving national economic development planning. At the moment, some planners, especially those involved in spatial planning (for example, environmental planning), have difficulties in distinguishing the clear cut distinction between regional planning and national planning. Further research in this area should investigate possible means by which sub-national levels of planning in Namibia would effectively interpret and communicate national policies to local people in rural areas of Namibia. Sikabongo's survey (see appendix I) highlights the lack of understanding about planning, but little has been done to improve the current low level of environmental awareness in Namibia. In order to meet requirements for sustainable development suggested to national governments by IUCN/UNEP/WWF (1991) strategy, Action 22 in Table 5.1, requires the Namibian Government to ensure that national strategies for sustainability are motivating, educative and informative. This would be achieved if the government would be willing to commit itself to funding regional environmental research and development programmes for sustainability.

Another priority area of research is to provide guidance to business and industry in developing monitoring strategies which enable better targeting of policies to deal with pollution. This research should highlight the impact of water and air pollution on ecosystems and on the well-being of indigenous communities and their traditional lifestyles. This type of research could also be used to improve environmental education in Namibia and show how better education would benefit Namibians.

It is important to understand macro-economic implications of resource depletion in Southern Africa, especially in Namibia. A resource multiplier evaluation need to be undertaken at both national and regional levels of government. The Ricardian model in Chapter 4 indicates important general impacts of resource depletion in the economy. Additionally, the macro-economic multiplier effect the on gross national product is also theoretically generalised.

Research in this area should inform the Government of Namibia how environmental degradation is detrimental to the healing of the Gross National Product. For effective results, this research will need effective evaluation of the multiplier effect on various sectors of the economy. This may require an input-output modelling scenario.

The indigenous people of Namibia have suffered directly during two major episodes of colonial suppression and are clearly aware of the historical foundation of their motherland. Current environmental problems confronting modern planners have a historical record which can only be explained by indigenous people. Prior to European intervention in Namibia, traditional technology in respect to herbal medicine and environmental protection were a source of survival. Traditional practices include appropriate and careful use of fire so that reliable natural herbs are not destroyed. Research in this instance should investigate possible means by which indigenous traditional technology can contribute to effective management of natural resources. In a new democracy like Namibia, it is essential for the people to be consulted in matters concerning their lives. Research is needed to identify effective consultation procedures, including the type of people to be consulted in relation to each level of planning, and the process of consultation to be followed.

This study has been unable to deal in depth with the problems associated with the lack of available water in Namibia. This is a serious problem affecting development prospects in Namibia. In the natural arid environments, water shortages are exacerbated by the lack of integrated monitoring strategies for water management, causing wide spread abuse of this precious resource without accountability. An integrated water management strategy would be a more reliable tool to ensure that users are accountable for negligence and ineffective use of water. At the moment the management of water is singled out to be a responsibility for the Department of Water Affairs while water-use and responsibility for monitoring by other sectors is neglected by a number of government departments.

The extent to which tourism development can contribute to economic development in Namibia depends on the quality of the natural environment and the industry's ability to attract foreign capital. A tourism strategy would need to take into account the rehabilitation of the natural environments where most tourism activities take place. There is also need for integrating a national tourism strategy with other sectoral planning to allow full participation of local communities who live in the areas popular for tourism activities. Research in this area would assist Namibia in understanding the importance of good environmental quality in natural areas and the need to change inappropriate behaviour.

The participation of women in the environmental planning profession and in other professions is a recent phenomenon in Namibia. The planning profession is currently dominated by males. Women have generally accepted traditional divisions of labour which do not allow them to carry out planning related jobs. But women have since time immemorial been engaged in environmental management issues and are much aware of the possible solutions confronting planning in Namibia today. Research is needed to identify ways of achieving greater formal participation of women in environmental management.

Chapter 2 has shown that Namibia is one of the countries of Southern Africa with a very low level of human development. This issue has been taken further in Chapter 5, and it is noted that lack of skilled labour force (especially in resource and environmental management) is the major problem hindering the devolution of planning to local levels of government. Research on human development would need to focus on the means by which government can develop an appropriate human development investment policy. It is hoped that by investing in human development, Namibia's current level of local government (which is without local plans and policy statements) would eventually be able to administer local resources in a sustainable manner.

Furthermore, development planning in Southern Africa is affected by segregated development processes underpinning strategic planning. Many of the existing strategies are still being implemented according to the Marshall Plan orthodoxy. Although, the Marshall's plan is important for planners, Southern Africa needs a post-Marshall plan which is not aimed at suppressing the other national economies in Africa, but rather at stimulating economic development of every part of Africa. This can only be achieved if Southern Africa also becomes committed to effective sustainable management of natural and physical resources. Collaboration with individual countries would need an integrated international strategic guidance and analyses of issues affecting regional resource development in Southern Africa. Further research is needed to understand the types of collaboration required to maximise economic growth and development in both Namibia and the rest of Southern Africa.

## Appendix I

### *The survey questionnaire (18 November 1993 - 14 February 1994)*

#### **Introduction**

A general survey on economic development indicators and environmental awareness was conducted from 18 November 1993 - 14 February 1994 in Lewis and Piggery compounds, the two major squatter settlement areas within the borders of Katima Mulilo in Caprivi Region. A representative sample of 210 respondents was interviewed (see attached data and command files). Since it was hard to draw a general national agenda on people's preferential to migrate to cities, it became conducive that a fractional survey of this nature could likely serve as a point of departure or even as a mirror through which tentative hypotheses could be crowned the status of solid facts. It is therefore Necessary to outline the purpose, objectives, methods used to conduct the survey and the results of this survey.

#### **Purpose of the survey**

First, the survey was meant to trace reasons why many people in the rural areas of Namibia have decided to migrate to urban areas where congestion in squatter settlements of small towns and cities has already exceeded the carrying capacity. In this regard, the role of environmental factors in influencing migration tendencies is closely examined. Furthermore, it is considered important to analyze environmental impacts of congestion in the two major squatter settlement surveyed. Findings from these areas are applicable to be used in understanding the current state of the environment in all the 13 regions of Namibia, and this should be seen as a focal point on which national planning engineering hinges.

Second, the survey was also intended to examine the extent of people participation in resource and environmental management decisions. In this case, the role of planners in society was questioned, and it was the task of the respondent to reveal his/her relationship with the official planning department in the region.

#### **Methodological progression of the survey questionnaire**

It need to be mentioned here that the two squatter settlements are composed by both literate and illiterate residents. Even among the literate, many of them could not have responded to the questionnaire if it was to be saved though the post method. Interpersonal communication though the unfolding of dialogue with re respondents was found to be a reliable method. Personal contacts with the respondents proved to provide opportunity for a large number of participants, literate or non-literate.

*Structure of the questionnaire:* A structured questionnaire was chosen. Personal contacts with the respondents was mainly meant to serve the purpose of clarifying questions which could likely have biased the results. The questionnaire had the following options for the respondent: sex, age, marital status, highest qualification, employment status, business activity, and major reason for squatting. The maximum time of each interview was 5 minutes. This was more acceptable to respondents as most of them happen to be very busy. Steps stated below were followed:

*Type of questions and purpose of each:* All questions are open ended. This allowed respondents to express their views as broadly as possible. The questions are as follows:

#### *1. Sex variable?*

Purpose: The purpose of the sex variable was to show which of the two sexes, male and female, is severely affected by environmental degradation, and the manner in which environmental concerns of such sex group can be included in planning.

#### *2. How old are you?*

Purpose: To identify age groups associated with environmental destruction, assess reasons of the cause, and devise appropriate methods to resolve possible problems.

3. *Are you married?*

**Purpose:** To identify social status of people living in the most environmentally degraded areas of the country, and also to provide supportive evidence about the impact of resource depletion on human development.

4. *What is your highest qualification?*

**Purpose:** To identify the education level of squatter settlers, and relate findings to environmental awareness or unawareness variables. Since employment and education are related, this question examines how the unemployed or the less qualified turn toward environmental abuse.

5. Environmental awareness/unawareness questions:

5.1. *Are you aware of any environmental policy in Namibia?*

5.2. *What is the role of planners in society?*

5.3. *Have you ever been contacted by a planner?*

5.4. *Do you know your rights in protecting the environment?*

5.5. *Have you ever participated in environmental issues?*

**Purpose:** To determine environmental awareness and people's participation in environmental issues. The three questions were treated as one question. For instance, if the respondent is aware of at least one environmental policy, or is aware of the role of planners in society, or was in contact with an environmental planner, then such a respondent is environmentally aware. But any negative response to all three questions is an indication that the respondent is environmentally unaware.

6. *How do you earn your living?*

**Purpose:** This question was aimed at providing evidence as to whether the respondent was employed by the government, by a company, self-employed, or was totally unemployed. The type of commercial or non-commercial activity was analytically to be related to its influence on environmental abuse. The question was also to show the existing close relationship between environmental issues and economics.

7. *Why do you prefer to live in this location?*

**Purpose:** To identify reasons which influence squatting preferential and relate such reasons to the cause and effect of environmental degradation in Namibia's rural areas.

**Sampling type used:** The sample of 210 respondents was randomly drawn. Random sampling is reliable because a detailed knowledge of the population is not required; external validity may be statistically inferred; a representative group is easily obtainable; and the possibility of classification error is eliminated (Dominick & Wimmer 1983:68).

**Survey checklist:** The purpose of the checklist was to analyze the validity of the questionnaire. This contained 10 questions which directly addressed the layout and conduct of the questionnaire. The checklist was drawn from Leedy (1980)'s analytical method and goes as follows:

1. Is the central purpose of the questionnaire clearly stated?
2. Are questions clearly stated?
3. Is the survey evidence properly organised?
4. Are hypothetical questions properly stated?
5. Are hypothetical questions related to the major question?
6. Is the research method clearly structured?
7. Where is the data to be collected?
8. What should be done with the data?
9. Is there any related literature by other researchers?
10. Will the conclusion of the survey be justified by the facts?

**Tools used to analyse data:** The for statistical packages used in computing data are:

(i) SPSS: This statistical package was used to compute the 210 respondents. In this case two files were prepared. One was a data file and the other a command file. In order to execute the data, SPSS package was instructed to execute the data file by applying the command file.

(ii) Minitab: Minitab package was used to regress the variation in population consumption. 10 family units with 2 - 11 families each were used as hypothetical representative sample. Each family unit was classified as an independent variable, and the number of loaves of bread demanded per day was classified as a dependent variable. Minitab was ordered to draw the histogram of families versus loaves of bread, and also to plot the scatter diagram of family unit versus bread demand.

(iii) Quattropro: Was used constructing tables and also for the arrangement of data prior to regression by Minitab and execution by SPSS. This package was also used for generating economic graphs in Chapter 2 of the thesis.

(IV) Word for windows 2c and 6c, and Word Perfect 5.1: These computer packages are word processors and were used to convey research results into words. Word for windows 6c was also used for economic graphics generation and table construction.

### Interpretation and discussion of results

Table IA. Rate of response

Sex by respondent	Frequency	Percentage
Female	128	61.0
Male	82	39.0
Total	210	100.0

**Responsiveness:** About 210 respondents were interviewed. 82 out of 210 respondents were males and 128 of the total were females. The number of female respondents accounted 61% while responses received from males was only 39% of the entire interview. This indicates that many of the squatter residents are females.

Table IB. Marital status

Age	Frequency	%	Marital	Frequency	%
>25	58	27.6	Married	48	22.9
<25	152	72.4	Unmarried	162	77.1
Total	210	100.0	Total	210	100.0

**Age:** 58 respondents were under 26 years of age. 152 of the total were all above 25 years. Expressed in percentiles, this could mean that the survey was composed of 27.6% above 25, and 72.4% above 25 years. It means here that squatting is dominated by the most economically active age group in the country. Since these people contribute little, if any, to the economy of the country, the impact is likely to be a fall in the GNP output level.

**Marital status:** Many of those who are affected by environmental degradation and poverty in the squatter settlements are unmarried. This does not mean that most of the married are economically well off, but rather that negative impacts of the degraded environment has created separation among families. The cause of high divorce rates and cultural alienation is also due to degraded resources of the country which prevents some people to afford families.

If the situation is not properly addressed the standard of life in Namibia will be embarrassing in twenty years now. The best example of the impact of a degraded environment is the drought strike of 1991/92 which left both domestic and wildlife in ruin. It is therefore a risk of Namibia's future when the environment is being sacrificed for current needs without reservations.

Table IC. Environmental awareness and education level

Education Level	Frequency	Percentage	Un/Awareness rate
Grade 7	58	27.6	22.9 Un v 30.7 Aw
Grade 10	111	52.9	51.8 Un v 53.5 Aw
Grade 12+>	41	19.5	25.3 Un v 15.7 Aw
Total	210	100.0	39.5 Un v 60.5 Aw

**Education level:** The highest qualification among squatter residents was found to be grade 12 with only 19.5% as compared to grade 10 with 52.9% and grade 7 with 27.6%. Environmental unawareness was noted to be very high in all grades, recording 60.5% as compared to 39.5% awareness of all grades combined. The insignificant difference in awareness among various grades indicates that unawareness is not only an issue of the less qualified but a national issue affecting everyone in the country.

**Table ID. Awareness assessment**

Management indicators	Awareness	Unawareness	Total %
Environmental policy	39.5	60.5	100.0
Planner's role	39.5	60.5	100.0
People consultation	39.5	60.5	100.0
Management rights	39.5	60.5	100.0
People participation	39.5	60.5	100.0

**Environmental awareness:** In this area of the questionnaire, five sub-questions were asked, and any positive response to one of them was to be recorded as awareness. However, 60.5% as compared to 39.5% unawareness indicated that out of 210 respondents 127 were:

- (a) Not aware of any environmental policy in Namibia;
- (b) Not aware of the role of planners in society;
- (c) Never in contact with a planner;
- (d) Not aware of their rights in resource management; and
- (e) Never given the opportunity to participate in environmental decision making processes.

These responses indicates that there is a wide gap between planners and the indigenous people of Namibia. When the average majority of the population is not aware of its rights in respect to resource management, then the idea of an integrated approach to resource planning is outside the scope of the country's plan frameworks, or if it happens to be inclusive then it has never been implemented, or if it was implemented, it should have been so without the people.

Because there are no qualified environmental planners in most regions of Namibia, inefficiencies in resource planning and management will always result in unsustainable development with major adverse effects on people and their natural and physical resources. The impact will be a rip of gross costs.

Some of the respondents argued: 'Who am I to be consulted by planners?' 'It is not necessary to contact me because I don't know English?' 'We only know that when you kill an elephant you can be arrested but we don't know why, because that thing is a special meat. You can also become rich when you sell the horns. I think the government does not want us to be rich but to suffer like this'.

**Activity/occupation:** 27.1% was employed in either government or private institutions, 39.5% was self-employed and 33.3% was unemployed. Most of the unemployed were somehow involved in black market activities. They were comfortable in answering, saying that they depend on other families for a living. The impact of unemployment implicitly means that more pressure is placed on the environment, especially in search for food and firewood.. This was shown by severe destruction of the indigenous forest in both Lewis and Piggery compounds.

It is also important to mention the shabby style of buildings in towns. During my travels, to complete the survey, I noticed that towns seem to be poorly maintained. Many of the government houses lack electricity and have a lower carrying capacity compared to some houses/huts built from a traditional setting. Lack of electricity force people to supply their own light based on the destruction of nature for firewood purposes. Extensions to government houses are illegally made by using 'mud and poles' obtained from environmental plunder. It is not surprising why the state of the environment is likely to resemble that of the Namib desert during dry seasons.

Additionally, the overwhelming need for housing has extremely contributed to environmental abuse by squatters. Government commissioned bull-dozers have uprooted all trees which were behind, and also between Lewis Compound and Ngweze Secondary school. Those who are pursuing this fatal development are not even aware that the destruction of the forest between Mavuluma and further

Piggery Compound has displaced, our rabbits, snakes, birds of a wide variety, and also the region's typical wildlife which used to enjoy refuge in those beautiful bushes. Today it is a sports field.

*Reasons associated with squatting preferential:* Four reasons were associated with squatting preferential. Reason 1 which was dominated by an economic motive scored 45.7 percent. The third reason which scored 25.2 percent was given by those who argue that they had a need for accommodation which they could not find in town. Those who fall under reason three which scored 2.9 percent chose to go into the squatter just to join their families who are already there. The fourth reason with 26.2 percent score was given by those who came to seek jobs but have now turned to be permanent squatter settlers.

Many of the respondents who chose business, or job-seeking as their reason for squatting are business dealers who are self-employed. Most of them specialise in making traditional beer while others are shebeen experts who buy and sell by running underground transactions without licence. Since the majority of these people live under 'absolute poverty', their only choice is to harvest the existing indigenous forest mainly for tombo (traditional beer), which consumes hips of wood than any other traditionally consumable food in Southern Africa. The above reasons supports also the fact life in the rural area is no longer reliable. As a result, environmental degradation in many remote areas is pushing people into the cities for a living. So, the relationship between economics and the need for the environment is hereby unfolded.

The current 3 percent population growth is threatening the recovery of the environment in future. Among those interviewed, 33 squatter families were asked to state the total number of loaves of bread they could consume per day. This was done to show the relationship between population growth and environmental degradation (see Table 3.3 of Chapter 3).

#### **Summary of the questionnaire results**

Lack of community participation in environmental management is a major problem affecting integration. Unawareness and lack of information are found to be the major factors causing environmental degradation in Namibia. Many of those interviewed showed are not aware of the negative impact of environmental degradation and resource depletion on the economy, their lives or on the future of their children. Some are even not aware that environmental degradation is taking place. Assessments of the implications of unawareness shows also that the gap between planners and the society they plan for is so wide that planners do not necessarily meet the demands of society. At the same time, the society does not understand the role of planners in community development. As a result, implementation of national policies is seriously distorted by lack of integration. It is therefore recommended that the government need to immediately install national action programmes for environmental awareness which will be coordinated by village, district and regional environmental liaison officers. At the village level, villagers (preferably indunas) should be empowered and resourced so that the gospel of environmental awareness become successfully rooted in society.

Data file of the survey questionnaire

1F24G1062B21	043M24G1061G22	085F24G0751G22	127M23G1051G22	169M13G1253G34
2F14G0761G21	044F24G0763G34	086M23G1252B21	128F14G1263G34	170F14G1251G22
3F14G1052B21	045F24G1251G22	087M23G1062B21	129M24G1062B21	171F24G0762B21
4M23G1062B21	046M24G1062B21	088F14G1062B22	130M24G1062B21	172M13G1063G32
5F23G1051G22	047M23G1062B21	089F24G0761G22	131F24G1061G22	173F24G1063G34
6M24G0751G22	048M23G1262B21	090F14G1061G22	132M14G1063G34	174F24G1063G34
7M14G1062B21	049F24G1253G34	091M24G1263G34	133F14G0762B21	175F24G0762B21
8F14G1063G32	050F13G1051G22	092F14G0761G22	134M23G1262B21	176M23G0752B21
9F14G1061G21	051M24G1063G34	093F24G1052B21	135M23G0762B21	177F24G0762B21
0F13G1063G33	052F14G1063G34	094M24G0763G34	136F24G1062B21	178M24G1062B21
1M23G1061G21	053F14G1053G34	095F24G1061G22	137F24G1063G34	179F24G0762B21
2F24G1061G21	054F24G0762B21	096F23G1053G33	138F24G1051G21	180F24G1252B21
3M24G0761G22	055F24G0762B21	097M23G1063G34	139F24G1263G34	181M14G1251G22
4F24G1061G22	056M24G1062B21	098M24G0763G34	140M23G1051G21	182M14G1063G32
5M24G1061G21	057F14G0761G22	099F24G0761G22	141F23G0753G34	183F24G1053G34
6M24G1061G22	058F14G1261G22	100M14G0751G22	142M24G1062B21	184M23G1062B21
7F24G1062B22	059F13G0762B21	101M24G0751G22	143F24G1063G33	185F24G1253G34
8F14G0761G21	060F24G1052B21	102F14G1253G34	144F14G0753G34	186M24G1253G34
9F23G0762B22	061M24G1251G22	103F24G1053G34	145M23G0751G22	187M24G1062B21
0F14G1052B21	062F24G0763G34	104F13G0751G22	146M14G1062B21	188F13G1052B21
1M14G0761G21	063M24G1053G34	105F24G0763G34	147F24G1251G22	189M24G0763G34
2F14G1052B21	064M14G1252B21	106M24G1063G34	148M14G1252B21	190F24G0762B21
3M24G1063G31	065F24G1053G31	107F23G0751G22	149F13G1052B21	191M24G1252B21
4F13G1263G33	066F24G1053G31	108F24G1061G22	150F24G0761G22	192F24G1051G22
5F14G1053G33	067F23G1062B21	109M24G1261G22	151F24G1053G34	193F14G1252B21
6M24G1061G21	068F24G1052B21	110M14G1051G22	152F23G1063G34	194F24G1063G34
7F14G1063G34	069F24G1052B21	111F13G1063G33	153F24G1063G34	195M23G1053G34
8M14G1261G22	070M24G0753G34	112F24G0763G34	154F24G0753G34	196F24G0753G34
9F14G1263G34	071M24G0753G34	113F24G1262B21	155M24G1051G22	197F24G1263G34
0F24G1063G34	072F24G0762B21	114F24G1252B21	156M24G1051G22	198M23G1053G34
1F24G0762B21	073M23G1062B21	115M24G0762B21	157M14G1052B21	199F23G1061G22
2F24G1052B21	074M23G0762B21	116F23G1062B21	158F14G0763G32	200F24G1252B21
3F24G1053G34	075M24G1052B21	117M13G0762B21	159F23G1061G21	201M24G0762B21
4M24G1051G32	076F24G1062B21	118M23G1263G34	160F23G0752B21	202F24G0753G34
5M24G1261G22	077F24G1262B21	119F14G1261G22	161F23G0751G22	203F24G1061G22
6M23G0762B21	078F24G1051G21	120F14G1253G34	162F24G1063G34	204F24G0753G34
7F24G1062B21	079M24G1262B21	121M14G1263G34	163F14G1062B21	205M13G1053G32
8F23G1252B21	080M24G1062B21	122F24G1263G34	164M14G1063G34	206F24G1262B21
9F23G0762B21	081M24G1062B21	123F14G0751G22	165M24G1062B21	207M24G1063G34
0M24G1062B21	082F24G1052B21	124M24G0762B21	166F24G1062B21	208M13G1053G32
1M24G1053G34	083F24G1052B21	125F14G0762B21	167F14G1051G21	209F24G1251G22
2F14G1051G22	084F24G1052B21	126F24G1062B21	168F23G0762B21	210F24G1063G34

*The above discussion of the survey questionnaire was generated from this data which represents 210 respondents, and was computed by application of a statistical package SPSS which was instructed to execute comment file SPS.LST in which overall codes of variables existed in syllables legible to SPSS linguistics. The data provides all information discussed in the questionnaire above and is provided here as supportive evidence to the reality of environmental degradation in Namibia..*

## Appendix II

### Economic Aspects

Table IIA Colonial economic implications

Year	Red Meat	Karakul Pelts	Other	Unpro- cessed fish	Diamonds	Other Minerals	All manu- factured products	Other products	Total Exports
1950	5.2	8.7	0.9	0	12.9	9.1	2.9	1.5	41.2
1951	10.7	9.2	1.9	0	18.6	14.6	4.1	1.8	60.9
1952	7.0	9.4	1.3	0.1	23.4	21.0	3.4	2.1	67.7
1953	4.3	8.8	0.8	0.1	23.2	19.9	2.8	1.4	61.3
1954	9.4	8.1	1.7	0.2	26.2	20.8	4.0	1.8	72.2
1955	10.5	9.8	2.2	0.3	33.1	26.4	4.6	1.9	88.8
1956	11.4	10.0	2.2	0.6	38.6	34.1	4.6	1.6	103.1
1957	13.0	9.6	1.9	1.1	37.1	27.4	4.6	1.8	96.5
1958	14.7	9.0	1.9	2.1	30.6	20.4	4.8	1.6	85.1
1959	15.4	8.4	1.5	2.7	33.7	20.1	5.5	1.3	88.6
1960	15.3	8.3	1.7	3.4	34.2	17.6	6.5	1.0	88.0
1961	12.4	9.0	1.8	3.9	39.4	17.8	6.9	0.5	91.8
1962	9.7	11.1	1.7	4.4	37.2	17.8	8.8	1.6	92.3
1963	15.2	13.4	2.0	5.0	48.1	21.1	9.7	3.8	118.3
1964	15.6	12.6	2.1	5.5	66.4	32.9	11.4	4.6	151.1
1965	17.0	13.5	2.2	6.1	74.4	44.3	14.3	2.7	174.5
1966	14.3	14.9	2.2	6.4	93.5	45.6	16.2	5.7	198.8
1967	23.0	14.7	2.1	9.5	102.3	42.6	11.2	2.7	208.1
1968	25.2	16.5	2.2	12.7	87.2	46.7	11.3	5.7	207.5
1969	22.7	18.2	2.1	11.6	92.0	54.8	12.0	6.6	220.0
1970	25.8	19.3	2.0	6.8	69.4	57.8	10.0	5.7	196.8
1971	32.2	27.7	2.1	6.6	60.9	46.6	11.1	7.3	194.5
1972	44.3	34.0	2.2	6.5	97.5	50.3	13.0	7.8	255.6
1973	42.4	29.4	2.5	9.5	161.1	65.0	19.3	8.5	337.7
1974	38.4	27.6	2.3	12.9	134.8	95.0	14.1	9.3	334.4
1975	47.6	35.5	3.8	14.0	156.4	84.9	15.8	12.9	370.9
1976	47.8	50.2	4.6	13.4	199.3	98.9	22.3	10.1	446.5
1977	37.1	36.2	5.2	11.8	373.0	208.0	26.7	16.8	714.8
1978	43.6	34.3	5.5	16.2	465.4	264.6	29.5	20.8	879.9
1979	50.0	46.7	5.0	14.5	427.6	393.4	37.9	26.0	1001.1
1980	81.4	42.8	7.4	12.9	446.7	461.6	53.2	32.0	1,138.0
1981	144.8	20.1	9.2	23.2	231.0	426.0	52.4	40.0	946.7
1982	96.5	13.3	0.7	30.8	217.9	537.2	58.6	44.2	1009.2
1983	58.7	10.2	8.8	31.8	234.7	480.3	67.6	49.2	941.3
1984	67.1	16.2	11.8	25.1	231.6	619.5	68.3	61.5	1101.1
1985	95.2	19.7	12.6	44.3	409.0	875.8	73.6	63.2	1593.4
1986	123.9	18.4	14.6	38.7	615.5	1029.8	80.2	72.9	1,994.0
1987	191.9	34.6	15.4	63.1	431.2	890.7	97.6	86.9	1811.4
1988	204.3	34.6	17.2	93.4	653.5	889.1	119.7	113.8	2125.6

Source: Department of Finance: Unpublished information in Leistner & Eisterhuysen, p. 160.

In 1971 the United Nations condemned South Africa's continued abuse of Namibian resources, conducted mainly at the expense of the Namibian people. Frank (1981) noted that South Africa was seriously engaged in a strategic accumulation of wealth by exploiting Namibian resources and other neighbouring states within Southern Africa. Table IIA shows that the pass of Decree No. 1 which prohibited South Africa from exporting Namibian goods without UN supervision in 1974, did not necessarily stop the illegal export of merchandise goods. Table IIA shows also that, in 1988, a year in which progressive talks for a cease fire, South Africa deliberately over-exported Diamonds worth R653.5 million and R889.1 million of other minerals. By the end of 1988, the total of illegal merchandise exports of that year alone amounted to R2125.6 million (see Chapter 2 for more details).

**Table IIB** Development indicators for Southern Africa

	Angola	Botswana	Lesotho	Malawi	Mozambique	Namibia	Swaziland	Tanzania	Zambia	Zimbabwe
Population (1991)	9.5	1.3	1.8	10	14.5	1.5	0.8	26.9	8.4	10.
-Avg growth rate	3.2	3	2.5	5.1	1.3	3.2	2.6	3.5	3.3	3.
Life expectancy	46	67	56	46	47	57	57	48	50	5
Literacy rate	28	74	74	41	17	73	67	85	69	7
Adult literacy	41.7	73.6	78	47	32.9	40	72	65	72.8	66.
^ GDP/Capita(1991)	1.7	7.5	5.1	-0.1	2.9	0.5	1.7	0.7	-2.9	1.
Active population	1.9	3.2	2.1	2.6	1.9	2.4	2.3	2.9	3.3	2.
Real GDP (1985)	4.9	10.7	7.8	5	4.2	3.7	4.4	4.2	0.3	5.
Exchange rate(91)	59.836	2.073	2.743	2.664	1845.4	2.743	2.743	233.9	88968	5.05
Trade balance(91)	1551	-139	-680	-231	-685	-54	-155	-255	108	-51
External debt(90)	7710	516	390	1544	4718	800	272	5866	7223	319
GDP by kind of economic activity:										
Agriculture	23.3	5.2	16	35.3	61.1	16.6	23.4	51.7	15.6	13.
Industries	46.1	54.5	42	19.7	20.3	30.5	32.2	10.3	46.9	40.
Manufacturing	8	4.3	15	13.3	16	6.1	20.9	4.6	36.1	27.
Services	30.6	40.3	42	45	18.5	53	44.4	38	37.4	46.
Domestic investment	17.1	25.6	62.7	18.7	29.2	16.8	21.5	27.3	12.6	18.
Domestic savings	21.8	46.8	-45.1	9	-12.8	3.9	21.6	0.1	14.3	21.
Average exports	8.8	3.5	9.3	14.3	7.2	7.6	9.1	7.1	3.8	6.
Average imports	6.5	20.3	15.1	24.2	6.8	8.7	13.3	8.5	2.6	1

(90), (91) = Year

Source: Ministry of Finance, Economic Review 1992-1993;  
African Development Bank, Selected Statistics 1993.

**Table IIC** Basic economic data-base for Namibia

Area	824 269km <sup>2</sup>	Year
Population density	1.5 Million	1992
Avg population growth rate	3.2%	1991
Adult literacy rate	40.0%	1990
National literacy	73.0%	1991
Illiteracy rate	65.0%	1990
Average GDP growth	3.7%	1987-1991
Debt as percentage of GDP	24.6%	1994/5
Inflation rate	8.5%	1993
Rate of unemployment	30.0%	1990
Export growth rate	7.6%	1987-1991
Import growth rate	8.7%	1987-1991

Source: Ministry of Finance, Economic Review 1992-1993;  
African Development Bank, Selected Statistics 1993.

Tables IIB and IIC shows Namibia's economic status between 1987 and 1992. It should be noted that there has been very little progress in most of the major sectors of the economy. Currently, Namibia's foreign debt (although successfully managed) has increased up to approximately 24%. The financing of this debt can be a serious problem for Namibia in future.

Another problem which influenced the choice of this study is the unemployment problem. The father of economics, Keynes, warned national governments that unemployment problems can lead to lower national output levels, which ultimately cause economic decline. Namibia is currently grappling with the problem of unemployment which is speculated to be 33.5 or more. Economic technicalities, based primarily on manipulation of both fiscal and monetary policies were introduced immediately after independence. These have indeed paved the way for much wider strategic approaches. However, very little is being done to examine and relate national policies to environmental externalities which are at the moment outside the economic scenario.

For Namibia to achieve sustainable economic development, the following need to be considered:

Conservation of natural and physical resources; Education policy reform; Improve marketing facilities; Employment creation; Rural industrialisation; Export promotion; Import substitution; Research promotion, Bureaucratic reform; etc.

## *Appendix III*

### NGOs and Aid Agencies in Namibia

Aid agencies are those which function as either voluntary NGOs or as multinationals linked to their headquarters. The interaction between voluntary NGOs and strategic multinationals can be of greater importance for resource management. The coordination of the two, including media agencies would be more effective if government intervention, encouragement and support are ensured. The under-listed NGOs, Aid and Information /Media agencies are of fundamental importance for Namibia's realization of sustainable development of natural and physical resources:

Table IIIA   List of NGOs and Aid agencies in Namibia	
Abacus Africa Group of Sweden African Methodist Episcopal Church Anglican Church Association for Handcrafts in Namibia Bricks Cancer Association of Namibia Centre for Research and Development in Africa Centre for Resource and Transformation Children's World Creche and Development Centre Complementary learning Centre Council of Churches in Namibia Drug Action Group Dutch Reformed Mission Earthlife Namibia Evangelical Lutheran Church of Namibia The Federation of Namibian Women Friedrich Ebert Foundation Friedrich-Naumann Stiftung Hans Seidel Stiftung Helmut Blecks Foundation Horizontal Project Institute for Management and Leadership Training Job Creation First Juwa Bushman Katema Agricultural Cooperations Khara-Tsa-Sieb Housing Co-operation Konrad Adenhauer Stiftung Legal Assistance Centre Mariental Action Group Mbangura Woodcavers Methodist Church Namibia Association of NGOs Namibia Catholic Development Commission National Community Co-operative Alliance	Namibia Credit Union League Namibia Development Trust Namibia Federation of Business and Professional Women Namibia Information Workers Association Namibia Institute for Community Development Namibia Literacy Programme Namibia National Student Organization Namibia National Teachers Union Namibia Nature Foundation Namibia Network of AIDS Service Organization Namibia Peace Plan Namibia Primary Teachers Programme Namibia Public Workers Union Namibia Redcross Society Namibia Women's Association The Namibian Nationhood Programme Namibia Non-Governmental Forum National Society for Human Rights National Union of Namibian Workers Otto Benecke Foundation Oxfarm-Canada Oxfarm-UK Pamwe People's Primary School and Creche Roman Catholic Church Rossing Foundation Saamstaan Housing Save the Rhino Trust Sister Collective U-DO-Trust of Namibia Women of Namibia Women's Solidarity Working and Peasants Women Young Women Christian Association

Table IIIB	Environmental monitoring and reporting agencies in Namibia
Abacus	Namibia Economist
Acoda Info	Namibia Press Association
Action	Namibia Today
Agri Forum	Namib Times
Akasia	New Era
Algemeine Zeitung	Orangemund Newsletter
Aloe	Otjikoto Journal
Bricks	Rossing News
CCN Messenger	Sister
Die Republikein	Tempo
Flamingo	The Namibian
Monitor	The Namibian Worker
Namibian Brief	The Windhoek Advertiser
NBC	

Source: Namibia Trade Directory 1992/1993

## Appendix IV

### Coherence and Interdependency of BET activities

The sign '<' is used as a dependency signal. It means that each activity depends on each other. The process is sequentially oriented. For example, 3,4,5 < 1 means that 3, 4 and 5 are dependent on activity 1 to satisfy a given task. As such tasks 3, 4 and 5 can not be commenced before task 1 is completed.

B,C < A.	H < G.	N < M.	W < O,T,Q,P.	AA < CC.
F < C.	Q < H.	K < J,F.	U < S,V.	BB < Y,Z.
XX < B,C.	X < P,Q.	R < L.	Y < U.	DD < AA.
E < XX.	I < E,J.	O < N,K.	Z < V,W.	FF < EE,DD
G < D.	L < I,M.	S,T, < R.		

Because BET for each activity is obtained as shown in table 6.5, the next step is to plot BET on critical path plan. In order to obtain the number of weeks the development of a strategy will take, BETs should be added and the biggest number is entered first. For instance, Activities: Y = 24> + (3) = 26>

$$Z = 22> + (2) = 24>$$

In this case 26> has to be taken and 24> is ignored because it underestimates hidden uncertainties. The next step is to determine the critical path shown by parallel lines in Figure 6.5. This is simply obtained by subtracting time periods from head numbers, beginning from biggest to smallest, that is, from 48 - 9 = <39 to 1 - 1 = 0. At the end of this process, the critical path is seen to be indicated by same head numbers, whose difference is zero. The process of numbering activities from 1 to 26 as shown by Figure 6.5 need to be processed by considering the smallest head number first. This means that there are activities with comparative advantage, and it is for the planner to make appropriate decisions in prioritising opportunities.

## Appendix V

### *The composition of an integrated strategy*

This appendix introduces planners to other six planning models from which integrated planning emerged. A historic record of plan failures from early 1947 to 1990 are simply caused by the bias of planners, notably their habitual justification of one model at the expense of others. Figure VA shows below six generic models of planning in an integrated belt cycle. It is important for planners to note that each of the six models has advantages and weaknesses. Common characteristics of these models are:

**(a) Normative model:** Norms and values of society are considered important in planning with communities but this mode is criticised for being politically, tribally and traditionally oriented, and hence a threat to nation building and collaboration in resource and environmental issues.

**(b) Interactive model:** People participation in the planning process is highly emphasised and the planner has a chance to learn about the people, but confusion and conflict in decision-making has been noted to be the result of community demands and involvement in planning.

**(c) Functional planning model:** This model is reliable in that planning is utilised by using the available means of resource management. Advocates of functional planning believe that the management of resources need not be delayed by lack of experts, the available indigenous community should be utilised to support and carry out planning processes. However, functional planning is too flexible and tend to underestimate the technical part of resource management which needs engineers and experienced strategists.

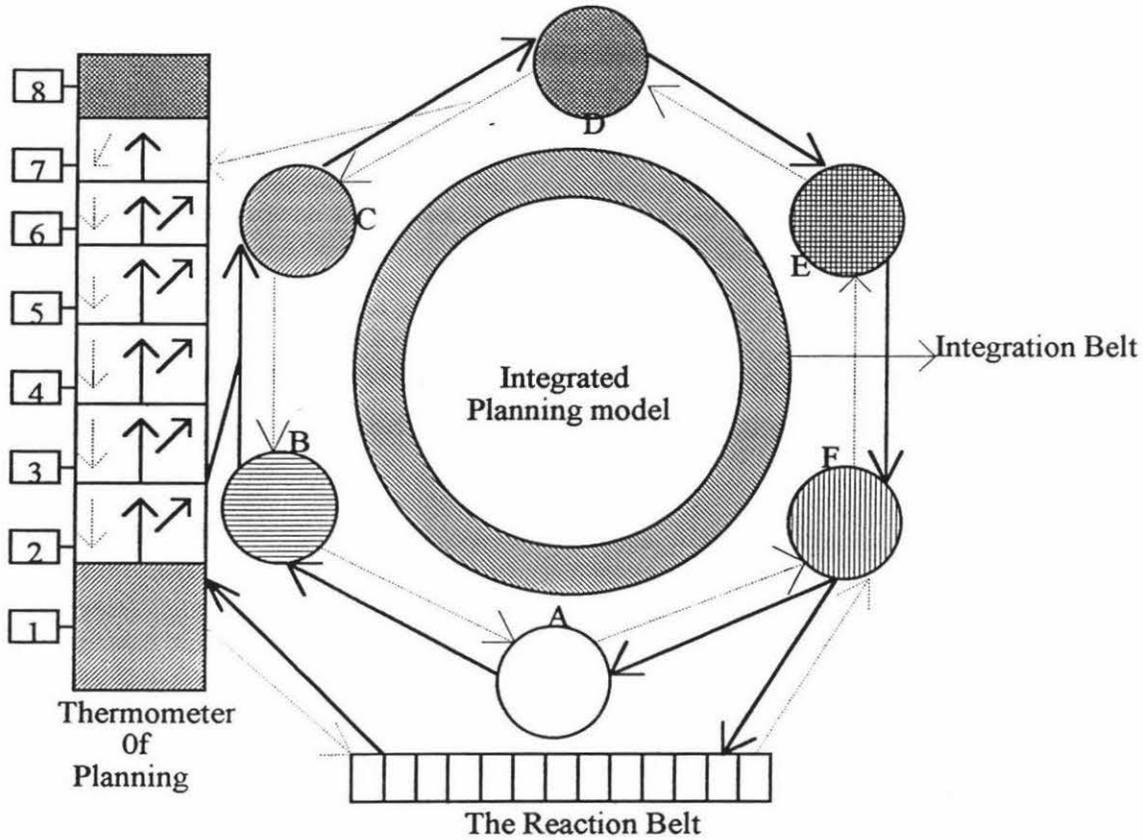
**(d) Blueprint planning model:** Blueprint planning is influenced by scientific processes. It is believed in this planning process that guessing in planning is 'day-dreaming' and rational analysis provide certainty. However, blueprint has a record of many failures caused by being rigidity and inflexibility.

**(e) Rational model:** Rational planning is related to blueprint planning. Here it is argued that planning enables optimum choice to be made from a diversity of alternatives. The optimum choice should be determined by a high level comparative advantage to society being planned for, and there should be a solution to every problem. Rationality of planning is criticised because of its over-expectations, bigger plans which often result in bigger mistakes and blunders.

**(f) Disjointed incremental model:** Incrementalists are of the opinion that planning need not be rushed but it should involve incremental changes considering limited resources and information. Though a reliable tool in developing countries, disjointed-incremental planning has very little effect in respect to progress and achievement.

For more information on the above plan modes see Korten (1986) and Mayer (1985). None of the above models used in isolation is likely to bring about sustainable development in any given spatial environmental area. At the same time, all modes of planning mentioned above are important to a development planner. The integration process or the integrated planning model enables planners to use appropriate combination of models in various stages of development. Planning theorists have said very little about appropriate combination of growth monitoring, development projects and programmes. Figure VA illustrates an integrated framework in which planning interactions and projected combination scenarios may be developed.

**Figure VA**    **Composition of an integrated planning model**



- |                              |                                 |
|------------------------------|---------------------------------|
| A. Normative choice model    | D. Blueprint planning model     |
| B. Interactive process model | E. Rational-comprehensive model |
| C. Functional planning model | F. Disjointed incremental model |

According to figure VA the integrated planning model is composed of a combination of the best characteristics of the six models. However, not all models need to be combined at the same time because these might cause conflict in the integration belt and might also be in conflict with the level of development Figure VA therefore shows that the integration belt is a clock-wise rotational ring in which the reaction of combined models takes place. When the rotation takes place, the impulse or effect within the ring wipes over the reaction belt. This sends development impulses into the thermometer. The thermometer of planning will often rise from 1 in the case of progress. During the rising or fall of the thermometer, one or two modes of planning outside the ring will enter the ring while one or two are expelled from the ring (not adjacent arrows right and left of the vertical arrow in the thermometer). The interesting aspect of these modes is that as development expands from one point to the next, they too change their entry into the cycle like a timing-watch.

What type of a combination is likely to be the best? A number of combinations can be good depending on the level of development and the area in which the application of an integrated model takes place. For instance, in a rural-urban continuum sphere of development, a combination of the blueprint, normative, and learning process is likely to bring progress but can not be justified that it will meet desired ends because the development process continues to be reflected like an exchange of gases within the combination belt. The anti-clockwise rotation, shown by a dotted line has a negative effect to the thermometer. It indicates unprogressive results a combination and is likely to hinder the achievement of sustainable development.

The broader idea of integration driven from the above model is that, like in the case of the modelling scenario, resource and environmental management requires mutual combination of inputs from a diversity of agencies. Such inputs need to be digested, sorted out and where possible substituted with reliable ones. Since planning is subject to the rules of logic, planners, need to know the relationship of planning modes in the combination and how each fits into the functional system of operation - the integration belt. The above example of a combination given above are that a plan is drawn, values and norms of the community are considered, and community participation in decision-making is allowed.

**Evaluation of the integrated planning models should consider the following questions:**

- a. Were planners emphasising a single model at a time?
  - b. Was the model appropriate to a given situation?
  - c. Were planners able to convey theoretical planning into practice?
  - d. Did planners consider any combination of the planning models?
  - e. How did the combination fit into the cycle?
  - f. Was there any timing in the combination?
  - g. Was there enough data to enrich the combination cycle.
  - h. What were the results of this combination as it progress from rural to urban and regional planning?
  - i. Were the local people allowed to participate in planning? If so, were their decisions considered?
- 
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