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AN ENVIRONMENTAL IMPACT ASSESSMENT OF URBANISATION IN THE ERONGO REGION, NAMIBIA



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EXECUTIVE SUMMARY

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The assessment conducted in this dissertation was shaped by the intended formulation of an **Integrated Coastal Zone Management Plan (ICZMP)**, as proposed by the Danish Co-operation for Environment and Development. An ICZMP provides an integrated and holistic approach to planning, in which the various activities and resource demands that occur within the coastal belt and neighbouring regions are appropriately coordinated. The first phase of the formulation of this management plan entailed the compilation of a baseline report summarising the present state of the environment in the study area, with particular emphasis on the major issues which will require attention in an ICZMP. This study was undertaken by Masters students from the Department of Environmental and Geographical Science at the University of Cape Town.

The **study area** is located within the coastal belt of Namibia's Erongo Region, and more specifically within the magisterial districts of Swakopmund and Walvis Bay (Map 3). This includes the National West Coast Tourist Recreation Area and a portion of the Namib Naukluft Park. The southern boundary extends to the Sandwich Harbour, while the northern boundary extends to the southern bank of the Ugab River. The eastern perimeter is that of the Swakopmund magisterial district, and includes the municipal areas of Walvis Bay, Henties Bay and Arandis, together with Rossing Mine and its immediate environment. The seaward boundary is defined by the three nautical mile limit from shore.

The *Baseline Report: Coastal Zone Management Plan for the Erongo Region, Namibia* was submitted to DANCED in March 1996. The findings of the investigation, as recorded in the report, highlight a number of issues which require urgent attention in the ICZMP. One such issue concerns the **rapid influx of migrants** to the urban centres in the study area. Population is a determining factor which significantly influences the functioning of other key sectors within a given location. As such, an understanding of the ramifications of increased population numbers is imperative to the formulation of an ICZMP. The **objective of this dissertation** was, therefore, to identify the factors generating rapid migration to the study area, and to facilitate an assessment of the impacts of this phenomenon. Once identified and assessed, these impacts can be better managed within a holistic, integrated framework.

An analysis of **migration patterns** within Namibia highlighted a substantial movement of people from the northern regions of Oshana, Oshikoto, Ohangwena and Omusati to that of the study area, with a particularly rapid influx to the towns of Walvis Bay and Swakopmund - although to a lesser extent among the latter. The highest percentage of these migrants are from the districts of Oshakati and Ondangwa within the Oshana Region.

Population projections for urban centres within the study area vary considerably. Based on moderate projections, the average annual urban growth rates between 1995 and 2000 are: Walvis Bay, **3.1 percent**; Swakopmund, **7.6 percent**; Henties Bay, **8.2 percent**; and Arandis, **7.7 percent**. Based on an assumed perpetuation of these growth rates, the 1995 Walvis Bay population (45 000) can be expected to double by the year **2019**; the 1995 Swakopmund population (23 263) by the year **2002**; and the 1995 Henties Bay population (2 711) by the year **2006**. A calculation of the doubling time for the population of Arandis has been omitted. This is due to the large percentage of residents who, although currently employed by Rossing Uranium Mine, are predicted to leave Arandis following the closure of the mine in 5 to 20 years time.

In accordance with moderate projections, the total population for urban centres within the study area can be expected to increase from **54 048** in 1991 to **95 692** in the year 2000 - constituting a total increase of **41 644** people. This overall rise in population numbers is attributed primarily to the influx of migrants to the historically black township areas of **Kuisebmond** in Walvis Bay and **Mondesa** in Swakopmund. These migrants fall mainly within the 15-44 year age group - **62.5 percent** of which are male and **37.5 percent** female. They are predominantly poor and are typically characterised by low levels of education and poor skills attainment.

Factors perpetuating this rural-urban migration are primarily the result of the **unequal levels of development and structural inequalities** which characterise Namibia - a discrepancy which is most significant between the northern and central regions of the country. This differential access to resources is rooted in Namibia's colonial past. Economic structures in pre-independent Namibia were orientated towards investments and economic development in the central regions of the country, of which the study area

is a part. The northern regions, where the majority of the population reside, were largely neglected, maintained instead as a labour pool in service of colonial needs.

These regional inequalities have been perpetuated, and are evident in the **inadequate access** to housing, electricity, water, sewerage services, education, health facilities and employment opportunities which typify the northern regions. Although the Namibian Government has committed itself to rectifying these imbalances, a number of factors are currently constraining the rate of change. These include, *inter alia*:

- the absence of a systematic and balanced policy of public expenditure into the regions;
- the weakened economy inherited from the South African Government and its continued lacklustre performance since Independence;
- the high cost of financing Namibia's large bureaucracy;
- a cancellation of the budgetary subsidies provided by South Africa;
- an adoption of South Africa's external debts by the Namibian Government;
- a decrease in foreign aid;
- limited investment by established enterprises since Independence.

These factors impose serious limits on the Government's ability to generate financial surpluses for the provision of essential services and employment creation in the northern regions. These circumstances are expected to continue for some years to come and, as a result, will collectively perpetuate the current rate of rural-urban migration.

After Namibian independence in 1990, the communal system and associated restriction of movement which existed under South African rule was abolished. In the current state of transition between the former communal system and the planned formalisation of land access under the Local Authority Act, compounded by the absence of an internal migration or urbanisation policy, there are in effect **no formal obstacles to internal migration**. This, combined with a perpetuation of the inequalities described above, has greatly increased the number of people migrating from the North to urban centres within the study area.

The assessment conducted in this dissertation has pointed to a number of **impacts associated with rapid urbanisation** in the towns of Walvis Bay and Swakopmund. The most significant of these impacts are:

- housing shortages and subsequent overcrowding - followed by an increase in the incidence of tuberculosis;
- increased water and electricity consumption;
- heightened pressure on sewerage treatment works and waste management facilities;
- a fast growing unemployment rate;
- an increase in the number of HIV/AIDS cases;
- heightened pressure on national, regional and local budgets, with a subsequent increase in rates and taxes.

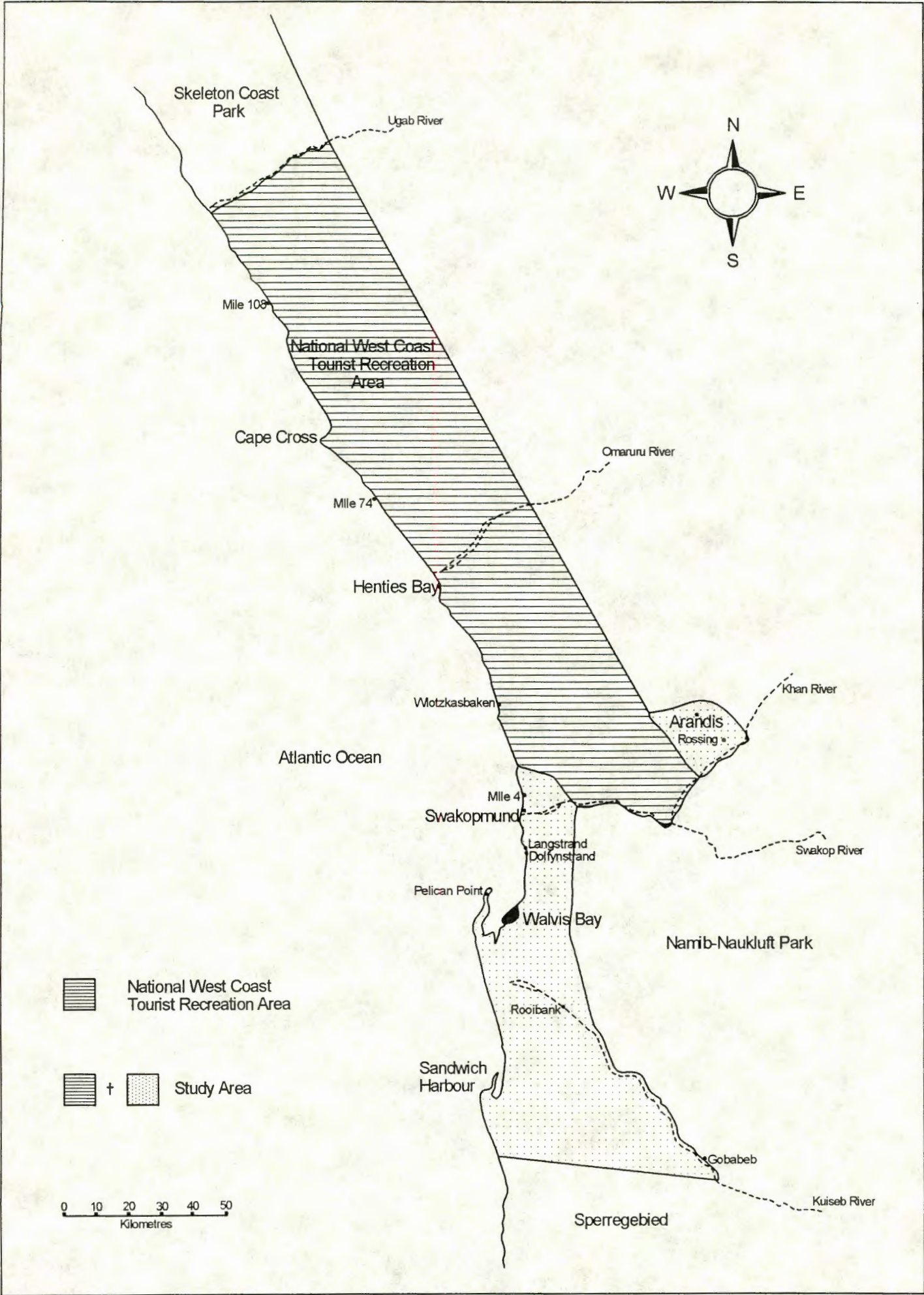
The ramifications of urbanisation impact differentially across the urban environment. It is the agents of these impacts, that is, the migrants themselves, as well as the existing residents in the low-income areas, that are the chief recipients of the above-mentioned effects. The impact of urbanisation on the middle-to-high income sectors is realised via, *inter alia*, an increase in rates and taxes necessary to fund Government provision of housing and payment of services in the low income areas; increased crime; over-burdening of services; and redistribution of the local budget.

In Walvis Bay and Swakopmund, the present rate of migrant influx has reached its limit in terms of the capacity of the Local Authorities to deal effectively with this phenomenon. Pathologies identified indicate a **need for management** on a national, regional and local level.

The proposed implementation of an ICZMP for the study area serves as an ideal mechanism with which to manage the local ramifications of rural-urban migration more effectively. Managing the impacts of migration within a broader coastal zone management plan, will ensure that the extensive range of sectors impacted upon by rapid urbanisation are managed and coordinated in an holistic, systemic manner. This integrated approach to planning ensures that the efforts of all stakeholders involved in urban management are dove-tailed and coordinated, thus avoiding *ad hoc*, isolated planning measures which are ultimately ineffectual.

Importantly, the formulation of an ICZMP needs to be guided by thorough **consultation with all interested parties**, ranging from the national to the local and community level. Such a strategy will ensure that the ICZMP takes cognisance of the concerns of those impacted upon by the rapid rate of migrant influx, while at the same time allowing for a management plan which is appropriate to Namibia's national, regional and local context.

Addressing the ramifications of migrant influx cannot be tackled solely by an ICZMP. **Intervention measures on a national and regional level** need to supplement efforts in the local arena. The current absence of an internal migration and urbanisation policy requires urgent redress. Given the negative impacts of migration on the study area, policy measures need to ensure that the root cause of this occurrence is addressed and the current rate of rural-urban influx curtailed. Intervention measures need to be shaped by a recognition of the complex nature of this phenomenon - both in terms of the wide variety of stimuli and the multiple range of impacts which result. Blanket policies which treat migration and migrants as homogeneous entities are unlikely to be effective. Furthermore, for policy interventions to be successful, it is essential that they be suitably positioned within the broader socio-economic context, and appropriately linked to and complemented by broader developmental goals. Developed in isolation, intervention measures cannot serve as effective management tools.



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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
BTP	Build Together Programme
CSIR	Council for Scientific and Industrial Research
CSO	Central Statistics Office
CSS	Central Statistical Services
DANCED	Danish Co-operation for Environment and Development
EIA	Environmental Impact Assessment
EPZ	Export Processing Zone
Est.	Estimated
GDP	Gross Domestic Product
GNP	Gross National Product

I&APs	Interested and Affected Parties
ICZMP	Integrated Coastal Zone Management Plan
IEM	Integrated Environmental Management
MOHSS	Ministry of Health and Social Services
MRLGH	Ministry of Regional and Local Government and Housing
NHE	National Housing Enterprise
NDP1	National Development Plan 1
NEPRU	Namibian Economic Policy Research Unit
NHAG	Namibian Housing Action Group
OMDEL	Omaruru Delta
Pers. Comm.	Personal Communication
Pop.	Population
SWA	South West Africa
SWAWEK	South West African Water and Electricity Corporation
SWANLA	South West African Labour Association
TB	Tuberculosis
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Fund for Children
WBM	Walvis Bay Municipality

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University of Cape Town

1. INTRODUCTION

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1.1 BACKGROUND

This dissertation has as a point of departure the mission statement of the Danish Cooperation for Environment and Development (DANCED). The overall objective of the DANCED programme is to contribute to the restoration of the global environment, in accordance with the recommendations outlined in Agenda 21 (Quarrie, 1992). DANCED has identified Integrated Coastal Zone Management as one of its primary foci of concern (DANCED, 1995). In keeping with this commitment, it has offered assistance in the formulation of an Integrated Coastal Zone Management Plan (ICZMP) for the coastal belt of Namibia's Erongo Region. The first step towards compiling this management plan entailed a visit to the study area (23 October 1995 to 17 November 1995) by a DANCED-appointed mission group, with the purpose of identifying prevalent issues which need to be addressed. Thereafter, Masters students from the University of Cape Town's Environmental and Geographical Science Department were commissioned to investigate these issues further.

This investigation took the form of two field trips, the first from 26 November 1995 to 9 December 1995, and the second from 3 February 1996 to 17 February 1996. The objective of the study was to compile a baseline report summarising the present state of the environment in the study area, with particular emphasis on the major issues which require attention in an ICZMP.

An ICZMP can be defined as a coordinated management plan of the coastal zone. This plan should accord with local, regional, national and international goals. Specific focus is placed on the interaction between the various activities and resource demands that occur within the coastal zone and neighbouring regions (Ramboll, 1995). A key objective is the achievement of sustainable development, facilitated through the integration of environmental protection goals into decision-making processes at all levels of planning (*ibid.*). An ICZMP therefore provides an integrated and holistic means of planning, involving numerous stakeholders in the facilitation of development.

The *Baseline Report: Coastal Zone Management Plan for the Erongo Region, Namibia* was submitted to DANCED in March 1996 by the student research team. Having compiled this report, the next task entailed the completion of individual dissertations in which specific environmental issue(s) in the study area were to be investigated at a greater depth of analysis.

1.2 OBJECTIVES

Recorded in the baseline report are a number of issues which require urgent attention in the ICZMP. One such issue concerns the **rapid influx of migrants** to the urban centres in the study area, with the highest percentage of this urbanisation occurring within the towns of **Walvis Bay** and **Swakopmund**.

Population is a determining factor which significantly influences the planning objectives formulated for key sectors within a given location, for example, housing, community services, infrastructure, industry, resource use, and so on (Dennis Moss Partnership, 1994). Understanding the ramifications of an increased rate and scale of population growth is therefore imperative for all aspects of planning. Given this, it is essential that an analysis of the factors perpetuating rapid rural-urban migration, and an assessment of the implications of this phenomenon for the study area, precede the formulation of an ICZMP. Once identified, these impacts can be better managed within a holistic, integrated framework.

Specifically, the objectives of this dissertation are:

- to identify the factors generating rapid population migration to the urban centres in the study area;
- to facilitate an assessment of the impacts of urbanisation upon the social, economic and physical environments of the study area, with a specific focus on the towns of Walvis Bay and Swakopmund.

The identification and assessment of these impacts, and of those generated by other activities in the study area, provides the foundation for an ICZMP which is appropriate to the local, regional and national context.

For the purpose of this dissertation, urbanisation is conceptualised as a process which involves the movement of people from rural to urban areas, and is thus used synonymously with the phrase 'rural-urban migration' (United Nations, 1970).

1.3 DEMARCATION OF THE STUDY AREA

The area identified by DANCED for the implementation of the ICZMP is located within the coastal belt of the Erongo Region (Maps 1, 2 and 3).

The northern boundary of the study area is formed by the Ugab River, with Sandwich Harbour delineating its southern border. The northern section of the study area takes its inland boundary from the easterly border of the National West Coast Tourist Recreation Area. The southerly portion of the eastern boundary extends inland to include a small portion of the Namib Naukluft Park. The seaward boundary is defined by the three nautical mile limit from shore. The municipal areas of Walvis Bay, Swakopmund, Henties Bay and Arandis are included within the study area, as well as Rossing Uranium Mine and its immediate environment.

1.4 METHODOLOGY

1.4.1 THEORETICAL FRAMEWORK

The theoretical framework guiding this assessment is **Integrated Environmental Management (IEM)**. Stated briefly, the purpose of IEM is "to ensure that the environmental consequences of developments are understood and adequately considered in the planning process" (Preston, Robins and Fuggle, 1994:749). This objective is achieved primarily through the implementation of an **Environmental Impact Assessment (EIA)**. EIA's entail the identification, analysis and evaluation of the environmental impacts of a planned activity (Glasson, Therivel and Chadwick, 1994). The facilitation of this procedure, rather than impeding the development process, is aimed at resolving or mitigating any negative impacts and enhancing the positive impacts which may arise (Department of Environment Affairs, 1992).

Ideally, the assessment process occurs prior to the implementation of development initiatives, thereby ensuring a pro-active approach to planning and due consideration of alternatives. The IEM procedure is typically applied to the assessment of environmental impacts associated with the proposed implementation of policies, programmes and projects (*ibid.*). The phenomenon currently being assessed, namely, the influx of migrants to Walvis Bay and Swakopmund, does not, however, fall within any of the above-mentioned categories.

Unlike the policies, programmes and projects commonly assessed, population migration to the study area is not a fixed event in time or a proposed development waiting to be implemented. Instead, it is an on-going **process**, the ramifications of which are currently being experienced and which will continue to be experienced into the medium term at least. Given these differentials, the IEM procedure is not wholly appropriate to this assessment. However, there are a number of key IEM principles which direct this dissertation.

IEM's fundamental commitment to the integration of environmental concerns in the planning process is in keeping with the objective of this dissertation, namely, to ensure that the environmental ramifications of rapid urbanisation are identified and available for consideration in the formulation of the proposed ICZMP. The other IEM principles which guide this assessment are as follows:

- a broad understanding of the term 'environment';
- informed decision-making;
- pro-active and positive planning;
- an attempt to mitigate negative impacts and enhance positive impacts of proposals. (Department of Environment Affairs, 1992).

Consequently, the term environment is taken to include "physical, biological, social, economic, cultural, historical and political components" (Preston *et al*, 1994:749). Extending the definition of 'the environment' beyond its traditional biological boundaries, allows for a more accurate understanding of the complex web of factors perpetuating environmental degradation. Based on this principle, this impact assessment aims to identify, in an holistic manner, the full range of environmental impacts associated with rapid population migration to the study area.

Informed decision-making is achieved by providing the decision-maker with an accurate understanding of the environmental ramifications of a planned activity. Subsequent courses of action can therefore be chosen with full knowledge of the resultant implications. When formulating an ICZMP, decision-makers will be able to make informed decisions based on a thorough understanding of the impact of increased urbanisation on the future sustainability of the study area. EIA's therefore facilitate a proactive approach to planning. By identifying the impacts of urbanisation prior to the formulation of the ICZMP, management options which mitigate the negative and enhance the positive ramifications can thus be implemented.

1.4.2 THE IMPACT ASSESSMENT PROCESS

Figure 1 provides a diagrammatic representation of the IEM procedure. Given the nature of the activity under assessment, not all steps in the procedure are relevant to this analysis. The **Classification of Proposal** and **Impact Assessment** components of Stage 1 form the crux of this report.

Given the nature of the phenomenon being investigated, the phrase 'Classification of Proposal' is not appropriate to this assessment. However, its function, namely, to determine whether a proposal follows the **Impact Assessment**, **Initial Assessment** or **No Formal Assessment** route, is an essential component in this report (Department of Environment Affairs, 1992). Based on data collected for compilation in the baseline report, numerous sources point to the occurrence of significant impacts resulting from the current rate and scale of urbanisation within the study area. These circumstances demonstrate the need for an assessment of the impacts of rural-urban migration.

Implementing this assessment necessitated a reliance on information collected during the two field excursions conducted in the study area. This information was collected through a process of **unstructured interviews**, **field observations** and **literature reviews**. However, given the broad scope of the baseline report, the depth of investigation into the impacts of rapid urbanisation on the study area was limited. These circumstances necessitated the collection of additional information in order to gain a more comprehensive understanding of the stimuli and ramifications of rural-urban migration. This was achieved in two ways: Firstly, through a re-analysis of

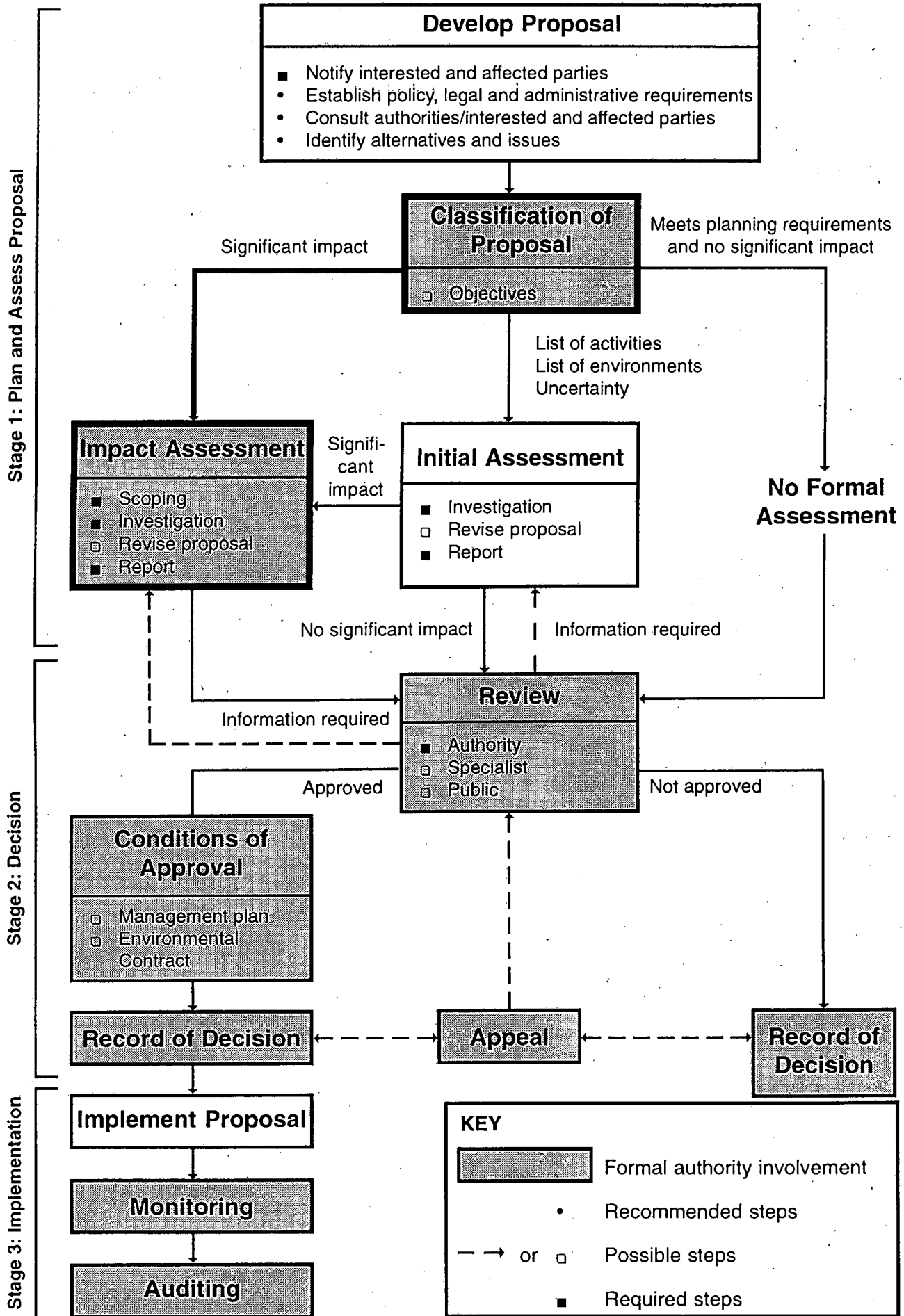


Figure 1: The IEM Procedure

information collected in the field; and secondly, through the subsequent gathering and review of relevant literature available from local libraries.

Scoping is an essential component of the Impact Assessment process (Figure 1). The primary function of this procedure, usually conducted at the outset of the investigation, is to focus the assessment through the identification of significant issues and reasonable alternatives (Department of Environment Affairs, 1992). The concerns of authorities and interested and affected parties (I&APs) play an important role in this screening process.

Although the nature of the research conducted in Namibia precluded a thorough public participation process, the data collection methods which were adopted for the compilation of the baseline report assisted with the scoping of significant stimuli and major impacts associated with the process of urbanisation. Essential to the scoping process was a literary analysis of urbanisation in Third World contexts. This overview, summarised in chapter 2, played a pivotal role in identifying the range of potential stimuli and ramifications associated with rapid urbanisation, and as such, guided the problem identification procedure.

It deserves reiteration that a fundamental task of this assessment is to identify and analyse the major stimuli and impacts associated with rapid urbanisation in the study area. In doing so, it is intended that the formulation of the proposed ICZMP will be guided by an informed understanding of the extent and impact of rural-urban migration, thereby facilitating a pro-active approach to planning within the study area.

Guided by this objective, chapter 3 provides an indication of the rate and scale of urbanisation within the study area, followed by an analysis of the major factors perpetuating this trend. Quantitative data for this chapter was compiled predominantly from Namibia's 1991 Population and Housing Census, the 1991 South African Census and statistical information presented by the Namibian Economic Policy Research Unit and the University of Namibia's Social Sciences Division.

An investigation into the extent of urbanisation within the study area highlights a concentration of population migration to the towns of Walvis Bay and Swakopmund. As a result, an analysis of the impacts of this movement are analysed in terms of their

ramifications for the above-mentioned towns, with Arandis and Henties Bay being excluded from this analysis. As highlighted earlier, a scoping of relevant impacts requiring analysis was facilitated by the data collection techniques conducted in the field, as well as by the subsequent literary reviews which were carried out. Quantitative data drawn upon for this component of the assessment was obtained predominantly from municipal reports and from studies carried out by external consultants for municipal planning purposes.

Qualitative data for this chapter was gathered primarily from interviews conducted with national, regional and local Namibian authorities; members of established organisations within the study area; and a limited number of residents in the relevant residential areas. This information was supplemented by qualitative studies undertaken by various research institutes in Namibia.

In EIA practice, the identification of impacts is usually followed by an evaluation of their relative significance (Glasson *et al*, 1994). This weighting of impacts assists planners in the decision-making process, and provides a useful guide for action.

Impacts affect people in a variety of different ways. Determining the significance of an impact therefore entails subjective judgement, and cannot be decided upon using objective measures (Preston *et al*, 1994:759). As such, assigning significance to the impacts of urbanisation on the study area cannot be determined in the absence of a public participation process.

The specific role of this dissertation is to **identify** and **investigate** the impacts of rural-urban migration on the study area. In doing so, the foundations are thus laid for subsequent public participation processes in which the significance of these impacts can be determined and management responses appropriately shaped.

In order to provide decision-makers with a summary of the impacts of urbanisation on the study area, a cause-effect flow diagram has been compiled. This illustrates the complex web of ramifications fueled by rural-urban migration.

Flowing from this analysis, a number of recommendations, shaped by relevant literary sources, have been formulated. These recommendations constitute important considerations which need to be taken into account in the formulation of measures aimed at managing the process of urbanisation on a national, regional and local level.

1.5 ASSUMPTIONS AND LIMITATIONS

Urbanisation is a process involving people as individuals, families and communities, each of which have unique social characteristics, for example, age, gender, education, skills, income and cultural attributes. Given these differentials, the urbanisation experience will impact upon them in a variety of different ways. Against this, their arrival in the study area will impact upon the existing residents in social, economic and political ways, and upon the social and physical infrastructure of the settlements to which they migrate. Hence, the combinations and permutations of impacts are virtually infinite and their assessment becomes almost impossible. Logically, some degree of generalisation is necessary.

For the purposes of the present report, the phenomenon of population migration, while recognising that it is a **process**, will be regarded as an impact akin to an event. Moreover, while its implications are considered solely for the study area, it must be recognised that impacts are also experienced in the areas of migration origin. It deserves reiteration that only the most pertinent of the impacts for the study area are identified and assessed, and then only in general terms. The level of generalisation adopted will, however, obscure to a certain extent, the complex range of ramifications associated with this occurrence.

Similarly, there are many factors operating on the local, regional, national and international level that have a bearing on the extent of migration to the study area. However, time constraints and scant data preclude a comprehensive analysis of all causative factors perpetuating rural-urban migration.

Assessing the extent of migrant influx to the study area necessitates a reliance on demographic data. A full assessment of migration patterns and trends in Namibia is, however, constrained by the existing data base which is very limited. Namibia's 1991 Population and Housing Census does not provide substantial information on the issue of migration, and to date, no official data on internal migration are available (Tvedten and Mupotola, 1995; Amutenya, Andima and Melber, 1993). This is compounded by the exclusion of Walvis Bay from Namibia's 1991 census. General indicators of migration, as provided in the census, cannot therefore be applied to the study area as a whole. In an attempt to calculate the extent of urban influx in the study area, use has been made of a wide range of statistical sources, including the 1991 South African

Census. This 'eclectic approach' has helped create a general indication of internal migration in the country. A more accurate appraisal was, however, constrained by the limited demographic data available. Similarly, a thorough assessment of the impacts of migration on social and physical infrastructure was hindered by relatively poor municipal data bases.

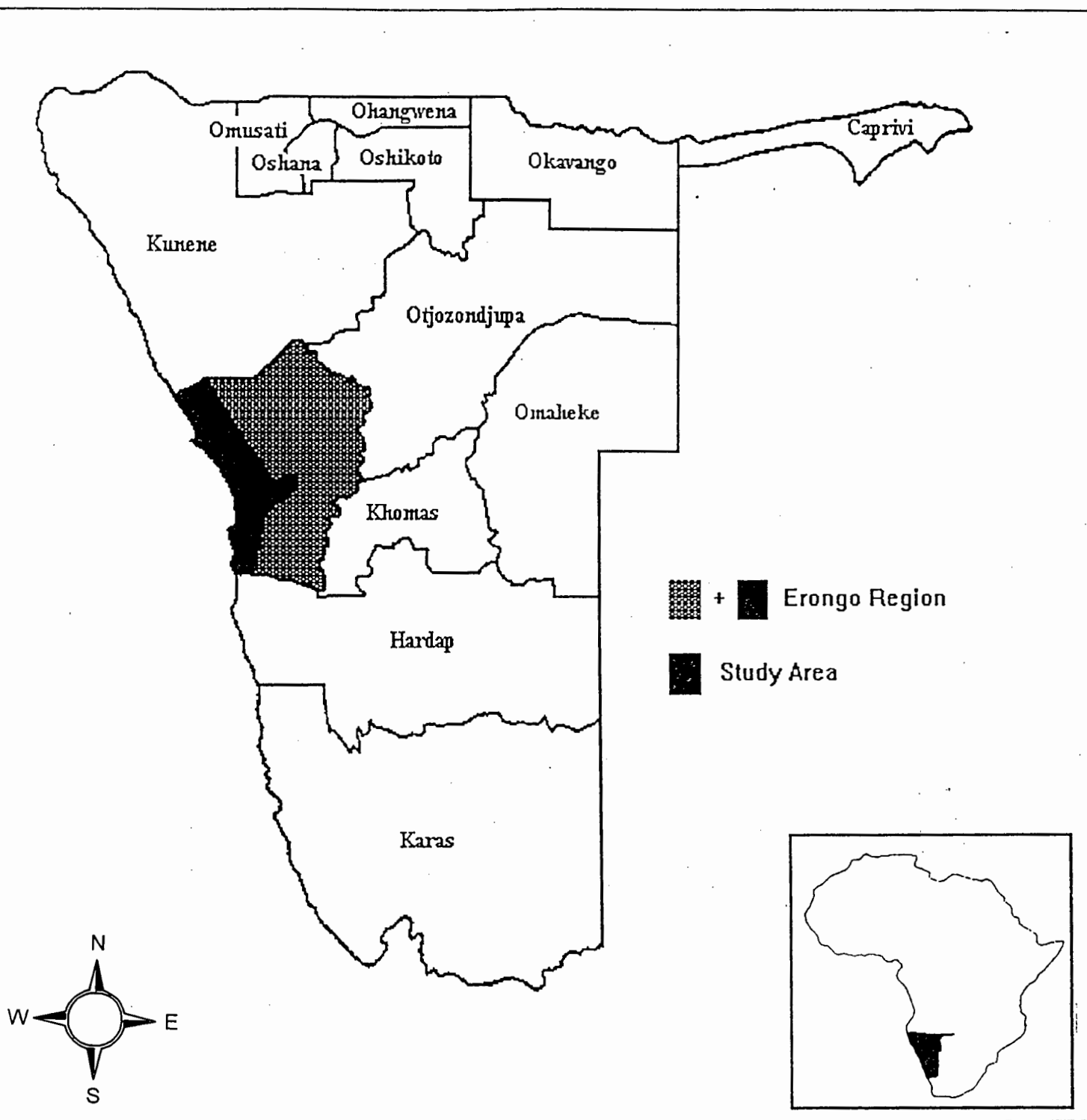
The four week period assigned for on-site investigations was allocated primarily to the collection of information for the baseline report. The time available for the gathering of data for personal dissertations was severely limited. The geographical location of the study area, compounded by time and financial constraints, meant that a return trip to Namibia was not feasible. A lack of additional information from the study area was therefore a limitation under which this dissertation was compiled.

A fundamental principle of the IEM procedure is the participatory involvement of I&APs, thereby ensuring a more comprehensive identification of significant impacts (Department of Environment Affairs, 1992). While efforts were made to solicit opinions from a broad base of I&APs, the public participation process was curtailed due to time and budgetary constraints. However, a limited number of residents from the relevant residential areas were approached. Assessing the impacts of migration is therefore largely restricted to secondary data and to the opinions of national, regional and local authorities and members of established organisations within the study area. These circumstances are not ideal, and constitute a significant constraint under which the assessment was conducted. The secondary data and information recorded in interviews are, however, used, based on the assumption that it is accurate and complete.

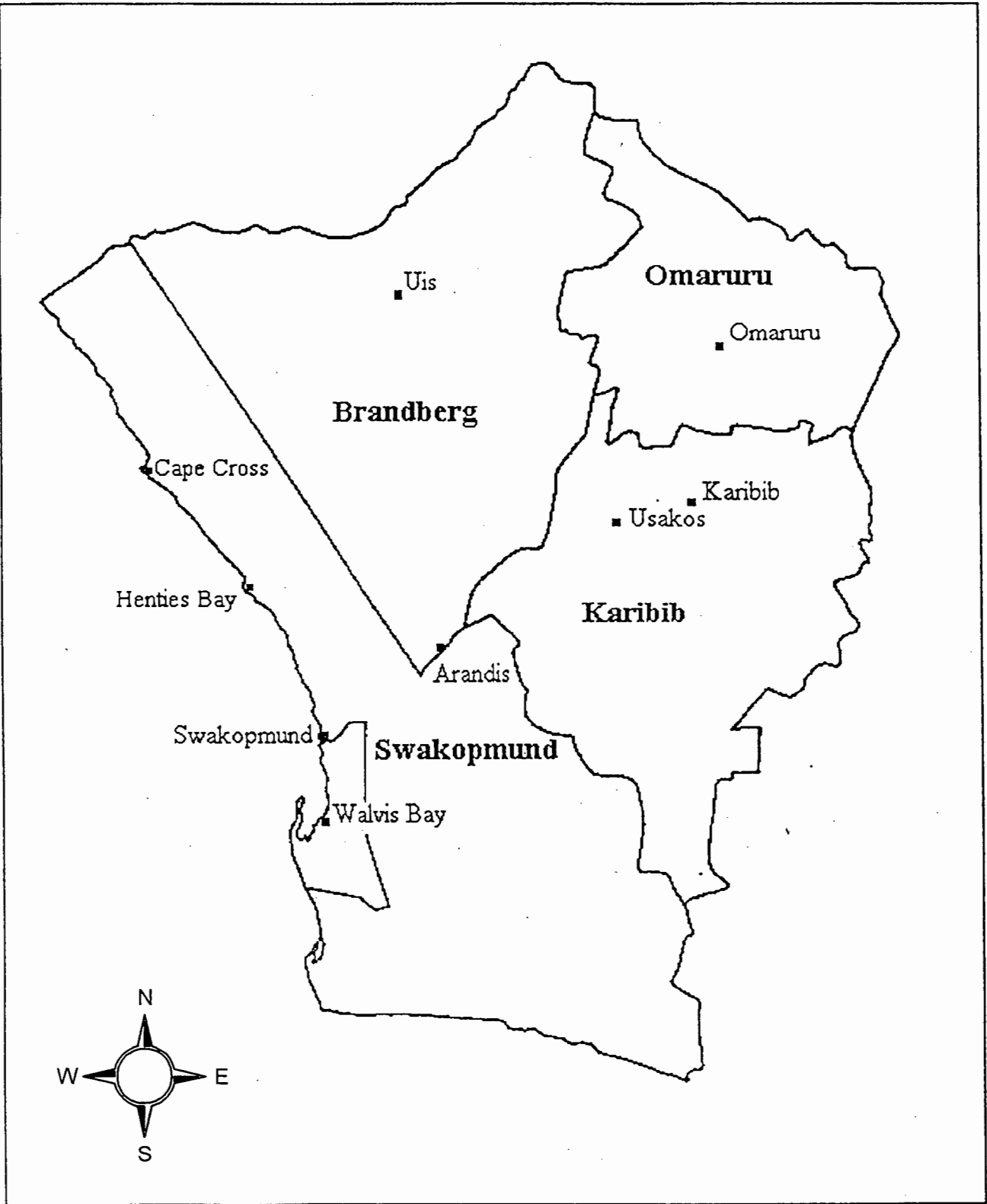
1.6 DISSERTATION STRUCTURE

This dissertation is presented in 5 chapters, with chapter 1 being the introduction. Chapter 2 provides an analysis of urbanisation in developing countries, and highlights the stimuli and ramifications commonly associated with this phenomenon. Given the Third World status of Namibia, this discussion therefore serves to identify potential impacts which can be expected in the study area.

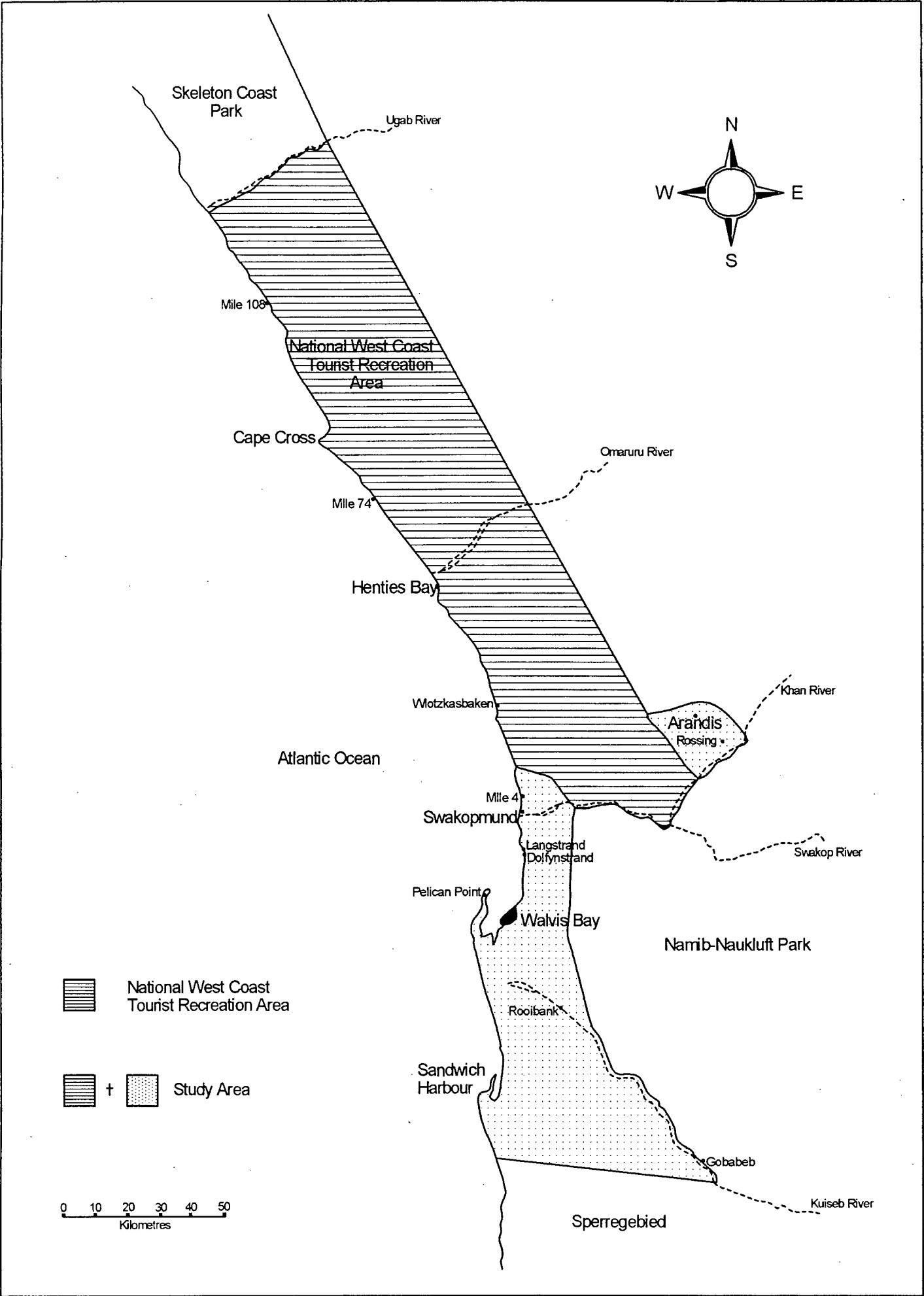
The following chapter focuses on urbanisation in Namibia, with analyses being conducted on a national, regional and local scale. Particular attention is given to factors perpetuating the current incidence of rural-urban migration. The rate of migration to the study area is explored, coupled with subsequent population projections from the present to the year 2000. Based on the rate of urban influx, as discussed in chapter 3, chapter 4 provides an identification and analysis of the impacts of urbanisation on the study area. At the close of this chapter, a cause-effect flow diagram is presented. This facilitates a summary of the impacts, as well as indicating the extent to which they are interconnected. Chapter 5 highlights the key issues requiring attention in the proposed ICZMP, followed by a list of recommendations applicable to the management and mitigation of the identified impacts.



Map 1 Erongo Region and Study Area



Map 2 Erongo Region



Map 3 Study Area

2. URBANISATION IN THE THIRD WORLD

2. URBANISATION IN THE THIRD WORLD

An analysis of urbanisation within the Third World¹ facilitates an identification of the range of stimuli and ramifications which can be expected in the towns of Walvis Bay and Swakopmund, and as such, plays a pivotal role in the problem identification process.

2.1 INTRODUCTION

One of the most significant demographic phenomena currently occurring is the rapid growth of cities and towns in developing countries (Todaro, 1994). By the year AD 2000, nearly half of the world's population, an approximate three billion people, will reside in urban settlements. Of this urban population, two thirds will be in the less developed countries of Asia, Oceania, Africa, Latin America and the Caribbean (United Nations, 1987 cited in Gugler, 1991). This rate of urban growth in the Third World and the increase in the size of urban populations, is without precedent in human history (Gugler, 1991).

Between 1950 and 1990, the total population of Africa, Asia and Latin America grew from 1.7 billion to close to four billion, while its urban population grew from 286 million to more than 1.5 billion (Hardoy, Mitlin and Satterthwaite, 1992). This urban population is now larger than the total population of Europe, North America, Japan, the former Soviet Union and Australasia combined (*ibid.*). United Nations' projections suggest that the Third World's urban population will increase by more than 700 million people between 1990 and 2000. In contrast, the urban population of the rest of the world is projected to expand by little more than 70 million (*ibid.*). These estimates denote a significant trend, namely, that 80 percent of the growth in the world's population between 1990 and 2000 will be in the urban areas (*ibid.*).

The ramifications of urbanisation are multi-faceted. Urban centres are the engine of economic growth, with 80 percent of growth in the Gross Domestic Product (GDP) of

¹ While recognising the diversity within the 'First-' and 'Third World', as well as the linkages which exist between them, the term 'Third World' is taken to include those countries outside the advanced capitalist states of western Europe, North America and Australasia and the hitherto centrally planned economies of the former USSR and Eastern Europe (Simon, 1995).

developing countries expected to come from cities in this decade (Bartone, Bernstein, Leitman and Eigen, 1994). However, the poverty of the Third World makes this urban transition a difficult process, and one which is fraught with implications for sustainability. "Rapid urbanisation in the developing world, if ignored, can be a threat to health, the environment, and urban productivity" (Bartone *et al*, 1994: Abstract). In order to mitigate the socio-economic and environmental degradation commonly accompanying rapid urbanisation, it is essential that the environmental implications of urbanisation be assessed and managed (*ibid.*). A key component in the identification and management of the ramifications of urbanisation, is an analysis of the underlying macro- and micro-level factors which fuel this process.

2.2 FACTORS GENERATING URBANISATION IN THE THIRD WORLD

The pace of urban growth, particularly in African countries, is fueled primarily by rural-urban migration (Gugler, 1991). Factors generating urbanisation are numerous, and are positioned within a web of complex interactions. Understanding rural-urban migration requires an holistic, integrated framework of analysis - one in which the diverse range of cause-and-effect relationships contributing to urbanisation are recognised.

Rural-urban migration is commonly explained in terms of high population growth rates and the resultant deterioration of natural resources in rural areas - circumstances which force many people to migrate to the urban areas in search of employment (Parnwell, 1993). Importantly, population growth, although an impetus for migration, is not the main cause behind this movement. Of greater significance is the **imbalanced process of economic growth** characteristic of Third World countries (*ibid.*).

Since World War Two, most Third World countries have sought to bring about development by facilitating rapid economic growth (*ibid.*). The development strategies underpinning this growth have typically emphasised industrial modernisation and technological sophistication in the urban centres - to the economic neglect of the rural areas (Todaro, 1994). This **urban bias** in economic policies, has created a "substantial geographic imbalance in economic opportunities and (has) contributed significantly to

the steadily accelerating influx of rural migrants into urban areas" (Todaro, 1994:252). Viewed in this light, the incidence of rural-urban migration serves, in part, as a 'litmus test' of unequal development (Parnwell, 1993).

The widespread tendency to concentrate economic growth in key areas and sectors is largely the result of "the natural tendencies of free-market capitalism, differential endowments of natural resources, the strategic geographical importance of some areas, or deliberate government policies which afford a higher level of investment and support to more prosperous and dynamic regions" (Parnwell, 1993:73-74). Any economic or social process that has a differential influence on rural and urban real incomes will directly or indirectly shape the incidence and magnitude of the urbanisation process (Todaro, 1994). In the context of urban bias and rural stagnation, migrants are able to 'vote with their feet' against the failure of economic and social policies to address their needs (Parnwell, 1993).

Policies which impact directly on the rural-urban migration stream include wage and income policies and employment promotion programmes. There are other factors which, although less obvious, are in the long run no less significant. These include, *inter alia*, land tenure arrangements; credit allocation; taxation; geographic distribution of social services; nature of public investment programmes; structure of the educational system; organisation of population and family planning programmes; and the nature of public policies toward the location of new industries (Todaro, 1994).

Urban bias sets in motion the formation of key 'push' and 'pull' factors generally typical of the rural and urban areas respectively. These 'push' and 'pull' factors, in combination, constitute significant impetuses for rapid urbanisation. Examples of rural 'push' factors include inadequate social services and amenities; poor infrastructure; low levels of agricultural productivity and income; a weak non-agricultural sector; land shortages; rapid population growth; and resource depletion (Parnwell, 1993). This rural impoverishment sets in motion a host of ramifications which in turn add impetus to the rate and scale of rural-urban migration.

For example, in a context of high infant mortality, a dearth of social support services, inadequate resources and widespread unemployment, a coping mechanism commonly

adopted is to increase fertility rates (Klugman, 1991). Increasing the size of ones family acts as guarantee that at least some members will gain employment and be able to contribute to the household income. However, a growth in population numbers, occurring in a context of rapidly depleting resources, provides a significant stimulus for further rural-urban migration - a scenario which, in turn, places heightened pressure on the urban environment.

Another outcome of urban bias is the inadequate provision of educational services in the rural areas. Poor levels of education constitute a significant factor responsible for the high fertility rates typical of impoverished rural areas. In the absence of education and the broadening of opportunities which it affords, motherhood, for many women, is their primary source of validation and self-esteem (*ibid.*). A lack of access to educational facilities perpetuates the limited control many women have over their lives. As such, "Giving women access to education is critical to their empowerment and is the major factor leading to a decline in fertility" (Klugman, 1991:77). This focus on population growth as a response to poor quality of life, highlights the importance of recognising the complex variety of inter-related factors which generate the urbanisation process.

Urban 'pull' factors are most typically underpinned by economic motivations, namely, the perceived availability of employment and higher wages in the urban areas. An expected improvement of welfare facilities, notably, education, health care, housing and public amenities, also constitute important 'pull' factors (*ibid.*). Although many migrants fail to secure these benefits in the short term, or even in their own lifetime, long term prospects for the next generation is a significant 'pull' factor encouraging people to move to the urban areas (Todaro, 1994).

Explaining urbanisation within the framework of unbalanced development strategies provides a broad backdrop for understanding this process. However, the existence of structural imbalances does not, by itself, provide a sufficient reason for people to migrate (Parnwell, 1993). Migration decision-making also needs to be viewed at the level of the individual and household. "In reality, no two people in the countryside are faced with an identical set of circumstances and thus people cannot be expected to respond to various structural and developmental stimuli in the same way" (Parnwell, 1993:95). Variables which have a significant influence on people's decision to migrate include, *inter alia*,

variations in the levels of income, size of the household, age, gender, levels of education, size of the land-holding and the prevalence of contacts in the urban areas (Parnwell, 1993). Understanding rural-urban migration therefore requires an analysis of macro- and micro-level factors, viewed within the context of the political economy of the country concerned (Gugler, 1991).

2.3 RAMIFICATIONS OF URBANISATION

Urban settlements are human constructs, each one designed to perform a set of functions for its inhabitants and, generally, those of the surrounding region. As such they facilitate specialisation and promote efficiency. Urban centres offer the cost-reducing advantages of centralised economies and economies of scale and proximity, as well as several economic and social externalities, for example, skilled workers, cheap transport, and social and cultural amenities (Todaro, 1994). In short, urban centres are nodes of high accessibility and intense social interaction. However, as levels of urbanisation in the Third World continue to increase, a central question which needs to be asked is how these Third World cities and towns will cope - economically, environmentally and politically - with such a rapid rate and scale of population growth (*ibid.*).

Rapid urban growth in Third World countries is typically superimposed on an urban base of limited absorptive capacity and high levels of poverty. These circumstances render the urban transition a process which is plagued by socio-economic and environmental problems (Gugler, 1991; Stern, 1991). In the context of already over-stretched urban services and high unemployment, the historical advantages of urbanisation are invariably outweighed (Parnwell, 1993; Todaro, 1994). Recent Third World experiences indicate that rates of rural-urban migration "continue to exceed rates of urban job creation and to surpass greatly the absorption capacity of both industry and urban social services" (Todaro, 1994:261). Viewed from this perspective, urbanisation, in the absence of job opportunities and adequate urban services, is both a symptom of, and contributor to, Third World underdevelopment (Todaro, 1994).

A failure to adequately manage the impacts of rapid urbanisation is threatening human health, environmental quality and urban productivity (Leitmann, Bartone and Bernstein,

1992). The immediate and most critical environmental problems facing Third World cities are collectively dubbed the 'brown agenda'. These problems include, *inter alia*, poor housing and residential quality; overcrowding and congestion; poor sanitation; lack of safe water; inadequate waste management and pollution control; degeneration of local infrastructure; inadequate medical services and ill-health - problems which fall most heavily on the urban poor (Leitmann *et al*, 1992; Schteingart and de Mexico, 1989; Stern, 1991; Hamza, 1989).

Third World cities also face a variety of 'green issues'. These include the unsustainable management of resource consumption and the subsequent depletion of water and forest resources; inefficient energy use; environmental degradation, and the occupation of areas prone to natural hazards (Bartone *et al*, 1994). Although a theoretical differentiation is made between 'brown' and 'green' issues, the problems they encompass are intricately interwoven and need to be viewed from a systemic perspective. The extent to which these urban environmental problems occur depends on the specific socio-economic context in which each urban centre is located.

The high degree of unemployment in Third World cities is exacerbated by the continual influx of job-seekers (Parnwell, 1993). The low levels of education and poor skills attainment characteristic of the majority of the rural-urban migrants, results in a continued saturation of the unskilled labour market. As a result, most migrants, unable to find employment, join the ranks of the urban poor (*ibid*). By way of illustration, for every new job created, two or three migrants can be expected to migrate from the rural areas. Thus if 100 jobs are created, there may be as many as 300 new migrants and 200 more urban unemployed (Todaro, 1994). This escalating pace of unemployment and growing body of urban poor, means that a high percentage of inhabitants are unable to pay for urban services. Bearing the financial brunt of service provision and the resolution of urban environmental problems, therefore falls on the shoulders of the city authorities. However, given the high cost of investment needed to bring about these changes, the city authorities are often unable to cope, and the downward spiral of environmental degeneration continues (Parnwell, 1993).

Urban environmental problems, manifested in cities throughout the developing world, inflict a high price. In metropolitan Manila, for example, severe air pollution has resulted

in decreased labour productivity, with the costs of this impact approaching an estimated US\$20 million a year. Furthermore, waterborne contamination is responsible for a potential yearly productivity loss of approximately US\$100 million (World Bank, 1993 in Bartone *et al*, 1994). In the peri-urban areas of Peru, the cholera epidemic of 1991, caused by inadequate sanitation and poor hygiene, caused over 320 000 cases, 2600 deaths, and an estimated US\$1 billion in losses from reduced agricultural and fisheries exports and tourism (World Bank, 1992 cited in Bartone *et al*, 1994). The spread of tuberculosis, a symptom of overcrowding, poor nutrition and poverty, also has serious implications for the physical well-being of the available workforce and the community at large (University of Cape Town, 1996).

The point which needs to be stressed concerns the far-reaching implications of rapid urbanisation. The inability of urban areas to absorb migrants adequately brings about a deterioration in environmental health. This results in decreased urban productivity which in turn perpetuates the cycle of poverty and environmental degradation.

As the population numbers increase, so do the resultant environmental stresses. Importantly, the increased demand for food, water, minerals, fuelwood and fossil fuels associated with rapid urban growth in many Third World cities, have implications beyond the city boundaries (Bartone *et al*, 1994; *Centre for Science and Environment*, 1989). These resources, if unavailable in the immediate urban environment, will be extracted from neighbouring regions. For example, as local water sources are outstripped by demand and by pollution, the search for piped water gradually extends into the surrounding region. Possible negative implications include unsustainable extraction, to the detriment of the source areas, and heightened transportation costs as the distance of available water from the urban areas increases (White, 1989).

Heightened migration to the urban centres also has implications for the rural areas, most notably, in terms of a loss of human resources (Parnwell, 1993). The extent of this impact depends on, *inter alia*, the magnitude of the movement; the timing and duration of the migrant's absence; the characteristics of the migrant and the extent to which their skills can be replaced (*ibid.*).

A comprehensive understanding of the ramifications of urbanisation must therefore take into account a set of complex natural, social and economic relationships (Leitmann *et al*, 1992). Furthermore, an analysis of urban environmental problems requires a sensitivity to the interrelationships between these problems, and a recognition of their close link to the poverty-environment nexus (Bartone *et al*, 1994).

3. URBANISATION IN NAMIBIA

3. URBANISATION IN NAMIBIA

An overview of urbanisation in the Third World, as conducted in chapter 2, lays the foundations for an analysis of rural-urban migration in Namibia. While generalisations do exist regarding the catalysts for urbanisation, each country possesses a unique combination of factors responsible for the rate and scale of urban growth. The task of this next chapter is therefore to detail the extent of urbanisation within Namibia as a whole, to highlight the rate and scale of rural-urban migration to the study area, and finally, to unearth the factors perpetuating this occurrence.

3.1 INTRODUCTION

The rapid urbanisation of the Third World is a demographic phenomenon which is experienced by most developing countries. Namibia conforms to this trend of ever-increasing urban populations. However, as mentioned in the introductory chapter, a thorough analysis of urbanisation in Namibia is hampered by a lack of sufficient data on the magnitude and direction of rural-urban migration (Tvedten and Mupotola, 1995). Namibia's 1991 Population and Housing Census, although useful for providing an indication of the extent to which people born in Namibia reside in districts different from where they were born, does not supply details on specific migration trends within the country. This is soon to be rectified in an Intercensus Demographic Survey, to be carried out by the Central Statistics Office (National Planning Commission) in 1995/96 (*ibid.*). However, with the use of a variety of other sources, a general indication of the extent of rural-urban migration in Namibia can be compiled.

3.2 URBANISATION - A NATIONAL PERSPECTIVE

Namibia's current population total numbers approximately **1.6 million** people (Ashley, 1996). Of this total, close to **30 percent** are residing in the urban areas (Tvedten and Mupotola, 1995). However, an estimated average urban growth rate of between **4.5 percent** and **6.5 percent**, for the period 1991 to 2000, indicates that Namibia's urban centres are set to expand significantly in the next decade (*ibid.*). This rate of urbanisation is comparable to other countries in Sub-Saharan Africa (Table 1).

Table 1: Basic Statistical Data on Sub-Saharan Africa

Country	GNP per capita 1992 (US\$)	% pop. below absolute poverty level 1980-90 (urban)	% pop. below absolute poverty level 1980-90 (rural)	% urban population 1992	Ann. urban growth rate (%) 1992-2000
Angola	1 130	?	65	30	5.4
Botswana	2 790	30	55	30	7.9
Ethiopia	110	60	63	13	5.8
Lesotho	590	50	55	23	6.3
Kenya	310	10	55	25	7.0
Mozambique	60	40	65	30	7.2
Namibia	1 160	?	?	28	5.4
Somalia	170	40	70	35	4.7
Sudan	480	?	85	23	4.8
Tanzania	110	10	60	22	7.5
Uganda	170	?	80	12	6.6
Zambia	290	47	80	51	5.5
Zimbabwe	570	?	60	30	5.4

Source: UNICEF (1993); World Bank (1994) and UNDP (1994) in Melber (1995).

Although leading international institutions, for example, UNICEF, UNDP and World Bank, estimate Namibia's annual urban growth rate at **5.4 percent**, a national average of **4.5 percent** is commonly cited when calculating Namibia's urban population projections (Melber, 1995). This growth rate is a compromise between the estimates most commonly referred to. Although verified by the Central Statistics Office (CSO) as reasonable, given the scanty nature of existing data, the average rate of urban growth could be substantially higher (Tvedten and Mupotola, 1995). Based on this growth rate, the urban population in Namibia can be expected to increase by 102 000 people by the year 2000 (*ibid.*). Importantly, this growth rate - inclusive of a natural urban growth rate of **3.1 percent** - implies an average rural-urban migration rate of **1.4 percent** or approximately 10 000 people per year (*ibid.*).

Much of this rural-urban migration originates in the northern regions of the country, with urban centres in the central regions receiving the largest percentage of this influx (Melber, 1995). This trend has increased significantly since Namibian independence in March 1990 and the annexation of Walvis Bay in March 1994 (Amutenya, Andima and Melber, 1993).

The majority of migrants emanate from the Oshana, Oshikoto, Ohangwena and Omusati Regions - with the highest percentage departing from the districts of Oshakati and Ondangwa within the Oshana Region (Map 1 and 4). The urban centres absorbing the majority of these migrants, and growing at a rate faster than any other towns in Namibia, are Windhoek and Walvis Bay, with the northern towns of Rundu and Katima Mulilo also expanding at a considerable rate (Table 2) (Tvedten and Mupotola, 1995). The table indicates a combined increase of 160 332 people in these towns between the years 1995 and 2000.

Table 2: Population prospects for the fastest growing towns in Namibia (Rate 6.5%)

Town	1991 population	Est. 1995 population	Est. 2000 population
Windhoek	147 056	189 183	259 197
Walvis Bay	30 452	39 175	53 674
Rundu	19 366	29 914	34 134
Katima Mulilo	13 377	17 209	23 578

Source: Tvedten and Mupotola (1995). Calculated on the basis of the Namibian 1991 Population and Housing Census.

Persons aged 20-49 years of age, predominantly male, are the most urbanised population group in the country, with the major proportion of these occurring in the 25-39 years age group (CSO, 1994). Given that this is the most economically active age group, it can be assumed that the majority of people migrating to the urban areas do so in search of employment.

An analysis of urbanisation within Namibia highlights a significant trend, namely, a concentration of the urban population within the central regions of Khomas (**88 percent**) and Erongo (**63 percent**) - based on 1991 figures gathered in the Namibian Population and Housing Census (CSO, 1994 in Tvedten and Mupotola, 1995) (Table 3). Important to clarify is that the urban centres of Windhoek and Walvis Bay are located within the Khomas and Erongo Regions respectively, thereby accounting for the high levels of urbanisation experienced within these zones.

Table 3: Urbanisation in Namibia by region (1991)

Country/Region	Total Population (#)	Urban Population (#)	Urban Population (%)	Population Density (km ²)	Localities with 2000+
Namibia	1 409 920	382 680	28	1.7	51
Karas	61 162	22 732	37	0.4	4
Hardap	66 495	29 020	44	0.6	5
Khomas	167 071	147 056	88	4.4	3
Erongo ¹	55 470	35 062	63	0.9	6
Otjozondjupa	102 536	47 021	46	0.9	5
Omaheke	52 735	8 340	16	0.6	4
Oshikoto	128 745	16 211	13	4.8	2
Oshana	134 884	35 726	26	26.0	6
Omusati	189 919	0	0	15.1	2
Ohangwena	179 634	0	0	17.9	7
Okavango	116 830	19 366	17	2.7	3
Caprivi	90 422	13 377	15	4.9	1
Kunene	64 017	8 769	14	0.5	3

Source: CSO (1994) in Tvedten and Mupotola (1995)

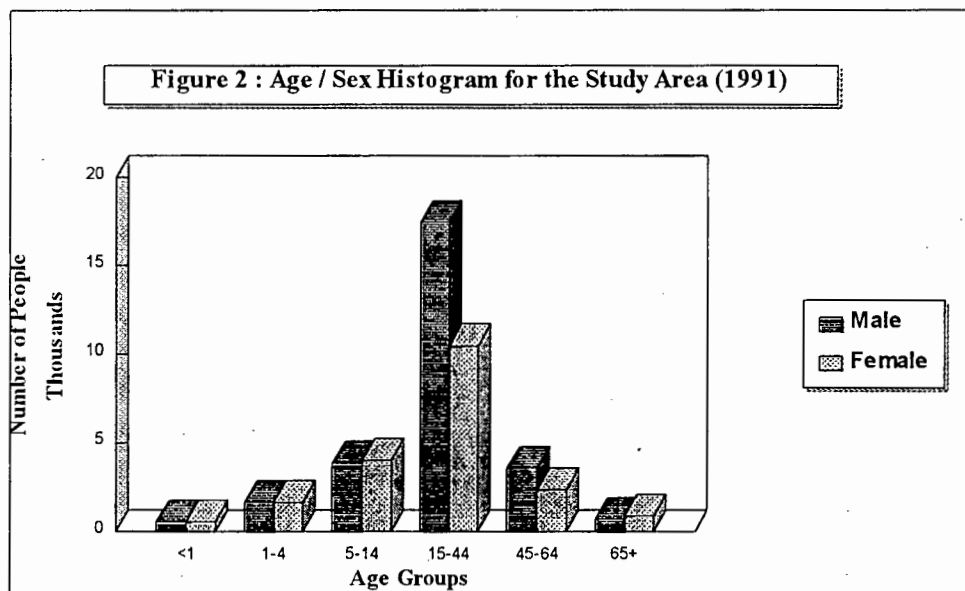
Given that Walvis Bay was excluded from the 1991 Population and Housing Census, the level of urbanisation in the Erongo Region is considerably higher than indicated in Table 3. The 1991 South African census classifies the total Walvis Bay enclave as urban. An addition of the 1991 population of **30 452** therefore provides a significant increase in the levels of urbanisation in the Erongo Region (Walvis Bay Health Department, 1991). The northern regions, in contrast, have an urban population of **nil** in Omusati and Ohangwena, **13 percent** in Oshikoto and **26 percent** in Oshana (CSO, 1994) (Table 3).

3.3 URBANISATION WITHIN THE STUDY AREA

The total population of the Erongo Region, excluding Walvis Bay, was estimated at **55 470** in 1991 (CSO, 1995). Including Walvis Bay's population total of **30 452** for the same year, the population of the Erongo Region is estimated at **85 922** in 1991 (Walvis Bay Health Department, 1991). Of this regional total, the number of people inhabiting the study area in 1991 was approximately **55 348 - 64 percent** of the regional total (CSO, 1994).

¹ Footnote: Statistics pertaining to Walvis Bay are not included in the Erongo Region.

The study area's coastal location, combined with its accessibility and infrastructure, makes it a prime holiday destination. During Christmas time and school holidays the population increases at least two-fold, especially in Swakopmund and Henties Bay (Ramboll, 1995). Apart from the seasonal influx of holiday makers, a more permanent and significant increase of people to the coastal towns has been noted. Figure 2 indicates the 1991 age and sex distribution of the population in the study area and provides an important starting point for an assessment of the number of migrants coming to the coastal towns.



The histogram highlights a concentration of people in the 15-44 year age group. This concentration is, however, significantly higher among the males. The total number of males increases from 3 856 in the 5-14 year age group to 17 460 in the 15-44 year age group, and from 4 037 to 10 478 among the females. In the 45-64 year age group this high population total decreases substantially - from 17 460 to 3 633 (males) and 10 478 to 2 355 (females). The sizable increase in the number of people who are of an economically active age, indicates an influx of people seeking employment in the study area.

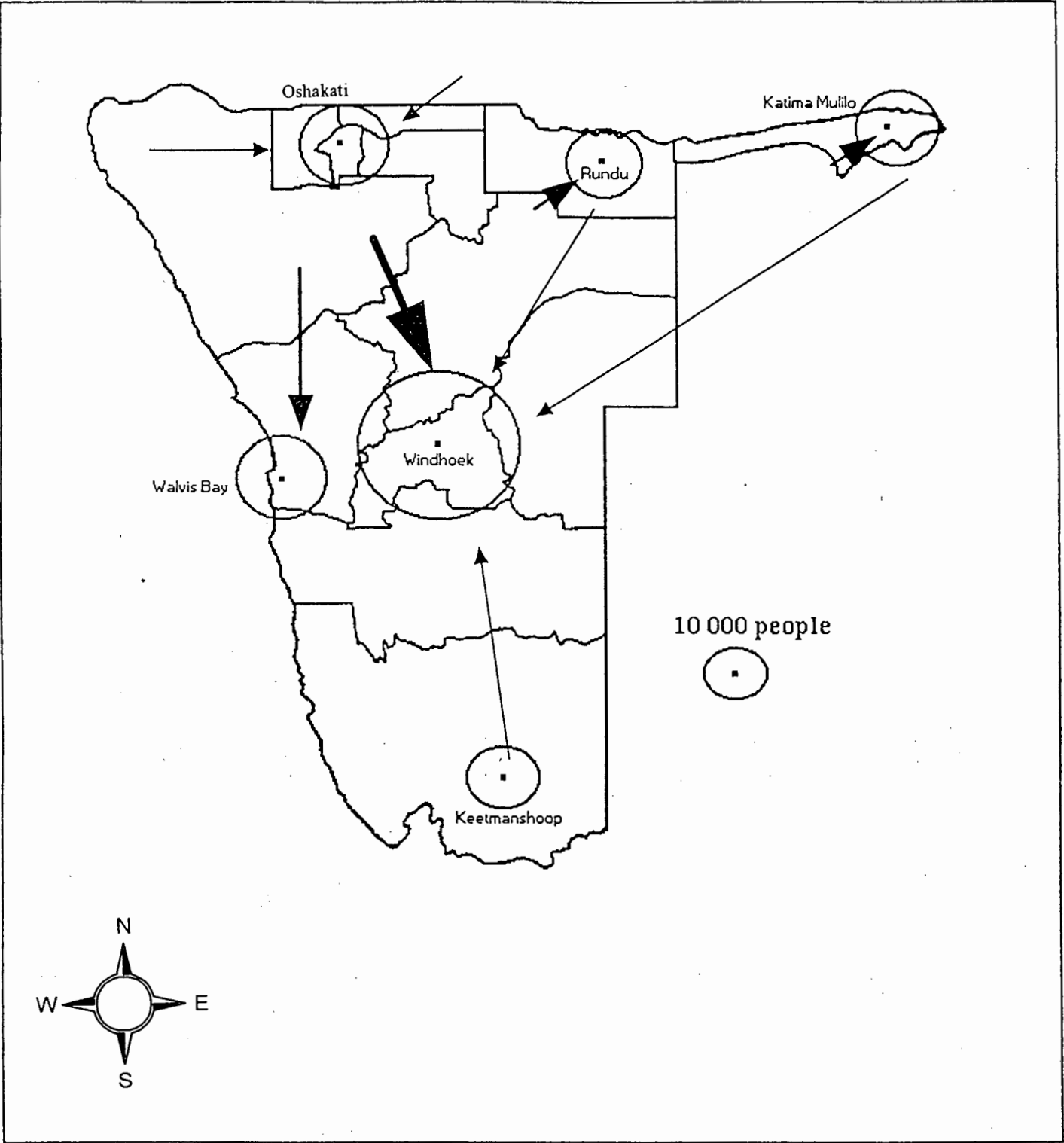
Within the study area, **Walvis Bay**, a focus of colonial development and host to increased industrialisation since Independence, is the chief recipient of these migrants. During the three to five years before its 1994 amalgamation into Namibia, Walvis Bay

experienced an influx of 15 000 people to the former African township of Kuisebmond. (Dennis Moss Partnership, 1994). The ceding of Walvis Bay to Namibia was accompanied by the dismantling of influx control measures which had served to limit the number of job-seekers entering the enclave (Butkus, Pers. Comm., 13/02/96). Following these changes the rate of migrant influx has increased dramatically, resulting in Walvis Bay being the second major urban growth point in Namibia (Tvedten and Mupotola, 1995). Although numerous sources point to Walvis Bay as a key destination for migrants (Tvedten and Mupotola, 1995; Melber, 1995; Amutenya *et al*, 1993; Dennis Moss, 1994; Ramboll, 1995), other towns in the study area are also experiencing an influx of job-seekers from the northern regions.

Swakopmund, with its relatively modern infrastructure and economic activities, is another significant destination for internal migration (Amutenya *et al*, 1993). Mondesa, the traditionally black township in Swakopmund, absorbs the majority of these migrants. Between 1991 and 1994 the township experienced an annual growth rate of **9.3 percent** - a growth rate which constituted a population increase of **2 780** people (National Housing Enterprise, 1994). In Swakopmund the majority of the population (37 percent) speak Oshiwambo - a mother tongue in the northern regions. The proliferation of Oshiwambo speakers in Swakopmund confirms the trend of migration from the northern regions to this coastal town (*ibid.*).

The extent of in-migration in **Henties Bay** is minimal when compared to Swakopmund and Walvis Bay. Nevertheless, an influx of job-seekers contributes to the population growth of Henties Bay - an influx which is concentrated in the township area of Omdel (Armstrong, Pers. Comm., 14/02/96; Taljaard, 1995). These people are migrating from the drought stricken areas of Namibia and the northern regions of the country. The closure of the Uis mine in particular has resulted in an increased number of people migrating to Henties Bay in search of employment (*ibid.*).

With the large number of people migrating from the northern regions to Walvis Bay, **Arandis** acts as an interceptor (Ramboll, 1995). This migration pattern, which intensifies during the peak fishing season in June and July, increases the population to a maximum of 8 000 people (*ibid.*).



Map 4 Migration Patterns within Namibia

The 1991 Population and Housing Census provides some useful data detailing the extent of migrant influx to the Swakopmund district². Of the 16 748 people residing in the Swakopmund district, only 4 098 were born in the district. The greatest number of migrants to the area are from the northern districts of **Oshakati** (3 018 people) and **Ondangwa** (3 179 people) (CSO, 1994) (Map 4). A large proportion of these migrants are male - 68.8 percent from Oshakati and 64.5 percent from Ondangwa (*ibid.*). Important to note is the extent to which these migrants become permanent residents of the Swakopmund district. As detailed in the census, 16 327 of the 16 748 people residing in the Swakopmund district can be considered permanent residents, while 421 still migrate to and from other areas (CSO, 1994). This state of affairs has important implications for the study area in terms of increased pressure on local infrastructure.

Providing a succinct summary of future population figures for the study area is somewhat difficult, due to the wide variety of different estimates and rates of urban growth which have been compiled. However, using this data, a comparative analysis of low, medium and high population projections has been compiled, as illustrated in Table 4-6.

Table 4: Low population projections for urban centres within the study area

Urban centre	1991	1995	2000
Walvis Bay	30 452 ¹	36 315 ²	45 255 ²
Swakopmund	17 681 ³	21 085 ²	26 276 ²
Henties Bay	1 612 ³	1 922 ²	2 396 ²
Arandis*	4 303 ³	5 131 ²	6 395 ²
Total	54 048	64 453	80 322

² Both Henties Bay and Arandis are included in the Swakopmund district.

* The Arandis population totals for the year 2000 are dependent on the lifespan and productivity levels of the Rossing Uranium Mine, and as such, are estimated, based on the assumption that the productivity levels of Rossing will remain constant over the next 5 years.

Table 5: Moderate population projections for urban centres within the study area.

Urban centre	1991	1995	2000
Walvis Bay	30 452 ¹	45 000 ⁴	52 000 ⁴
Swakopmund	17 681 ³	23 263 ⁵	32 172 ⁶
Henties Bay	1 612 ³	2 711 ⁷	3 823 ⁷
Arandis*	4 303 ³	5565 ⁷	7 697 ⁷
Total	54 048	76 539	95 692

Table 6: High population projections for urban centres within the study area.

Urban centre	1991	1995 ⁸	2000 ⁸
Walvis Bay	30 452 ¹	55 000	82 500
Swakopmund	17 681 ³	25 000	37 500
Henties Bay	1 612 ³	3 500	5 250
Arandis*	4 303 ³	6 000	9 000
Total	54 048	99 500	134 250

¹ Walvis Bay Health Department (1991)² Tvedten and Mupotola (1995)³ CSO (1994)⁴ Dennis Moss Partnership (1994)⁵ National Housing Enterprise (1994)⁶ Municipality of Swakopmund (1995)⁷ In the absence of available data, medium projections for Henties Bay and Arandis were estimated by calculating the difference between the high and low population projections for both towns.⁸ Ramboll (1995)

The most probable of the above projections, particularly for Walvis Bay and Swakopmund, is the **moderate scenario** listed in Table 5. This is due to the fact that the figures listed were compiled from studies carried out specifically for the relevant municipalities - the Dennis Moss Partnership Study (1994) for Walvis Bay, the Swakopmund Mayoral Report (1995) and the Swakopmund Study and Programme Proposal submitted by the National Housing Enterprise (1994). These projections, as

presented by the research bodies concerned, have been accepted as realistic by both the Swakopmund and Walvis Bay municipalities.

Table 4 was compiled using a *national* average urban growth rate of 4.5 percent. While this rate may be applicable on a national level, its appropriateness to the study area is questionable - especially when considering that Walvis Bay and Swakopmund have both been officially recognised as centres of substantial migrant influx (Amutenya *et al*, 1993).

The figures listed in Table 6 are collated from estimates cited in Ramboll (1995). A 10 percent growth rate was used to calculate these population totals - totals which Tvedten and Mupotola (1995:9) consider to be “unrealistically high”. Importantly, this high growth rate of 10 percent is applicable to **specific** time periods in the study area. Table 5, for example, records a **12 percent** growth rate for Walvis Bay between 1991 and 1995. It is, however, questionable whether a growth rate of 10 percent is accurate as a constant growth rate beyond 1995. By way of illustration, Dennis Moss Partnership (1994) predicted the following fluctuations in population growth rates: 9 percent for 1993-1995; 3 percent for 1995-2000; 3 percent for 2000-2005; 4 percent for 2005-2010; and 3.6 percent for 2010-2015. Although the above figures indicate a possible decline in the rate of urban growth, a total disregard of the figures in Table 6 would be ill-advised. Should the Government be unsuccessful in mitigating rural ‘push’ factors, the rate of rural-urban migration could increase substantially - with the subsequent possibility of high population figures as predicted in Table 6. Importantly, formulating management plans in order to cope with the influx of migrants necessitates adequate consideration of ‘worst-case’ scenarios.

For management purposes it is essential that planners be provided with an indication of the rate and scale of population growth, expressed in terms of the projected **doubling time** for each urban centre within the study area. These figures, summarised in Table 7, have been compiled based on an assumed continuation of moderate population growth rates between 1995 and 2000, as cited in Table 5. Although a variety of factors exist which can be expected to impact upon urban growth rates within the study area, the figures listed below provide a general indication of the extent of population growth in the towns concerned.

The average annual rate of population increase in Walvis Bay between 1995 and 2000 is **3.1 percent**. Based on an assumed perpetuation of this urban growth rate, the 1995 population of Walvis Bay (45 000) can be expected to double by the year **2019**. The average annual rate of population growth in Swakopmund between 1995 and 2000 is **7.6 percent**. Hence, a perpetuation of this growth rate would result in a doubling of the 1995 Swakopmund population (23 263) by the year **2002**. Similarly, in Henties Bay, a continuation of the annual average population growth rate of **8.2 percent**, as experienced between 1995 and 2000, would mean a doubling of the 1995 population (2 711) by the year **2006**. A calculation of the doubling time for the population of Arandis has been omitted. This is due to the large percentage of residents who, although currently employed by Rossing Uranium Mine, are predicted to leave Arandis following the closure of the mine in 5 to 20 years time (van Schalkwyk, Pers. Comm., 15/02/96).

Table 7: Predicted doubling times for urban populations within the study area.

Urban centre	Est. 1995 population	Est. growth rate (%)	Doubling time (years)
Walvis Bay	45 000	3.1	24
Swakopmund	23 263	7.6	7
Henties Bay	2 711	8.2	11

A discussion of urbanisation trends within the study area is meaningless without an analysis of the factors which perpetuate this flow of migrants to Namibia's urban centres. The task of the following section is therefore to uncover the rural 'push' and urban 'pull' factors which are in part responsible for the increased levels of urbanisation experienced by urban centres within the study area.

3.4 FACTORS PERPETUATING RURAL-URBAN MIGRATION IN NAMIBIA

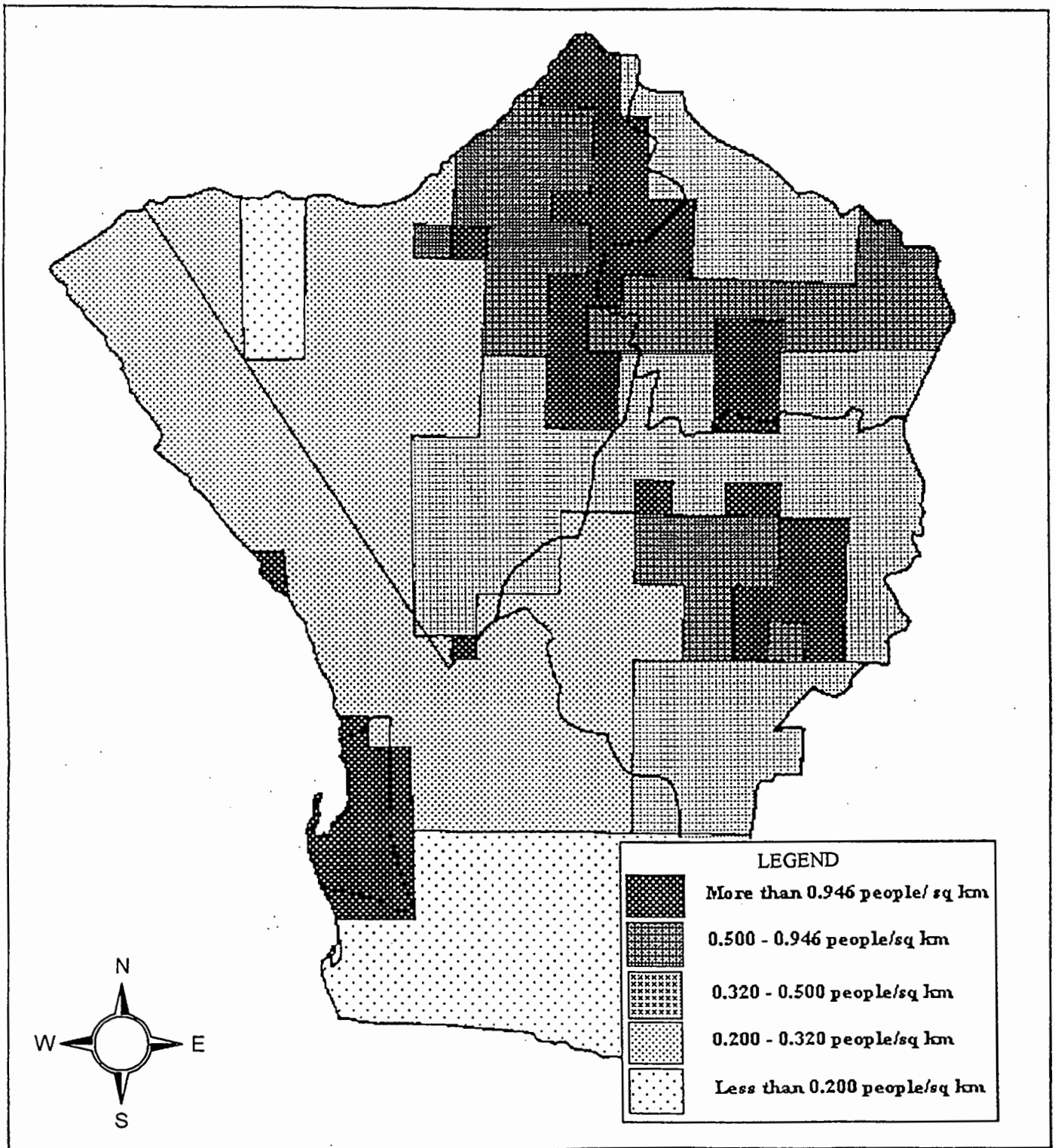
3.4.1 INTRODUCTION

An understanding of rural-urban migration in Namibia necessitates a recognition of the country's colonial past. "The history of urbanisation in Namibia ... is inextricably linked to the history of colonial rule and its effects in the various regions" (Melber, 1995:321). The most profound ramification of colonial rule, in terms of its impact on internal migration, is the inequitable levels of development which characterise the country (Tvedten and Mupotola, 1995).

For the purpose of this analysis, it deserves reiteration that the levels of urbanisation in Namibia are unevenly distributed (Table 3). Urbanisation is concentrated within the central Khomas (88 percent), Erongo (63 percent) and Otjozondjupa (46 percent) Regions, and in the southern regions of Hardap and Karas, although to a lesser extent - 44 percent and 37 percent respectively. In comparison, neither the Omusati nor the Oshana regions in the north have urban populations (CSO, 1994).

The significance of these low rates of urbanisation is only fully appreciated when compared with the population densities for these same regions (Map 5 and Table 3). What this comparison denotes is that the regions with the highest population densities have the lowest levels of urbanisation, while the low density regions are significantly urbanised (Melber, 1995). Seventy percent of the Namibian population live in the rural areas (Tvedten and Mupotola, 1995). Of this total, 44 percent live in the combined districts of Ondangwa and Oshana in the Oshana Region - a region which, despite its high population numbers, only has an urban population of 26 percent (Amutenya *et al*, 1993).

In a settlement system urban centres are functionally organised into a hierarchy of differing spheres of influence, depending on the extent and nature of the goods and services offered by the town (Berry and Kasarda, 1977). It follows that urban centres with extensive goods and services will have large spheres of influence, and will attract large population numbers as a result. Ideally, there should be a hierarchical distribution



Map 5 Population Density, 1991 - Erongo Region

of urban centres such that there is a gradually decreasing size of settlements (Knox and Agnew, 1989). This allows for a more even distribution of the potential benefits of urbanisation, as well as preventing the negative ramifications associated with hyperurbanisation.

In Namibia, only 10 percent of the urban centres in the country - a 10 percent which includes the towns in the study area - have population totals exceeding 2 000 inhabitants (Melber, 1995). The remaining 90 percent are inhabited by less than 200 people (*ibid.*). This dearth of middle-order settlements signifies a concentration of urban resources within a limited number of towns, to the neglect of the surrounding regions. The sphere of influence of these towns, of which Windhoek and Walvis Bay are the most significant, is such that the peripheral areas are drained of labour in favour of the perceived employment opportunities and social services located in the major urban centres (Knox and Agnew, 1989).

This phenomenon of urban primacy in Namibia points to a key impetus for rural-urban migration, namely, the **unequal level of development and structural inequality** which pervades the country - an inequality which is most significant between the northern and central regions (Tvedten and Mupotola, 1995).

3.4.2 COLONIAL HISTORY

Unraveling the specific aspects of colonial rule responsible for contemporary regional imbalances, has as a point of departure, the 1884 granting of German sovereignty over South West Africa (SWA) - as Namibia was then known (Sparks and Green, 1992).

German economic policy favoured Europeans, and laws were promulgated that restricted the African population to land and water in the rapidly shrinking 'reserves' created in the late nineteenth century (*ibid.*). These administrative reserves were located predominantly within Namibia's northern territory (Amutenya *et al.*, 1993). In contrast, urban settlements, located in the central and southern regions, and delineated as 'white areas', were developed as administrative and commercial centres. These urban areas received considerable public and private investments - to the neglect of the black reserves (Tvedten and Mupotola, 1995).

Twenty five percent of the total land area was initially set aside for Africans, but this amount was reduced in favour of European needs, for example, the granting of land for cattle ranches. The confiscation of land alienated the indigenous population from a vital source of livelihood, and many were forced into the labour pool, thereby satisfying the German need for labour (Sparks and Green, 1992).

The establishment of the 1907 Labour Code made wage labour mandatory, and by World War 1, approximately 90 percent of the African male population was integrated into the colonial economy as unskilled labourers (*ibid.*).

World War 1 resulted in the defeat of Germany in SWA, and in July 1915, Louis Botha, on behalf of the Allies, set up an interim military administration in the territory. In 1920, on the grounds that SWA was not prepared for independence, the League of Nations granted the guardianship of SWA to South Africa under a system of mandates. The terms of the mandate was that South Africa should aid in SWA's political and economic development until the population was able to govern itself (*ibid.*).

Contrary to these terms of reference, although still with the support of the League of Nations, South Africa took full administrative and legislative control of SWA. As a consequence, all of the racially discriminatory laws developed for South Africa were extended to SWA. This situation continued unchallenged until after World War 2, when the recently established United Nations (UN) and its Trusteeship Council called for the dismantling of the mandate system (*ibid.*). One of the aims of the Trusteeship Council was to reassess SWA's preparedness for independence and to place South Africa, as the administering authority, under much greater scrutiny (*ibid.*).

However, South Africa, having taken on the role of colonizer rather than benevolent guardian, totally disregarded the call to place the former League of Nations' mandated territory under UN trusteeship. What occurred, in essence, was an annexation of SWA by the South African government. By the end of World War 2, South Africa had replaced Germany as the reigning colonial power in SWA (*ibid.*).

In the context of the colonial impact on current migration patterns, significant legislation which was extended to SWA were the Land Ordinances of 1903 and 1912. Under these

ordinances, all land in the southern zone was expropriated by the Government - except if held in private title by European farmers or through concessions by companies. As a result, a large number of black people lost access to their land and were forced into the reserves (*ibid.*).

These reserves, replicating the homelands in South Africa, constituted less than two of SWA's 57 million hectares. Furthermore, they were located in SWA's most economically marginal lands and were positioned far from white population centres. These circumstances resulted in the reserves becoming increasingly overcrowded and poverty-stricken - a circumstance which left blacks with little option but to sell their labour to meet white demands (*ibid.*).

Due to the demand for labour, the South West African Labour Association (SWANLA) was established in 1943 (Amutenya *et al*, 1993). The mission of this association was to provide black contract labour at the cheapest rates and to ensure that the labour demands in 'white' SWA were met. (Sparks and Green, 1992). SWANLA and the contract labour system therefore provided the institutional framework that made migrant labour a dominant feature of the SWA economy, a situation that has perpetuated itself to the present.

In addition to the activities of SWANLA and the contract system, the reserves were reinforced as labour reservoirs by a variety of policies and laws, for example, the Pass Law of 1922 and the Vagrancy Law of 1920 (*ibid.*). A fundamental goal behind the creation of a black labour pool was the transformation of SWA's economy into "primarily a product-, export-orientated, foreign-dominated economy" (Sparks and Green, 1992:19) and one which was fully dependent on South Africa for its operation (Sparks and Green, 1992). Economic structures were orientated towards investments and economic development in, and immediately surrounding, the urban centres as well as towards commercial farms in the north-central and arid southern parts of the country. Subsistence agriculture, which incorporated the majority of the population was left to stagnate - thereby assisting with the creation of labour reserves (Amutenya *et al*, 1993).

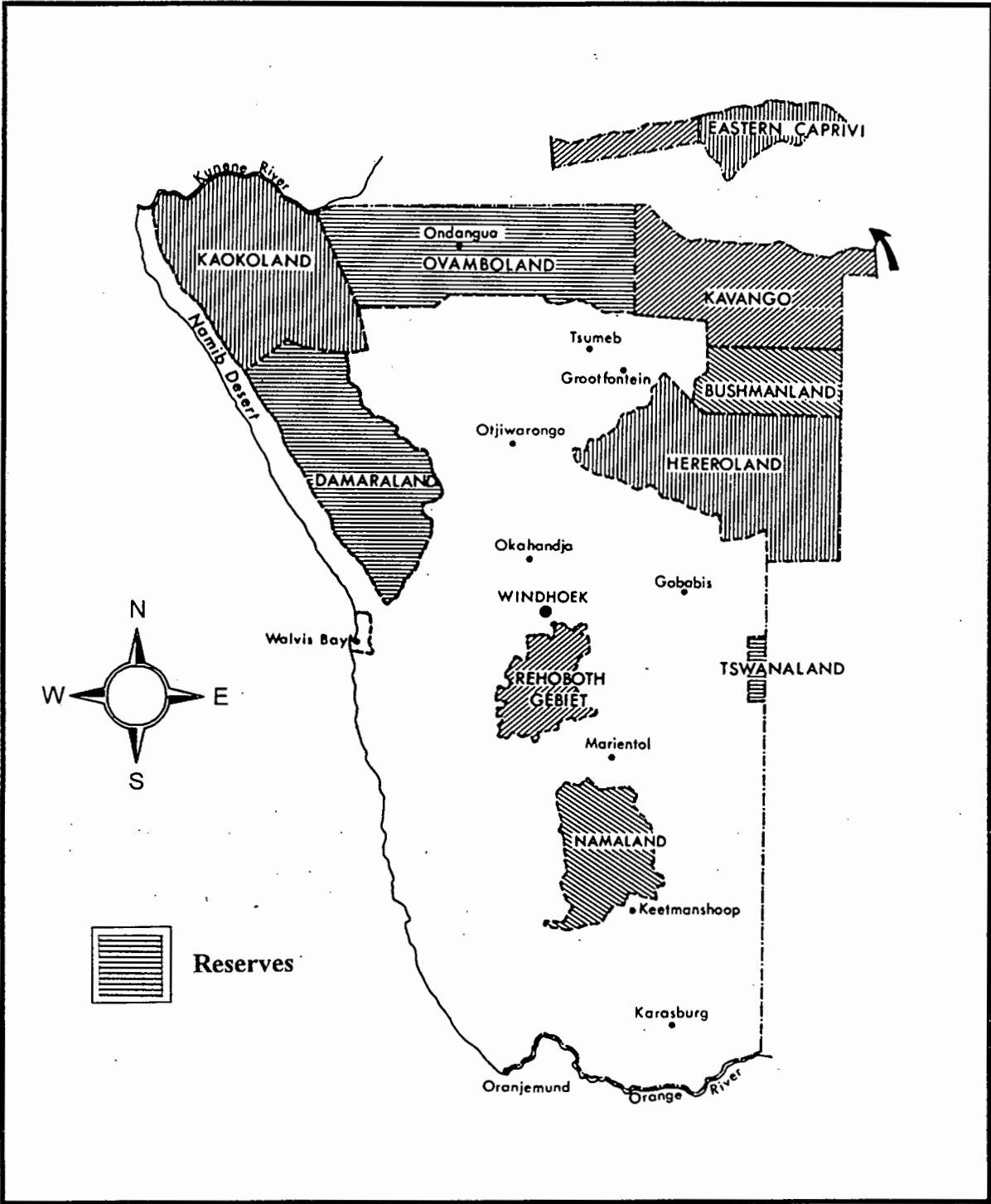
The National Party came to power in South Africa in 1948. This was followed by the formal application of apartheid in SWA. Subsequent to this event, problems for the

African population were exacerbated on two levels (Sparks and Green, 1992): Firstly, blacks found their economic status continually eroded as SWA was 'opened up' for increased exploitation by foreign capital. In an attempt to integrate themselves economically and politically with Western industrialised countries, the South African government were prepared to denude the resources of the territory.

Secondly, the South African Bantustan system was extended to the SWA reserves (*ibid.*). The Odendaal Commission Report of 1964 recommended that SWA be divided into eleven mini-states - one of which would be for the white population and the remaining ten for the different black ethnic groups. Importantly, the African population, which constituted 93 percent of the total inhabitants, were confined to administrative reserves comprising 40 percent of the country's land area (See Map 6). The whites, a mere 7 percent of the total population, controlled 43 percent of the territory. The remaining 17 percent of the land was demarcated as diamond fields, game reserves or 'unallocated government lands' (*ibid.*).

As with the pre-1964 reserves, these black homelands were positioned predominantly in the north, far removed from the white urban centres. Although towns were created as centres for the homelands, urbanisation in these areas was limited due to the lack of investments from the public and private sector - a situation which necessitated migration (Tvedten and Mupotola, 1995).

A number of laws ensured that the African population retained a status as temporary sojourners in the urban areas - most notably, those affecting influx control and the prohibition of property ownership (*ibid.*). This status meant that employers made minimal investment in housing and other social services for the labourers (Sparks and Green, 1992). A distinctive condition of the contract labour system was that workers were forbidden to bring their families with them. The migrant workers (the majority of which were men) therefore lived in single-sex hostels and were paid 'bachelor's wages' - a wage which served to perpetuate the 'vortex' of poverty into which the African population were being drawn (*ibid.*).



Map 6 Reserves under South African rule

The contract labour system operated at its highest intensity in the 1960s and early 1970s with 40 000 to 45 000 northern workers migrating each year to Namibia's urban centres (Amutenya *et al*, 1993). Although the contract labour system was modified after the 1971-72 general strike, rural-urban migration, motivated by the search for employment, continued not only until independence in 1990, but well beyond to the present day (*ibid.*). The perpetuation of this trend is best understood with reference to the current ramifications of the colonial economic development policy. Its effects are most noticeable in the following characteristics typical of the rural areas today: limited economic development; minimal employment opportunities in the formal economy; poor access to housing, water and sanitation; and a lack of medical, educational and recreational facilities (Gaomab and Stone, 1994; Andima *et al*, 1994).

In sharp contrast, the central and southern towns are endowed with a stronger economic base and experience better employment opportunities and improved conditions with regards to housing and social services (Tvedten and Mupotola, 1995). Both of these trends are consistent with the colonial policies of rural neglect in the north and urban bias in the central regions, and constitute a major factor in the impetus to migrate to Namibia's urban centres (Melber, 1995).

3.4.3. CONTEMPORARY REGIONAL INEQUALITIES

The differing access to resources is well illustrated in the recent 1991 Population and Housing Census. While Government efforts are being made to rectify these imbalances, "75 years of South African occupation deformed the economic and social fabric of

Figure 3 Per cent of households with electricity for lighting

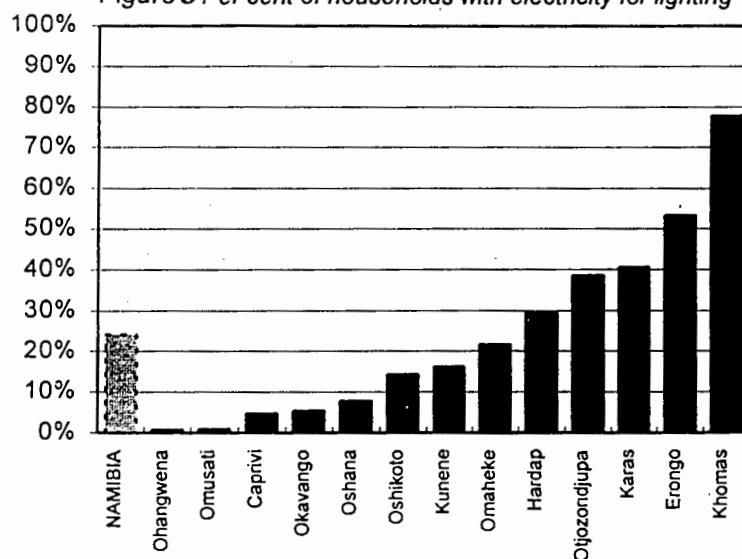


Figure 4 Per cent of households with the bush as toilet

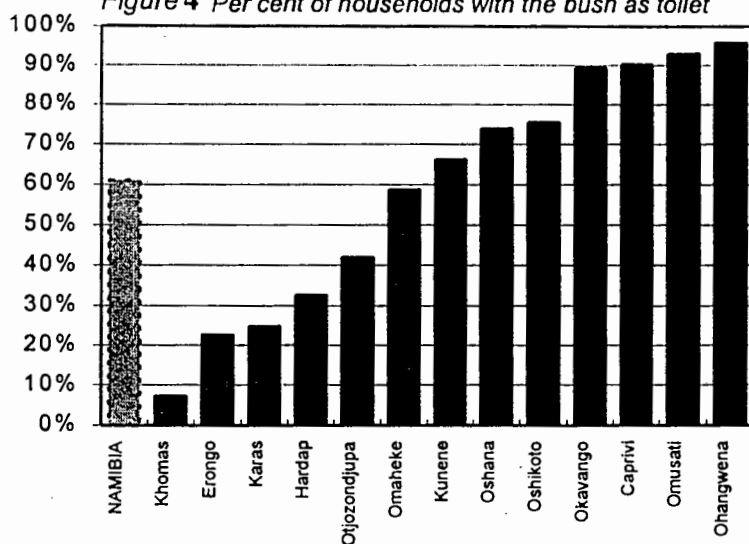


Figure 5 Per cent of households with access to safe water

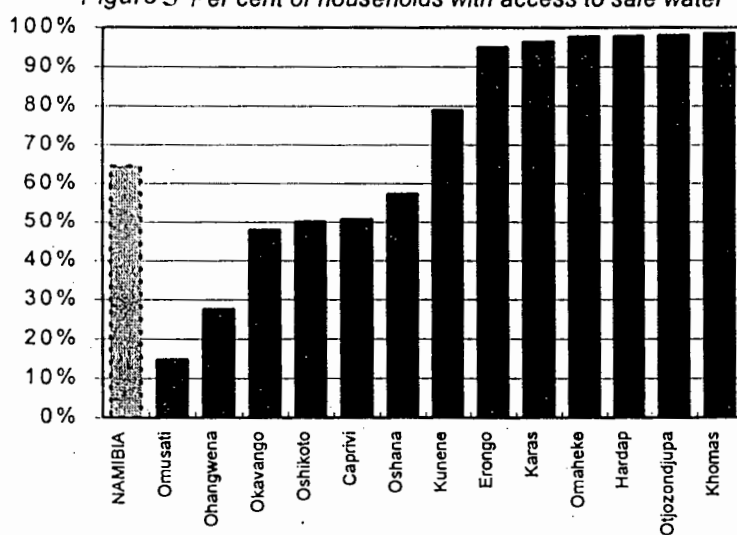


Figure 6 Per cent of persons 15 years and above who are literate in any language

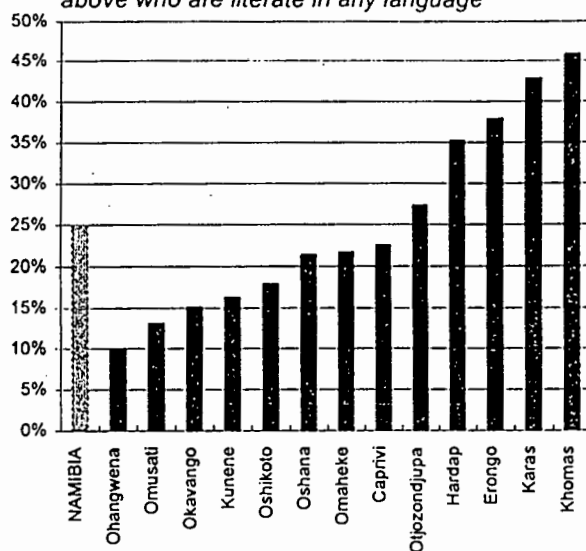


Figure 7 Under Five Mortality by Region

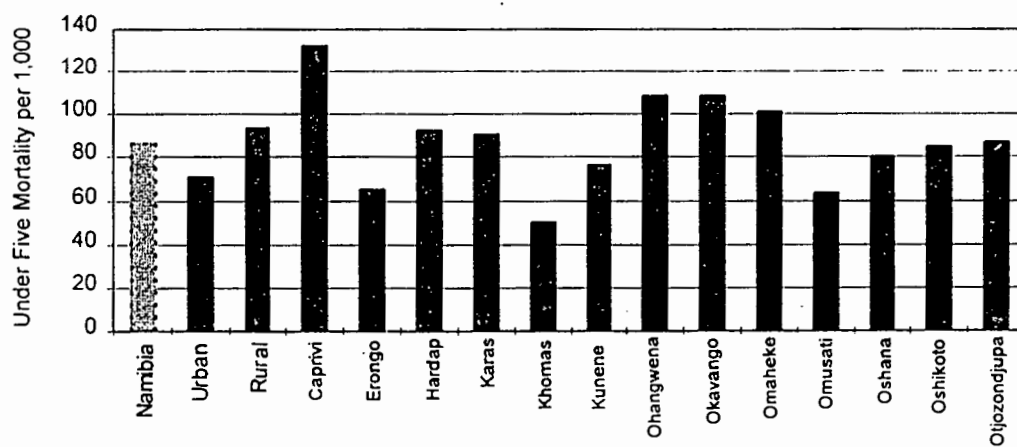


Figure 8 Unemployment rate

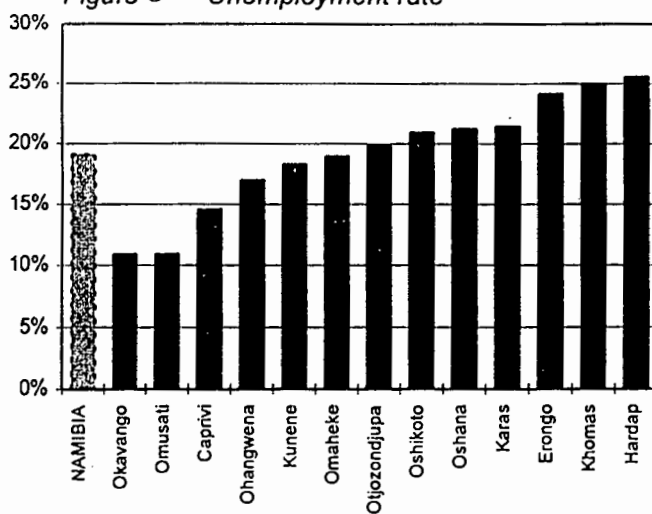


Figure 9 Labour force participation rate

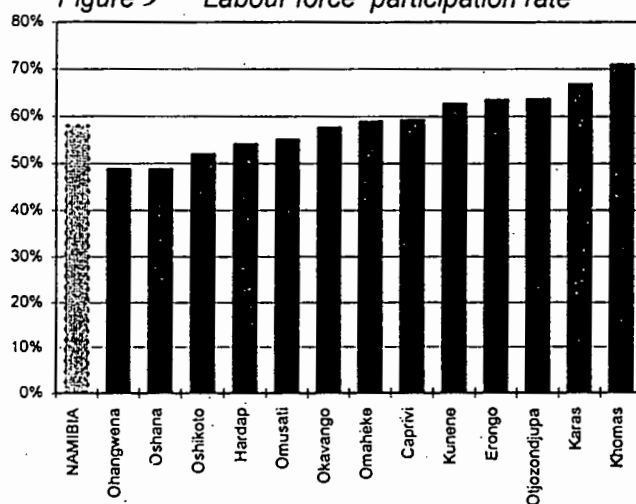
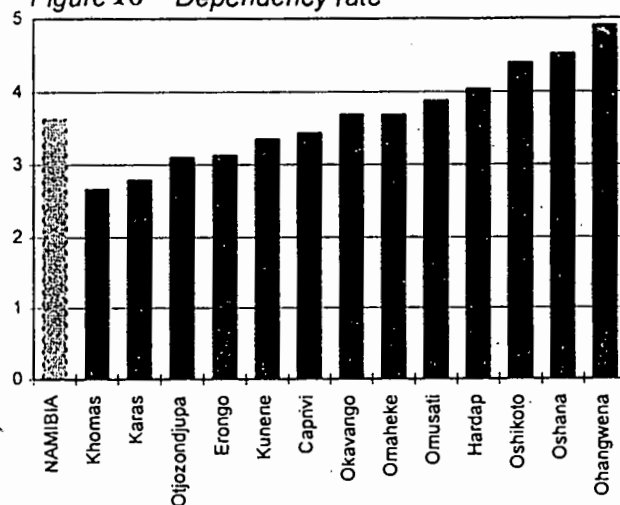


Figure 10 Dependency rate



Namibia to such an extent that it will take decades to rectify” (Sellstrom 1992:1). Given this, the 1991 census, although conducted five years ago, still provides a largely accurate representation of the regional inequalities which characterise Namibia today. Although conclusions can be drawn from this data, allowances do need to be made with regards to the omission of Walvis Bay from this census. A comparative assessment of **housing conditions** provides a useful illustration of the extent to which regional imbalances permeate Namibian society (Figures 3, 4 and 5).

As highlighted in the relevant figures, the Khomas and Erongo Regions have the highest percentage of households with electricity; the lowest percentage of households using the bush as a toilet; and the highest percentage of households with access to safe water (CSO, 1994). At the other extreme, the Ohangwena and Omusati Regions experience the most inadequate allocation of electricity, sanitation and water (*ibid.*). (The 1991 South African Population Census is devoid of any details concerning the allocation of the above-mentioned services.)

In terms of **education**, the highest levels of literacy (defined as the ability to read *and* write) are enjoyed by inhabitants of the Khomas, Karas and Erongo Regions. According to the 1991 South African Census, 31 percent of the Walvis Bay population had a primary school education; 46 percent had a secondary education; and 3.5 percent had a tertiary education - although at varying levels within these categories (CSS, 1991). Being an apartheid enclave, the white population displayed the highest levels of education. However, the average education level for the total population compares favourably with the high levels of education particular to the Khomas and Erongo Region (CSO, 1994). The lowest percentage of literate people are found in the regions of Ohangwena, Omusati and Okavango (Figure 6) (CSO, 1995).

Rates of **infant mortality** provide indicators of standards of health care, living conditions and lifestyle. A comparison between rural and urban infant (under five) mortality rates highlights the following (Figure 7): An infant mortality rate of 71 per 1000 infants in urban areas and 93 per 1000 infants in rural areas (*ibid.*). In terms of regional comparisons for infants under the age of five years, the lowest infant mortalities are to be found in the Khomas, Omusati and Erongo Regions, and the highest in the Caprivi, Ohangwena and Okavango Regions (*ibid.*).

An analysis of the Namibian labour force (Figure 8) indicates that the levels of unemployment³ are highest in the Hardap, Khomas and Erongo Regions, and lowest in Okavango, Omusati and Caprivi (*ibid.*). The predominance of unemployment in the urban areas (26 percent) versus the rural areas (15 percent) needs to be considered with reference to the corresponding labour force participation rates⁴ (Figure 9). In the Khomas Region, for example, the labour force participation rate is at a national high of 72 percent, while in Ohangwena it is at a national low of 49 percent (*ibid.*). These percentages are, however, in inverse proportion to the corresponding unemployment rates for each region.

What these circumstances indicate is a concentration of the labour force in regions which host Namibia's urban centres. While the formal employment opportunities in these urbanised regions exceed those in the rural regions, the resultant migration of job-seekers to the urban centres escalates urban unemployment levels as the number of migrants exceeds the jobs available. The inability of the migrants to find work in the formal sector is exacerbated by the low levels of education and skills attainment characteristic of the majority of migrants. Lower unemployment levels in the Northern Regions is not indicative of improved employment opportunities, but is rather a reflection of the large number of northern inhabitants involved in subsistence agriculture (classified as 'employed'), and the lower labour force participation rates against which to measure unemployment levels (CSO, 1994).

Worth consideration is a possible underestimation of the extent of unemployment in Namibia. The 1991 Population and Housing Census records the national level of unemployment at 19 percent. However, the 1991 census provides no precise figure for underemployment. According to Gaomab and Stone (1994), up to half of those classified as 'employed' are in fact underemployed (*i.e.* those who are working in very unproductive

³ People between the ages of 15 and 64 were classified as unemployed in the census if they were not in any form of paid- or self-employment during the period 20-21 October 1991 (CSO, 1994).

⁴ Labour force participation rate is defined as the number of people who are potentially economically active, whether employed or unemployed at the time of the census. This excludes people who do not fall within the 15-64 year age group, students, homemakers, the disabled and the retired (CSO, 1994).

areas and produce very little in the rural subsistence sector). Given this scenario, the unemployment figure is possibly much higher than reflected in the census (Gaomab and Stone, 1994). In keeping with this observation, Amutenya *et al* (1993) identify rural unemployment as one of the main impetuses behind urbanisation and migration in Namibia.

Regional dependency rates (*i.e.* the number of people who have to rely on the economic activity of one person) are useful indicators of the level of deprivation in the northern regions (Figure 10). By way of illustration, the dependency rates are highest in the Ohangwena, Oshana and Oshikoto Regions, and highest in the central and southern regions of Khomas, Karas, Otjozondjupa and Erongo (*ibid.*).

Given the marked imbalances between the northern and central regions in terms of housing conditions, education, health facilities and employment opportunities, it is not surprising that people are choosing to 'vote with their feet', lured by the perceived opportunities in the urban centres of Windhoek, Walvis Bay, and others, although to a lesser extent.

Important to note is the causal link which exists between inequitable allocation of resources, increased fertility, escalating environmental degradation and subsequent rural-urban migration (Klugman, 1991). In a context of inadequate resources and resultant poverty - as is characteristic of the former communal areas - a coping mechanism commonly adopted is to increase fertility rates. In a situation of widespread unemployment, a larger family acts as a guarantee that at least some will gain employment and be able to contribute to the household income (Klugman, 1991).

Verifying this correlation, the 1991 Population and Housing Census records high fertility rates for the Ohangwena, Okavango, Caprivi and Oshikoto Regions, and low fertility rates for the regions of Erongo, Khomas, Karas and Hardap - with the former experiencing rates above the national average of **6.1 children per female** and the latter having a rate below this average (Table 6) (CSO, 1994). Not surprisingly, there is also a marked difference between rural and urban areas, namely, **4.7 (urban)** versus **6.8 (rural)** (*ibid.*).

Table 6: Total Fertility Rate by region

Area	Total Fertility Rate
Namibia	6.1
Urban	4.7
Rural	6.8
Karas	3.8
Khomas	4.1
Hardap	4.9
Erongo	5.1
Oshana	5.6
Omusati	5.7
Otjozondjupa	5.7
Omaheke	6.1
Kunene	6.2
Caprivi	6.7
Oshikoto	6.7
Okavango	7.1
Ohangwena	7.7

Source: CSO (1994)

Other key factors fueling high fertility rates are low levels of education and unsatisfactory health care (Klugman, 1991). Identification of the differing regional conditions highlighted in this section, reveals a distinct correlation between inadequate resource allocation and heightened fertility rates (CSO, 1994). Importantly, the resultant increase in population numbers, set against a backdrop of rapidly depleting resources, provides a significant catalyst for further rural-urban migration.

3.4.4. CURRENT RESPONSES

The Namibian Government has identified as its broad national development goals the following: To revive and sustain **economic growth**; create **employment**; reduce **inequalities** in income distribution and eradicate **poverty** (National Development Plan 1 [NDP1], 1995). These objectives are directed towards lessening the regional imbalances

typifying Namibia. Meeting these goals cannot therefore be divorced from the overarching need to address the wide disparities in resource allocation.

While attempts are being made to address these inequalities, the Government has been criticised for its erratic regional expenditure and for failing to “design or apply a systematic and balanced policy of public expenditure into the regions” (Melber, 1995:335). Furthermore, the economic structures which characterised pre-independence Namibia, still typify the country today (Andima *et al*, 1993). A perpetuation of these pre-independence conditions will ensure a continuation of rural-urban migration.

It has been suggested that a key approach in addressing and improving local conditions entails the decentralisation of Government resources and powers to regional and local level authorities (NDP1, 1995). This approach will promote greater efficiency in service provision and improved responsiveness to local conditions (*ibid.*). Decreasing rural-urban migration will therefore depend, in part, “on the extent to which the government is willing to decentralise state powers, functions and resources” (Simon, 1995 in Melber, 1995:337). Although a policy of decentralisation is promoted in the NDP1 (1995), “to date the evidence points strongly towards a continuation of centralised control along traditional sectoral lines, rather than promoting substantive area-based planning within the regions” (*ibid.*).

The impact of this upon rural-urban migration is compounded by the absence of a national internal migration, population and urbanisation policy (Amutenya *et al*, 1993; Tvedten and Mupotola, 1995). Furthermore, in the current state of transition between the former communal system and the planned formalisation of land access under the Local Authority Act, there are in effect no formal obstacles to internal migration (Tvedten and Mupotola, 1995).

Addressing the conditions contributing to rapid and uncontrolled urbanisation is essential. However, as highlighted by President Njuma in one of his first statements after Independence, “We cannot expect to make good the accumulated neglects of the past within a year or even a decade, but we will endeavor to set realistic aims in regard to the development process of the economy” (Njuma in Sellstrom, 1992). A number of factors have, however, curtailed government attempts at bringing about change.

The first of these factors concerns the weakened economy inherited from the South African Government and its continued lacklustre performance since Independence (Hamutenya, 1994; Amutenya *et al*, 1993). At the time of Independence the Namibian Government took possession of an economy that was fully integrated into the South African system, was dualistic and uneven, had stagnated and was characterised by decreasing rates of growth and investment (Sellstrom, 1992). The sharp declines in GDP input from the mining, agriculture, fishing and manufacturing sectors in the 1980s had led to widespread retrenchments and poverty (Hamutenya, 1994; Gaomab and Stone, 1994). The corresponding decline in public revenue imposed serious limits on the new Government's ability "not only to generate surpluses, through taxes, to finance new public investment, but also to adequately provide the people with essential services, such as, education, health, housing, water, agricultural extension and welfare payouts for the aged" (Hamutenya, 1994:21).

Another crippling factor which has hindered Government efforts to redirect public expenditure is the considerable cost of financing Namibia's large bureaucracy (Hamutenya, 1994). Due to constitutional stipulations and following its policy of national reconciliation, the incoming SWAPO government undertook to retain the full body of existing civil servants, together with their high salaries and perks (Hamutenya, 1994; Sellstrom, 1992). An addition of employees from the ranks of the liberation movement brought the public service personnel to a total of 70 000, including the armed forces - 35 percent of a total formal employment sector of 200 000 (*ibid.*). In 1990/91 the wages and salaries of civil servants accounted for approximately 44 percent of public expenditure (Sellstrom, 1992). The obvious consequence of this was a decrease in the already limited public expenditure available for economic investment and for addressing the regional disparities in Namibia (Hamutenya, 1994).

This mounting pressure on public expenditure was further compounded by:

- A cancellation of the budgetary subsidies provided by South Africa;
- an adoption of South Africa's external debts by the Namibian Government;
- a decrease in foreign aid;
- limited investment by established enterprises since Independence;
- a shrinking formal economy;

- the high cost of housing and service provision for the steadily increasing population numbers (Hamutenya, 1994; Gaomab and Stone, 1994).

Another decisive factor encouraging rural-urban migration is the impact of drought on the Namibian economy. Being an arid country, Namibia suffers regularly from drought (Gaomab and Stone, 1994). The agricultural sector, being an important source of employment and a major contributor to the GDP, is therefore very vulnerable to these climatic conditions (CSO, 1995). The drought of 1982/83, for example, decimated numerous herds of cattle and small stock, as well as impacting severely on crop productivity (Amutenya *et al*, 1993). Those most negatively affected are the subsistence farmers who are rendered destitute in the face of ongoing drought. Moreover, the resultant decrease in per capita production in subsistence agriculture cannot at present be compensated for by opportunities in the formal employment sector. To date, the Government has not been successful in increasing labour intensive growth in Namibia (Gaomab and Stone, 1994). These circumstances, exacerbated by current drought conditions, forces many people to migrate to the urban areas in search of employment (*ibid.*).

3.4.5. FUTURE TRENDS

A decrease in rural-urban migration in the near future is unlikely unless efforts are made by the Government and the business sector to narrow the gap between the flourishing urban centres and the remote rural areas (Amutenya *et al*, 1993). However, the “planning of priorities and diversification of the economy to the remote areas of the country is not an easy task (and) it will take time to diversify the national economy to benefit disadvantaged remote rural communities” (Amutenya *et al*, 1993:12).

Given the “rapidly increasing unemployment levels, stagnating per capita incomes and slim prospects for qualitative change in the general living expectations for the majority of Namibians” (Sellstrom, 1992:8) in the immediate future, it can be assumed that the present trend of rural-urban migration will persist for some years to come (Amutenya *et al*, 1993)

The current population growth rate of 3 percent per year - a rate which is high by international standards - is a significant factor fueling rapid urbanisation within Namibia (Ashley, 1994). This growth rate, if sustained, will result in a doubling of the population by the year 2017 (*ibid.*). An analysis the age structure of the population provides a useful indicator for predicting future population numbers (CSO, 1994). In populations with high sustained fertility, the proportion of the population aged less than 15 years is usually between 40 percent and 50 percent. In such populations the age structure has important implications for the future number of births (*ibid.*). Even if the average fertility was decreased, the number of births would continue to increase over time simply because the number of females of child bearing age would have risen. Structural effects of this kind may be ongoing for several decades. In the case of Namibia, **42 percent** of the population is below the age of 15 years. Should the national fertility rate drop from 6.1 to 2 children per women, with mortality rates remaining constant, the population would continue to grow due to structural effects for the next 50 years or so (*ibid.*).

This continued population growth, in the absence of adequate economic performance and rural employment creation, and coupled with the needs and expectations of the majority of Namibians for better living standards, will be a decisive factor in perpetuating the rapid rate of urbanisation within Namibia (Ashley, 1994).

4. IMPACT ANALYSIS

4.1 INTRODUCTION

The preceding chapter provided an outline of the rate and scale of urbanisation in the study area as well as an identification of the factors perpetuating this movement. This investigation highlighted a concentration of population migration to the towns of **Walvis Bay** and **Swakopmund**. The aim of the following chapter is to provide an analysis of the major impacts of urbanisation on the above-mentioned towns. Henties Bay and Arandis have been excluded from this analysis due to the comparatively limited extent of influx to these towns; the scant data available; and time constraints pertaining to the completion of this dissertation.

The literary analyses, interviews and field observations drawn upon for the compilation of this dissertation facilitated a scoping of major impacts associated with urbanisation in Walvis Bay and Swakopmund. These impacts are categorised as follows:

- **Housing**
- **Water**
- **Sewerage**
- **Solid Waste Management**
- **Electricity**
- **Employment**
- **Health**

4.2 HOUSING

4.2.1 HISTORICAL CONTEXT

Understanding the impact of urbanisation on the availability of housing requires a brief review of housing provision under colonial rule.

An acute shortage of urban housing among the African population was inherited from the South African administration (Bogosi, 1992). The apartheid policy of separate development resulted in urban centres being characterised by segregated components: “a well serviced modern part for the minority and inadequate houses and shacks for the majority” (NDP1, 1995:461). This situation was sustained by laws which prohibited the African population from owning land in the urban areas (Bogosi, 1992). In keeping with the contract labour system and its treatment of migrants as temporary sojourners, the housing stock in the urban centres was unsuitable for permanent family residence - the majority of workers being accommodated in hostels and single quarters (ibid.).

The extent of this inadequate housing stock is well reflected in Namibia’s National Development Plan, with low-income housing having been identified as a key sector requiring priority attention on a national development planning level (NDP1, 1995). The National Housing Policy, approved by Cabinet in 1991, also acknowledged the urgent need to address the housing shortages of the past - its central goal being the provision of housing for all Namibians. Recognising the need to accommodate the migrants entering the urban areas, the Housing Policy stipulates the establishment of Reception Areas - site-and-service plots which will be leased to migrants pending their entry into home ownership schemes (Ministry of Regional and Local Government and Housing [MRLGH], 1990).

The central goal of the National Housing Policy, stated in more detail, is “to make resources available and to direct their use into the production of infrastructure and facilities so that every Namibian will be given a fair opportunity to acquire land with access to potable water, energy and a waste disposal system, and to have access to acceptable shelter in a suitable location at a cost and standard which is affordable to the individual on the one hand and to the country on the other hand” (MRLGH, 1994).

The scope of this goal reflects the inadequate condition of housing precincts and the quantity and quality of stock under apartheid rule. It is these inadequacies which set the tone for the inadequate absorptive capacity of the current urban housing stock, and which exacerbate the extent of the impact of contemporary migrants on the urban environment.

4.2.2 HOUSING DELIVERY

A brief overview of housing delivery in Namibia provides a useful context in which to assess the extent of housing provision in the study area and its success in meeting the housing requirements of the migrants.

Three sectors are presently involved in the delivery of housing in Namibia. They are the **private sector**, the **public sector** and the **informal sector** (MRLGH, 1994). The private sector caters predominantly for the needs of the middle and upper income groups (*ibid.*). Low income groups are served by the public and informal sector. Public sector housing requires Government subsidisation. Given the financial constraints under which the Government is presently operating, public sector provision is limited and unable to cope with the ever-increasing demand for housing (Sellstrom, 1992). Given these circumstances, over 60 percent of low income households rely upon the informal sector for shelter delivery. Although in the past this sector has operated unaided by Government funds, recent developments have seen a Government decision to promote self-help schemes for low income groups (NDP1, 1995; MRLGH, 1994). The most frequently implemented scheme of this nature is the '**Build Together Programme**' (BTP).

The BTP caters for people earning below N\$ 1 250 a month. This programme is geared towards capacity enhancement and is based on a self-help concept, placing the responsibility for shelter provision firmly within each household. An important aspect of the BTP is its emphasis on housing which conforms with people's financial means (MRLGH, 1994). Important sub-programmes which have been identified by the BTP include, *inter alia*, the upgrading of single quarters into family units; the development of new houses to offset the backlog in urban areas and to meet the increasing demand for housing; the regulation and environmental upgrading of informal settlements with the

provision of services; making land available for newcomers in the urban centres; and the servicing of land in both the rural and urban areas (NDP1, 1995; MRLGH, 1994).

The **National Housing Enterprise (NHE)** is a parastatal organisation responsible for housing provision among the lower-to-middle income groups. A variety of different housing is provided ranging from core structures to four-roomed houses. Capital is raised from the private sector and loan eligibility calculated on the basis of the household's affordability, namely, 25 percent of the household's monthly salary (MRLGH, 1994). Another organisation involved in housing is the **Namibian Housing Action Group (NHAG)**. This body acts as a coordinating organisation for low income housing groups, the main goal being to strengthen the ability of these groups to obtain housing themselves (NDP1, 1995; MRLGH, 1994). The nature of this assistance entails organisational development; negotiations, including advocacy and facilitation; and technical support, namely, basic drawings for houses, building training and instructions in the use of local materials (Muller, Pers. Comm., 16/02/96).

As a result of the financial constraints currently faced by the Namibian Government, housing provision is best facilitated through self-help programmes. Such an approach can be expected to improve the possibility of combatting the current housing crisis characteristic of low income areas. However, a number of factors are limiting the effectiveness of the housing delivery process (NDP1, 1995; MRLGH, 1994). These will need to be considered in the formulation of management solutions for urban centres within the study area. They include, *inter alia*:

- inadequate access to affordable land;
- high costs of credit and formal housing programmes;
- the adoption of standards which limit the options for affordable housing;
- limited public participation, resulting in inappropriate solutions;
- limited financial capacity of central, regional and local government (NDP1, 1995; MRLGH, 1994; Sellstrom, 1992).

Although measures needed to overcome the above constraints have been identified (MRLGH, 1994), the following analysis provides a useful indication of the effectiveness of current housing provision on a local level.

4.2.3 WALVIS BAY

The location of the different residential zones in Walvis Bay is illustrated in Map 7. Zone 2-16, referred to as **Walvis Bay Proper**, is the historically white, high-to-middle income area. **Narraville**, located in Zone 19, is the traditionally 'coloured' residential area of Walvis Bay. **Kuisebmond**, located in Zone 10, is the historically 'black' township of Walvis Bay, and is home to the largest proportion of the town's citizens. The 1993 population totals and density figures for these residential zones are summarised in Table 9.

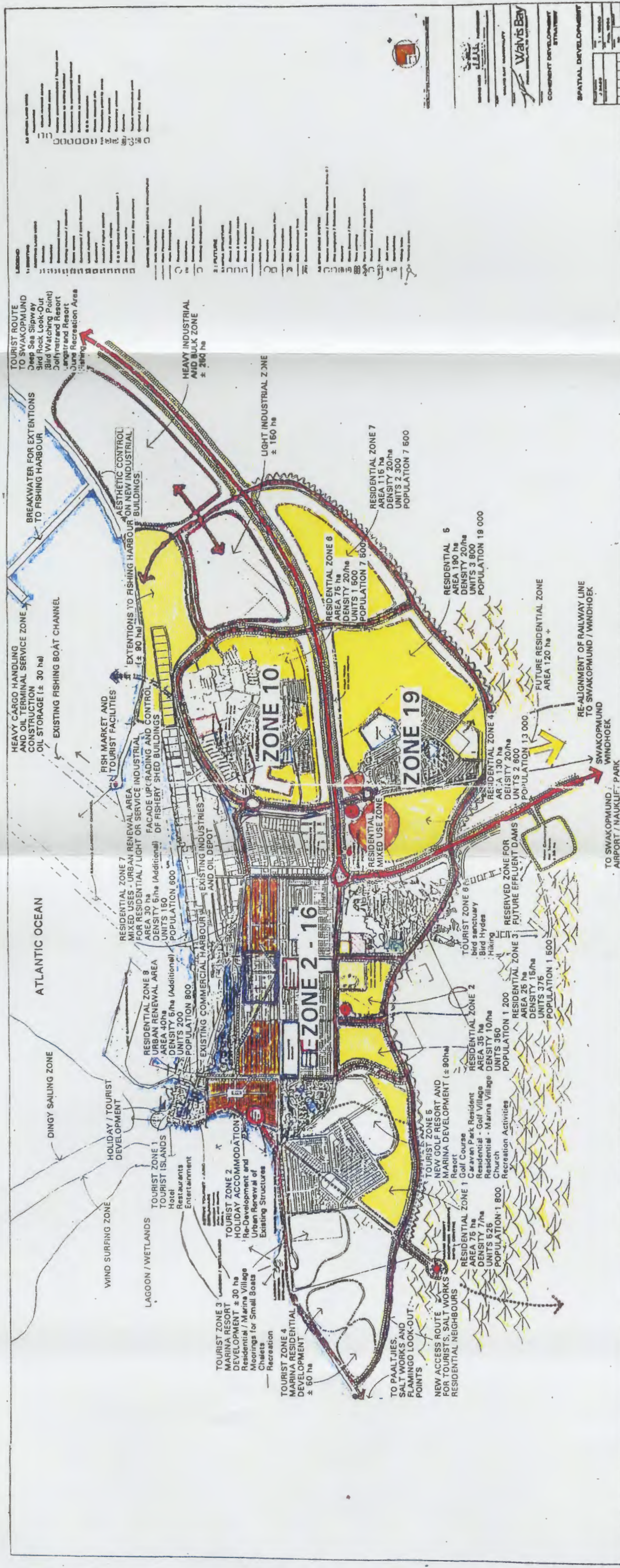
Table 9: 1993 population totals and density figures for residential areas within Walvis Bay

Residential area	Zone	1993 population total	Total surface area (ha)	Gross populaion density (p/ha)
Walvis Bay Proper	2-16	7 500	400	18
Narraville	19	7 500	105	70
Kuisebmond	10	23 000	110	210

Source: Dennis Moss Partnership (1994)

As noted in earlier chapters, the amalgamation of Walvis Bay into Namibia in 1994, has been followed by a substantial increase in the number of migrants entering this urban centre, with Kuisebmond absorbing the majority of these in-comers. Kuisebmond's population is predicted to have increased from **23 000 people** in 1993 to **30 000 people** in 1994, at an average growth rate of **15.2 percent** (Brummer, 1995). This implies a doubling time of approximately 5 years (60 000 people by the year 2000).

The rapid influx of people has heightened the pressure on the already inadequate housing stock and related infrastructure (Walvis Bay Municipality [WBM], 1995). Uncontrolled migration has been identified as one of the most critical factors curtailing the responsiveness of low-income housing policies and perpetuating the shack housing and squatter problems being experienced (*ibid.*).



Various calculations have been made concerning the number of developed erven needed to meet the requirements of the growing population and to address the present backlog which exists. The number of currently developed erven and corresponding waiting lists for the different residential zones are summarised in Table 10.

Table 10: Number of developed erven and waiting lists for formal housing in Walvis Bay (1995)

Residential area	No. of developed erven	Waiting list
Walvis Bay Proper	2 267	200 people
Narraville	970	500 people
Kuisebmond	1 660	2000 people

Source: Brummer (1995)

Based on initial calculations, the municipality predicted that “between **500-800 erven** will ... have to be serviced per annum for the next five years to alleviate the plight of the overcrowded and to keep a tight rein on squatting” (WBM, 1995). This development would provide a maximum addition of 4000 units by the year 2000 - a provision which, although unspecified, can be assumed to cater predominantly for the low income sector. Due to the ever-increasing population numbers, a recent tender document, produced by the Walvis Bay Municipality, cited a commitment to the provision of **1000 erven** per year for the low income sector (WBM, 1996). Although this total is an increase on earlier calculations, the municipality notes that, according to revised statistics, the provision of **2000 serviced erven** per year is needed in order to meet the heightened demand for housing in the low income sector (*ibid.*).

At present, the Walvis Bay Municipality is only able to service **570 erven per annum** (*ibid.*). Given that 2000 erven per annum are required, the rate of housing provision is therefore exceeded by the rate of population increase in the town. As acknowledged by the Walvis Bay Municipality, it is currently unable to “supply enough serviced stands to cope with the demand” (WBM, 1996: Appendix 5).

Based on an average population growth rate of between 3-4 percent, residential spatial requirements in Walvis Bay for the year 2015 are:

Table 11: Additional residential spatial requirements in Walvis Bay in 2015

Residential area	Est. 2015 population	Spatial requirements (ha)
Walvis Bay Proper	21 000	250
Narraville	21 000	180
Kuisebmond	43 000	220

Source: Dennis Moss Partnership (1994)

The current housing crisis has resulted in overcrowded conditions in the single quarters and compounds and the subsequent erection of shacks in the back yards of numerous erven (Plates 1 and 2) (NDP1, 1995). Steps have, however, been made towards the alleviation of this crisis. On a policy level, the Walvis Bay Municipality has adopted a Local Housing Policy and a Residential Densities Policy, both of which are directed towards expediting and improving the rate of low-income housing provision (WBM, 1995). Having only been implemented in 1995, the extent of their effectiveness is as yet unclear.

In addition to the current servicing of 570 erven per annum, a five year expansion programme for Kuisebmond has been proposed. This entails the provision of 3 000 stands totalling an area of 120 ha. The cost of this development is estimated at **N\$ 14 400 000** (WBM, 1996). Capital funding for the required services will be funded, in part, by the Walvis Bay Housing Fund. The remainder will be paid for by the Ministry of Housing's 'Build Together Programme' and the National Housing Enterprise schemes (*ibid.*). The aforementioned fund, proposed by the local housing policy, provides an allocation of **N\$ 247 500** to the Kuisebmond Housing Fund; **N\$ 800 000** to the Narraville Housing Fund; and **N\$ 1 000 000** to the Walvis Bay Proper Housing Fund (WBM, 1995). However, "In view of the enormous demand for housing, the prognosis for continual working capital remains scanty (and) ... the creation of services infrastructure will almost deplete the whole (municipal housing) fund from the kick-off (WBM, 1995:13).

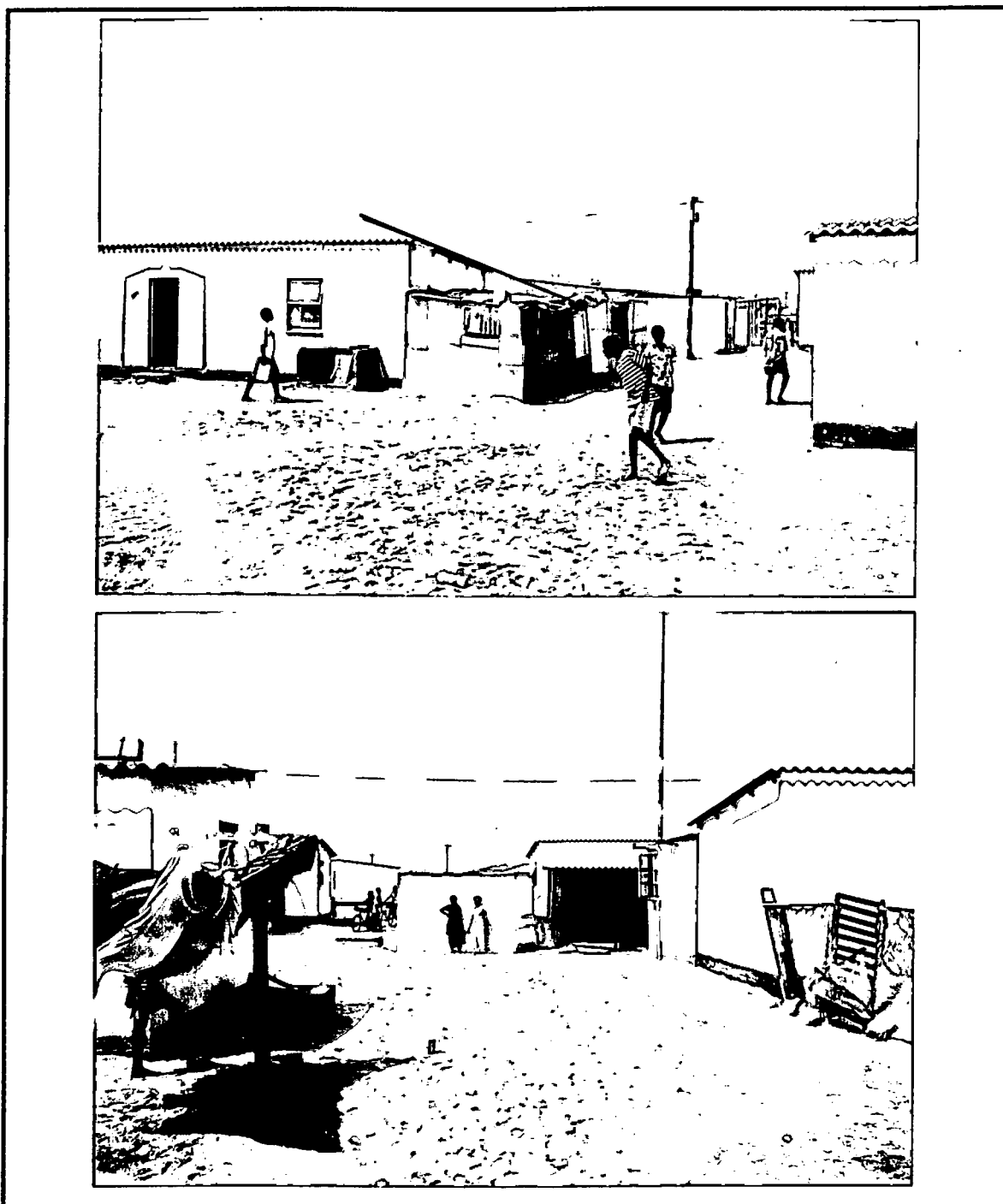


Plate 1 and 2: Informal structures alongside formal housing in Kuisebmond, Walvis Bay.

Thus, while steps are indeed being made to alleviate the acute shortage of houses, the impact of housing provision on cash-strapped municipalities is enormous. As highlighted in Chapter 3, the low levels of education and skills attainment typical of most migrants, compounded by the already saturated unskilled labour market in Walvis Bay, means that a large proportion of these in-comers cannot secure employment, thus joining the ranks of the urban poor. The majority of migrants are therefore unable to afford formal housing solutions. These circumstances have resulted in informal structures being used for permanent residence. Furthermore, the financial burden of housing provision is thus borne by government bodies at local, regional and national levels - government bodies which in turn generate their funds through the payment of taxes from citizens of Namibia (WBM, 1995). Quantitative data documenting the extent of this financial burden is currently unavailable. However, when evaluating the significance of the ramifications of urbanisation, it is imperative that the financial impact of this occurrence on government budgets and tax payers be adequately considered.

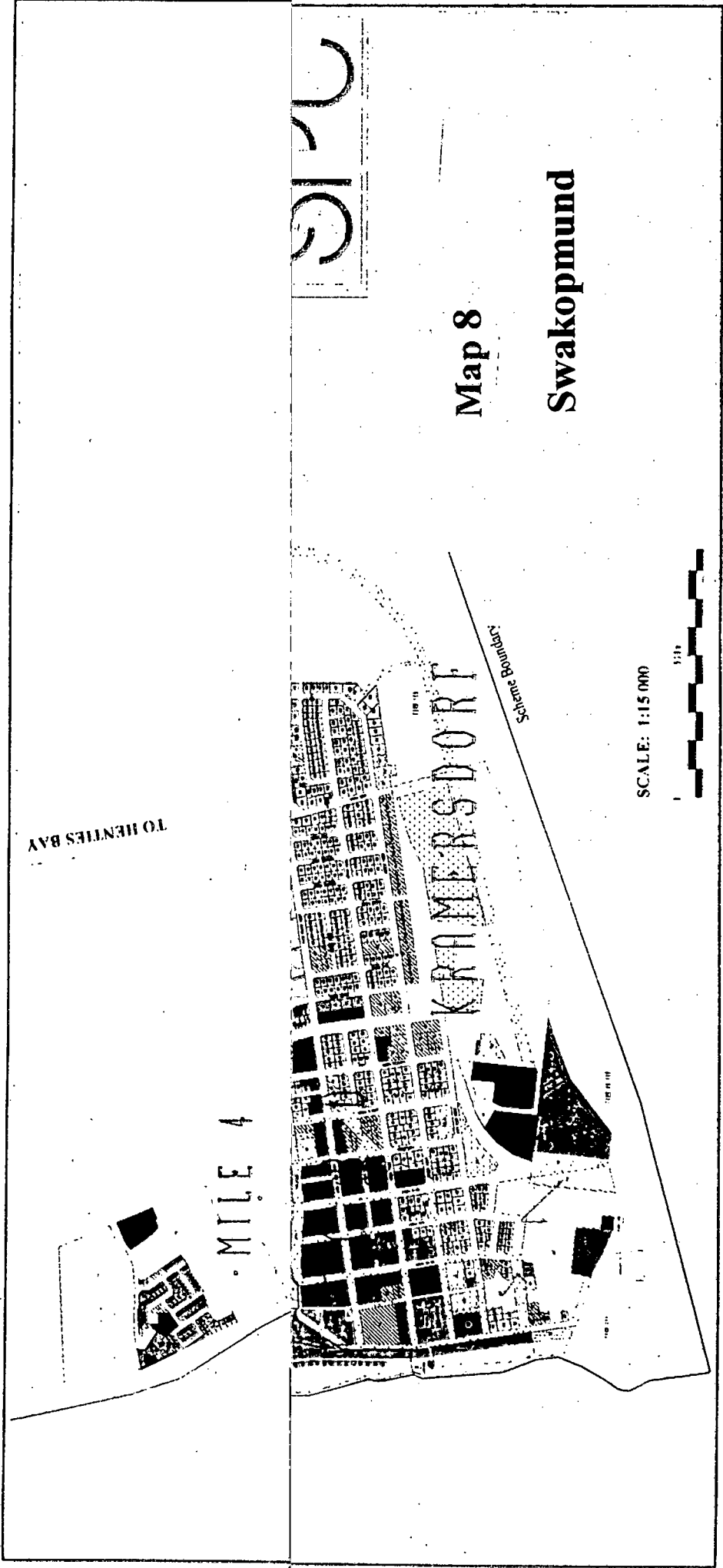
4.2.4 SWAKOPMUND

As illustrated in Map 8, Swakopmund is divided into three sub-sections. **Swakopmund Proper** is the historically white, middle-to-high income area, and is divided into the suburbs of Vineta and Kramersdorf. **Tamariskia** is the historically 'coloured' area of Swakopmund. **Mondesa**, the traditionally 'black' township, is home to the majority of the town's citizens. This area includes 'Mondesa township', Extension 2 (Jabulani) and Extension 3 (Mahetago/Rykmansdorp). The 1994 population totals and density figures for these residential areas are summarised in Table 12:

Table 12: 1994 population totals and density figures for residential areas in Swakopmund

Residential area	1994 population total	Total surface area (ha)	Gross population density (p/ha)
Swakopmund Proper	6 700	776	10
Tamariskia	2 900	121	31
Mondesa	11 900	151	100

Source: NHE (1994)



The most recent record of housing stock within these residential areas was compiled in 1994 by the NHE, and is summarised as follows:

Table 13: Housing stock in Swakopmund (1994)

Residential area and dwelling type	No. of dwelling units	No. of people per dwelling type
1. Swakopmund Proper	2 200	6 700
2. Tamariskia		
• Rossing Houses	248	1 200
• Municipal houses	67	1 300
• Houses of the Department of Water Affairs	6	
• Privately-owned houses	200	
• Garage tenants	150	400 ¹
Total	671	2 900
3. Mondesa		
• Privately owned houses in Jabulani	250	1 250
• NHE houses	285	1 650
• Township houses	524	2 900
• 5 boarding houses	30 rooms	100
• Backyard squatters	600 shacks	1 500
• Single quarters	1 053 rooms	3 500
• Compound	352 beds	1 000
Total	3 094	11 900

Source: NHE (1994)

As discussed in Chapter 3, Swakopmund is a recipient of an ever-increasing number of migrants in search of employment. Mondesa, due to the cheap accommodation available,

¹ This figure of 400 people is the total number of residents inhabiting the houses of the Department of Water Affairs, privately owned houses and garages in Tamariskia, and does not apply to the garage tenants alone.

absorbs most of these in-migrants (Lester, Pers. Comm., 04/12/95). The subsequently high population density of this township has resulted in housing shortages and overcrowding, with people having to find accommodation in backyard shacks and in the already congested single quarters and compounds (NHE, 1994). The extent of this overcrowding is well illustrated in Table 13, in which an indication of the large number of people occupying the different dwellings in Mondesa is provided.

The impact of rural-urban migration on Swakopmund's housing stock is further reflected in the 1994 housing deficit of **1 800** dwellings, with approximately **5 325** people needing to be absorbed (Table 14). However, as noted in NHE (1994:28), "the demand for low-cost housing is increasing with the growing stream of migrants." It can therefore be assumed that this housing deficit has worsened since last recorded.

Table 14: Housing deficit in Swakopmund (1994)

Dwelling type	1994 deficit (No. of dwellings)	No. of people needing to be absorbed
Backyard tenants	600	1 500
Garage dwellles	130	400
Single Quarters/Compound residents	940	3 100
Formal houses	130	325
Total	1 800	5 325

Source: NHE (1994)

The future magnitude of this housing shortage needs to be considered with reference to the most recently recorded population growth rates for Mondesa - given that this is where the housing shortage is most severe. As recorded by the NHE (1994), Mondesa's population rose from **9 120** in 1991 to **11 900** in 1994. This constitutes an annual population growth rate of **9.3 percent**, with an implied doubling time of approximately 8 years (23 800 people by the year 2002).

The regional imbalances fuelling migration are predicted to remain at least into the first decade of the next century (Sellstrom, 1992). As such, a perpetuation of migrant influx to

Swakopmund is inevitable. Of concern, is the small percentage of people who are able to afford the low-income housing solutions currently being provided. Under the NHE scheme, for example, the monthly installments range between N\$ 250 and N\$ 350. Of those in need of housing, only **20 percent** of an investigated sample from Tamariskia and Mondesa could afford this amount. Thirty-four percent of the sample could only afford to pay back home improvement loans of between N\$ 100 and N\$ 250 per month, and the remaining 46 percent, only a monthly amount of N\$ 100 (NHE, 1994). If the present crisis is to be alleviated, other housing solutions will need to be implemented.

As in Kuisebmond, this lack of affordability is fueled by the high rate of urban unemployment and inadequate qualifications typical of most migrants. As a result of the consequent levels of poverty, the construction of informal dwellings and residence in overcrowded conditions remain the only affordable options for a large percentage of migrants in the township.

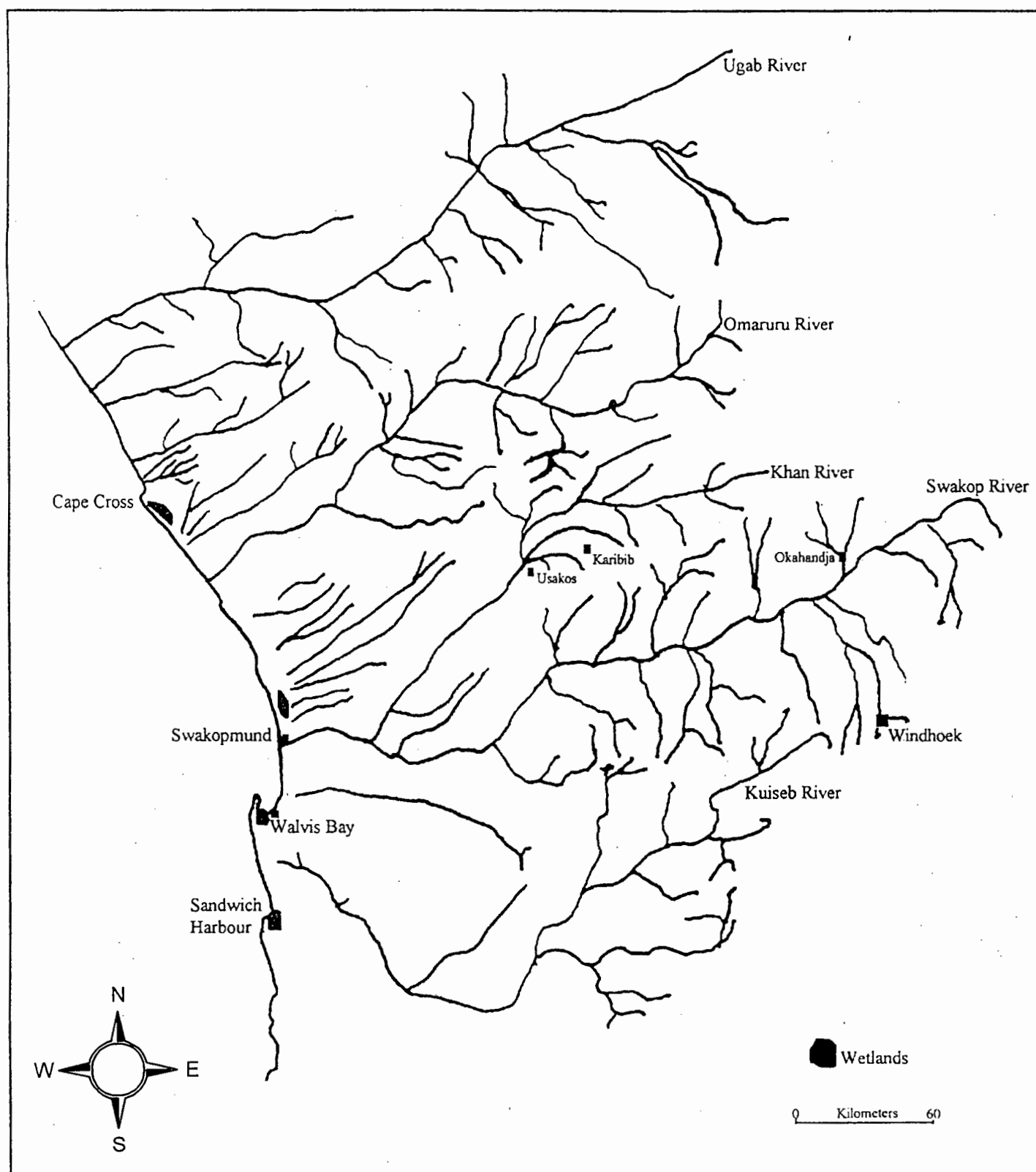
Quantitative figures detailing the financial impact of housing provision on the local authorities and tax payers were unavailable for use in this report. However, in the 1993/94 financial year, the Swakopmund Municipality, as the owner of a significant portion of houses in Mondesa, faced rent arrears amounting to **N\$ 427 000** due to non-payment of services (NHE, 1994) - an amount the municipality can ill-afford. The financial burden of housing provision on local authorities is thus not isolated to the construction phase alone.

4.3 WATER

4.3.1 RAINFALL AND HYDROLOGY

The impact of migration on water supplies in the study area cannot be analysed without reference to the rainfall and hydrology which characterises the Erongo Region.

Namibia's rainfall decreases from east to west, and from north to south (CSIR, 1991). The study area is located in the extreme west, in the central region of the Namib desert. Rainfall in the area is low, seasonal and highly variable (*ibid.*). The mean annual rainfall



Map 9 Rivers and Wetlands

for Walvis Bay is 23 mm per annum and 31 mm per annum in Swakopmund (CSIR, 1984).

The only suppliers of water for the towns in the study area are the groundwater aquifers that lie beneath the beds of the Kuiseb and Omaruru Rivers (Map 9) (Heyns, 1992). These aquifers are known as the **Lower Kuiseb** and the **Omaruru Delta (OMDEL) aquifers** (Rammler, 1995). The highly permeable alluvial deposits which occur in the river beds, facilitate sub-surface water flows and aquifer recharge during rainfall events (*ibid.*). Although of a high quality, the water supply in the study area is a very scarce and limited resource and as such requires wise, sustainable extraction.

4.3.2 WATER SUPPLY

The main sections of the Lower Kuiseb aquifer that are used to supply water are the Swartbank, Rooibank A and Rooibank B areas. These aquifers can provide a sustainable yield of **3.2 Mm³ per annum** (Lucks, Pers. Comm., 07/02/96). The OMDEL aquifer, which extends 40 km upstream from the mouth of the Omaruru River, had a sustainable yield of **4.7 Mm³ per annum** (*ibid.*). However, with the construction of a recharge dam that was built 4.5 km upstream, the recharging rate of the aquifer has improved, resulting in an increased sustainable yield of **8.2 Mm³ per annum** (Heyns, 1992). The total sustainable water supply is therefore **11.4 Mm³ per annum**.

Based on research carried out for the Department of Water Affairs by GWK Consultants, three water demand projections for the combined consumption of Walvis Bay, Swakopmund, Henties Bay and Arandis were created. These are summarised in Table 15. It should be noted that the price of water is set to increase substantially, resulting in an expected decrease in future water consumption. This factor has been taken into account when calculating future demand figures (Rammler, 1995).

Table 15: Projected water demand quantities for urban centres in the study area (Mm³)

Scenarios	1995	2000	2005	2010	2015	2020
High growth	11.20	13.065	14.778	18.240	21.437	24.735
Expected growth	11.20	12.406	13.310	15.471	17.663	19.264
Low growth	11.20	11.238	11.493	12.267	13.022	13.828

Source: Rammler (1995)

As mentioned, the annual sustainable water supply from the Lower Kuiseb and OMDEL aquifers is 11.4 Mm³. Given the consumption figures listed in Table 15, a technical shortage of water is therefore expected from 1997 (*ibid.*). This expected water production shortfall is summarised in Table 16.

Table 16: Projected water production shortfalls in the study area (Mm³)

Scenarios	1995	2000	2005	2010	2015	2020
High projection	0.200	-1.665	-3.378	-6.840	-10.037	-13.335
Moderate (expected) projection	0.200	-1.006	-1.910	-4.341	-6.253	-7.8864
Low projection	0.200	0.162	-0.093	-0.867	-1.622	-2.428

Source: Rammler (1995)

4.3.3 WATER CONSUMPTION

4.3.3.1 WATER CONSUMPTION IN WALVIS BAY

Records of the annual water consumption in Walvis Bay demonstrate an increase of **3 151 840 m³** in 1984 to **4 668 488 m³** in 1994 - a **48 percent** rise in consumption. In addition, the 1994 figure of 4 668 488 m³ is an **11.4 percent** increase on the total for the previous year. This growth in demand is presented in Figure 11.

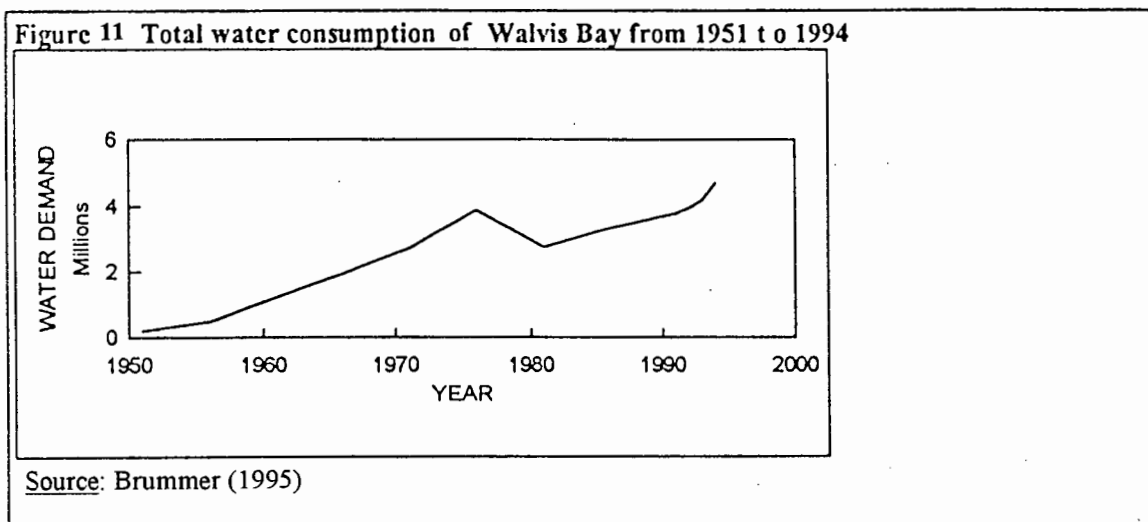


Table 17 provides a summary of the annual consumption figures for Kuisebmond, Narraville, Walvis Bay Proper, the major fishing industries and the Ports Authority. Its usefulness lies in its comparative division of water consumption among the various consumer groups, and the annual increases within each group from year to year.

Table 17: Annual water consumption in Walvis Bay (1987-1994) (m³)

Consumer	1987	1988	1989	1990	1991	1992	1993	1994
WB Proper	2158371	2110498	2173409	2189371	2238482	2155292	2121837	2364951
	-	-2.2	3.0	0.7	2.2	-3.7	-1.6	11.7
Kuisebmond	482040	546551	558670	615141	629205	668855	823971	990889
	-	13.4	2.2	10.1	2.3	6.3	23.2	20.3
Narraville	378914	384031	389317	394059	370312	394136	409814	418439
	-	1.4	1.4	1.2	-6.0	6.4	4.0	2.1
Ports Authority	160480	183815	180107	142582	146305	149001	162208	170511
	-	14.5	-2.0	-20.8	2.6	1.8	8.9	5.1
Maj. fishing industries	516319	445760	467217	465036	399557	530632	670101	715095
	-	-13.7	4.8	-0.5	-14.1	32.8	26.3	6.7
WB total	3707000	3683462	3781294	3816892	3794194	3906310	4192449	4668488
	12.4	-0.6	2.7	0.9	-0.6	3.0	7.3	11.4

Source: Brummer (1995) (Numbers in italics represent the percentage growth rate per annum)

As indicated in Table 17, Walvis Bay Proper (excluding the fish processing plants and the Namibian Ports Authority) accounts for the largest water consumption within the town - **49 percent** of the total amount consumed in 1994 (Brummer, 1995). This scenario accords with the high resource use typical among middle and high income residents. However, the substantial increase in total water consumption in recent years is attributable to the rapid growth of Kuisebmond and the major fishing industries. The water demand of Kuisebmond increased by **57 percent**, from 629 205 m³ in 1991 to 990 889 m³ in 1994. The fishing industry increased by **78.9 percent**, from 399 557 m³ in 1991 to 715 095 m³ in 1994 (*ibid.*). These increases in water demand are significantly greater than those experienced in the other sectors.

The dramatic increase in the water consumption of Kuisebmond - especially in 1993 and 1994 - is indicative of the population growth rate which has "increased rapidly since the abolishment of access control at the Swakopmund bridge in 1994" (Brummer, 1995:61). The consumption in 1994 stood at 990 889 m³ - a figure **triple** the 1985 consumption of 329 126 m³. This denotes a growth rate of **300 percent** in nine years and an average of **13 percent** per annum (Brummer, 1995). In addition, the growth rate in water

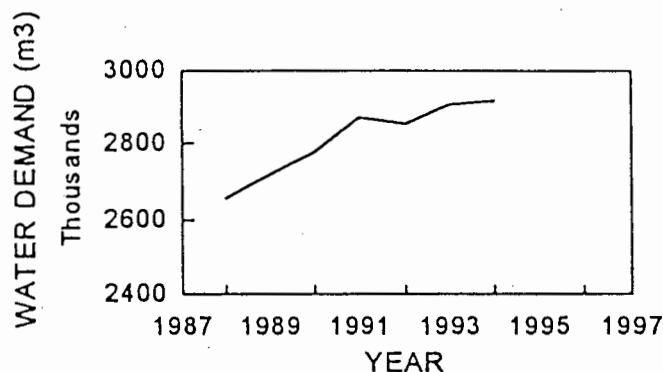
for the first seven months of 1995 is 6.3 percent higher than that of 1994. Kuisebmond's contribution to the overall consumption in Walvis Bay has grown from 10.2 percent in 1985 to 21.2 percent in 1995, and is a contribution which is likely to increase still further (*ibid.*).

The proposed increase in housing provision in Kuisebmond will imply greater access to water through the better provision of water fixtures. This will lead to an increase in per capita demand in the low income groups as the historically inadequate access to water fixtures is rectified (Rammler, 1995).

4.3.3.2 WATER CONSUMPTION IN SWAKOPMUND

The annual water consumption figures from 1988 to 1994 are shown in Figure 12. The major consumers of water are the middle and high income residents in Swakopmund Proper, accounting for 75 percent of the total consumption in 1991 and 70 percent in 1994 (NHE, 1994; Rammler, 1995). In 1991 the lower income suburbs of Tamariskia and Mondesa accounted for 9 percent and 12 percent of the total consumption respectively, with Mondesa showing an increase of 2 percent by 1994 (*ibid.*). In Mondesa "there is an under usage of water by the residents ... as they do not have adequate access to water fixtures" (Rammler, 1995:6.5). This can be expected to change with the proposed increase in housing provision and the associated implementation of water services (Rammler, 1995).

Figure 12 Total water consumption of Swakopmund from 1988 to 1994



Source: Lester, Pers. Comm., 04/12/95

As indicated in Figure 12, the annual water consumption in Swakopmund rose from 2 656 744 m³ in 1988 to 2 916 803 m³ in 1994 - a growth of 11.76 percent (Lester, Pers. Comm., 04/12/95). However, when compared to the simultaneous population growth of 19 percent, this increase indicates an overall decrease in the water consumption per capita (*ibid.*).

An explanation for this lies in the fact the increase in population numbers is predominantly in Mondesa - a 9.3 percent population growth between 1991 and 1994 compared with 2.3 percent in Swakopmund Proper (NHE, 1994). Although the influx of migrants has contributed to an increased rate of water consumption in Swakopmund, in the light of the low water consumption rates characteristic of Mondesa, a growth in its population numbers does not result in an increase in the overall consumption per capita for the town.

4.3.4 DISCUSSION

In both Walvis Bay and Swakopmund, the major water consumers are the middle and high income residents. Although water consumption per capita is significantly lower among residents in Kuisebmond and Mondesa, the influx of migrants to the townships is contributing to the unsustainable rates of water extraction in the study area (Rammler, 1995). Given the current rate of urbanisation in Walvis Bay and Swakopmund, the future over-extraction of water is inevitable.

This over-extraction of water from the Lower Kuiseb and OMDEL aquifers will have serious environmental implications, notably, the destruction of riverine vegetation and a decrease in the water quality of the aquifers (Heyns, 1992). A solution which has been proposed is the construction of a desalinisation plant at Paaltjies, south of Walvis Bay (Department of Water Affairs, 1993). Despite objections about the ecological sensitivity of the above site, the plant is expected to start operating in 1997. The construction and operation of this desalinisation plant, compounded by the privatisation of Namibia's bulk water supply, will result in an increase in the cost of domestic water supplies (Aldridge, Pers. Comm., 07/03/96). The impact of increased tariffs on the standards of living in the low income sector, as well as the costs of Government subsidisation and funding for non-payment of services, will need to be investigated.

4.4 SEWERAGE

4.4.1 WALVIS BAY

Walvis Bay is served by a trickling filter treatment facility with a design capacity of **5000 kl** per day. The entire town is reticulated and all households have connections to the town's sewerage system (WBM, 1996). Current flow is approximately **5 500 kl** per day. This is expected to increase to **8 000 kl** per day by the year 2000 and to **10 000 kl** per day by 2008 (*ibid.*). Table 18 provides an indication of the average daily sewerage pumped between 1993 and 1995 (Recorded figures for 1995 only extend to June of that year).

Table 18: Average daily sewerage pumped in Walvis Bay (1993-1995) (kl/day)

Year	Month	WB Proper	Kuisebmond	Narraville	Total
1993	January	2 896	1 714	500	5 110
	June	3 175	2 108	553	5 836
	December	3 173	2 261	594	6 028
1994	January	3 309	2 384	592	6 285
	June	4 002	2 345	572	6 919
	December	3 760	2 248	689	6 697
1995	January	3 647	2 310	705	6 662
	June	4 072	2 558	620	7 250

Source: Brummer (1995)

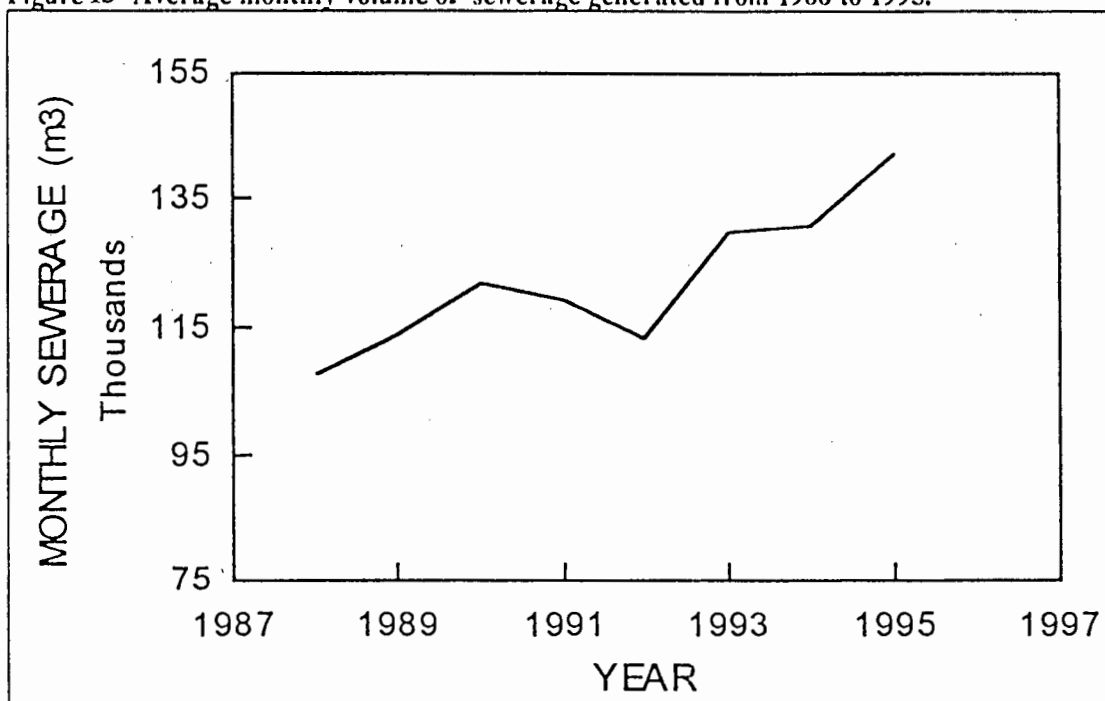
Of note is an increase in the average amount of daily sewerage pumped in Kuisebmond - an average increase of **844 kl per day** between January 1993 and June 1995 (Brummer, 1995). The increase in the daily sewerage pumped in Kuisebmond reflects the growth in population numbers following Walvis Bay's amalgamation into Namibia in March 1994. This population growth has resulted in heightened pressure being placed on the sewerage treatment works, and has contributed to Walvis Bay's treatment plant currently operating beyond its design capacity (WBM, 1996). In response to these circumstances, the construction of a storage reservoir was commissioned in March 1995 and the existing Posveer ditch and secondary settling tank recommissioned (Brummer, 1995). In addition,

an anaerobic digester, sludge beds and the refurbishing of a disused sedimentation tank have also been approved (*ibid.*).

4.4.2 SWAKOPMUND

Swakopmund has a water borne sewerage reticulation network that is linked to almost all the dwellings in the town and to a sewerage treatment plant found on the town's outskirts. The treatment plant has a capacity of 7 000 m³ per day (Lester, Pers. Comm., 04/12/95). The average amount of monthly sewerage generated in 1995 was 142 000 m³ - 94 percent of the plant's design capacity. Figure 13 shows the average monthly volume of sewerage treated in Swakopmund from 1988 to 1994.

Figure 13 Average monthly volume of sewerage generated from 1988 to 1995.



Source: Lester, Pers. Comm., 04/12/95

Figure 13 indicates a growth in the amount of sewerage generated between 1988 and 1994. This increase is at an average rate of **3.86 percent** per annum (*ibid.*). Of note is the considerable escalation after 1991. This rapid growth correlates with the rise in Swakopmund's population numbers since Namibian independence in 1991. With the expected continuation of this increase, the sewerage works will be unable to cope with the sewerage inflow from 1997, and upgrading will be required (*ibid.*).

According to the 'Swakopmund Study and Programme Proposal', as compiled by the NHE (1994), the sewerage load in Mondesa "exceeds the design capacity due to the unplanned densification of the township" (NHE, 1994:12). Although the general carrying capacity of the sewerage network is adequate, isolated bottle-necks in various pipe segments reduce the capacity of the system (NHE, 1994). This has resulted in an overload of sewerage services in the single quarters and among erven on which backyard shacks have been erected (*ibid.*).

The extent to which these circumstances have created unsatisfactory standards of living is well highlighted in the results from a series of interviews conducted by the NHE in 1994. Those interviewed were individuals residing in Tamariskia garages, township houses and backyard shack dwellers in Mondesa, and residents of the single quarters and compounds. Of the five priorities highlighted by the sample group, the need for **improved sanitary conditions** ranked higher than that of electricity provision, decreased overcrowding, improved walls or roofs and the need for a new house (NHE, 1994).

The health ramifications of unsatisfactory sanitary conditions are severe and need to be addressed as a matter of urgency. The construction of a sewer relief line in Mondesa and a further extension of the existing sewerage works are potential solutions which have been proposed by the Town Engineer (Lester, Pers. Comm., 04/12/95).

4.5 SOLID WASTE MANAGEMENT

4.5.1 WALVIS BAY

At present, all refuse generated in Walvis Bay is disposed of at a 5 ha site, situated 1.5 km from the town. This disposal site has been in operation for 36 years and has a remaining lifespan of approximately 2 years (WBM, 1996). Due to the high population growth rate of Walvis Bay, the daily domestic waste generated is predicted to increase from the current daily total of **27 tons** to **50 tons** per day in 2000 and **65 tons** per day in 2005 (*ibid.*).

In Kuisebmond, residents have long made use of communal refuse points. However, these points are not protected from scavengers and many residents fail to enclose their litter in refuse bags. With the prevailing wind conditions considerable problems are being experienced and street cleaners are unable to cope. The uncontrolled influx of migrants into Kuisebmond has exacerbated the already overtaxed waste removal services operating in the township. Prior to changes implemented in May 1995, Kuisebmond was serviced by means of 2 tractor-drawn trailers and 10 labourers (*ibid.*). Population growth was not, however, coupled by an increase in the number of available vehicles and staff. Although assisted by 12 labourers from the Director of Community Services, "Kuissebmond (has) expanded at such a rate that these labourers could not keep up with the workload and other methods of refuse removal had to be considered" (Brummer, 1995:13).

One alternative which has been introduced is the five year privatisation of the refuse removal system in Kuisebmond. This can be considered a positive step as contractors from within Kuisebmond were contracted by the Council to clean up their respective areas. Large three-ton containers are provided by the Council and placed at strategic points within the zone of each contractor. Payment is provided depending on the amount of refuse removed (WBM, 1996; Brummer, 1995). This system was implemented at the end of August 1995. During the two months in 1995 that it was operational, 580 m³ (14496 bags) of refuse was collected by these contractors.

Before the privatisation measures were introduced, the town's Cleansing Services Department was collecting an average of 739 m³ of refuse per month in Kuisebmond - an

amount which, although 449 m³ more than the present privatised collection rate, was considered **inadequate** (WBM, 1996). While the positive spin-offs in terms of employment creation are extremely beneficial, vast improvements will need to be made if the system of privatisation is to succeed in addressing the waste removal requirements - especially when one considers the ever-increasing number of migrants moving into Kuisebmond.

4.5.2 SWAKOPMUND

Swakopmund's waste is disposed of at an uncontrolled 'tip' site at the edge of the town. Although it has been noted that the town experiences problems concerning inadequately covered waste and wind blown garbage (Lester, Pers. Comm., 04/12/95), very little information is available on the impact of urbanisation on solid waste management. Refuse collection services currently operating in Mondesa include:

- a weekly domestic refuse collection;
- daily collection of refuse from refuse pits in the single quarters and compound area, as well as the daily cleaning of ablution blocks;
- weekly emptying of communal refuse pits in other parts of Mondesa;
- street cleaning (NHE, 1994).

No details are available regarding the adequacy of these services. However, as in Kuisebmond, the uncontrolled influx of migrants can be expected to put strain on the refuse collection services presently in operation.

4.6. ELECTRICITY

4.6.1 INTRODUCTION

The major sources of electricity in Namibia are the Ruacana hydroelectric power station on the Kunene River and the ESKOM power lines from South Africa (van der Linden, 1993). The Van Eck coal power station near Windhoek and the Paratus diesel power station in Walvis Bay serve as backups in case of emergencies (*ibid.*). Energy in Namibia is a particularly scarce and expensive resource, with 15 percent of the country's GDP (approximately N\$ 980M) being spent on the energy sector each year (Ashley, 1995). Within the study area power is received from a 220 kV line linked to the national grid via the Walmund distribution station (WBM, 1996).

4.6.2 WALVIS BAY

Walvis Bay is presently supplied with electricity by the national electricity authority, NAMPOWER. Electricity is received via double 66 kV overhead lines from the Walmund Station which supplies the town at two locations, namely, Ruby and Paratus (WBM, 1996). Currently, the Paratus station has a maximum available supply of 30 MW. In 1992, prior to the re-integration of Walvis Bay into Namibia, consultants projected the maximum electrical demand to be approximately **23 MW** by the year 2000 (WBM, 1996). This figure was reached in May 1995 with an annual electrical demand of **23.116 MW**. The consumption of electricity in Walvis Bay has grown annually by **8 percent** over the past 3 years (*ibid.*). However, if taken over the past 7 years, this annual growth in demand is only **4.35 percent** (Coelin, Pers. Comm., 12/02/96).

Table 19 provides an indication of the projected maximum growth in electricity consumption in Walvis Bay. Based on an annual growth rate of 4.35 percent and the maximum supply of 30 MW, a shortage will be experienced by **2001/02**. However, if the growth rate of 8 percent is projected, then an electrical shortage is expected as from **1998**.

Table 19: Projected maximum growth in electricity consumption in Walvis Bay

Year	4.35% growth (MW)	8% growth (MW)
1994/95	23.116	23.116
1995/96	24.122	24.965
1996/97	25.107	26.962
1997/98	26.265	29.119
1998/99	27.408	31.449
1999/2000	28.600	33.964
2000/01	29.844	36.682
2001/02	31.142	39.616
2002/03	32.497	42.786
2003/04	33.911	46.208
2004/05	35.386	49.905
2009/10	43.782	73.327
2014/15	54.170	104.749

Source: Coelin (1996)

The municipal servicing of 570 erven per annum for low income housing and 200 erven per annum for middle income housing has been identified as a major factor influencing the increased demand for electricity in Walvis Bay (Coelin, Pers. Comm., 12/02/96). As mentioned in Section 4.2.3 of this chapter, the Walvis Bay Municipality has recently committed itself to the provision of 1000 serviced erven per annum in order to meet the ever-increasing demand for low-income housing in Kuisebmond (WBM, 1996). Electricity demands resulting from increased service provision are therefore set to multiply in the near future.

Other factors affecting the extent of current and future electricity demands include, *inter alia*, expansion in the fishing sector, light service industry and the commercial/business sector; the proposed development of an Export Processing Zone, which, it is envisaged, would attract industries requiring bulk electricity supplies; and the proposed siting of a desalinisation plant at Paaltjies near Walvis Bay (University of Cape Town, 1996).

In order to meet the projected growth in electricity demand, the Walvis Bay Municipality has issued a tender inviting consultants to investigate the upgrading and extension of the bulk electricity supply to the town (WBM, 1996).

4.6.3 SWAKOPMUND

The electricity to Swakopmund is supplied by NAMPOWER via a 66 kV line from the Walmund distribution station. The Swakopmund Municipality has projected an annual growth rate of **7 percent** in maximum demand (*ibid.*). This projected growth in demand is summarised in Table 20.

Table 20: Projected maximum growth in electricity consumption in Swakopmund

Year	7% growth (MW)
1994/95	11.940
1995/96	12.776
1996/97	13.670
1997/98	14.627
1998/99	15.651
1999/2000	16.746
2000/01	17.919
2001/02	19.173
2002/03	20.515
2003/04	21.951
2004/05	23.488
2005/06	25.132
2006/07	26.891
2007/08	28.774
2008/09	30.788
2009/10	32.943

Source: Jones, Pers. Comm., 14/02/96.

Of the **11.940 MW** supplied to Swakopmund in 1994/95, Mondesa consumed **8 percent**, Tamariskia **15 percent**, and Swakopmund Proper **79 percent** (NHE, 1994). As indicated,

the amount of energy consumed by Mondesa is a small proportion of the total energy supplied to the town. However, energy consumption in Mondesa is growing at a higher rate than for other Swakopmund consumers (*ibid.*). Between 1986 and 1991 the amount of units purchased from SWAWEK² for the whole of Swakopmund grew by **29 percent**. During the same period Mondesa's consumption grew by **97 percent** (*ibid.*).

The rapid influx of migrants to Mondesa has further increased this demand for electricity. However, most migrants, rather than being accommodated in newly serviced erven, find residence in the already-electrified single quarters, compounds and township houses, or in the backyard shacks which are not provided with electricity. As a result, the rate of electricity consumption in Mondesa, although on the increase, does not parallel the growth in population numbers. However, the provision of serviced erven - proposed in order to absorb the influx of migrants - will result in an increased consumption of electricity among low-income residents.

4.7 EMPLOYMENT

An accurate analysis of the impact of urbanisation on unemployment in the study area is hindered by an absence of data in this regard. It is within these limitations that the following discussion is conducted.

According to the statistics in the Namibian 1991 Population and Housing Census, the employment figure³ for the Erongo Region in 1991 was **76 percent** of the potentially economically active people (aged 15-64 years) (CSO, 1994).

² SWAWEK (South West African Water and Electricity Corporation) has changed to NAMPOWER, following Namibian independence in 1990.

³ The 1991 Population and Housing census does not provide an official definition of 'employment'. However, people between the ages of 15 and 64 were classified as **unemployed** if they were not in any form of paid- or self-employment during the period 20-21 October 1991 (CSO, 1994). It can therefore be inferred that the employment classification includes those in the formal **and** informal sector.

The unemployment figure for the Region in 1991 was **24 percent** - 5 percent higher than the national average, and the third highest of Namibia's thirteen regions. Furthermore, the Erongo Region was recorded as having the largest number of unemployed women in the country (**34 percent** compared to **7 percent** in Omusati) (*ibid.*).

Following the exclusion of Walvis Bay from the 1991 Namibian census, employment figures applying to the Erongo Region cannot be directly translated to the study area. To compound the problem, South Africa's Central Statistical Services omitted unemployment details from the 1991 South African census. Calculating the impact of urbanisation on levels of unemployment in Walvis Bay is therefore not possible.

Although the official 1995/96 unemployment rate is not known, independent research estimates it to be **10 percent** in Walvis Bay and **30 percent** in Swakopmund (Ramboll, 1995). This indicates a significant increase in Swakopmund from **13.4 percent** in 1991 to the present estimate (CSO, 1994).

An economic analysis of the study area provides a general indication of the extent to which the local economy can adequately absorb the influx of job-seekers. The study area possesses a regional, and particularly urban based, comparative advantage in the following activities: fishing; community, social and personal services; construction; wholesale, retail, catering and accommodation; manufacturing (predominantly fishing based); transport; finance; and mining and quarrying (CSO, 1994; CSS, 1991). Due to Namibia's small economy and high rate of unemployment (currently estimated at **40-50 percent**), those sectors capable of serving a growing export market with **labour intensive practices** need to be targeted and stimulated (NDP1, 1995; Ramboll, 1995). The NDP1 (1995) has therefore identified agriculture, fishing, manufacturing and tourism as sectors which have the greatest expansion potential and ability to capture foreign markets, and industries which can predominantly operate on a labour intensive basis.

Given this objective, the study area can expect increased Government investment in its fishing, manufacturing and tourism sectors, resulting in the possible creation of further employment. The importance of a labour intensive approach lies in the fact that increased sectoral investment will inevitably result in an influx of job-seekers to the urban centres

in the study area. In the absence of a labour intensive approach, the absorptive capacity of the industries will be over-extended, with a subsequent growth in unemployment.

To date, however, the Namibian Government seems to have been unsuccessful in increasing labour-intensive growth (Gaomab and Stone, 1994). Although the GDP growth rate grew positively by **2.6 percent** during the 1990-1993 period, anecdotal evidence indicates a lack of employment growth (except in general government) since Independence (*ibid.*). There have in fact been massive redundancies and retrenchments in the leading sectors of the economy, namely, mining and agriculture. Of significance to the study area is the large amount of retrenchments which have occurred at the Rossing Uranium Mine (*ibid.*). As a major employer in the study area, these redundancies, followed by the predicted closure of the mine in 5 to 20 years time, will have a significant impact on the levels of unemployment and absorptive capacity of the study area's economy (van Schalkwyk, Pers. Comm., 15/2/96).

This lack of labour intensive growth, coupled with the rapid rate of urbanisation in the study area, will have an adverse effect on the extent of migrant absorption into the local economy, thereby accelerating current unemployment figures.

Improving the study area's economy and levels of employment in the short term, depends to a large degree on the extent to which the spin-off benefits of the fishing industry (and mining industry, although to a lesser degree) are captured. The real value of these industries lies in the value-adding activities of the secondary sector. An introduction of local product processing could help create the thousands of jobs urgently needed (International Development Consultancy, 1995).

Although the fishing industry is currently the largest source of employment in the study area⁴, the Namibian Government has, however, realised that it cannot continue to rely on natural-resource intensive activities, especially in the medium to long term (NDP1,

⁴ In Walvis Bay "the fishing industry ... accounts for 10 000 jobs. It is estimated that 70 percent of all the 600 industries in Walvis Bay are either directly or indirectly dependent on the fishing industry" (Ramboll, 1995:7).

1995). This is particularly pertinent to the study area in the light of its economic emphasis on the fishing and mining industries. Given this proposed shift away from a dependence on primary industries, it can be expected that the Government will try to stimulate the manufacturing and tourism industries in the study area.

The proposed implementation of an Export Processing Zone (EPZ) Regime in Walvis Bay, will encourage a diversification of the local economy, resulting in a possible increase in employment opportunities. "It is estimated that the industrial development (associated with) the EPZ in Walvis Bay will create a maximum of 5 000 jobs within a five year period" (Ramboll, 1995:7).

However, this industrial development, in the absence of rural job creation, will have a substantial influence on the rate of migrant influx to Walvis Bay and Swakopmund. Based on the experience of similar industries, "the creation of 800 jobs could attract approximately 5 000 people seeking employment in Swakopmund and Walvis Bay" (*ibid.*). The new industries in the EPZ "are likely to benefit the semi-skilled and skilled labour force mainly" (Ramboll, 1995:8). Given the low levels of education and poor skills attainment characteristic of the majority of migrants, the implementation of an EPZ Regime is therefore "unlikely to alleviate the unemployment problem in the town to any large extent. The problem could (in fact) be aggravated by the in-migration of hopeful unskilled workers that are largely unemployable if not properly trained" (*ibid.*).

Increased levels of unemployment will perpetuate the already high levels of poverty typical of Kuisebmond, Mondesa and to a lesser extent, Narraville and Tamariskia. Although no official research has been conducted investigating the relationship between rising unemployment, heightened poverty and increased crime, a possible correlation does exist. In the absence of crime statistics for the study area, personal communications noted a sharp increase in crime since Namibian independence in 1990 (Scholz, Pers. Comm., 09/02/96; Beckers, Pers. Comm., 14/02/96; Ashakote, Pers. Comm., 14/02/96; Keib, Pers. Comm., 10/02/96; Butkus, Pers. Comm., 13/02/96; Coetzee, 05/12/95).

Other significant ramifications of heightened unemployment include, *inter alia*, increased financial pressure on national, regional and local government bodies and tax payers to

finance the provision of housing and associated services; and a further deterioration in living conditions and levels of health among the unemployed.

4.8 HEALTH

4.8.1 AVAILABILITY OF SERVICES

As a general norm the Ministry of Health and Social Services (MOHSS) aims to provide three beds per 1000 of the population on a health district level and an additional one bed per 1000 of the population on a health region level. For the Erongo Region, where the estimated population for 1994 was approximately **94 000**, the actual number of beds and planned number of beds is well above the State requirement - **5 beds per 1000** of the population compared to the national norm of **3 beds** (International Development Consultancy, 1995). At present, the influx of migrants to the study area is therefore not placing any undue pressure on the existing curative health services. However, the escalating population numbers is resulting in a deterioration in levels of environmental health and a subsequent rise in the incidence of diseases.

4.8.2 PREVALENCE OF DISEASE

The impacts identified in the preceding sections of this chapter are **first-order** or **primary impacts**. In other words, they are the direct consequences of rapid urbanisation in the study area. Health impacts, on the other hand, are **secondary impacts**, due to the fact that their occurrence is not the direct result of increased urbanisation, but is instead determined by pre-existing linkages (Fuggle, 1994).

The rate and scale of rural-urban migration to Walvis Bay and Swakopmund has set in motion a host of health impacts resulting from inadequate housing and overcrowding; poor sanitation, sewerage and refuse removal; insufficient access to water fixtures; and high levels of poverty due to unemployment.

The most common health problems associated with overcrowding are acute respiratory infections (of which pneumonia is the most serious), tuberculosis (TB) and other airborne infections (Hardoy, Mitlin and Satterthwaite, 1992). The spread of these diseases is aided by the close living proximity and frequent contact with infective and susceptible people, as well as the low resistance among inhabitants due to poverty-induced malnutrition (*ibid.*).

The extent of overcrowding in Kuisebmond and Mondesa is well illustrated by a comparison of the gross population densities and average number of people per erven in the low and middle income areas in each town (Table 21).

Table 21: A comparative analysis of gross population densities and average number of people per erven.

Residential area	Gross population density (p/ha)	Av. no. people per erven
Walvis Bay Proper (1993)	18	3
Kuisebmond (1993)	210	14
Swakopmund Proper (1994)	10	5
Mondesa (1994)	100	12

Source: NHE (1994); Brummer (1995); Dennis Moss Partnership (1994).

The single quarters and compounds, where the degree of overcrowding is most intense, are characterised by very small rooms, minimal ventilation, communal ablution facilities and shared eating utensils (Butkus, Pers. Comm., 1996). All of these are contributory factors to the spread of numerous infections. The incidence of diseases in Walvis Bay and Swakopmund, as associated with overcrowding and poor living conditions, are summarised in Table 22.

Table 22: Incidence of disease in Walvis Bay and Swakopmund

1. Walvis Bay ⁵	No. of cases recorded
• Acute upper respiratory	3 838
• Other respiratory	3 122
• Pneumonia	550
• Tuberculosis	752
2. Swakopmund ⁶	
• Acute upper respiratory	3 410
• Other respiratory	1 525
• Pneumonia	219
• Tuberculosis	360

⁵ Figures recorded by MOHSS between January and December 1995

⁶ Figures recorded by MOHSS between January and November 1995

4.8.2.1 TUBERCULOSIS

Of concern in the study area, and Walvis Bay in particular, is the occurrence of TB. TB is one of the most commonly spread diseases, causing much morbidity and mortality, and striking the most active and economically productive age groups. Important to note is that the incidence of TB “increases in absolute numbers as the population increases” (Hardoy *et al*, 1992:46). Given the current rate of population growth in the study area, in the absence of adequate treatment, an increase in the number of TB cases can be expected. TB notification data from 1989 to 1993 indicates an alarming escalation of TB in Walvis Bay, despite highly effective control medication and regular health education programmes. This disease is typically associated with high poverty levels, inadequate housing and overcrowding, poor ventilation, low nutrition levels and limited health care (*ibid.*). With the low standards of living presently experienced in Kuisebmond and Mondesa the incidence of TB has increased.

Table 23: Total number of TB cases recorded in Walvis Bay (1989-1993)

Year	Total no. of cases recorded
1989	148
1990	240
1991	213
1992	327
1993	369

Source: Els (1995)

The incidence of TB, as recorded in Table 23, indicates an increase of **149 percent** within a 5 year period and an overall incidence of **600** cases per 100 000 total population - **50 percent** higher than the national average (Els, 1995). The number of annual TB cases in Walvis Bay has continued to escalate, with a high of **400** in 1994 and up to **752** in 1995. Swakopmund recordings show a total of **360** cases in 1995 (MOHSS, 1995a).

4.8.2.2 ENVIRONMENT AND WELL-BEING

An understanding of the interaction between environmental factors and human well-being is poorly understood due to the huge variety of needs and expectations of different cultures and age groups (Hardoy *et al*, 1995). However, many psychological disorders are associated with poor quality housing and living environments. Among the most serious are depression, suicide, drug and alcohol abuse, and violence, for example, against ones child or spouse (*ibid.*).

Data gathered by MOHSS in 1995 denote the incidence of the following conditions: In Walvis Bay, **238** new cases of hypertension and **155** psychiatric disorders/conditions. In Swakopmund, **192** new cases of hypertension and **83** psychiatric disorders/conditions (MOHSS, 1995a). The number of people diagnosed with the above conditions is a very low percentage of the total population. This is not necessarily a reflection of the number of people suffering from psychological disorders, but is more likely the result of a reluctance to seek medical help for such conditions. However, alcoholism and wife battering - both

of which are linked to poor quality living environments - have been identified as significant problems plaguing the low income areas (Hardoy *et al*, 1992; Kronje, Pers. Comm., 06/12/95; Coetzee, Pers. Comm., 05/12/95). No quantitative data exists for the incidence of these social pathologies.

4.8.2.3 HIV AND AIDS

A significant ramification of the movement of people from the northern regions to urban centres within the study area, is an increase in the number of HIV and AIDS cases. Although comprehensive statistics on HIV and AIDS are not available for the study area, various deductions can be made by reference to national statistics. Data recording the full-blown AIDS cases reported in January to September 1995 show a total of approximately 450 cases in North Eastern Namibia and approximately 400 cases in the North West. This can be compared with 240 cases in the South (including Windhoek) and 90 cases in Central Namibia, of which our study area is a part (MOHSS, 1995b).

Given that a large percentage of migrants come from North Eastern and North Western Namibia, the present migratory trends can be expected to have a significant impact on the number of AIDS patients in the study area. However, a major obstacle to the accurate assessment of the AIDS pandemic is the failure to regularly report HIV/AIDS cases. The result is a gross underestimation of the extent to which the HIV virus is prevalent on a national, regional and local scale (Kahele, Pers. Comm., 06/12/95).

An increase in the number of people infected with the HIV virus and suffering from AIDS will have a significant effect on the economy of the study area. Given that the virus predominantly inflicts those of an economically active age (20-50 year age group), the spread of AIDS will result in a "loss of employment and individual income, loss of employees without adequate availability of replacement, and a subsequent decline in production and national income" (MOHSS, 1995c:2). With the study area being a large employer and contributor to the Gross National Product (GNP), this scenario poses a severe threat, not only to the social and economic stability of the study area, but also to Namibia as a whole.

4.9 SUMMARY OF IMPACTS

Managing the impacts of urbanisation requires an understanding of the complex web of ramifications associated with this phenomenon. A recognition of this interdependence of factors lays the foundation for a holistic, and ultimately more effective, response to rural-urban migration. Figure 14 provides a diagrammatic representation of the impacts associated with urbanisation in the towns of Walvis Bay and Swakopmund. The web of cause-and-effect relationships summarised in this figure are by no means exhaustive, but instead constitute the major impacts identified in this dissertation.

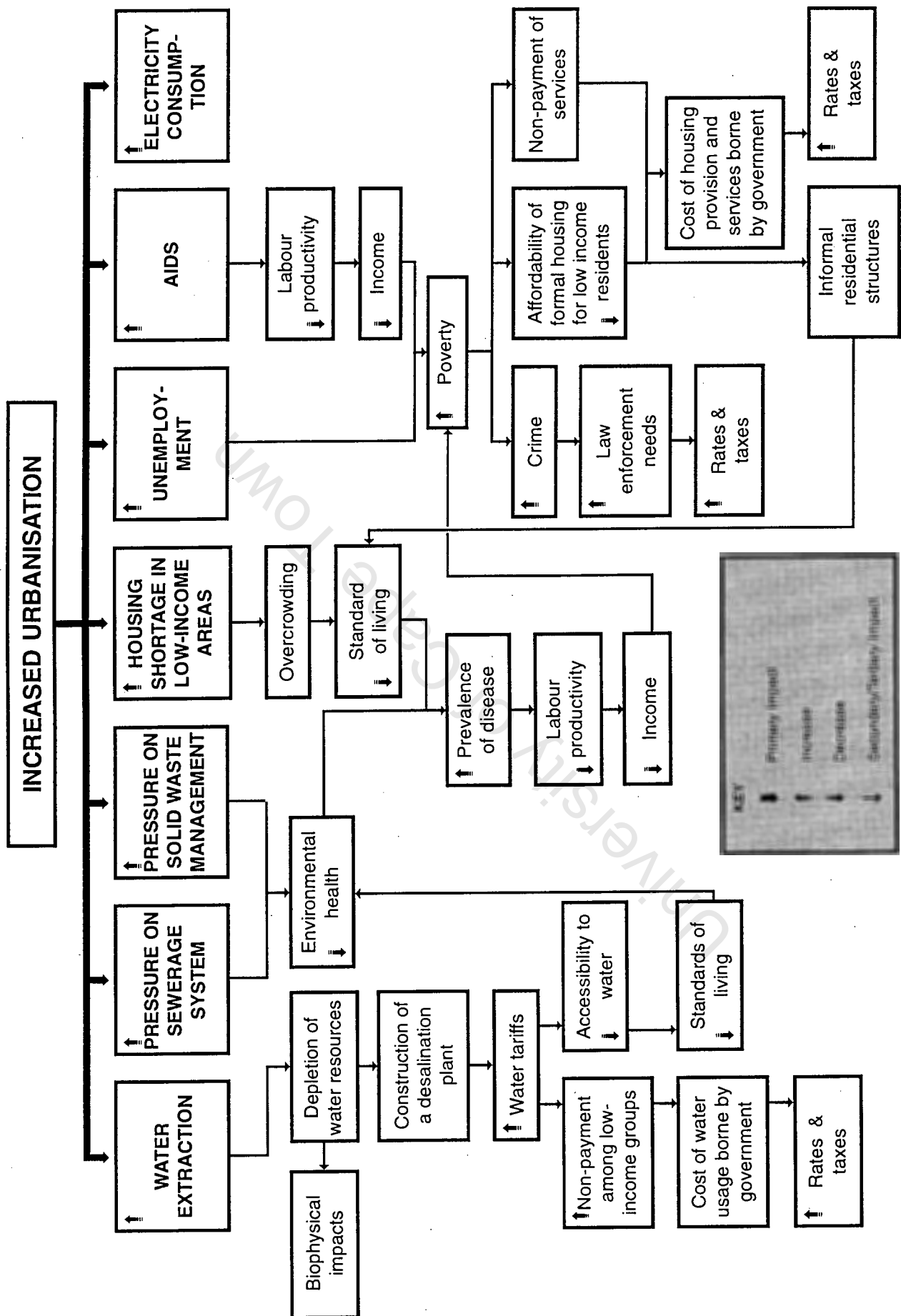


Figure 14: A cause-effect flow diagram for the environmental impacts of urbanisation in Walvis Bay and Swakopmund

5. CONCLUSIONS AND RECOMMENDATIONS

5. CONCLUSIONS AND RECOMMENDATIONS

The objective of this dissertation was to identify the factors generating rapid urbanisation and to conduct an assessment of the impacts of this phenomenon on the study area. The investigation conducted has highlighted a number of significant issues requiring attention on a national, regional and local scale.

Analysis of migration patterns within Namibia revealed a substantial movement of people from the northern regions of Oshana, Oshikoto, Ohangwena and Omusati to urban centres in the study area. A significantly high proportion of this influx is to the towns of Walvis Bay and Swakopmund - although to a lesser extent among the latter. The highest percentage of these migrants originate in the districts of Oshakati and Ondangwa within the Oshana Region.

Factors perpetuating this rural-urban migration are primarily the result of unequal levels of development and structural inequalities which characterise Namibia - a discrepancy which is most significant between the northern and central regions of the country. The differential access to resources, rooted in the economic structures of Namibia's colonial past, are perpetuated into the present day, and are evident in the inadequate access to housing, electricity, water, sewerage services, education, health facilities and employment opportunities which typify the northern regions.

These conditions, compounded by the absence of an internal migration or urbanisation policy, has resulted in a perpetuation of rural-urban migration. Walvis Bay, a focus of colonial development efforts and host to increased industrialisation since Independence, therefore constitutes a significant destination for migrants in search of employment.

An assessment of the ramifications of this migrant influx has resulted in the identification of a number of impacts in the towns of Walvis Bay and Swakopmund. The most significant of these impacts are:

- housing shortages and subsequent overcrowding - followed by an increase in the incidence of tuberculosis;
- increased water and electricity consumption;
- heightened pressure on sewerage treatment works and waste management facilities;
- a fast growing unemployment rate;
- an increase in the number of HIV/AIDS cases;
- heightened pressure on national, regional and local budgets, with a subsequent increase in rates and taxes.

The ramifications of urbanisation impact differentially across the urban environment. It is the agents of these impacts, that is, the migrants themselves, as well as the existing residents in the low-income areas, that are the chief recipients of the above-mentioned effects. The impact of urbanisation on the middle-to-high income sectors is realised via, *inter alia*, an increase in rates and taxes necessary to fund Government provision of housing and payment of services in the low income areas; increased crime; over-burdening of services; and redistribution of the local budget (Dewar, Pers. Comm., 28/06/96).

Formulating management strategies pertaining to rural-urban migration depends on the extent to which increased urbanisation is considered desirable (Tvedten and Mupotola, 1995). Urbanisation, properly managed, can provide a 'window of opportunity' for economic growth and raise standards of living (United Nations, 1970). However, in the Namibian context, urban centres stand the risk of being negatively affected by the ramifications of uncontrolled urbanisation. In Walvis Bay and Swakopmund, the present rate of migrant influx has reached its limit in terms of the capacity of the Local Authorities to deal with this phenomenon in an effective manner. Pathologies identified indicate a need for intervention and management on a national, regional and local level.

It is not the brief of this dissertation to formulate concrete proposals for the management of rapid urbanisation in the study area. However, it is appropriate that an indication be provided of important considerations which need to be taken into account.

In order to manage the impacts of urbanisation effectively, it is crucial that the current dearth of socio-economic indicators be addressed. In the absence of means and performance indicators, it is extremely difficult to identify, manage and monitor the full range of impacts associated with urbanisation. Namibia's Central Statistics Office therefore needs to give careful consideration to an appropriate range of indicators, given the particular developmental circumstances of the country (Dewar, Pers. Comm., 28/06/96).

A vital component of any intervention measure is an acceptance of rural-urban migration as an **inevitable process** characteristic of developing countries (Parnwell, 1993). Given this, decision-makers in Namibia need to formulate management efforts which maximise the positive effects and minimise the negative impacts of urbanisation (*ibid.*). Such a task is a complex one, since both positive and negative outcomes result from the same form of movement (*ibid.*). Intervention measures should therefore seek to understand the conditions under which increased urbanisation is desirable, and to establish how these conditions can best be fostered and financed (Tvedten and Mupotola, 1995).

The current absence of an internal migration and urbanisation policy in Namibia requires urgent redress. The formulation and implementation of such policies needs to be such that they facilitate the achievement of "broader societal goals such as raising per capita income, increasing efficiency, making the distribution of income more equitable and improving quality of life" (United Nations, 1975 in Amutenya *et al*, 1993). For such policies to be effective and relevant, it is essential that they be suitably positioned within the broader socio-economic context of Namibia, and appropriately linked to and complemented by broader development goals (Parnwell, 1993). Formulated in isolation, intervention measures cannot serve as effective management tools.

Furthermore, it is essential that internal migration policies reflect the complex nature of this phenomenon - both in terms of the wide variety of stimuli and the multiple range of impacts which occur. 'Single variable solutions', for example, the generation of rural

employment or the improvement of urban housing, reflect an ignorance of the complex interdependence of factors and stimuli associated with urbanisation (*ibid.*). What is needed is a policy that “takes into account a wide range of actors, difficult political and economic trade-offs, and a (recognition of the) complex set of natural, social and economic relationships” perpetuating, and resulting from, rural-urban migration (Bartone *et al*, 1994). Blanket policies which treat migration and migrants as homogeneous entities are unlikely to be effective (Parnwell, 1993). It is therefore imperative that Namibian planners have an adequate knowledge of the full range of factors influencing migration decisions, as well as an understanding of the demographic characteristics of the migrants concerned (*ibid.*).

Constraining the rate of rural-urban influx is most effectively achieved by addressing the root cause of this occurrence, namely, poverty, inadequate access to resources and unemployment in the rural areas (*ibid.*). In the Namibian context, rural development is an essential component in any attempt to alleviate the rate of cityward migration. “A more appropriate balance between rural and urban economic opportunities appears to be indispensable to ameliorating both urban and rural unemployment problems and to slowing the pace of rural-urban migration” (Todaro, 1994:272). The types of policies and programmes which can be implemented in order to facilitate rural development include, *inter alia*, rural infrastructural investment; agricultural extension; reducing urban bias; rural industrialisation; agricultural intensification; improving rural-urban terms of trade; and rural minimum wages legislation (Parnwell, 1993).

Rural development efforts need to be supplemented by interventions which seek to redirect migration flows away from primate towns, such as Walvis Bay, towards alternative destinations (*ibid.*). This entails the establishment and strengthening of small and medium-sized towns within Namibia, such that they assume the role of rural service, market and production centres. In doing so, the potential benefits of increased urbanisation will be more widely distributed and the pressure on urban centres within the study area relieved (Amutenya *et al*, 1993). Interventions of this nature require an understanding of the extent to which cityward migration is desirable. Subsequent interventions therefore aim to reduce the flow of migrants such that the negative ramifications are reduced, and the positive effects retained.

Given the inevitability of rural-urban migration, it is essential that solutions appropriate to the local level be implemented, thereby ensuring that rapid urban growth is better accommodated. A key approach in addressing and improving local conditions entails the decentralisation of government resources and powers to regional and local level authorities. This approach will promote greater efficiency in service provision, ameliorate the efficiency with which services are provided and improve responsiveness to local conditions - all of which are essential to the improved management of the impacts of rural-urban migration (NDP1, 1995).

There are a number of 'actors' who influence the management of the study area's urban landscape (Tvedten and Mupotola, 1995). These include, *inter alia*, national, regional and local authorities; parastatals; private interests; aid organisations; and community bodies (*ibid.*). Ensuring an appropriate response to cityward migration requires a comprehensive, integrated management plan in which the efforts of these different stakeholders are coordinated. Given the complex web of effects associated with rural-urban migration, *ad hoc*, project-specific planning will have little success in facilitating a mitigation of negative impacts.

The proposed implementation of an ICZMP for the study area serves as an ideal mechanism with which to manage the local impacts of rural-urban migration more effectively. The impacts of migration, managed within a broader Coastal Zone Management Plan, facilitates an approach in which the extensive range of sectors impacted upon by rapid urban growth are managed and coordinated in an holistic, systemic manner. This integrated approach to planning ensures the consideration of environmental concerns in the decision-making process, thereby laying the foundations for the sustainable management of resources in the study area - an approach essential to the well-being of the local population.

Importantly, the formulation of an ICZMP needs to be guided by thorough consultation with all interested parties, ranging from the national to the local and community level. Such a strategy will ensure that the ICZMP takes cognisance of the concerns of those impacted upon by the rapid rate of migrant influx, while at the same time allowing for a management plan which is appropriate to Namibia's national, regional and local context.

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