

**ANNEXURE N9:  
SOCIO-ECONOMIC BASELINE AND  
IMPACT ASSESSMENT STUDY BY  
MARIE HOADLEY**



**Socio-Economic Component of the  
Social and Environmental Impact  
Assessment Report for the RIO TINTO  
RÖSSING URANIUM LIMITED MINE  
EXPANSION PROJECT**

**Socio-Economic Baseline Study**

December 2009

**Marie Hoadley**

**Social Impact Assessment**

**+27 (0) 83 6579375**

**+264 (0) 81 3280409**

**[mariehoadley@iafrica.com](mailto:mariehoadley@iafrica.com)**

# EXECUTIVE SUMMARY

Rio Tinto Rössing Uranium Limited (Rössing Uranium) commissioned a Socio-Economic Baseline Study as part of the socio-economic component of the integrated Social and Environmental Impact Assessment for the Company's Mine Expansion Project.

Rössing Uranium indicated that the Study should not focus solely on Arandis, but should incorporate other communities of interest. Three communities of interest, which have strong economic ties with Rössing Uranium, and where the Rössing Uranium workforce resides, were identified for this Report: Arandis, Swakopmund and Walvis Bay,.

The two chapters dealing with the developmental context of Rössing Uranium from a national and regional perspective show that the mineral sector, particularly uranium mining, will be a major contributor to economic growth in the country and in the Erongo Region. Unemployment in Namibia is high, as are poverty levels in parts of the country, particularly in rural and labour-sending areas. Mining has been a major employer in the Erongo Region, and is set to become even more significant by the provision of livelihoods, training and support for local economies.

The developmental mandates of specific ministries which are relevant to this Report have been identified. These mandates indicate the need for close co-operation between the minerals sector and State to ensure that development agendas are aligned and promote the achievement the objectives of Vision 2030, the Third National Development Plan and the Millennium Development Goals.

In terms of education, social welfare and health services the region is regarded as being in a relatively favourable position. Erongo schools are regarded as of the best in the country, health services have been brought closer to the communities and the dependency ratio compares favourably with the rest of the country. However, the relative affluence of the coastal urban communities masks the poverty, underdevelopment and limited access to social services and resources of the rural areas.

There are a number of concerns with regard to development in the Erongo Region. HIV/AIDS and TB pose a threat to regional well-being and social development. The conditions that encourage the spread of the diseases are poverty, poor living conditions and unemployment. To a significant extent these conditions are caused by the inflow of unemployed work seekers, lured by the possibility of employment in the fishing and mining sectors. Most of them find accommodation in informal settlements or backyard shacks.

The key economic sectors, and major employers, in Erongo are the mining and fishing industries. The limited industrial activity is based on the fishing industry. The SME sector concentrates mainly on trade and services, and the manufacturing sector is constrained by the unavailability of inputs, which cannot be sourced locally, and by the lack of a supporting service industry.

As in the case of access to social services, there are communities which, because of their isolation and underdevelopment, do not have access to the mainstream economy or to

alternative livelihood opportunities. A number of these communities pursue agriculture and small-scale mining activities, usually at subsistence level.

Significant agricultural activity is not possible, due to the aridity and salinity of the soil and groundwater, and the shortage of the latter. Potential for agricultural development is believed to lie in the exploitation of non-traditional, high value agricultural products.

Tourism is an important component of the region's economy, and the basis of the prosperity of Swakopmund. Erongo hosts extensive protected areas and is rich in biodiversity of global significance.

The expansion of uranium mining has implications for the region's water resources. Mines are huge consumers of water and this is a major concern of stakeholders in mining projects. Areva Resources Namibia's desalination plant at Wlotzkasbaken was commissioned in October 2009 and is expected to be fully operational in 2011. The desalinated water from this plant is intended for use at the mine site at Trekkopje although there is known extra capacity which may be made available to third parties. Namwater has announced its intention to erect a desalination plant outside Swakopmund to supply desalinated water to the mining sector and other coastal industrial users. An Environmental Impact Assessment has been completed, and lodged with MET:DEA for a decision as to whether the project can be authorised to proceed.

Mining poses a threat to the tourist industry which contributes significantly to GDP and is regarded as a growth sector, both for the national economy and for the empowerment of rural communities. The impacts of mining are evident in a number of protected areas that give the region its unique attraction for tourists. Ecological systems and valuable biodiversity have already sustained significant and, in some cases, irreversible impacts.

In the context of this study, the major role players in the region have been identified as the Erongo Regional Council, the Rössing Foundation, Rössing Uranium, the Chamber of Mines of Namibia and other mining companies in Erongo. Each of these plays a major role in contributing to the developmental needs of the region. The section shows that mining companies such as Rössing Uranium have been major contributors to socio-economic development. With the increase in the number of operating mines, the establishment of a Swakopmund office by the Chamber of Mines of Namibia will facilitate the aligned and co-ordinated development activities of its members.

Of the three communities of interest, Swakopmund and Walvis Bay have the most diversified and established economies. Arandis' economy is dependent on the mining sector. All towns have, in common, a lack of available accommodation, houses and developed erven. Equally, they all have good access to major transport routes, energy and water.

Swakopmund and Walvis have a critical lack of capacity in the number of learners their schools can accommodate, and this problem is emerging in Arandis. State health services in all three towns are experiencing strain as a result of the influx of people, many of them unemployed. State health services in Arandis are inadequate, and would not support significant development. An urban clinic is being considered for the town.

The towns experience similar social problems: poverty, unemployment and alcohol abuse. While specific significant health problems are not indicated for Arandis, both

Walvis Bay and Swakopmund experience high TB infection rates. The largest number of informal settlements and backyard shacks are in Walvis Bay and Swakopmund. In Arandis, the problem of informal accommodation is manifesting itself.

# Contents page

<b>1. Introduction</b>	<b>10</b>
<b>1.1 Terms of Reference</b>	<b>10</b>
<b>1.3 Limitations and constraints</b>	<b>10</b>
<b>1.4 Structure of the Socio-Economic Baseline Study</b>	<b>10</b>
<b>1.5 Guiding principles and major input sources</b>	<b>11</b>
<b>2. Developmental context of the Rio Tinto Rössing Uranium Limited Mine Expansion Project.</b>	<b>12</b>
<b>2.1 Regional and geographic location.</b>	<b>12</b>
<b>2.2 The institutional context – developmental legislation and policy</b>	<b>12</b>
The Namibian Constitution	12
The Millennium Development Goals	13
Vision 2030	13
National Development Plans	13
Decentralisation	14
Local Authorities	15
Developmental mandates and legislation	15
<b>2.3 Overview of the Namibian Economy</b>	<b>17</b>
Mining and minerals	18
Agriculture	19
Manufacturing	19
Tourism	20
Fisheries	20
Social development indicators	22
Constraints – resources	22
<b>3. Erongo Regional Development Perspectives</b>	<b>25</b>
<b>3.1 Social environment</b>	<b>25</b>
<b>3.2 Economic environment</b>	<b>27</b>
The Minerals Sector	27
Fishing and marine resources	29
Tourism	30
Energy	32
<b>3.3 Land Use and tenure</b>	<b>33</b>

Legislative and policy regime	33
Major land-use activities	33
<b>4. Major Role Players in the Erongo Development Trajectory</b>	<b>35</b>
<b>4.1 The Erongo Regional Council</b>	<b>35</b>
Developmental Objectives for Erongo	35
Major Constraints	35
<b>4.2 The Rössing Foundation</b>	<b>36</b>
<b>4.3 Rössing Uranium</b>	<b>37</b>
<b>4.4 The Chamber of Mines of Namibia</b>	<b>40</b>
<b>4.5 Other mining companies in the Erongo Region</b>	<b>41</b>
<b>5. Communities of Interest</b>	<b>43</b>
<b>5.1 Arandis</b>	<b>43</b>
Institutional Capital	43
Natural Capital	46
Physical capital	47
Financial capital	49
Social capital	51
Human Capital	52
<b>5.2 Swakopmund</b>	<b>55</b>
Demographics	55
Economy	56
Local Authority	57
Municipal and social services	57
Social concerns	64
The Swakop River Valley	65
<b>5.3 Walvis Bay</b>	<b>66</b>
Demographics	66
Economy	66
Local Authority	67
Municipal and social services	68
Social concerns	74
<b>6. Conclusion</b>	<b>75</b>
<b>7. References</b>	<b>76</b>



# List of Figures

Figure 1: Rössing Uranium in relation to towns and communities in the study area. ....	12
Figure 2. Contribution of GDP of main economic sectors in Namibia in 2007 .....	21
Figure 6. Current and pending nuclear fuels exploration in Namibia in 2007. ....	28
Figure 7: Percentage of visitors visiting various locations in Namibia. ....	31
Figure 8. Mining in the NWCTRA. ....	31
Figure 4 : Mining Contribution to Step Loads .....	32
Figure 9: Rössing Uranium's contribution to economic development.....	37
Figure 10 Permanent employment at Rössing Uranium: 2002-2026.....	38
Figure 11: Rössing Uranium's contributions to community and social development.....	39
Figure 12: Rössing Uranium spend on education and training .....	39
Figure 13 Skills in the Rössing/Arandis workforce and in the total Rössing workforce. .	52
Figure 14: Historic Water Consumption in Swakopmund, 2005 to 2009 .....	60
Figure 15. TB incidence in Walvis Bay – 2008/2009. ....	73

## List of Tables

Table 1. Projected water requirements of Namibian uranium mines .....	23
Table 2. Fertility and mortality rates in Erongo compared to Namibia .....	26
Table 3. Human Poverty Index. Table 4. Human Development Index .....	26
Table 5. Direct Permanent Employment Benefits in the Mineral Sector in 2008 .....	29
Table 6: NDP3 Baselines and targets for the Namibian Fisheries sector: .....	30
Table 7. Namibia energy demand and sourcing options, 2012 .....	32
Table 8. Employment requirements, current and developing uranium operations .....	41
Table 9: Classroom situation and learner numbers in Arandis schools .....	54
Table 10: Capacity in private schools in Swakopmund .....	62
Table 11. HIV prevalence in pregnant women in Swakopmund and nationally.....	64
Table 12. Walvis Bay Water Consumption 2004-2009 .....	68
Table 13: Capacity in private schools in Walvis Bay.....	71
Table 14. HIV prevalence in pregnant women in Walvis Bay and nationally. ....	73
Table 15. Drug-resistant TB in Walvis Bay .....	73

# Abbreviations

DRC	Democratically Resettled Community
EPA	Economic Partnership Agreement
EPL	Exclusion Prospecting Licence
EPZ	Export Processing Zone
ERC	Erongo Regional Council
EU	European Union
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GRN	Government of the Republic of Namibia
KRA	Key Results Area
MAWF	Ministry of Agriculture, Water and Forestry
MDG	Millennium Development Goals
ME	Ministry of Education
MET	Ministry of Environment and Tourism
MHSW	Ministry of Health and Social Welfare
MLSW	Ministry of Labour and Social Welfare
MME	Ministry of Mines and Energy
MRLGHRD	Ministry of Regional and Local Government and Housing and Rural Development
MW	Megawatt
MTI	Ministry of Trade and Industry
MWTC	Ministry of Works and Transport
NDP	National Development Plan
NHE	National Housing Enterprise
NIMT	Namibian Institute of Mining and Technology
NPC	National Planning Commission
OVC	Orphans and vulnerable children
PAYE	Pay-as-you-earn
PDA	Progressive Development Area
Rössing Uranium	Rio Tinto Rössing Uranium Limited
SACU	South African Customs Union
SME	Small/Medium Enterprise
SMM	Small-scale mining
STC	Swakopmund Town Council
TB	Tuberculosis
ATC	Arandis Town Council
UNDP	United Nations Development Programme
VAT	Value-added tax
WBM	Walvis Bay Municipality

# 1. Introduction

## 1.1 Terms of Reference

This study was undertaken, in terms of the brief provided by Rio Tinto Rössing Uranium Limited (Rössing Uranium), to investigate and describe the national, regional and local socio-economic conditions of Rössing Uranium's operating environment. The objectives of the study are to establish baseline conditions of the receiving environment of the proposed Mine Expansion Project against which to assess the potential impacts – both beneficial and negative – of the Project, and to develop feasible management plans for the avoidance/mitigation or optimisation of such impacts.

The Rössing Uranium Mine Expansion Project is to proceed in two phases. The components of Phase 1 are:

- a sulphuric acid plant and associated storage and transport,
- a radiometric ore sorter plant, and
- the mining of an ore body known as SK4.

Phase 2 will consist of:

- extension of current SJ open pit mining activity,
- increased waste rock disposal capacity,
- increased tailings disposal capacity,
- establishing of an acid heap leaching facility, and
- establishing of a ripios disposal area.

This Socio-Economic Baseline Study provides data on the receiving socio-economic environment for both phases. This version updates the Socio-Economic Baseline Study undertaken for Phase 1 of the Mine Expansion Project.

Specific activities undertaken for this study include:

- desktop studies of current literature on social impact assessments, Namibian legislation and policy, the development environment in Namibia and existing information on the communities in the study area,
- establishing baseline frameworks of the receiving socio-economic environments, and
- inclusive, transparent and ongoing public participation and consultation.

## 1.3 Limitations and constraints

The increase in uranium prices resulted in increased interest in the Erongo Region, but prices dropped dramatically as a result of global economic crises. This baseline includes predictions of employment, resource use and benefits from expanding mines and those still to be commissioned. These must be taken as indicative of a trend, as the investment environment is too volatile for reliance to be placed on such predictions, and it is not possible to predict the strategies that operating companies will adopt to deal with the economic crisis. The current demand/supply environment does, however, favour suppliers, and the outlook for development in the Namibian uranium sector is favourable.

## 1.4 Structure of the Socio-Economic Baseline Study

This report is structured as follows:

- Section 1: Introduction to the objectives, Terms of Reference, methodology, scope and major sources of input into the Study.
- Section 2: An overview of the Namibian developmental agenda and a brief discussion of selected line ministries as these are relevant to the Mine Expansion Project. The section undertakes a broad overview of the Namibian economy and the various economic sectors which contribute to the growth of the country.
- Section 3: The economic and social development perspectives in the Erongo Region. The region's development objectives in terms of the third National Development Plan (NDP3) are noted, as well as the constraints on achieving these objectives. Land use and tenure are discussed, as well as particular land-use in the proximity of the Rössing Uranium Mining License Area and Accessory Works Area.
- Section 4: Important role players in the socio-economic development of Erongo. In the context of this Study, these role players include the Erongo Regional Council, Rössing Uranium, the Rössing Foundation, the Chamber of Mines of Namibia and other mining companies.
- Section 5: Rössing Uranium's communities of interest. These are Arandis, Swakopmund and Walvis Bay, the communities which have been most impacted (both positively and negatively) by Rössing Uranium's activities in the past, and are likely to be most impacted in future developments.

## **1.5 Guiding principles and major input sources**

This Report, and its complementary Social Impact Assessment and Management Plan, complies with the requirements of Namibian legislation and policies, as well as the Rio Tinto standards, guidelines and guidance documents as these relate to socio-economic and community development and engagement. Additional to a general literature survey and input by stakeholders, the following documents were consulted in compiling the Socio-Economic Reports:

- Sustainability Assessment for the Life Extension of the Rössing Uranium Mine, 2004.
- Rössing Uranium/Rio Tinto Report to Stakeholders: 2004, 2005, 2006, 2007, 2008.
- Closure Management Plan, Environmental, Social, Economic, Rössing Uranium Limited, 2005.
- Socio-economic Baseline Study of Arandis. Arandis Town Council, Rössing Foundation and Rössing Uranium Limited, 2005, (The Arandis Study)
- Report of the Environmental and Social Impact Assessment, Trekkopje Uranium Project, Erongo Region, Namibia, Turgis Consulting (Pty.) Ltd., 2007.
- Third National Development Plan (NDP3): 2007/08 - 2011/12, National Planning Commission, 2008.

## 2. Developmental context of the Rio Tinto Rössing Uranium Limited Mine Expansion Project.

### 2.1 Regional and geographic location.

The map in Figure 1 indicates the location of the Rössing Uranium mine lease area in relation to major towns and communities in the area.



Figure 1: Rössing Uranium in relation to towns and communities in the study area.

Namibia is divided into 13 regions. Rössing Uranium is situated in the Erongo region, 65km from the coast and the town of Swakopmund, 100km from Walvis Bay and 9km from Arandis. The mine lease area is situated on the northern inland edge of the Namib Desert. The seat of government and capital city of Namibia, Windhoek, is some 370km distant, in the Khomas Region.

### 2.2 The institutional context – developmental legislation and policy

#### *The Namibian Constitution*

Since Independence, the Namibian government has adopted a number of policies that promote sustainable development. Most of these originate in clauses of the Namibian Constitution, particularly Article 95(I), where the State undertakes to “actively promote and maintain the welfare of the people by adopting...policies aimed at...the utilisation of natural resources on a sustainable basis for the benefit of all Namibians, both present and future...” (GRN, 1990).

### *The Millennium Development Goals*

Namibia played a key role in the formulation of the Millennium Declaration. The Millennium Declaration sets out the key challenges facing humanity, outlines a response to these challenges and establishes indicators for assessing progress in achieving these goals. Table 1 in Appendix 1 hereto shows the nine goals and progress made towards the achievement of these goals by 2008. In spite of progress in some goals, serious issues and challenges remain<sup>1</sup>. To meet all the MDGs targets by 2015, Namibia will have to achieve GDP growth of 5 to 6% per annum or higher (GRN, 2009). Subsectors goals that are unlikely to be achieved by 2015 have been identified as:

- net primary school enrolment and improved youth literacy rates (Goal 2),
- reduction of infant and child mortality (Goal 4),
- decreased maternal mortality rate (Goal 5),
- increased number of freehold land conservancies (Goal 7), and
- increase in the number of households with access to basic sanitation (Goal 7).

(GRN, 2009)

### *Vision 2030*

Vision 2030 was launched in 2004 in response to a call for a vision that would take Namibia into the future. It is linked to Namibia's international commitments, notably the MDGs, and its achievement requires a paradigm shift from sector development to integrated approaches through strategic partnerships.

The country's long-term aspirations under Vision 2030 are to become "A *prosperous industrialised Namibia, developed by her human resources, enjoying peace, harmony and political stability,*" Industrial development involves numerous cross-cutting issues, such as rural development, education, health and environmental protection..

Concepts in Vision 2030 which are particularly relevant to this Report include:

- People's Quality of Life: issues pertaining to equality, social welfare, human resource development and institutional capacity, population, health and development, and
- Sustaining the Resource Base.: production systems and natural resources, including aspects of equality and social welfare (GRN, 2005).

The goal of Vision 2030 is to improve the quality of life of all Namibians to the level of that of their counterparts in developed countries. This goal sets out a framework for development and places short-term planning within a long-term perspective. It aims to provide guidance to all three tiers of government and all sectors of Namibian society so that an alignment of policies is achieved (GRN, 2004).

### *National Development Plans*

Vision 2030 visualises National Development Plans as the medium-term goals and main vehicles for achieving the Vision's long-term objectives in a succession of 5-year plans. NDP3 (2007/2008-2011/1012) has been released, and is stated to be "the first systematic attempt to translate the Vision 2030 objectives into concrete policies and actions...and the first medium-term strategic implementing tool towards systematic Vision achievement"<sup>2</sup>. The development directions for NDP3, including the 21 NDP3 goals, are

---

1 <http://www.developmentgoals.org>

2 [www.npc.gov.na/docs/ndp3info.htm](http://www.npc.gov.na/docs/ndp3info.htm)

derived from both domestic and international sources that include the MDGs, Vision 2030, Namibia's Poverty Reduction Strategies and lessons learnt from the NDP2 period..

The overarching vision for the development of the country during NDP3 is stated as "Accelerated Economic Growth and Deepening Rural Development." NDP3 aims to include strategies that:

- encourage domestic and foreign investment, improve productivity and innovation,
- enhance technological development;
- develop quality human resources;
- accelerate the transition to a knowledge-based economy; and
- intensify rural development to reduce urban-rural discrepancies.

The NDP3 goals are organised in eight Key Results Areas (KRA), based on the eight Vision 2030 objectives. The KRAs are in turn aligned with twenty-one NDP3 goals. The task of achieving these goals is allocated to sub-sectors, and each sub-sector draws up specific goals and the programmes to achieve these goals. NDP3 makes provision for monitoring the achievements and outcomes of programmes, and adopts an Integrated Results Based Management approach.

Table 2: *Developmental priorities in NDP3*, in Appendix 1 hereto, reflects only the KRAs, NDP3 Goals and the corresponding sub-sectors, and identifies the main thrust of development envisaged for Namibia during the operational term of NDP3.

### *Decentralisation*

The Namibian Government's approach has shifted from a national to a regional perspective. The decentralisation policy provides for the delegation of certain Central Government functions to Regional Councils, with emphasis on decentralization in development planning. Regional Councils were established in terms of The Regional Councils Act (No. 22 of 1992) and are responsible for the planning and coordination of regional policies and priorities. They are tasked with overseeing the general implementation of regional development activities, and with the responsibility "to undertake, with due regard to the powers, duties and functions of the National Planning Commission...the planning of the development of the region for which it has been established", bearing in mind:

- the natural and other resources and the economic potential of such regions,
- the general land utilisation pattern, and
- the sensitivity of the natural environment.

Regional Councils have the authority to:

- establish, manage and control settlement areas,
- assist local authorities in the exercise of their powers, duties and functions, and
- exercise power assigned to regional councils by the laws governing communal land.

The slow rate at which the Decentralisation Implementation Plan has been implemented has resulted in frustration at regional level. During the NDP2 period, barely 20% of public resources was channelled to the Regional Councils, mostly through the MRLGHRD.

NDP3 recognises the constraints that have hampered decentralisation, and proposes strategies to address these. The strategies include:

- preparing line ministries for decentralisation,
- ensuring that sub-national governments are ready for decentralisation,



- ensuring that sub-national governments and relevant stakeholders are capable of managing the benchmark system, and
- establishing an intergovernmental fiscal transfer system.

Considerable attention still needs to be devoted to ensuring successful decentralisation. NDP3 mentions:

- confusion on decentralisation in terms of de-concentration versus devolution, within the Offices, Ministries and Agencies and between them and the Regions,
- a lack of clearly defined practical steps including the delineation of responsibilities and accountabilities between Offices, Ministries, Agencies and the Regional Councils, and
- limited capacity in the Regional Councils to implement devolved service delivery functions.

### *Local Authorities*

The Local Authorities Act 1992 (No. 23 of 1992) establishes the system of local Government in Namibia and defines the powers, duties and functions of local authority councils. In terms of this Act, three types of local authority council may be established:

- a municipality (Walvis Bay, Swakopmund, Arandis),
- a town (Hentiesbaai), and
- a village.

### *Developmental mandates and legislation*

#### **Ministry of Labour and Social Welfare (MLSW)**

The Ministry ensures the implementation of the various Acts which stipulate, amongst others, sound labour relations, fair employment practices, employment equity, training and minimum basic conditions of service and retrenchment. Retrenchment is regulated by the Government of Namibia. A set of minimum requirements is outlined in the Labour Act, and compliance is enforced and monitored by the Ministry of Labour through the office of the Labour Commissioner.

The new Labour Act - Act 11 of 2007, addresses a number of issues which are regarded as unsatisfactorily dealt with in the Labour Act of 1992. These include issues relating to social security, maternity leave, annual leave, Sunday work and the use of labour hire companies.

#### **Ministry of Trade and Industry (MTI)**

MTI is responsible for the promotion of growth and development of the economy through the formulation and implementation of appropriate policies for attracting investment flow into the economy, and promoting industrial development and trade.

MTI plays an important role in promoting small and medium-sized enterprises (SMEs), and in creating local income and jobs through the processing of raw materials and the sale of semi-finished products rather than the raw materials themselves.

#### **Ministry of Regional and Local Government and Housing and Rural Development (MRLGHRD)**

The mandate of the MRLGHRD is, *inter alia*, to lead and coordinate the establishment of local and regional government structures that are democratic, deliver services to the satisfaction of all communities, and promote people's participation in the development

process. As local and regional government structures are established, MRLGHRD is responsible for providing central government support to housing, community development and planning. At a regional level, the Ministry is responsible for spatial land use planning.

### **Ministry of Works and Transport (MWT)**

This Ministry is important for future economic development in the region because of its role in developing and maintaining infrastructure and roads.

### **Ministry of Environment and Tourism (MET)**

The mission of the Ministry of Environment and Tourism is to:

- maintain and rehabilitate essential ecological processes and life-support systems,
- conserve biological diversity, and
- ensure that the utilization of natural resources is sustainable for the benefit of all Namibians, both present and future, as well as the international community, as provided for in the Constitution.

The Ministry is mandated to achieve this vision through a number of objectives, which include to:

- apply appropriate environmental, social and economic assessment procedures to development proposals, plans and projects, and
- develop, coordinate and promote tourism on a sustainable basis, both within proclaimed conservation areas and in the country as a whole, in partnership with other organizations.

The Environmental Management Act, (Act No. 7, 2007) came into effect in 2008. Currently the regulations accompanying the Act are being finalised. These provide for stringent controls and procedures with regard to the implementation of Environmental Impact Assessments.

### **Ministry of Mines and Energy (MME)**

The Ministry acts as the custodian of Namibia's mineral, energy and other land-based resources. It aims to promote and regulate sustainable economic and social development for the benefits of all Namibians through responsible development and sustainable utilization of the country's mineral, geological and energy resources.

Following on preliminary work undertaken by the Uranium Stewardship of the Chamber of Mines of Namibia, and in partnership with *Bundesanstalt für Geowissenschaften und Rohstoffe*, the MME, through the Geological Survey of Namibia, has commissioned a Strategic Environmental Assessment (SEA) of the Erongo Region. This project is nearing completion. The key objectives of the SEA are to:

- analyse environmental, economic and social impacts of uranium exploration and mining and assess cumulative, synergistic and antagonistic aspects,
- formulate development options to avoid or minimize negative impacts and to enhance positive impacts, and
- provide recommendations in the form of Strategic Management Plans for sustainable development, and trigger their implementation.

(Ellmies, 2009)

### **Ministry of Agriculture, Water and Forestry (MAWF)**

The Ministry of Agriculture, Water and Forestry is tasked to promote and facilitate environmentally sustainable development and the management and utilisation of water

and agricultural resources to achieve sound socio-economic development. Its objectives include those that aim to:

- sustain agricultural and water resources,
- improve levels of household food security and nutrition nationally,
- ensure access of all Namibians to clean and safe potable water, and
- improve rural income at both national and household levels.

### **Ministry of Education (ME)**

Under its various departments and directorates, the Ministry of Education is mandated, amongst others, to develop and maintain the quality and scope of basic, secondary and teacher education, provide for Adult Basic Education, physical facilities, and, through the Namibia College of Open Learning, for learners who have not completed the junior or senior secondary phase in formal schooling.

### **Ministry of Health and Social Services (MHSS)**

The mission of the Ministry is to “eliminate the main causes of physical ill-health, and mental and social ailments in order to give the Namibian people the opportunity to lead a normal fulfilling life (MHSS, 2001). Its objectives are:

- to attain the highest possible immunisation coverage in order to eliminate vaccine-preventable diseases,
- to attain the highest level of environmental sanitation, community and personal hygiene in order to eliminate air, water and vector-borne diseases,
- to attain the highest level of good behavioural practices which promote, enhance and protect community and individual health and social wellbeing in order to eliminate sexually transmitted diseases, HIV infection, and alcohol and substance abuse,
- to avail necessary facilities and resources for prevention, early recognition and correct management of physical and mental illnesses, and
- to promote and protect physical, mental and emotional well-being of mother and child.

The Atomic Energy Board, which was established by the Atomic Energy and Radiation Protection Act (Act No. 5 of 2005), was officially commissioned in February 2009. Its broad mandate is to “...formulate a policy and regulatory framework necessary to ensure that the use of nuclear related technology does not cause undue risk to employees, patients, the public, or the environment” (MOHSS, 2009)

## **2.3 Overview of the Namibian Economy**

The Namibian economy comprises primary (agriculture, fisheries and mining), secondary (manufacturing, energy, water and construction) and tertiary sectors (services, including government services). The tertiary sector contributes more than 50% of GDP, while the primary sector is the largest employer.

The economy has gone through a period of macroeconomic stabilisation since independence in 1990. According to a Rio Tinto report (Rio Tinto, 2003), membership of the Common Monetary Area (with South Africa), the downward trend in inflation and economic deregulation have secured important inflows of foreign direct investment (FDI), During the period of NDP2 an average growth rate of 4.5% per annum was achieved. However, for Namibia to reach the Vision 2030 goal of being an industrialised country by 2030. NDP3 indicates an annual growth rate 5% under a baseline growth scenario, and

6.5% under a higher growth rate scenario. The latter will require additional investment in the economy, policy interventions and redoubled efforts.

During the first quarter of 2009 the economy shrank by 5.8% on a seasonally adjusted annualised basis and the contraction for the year is predicted variously at -1.69%, -2.2% (Old Mutual Namibia), -0.6% (Bank of Namibia) and -0.7% (Standard Bank of Namibia). A major contributor to the contraction is the anticipated decline in exports of 5%. The International Monetary Fund predicts a growth rate of 1.8% in 2010, based on a recovering global economy (Finweek, 2009).

The productive capacity of the economy is based mainly on the extraction and processing of minerals for export. In 2008 the mining sector accounted for exports of N\$15.3bn (61% of merchandise exports) and contributed 12.4% of Gross Domestic Product (GDP) (Finweek, 2009). In that year non-diamond mining exceeded the diamond sector's contribution to GDP for the first time. The sector paid N\$1.5bn in wages in 2008, and N\$1.6bn in taxes, not including VAT and PAYE. New investments in the sector amounted to N\$2.3bn (Finweek, 2009).

The country is the fourth-largest exporter of non-fuel minerals in Africa and the world's fourth largest producer of uranium (Uranium Investing News, 2009). Mineral exports accounted for approximately 40% of total exports between 2003 and 2006. Of this, 75% was accounted for by the export of diamonds, a scenario that began to change dramatically in the last quarter of 2008. In that year Namdeb produced more than 2m carats, and the prediction for 2009 is less than 1m carats. Rössing Uranium produces approximately 8% of the world's mined uranium (CoM, 2009a).

### *Mining and minerals*

The contraction of the diamond sector and the growth of the capital intensive marine mining component have impacted on the significance of the mining sector in employment, and in 2009 it employed an estimated 8000 people. Namdeb's workforce of 3 000 has been reduced by nearly 50% (Finweek, 2009). Nonetheless, the sector remains a major driver of the Namibian economy, and the surge in activity in uranium mining has increased its importance.

During the period of NDP2 the primary industries, fisheries and agriculture, performed poorly, while the mineral sector grew rapidly. The targets for mining during NDP3 include increased contributions to GDP and employment, and significant increases in mineral exploration investment (NPC, 2008). Table 3 in Appendix 1 sets out the goals for the minerals sector as envisaged in NDP3.

The economy depends mainly on the export of primary goods – unprocessed or partially processed mining, agricultural and marine products. Exported mining products are primarily unprocessed diamonds, uranium yellowcake and copper and zinc concentrates. During the first quarter of 2009 gold, silver, zinc concentrate and copper all showed a significant decline in volumes exported and/or export value (Finweek, 2009). However, by the third quarter of 2009, production of uranium, gold, refined zinc and copper blister had increased, while that of diamonds and zinc concentrate continued to decline (Bank of Namibia, December 2009).

## *Agriculture*

In 2008 the **agricultural** sector contributed 5.4% of GDP (Bank of Namibia, December 2009), but it provides subsistence livelihoods for over 50% of the population (Finweek 2009). Improved production at household level is seen as a key factor in increasing incomes and reducing poverty. Poor soils, limited water resources and meagre rainfall constrain development in the sector, and some commercial farmers are turning to game-farming to take advantage of the growth in trophy hunting. Namibia normally imports about 50% of its cereal requirements; in drought years food shortages are a major problem in rural areas (CIA, 2007). The country used to import about 80% of its fruit and vegetables. In 2004 the Namibian Horticultural Market Share Promotion was established to increase locally produced fruit and vegetables. The objective is to produce 70% of consumption locally.

Agricultural exports include livestock on the hoof, as well as de-boned meat. Fish and marine products are also exported, to a large degree, in an unprocessed or partially processed form (Namibia Economist, 2007). Namibia's dependence on its primary exports makes it vulnerable to world market fluctuations. Beef and table grapes contributed N\$700m and N\$450m respectively to exports in 2008 (Finweek, 2009). South Africa is the main market for livestock, both slaughtered and live animals. Namibia's Farm Assured Namibian Meat Scheme, which assures the organic nature of its meat products, has given it an advantage in this regard. It is the first programme of this kind in Africa.

Exports to the European Union (EU), which are conducted under the Cotonou Agreement, generally fetch prices 50% higher than those to African market. A major part of exports to the EU consists of value-added products, such as hides to Italy.

The value added to the water used for agricultural activities in Namibia is the lowest of the economic sectors, and its consumption is the highest. Agriculture accounts for over 70% of the water used in Namibia but contributed about 5.8% to GDP in 2006. This was an increase from 1.4% during the period 2001 to 2005, and was the result of good rainfalls (NPC, 2008).

## *Manufacturing*

The manufacturing sector relies to a large extent on meat and fish processing and on the production of beverages and food. Food processing industries focus almost entirely on the domestic market. A very significant portion of raw materials for food processing is imported from South Africa. The sector showed negative real growth in 2005, mainly the result of a 5% drop in onshore fish processing. The very narrow domestic market limits the expansion of the sector, and, in common with many global manufacturing sectors, it faces competition from manufacturers in India and China who, due to lower labour costs and freedom from the social, labour and economic obligations of western manufacturers, are able to produce at a much lower unit cost.

During the NDP2 period the manufacturing sector grew by 4.2% on average. NDP3 has, as a target, a growth of 12.4% by 2011, but that figure had been achieved by 2008 (Finweek, 2009). . In 2004 the sector contributed 6.2% to employment.

In 2007 the sector contributed 14.3% of GDP (Finweek, 2009), but growth in the sector is inhibited by the small domestic market, a lack of skills, subsidised competition from South

Africa, a widely dispersed population, a dependence on imported goods and restrictive labour legislation.

### *Tourism*

In 2009 the direct and indirect jobs in the sector were estimated at 17.8% (71 800) of the country's total workforce (WTTC, 2009). Using hotels and restaurants as a proxy, the contribution of the sector to GDP in 2008 was 1.7%. Expectations of the sector to generate much-needed foreign exchange earnings are high. The 2010 African Cup of Nations tournament in Angola and the 2010 World Football Cup event in South Africa are expected to contribute to the growth of the sector.

In 2010 Namibia's Communal Conservancy Tourism Sector was selected as a finalist for the World Travel and Tourism Council's *Tourism for Tomorrow* Award (WTTC, 2010).

Constraints on the sector include a lack of private sector-owned facilities in national parks and protected areas, a neglect of the domestic tourist market and a failure to capitalize on the competitive advantages, such as safety, security, cleanliness and sound infrastructure that the country has over other Southern African destinations (Finweek, 2007).

Almost all the optimistic projections for growth in the sector have been revised downward. The hotel and restaurant category, a proxy for the tourism industry, is expected to decline by 20% in 2009, with a further decline of 5% in 2010. Game hunting has experienced a loss of profits through cancellations, and a further setback to international tourism was the cancellation by Air Namibia of the direct flights between Windhoek and London.

On the positive side, Namibia has improved its ranking in the 2009 World Economic Forum's Travel and Tourism Competitiveness Report. In initiatives to compensate for the loss of overseas visitors, Namibia Wildlife Resorts and some private operators are offering generous discounts to Namibians and other SADC residents (Finweek, 2009).

Tourism is important for poverty alleviation and the inclusion of rural areas in the benefits of the natural resources of Namibia. The Conservancy programme and the Community Based Natural Resource Management system have had significant success in achieving these aims.

### *Fisheries*

Revenue from fisheries is the second most important foreign exchange earner after mining and contributed 4.2% of GDP in 2008, excluding the contribution of onshore fish processing. In 2005 more than 90% of fisheries production was exported to international and African markets, and accounted for about 15% of total exports, and the sector accounted for N\$4.7bn of exports in 2008. Namibia ranks among the top ten fishing countries in terms of the value of production, and is also the top African fisheries country by production value and exports (GRN, 2006).

The fisheries sector consists of three major components: marine capture fisheries, freshwater/inland capture fisheries, and marine and inland aquaculture. The inland fisheries and freshwater aquaculture are not mature industries yet, and their major function has been to contribute to food security and income generation for rural households. Inland, for 90% of households along the perennial rivers, fishing is a source

of subsistence, and the sale of fish provides income for about 45% of these households (NPC, 2008).

The fisheries sector performed poorly during NDP2, and some of the targets proved to be unrealistic as a result of, amongst others, climatic and exchange rate vagaries. As a result, the goals set for NDP3 are conservative, with employment proposed to increase in the sector from 13 400 to 13 600 by 2011, and the contribution of GDP to increase by 0.5-1%.

Namibia's trade with the EU could suffer a setback as a result of the country's refusal to sign the Economic Partnership Agreement (EPA). The reasons given were the protection of young industries, food security and the heavy subsidies paid to EU agriculture, which require import protection in Namibia. However, South Africa is still Namibia's most important trading partner, and Namibia, in signing the EPA, could put its revenue from the South African Customs Union (SACU) at risk. SACU receipts equate to 14.2% of GDP, and finance about one-third of public spending (Finweek, 2009). The EPA provides the opportunity for Southern African states to gain free access to EU markets. The failure to sign could see Namibian agricultural exports to the EU being taxed at between 10% and 20% for fish and grapes, and up to 120% for beef products (Finweek, 2009).

Figure 2 shows the contribution of GDP of selected economic sectors in 2008.

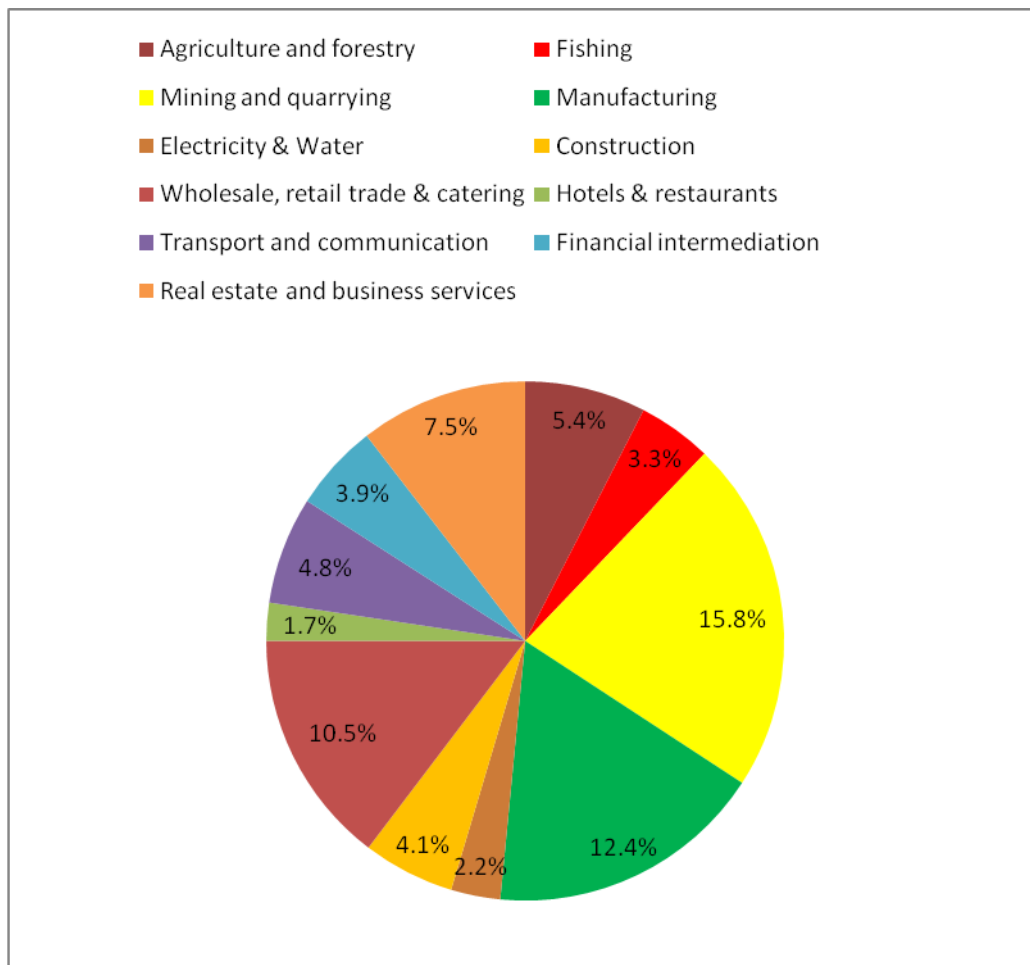


Figure 2. Contribution of GDP of selected economic sectors in Namibia in 2008

(Source: Bank of Namibia, December 2009)

### *Social development indicators*

Social indicators show high and increasing unemployment rates and social exclusion. Since 2000, employment has increased in the urban areas, but at the expense of the rural areas (Finweek, 2007). Economic growth, significantly driven by the capital intensive minerals sector, has not kept pace with the growth of the labour force. During the period of NDP2 the unemployment rate, in both strict and broad definitions, increased, and the estimated overall unemployment rate is 36.7%. Unemployment is higher in rural than in urban areas, and more women are unemployed than men (NPD, 2008). The 2004 Namibian Labour Force Survey indicated that the unemployment rate among young people between the ages of 15 and 24 was 60%. Erongo Region shows the highest labour force participation rates of 71.4% in 2004 (IPPR, 2004).

In 2008, per capita GDP was US\$6 577, and this is expected to decline to US\$6 535 in 2009 (Finweek, 2009). Namibia is considered a middle income country, but wealth distribution is extremely skewed. The high per capita GDP hides one of the most unequal income distributions in the world, where the wealthiest 1% of the population consumes more in value than the poorest 50% (Finweek, 2009).

42% of the rural population is estimated to live below the national poverty line, compared to 6.7% of the urban population. The UNDP's 2005 Human Development Report indicated that 34.9% of the population lives on US \$1 per day and 55.8% live on US \$2 per day (CIA, 2007). About 50% of the population relies on subsistence farming. Food security remains a problem, and malnutrition levels are unacceptably high. The life expectancy at birth is forty-seven years.

Namibia ranks 70 out of 183 countries included in the UNDP's Human Development Report (UNDP, 2009). In spite of its ranking with medium developed countries, underdevelopment is a significant problem in rural areas, and the communities at Spitzkoppe and in the northern labour-sending regions are examples of this. In Erongo, the relative affluence of urban coastal communities masks the poverty and underdevelopment of rural areas and the fact that access to social services and resources are skewed in favour of urban areas. There has also been a significant increase in the numbers of peri-urban poor in Swakopmund and Walvis Bay.

### *Constraints – resources*

As a source of uranium, with an investor-friendly legislative environment, Namibia has leapt to prominence globally. A number of foreign-owned companies are undertaking exploration activities, while existing mines are expanding. However, the attraction of foreign investment, and the granting of mining rights to a number of companies, threatens Namibians' birthright in a crucial aspect. Water is a critical issue in any development project in the country, and mining projects are huge consumers of this resource.

The Erongo Region currently consumes about 12 million cubic metres (Mm<sup>3</sup>) of water annually, sourced mainly from alluvial aquifers in the Kuiseb and Omaruru Rivers. Langer Heinrich Uranium Mine was developed and commissioned by the end of 2006. NamWater could meet the water demand of the mine by increased abstraction from the Omdel aquifer in the Omaruru River. As a condition of permit for such abstraction, the Ministry of Agriculture, Water and Forestry only allowed the increased abstraction for five years, within which time NamWater should develop a desalination plant to meet the



demands of the mines and other industrial water users on the central coast of Namibia. A further requirement was that abstraction from the Omdel Aquifer should be reduced to a sustainable yield of 5 Mm<sup>3</sup>/year (NamWater, 2009).

Predictions of water shortage in the Erongo region are of great concern, and this concern has been expressed publicly by numerous consultants, stakeholders and developers. There is much discussion about sea water desalination, but the only significant development in this regard is Areva Namibia Resources' desalination plant north of Wlotzkasbaken. The desalinated water from this plant is intended for use at the mine site at Trekkopje although there is known extra capacity which may be made available to third parties.

Stakeholders have raised concerns about the potential effects of desalination on marine resources, the increase of an industrialised belt along the coastal strip and expanding inwards to the desert, the price of desalinated water and the energy required to operate a desalination plant. A general lack of transparency and consultation has left the public confused about future plans to address water supply in Erongo.

Namwater has announced the construction of a desalination plant near Swakopmund. An Environmental Impact Assessment has been lodged with MET: Department of Environmental Affairs and the outcome is expected towards the end of February 2010 (Venter, 2009. Pers. Comm.).

Namwater currently supplies 67 Mm<sup>3</sup>/a to the whole of Namibia. The projected requirements of the uranium sector indicate that, by 2015, these requirements will not be met, and by 2011 supply will be put under severe strain. Table 1 only considers the uranium sector, and does not take into account demand from other sectors, both public and private, which is likely to increase.

Table 1. Projected water requirements of Namibian uranium mines (Ellmies, 2009)

Water required by uranium mines	
Year	Mm/3a
2008	7
2011	25
2015	48 (*64)

\*High-growth scenario

### Constraints – general

Serious constraints to the growth of the economy and the development of the country are identified as

- small local markets,
- a serious dearth of skills and the disjunct between available and required skills, compounded by the difficulty of hiring foreign labour,
- restrictive labour legislation,<sup>3</sup>
- dependence on imported goods,
- high unemployment, estimated at 36.7%, and particularly the high number of unemployed youth – one of the highest in Africa,

---

<sup>3 3</sup> The World Economic Forum's Global Trade Enabling Report ranks Namibia as the second worst in the world as far as restrictive labour regulations are concerned (Finweek, 2009).

- constraints on access to services such as water, electricity and sanitation,
- substance abuse – particularly alcohol, and
- the high prevalence rates of HIV and tuberculosis (TB).

(Hoadley and Limpitlaw, 2009)

## 3. Erongo Regional Development Perspectives

### 3.1 Social environment

Erongo is Namibia's sixth largest region, extending over 63,720 km<sup>2</sup>. 61.6% of the region's population lives in urban settlements, principally Swakopmund and Walvis Bay. Rapid urban growth figures have distorted the region's population growth rates, which was estimated at 55 470 in 1991. In 2008 the population was estimated at 150 000, an increase ascribed to inward migration as a result of the surge in uranium mining prospects operations, the growth of significant downstream industries, such as a desalination plant, and port and airport expansions (The Namibian, 2008).

The region has the second highest income per capita in the country after Khomas Region, and its relative prosperity is derived from fishing, mining and tourism.

Erongo Region is regarded as traditional land by many Damara people, but ethnic diversity is encouraged by the perceived potential for job opportunities in the mining and fishing industries. This pull factor has resulted in a significant number of people of diverse ethnic groups migrating to the region, some to remain. An influx of job seekers can be expected from the northern labour-sending regions, where unemployment rates are of the highest in the country. The downscaling of Namdeb, a major employer which has historically drawn a large part of its workforce from the northern regions, will add impetus to the demographic shift as retrenched workers seek employment elsewhere.

Formal accommodation is not available for the large numbers of unemployed people who migrate to Erongo. The focal destinations of Swakopmund, Walvis Bay and Arandis are experiencing the rapid growth of informal accommodation – backyard shacks, informal settlements, multiple occupation and garage squatting.

Erongo is considered to have some of the best schools in Namibia. The region has 45 state schools and 13 private schools. Adult literacy rates are high compared to the national average: 92% of 15+ years are literate. Literacy rates are lower in remote rural areas such as the Brandberg and Omaruru, and those in Swakopmund and Arandis are significantly higher. These statistics do not take into account the large numbers of migrant work seekers, as information on their levels of literacy, as well as on other social indicators, is not available.

Section 5 on Rössing Uranium's communities of interest shows the critical position of schools in Swakopmund, Walvis Bay and Arandis. According to the Regional Office of the Ministry of Education, if any more of the envisaged mines in the Erongo Region open, a crisis is imminent.

Social welfare and community development have progressed relatively well in Erongo. After Khomas, the region has the highest rate of development, and the second lowest rate of human poverty in Namibia. **Error! Reference source not found.**, Table 3. and Table 4 reflect these rates. However, the unemployment rate, at 34.3% is high, and there is a large disparity between unemployment of men and women: 28.9% of men and 41.7% of women are unemployed (Lux-Development, 2009).

Table 2. Fertility and mortality rates in Erongo compared to Namibia (Source, ERC, 2007)

		Erongo	Namibia
<b>Average number of children per woman<sup>2</sup></b>		5.1	4.1
<b>Infant deaths per 1000 live births:</b>	Female	43	49
	Male	40	55
<b>Child (&lt;5 years) mortality rate</b>	Female	57	64
	Male	49	78
<b>Life expectancy at birth (years):</b>	Female	59	50
	Male	54	48

Table 3. Human Poverty Index<sup>4</sup>  
Namibia (Source: UNDP, 2007)

HUMAN POVERTY INDEX (%)		
	2001-2004	1991-1994
Namibia	33	29
Urban	23	14
Rural	42	36
Caprivi	43	38
<b>Erongo</b>	18	20
Hardap	30	20
Karas	21	20
Kavango	45	52
Khomas	19	9
Kunene	38	39
Ohangwena	42	31
Omaheke	34	43
Omusati	45	29
Oshana	37	33
Oshikoto	45	27
Otjozondjupa	23	35
Male	33	28
Female	34	31

Table 4. Human Development Index for Namibia for  
(Source: UNDP, 2007)

HUMAN DEVELOPMENT INDEX		
	2001-2004	1991-1994
Namibia	0.557	0.607
Urban	0.661	0.719
Rural	0.473	0.530
Caprivi	0.421	0.441
<b>Erongo</b>	0.705	0.690
Hardap	0.572	0.637
Karas	0.664	0.666
Kavango	0.410	0.480
Khomas	0.732	0.784
Kunene	0.504	0.509
Ohangwena	0.403	0.524
Omaheke	0.627	0.528
Omusati	0.476	0.595
Oshana	0.548	0.602
Oshikoto	0.490	0.656
Otjozondjupa	0.638	0.567
Male	0.556	0.609
Female	0.545	0.580

Health services in the region are relatively good. New health facilities have brought health services closer to the communities. Omaruru, Usakos, Swakopmund and Walvis Bay each have a state hospital, Swakopmund and Walvis Bay have a private hospital each, and numerous clinics serve both the urban and rural population. However, clinic services are not adequate; it is difficult to attract staff to rural areas, and the renovation of existing facilities has been very slow (Ninham Shand, 2009).

95.7% of the population of Erongo has access to safe water.

<sup>4</sup> The HDI and HPI concentrate on three essential dimensions of human life; longevity, knowledge, and a decent standard of living. The HDI seeks to provide a measure for the capabilities of individuals, the HPI focuses on the deprivation in the same three dimensions. For a further discussion of these two indices, see <http://www.sarpn.org.za/documents/d0002886/index.php>

The 2008 MOHSS Sentinel Survey showed that HIV prevalence has decreased in the region. Nonetheless, the disease remains a threat to the region's development. Erongo has a skewed gender representation and a mobile population, and the economy is dominated by mining, tourism and the Port of Walvis Bay. All these factors favour the spread of HIV/AIDS. The region also has the third highest tuberculosis (TB) rate in the country (Tshiteta 2007, **Pers. Comm.**). The two most impacted communities are the coastal towns of Swakopmund and Walvis Bay. The poor housing conditions under which many people live contribute to deterioration in living standards and the spread of TB and HIV/AIDS.

### **3.2 Economic environment**

Swakopmund and Walvis Bay comprise more than 50% of the region's economic base, and they contribute more than 25% of national GDP (SPC, 2007).

Approximately 11% of people in Erongo depend on pensions for cash income, the same as the national average. Women have few employment opportunities outside the home, and the majority work as domestic servants.

Industrial activity is limited and based on fish processing, concentrated in Walvis Bay, and mining. After mining and manufacturing, the fishing industry is the second largest employer in the Erongo region.

Small/medium Enterprise (SME) activity is limited and is concentrated mainly in trade, and services and, to a lesser extent, in manufacturing (which includes beer/liquor brewing). Growth potential in the SME sector in Erongo is closely linked to growth in the manufacturing and transport sectors and to the fishing, tourism, and mining sectors.

As in the rest of Namibia, access to economic opportunities and resources in Erongo is highly skewed. Some rural communities, such as Spitzkoppe and Tubusis, are isolated, marginalized and under-developed, and have little access to the mainstream economy or to alternative livelihood opportunities. Significant agricultural activity is not possible, due to the aridity of the soil and a lack of water. Potential for agricultural development is believed to lie in the commercial exploitation of non-traditional, high value agricultural products, such as olives, olive oil and asparagus. Small farmers along the Swakop River practice such agriculture.

The region has good access to the infrastructure necessary for economic development. The harbour at Walvis Bay recorded positive growth during recent years, and is one of the key economic features in the region. The Walvis Bay Corridor connects the harbour to the rest of Southern Africa via the Trans-Caprivi and Trans-Kalahari Highways. Rooikop airport, near Walvis Bay, provides links to the SADC countries, and the runway is being expanded to handle cargo plans.

#### *The Minerals Sector*

Major mining activities in the region are Rössing Uranium, the Navachab gold mine, Langer Heinrich Uranium and the coastal salt operations. Both Rössing Uranium and Langer Heinrich have expansion plans. Areva Resources Namibia's Trekkopje Uranium and Forsys' Metals Valencia Project are expected to go into production in 2011. Projects at an early stage that can be expected to proceed are those of Bannerman, Reptile

Uranium and Swakop Uranium, but these do not exhaust the list of potential uranium operations in Erongo.

The main commodities mined are uranium and gold. Extensive salt mining occurs along the coast at Walvis Bay and smaller companies operate at Cape Cross and Ugab.

In 2009 4 mining licences, 66 Exclusive Prospecting Licenses and 3 Exclusive Reconnaissance Licenses for Nuclear Fuels had been issued. Most of these, including the four mining licences, were for operations in Erongo Region (CoM, 2009a). Figure 3 shows the extent of activity in the uranium sector in Namibia as at December 2007, and the importance of Erongo Region in the sector.

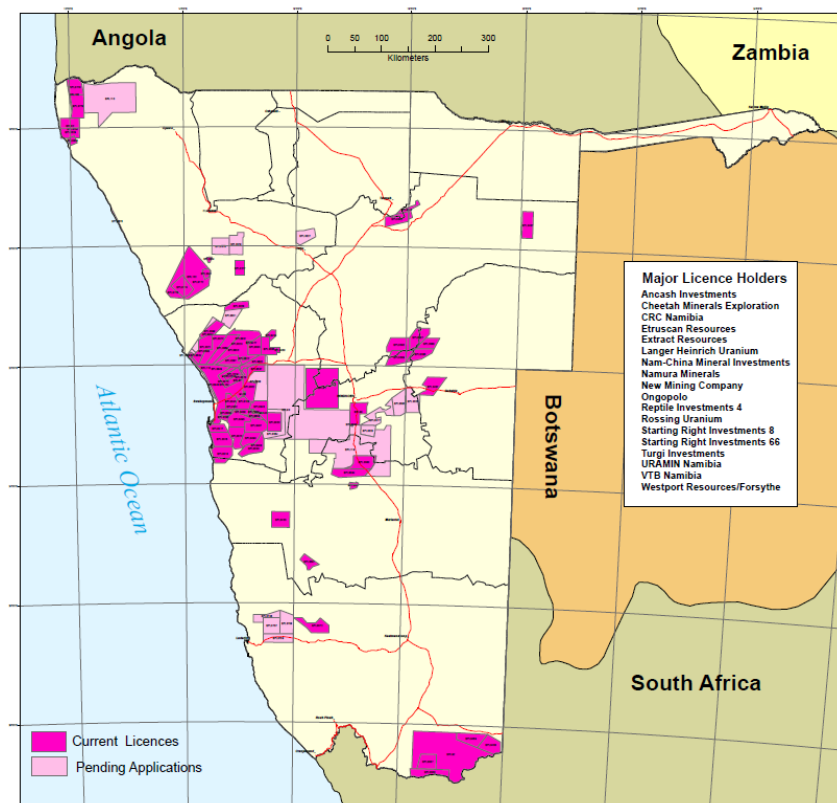


Figure 3. Current and pending nuclear fuels exploration in Namibia in 2007. ( MME, <http://www.mme.gov.na/>)

Small-scale mining (SSM) is an important economic activity in the region. Semi-precious stones are mined, and there are a number of dimension stone operations and quarries in Erongo, some of them within conservancies and the Namib Naukluft Park (NNP). Sand mining occurs in the Swakop and Omaruru rivers.

Most small-scale miners operate at a subsistence level, but the sector is important for providing employment and livelihoods. A total of 521 mining claims were registered or pending with the Ministry of Mines and Energy as at 1 September 2006.

Various support programmes have been introduced for the SSM sector, ranging through geological, technical and marketing assistance. The Erongo Small Scale Miners Association provides a platform for mining companies to channel assistance to the sector. The anticipated creation of a department for SSM within the MME will promote co-

operation between large-scale mining and the SSM sector to address the needs of the latter (CoM, 2008).

The minerals sector plays a key role in economic and social development in Erongo. It is a substantial employer of labour, and its service and goods requirements, together with the consumer needs of employees, stimulate secondary industries and further job creation. Table 5 reports on some of the benefits generated by the sector.

*Table 5. Direct Permanent Employment Benefits in the Mineral Sector in 2008 (CoM, 2008, Com, 2009a).*

<b>Mine</b>	<b>Total Labour Force end 2008</b>	<b>Wages and salaries paid 2008 (N\$'000 000)</b>
Rössing Uranium	1307	381.7
Langer Heinrich	167	50.7
Navachab Gold Mine	360	83.2
Walvis Bay Salt Refiners	108	n/a

The considerable employment created by mines at pre-production stages is not reflected in the above table.

Substantial benefits accrue to local communities from mining operations. The contribution of one operation, Rössing Uranium, for the period 2002-2008, is shown in Figure 9. Contributions to local and regional economies include procurement of goods and services, and remittances sent back to the areas of origin of employees.

The minerals sector contributes to further education by means of bursaries, of which 92 new ones were granted in 2007-2008. More than half of these were from operations in Erongo – Rössing Uranium, Navachab and Salt & Chemicals. Virtually all major operations devote significant levels of resources to education and skills training, both of their own employees and also of the wider community (CoM, 2008).

The increasing activity in the uranium sector is resulting in the growth of service and support industries, and some import replacement. The anticipated development of an industrial zone in Swakopmund should see further similar growth, and go some way to addressing a critical constraint on economic growth – that of a high dependence on imported goods and services.

### *Fishing and marine resources*

During NDP2 the fisheries sector achieved approximately 50% of its targets. Analysts ascribe a decline in the sector's economic contribution to government's policy of concessions which results in numerous small operators struggling to make a living (Finweek, 2007). A lack of synergies between the various ministries has also contributed to inefficiencies and duplication of initiatives (NPC, 2007). The consolidation of the sector, paving the way for economies of scale, aims to the decline.

At Independence, unregulated exploitation of marine resources had led to the depletion of many fish stocks. Namibia's fishing policy makes provision for the recovery of fish stocks, and a number of these are now showing signs of recovery.

The industry is a source of employment for many Namibians and currently employs an estimated 13 700 people. Of this total, approximately 5 575 are employed on vessels.

Objectives to diversify the industry include aquaculture, mariculture and seaweed harvesting. The Ministry of Fisheries and Marine Resources regards the coastal area, especially that part falling within the potential impact zone of a number of proposed industrial developments in or near Walvis Bay, as particularly suitable for the development of aquaculture and mariculture. The sheltering bay protects this kind of activity, and the infrastructure and facilities for export of marine products are available in Walvis Bay.

The aquaculture sector is set to grow as new markets are sourced. Vision 2030 also encourages this growth by making aquaculture a priority. Mariculture and aquaculture are seen as optimal activities for employment creation, poverty relief and increased food security. Commercial production is currently dominated by oyster production which increased from 247 tonnes in 2004 to 302 tonnes in 2005, and this growth is expected to continue as a result of demand for Namibian oysters in Asia (African Agriculture, 2007). Table 6 indicates the targets set for the fisheries sector during the NDP3 period. The low increase in target employment figures is due to the fact that the targets for NDP2 were judged to be unrealistic.

Table 6: NDP3 Baselines and targets for the Namibian Fisheries sector: Source, NPC 2008.

	Contribution of marine resources to GDP growth	Increased full-time employment created by marine fisheries
<b>2006 Baseline</b>	5.5%	<b>13 400</b>
<b>2011 Target</b>	<b>6%-6.5%</b> (current prices)	<b>13 600</b>

In spite of the cautious optimism expressed about the recovery and growth of the fisheries sector, there are indications that future growth in marine fisheries, and thus, by extension, the fish processing sector, may not meet expectations. External factors, such as markets, fuel price volatility and climactic vagaries affected the sector during NDP2, and are beyond its control.

### *Tourism*

A large number of tourists pass through the region, which is an important link between the Etosha National Park and Sossusvlei. In 2007 Erongo recorded the second highest number of bednights sold, and, in January-February 2008, the third-highest bed occupancy in the country. The region also has the highest amount of tourist accommodation and registered the most new establishments between 2006 and 2007 (HAN, 2008).

National parks and protected and conservation areas account for 35.8% of land-use in Erongo Region. These areas include the Namib section of the NNP (14,322 Sq. Kms), the National West Coast Tourist Recreation Area (NWCTRA) (7,382 sq. Kms), Cape Cross Seal Reserve (22 sq kms) and Walvis Bay Nature Reserve and Dunes (WBNR) (1,080 sq. Kms). Cabinet has approved the proclamation of the NWCTRA and the WBNR as national parks. Figure 1 shows that Erongo is well-endowed with some of the



most frequently visited tourist areas in Namibia, and nine of the tourist attractions surveyed are to be found in the region.

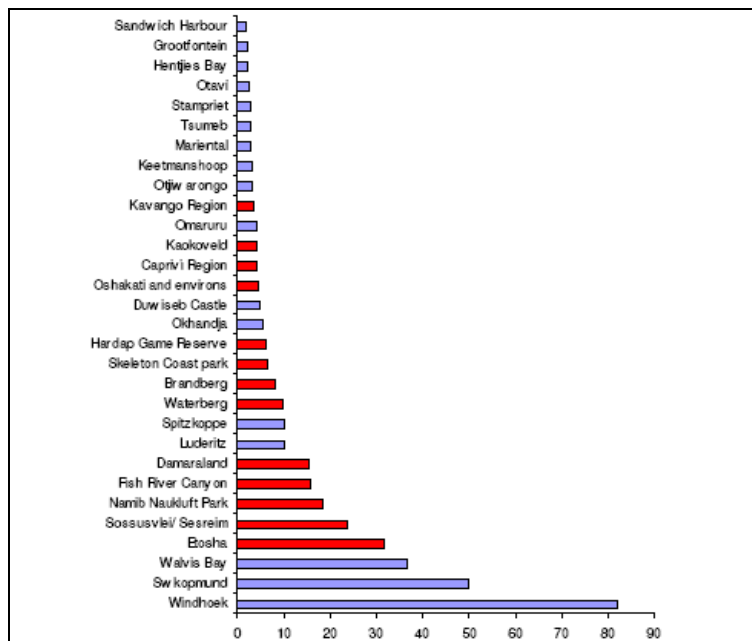


Figure 4: Percentage of visitors visiting various locations in Namibia. Red bars indicate designated protected areas and other nature areas (Turpie et al., 2005)

The impact of industrial development on the Namibian tourist industry is of major concern. Tourism contributes significantly to GDP and is regarded as a growth sector, both for the national economy and for the empowerment of rural communities. The visual impacts of mining are already evident in the Namib Naukluft Park, in the //Gangu Conservancy, the NWCTRA and the coastal zones. Figure 5 shows the number of different impacts that can result from one operation.



Figure 5. Mining in the NWCTRA. Source, D Limpitlaw

The Uranium Stewardship Committee of the Chamber of Mines has initiated interaction between mining and tourism. A pilot “Uranium Tour” will take place in December 2009.

Environmental experts and representatives of mining companies have been invited to participate, and to provide their input into the development of future tours.

### Energy

Namibia is overly dependent on external sources for electricity. The current domestic generation capacity of NamPower is 393 MW, which is not sufficient to meet peak demand of 450MW. Approximately 50% of electricity available in the country is imported (Shand, 2009). The two main suppliers currently are Eskom in South Africa and ZESA in Zimbabwe. The mining sector is a large consumer of power, but is also one of the most important drivers of economic development in Namibia. Figure 5 comments on the anticipated growth in the uranium sector in Erongo. Approximately 75% of economic growth over the next five years is expected to occur in Erongo region, mainly the result of uranium mining, which also accounts to a large extent for the projected energy requirements of 690MW in 2012.

Figure 6 indicates the degree to which the minerals sector will contribute to the increased demand.

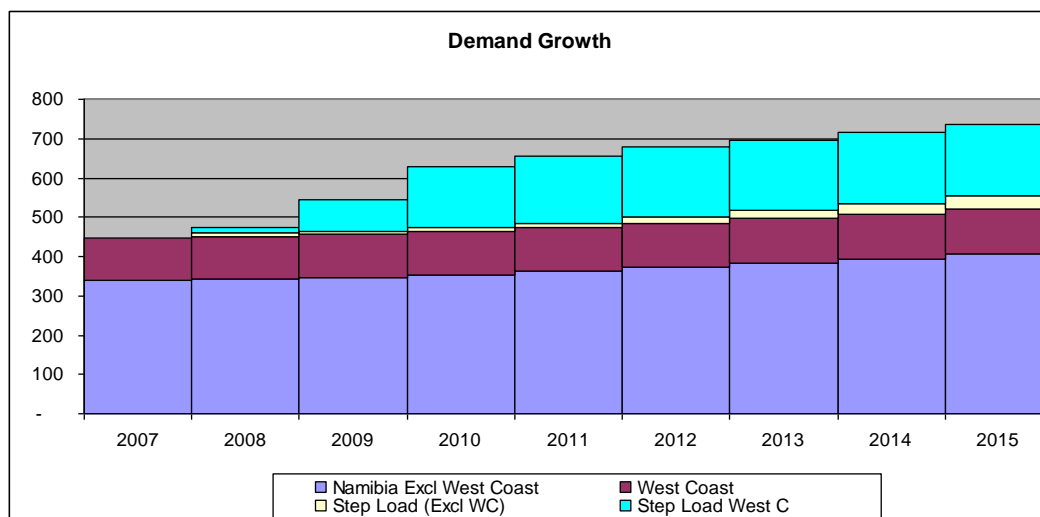


Figure 6 : Mining Contribution to Step Loads (Source: NamPower)

Projects which aim to provide Namibia with internal energy security include the Ruacana Fourth Turbine, the Lower Orange River Hydro Plan, the Baines 500MW Hydro Plant, Kudu Gas and a coal-fired power station near Walvis Bay. Some of these have already commenced, whilst others are still at the pre-feasibility stage.

The following options for sourcing additional power by 2012 are all at the implementation stage, and reasonable reliance can be placed on the additional electricity being available from them.

Table 7. Namibia energy sourcing options, 2012

Source	MW
Caprivi link (SNEL, ZESCO) (2010)	100
Mozambique (2010)	30
Ruacana (2012)	92
Anixas (2010)	21.5
Demand-side management	50
<b>Total from alternative supply sources by 2012</b>	<b>293.5</b>

Currently available (all sources)	698
Projected availability in 2012 (all sources)	991.5

Namibia will not be independent of imported electricity by 2012, nor will it have met the NDP3 target of domestic generation of 75% of internal consumption by that year. However, a sufficient secure supply will be in place for development.

### 3.3 Land Use and tenure

#### *Legislative and policy regime*

The various kinds of land-holding tenure in Erongo include the following:

- State land belongs to the State, as provided for in the Constitution. The State can decide what to do with this land, e.g. increase existing communal land, sell/rent it and add to conservation areas. The administration of state land is the responsibility of the MWT. The Rössing Uranium mine licence area is situated on state land.
- Communal land is vested in the State by the Constitution. The State administers such lands in trust for the benefit of traditional communities residing on them. The Traditional Authorities Act (No. 25 of 2000) recognises Traditional Authorities as legal entities, and requires that Traditional Authorities and their communities engage in environmental planning to define solutions to environmental issues, including any underlying mineral resources. Land-use planning for communal land in rural areas is the responsibility of the Ministry of Lands and Resettlement (MLR). Administratively, communal land falls under the control of the Erongo Regional Council. The Chief or, with his recognition, the headman, has the authority to make recommendations.

Land rights in communal areas are of two kinds:

- customary, which is a life-time right for residential and farming purposes,
- leasehold, usually for business, and for a maximum period of 99 years, is allocated by the local Land Board subject to the consent of the traditional authority.

Communities gain further rights by registering a Conservancy. These include the right to manage and utilize wildlife and to exploit tourism opportunities.

- Freehold or private ownership entitles the owner of the land to hold it in perpetuity and to transfer or alienate it. Such land may be expropriated if it is deemed to be in the public interest, provided that just compensation is paid to the owner. When there is an intention to sell commercial (freehold) farmland, the land must first be offered to the GRN for the purposes of resettlement.

#### *Major land-use activities*

##### **Conservation and tourism**

Section 3.3 describes the extent of conserved and protected areas in Erongo Region. A very significant part of land-use falls under this classification. Included in this category of land-use are the private tourism/lodges and game farms/guest farms operated by commercial farmers.

##### **Agriculture**

Areas of the Central Namib Desert which have not been proclaimed as conservation areas usually have no surface water and little or no underground water available. Generally their agricultural potential is too low to support formal farming activities. Two

types of farmers are active in the Erongo Region: communal farmers and commercial farmers. Communal farmers are involved in small-scale production for own consumption or for sale at the local, often informal, markets. A communal farmer does not have property rights on grazing areas but might have exclusive rights to use an area close to the homestead for cultivation.

The following aspects of commercial farming could be found in the Erongo area:

- livestock, i.e. both small and large stock,
- wildlife, and
- irrigation, i.e. vegetables, grapes and citrus.

Farms located on the lower portion of the escarpment/desert transition are considered totally unsuited to any farming practice. Nearer the coast, formal farming is undertaken on several small holdings in the lower Swakop River. Dairy and vegetables are produced here for the local market.

Several groups of Topnaar raise goats, cattle and donkeys along the lower reaches of the Kuiseb River. They maintain some small vegetable patches, for own-use, and harvest the fruit of the !Nara<sup>5</sup> plants, traditionally a source of food for the Topnaar, and now a source of income.

### **Mining**

Mining activities account for a significant portion of land-use in the Erongo Region. Extensive small-scale mining and quarrying produce semi precious stones and dimension stone. Mining land-use includes salt and sand mining.

The following is the actual or potential land-use occurring in the proximity of the Rössing Mining License Area and the Accessory Works Area:

- The Arandis Town Lands,
- The Arandis Aerodrome – the infrastructure has been sold to a flying school and the Ministry of Fisheries and Marine Resources uses one hangar for coastal patrol airplanes.
- Conservancy – the //Gaingu Conservancy surrounds the Mine License Area and the Accessory Works Area, and
- The Ministry of Mines and Energy has issued several EPLs over and around the Rössing Mining License Area and its Accessory Works Area. Exploration activities are being conducted on a number of these.

Land use by mining operations will increase, and within the short-term. The Uranium Stewardship Committee within the Chamber of Mines of Namibia is initiating a project to develop a land use strategy, and land use also forms an important aspect of the regional Strategic Environmental Assessment.

---

<sup>5</sup> The !Nara plant is endemic to the central Namib Desert. The thorny melons provide some nutrition and income for the Topnaar who live along the Kuiseb River. The seeds, which are eaten as snacks, or from which the oil is extracted, provide some cash income. The important role that the !Nara used to play in cultural life and in family and clan structures has declined, as has its use as an important food source.

## 4. Major Role Players in the Erongo Development Trajectory

### 4.1 The Erongo Regional Council

The Regional Councils Act of 1992, the Decentralisation Policy of 1996 and the Decentralisation Enabling Act collectively provide a policy and legislative framework for progressive decentralisation.

The ERC's social and community portfolio covers an extensive range of developmental activities, including the environment. In the context of poverty reduction and economic development, the ERC views sound management of the natural resources, such as minerals, as essential for human development.

A steady source of income for the ERC is the 5% of received rates and taxes paid to it by local authorities. These funds are redirected towards social investment projects such as support to primary education, health and safety. The ERC bids for additional resources directly from donors such as the European Union to augment its resource base for social development activities of the region. Through the Erongo Development Fund (EDF), it has successfully sourced foreign funding to assist the development of small-scale mining and oyster projects (Garoeb, 2008, Pers. Comm.). Mining companies provide generous support to the EDF, and funding has been used for such projects as the Erongo House of Safety and SME development.

#### *Developmental Objectives for Erongo*

The Erongo Regional Council has not prepared a regional development plan based on NDP3 as has been done for previous periods of the NDPs. Guidance will be taken from NDP3, particularly the sections dealing with public services. However, specific regional developmental activities, goals and strategies are not indicated in NDP3, and it can be assumed that regional development initiatives will align with the developmental needs identified in NDP3. NDP3 stresses the need for an increased contribution to development by the minerals sector, and this aspect can be expected to be emphasised in the ERC's development plans as well. Table 3 in Appendix 1 indicates the objectives for the minerals sector in NDP3.

#### *Major Constraints*

The ERC is mandated to carry out development plans and social services directly to communities and to ensure the sound development of the infrastructure – transport, housing, energy, water – which make economic and human development possible. It has to carry out these functions in the face of some severe constraints, which include:

- limited available fresh water resources,
- a limited statistical database for economic planning purposes,
- limited capacity of vocational training centres and a negative perception of vocational training,
- lack of recreation facilities and vocational training opportunities were identified as constraints to the development of women and contributory factors to high levels of social ills, such as alcohol abuse, and
- the limited institutional capacity of the Erongo Regional Council and small local authorities in the region due to a lack of funds, skills, Infrastructure and co-ordination:

this placed a serious constraint on the effective decentralisation of powers and responsibilities by central government.

- a lack of funding which inhibits the ERC's social programmes. All revenue from development initiatives goes directly to central government from where it is allocated to different regions. The ERC can apply for equity funds for extraordinary development issues if necessary.

Although the Regional Councils are mandated by legislation to plan the development of their regions, they are constrained by the limited meaningful power they have gained and by the slow progress in decentralisation, which is addressed as a critical issue for accelerated development in NDP3.

## **4.2 The Rössing Foundation**

The Rössing Foundation (the Foundation) was established in 1978. From its inception, the national coverage of the Foundation's operations reflected the origins of the Rössing Uranium workforce and Rössing Uranium's acceptance that the community on which it could impact was the entire Namibia.

Following the establishment of an office in Arandis in 2002, the Foundation has become the lead development agency in the region, where it establishes partnerships to contribute to the progress of the region by providing skills, capacity-building, training courses, educational assistance and assistance to small-scale mining. The Foundation's four principal objectives are to:

- further the education of all Namibians to achieve greater national productivity and enhance lifelong learning,
- encourage and support the creation of opportunities for people to use their education,
- promote improved living standards for all Namibians, and
- undertake activities which, in the opinion of the trustees, will benefit Namibia or its people.

Programme activities for Erongo Region include education, health and social welfare, tourism development and community-based natural resource management, agriculture, community development, and support for small and medium enterprises.

In December 2006 the primary focus area of the Foundation's activities was identified as education. Emphasis is placed on the quality of teaching and learning through the development of skills in English, reading, mathematics, science and Information and Communications Technology. Three education centres – in Arandis, Swakopmund and Ondangwa – focus on these core educational skills. Nearly 10 000 learners were provided with opportunities to advance these skills in 2008. Further projects include capacity building in school governance and school management, support to teachers through tutor interventions and scholarships. The Foundation also provided funding for the building of six classrooms in Swakopmund schools – Festus Gonteb, Vrede Rede and Hanganeni.

The Rössing Foundation is the lead NGO in initiatives to formalise and upgrade the technical skills of the small-scale mining sector in Erongo. Through its facilitation, some notable progress has been achieved, such as the establishment of co-operatives and a formal market at the intersection of the Henties Bay road and the B2. The Foundation has focused attention on small-scale mining to a degree where other role-players, such as

Rössing Uranium, Navachab Gold Mine and the Chamber of Mines of Namibia are lending support to upgrade skills in the sector.

The Foundation was a pioneer in CBNRM in Namibia. It supports community development in six northern regions of Namibia through a variety of programmes based on CBNRM principles. In Erongo, additional to the initiatives discussed in this Report, the Foundation provides support to Ohungu, Otjimboyo and Tsiseb Conservancies (Rössing Foundation, 2008)

The work of the Foundation in Arandis is discussed in more detail in Section 5.1.

### 4.3 Rössing Uranium

The Erongo Region is the socio-economic and natural environment within which Rössing Uranium carries out its activities.

Changes in the market for uranium have resulted in the current Rössing Uranium Mine Expansion Project which will extend the operation’s life-of-mine to 2023. The significance of the extended operational life to the local, regional and national economy can be estimated by past contributions.

Figure 7 reflects economic contributions in respect of salaries and wages, and local (i.e. regional) and national procurement for the five years 2003-2008

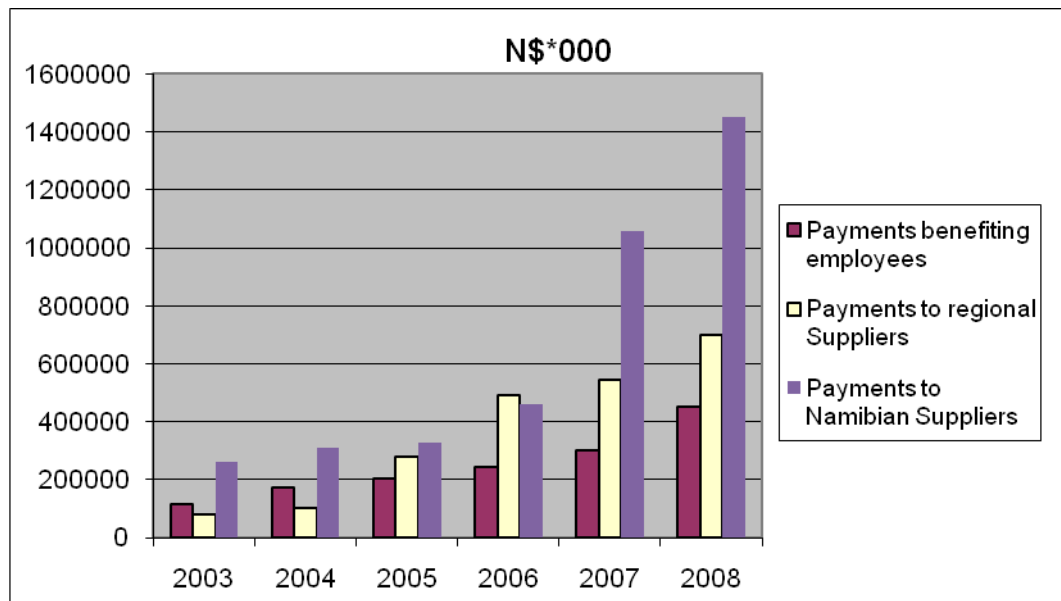


Figure 7: Rössing Uranium’s contribution to wages and local and national procurement – 2003-2008. (Rössing Uranium, 2008)

The multiplier effects of the contributions extend economic benefits significantly. Payment to local and national suppliers stimulates economic activity and creates employment in other sectors of the economy. The local economy, particularly the retail and local government sectors, is stimulated by the wages that workers spend.

Many Rössing Uranium workers send part of their wages as remittances to families in other, often underdeveloped, regions, and so contribute to poverty alleviation and food

security. The generally high dependency ratio in labour-sending areas means that wages paid to Rössing Uranium's workforce contribute to the livelihoods of a large number of people. In the labour-sending areas remittances are used for, amongst others, agricultural purposes (so retaining a claim on land in the communal areas and contributing to food security), education and daily subsistence.

The mine has been a major employer in Erongo since its inception. The work force in the 1980s was estimated at 3 219. A decline in the uranium price led to several retrenchment episodes, and in August 2005 Rössing Uranium had 828 employees and 472 contractors. By the end of 2008 the numbers had risen to 1 307 permanent employees, while 1,014 contractors were on site on a daily basis during that year. (Rössing Uranium, 2008). Demographic indicators are positive; the representation of both females and Namibians on the workforce has increased and the age profile of the workforce has improved as younger workers joining the company. At the same time, the mobility of the workforce has increased as a result of other uranium operations in the area. With the proposed extension of the life-of-mine and the expansion of operations, the workforce will increase considerably over the next few years. Figure 8 reflects the actual permanent workforce employed by Rössing Uranium for the period 2002-2007, and the projected permanent workforce to 2026.

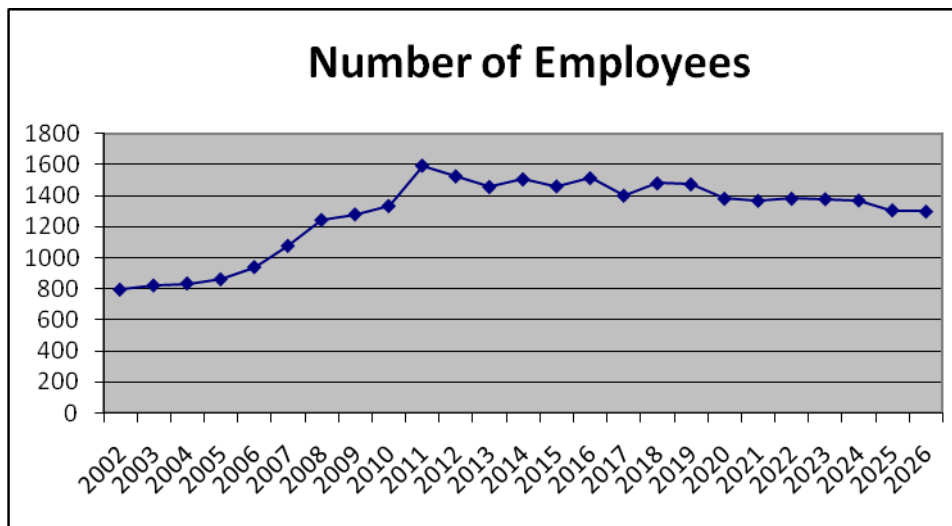


Figure 8 Permanent employment at Rössing Uranium: 2002-2026

Figure 9 presents Rössing Uranium's spend on community and social development for the period 2002-2008.



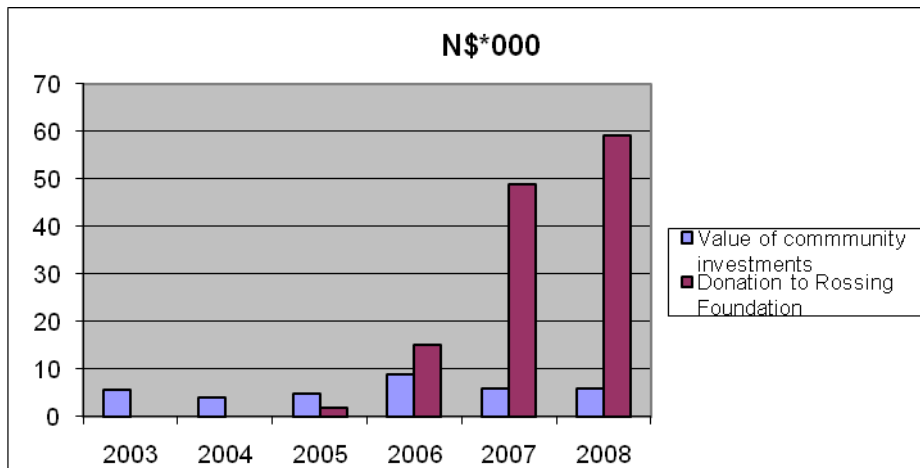


Figure 9: Rössing Uranium's contributions to community and social development, 2003-2008 (Rössing Uranium 2008)

Rössing Uranium's contribution to community development is largely undertaken by the Rössing Foundation, but as Figure 9 shows, the company continues its own internal Corporate Social Responsibility programme. Beneficiaries of donations and sponsorship include regional and local government, community groups throughout the region and NAMPOL. Among the most important contributions that Rössing Uranium makes to Namibia's sustainable development is its support for education and training, reflected in Figure 10. This includes support for apprentices, students at technical college and university, educational assistance and Management Development Programmes. As at December 2009, Rössing Uranium was funding 497 participants in training and development programmes (CoM, 2009a).

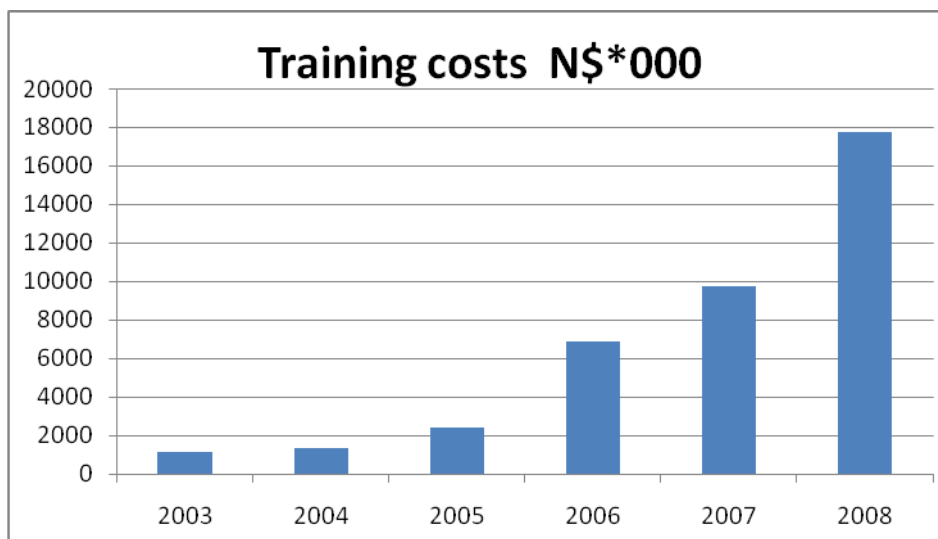


Figure 10: Rössing Uranium spend on education and training for the period 2003-2008

After three years of not being able to declare profits, Rössing Uranium contributed N\$849,235,000 in taxes and dividends to the Government of Namibia, and a further N\$158,977,000 to state-owned enterprises for water, power, transport and telecommunications (CoM, 2009a). The company still has to meet low-priced legacy contracts that were negotiated when the price of uranium was as low as US\$7 per pound U<sub>3</sub>O<sub>8</sub>. These contracts will expire over the next few years, and the higher earnings that will result from an increased sales price, aligned with higher market prices, will increase the taxes paid to the Namibian government. The Mine Expansion Project will enable

Rössing Uranium to contribute substantially to the Namibian economy for a further 13 years.

#### **4.4 The Chamber of Mines of Namibia**

In 2007 the Chamber of Mines of Namibia (the Chamber) established an office in Swakopmund, the centre of the uranium industry, to facilitate the development of minimum standards for environmental health and environmental management for uranium mines. The Uranium Stewardship Committee (USC) was established in the same year, and is now recognised as the spokesperson for the Namibian uranium industry in local and international fora.

The concept of stewardship relates to care and management of uranium throughout the nuclear life cycle and covers all life-of-mine phases, from exploration through to closure and after-care. In its activities, the USC addresses some of the inadequacies in Namibian legislation, such as those dealing with closure and after-care. The USC is actively involved in all aspects of the uranium life-cycle, and adopts an integrated approach which includes environmental, health and social impacts. Through its various committees, it promotes sound health practices and policies, not only to avoid impacts on the workforce, but also on all the communities with Erongo Region. This is done in multi-stakeholder partnerships.

The Chamber is working with the MME to establish an empowerment scorecard for the mining industry within the country's Transformation of Economic and Social Empowerment Framework.

One of the principles of the USC is that it is essential to engage comprehensively and frequently with stakeholders. Engagement is undertaken through initiatives such as newsletters, workshops and attendance at public participation processes of the uranium companies. Management of the USC also serves on external committees, such as the Steering Committee for the Strategic Environmental Assessment, the Namibian HIV Management Committee and the Erongo Region Development Foundation (CoM, 2008).

The Uranium Institute, an initiative of the Chamber of Mines, was launched in 2009 and is based in Swakopmund. The focus of the Institute is the improvement of healthcare, environment management and radiation safety. Its work is organised by six strategic aims:

- Communication (engaging practitioners and stakeholders)
- Awareness (building the will for change and the conviction that improvement is possible)
- Education (building the capacity for change through knowledge exchange and training)
- Health informatrix management (capturing and managing data, ensuring quality control and encouraging collaborative independent research projects)
- Collaborative improvement (working together to spread best practice and yield breakthrough results)
- Developing leaders and unifying the industry around the common cause of improving healthcare, environmental management and radiation safety for all.

(CoM, 2010)

## 4.5 Other mining companies in the Erongo Region

It has not been possible to obtain information on socio-economic issues such as housing requirements (including location), workforce numbers and transport directly from mining companies. A number of stakeholders commented, in this regard, that it was difficult for them to estimate what services would be required, or to make strategic plans, as the mining companies were not communicating their needs.

Table 8 shows that, by 2013, there will be an estimated 5 000 permanent employees in the uranium sector in Erongo. More than 50% of the positions will have been established in the previous four years. The combined employment, procurement and social spend of these mines will be a significant driver of development in the region. The impacts, such as increased dust generation and land degradation, are also cumulative, and these must be offset against the development benefits.

Table 8. Employment requirements of current and developing uranium operations in Erongo. (Source: CoM, 2009)

Mine	(Estimated) Year of Commissioning	(Estimated) Year of full production	(Estimated) number of employees at full production
<b>Rössing 1</b>	1976	1980	<b>1300</b>
<b>Langer Heinrich</b>	2007	2010	<b>600</b>
<b>Areva Resources</b>	2008	2011	<b>800</b>
<b>Valencia</b>	2009	2011	<b>600</b>
<b>Rössing 2</b>	2010	2012	<b>300</b>
<b>Swakop Uranium</b>	2010	2012	<b>1000</b>
<b>Bannerman Goanikontes</b>	2010	2012	<b>500</b>
<b>Reptile Uranium</b>	2012	2013	<b>500</b>
<b>Total</b>			<b>5600</b>

It has been assumed that the above figures do not include additional employment during construction phases.

A local recruitment agency indicated that it will be difficult for companies and contractors to source a large part of their labour locally. A significant number of job-seekers on the company's database were unskilled and had no experience (Swart, pers. com. 2007). The implications are that inward migration includes both opportunistic work seekers and workers who have successfully applied for positions, as the higher skills will be sourced from outside the region and the country. A large proportion of the latter will be permanent, and will bring their families with them. It has been possible, in this Study, to establish the capacity of the various receiving communities with regard to housing, municipal services, health and education. It has not been possible to establish a

satisfactory estimate of the number of people who will be requiring such accommodation and services.

## 5. Communities of Interest

### 5.1 Arandis

The history and development of Arandis is well-documented, and is not repeated in this report.

The data captured for Arandis during this Study and the background literature has been presented according to the Sustainable Livelihoods Approach<sup>6</sup>. This approach considers the assets or capitals that a community needs for sustainable growth. The capitals are institutional, social, natural, physical, and human. The presence, in healthy proportions, of all five capitals, creates the basis for independent and sustainable growth.

#### *Institutional Capital*

##### **The Arandis Town Council**

The Arandis Town Council (ATC) has faced numerous constraints since it became a municipality in 1994. Its revenue base is narrow and, although the payment of municipal rates has risen steadily since 2004, revenue remains insufficient to meet the ATC's expenses. In October 2009 the community was indebted to the ATC in the sum of approximately N\$2 million. Debt collection has become more effective since the ATC took a decision to hand defaulters over to lawyers. The ATC has relied on assistance, both financial and technical, from Rössing Uranium and the Rössing Foundation in times of crisis (Husselmann 2009, Pers. Comm.).

A number of factors have led to some improvement in the revenue base of the ATC:

- Increases in property prices and the sale or re-occupation of abandoned properties increase the revenue base of the ATC. Houses that sold for N\$30 000 two to three years ago are now selling for N\$120 000+.
- The sale of business licences has increased.
- Illegal occupancy of rooms in houses eases payment for services by placing the owners or legal tenants in a position to pay. This practice does, however create further problems.

Indigency is a significant cost to local authorities and the problem is complicated by the suspension of eviction of poor people by local authorities. No criteria are given for who is regarded as poor, and there are fears that this system will be abused. Government is considering the possibility of bringing back subsidies for people who can't afford to pay for services, and this would be welcomed by the ATC (Husselmann 2009, Pers. Comm.).

The ATC depends for its revenue primarily on rates and sewerage charges. Electricity services are undertaken by the Erongo Regional Electricity Distributor. In 2007 Namwater and the ATC entered into Intervention Agreement whereby they jointly address the water delivery system and the enormous water losses in the town. Payment for water, historically poor, has improved, as has the degree of water loss, but the additional inflow of payments largely goes to NamWater in terms of the Intervention Agreement.

---

<sup>6</sup> A number of web sites deal with the Sustainable Livelihoods Approach. See [www.cifor.cgiar.org/.../Issues%20and%20Methods%20in%20Livelihoods%20Analysis%20...](http://www.cifor.cgiar.org/.../Issues%20and%20Methods%20in%20Livelihoods%20Analysis%20...)

The ATC has contracted Stubenrauch Planning Consultants to develop a town-planning scheme. The establishment of Extension 2 has been finalised, and the proclamation of Extensions 3 and 4 are awaiting approval by the MRLGHRD (Husselmann 2009, Pers. Comm.). These three extensions provide for an additional 900 erven, zoned for mixed use. The Local Economic Development Plan (LEDP) to align development with the land-use indicated in the town-planning scheme has been completed and is awaiting sign-off in November 2009. This LEDP comprehensively addresses one of the town's critical problems, that of economic diversification (Horn, 2009. Pers. Com).

Capacity building in and assistance to the ATC has been identified as crucial to the sustainability of Arandis. The Foundation focuses on capacity building, and Rössing Uranium assists with selected infrastructure developments (Rössing Uranium, 2007).

Initiatives have been undertaken to address the shortage of capacity in the ATC. Important posts that have been filled are those of Community Liaison Officer and Communications Officer. The ATC considers that the post of an Environmental and Health Officer is a critical one. Because state environmental services have been withdrawn from smaller municipalities, competitive salaries are now offered by local authorities to potential Environmental Officers, and the ATC has not been able to offer attractive packages to retain two incumbents who were appointed. It is now investigating a retention strategy.

Arandis is the only municipality to have introduced a Performance Management System, which tracks progress made by employees. The ATC is of the opinion that this, together with the fact that the staff has accepted the system, has increased administrative capacity considerably. In a further move to build the skills capital within the ATC, new recruits are carefully screened (Husselmann 2009, Pers. Comm.).

Development has, in the past, been constrained by a lack of co-operation and trust between the town management and the town councillors. This position seems to be normalising, and the improvement is ascribed to a Leadership Development Program within the ATC and the optimism that residents feel about visible developments, such as the opening of an agency by Bank Windhoek.

The ATC's situation with regard to development partners has improved somewhat, but not in the private sector, where only Rössing Uranium and the Foundation show a consistent interest in the sustainability of the town and actively participate in its planning and development. Other mining companies, whose activities are already impacting on the town, do not participate in development planning. Zhonghe Resources (Namibia) Development (Pty) Ltd, a company that was granted two EPLs in the area in 2009, has a negligible presence in the town, but it has contributed to social needs by funding food for OVCs and by paying the school fees of eight students at local schools for three years (Husselmann 2009. Pers. Comm.).

### **Health Services**

Arandis has one state and one private clinic. NIMT has registered its own clinic in conjunction with the Chamber of Mines. This will have special agreements for occupational health needs and will not be open to the general public for day-to-day services (Mueller 2008, Pers. Comm.).

Most of the residents in Arandis use the government clinic. A number of comments were made about the shortcomings of state health services during the Arandis Study – low stocks of medicine, long waiting times, understaffing, the lack of an ambulance and a lack of social welfare services. A doctor visits once a week.

Although this Study could not confirm the plans for upgrading health services in Arandis, a report by Stubenrauch Planning Consultants indicates that the MHSS intends to upgrade the existing facility in Arandis, as part of its five-year plan for health services in the region (SPC 2007). The budget for an urban clinic in Arandis has been approved, and the feasibility study will be undertaken in the financial year April 2011-March 2012. Building will be completed in the following financial year. The facility will be larger and more accessible than the current one, and offer a 24-hour service. Due to a shortage of doctors, it could not be stated conclusively that a permanent doctor would be available (Tshiteta, 2009).

The MHSS has appointed a consultant to undertake a feasibility study for such upgrading of the current clinic. The study includes a survey of both social and health services. However, upgrading might not be realistic, as the condition of the current facility is so poor that a completely new facility would be preferable. This would be an added attraction for investment in the town (Husselmann 2009, Pers. Comm.).

An urban clinic would not make provision for an ambulance, a permanent doctor or for the admission of patients.

The private clinic services mostly those patients who have access to medical funds, but, because of the perceived shortcomings of the state clinic, it is also used by patients who do not have such access. The clinic is well-equipped and employs five doctors and two fully-qualified nurses. The doctors are based in Swakopmund and take turns to visit Arandis on a daily basis. Dental services are provided.

Rössing Uranium has an ambulance for its employees.

### **Law Enforcement**

The area of operation of the Arandis branch of NAMPOL stretches from Arandis to Trekkopje and includes the Valencia and Etango mine licence areas. The staff numbers twenty, including administration staff. The station is short-staffed and has a critical shortage of vehicles. It has two light-delivery vehicles and one small saloon car, donated by Rössing Uranium in 2007. These are inadequate for some of the roads the force has to travel, and when members need to go to areas off the main road, they have to rely on outside assistance for vehicles. The station does not have a police van.

Violent crime has been extremely rare in Arandis, which was described as “really a very peaceable community”. The Arandis Study indicated that, in 2005, six cases were reported to the police in a bad month, and in a good month, three. Reported cases have increased, and the nature of criminal activities has changed. Housebreaking used to be mainly for food, but the items taken now are safes and money. A spokesperson for NAMPOL Arandis ascribes this to the inward migration of people looking for work, often unsuccessfully (Pakesa 2008, Pers. Comm.). Assault and alcohol-related crimes are on the increase, and violence against women is becoming a problem.

Commercial sex has made its appearance in Arandis for the first time, with sex workers coming from Swakopmund and Walvis Bay at the end of the month. A recent development, which is of great concern in the town, is that schoolgirls, mainly from child-headed households, are engaging in commercial sex. This is ascribed to the increased employment of residents as contract workers on the mines and the resultant increase in available cash (Husselmann 2009, Pers. Comm.).

NAMPOL and the ATC, through the Police Public Relation Committee, have a good working partnership and are achieving some success in two matters of concern in the town – the proliferation of shebeens and the access of young children to alcohol, although the latter remains a problem. A ATC Councillor has established a committee to raise awareness about alcohol abuse and provide support to affected persons. Shebeen owners in the town voluntarily decided not to open their establishments on Sunday mornings.

### **The Rössing Foundation**

The Foundation acts as the community development arm of Rössing Uranium, and as such assisted the mine to prepare the Rio Tinto Five-Year Communities Plan. This plan notes the need to build effective community institutions, support community initiatives, and expand educational opportunities in the town and so to contribute to its sustainability. The Foundation works with the ATC to broaden the economic base of the town in a number of fields, including the promotion of SMEs. The two institutions are also partners in community education around important issues such as water, vandalism and household finances. A further partnership, which includes Rössing Uranium, centres on the realization of the Arandis Sustainability Project, which has as its objective the creation of sustainable development projects for the town. Within this strong partnership, the ATC is given independence and accountability for developments.

### *Natural Capital*

#### **Agriculture**

Natural capital is scarce in Arandis. Water from the five boreholes in the vicinity of Rössing Uranium and Arandis is not suitable for irrigation without the addition of potable water or purified sewerage water. The water in the Khan River is only suitable for irrigation after good rains. Purified effluent water is used for watering of public spaces.

All soil samples tested (from 1988 to 2004) found that the soil contains a great variety of salts and is not suitable for agriculture. As an alternative to development in conventional agriculture, the Foundation has introduced a mushroom-growing project, which is doing well, and a hydroponics project for vegetables. Three young people from Arandis are eager to take over the running of these projects as an SME. Produce from the hydroponics project is sold to local consumers, and there are plans to exploit the potential of markets in Swakopmund. Technical support is provided by the Rössing Foundation, SME Compete and the University of Namibia, but a constraint is experienced in a lack of commitment by those who enter the projects (Uusiku 2009, Pers. Comm.).

#### **Tourism**

In most instances in Namibia, tourism is strongly associated with appreciation of rare ecological systems or unique landscapes (i.e. natural capital). The Arandis area has limited appeal for tourists and alternative attractions need to be developed. Consequently, more emphasis on the built environment (physical capital) is required.



A feasibility study of tourist potential in and around the town indicates that Arandis cannot aspire to capture more than a niche sector of tourists who travel the well-established tourist routes (Ward and Niehaus, 2003). The study does refer to the possibility of budget-style conferencing in the town. The Foundation offers conference facilities in the Community Development Centre, and the lower costs and unique location have attracted other clients beside Rössing Uranium, which is the main one. However, for the centre to become a conference venue of choice, considerable upgrading of facilities and training of staff is needed. The Town Hall, too, is not a sympathetic venue for professional use.

Plans are advanced for the development of an open-air mining museum as part of a tourism initiative. The town-planning scheme provides for a site at the entrance to Arandis from the B2. This development is in partnership between the Foundation, Rössing Uranium and the ATC. The concept design for both phases has been completed, but the global recession has delayed the project. The ATC is preparing a proposal to access additional funding (Husselmann 2008, 2009 Pers. Comm.).

### *Physical capital*

Arandis has infrastructure which is sound enough for the town to be integrated into the wider economy. However, without considerable repair and ongoing maintenance, the long-term sustainability of a significant part of the town's physical capital is at risk. Although a few businesses have upgraded their premises, the appearance of the central business district remains unappealing and neglected.

There are 898 houses in the town and 260 people are on a waiting list. An upsurge in housing demand is expected, and the ATC is preparing to make approximately 900 unserviced stands available for residential development. There are, however, constraints on building programmes. These include:

- developers who are slow to commit themselves, as they would prefer to develop once there is certainty that mining companies will house their employees in Arandis,
- no specific indications from mining companies as to whether they will need accommodation for their workforces,
- long bureaucratic delays in the proclamation of new extensions, which is a constraint on industrial, residential and business development (Husselmann 2009. Pers. Comm.).

Contractor companies, whose workforces occupy a significant number of houses in the town, are not consulting with the ATC about the housing requirements of their workforces.

Legal owners or tenants of houses are leasing space in their houses illegally to incoming work seekers. Sometimes as many as 17 people, including children, occupy one house. This will inevitably lead to a deterioration of the housing stock (Husselmann 2009 Pers. Comm.).

A number of the older houses in the town show signs of deterioration possibly related to the construction of their foundations. This concern is ongoing and was raised again at a Focus Group Meeting held with the Arandis Community on 22 October 2008 (Arandis 2008). Participants at the meeting complained of cracks in the walls and decreased resale value of the houses. Most of the houses and older buildings have asbestos roofs. Neither of these situations presents an immediate health or safety issue, but both require monitoring to ensure they remain in a safe condition. The ATC has contracted a

consultant to undertake a risk assessment of the asbestos, after which a management plan will be presented for implementation (Husselmann 2009, Pers. Comm.).

The ATC does not have vacant land available, but does have land that can be developed for residential purposes. Commercial developers recently purchased 201 residential stands for development as the demand for housing increases. An area for low-cost housing has been allocated in Extension 3, and this will be available in 18 months. The ATC is making provision for formalised living areas for informal settlers, and is working with the Shack Dwellers Association in this regard. The 100% occupancy of houses in Arandis has reduced the incidence of vandalism. Civic responsibility and pride is encouraged through the *Free to Grow* programme, and confidence was expressed that this is encouraging the growth of social capital (Husselmann 2008, Pers. Comm.). After a recent clean-up campaign, there are few rusted cars and machinery on residential properties, but the evidence of a socio-economic division between the north-eastern part of town, where the first houses were built, and the western/north-western part, as discussed in the Arandis Study, remains (Hoadley *et al*, 2005). The former area is locally referred to as 'the location' and, in general, the houses and yards are considerably less well-cared for than those in the western/north-western part. There is also more litter in the streets than in other sections of the town.

The first phase of a trade centre has been completed, with funding from the ERC. The ATC plans for SME Compete to manage the facility, and a number of SMEs have expressed eagerness to move to the centre. The ATC has requested a further N\$2 million from the ERC for the second phase in 2010. A local SME operator converted the former Zebra Bar into a business service centre. Most available space in this facility, nicknamed the "Herero Mall", has been taken. (Husselmann 2008, 2009, Pers. Comm.).

Considerable upgrading to sports facilities has been undertaken by the Foundation, which has done much to promote sports in Arandis. Maintenance of these facilities is contracted out, but the ATC will in all likelihood undertake the management itself again. The swimming pool is currently closed so that appropriate terms of reference for effective and safe management of the facility can be established.

The ATC has entered into a Roads Maintenance Project partnership with the Roads Authority, and the tarred roads in the town have been extended. The main roads in the town are in good condition, but some of the side roads are pot-holed.

All the residents of the town have access to electricity, safe, potable water, flush toilet facilities and regular refuse removal. Problems with the water reticulation system have been addressed with the assistance of funding from Rössing Uranium and the MLRGHRD. Rössing Uranium is also assisting with the repair and upgrading of the sewage plant to cater for a much larger population than is currently in the town.

The cleansing section has faced numerous difficulties. The ATC has no waste management equipment and Rössing Uranium supplies such equipment for management of the solid waste dump on an *ad hoc* basis. Within the town, skip containers, clean-up campaigns and awareness raising have made a visible difference. However, a need for a long-term solution to waste was articulated. The ATC is considering appointing a local resident, who also does recycling, to manage the dump. Fencing around the dump is regularly stolen, and the ATC is considering other way of enclosing it.

## **Sport, recreation and leisure**

Arandis has six facilities catering for a wide variety of sports, including swimming. The facilities are all in good condition, and well-used. An area that used to be a public park has been in an abandoned state for years, and the town does not have a developed park. The ATC's annual plan for 2010 includes the upgrading of the park.

The town does not have a multi-purpose centre or a public library. However, the requirements for a library are adequately addressed by the Rössing Foundation library.

## *Financial capital*

### **Sources of income**

One third of the households in Arandis is supported by salaries earned in employment with Rössing Uranium. Some employment is offered by other mining companies engaged in exploration or construction activities, but these are not permanent positions. Other sources of income are government departments (schools, police and health services) a few medium size businesses, increasing SME activity and social grants and pensions. However, the major part of these and other wages do not enter the local economy and, as the discussion below shows, very little, if any, is saved or invested.

### **Spending patterns**

Most of the residents in Arandis do their shopping and banking in Swakopmund, and a significant amount of money is sent out as remittances or for the maintenance of land-holdings in other centres. There is little to encourage the retention of money in the town. Banking services in Arandis are limited, and only Bank Windhoek has a presence in the town. Consumer choices are still limited and expensive. The fact that so many people bank and shop in Swakopmund means that the efficiency of both business and household financial transactions is reduced.

### **Employment creation**

The town has not been successful in creating meaningful opportunities for wage/cash generation. Lack of money is a severe constraint on many businesses. They do not have the funding to purchase enough stock to increase turnover and market share or to create employment. Like many other SMEs in Namibia (IPPR, 2004), the demand for credit by SMEs in Arandis is fairly low. It appears that entrepreneurs (especially survivalists) are cash-strapped, but they do not want to take out loans. Poor credit records also cause a reluctance to apply for loans. More entrepreneurial SMEs have benefited from the credit scheme arranged with Bank Windhoek by the Foundation and the Erongo Development Forum.

Under the guidance of SME Compete, the SME sector is improving, albeit it not significantly. Two guest houses have opened, and are permanently full, mainly with guests on mining business. The local supermarket has improved its services. A local textile firm has increased its workforce to 200 people and has secured contracts from at least two major chain stores.

The unemployment rate in the town in 2005 was 36%. It is difficult to estimate the current rate as there are many new people in town and the population is fairly mobile. The number of vehicles in town and traffic at the shopping centre indicate a reduction in unemployment. Planned new developments would create more job opportunities, but the low skills level of the residents could prove to be a constraint on local employment. There

are indications of emerging xenophobia (Husselmann 2009, Pers. Comm.), which could indicate that incoming people with skills are being employed over locals.

A few companies have expressed interest in setting up operations in the town: a quartz refinery, which has obtained EPZ status, an explosives plant and a caustic soda plant. Negotiations for the caustic soda plant are well-advanced, and a Memorandum of Understanding has been signed. Only two of the potential or existing substantial industries can definitely be regarded as independent of the minerals sector – the quartz refinery and the existing textile operation. There are no other signs of economic diversification. A Chinese firm is also currently negotiating with the ATC to erect a factory for the production of building materials, but the exact nature of this business, and its target market, is not known.

A site for the long-awaited fuel station has been identified, and services are being installed. An agreement has been signed with British Petroleum, and construction of the station will start in 2010. The Foundation is funding the development and the ATC is providing the land and services. The management of the facility will, in due course, be handed over to a commercial operator (Husselmann 2009, Pers. Comm.).

Youth employment is improving as a result of opportunities created by contractors. However, concern was raised about the young people who, having gained employment, are incurring debts on high-price items such as cars. If employment increases as a result of construction activities, it could feasibly decrease again at the end of the construction period. To ensure that other opportunities become available, the ATC wants ongoing dialogue with the mining companies so that it knows the length of time that young people will be employed for, and what skills they will gain. This will indicate what training initiatives need to be put in place.

### **Business trends**

Development of activities that would increase financial capital is further constrained by a lack of co-operation between businesses, low levels of business acumen and a narrow, usually domestic, market. All businesses are severely challenged by competition. Survivalists and micro-businesses face intense local competition, slightly larger SMEs face competition with Swakopmund businesses, and the upper-end manufacturing SMEs cannot compete with the prices of imported goods.

Community members are slow to grasp opportunities as they arise (Cloete 2007, Pers.Comm.), and newcomers to the town, eager for employment and livelihood opportunities, may very well inject vigour into the economy at the expense of local residents. A serious lack of entrepreneurship could result in the Arandis community becoming largely a labour pool for incoming entrepreneurs.

There are currently 55 registered businesses in Arandis. Of these, a significant proportion is highly dependent on Rössing Uranium, and where there has been a broadening of their customer base, it has been with other mining companies.

Recent developments in the mining sector have created an interest in investing in the town, but by far the greater number of these investments appears to be opportunistically based on capturing benefits from mining activities.

For many years Arandis received little funding from central and regional government. This is changing, and in the 2008 financial year the Regional Council contributed to the development of the SME park. This funding will enhance the financial capital of the town through the growth of businesses and, optimally, employment.

The economy of Arandis is reliant on the mining sector, in particular on Rössing Uranium. Since Rössing Uranium announced its potential life-of-mine extension, there has been renewed interest from investors, and this has been further encouraged by the rapid increase of the number of companies active in the uranium sector in close proximity to Arandis. Development initiatives are complicated by the fact that they have to happen in an environment where developers are eager to exploit the potential short-medium term benefits of mining, and show little awareness of the need for sustainable investment in the town.

### **Household level financial capital**

At household level, a lack of even the most basic skills in financial matters, resulting in an often chaotic mismanagement of money, is a serious constraint on the development of Arandis. The community is critically in debt, with some members paying more than N\$2500.00 monthly on household debts in 2005 (Arandis Study, 2005). This community indebtedness persists. Respondents to surveys carried out during the Arandis Study indicated that they pay household debts before they pay moneys due to the ATC. In partnership with the Foundation, the ATC is conducting programmes on household budgeting. The *Free to Grow Process* should help to address this problem, and an assessment will be made of its success rate. In 2009, 442 people received training in life-skills and financial management.

### ***Social capital***

A number of mining companies which are active in the vicinity of the town have held public participation meetings in Arandis. Subsequent to these meetings, inward migration into the town has increased. The population has grown from 4,500 in 2005 to an estimated 6,500 in 2009 (Husselmann 2008, Pers. Comm.).

Social networks are weak and social groupings in the town are identifiable through their isolation from other groups rather than on internal cohesion or organisation. Women and the elderly, in particular, lead isolated lives and no strong organisations exist to support them or integrate their activities into community life. The youth groups are active, but there is no discernible interaction with other social groups. For many of the young people, the activities they undertake are a surrogate for employment.

Little has happened to change the dependency mind-set of the residents, and they have been complacent in their belief that Rössing Uranium, and more recently, other mining companies, would solve all problems. Under these circumstances, they feel little need for social networks and support structures. The demographic, socio-economic and cultural profile of Arandis has remained virtually unchanged for decades. The town is still perceived as a place where low-skilled workers, of low-socio-economic status, live. The complex set of interactions and circumstances which results in this perception, and is a constraint on development, need to be addressed by a wide range of role players, including developers and the community itself. There is a nascent sense of civic pride and communal sensibility (Husselmann 2008, Pers. Comm.), which can be built on.

The Arandis Study identified a serious problem of child-headed households in the town, the result of children being sent to Arandis from other areas for schooling. This problem persists, but it was not possible to establish its current extent. It seems that the incidence is not increasing, as relatives are now also coming to Arandis to look for work.

Other social ills in Arandis have been mentioned in preceding sections. The most significant ones which impact on the development of social capital in Arandis are:

- alcohol abuse, and the access of young children to alcohol,
- multiple occupation of houses,
- the increasing number of contract workers, and
- commercial sex, especially amongst schoolgirls.

### Human Capital

Arandis has a shortage of the human capital which is necessary to fully exploit the advantage of other capitals.

#### Skills and education

Rössing Uranium is the single largest employer in Arandis. Figure 11 shows that, in 2009, the majority of the 336 Rössing Uranium employees living in Arandis workforce, had achieved no higher educational qualifications than Grade 9. Employees who had achieved Grade 12 are not represented in the town as all, nor are there any with tertiary qualifications. High-level skills are found almost exclusively in the professional sector, in state employ and in the Rössing Foundation. There is a lack of entrepreneurs who can create employment, with a concomitant demand for skills, and the technical skills to take up such opportunities are also lacking in the town. A few SMEs, largely those run by women, have created employment for unskilled people since the first version of this report in 2007.

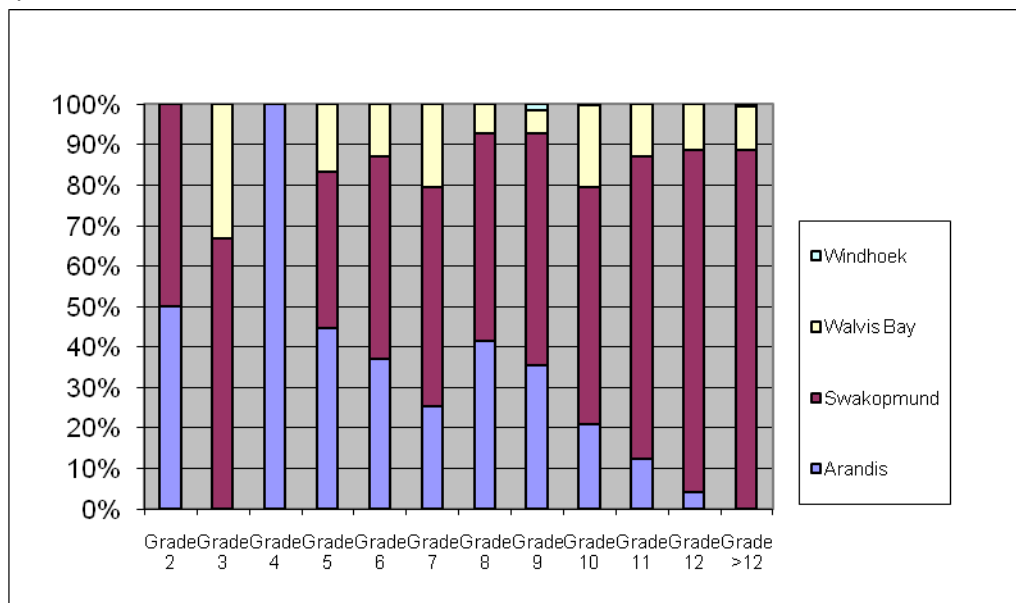


Figure 11 Skills in the Rössing/Arandis workforce compared to skills in the total Rössing workforce.

#### Community Health

A recent Health and Social Welfare Study undertaken of the Arandis community indicated that overcrowded accommodation was leading to an increase in health problems which have historically not been of concern in Arandis. The number of TB cases has increased

significantly, and constitutes the main health problem requiring treatment at the Arandis clinic.

The prevalence rates for HIV/AIDS in Arandis cannot be stated with confidence. Indications are that the rate is lower than national and regional figures, largely due to the sound programmes conducted by Rössing Uranium for its workforce (SIAPAC, 2003: 61). The influx of job seekers and the number of unaccompanied construction workers in the town pose a threat to this favourable situation. The ATC expressed extreme frustration at its failed attempts to obtain statistics with which to monitor the disease.

Health issues were raised at two meetings recently held in Arandis. This researcher does not have the expertise to comment on the accuracy of these statements, and the following serves merely to report on comments at the meetings.

The first was a Focus Group Meeting held with the Arandis Community on 22 October 2008. Comments were raised about the ill-health of the residents, and questions were raised about whether Rössing Uranium had done a health survey in Arandis. Fears were expressed that the dust, particularly from blasting, could be harmful to human health.

The second meeting was a public participation meeting held by Earthlife Namibia in Arandis on 30 October 2008. Arandis community members spoke of numerous health problems, including cancers, respiratory problems and developmental deficits in children. Fears were expressed about radioactive dust – in the air, on the clothes of workers and in the soil of Arandis, where people have to work on the infrastructure. The cumulative impacts of more mines opening in the vicinity were also referred to. The ATC reported no further developments or come-backs from this meeting.

### **Skills and education acquisition**

SME Compete has been contracted by the Rössing Foundation to assist with the development and strengthening of SMEs. Mentoring and monitoring is undertaken, and a new emphasis is being placed on quality of goods produced. Results, albeit few, are tangible (Husselmann 2008, Pers. Comm.). The Arandis Expo, organised by SME Compete was held for the second year running in 2009. This event gives SMEs in Arandis an opportunity to display and sell their products, and to make contact with SMEs in other part of the country and new clients. The event seems likely to become an annual one, and the exposure to a wider market should facilitate progress towards less parochial products and higher quality.

In partnership with the ATC, the Foundation facilitates a Youth Skills Programme. This provides vocational training for young people who do not qualify to enter formal tertiary training institutions, and includes welding, hospitality, plumbing and carpentry. The training is undertaken by partner organisations such as COSDEC, and the Foundation provides funding. Since 2008 60 young people have been trained. Details of resulting employment were not available, nor was it possible to establish how many of the trainees had found employment in the Arandis economy (Uusiku 2009. Pers. Comm.).

The Foundation is facilitating skills upgrading in both teachers and learners at Arandis schools. Provision is made for extra lessons, and emphasis is placed on critical skills such as literacy and numeracy, and critical subjects such as English, mathematics and science.

The Namibian Institute of Mining and Technology (NIMT) is situated on two campuses on the outskirts of Arandis. NIMT is a Five Star Platinum Training Centre, one of only three in Southern Africa. NIMT's objective is to equip Namibians with the skills that will enable them to take up positions as artisans within the mining, engineering, building and construction industries. They offer a comprehensive training curriculum to meet the current skills shortage of trained artisans in Namibia. Rössing Uranium has gradually been increasing the number of bursaries it grants for students at NIMT, and aims to have a minimum of 120 students at the Institute at any given time. In 2008 the company sponsored 152 apprentices (Rössing Uranium, 2008).

### Primary and secondary schooling

There are three schools catering for learners in Arandis: Arandis Primary School, UB Dax Senior Primary School and Kolin Foundation Secondary School.

The Arandis Study found that, in 2005, the standard of schooling in the Arandis schools had declined considerably. However, since the Foundation's focus moved to education, the pupils' learning ability has improved, and Arandis children attended the Regional Science Fair in South Africa. The impact of the Foundations' initiatives at Arandis Primary School has been particularly noteworthy. Teacher upskilling is still a challenge; a number of teachers are near retiring age, and are just biding their time. This affects general morale (Tjiho 2009. Pers. Comm.).

In 2007 schools in Arandis still had capacity for extra learners. This situation has changed, and the town is now experiencing a shortage of space of additional pupils. The situation has arisen because people coming in on contracts are bringing their families with them, as are those coming in search of work (Tjiho 2009, Pers. Comm.). Inward migration is likely to increase, and a significant number of permanent employees at new and expanding mines will probably settle in Arandis. The provision of schooling for children of employees could become as acute in Arandis as it is in Swakopmund and Walvis Bay.

Table 9 shows the capacity in the Arandis schools.

*Table 9: Classroom situation and learner numbers in Arandis schools (capacity is calculated on a learner: teacher ratio of 35:1). (MoE, 2009)*

	2007	2008	2009	Classrooms available	Additional Classrooms needed
<b>Kolin Foundation Secondary School</b>	553	569	553	19	3
<b>UB Dax Senior Primary School</b>	360	358	391	14	2
<b>Arandis Primary School</b>	<b>501</b>	<b>516</b>	<b>532</b>	<b>16</b>	<b>0</b>

The foregoing discussion indicates that Arandis is lacking in a number of the building blocks which are necessary for sustainable livelihoods and development, but that these constraints are neither critical nor insurmountable, given the town's strengths in some areas. An important asset is the sound infrastructure, which the town has in place – water supply, power, tarred roads, schools, sporting facilities clinics, business centres and



housing, all of which are scarce resources in Namibia (Rio Tinto, 2003). Such infrastructure is essential for the development of an urban-based diversified economy.

It is apparent that, along with diversifying and strengthening the economy, attention will need to be paid to establishing a solid base of skills within the community so that opportunities that arise in the economic sector can be exploited. The town has great strengths in the training and education facilities that are available to gain skills and qualifications.

A lack of social capital manifests itself in poor relationships between community groups and between the community and the ATC. However, the ATC feels that there is a palpable sense of optimism and a slow improvement in communal sensibility. Because of tangible results such as the bank, new houses and the very real possibility of a fuel station – developments that have been talked about for a long time - there is an opportunity to win the trust and confidence of the community (Husselmann 2008, Pers. Comm.).

## **5.2 Swakopmund**

The town of Swakopmund is located on the coast, approximately 65 km from Rössing Uranium. It is the official seat of the Erongo Regional Council. The town is a thriving tourist centre, and the economy is largely a service economy, based on tourism and mining. A major catalyst for the expansion of the town, and the development of its infrastructure, was the commencement of mining activities by Rössing Uranium in the 1970s.

### *Demographics*

The current population is estimated at 45 000, and the estimated growth rate at 3% per annum, not allowing for inward migration. Population numbers more than double during the peak holiday season, as the town is a prime destination for both foreign and domestic tourists (Lawrence 2009, Pers. Comm.).

The town is home to a variety of ethnic groups. One of the main contributory factors to this is the pull factor of job opportunities, which draws people from all over the country. In particular, the Democratically Resettled Community (DRC) has been described as a “melting pot of Namibian ethnic groups”. According to a spokesperson for the STC, the division of the town along race, socio-economic conditions and historical settlement patterns is gradually disappearing. The benefits provided by employment at Rössing Uranium were sufficient for people to move from Mondesa to Tamariskia, and from Tamariskia to Vineta. A healthier integration is replacing the strict division of the past (Swartz, 2007. Pers. Comm.).

About 6,000 people currently live in the informal settlement, the DRC. The largest part of the migratory workforce occupies temporary housing facilities in Mondesa (MHSS, 2004) and the DRC. The preference for Mondesa is reflected in the increase in backyard shacks in that suburb, whereas there has not been recent significant growth in the DRC (Lawrence 2009, Pers. Comm.).

The white population is relatively large and there is a significant presence of German-speaking residents. Swakopmund is also favoured as a retirement town because of its excellent medical facilities and its proximity to the coast.

The socio-economic profile of the town is that of a dual economy, with wealth existing side-by-side with extreme poverty. This duality is further reflected in the lack of integration between the more affluent suburbs and the cosmopolitan central business district on the one hand, and suburbs like Mondesa and the DRC on the other. Until recently, tourist maps did not reflect the poorer suburbs or the DRC, but the growing interest in cultural and pro-poor tourism has changed this.

The unemployment rate is difficult to state because of the different ways in which unemployment is defined, and because of the mobility of a large sector of the population. In 2007 it was estimated to be 40% (Kaukungua, 2007. Pers. Comm.) and exceeding 55% in the DRC (Lawrence 2007. Pers. Comm.). Data that is more recent is not available.

### *Economy*

The economy of Swakopmund is based on tourism, and this sector is growing. 50% of visitors who come to Namibia visit Swakopmund, and, as shown in Figure 4 above, Swakopmund is well-positioned for visits to the eco-tourism sites which give the region its unique appeal. Numerous tour companies use the town as a base for trips to sites such as the Namib Naukluft Park, the Skeleton Coast, Spitzkoppe and the Brandberg. The land-use conflict between these fragile eco-systems and mineral extraction is of concern to stakeholders, and the issue of short-medium term benefits from mining versus sustainable benefits from the tourist industry is one which has not been addressed. Mining does not figure in the STC's development plans and strategies as the municipality has confidence that the current initiative to develop a coastal policy for Namibia will address concerns about conflicting land-use satisfactorily (Lawrence 2009, Pers. Comm.).<sup>7</sup>

The town provides logistical support for a number of the uranium mines operating in the region, and to the Erongo Regional Council. It provides accommodation for large numbers of mine employees, and these numbers are expected to increase. The contribution of mining to the economy of the town is significant, and set to become more so over the next few years. The commercial sector has grown rapidly to service both the needs of the mining companies and of their workforces. Engineering firms are opening, some light manufacturing is undertaken and a local bus company, which used to concentrate on tourism, is now focussing on the transport of workers on the various mines (Plaatjie 2009. Pers. Comm.)

Currently there estimated to be between 1800 and 2100 registered businesses in the town. Swakopmund, with its large and diverse number of retail outlets, and business and light industry support services, is well-positioned to meet increased consumer demand and to benefit from the additional cash that could flow into the economy. There has been a significant increase in demand for business erven, specifically for retail/trading enterprises (Lawrence 2008, Pers. Comm.).

---

<sup>7</sup> See <http://www.nacoma.org.na/FindOutMore/ReportsPublications.htm>

### *Local Authority*

Two matters have a negative effect on the budget: the reduction in the subsidies from the Road Fund Administration and the establishment of the Erongo Regional Electricity Distributor (Erongo RED). Due to high start-up costs, Erongo RED has not yet paid dividends to the Swakopmund Town Council (STC), who is a shareholder.

The establishment of Erongo RED has affected the capacity of the STC to finance non-remunerative services partially from the surpluses generated by the supply of electricity. These are now financed from assessment rates and trading services, but the deficit for non-remunerative services<sup>8</sup> increased by 5% during 2008/2009. Expenses on these services are going to be difficult to contain, given the disproportionate growth in informal settlements and the requirements to maintain public buildings, streets, fire-fighting equipment and traffic control. The deficit in Community Services, which increased by 14.8% over the previous year, is ascribed to increased maintenance in the DRC.

Proposed tariff increases for services are substantially above the inflation rate:

- assessment rates - 10%
- water supply - 8% for consumption in excess of 8m<sup>3</sup>
- refuse removal - 15.5% (domestic). Almost double for businesses
- sewerage charges - 10%

(Swakopmund, 2009)

The Strategic Plan for Swakopmund has been completed, and the Health Department is very optimistic about the major theme of “Wellness” that has been adopted as part of the plan. Briefly, this initiative will promote poverty alleviation and a healthier lifestyle. It is holistic, in that it will address both individual’s physical health and environmental health. In this way the town aims to make Swakopmund into a place where people want to be (Lawrence 2008, Pers. Comm.).

As part of its drive to establish a healthy and sustainable lifestyle in the town, the STC and its partner city in Sweden, Malmo, have initiated an alternative energy project to introduce the use of solar power as an energy source. Two sample units were built in February 2010 and the aim of the project is to train local community members to produce their own generating units and start their own small enterprises (Lawrence 2010, Pers. Comm.).

### *Municipal and social services*

The general reaction to questions about the capacity of the Swakopmund Town Council (STC) to continue delivering sufficient and efficient services in the event of a significant inward migration of people, either job seekers or new employees, was positive.

### **Sewerage**

Reservations were expressed about the capacity of the sewerage system to cope with influx in the short-term, as the new sewage plant will not be ready for the next 24 months. In the DRC, toilet facilities, based on a dry sewage system, have been installed by the

---

<sup>8</sup> Non-remunerative services are non- or very low income-generating services, mainly financed by revenue generated from assessment rates and supported by trading services.

municipality at the rate of two households per toilet. The system develops mechanical problems because of misuse, and the STC is considering the construction of a full-fledged sewerage system. This implies an acceptance that the DRC settlement is permanent (Lawrence 2009, Pers. Comm.).

### **The Built Environment**

Housing is a major concern, and numerous questions were raised about the location of housing for mine employees. Currently there is no serviced land. The trend is to sell large tracts of land to private developers who then also provide services. The STC has released 2210 erven to developers. The target markets for these are spread fairly evenly over income sectors. Of interest to this Study is the development by the National Housing Enterprise (NHE) of 200 erven in Tamariskia. The objective of the NHE is "...the financing of housing for inhabitants of Namibia and generally providing for the housing needs of such inhabitants". The NHE's mandate is to act as a lending institution as well as a developer in the field of low income housing. Accordingly the NHE constructs houses in a range varying from N\$60,000.00 to a maximum of N\$200,000 (SPC, 2007).

800 erven have been developed between Mondesa and the DRC. This area is termed a Progressive Development Area and it is intended for low-cost houses designed for improvement at a later stage. The STC is undertaking the provision of electricity to 350 of the 780 erven at a cost of N\$ 11.3 million. The 2009/10 budget provides for N\$ 10 million for the remaining erven, but it is likely that additional funding will have to be sourced.

The original intent was that people living in informal accommodation in the DRC and Mondesa should move to the PDA, and the STC has put considerable effort into promoting the area. However, many of the people living in these two suburbs are unemployed, and do not have the necessary money or credit-worthiness to acquire houses in the PDA. The STC is talking to the Build Together Project, as well as to the NHE about ways in which these problems can be addressed.

There has been a steady rise in building activities and in the second quarter of 2009 building plans to the value of N\$67 million were completed, and increase of 39.6% on the first quarter (Bank of Namibia, September 2009).

Although there are other contributory factors, the sustained uranium boom in Erongo Region is exacerbating the housing shortage in Swakopmund and prices have escalated. A large estate agency in Swakopmund made the following comments:

- Approximately 60% of its clients are related to the mining industry.
- In the price range N\$ 1.2 million to N\$2.8 million there is limited stock left. Stock for the rental market is depleted.
- The company foresees even bigger problems in 2010.
- A South African contractor is looking for housing for 700 workers in 2010 – it is not possible to accommodate this request.
- For people below senior management, no housing is available in the price range N\$ N\$ 700 000 – N\$ 900 000.
- There is significant speculative buying, with investors buying and then renting to mining-related clients.

(Schweiger 2009. Pers. Comm.)

The above comments indicate a critical shortage of available accommodation in the lower to middle-income housing sector.

The significance of the mining industry in the current property market in Swakopmund is confirmed by the statement that “We are fortunate that the uranium rush came at more or less the same time that the economic recession hit Africa and Namibia” (Namibia Economist, 2009).

Property prices in Swakopmund have been driven upwards by investors, holiday homes, speculators and retirees and there are indications that prices are beyond the reach of many local residents. Newcomers to the market will not only be faced by a shortage of accommodation and serviced erven, but also by prices which will be out of reach of the average worker. Anecdotal information indicates that individuals have been buying properties in the town in the hopes of selling these to mining companies.

Business premises, too, are in short supply, and because demand exceeds supply, the rentals are high, especially in the town centre.

The STC believes that Swakopmund is at a point where it should diversify its economy by incorporating aspects of industrial development whilst sustaining its traditional tourism industry. The Long Term Development Plan is a 12-year plan focussing mainly on township developments and industrial erven (Swakopmund 2009). The following development projects are in process or are planned:

- a new municipal office complex, to be completed in 2010
- a multi-purpose centre in Mondesa, comprising community facilities,
- considerable activity is planned for the area around the airport. Plans are well advanced for relocating the railway station, which will then be in close proximity to the airport and an envisaged industrial area.

## **Water**

Swakopmund is supplied with drinking water from the Omdel aquifer. The Omdel Scheme is currently being utilised to capacity, and, at a key informant meeting, concerns were expressed about the reliability of the Omdel line, which is very old and needs replacement (Holtzhausen 2007, Pers. Comm.).

Namwater has undertaken to provide desalinated water to supply its existing and future industrial bulk water users (specifically mines) and to continue to supply domestic and commercial consumers from underground water sources for as long as these resources are viable (Republikein, 2007). Concerns were expressed about the fact that demand could exceed supply, and that desalination would not solve the problem. It was only to serve the mines, but large numbers of mine employees live in Swakopmund, and they use water from the Omdel aquifer. At the end of 2009, an estimated 870 Rössing Uranium employees lived in Swakopmund.

A staggered water tariff has been introduced, and the public is becoming more aware of the need to save water. Nonetheless, Figure 12 shows a steady increase in consumption over the period December 2005 to March 2009. This is ascribed to growth in the town. In addition, huge water losses are still being experienced, ascribed largely to illegal connections, although leakages in old pipelines contribute to the problem. The rapid rise in consumption in March and April 2009 resulted from the need to pump and truck water to Walvis Bay during that town's water crisis.

A significant increase in the number of households and inward migration to informal settlements could place demands on supply which will be difficult to meet. Currently, as a result of increased consumption, if there is a break in the pipeline supplying the town, the reservoir only has water for 1.5 days. Consumption in the DRC increased from 6,678m<sup>3</sup> in 2004/2005 to 11,077 m<sup>3</sup> in 2008/2009 (Kubirske, 2009, Pers. Comm.).

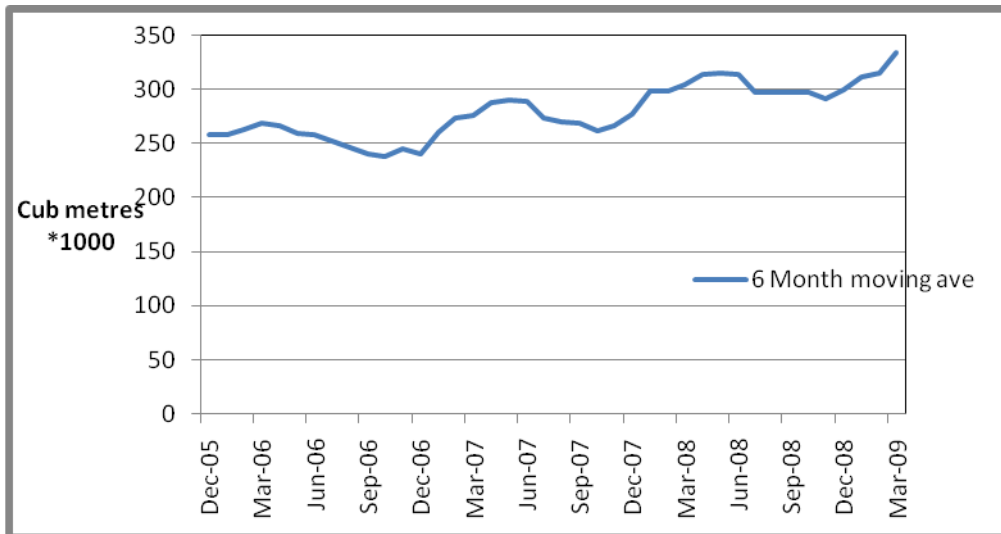


Figure 12: Historic Water Consumption in Swakopmund, 2005 to 2009

Remote-controlled zone meters are being installed to combat illegal connections. The pipeline from the airport to Mondesa has been repaired and relocated to serve other extensions in Mondesa.

The supply of water to the DRC has been outsourced to Water Master Namibia. The company purchases water from the STC at the bulk water purchase price and sells it on a pre-paid water. The basic charge includes waste removal, cleaning of the toilets and rent for the land. The STC has also installed 25 communal water points. (Swakopmund, 2006b).

**Cleansing services**

The STC’s Department of Health is of the opinion that the most serious impact of inward migration on its services would be on waste removal (Lawrence, 2007. Pers. Comm.). Since the research for the first version of this Study, progress has been made in concerns around waste removal and disposal. Management of the dump site has been outsourced to experts, fires do not occur with the same frequency and this method of controlling flies is no longer used. Project Shine has extended into the desert, and a major clean-up of the desert will start once the dump is fenced. To meet the demands of the developing town, an additional two refuse compactors have been budgeted for.

A skip removal system has been implemented in the DRC which is working well, but more skips are needed.

The STC is implementing a recycling system, an initiative of the private sector, which will be a partner in the project. The project was launched in February 2010, in co-operation with chain stores and the private sector. This initiative is expected to reduce refuse deposited at the landfill and to raise awareness of the Re-use, Reduce and Recycle

Principle. A second phase will deal with the reduction in the use of plastic shopping bags, and the STC is introducing a by-law to address such use (Lawrence 2010, Pers. Comm.).

### **Law and Order**

It was not possible to access crime statistics for Swakopmund, but there are indications that it is a matter of concern, particularly for a town whose economy is based on tourism. Visitors to the town are provided with pamphlets detailing measures they should take for their own safety, and there are visible security measures throughout the town.

The STC has established the Mayoral Anti-Crime Fund which assists NAMPOL by maintaining their vehicles. This has enabled NAMPOL to conduct more regular patrols and to bring down the rate of housebreaking. The Mayor has made an appeal to the business community to support the Fund, and also to get involved with the anti-crime initiatives of the STC, the Governor's Office and other stakeholders (Swakopmund, 2006a). The Police Public Relations Committee (PPRC) is a voluntary body formed to fight crime in Swakopmund. Any member of the public can join, and the PPRC works closely with voluntary organisations such as the Swakopmund Crime Stoppers.

Most cases of domestic crime are attributed to alcohol abuse, whereas poverty is the cause of housebreaking and theft. The NAMPOL spokesperson, expressing concern about inward migration commented that: "Even if the public and the mining companies gave millions to train officers, crime would go up because of poverty. People need to live, and if they have no jobs, so they turn to crime." (Shilongo 2007, Pers. Comm.).

### **Sport, recreation and leisure**

The municipality provides two sports fields, two stadiums and a number of public and play parks throughout the town. There is one public library in the town, and another will be included in the new multi-purpose centre. There is an expansive municipal swimming complex at the Mole, which includes an Olympic-sized swimming pool. In the same area, extensive board walks run along the coast line and a large open-air arena-type space allows for community events, live entertainment and the sale of handicrafts to tourists. A sports field and a stadium are located in Mondesa, as is one play park (Ipinge 2009, Pers. Comm.).

The 2009/2010 budget makes provision for a new multi-purpose centre next to the COSDEF centre in Mondesa. The planned facilities in this centre include a library, internet facilities and lecturing halls (Swakopmund, 2009).

None of the above facilities is available in the DRC and the settlement is located at a considerable distance from all of them.

### **Education**

Table 4 in Appendix 1 reflects the capacity of state schools in Swakopmund to absorb new learners. The immediate needs reflected in the table do not make provision for the intake of additional learners in the future.

The capital budget for the Erongo Education Region for 2009 was N\$ 307 000. This is not sufficient to meet the need for ablution blocks and additional classrooms. The region is not in a position financially to address immediate needs, let alone future ones (MoE, 2009).

The Regional Council spokesperson also indicated that the ERC would be building thirteen classrooms in Walvis Bay to provide for an increased intake in 2008, but not for the future numbers anticipated by an influx of people (Awaseb, 2007, Pers. Comm.).

Figures for the increase in learner numbers at three schools between 2005 and 2009 indicate the rapid growth of intake at some schools: Festus Gonteb – 36%; Hanganeni – 32.6%; Vrede Rede – 38.5%. All three schools are in Mondesa, and also serve learners from the DRC. These are the two suburbs where most inward migrants settle.

In addition to classrooms, schools need ablution facilities, administration offices and some are without a staffroom.

Overcrowding is particularly severe in Grades 1 and 8 and a system of teaching in two shifts has been adopted. There are some spaces in the other grades, but, as the tables indicate, these are not plentiful. Double shifts are conducted at some schools, but this practice is not conducive to an enabling learning and teaching environment, and it disrupts extra-mural activities.

Many applications are received from outside the Swakopmund area, and schools in the town have adopted a policy of local preference. There are two secondary hostels, one of which is being converted to classrooms, and one primary school hostel. No space is available at these facilities.

Fees at state schools vary, but for primary schools they should not be more than N\$250 annually and N\$500 for secondary schools. Parents who can't pay school fees can apply for exemption or reduction.

State schools offer a good range of sporting activities, and schools throughout the region are very active in sports, including rugby, soccer, tennis and athletics.

The serious problem of [children reaching Grade 8 with literacy and numeracy skills far below the required level is a national one](#). In Erongo, the Rössing Foundation is addressing this at a number of schools, as well as the persistent problems with mathematics and science learning and tuition.

Table 10 reflects the current learner enrolment and the capacity of the three private schools in Swakopmund.

Table 10: Capacity in private schools in Swakopmund (SPC, 2007, \*Hooks, 2009. Pers. Comm.).

School	Current no. of learners	Current no. of teachers/staff	Available capacity	School fees
*Swakopmund Christian Academy	105	15	130 learners. Finance permitting, expanding to accommodate 250	Enrolment N\$ 2,000 N\$1,500 – 1,800 per annum



Pro-Ed Academy	Gr. 1-8: 46	6 teachers, 1 pre-primary teacher	100 learners: 10 – 12 learners per grade	Enrolment: Gr. 1-8 N\$ 2,500.00 N\$850 for 2 <sup>nd</sup> child Gr 1-4 N\$790.00 per month. Gr. 5-12 N\$960.00 per month
Private School Swakopmund	147 (160 in 2008)	17 teachers	5-7 learners per grade,	Enrolment N\$19,000 refundable Gr. 1-4 N\$1,440 per month Gr. 5-7: N\$ 1,480 per month Gr. 8-12 N\$ 1,835 per month

\* 2009 data

Private schools generally offer limited sporting activities due to a lack of facilities. Most private schools indicated that they were willing to expand, provided funding was available.

### Health Services

Swakopmund has one primary health care clinic, a TB clinic, one state hospital and one private hospital. The spokesperson for the Cottage MediClinic reported improved hospital occupancy in the first half of 2007 which could be indicative of a growing workforce in the Swakopmund area.

MediClinic has made a commitment to upgrade the Cottage Hospital at a cost of N\$20 million and new specialists are being recruited. The upgrade includes provision of additional wards, equipment and an Intensive Care Unit. It is envisaged that these facilities will be commissioned by December 2009 (CoM, 2009).

An important addition to health services for Erongo Region is the development of an Occupational Health Institute next to the Cottage Hospital. In addition to two independent occupational healthcare providers (Medixx and Occnam), an occupational hygiene facility, a dentist and an occupational health training facility will be housed at this facility.

Concern was expressed about the difficulty in assessing the impact that the uranium boom would have on the region, on Swakopmund and ultimately on the Cottage MediClinic, particularly as the number of people to be employed by the mines could not be established (Sander, 2007. Pers. Comm.).

The Swakopmund State Hospital will need to deal with a possible influx of unemployed people. The facility has 100 beds with an occupancy rate of 70%. The current staffing level represents 69% of the full complement. Emergency services are problematic; although the hospital has trained staff, there are not enough of them. Ambulance services also present problems, but the hospital spokesperson was confident that these would be resolved soon. Currently one new ambulance is available for Swakopmund, and an older one is used to provide assistance to Henties Bay and Arandis.

Over a three-year period, the number of out-patients regionally has increased from 6 to 8 thousand per year, and this increase continues, though not as steeply as before. Out patients are largely people living in informal settlements and backyard shacks. Many of those who use the facilities cannot afford to pay the N\$ 4-6 to cover the services. The health services are feeling the strain and the out-patients departments are overcrowded (Tshiteta 2007, 2009. Pers. Comm.).

The spokesperson for the hospital indicated that the facility would be able to cope with a considerable increase in patients, but there are some reservations about the results of an influx of unemployed people. A critical health concern is TB. The notification rate in Namibia is the third highest in the world and that in Erongo is the third highest in Namibia. Most of the infected people are from informal settlements and, in Swakopmund, from Mondesa. Causative factors of TB include poverty and the attendant poor living conditions. Although the HIV/AIDS prevalence statistics in Swakopmund have declined to 14.2% in 2008, expectations were that these, along with social ills and alcohol abuse, would escalate again with significant inward migration. Social ills and alcohol abuse are also expected to increase (Tshiteta 2007, 2010. Pers. Comm.). Table 11 shows the results of the 2008 sentinel survey, and an improvement in the rates in Swakopmund.

Table 11. HIV prevalence in pregnant women in Swakopmund and nationally. (MoHSS, 2008)

Sentinel site	1998	2000	2002	2004	2006	2008
<b>Swakopmund</b>	15%	22%	16%	28%	17.3%	14.2%
<b>National</b>	17.3%	19.3%	22%	19.7%	19.9%	17.8%

### *Social concerns*

Alcohol abuse is a serious problem. In the DRC there are more than thirty shebeens. The STC has adopted a policy of random alcohol testing for its own workforce, and this has resulted in a noticeable change in employee alcohol-related incidents.

Poverty, unemployment and poor living conditions contribute to alcohol abuse which, in turn leads to social ills such as domestic violence. In Mondesa, there has been a public outcry against the number of shebeens operating. People are starting to query the ease with which shebeens get licensed, but this issue remains a politically sensitive one.

The biggest challenge for the Council is the inflow of job-seekers who need accommodation, which is not readily available. Inward migration has resulted in a proliferation of backyard shacks. Almost every house in Mondesa has a shack in the back yard and the total number of backyard shacks is estimated to be in excess of 4 000. The phenomenon is experienced even in new low-cost housing developments (Lawrence 2009, Pers. Comm.), and presents the STC with serious problems. People pay excessive rentals for unacceptable and congested living conditions, where access to services is inadequate. Safety is compromised and shacks frequently burn down. The economic impacts on people who are already poor, and the social impacts on formal residential areas, particularly in Mondesa, are high. On the other hand, landlords are earning an income from letting out space in their backyards. No serious initiatives have been undertaken to address the proliferation of backyard shacks. The STC is fully in agreement that people should not be living in backyard shacks or informal dwellings, but the practice continues unabated. The shack culture appears to be entrenched, and moving people away from it is difficult and politically sensitive.

The DRC is the only informal settlement in Swakopmund. It is situated north-east of Mondesa, at some distance from the town. There are approximately 1,600 plots. Housing and living standards are sub-standard compared to the rest of Swakopmund. There are no formal retail outlets, and informal shops serve the day-to-day needs of the residents.

The nearest shopping centres are 4-5 kilometres distant. A section of open field serves as an informal sports venue, and the nearest formal sports venues are in Mondesa. There are no primary or secondary schools, and young children walk great distances to school daily. Not only is this exhausting, but it is also regarded as dangerous, particularly for girls. As in Mondesa, there is a plethora of unlicensed day-care and self-styled “kindergarten” centres. Formal care in this regard is undertaken by not-for-profit organisations.

Electricity connections are supplied to facilities that carry out high-priority services, such as day-care centres, but there is no electricity for domestic consumption. Paraffin is generally used for cooking, and candles for lighting.

Many children of school-going age children in the DRC are not enrolled in the public school system. The community is a mobile one, and children come and go at irregular intervals as they accompany their parents to their farms in the north. As a result, the deadline for school enrolment is often missed. A contributory factor to non-attendance is that parents have to find the means to pay for uniforms and school supplies, even though, legally, they do not have to pay school fees. Many of them are unable to do this.

Young children are often sent to the coastal towns from other regions. These are either orphans, or sent into the care of a member of the extended family as a result of poverty in the primary home. Research is indicated into the plight of these children, particularly with regard to their living conditions and education. There is also concern about the growth of child trafficking in the region, and children without proper care are particularly vulnerable (Hoadley, 2009).

### *The Swakop River Valley*

There are approximately 120 smallholdings in the Swakop River Valley. Data on the exact number of residents was not available. The land is zoned for agriculture and, while subdivision is possible, a smallholding cannot be less than 10 hectares. The STC is eager to retain the rural character of the area and does not want cluster-type development there.

Small-scale agriculture consists mainly of pig-farming, some vegetables and eggs. The market for this produce is mainly outlets in Swakopmund. Niche produce, such as olives and asparagus are also grown, and olive oil of a high quality is produced in the valley. These products find their way to a much wider market.

The Khan River drains into the dry Swakop River some 40 km downstream of the Rössing Uranium mine site, and the Swakop River drains into the Atlantic Ocean at Swakopmund. Natural ground water quality of both rivers is saline which allows the water ideally only to be used for stock watering or irrigation purposes. A number of smallholdings on the banks of the Swakop River use underground river water mainly for market gardening and, to a limited extent, for domestic purposes. The area is a ‘water controlled area’, where any abstraction or use of groundwater may only be made with a permit.

Potable water for domestic use is sourced from the municipal supply.

The quality and availability of groundwater is important for the livelihoods and health of the farming community and those who consume their produce. Since 1980, when

Rössing Uranium reached full production, the farming community has raised concerns about the quality and availability of ground water. These fears are based on perceptions that groundwater contamination is occurring as a result of mining operations. In 2004, as a result of the detection of anomalous uranium values 30 kilometres downstream from Rössing Uranium, the Swakop River Farmers Working Group, of which Rössing Uranium is a member, was formed to share information and address the issue of groundwater quality in a transparent and co-operative way.

An extensive study initiated by the Swakop River Farmers Working Group showed that the uranium anomaly in the Swakop River was not the result of a potential contamination plume originating at the mine, as the plume did not move downstream. The results of the study indicated a natural local occurrence of uranium in the rocks in the area, and these results have been confirmed by analysis of continued groundwater sampling.

These water studies are ongoing.

### **5.3Walvis Bay**

#### *Demographics*

The population of Walvis Bay in 2009 is estimated to be approaching 75 000 (Manale 2009, **Pers. Comm.**). Ethnic diversity and the rapid growth of the town are promoted as large numbers of migrant work seekers converge on the town from other regions in Namibia and from outside its borders. The diversity is particularly evident in Kuisebmond, where the largest part of the population lives. Although there was historically a gender imbalance as a result of unaccompanied men coming to look for work, more families are reportedly now moving into the town. The latest wave of inward migrants consists mainly of unemployed young people (Manale, 2009. Pers. Comm.).

#### *Economy*

Walvis Bay is the principal port of Namibia. The major economic activities in the town are fishing and the onshore processing of fish, but activities related to the maritime industry, such as the servicing, maintenance and repair of oil rigs and ships are growing rapidly. In spite of periods of decline, the fishing industry continues to play an important role in the development of Walvis Bay and has developed into a leading force in the world's fish supply market. The economy of the town is the most diversified of the three communities of interest discussed in this Report.

The 3,500 hectare Walvis Bay salt field is one of the largest solar evaporation facilities in Africa, processing 24 million tonnes of sea water each year to produce more than 700,000 tonnes of high quality salt which is shipped to markets in Africa. Walvis Bay Salt Refiners produces high-quality oysters for sale to customers throughout southern Africa (Walvis Bay, 2007a)

With the need for ship repair and maintenance, well-equipped engineering firms with a high degree of expertise have emerged to provide a wide range of services to the fishing and other industries. This has encouraged the growth of support industries such as shipping insurance, construction, and cargo transport and retail services.

In the third quarter of 2007 more than N\$200 million had been invested in developments in Walvis Bay, and considerable development is expected in the short-medium term. The investments include the establishment of an assembly plant by West Coast Truck

Exports and the refurbishment of the BP fuel tank storage facility. The Walvis Bay fuel depot is the largest of its kind on the African coast (Walvis Bay, 2007a).

The main manufacturing activities take place within the Export Processing Zone (EPZ). The EPZ companies are involved in the manufacturing of plastic products, automotive parts, fishing accessories, bathroom fittings and diamond cutting and polishing. Not only does the EPZ develop the country's manufacturing industry, it also creates much needed employment.

Most of the mining industry's regional suppliers and service providers are based in Walvis Bay. These range from small engineering companies to larger transport companies and suppliers of fuel and lubricants (Walvis Bay, 2005). An increase in activity in the uranium mining sector has resulted in a significant increase in local procurement, especially in engineering services (Kruger 2007. Pers. Comm.).

Walvis Bay hosts a number of premier eco-tourism sites, such as Sandwich Harbour and the Walvis Bay Lagoon, an important wetland and a Ramsar site which is the oldest lagoon on the Namibia Coast. Work will begin on an Apartheid Museum, situated in Kuisebmond, early in 2010. The global recession does not appear to have affected the number of tours booked with tour operators in Walvis Bay. However, tourists do not overnight in the town but rather in Swakopmund. All accommodation intended for tourists in the town is now fully booked by people who are working on the oil rigs and in the increased ship maintenance and repair sector (Kruger 2009. Pers. Comm.).

The municipality is working with the Polytechnic on the branding of Walvis Bay as a tourist destination. Ideally, the town should not be marketed on its own as a tourist destination. The WBM considers an integrated approach, which includes all the coastal towns, as preferable. Walvis Bay and Swakopmund work together, but a formal strategy has still to be drawn up (Kruger 2009. Pers. Comm.).

Namport manages the port of Walvis Bay, a key aspect of the Walvis Bay and regional and national economy. The port is an important railhead and the only natural deep-water port in the country. Fish, mining products and meat are exported from here, and it is also the receiving point for imports of consumables, including machinery and foodstuffs. The port forms a significant part of the business community. Professional agencies, stevedores, freight forwarders and engineering firms are linked to the import/export activities of the port. Due to its link with southern Africa through the various transport corridors, the port is attracting more visitors and money to Walvis Bay (Kruger 2007. Pers. Comm.).

As a result of increasing cargo volumes through the port and the Walvis Bay corridors, NamPort has embarked on a N\$1.7 billion expansion project. The project includes the development of a container terminal on reclaimed land, state of the art gantries and a container terminal operating system. The port's hub position is further enhanced by the expansion of the Walvis Bay Ship and Rig Repair Yard, a marine petroleum offloading facility and a marina development (Namibia Economist, 2009).

### *Local Authority*

Walvis Bay is a Grade 1 Municipality and historically fully self-financing. As far as structure, finances and human resources are concerned, it is by far the best resourced coastal settlement. About 80% of total estimated income comes from water and related

services, property rates and taxes, refuse removal services and cleansing services. The MWB is in a relatively sound financial position, but, the budget for 2009/2010 shows that the current global economic climate is also impacting on the WBM. The total capital budget for the new fiscal year amounts to N\$ 74,846,000. Of this amount, N\$ 6,160,000 will be funded through banks. The remainder will be funded internally (WBM, 2009).

Concern was expressed that tariffs could become unaffordable to low-income groups in the town. Proposed increases in the budget were conservative, and included:

- Water supply services 8%
- Property rates and taxes 0%
- Refuse removal services 10%
- Cleansing services 8%
- Food disposal and business registration fees 10%

The MWB is one of only three local authorities to employ qualified town planners and probably the only town outside Windhoek to employ dedicated environmental officers (SAIEA, 2007). The MWB has decided to fully integrate biodiversity issues and concerns into its local planning and policy making processes. The Walvis Bay Biodiversity Report was completed and launched in 2008, and in that year the MWB became a signatory to the <sup>9</sup>Countdown 2010 Declaration and the <sup>10</sup>Durban Commitment.

The town council is working with the Association of Local Authorities in drawing up its Local Economic Development Plan, and this is expected to be complete by March/April 2010.

### *Municipal and social services*

#### **Water**

Walvis Bay receives potable water from 57 boreholes in the Kuiseb well field. Table 12 shows water consumption in Walvis Bay for the period 2004/2005 to 2008/2009. According to a spokesperson for the WBM, there is no real need for concern with regard to water supply on an annual basis, as the Kuiseb has a sustainable yield of 7,2mill m<sup>3</sup>/a. Concern is water supply on an hourly basis, where the municipality needs at least 800m<sup>3</sup>/hr, and NamWater cannot supply this without upgrading its infrastructure.

For the three years 2005-2007 water consumption was less than projected, and in 2007/2008 it was higher, probably as a result of increased industrial activity. Together with NamPort's consumption of 186 269 m<sup>3</sup> during 2008/2009, water consumption in Walvis Bay exceeded 5,0mill m<sup>3</sup> per annum for the first time. However, the municipality is satisfied that its water consumption projections are on track (Brummer 2009, Pers. Comm.).

Table 12. Walvis Bay Water Consumption 2004-2009 (Brummer 2009, Pers Comm)<sup>11</sup>

Water Consumption (m <sup>3</sup> )

<sup>9</sup> A global initiative to achieve a significant reduction in the current global loss rate of biological diversity by the year 2010.

<sup>10</sup> A commitment by local authorities to protect and enhance biodiversity at the local level.

<sup>11</sup> Excluding consumption by NamPort.

	04/05	05/06	06/07	07/08	08/09
<b>Kuisebmond</b>	1170845	1149985	1150795	1146520	1160676
<b>Narraville</b>	332624	330665	345592	358662	369494
<b>Fishing Ind</b>	871748	726718	714366	731994	755357
<b>Langstrand</b>	102880	100636	117714	127334	140190
<b>Dolphin Park</b>	40811	30951	33688	40312	71050
<b>Walvis Bay Proper</b>	1945075	1866564	1993140	2243692	2319659
<b>Total</b>	4463983	4205519	4355295	4648314	4816426

The WBM is proceeding with plans for a small pilot desalination plant to supply 60m<sup>3</sup>/hr ( $\pm$ 1300m<sup>3</sup>/d). This plant is anticipated to be operational by mid-February 2010. A pilot plant delivering 20m<sup>3</sup>/hr for industrial use was commissioned at Hangan Seafood Processors in November 2009. Should this project prove viable, the company would consider desalination on a large scale as a hedge against high water tariffs and disruptions to supply (Namib Times, 2009).

Purified effluent to a quality set by Namwater is used for the irrigation of public places such as parks and sports fields.

According to a spokesperson for NamPower the current electricity capacities in the various towns in the region are sufficient for intended development. Walvis Bay consumes an average of 29MVA, and 40MVA is available. In August 2007 the town had a maximum demand of 36 MVA and 34 MVA in May 2008 (Tjizo 2008, pers. com.) No problems for development in the immediate future are foreseen in the town (Kruger 2007. Pers. Comm.). NamPower is currently upgrading the Paratus generating facility by an additional 21.5MW, using diesel powered generator sets. The new facility will be known as Anixas. The parastatal is also investigating the possibility of erecting a coal-fired power station in the vicinity of Walvis Bay. The capacity of such a power station would be between 200MW and 800MW, with an additional 50MW black-start unit. This project is being considered due to the projected demands for electricity by new developments in the region over the next five years.

Walvis Bay sewage infrastructure is currently under investigation as upgrading might be necessary in certain areas. The system works well, but salt presents some problems. A new sewage treatment facility was constructed meet the requirements of Langstrand and Dolphin Park.

### **Housing**

At the end of 2009 an estimated 196 Rössing Uranium employees lived in Walvis Bay. Employees of other mines in the area also live in the town, but it has not been possible to establish their numbers. In addition to mine employees who live in the town, the workforces of contractors to the minerals sector must also be taken into account in estimating the significance of the minerals sector in the economy of the town. Information other than that provided for Rössing Uranium was not available.

Walvis Bay has virtually run out of serviced land and the town is experiencing a critical housing backlog, which a spokesperson for the MWB estimated to be about in excess of

10,000 and growing as a result of the influx generated by the perception of job opportunities. This housing backlog applies to all economic sectors, but it particularly severe in the lower economic group.

One of the problems is the long and complicated bureaucratic procedure for proclaiming new areas for development (MWB, 2008). The MWB reported that it would have approximately 750 unserviced erven ready for planning within three years.<sup>12</sup> These would service all economic sectors, but the emphasis is on the lower and lower-middle income markets sectors, where the demand is. The municipality first has to service those people who are on its waiting list. Currently the waiting list for low-cost housing is about one thousand people and the Namibia Housing Enterprise has a list which is in excess of three thousand. In addition, there were approximately six thousand shack dwellers in need of housing in 2008, and these numbers have reportedly increased significantly (Manale 2008, 2009. Pers. Comm.).

An estate agent in Walvis Bay made the following comments regarding the property market in the town:

- There is a housing shortage in Walvis Bay, caused by developments other than the minerals sector. Nothing is available to rent. This situation is mainly related to developments at the Port of Walvis Bay.
- There are a number of apartments/townhouses which are currently available or will soon be.
- Demand from the minerals sector has had no noticeable effect on the property market.
- Prices have not increased dramatically but have settled at a realistic level, largely as a result of the shortage of credit.
- The Town Council of Walvis Bay will put a large number of erven up for auction in about June 2010.

(van Schalkwyk 2009. Pers. Comm.)

At meetings with stakeholders in Walvis Bay, the concern about backyard shacks was expressed on a number of occasions. The backyard shack culture, which has a major impact on the suburb of Kuisebmond, results in seriously overcrowded, unhygienic and unhealthy living conditions which are conducive to social ills and health risks, particularly TB. Approximately 2/3rds of the population of Walvis Bay live in Kuisebmond, and as many as ten informal dwellings, plus a formal dwelling, have been reported on one erf. The municipality is now taking the problem seriously, as it cannot provide land to keep pace with inward migration. It has approached the MLGHRD for assistance with infrastructure development (Manale 2009. Pers. Comm.).

### **Waste**

The municipality has a landfill site and five compactors to deal with waste. The desert is also used as a location for dumping waste, as the sand quickly covers the material. There are recyclers for plastic, paper and metals (Municipality of Walvis Bay, 2007b).

Hazardous waste is dealt with in an incinerator at the landfill site, which serves the entire region. The hazardous waste site complies with the South African Bureau of Standards requirements as well as international standards, and is one of only two such facilities in

---

<sup>12</sup> It has not been possible to verify this information.



the country. A perceived problem is the lack of control that the municipality has inside the harbour. If hazardous waste from foreign ships is mixed with general waste, municipal officials have no way of knowing. It is hoped that growing industrialization in the town will lead to more stringent government enforcement (Municipality of Walvis Bay, 2007b).

## Education

Table 5 in Appendix 1 shows that, as in Swakopmund, there is a critical lack of capacity in state schools to accommodate new learners. Many Grade 1s have not found place for 2010, and even after the recent intake, the waiting list is still long (Manale 2009, Pers. Comm.)

The discussion in Section 5.2 – Education – is also relevant to Walvis Bay schools.

At Duinesig Combined School learner numbers increased by 53.8% between 2005 and 2009, and those at Tataleni by 28.3% over the same period. Both these schools are in Kuisebmond, the destination for most migrant job seekers. Apart from the urgent need for classrooms, schools also need ablution facilities, a science laboratory, and, in the case of Narraville Primary School, land for extra facilities.

Table 13 reflects the situation with regard to the availability of private schooling in Walvis Bay.

Table 13: Capacity in private schools in Walvis Bay (SPC, 2007).

School	Current no. of learners	Current no. of teachers	Available capacity per grade	School fees
Dolphin Elementary School	98. Not more than 17 learners in a class.	9 teachers	Grades 2 and 4, none. Other grades, 3-5 learners.	Enrolment: N\$18000.00 One child: N\$ 1375.00 monthly Two children: N\$950.00 monthly Three children: N\$720.00 monthly
Montessori Elementary School	Pre-primary, 40 Grades 1-3, 47 learners combined Grades 4-7, 40 learners combined Grades 8 and 9, 44 learners	3 teachers each for elementary and secondary grades, 4 assistant teachers	40 in pre-primary, 10-12 learners In Grades 1-7	Enrolment: N\$ 2000.00 for pre-primary, N\$10,000.00 Grades 1-9 Pre-primary N\$750.00 monthly Grades 1-9 N\$950.00 monthly

As far as learner numbers are concerned, Walvis Bay is the fastest growing town in the country. Every year, in addition to normal growth, the schools start with about 150 more learners than the projected figures for the year. A number of schools are teaching in two shifts, morning and afternoon. The Ministry of Education has bought a crèche in Kuisebmond, and two schools in Tataleni are teaching in two shifts, morning and afternoon. Plans have been approved for a school which will be ready by 2010. This will be a combined primary and secondary school next to Tataleni, and will accommodate 840 children.

The Rogaland Training and Education Centre (RKK), a Norwegian foundation, has established the headquarters for its Africa operations in Walvis Bay. The training institute had signed an agreement with the Namibian Maritime and Fisheries Training Institute to train students from all over the world in maritime affairs (MWB, 2009). This will be an asset to one of the major economic sectors in Walvis Bay and Erongo.

### **Sport, recreation and leisure**

The MWB believes that facilities such as parks and recreation areas are important for the quality of life of the citizens, especially in view of the harsh environment within which the town is situated. Such facilities, especially those for sports, contribute to the economy of the town, and in general they play a role in preserving the ecology and healthy air and water quality.

The town boasts nineteen formal parks and numerous gardens and green belts. There are nine major sports facilities in Kuisebmond and Narraville. The Esplanade around the Walvis Bay Lagoon is popular with residents and tourists alike.

Independence Beach is the only real beach recreation area situated close to a suburb. The area has picnic facilities, and is widely used by the Kuisebmond community, especially over weekends and school holidays, as it is within walking distance of the suburb.

There are three public libraries in the town, in Kuisebmond, Narraville and Walvis Bay proper. In Kuisebmond a multi-purpose centre fulfils a number of community functions, but is mainly devoted to HIV/AIDS initiatives.

In spite of the fact that there are numerous recreation facilities, the needs of the growing population are an issue of concern for the MWB's Department of Community and Economic Development. Satisfying the demand for public recreation spaces needs to be considered against the imperatives to address a housing crisis, unemployment and poverty within a context of financial constraints (Prinsloo 2008, Pers.Com.).

### **Health**

Walvis Bay has one state hospital (120 beds), one private hospital, (50 beds), and five clinics serving urban and rural Walvis Bay. The Walvis Bay Multipurpose Centre houses the New Start Voluntary, Counselling and Testing Centre for HIV/AIDS. The state hospital provides services very largely to the indigent and very poor.

Bed occupancy in the Walvis Bay state hospital, reported as 50% in 2007, has increased to about 70% as a result of the growing population. The main reasons for the admission of in-patients are HIV/AIDs and TB (Turgis Consulting, 2007). The informal settlers and the unemployed are the clients of state medical services. Confidence was expressed that the hospital could cope with a further increase in the population of three thousand, but if this number rose to five thousand, they would start experiencing problems.

The hospital staff has identified ten top health concerns in the town. These are: HIV/AIDs and STDs, TB, employment (linked to poverty and malnutrition), lack of housing and overcrowding, substance abuse, lack of proper food hygiene in the informal trade, lack of community development programmes, environmental pollution and poor implementation of occupational health practices.

The HIV prevalence rate in Walvis Bay is higher than the national figure. The municipality runs internal and external programmes, and works with companies in the town, who have their own programmes, some of them very good. Table 14 shows the status of HIV prevalence in pregnant women as established in the 2008 National HIV Sentinel Survey, and compares it to the national figures.

Table 14. HIV prevalence in pregnant women in Walvis Bay and nationally. (MoHSS, 2008)

Sentinel site	1998	2000	2002	2004	2006	2008
<b>Walvis Bay</b>	29%	28%	25%	26%	22.1%	21.4%
<b>National</b>	17.3%	19.3%	22%	19.7%	19.9%	17.8%

Walvis Bay is a harbour town, and commercial sex is a serious problem. Sex workers participate in HIV/AIDS programmes, but the vicissitudes of their profession do not always allow them to practice safe sex.

Walvis Bay has long been associated with high TB prevalence rates but remarkable progress has been made in controlling the disease during 2009. Figure 13 shows that, since the beginning of 2009, there has been a significant drop of 33% in the total number of TB patients receiving treatment.

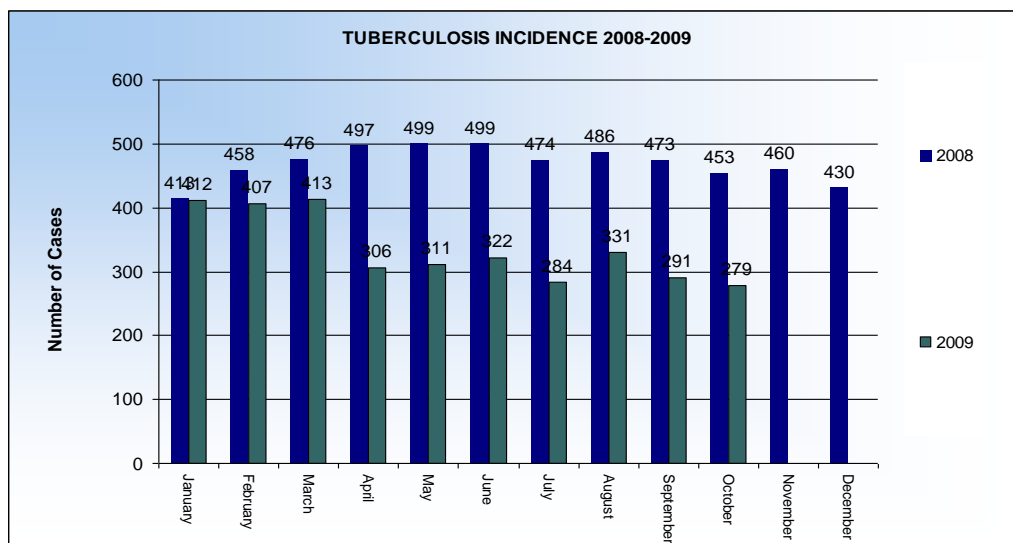


Figure 13. TB incidence in Walvis Bay – 2008/2009. (Dreyer 2009. Pers. Comm.)

The improvement reflected in Figure 15 is ascribed to strengthening of DOT (Direct Observation Treatment) in the town. In 2008, four new DOT points were established in Kuisebmond. With the assistance of the Municipality, the Ministry of Health established four new points in Kuisebmond in 2008 (BayNews, July 2008). Figure 15 does not indicate the numbers of drug-resistant patients, and, as Table 15 shows, these have increased.

Table 15. Drug-resistant TB in Walvis Bay (Dreyer 2009. Pers. Comm.)

Dec	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct
-----	-----	-----	-------	-------	-----	------	------	-----	------	-----

	2008	2009	2009	2009	2009I	2009	2009	2009	2009	2009	2009
Multi-drug resistant cases	42	55	43	31	31	29	30	26	55	65	71
Drug resistant cases	-	-	-	11	11	11	10	8	8	8	17

The state hospital has a block where thirty multi-drug resistant patients could be treated, but it does not have enough staff to do so (Atiogbe 2007. Pers. Comm.).

### *Social concerns*

The health problems discussed above are related to poverty and poor living conditions. Walvis Bay does not have designated areas for informal settlements. Inward migration of job seekers is a problem, as large numbers of these people find accommodation in backyard shacks. The estimated number of people living in such accommodation in 2007 was six thousand (Kruger, Pers. Comm. 2007). The shacks are regarded as the biggest source of TB.

Alcohol and drug abuse, also usually associated with poverty, unemployment and poor living conditions, is a significant problem, and the hospital regularly has to treat the results, such as stab wounds. Further signs of social distress are infanticide and the number of attempted suicides that are treated – at least one every two days. This was ascribed to substance abuse and poverty (Atiogbe, 2007. Pers. Comm.).

The increased inward migration that has been experienced over the last 2 years has consisted mainly of young people. A number of them are skilled, and they include retrenched Namdeb employees. In spite of these skills, they are not finding employment (Manale 2009. Pers. Comm.).

Concern was expressed about possible health impacts emanating from the harbour. The hospital staff reiterated the issue of the possible dumping of hazardous waste by foreign ships. They also stated that, when abrasive blasting is done on ships, they do not know what is in the paint that is being dispersed into the air.

The social and health problems arising from backyard shack dwelling, and the difficulty in ending the practice, are the same as those experienced in Swakopmund. The backyard shack culture is entrenched, provides livelihoods for the landlords and is a sensitive political issue. According to a spokesperson for the Walvis Bay Municipality, the main influx of people is work seekers who have heard about new industries being set up. They normally do not return to their place of origin, but remain in Walvis Bay. This increases the unemployment rate and puts pressure on service provision, such as affordable housing (Kruger 2007. Pers. Comm.).

## 6. Conclusion

The communities in this Study are facing significant changes to their socio-economic and cultural environments. Expectations are high – and in many cases unmanaged – that the mineral sector will have a positive effect on the lives of the community members, and that many of the problems that affect them, such as unemployment, low skills and poverty, will be solved by the boom in the uranium industry. In developing countries, where revenues from the mineral sector are used for national rather than local development plans, it is incumbent on empowered local stakeholders to ensure that environmental justice is done, and that benefits accrue directly to those who experience the negative impacts directly.

The baseline conditions described in this Report will inform the Social Impact Assessment and the Social Management Plan for the Rössing Uranium's Mine Expansion Project.

## 7. References

- Arandis Community Focus Group Meeting. 22 October 2008.
- Atiogbe, S. (2007)** Pers. Comm., Matron, Walvis Bay Hospital, Phone 064 – 216300, Fax **216345**.
- Awaseb, J. (2007)** Pers. Comm. **Regional Director of Education, Erongo Region.**  
jawaseb@eduerongo.in.na
- Awaseb, J. (2008)** Pers. Comm. Regional Director of Education, Erongo Region.  
jawaseb@eduerongo.in.na
- Bank of Namibia (2009)** *Quarterly Bulletin, September 2009*
- Bank of Namibia (2009)** *Quarterly Bulletin, December 2009*
- Chamber of Mines of Namibia, 2007.** *Health, Environment and Radiation Safety (HERS) Meeting, November 9, 2007.*
- CoM (2008).** *Chamber of Mines of Namibia, 2007 Annual Review 2006-2007.*
- CoM (2009).** *Chamber of Mines of Namibia, 2008 Annual Review 2007-2008.*
- CoM (2009a)** *Chamber of Mines Newsletter.* December 2009
- CoM (2010)** *The Uranium Insitute*
- CIA (2007),** *The World Factbook:* <https://www.cia.gov/library/publications/the-world-factbook/index.html>, accessed, July 2007.
- Dreyer D. (2008).** pers. com. Municipality of Walvis Bay. [DDreyer@walvisbaycc.org.na](mailto:DDreyer@walvisbaycc.org.na)
- Dreyer D. (2009).** pers. com. Municipality of Walvis Bay. [DDreyer@walvisbaycc.org.na](mailto:DDreyer@walvisbaycc.org.na)
- Eichas, S. (2008) Pers. Comm.** Erongo Regional Council. Farita@erc.com.na
- Ellmies R (2009)** Strategic Environmental, Social and Economic Assessment for the Central Namib Uranium Rush. Presentation 2009.
- Finweek (2007),** *Namibia, Room to Grow.* September 2007.
- Finweek (2009),** *Namibia, Weathering the Storm.* September 2009
- GRN (1990)** *Constitution of the Republic of Namibia, 1990 (as amended to 1998)*
- GRN (2005).** *Namibia's Vision 2030.* 2005
- GRN (2002)** National Planning Commission, *NDP 2, 2002-2006.*
- GRN, (2008).** *Third National Development Plan (NDP3):2007/08-2011/12.* National Planning Commission.
- GRN, (2009)** *2<sup>nd</sup> Millennium Development Goals Report 2008.*
- Hoadley, E.M., D Atkinson, D Limpitlaw and J Tarr (2005).** *Arandis Socio-Economic Baseline Study.* A report commissioned by The Arandis Town Council, The Rössing Foundation and Rössing Uranium Ltd. 2005
- Hoadley, M & D Limpitlaw (2009).** *Socio-economic Baseline Study of the Spitzkoppe Community.* A Report commissioned by Areva Resources Namibia. 2009
- Hoadley, M (2009).** *Baseline Overview of Community Development Organisations in Walvis Bay and Swakopmund.* Unpublished Report commissioned by Rio Tinto Rössing Uranium Limited. 2009
- Hooks, L (2009).** **Pers. Comm.** Swakopmund Christian Academy. acenamib@mweb.com.na
- Horn, A (2009).** Pers. com. Rössing Uranium. Amanda.Horn@riotinto.com
- Husselman, F (2008).** Pers. com. CEO, Arandis Town Council. 064 64510171

**Husselman, F (2009).** Pers. com. CEO, Arandis Town Council. 064 64510171

**Institute for Public Policy Research, (2004)** *SME Development and Impact Assessment 2004, IPPR Discussion Paper No. 1.* May 2005.

**Institute for Public Policy Research (2004)** *Namibia Labour Force Survey, 2004.*

**Kruger, G (2007),** pers. com. Manager, Economic Development, Municipality of Walvis Bay. [gkruger@walvisbaycc.org.na](mailto:gkruger@walvisbaycc.org.na)

**Kruger, G (2009), Pers. Comm.** Manager, Economic Development, Municipality of Walvis Bay. [gkruger@walvisbaycc.org.na](mailto:gkruger@walvisbaycc.org.na)

**Kubirske, R (2009) Pers. Comm.** Municipality of Swakopmund. rkubirske@swkmun.com.na

**Lawrence C, (2007) Pers. Comm.** Municipality of Swakopmund. clawrence@swkmun.com.na

**Lawrence C, (2008) Pers. Comm.** Municipality of Swakopmund. clawrence@swkmun.com.na

**Lawrence C, (2009) Pers. Comm.** Municipality of Swakopmund. [clawrence@swkmun.com.na](mailto:clawrence@swkmun.com.na)

**Lux-Development, 2009.** *Workshop on the key issues and challenges in developing vocational training. Luxembourg, 30 June and 1 July 2009* [http://www.lux-development.lu/workshop/vet/docs/NAM\\_uk.doc](http://www.lux-development.lu/workshop/vet/docs/NAM_uk.doc). Accessed December 2009.

**Manale, J (2009) Pers. Comm.** Walvis Bay Municipality. JManale@walvisbaycc.org.na

**Ministry of Health and Social Services, (2007)**  
[www.healthnet.org.na/grnmhss/docs/HINNAM5.pdf](http://www.healthnet.org.na/grnmhss/docs/HINNAM5.pdf) Accessed September 2007.

**Ministry of Health and Social Services, (2009)** [www.healthnet.org.na/.../Statement%20-Inauguration%20of%20the%20Atomic%20Energy%20Board.pdf](http://www.healthnet.org.na/.../Statement%20-Inauguration%20of%20the%20Atomic%20Energy%20Board.pdf) Accessed October 2009

**Mueller, E. (2008).** Pers. Comm. NIMT. ho@nimt.namibia.com

**Municipality of Walvis Bay, (2005)** <http://www.walvisbaycc.org.na/industries.htm>. Accessed October 2007.

**Municipality of Walvis Bay, (2007a).** *Bay News, September/October, 2007.*  
<http://www.walvisbaycc.org.na/Baynews.pdf> Accessed November 2007

**Municipality of Walvis Bay, (2007b).** Focus Group Meeting, 20 September, 2007.

**Ministry of Education (2009)** Proposal for Project: Swakopmund Combined School, Walvis Bay Combined School, Erongo Regional Office, 2009.

**Namibia Economist (2007).** *The Changing Face of Walvis Bay 22 June 2007.*  
<http://www.economist.com.na/content/view/952/33/> Accessed October 2007.

**Namibia Economist (2007).** *Economy, manufacturing sector growth dodge Vision 2030.* 19 October 2007. <http://www.economist.com.na/content/view/2052/33/> Accessed October 2007.

**Namibia Economist (2009).** *Terminal expansion unlocks more gates July 2009.*  
[http://www.economist.com.na/index.php?option=com\\_content&view=article&catid=533](http://www.economist.com.na/index.php?option=com_content&view=article&catid=533): Accessed October 2009.

**Namibia Economist 2009.** *Property market boom in Swakopmund.* 5 September 2009.  
[http://www.economist.com.na/index.php?option=com\\_content&view=article&id=19684:property-market-boom-in-swakopmund&catid=539:general-news&Itemid=60](http://www.economist.com.na/index.php?option=com_content&view=article&id=19684:property-market-boom-in-swakopmund&catid=539:general-news&Itemid=60) Accessed November 2009

**NINHAM SHAND (2009).** *Environmental and Socio-Economic Impact Assessment: Proposed 200/400/800 MW Coal-Fired Power Station and Additional Black Start Generation Facility at Walvis Bay, Namibia.* Final Scoping Report, Report No. 4727/402633

**Ondingo, P. (2007) Pers. Comm.** Rössing Foundation. [pondingo@rossing.com.na](mailto:pondingo@rossing.com.na)

**Paseko, WA (2008) Pers. Comm.** Officer-in-Charge, Nampol, Arandis. 064 510018

**Permanent Joint Technical Commission (2009)** *BAYNES HYDROPOWER SCHEME ON THE LOWER CUNENE*  
[www.erm.com/.../Scoping\\_Presentation\\_Baynes\\_Background.pdf](http://www.erm.com/.../Scoping_Presentation_Baynes_Background.pdf)? Accessed November 2009

**Republikein, Die (2007)** *Ontsountingsaanleg Open 2009*. 27 November, 2007.

**Rio Tinto Economics Department, (2003)**. *The future of Rössing: Economic footprints and alternative scenarios*. 2003

**Roeis, R. D (2006)**. **Pers. Comm.** Department of Water Affairs, Ministry of Agriculture, Water and rural Development. [roeisr@iway.na](mailto:roeisr@iway.na)

**Rössing Foundation (2008)**. 30. *The Rössing Foundation, 1978-2008*

**Rössing Uranium (2009)** *2008 Report to Stakeholders*.

**Schweiger, G. (2009)**. **Pers. Comm.** Manager, Nel's Estates, Swakopmund. [christine@nels-estates.com.na](mailto:christine@nels-estates.com.na)

**Stubenrauch Planning Consultants cc, (2007)** *Study and Strategy Development of Rössing Uranium Limited*.

**Swakopmund Town Council (2006a)** Mayoral Report, 2006. <http://www.swkmun.com.na/>  
Accessed September 2007

**Swakopmund Town Council (2006b)** Budget Speech, 2006. <http://www.swkmun.com.na/>  
Accessed September 2007

**Swakopmund Lighthouse (2009)** <http://www.swkmun.com.na/>. Accessed November 2009.

**Swart, M (2007)** **Pers. Comm.**, Jobs Unlimited, Swakopmund. [swakop@jobsunlimited.namibia.cc](mailto:swakop@jobsunlimited.namibia.cc)

**Swiegers, W. (2007)** **Pers. Comm.** Chamber of Mines of Namibia. [docwotan@iway.na](mailto:docwotan@iway.na)

**The Namibian, (2006)**. *Jobless Rate Officially 36.7%. 14 June 2006*.  
<http://www.namibian.com.na/2006/July/national/0635CB6F3C.html>. Accessed November 2008

**The Namibian (2008)**. *Population explosion a nightmare for Swakop*. 24 July 2008.  
[http://www.namibian.com.na/index.php?id=28&tx\\_ttnews%5Btt\\_news%5D=46501&no\\_cache=1](http://www.namibian.com.na/index.php?id=28&tx_ttnews%5Btt_news%5D=46501&no_cache=1).  
Accessed November 2009

**The Southern African Institute for Environmental Assessment, (2007)**. *Namibian Coast Conservation and Management ("NACOMA") Project. Review of existing institutional mandates, policies and laws relating to coastal management, and proposals for change*. 2007

**Tjiho, J (2009)** **Pers. Comm.** Rössing Foundation. [Job.Tjiho@riotinto.com](mailto:Job.Tjiho@riotinto.com)

**Tshiteta, Dr. (2007 & 2010)** **Pers. Comm.** Chief Medical Officer and Acting Regional Director, Health, Erongo. [tshiteta@iway.na](mailto:tshiteta@iway.na)

**Turgis Consulting (Pty.) Ltd. (2007)** *Report of the Environmental and Social Impact Assessment, Trekkopje Uranium Project Erongo Region, Namibia*. November 2007.

**Turpie, J, G. Lange, R. Martin, R Davies & J Barnes (2005)**. *Economic Analysis and Feasibility Study for Financing Namibia's Protected Areas*,  
[http://www.gefweb.org/Documents/Council\\_Documents/GEF\\_C25/BD-Namibia-SPAN\\_PRO\\_DOC\\_April\\_14\\_2005-3.pdf](http://www.gefweb.org/Documents/Council_Documents/GEF_C25/BD-Namibia-SPAN_PRO_DOC_April_14_2005-3.pdf). Accessed April 2006.

**United Nations Development Programme (2009)** *Human Development Report 2009*

**Uranium Investing News (2009)**  
[www.u3o8.biz/s/MarketCommentary.asp?ReportID=363571](http://www.u3o8.biz/s/MarketCommentary.asp?ReportID=363571) Accessed February 2010

**Uusiku, L. (2009)**. **Pers. Comm.** Rössing Foundation. [Lysias.Uusiku@rossing.com.na](mailto:Lysias.Uusiku@rossing.com.na)

**Venter, W (2009)** **Pers. Comm.** 10 December 2009. *Senior Manager: Fixed Asset Management, NamWater*. [VenterW@namwater.com.na](mailto:VenterW@namwater.com.na)

**Van Schalkwyk, J. (2009)**. **Pers. Comm.** Manager, J&B Estates. [june@jbestates.com.na](mailto:june@jbestates.com.na)

**Ward P. & M Niehaus, (2003)** *Feasibility study undertaken to determine the potential for tourism development in Arandis*. A report commissioned by Rössing Uranium Ltd.

**Walvis Bay Municipality (2009)**. <http://www.walvisbaycc.org.na/n196.htm>, accessed October 2009.



**World Travel and Tourism Council, 2009.** *Namibia The Impact of Travel & Tourism on Jobs and the Economy* <http://www.wttc.org>. Accessed February 2010

**World Travel and Tourism Council, 2010.**

[http://www.wttc.org/eng/Tourism\\_News/Press\\_Releases/](http://www.wttc.org/eng/Tourism_News/Press_Releases/) Accessed February 2010

**Ya Ndakolo, the Hon. P. (2007) Pers. Comm.**, Regional Governor, Oshikoto Regional Council

**Socio-Economic Component of the Social and  
Environmental Impact Assessment Report for**

**RIO TINTO RÖSSING URANIUM LIMITED MINE  
EXPANSION PROJECT**

**Socio-Economic Impact Assessment &  
Recommendations for a Socio-Economic  
Management Plan**

January 2010

**Marie Hoadley**

**Social Impact Assessment**

+27 (0) 83 6579375

+264 (0) 81 3280409

[marieheadley@iafrica.com](mailto:marieheadley@iafrica.com)

# Contents page

<b>1. Introduction to the Socio-Economic Impact Assessment Report</b>	<b>4</b>
The purpose and nature of an SIA	5
Terms of reference	5
<b>2. Methodology</b>	<b>7</b>
Introduction – the scoping phase	7
Identification, assessment and categorisation of expected impacts	7
<b>3. Potential socio-economic impacts of Rössing Uranium’s Mine Expansion Project.</b>	<b>8</b>
Cross-cutting issues	8
Cumulative socio-economic impacts	8
Format	9
<b>4. Impacts</b>	<b>10</b>
Impact No. 1. The sustainability of Arandis	10
Impact No. 2. Construction Camps	11
Impacts No. 3 & 4. Employment creation	13
Impact No. 5. Public health and safety	16
Impacts No. 6 & 7. Housing and accommodation	19
Impact No. 8. Local economies	21
Impact No. 9. Inward migration	22
Impact No. 10. Social services	23
Impacts No. 11 & 12. Infrastructure	25
Impact No. 11. Road Traffic	25
Impact No. 12. Water	28
Energy	32
<b>5. Recommendations for a Socio-Economic Management Plan</b>	<b>38</b>
<b>6. Conclusion – significance before and after intervention</b>	<b>45</b>
<b>References</b>	<b>48</b>

## List of Figures

Figure 1: Projected employment at Rössing Uranium: 2007-2026.....	14
Figure 2. Namibian demand forecast scenarios.....	35
Figure 3: Energy availability and sources of supply Namibia. 2008-2009.....	36
Figure 4: Rössing Uranium's current proportion of Namibian consumption .....	36
Figure 5: Projected available sources to meet demand in 2012.....	36
Figure 6: Rössing Uranium's current energy off-take and future requirements.. .....	37
Figure 7:Rössing Uranium's potential reduction of energy requirements.....	37

## List of Tables

Table 1.	Impact 1: The sustainability of Arandis.....	10
Table 2.	Impact 2: Construction Camp.....	12
Table 3.	Impact 3: Employment creation - construction.....	14
Table 4.	Impact 4: Employment creation - operation .....	15
Table 5.	Impact 5: Public health and safety .....	18
Table 6.	Impact 6: Property markets.....	20
Table 7.	Impact 7: Accommodation for the new workforce of Rössing Uranium ....	20
Table 8.	Impact 8: Local and Regional economies .....	22
Table 9.	Impact 9: Inward migration .....	23
Table 10.	Impact 10: Education.....	24
Table 11.	Impact 11. Road use .....	28
Table 12.	Projected water requirements of Namibian uranium mines .....	29
Table 13.	Rössing Uranium water consumption/reclamation 2004-2008.....	30
Table 14.	Water consumption in the Erongo coastal region.....	31
Table 15.	Impact 12. Water.....	32
Table 16:	Namibia electricity demand and supply - 2010.....	33
Table 17:	Namibia energy demand and sourcing options, 2012 .....	34
Table 18.	Domestic generation projects with a high potential to proceed. ....	34
Table 19.	Rössing Uranium – current consumption and future requirements.....	35

# 1. Introduction to the Socio-Economic Impact Assessment Report

Social Impact Assessment includes the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment (IAIA, 2003).

The Socio-Economic Impact Assessment (SIA) will assess potential impacts arising from the proposed Mine Expansion Project. This report revises the Socio-Economic Impact Assessment contained in the Social and Environmental Impact Assessment: Proposed Expansion Project for the Rössing Uranium Mine in Namibia: Phase 1 (Ninham Shand 2008). A revision of the first socio-economic report is necessary due to changes in the receiving environment.

This SIA forms part of the integrated Social and Environmental Impact Assessment (SEIA) commissioned by Rio Tinto Rössing Uranium Limited (Rio Tinto) for its proposed expansion project. The assessment is guided, in particular, by the following:

- the Constitution of Namibia (1990) in which the principles of sustainable development are implicit: the “State shall actively promote and maintain the welfare of the people by adopting policies aimed at the maintenance of ecosystems, essential ecological processes and biological diversity of Namibia, and utilisation of living natural resources on a sustainable basis for the benefits of all Namibians, both present and future”.
- the objectives of Namibia’s Environmental Management Act, (Act No. 7, 2007), which are to ensure:
  - that the significant effects of activities on the environment are considered in time and carefully, and
  - that there are opportunities for timeous participation of interested and affected parties throughout the assessment process.

Of particular relevance to this report are the provisions in Part 11 of the Act, which states that:

- renewable resources must be used on a sustainable basis for the benefit of present and future generations,
- community involvement in natural resources management and the sharing of benefits arising from the use of the resources, must be promoted and facilitated, the participation of all interested and affected parties must be promoted, and
- decisions must take into account the interest, needs and values of interested and affected parties.
- Rio Tinto’s social impact assessment guidance which requires:
  - that analyses are based on a scoping phase and a baseline study,
  - wide, appropriate and inclusive consultation with those who are affected by, or can affect, the project,
  - assessment of socio-cultural changes, socio-economic variations, health issues and environmentally induced effects.
- The Draft Regulations for Environmental Impact Assessment (EIA) issued by the Ministry of Environment and Tourism in April 2008. These regulations set out the

required content and format of an impact assessment report, and provide for public participation and input into the content thereof.

## **The purpose and nature of an SIA**

A project proponent must ensure that parties who are interested in and/or likely to be affected by the proposed project are fully informed and consulted. This SIA addresses the concerns and issues raised by stakeholders during the concurrent Public Participation Process. It also addresses issues that may not have been raised by stakeholders, but were identified in the course of the research for this assessment.

A SIA cannot dictate the way in which the project is developed. It is undertaken before development activities start, and it methodically examines the range of socio-economic and cultural contexts of any community, institution, organisation or individual that could be impacted by the proposed development. It identifies potential impacts, both negative and beneficial. In so doing, an SIA can influence the planning process by presenting project proponents with alternative development possibilities and a sound basis for their decisions.

A SIA cannot produce conclusive or empirical statements about the results of impacts. Impacts are identified and assessed against conditions in the receiving environment, which is not a static one, and in terms of the future, which is never certain. Because a community consists of interlinked activities, trends, problems and circumstances, impacts cannot be assessed on a stand-alone basis. Mitigation of one negative impact very often depends on the mitigation of another, and potential benefits may possibly not be optimized because a negative baseline condition or future impact cannot be mitigated. The SIA will necessarily arrive at conclusions which will, to some degree, be subjective, but it must be informed by:

- wide public participation and consultation which incorporates the perceptions of all potentially affected parties as to the possible impacts,
- sound baseline information on the current situation of the potentially impacted people and/or communities, and
- professional judgment based on experience in communities that have already been exposed to similar development projects in similar environments.

A requirement in impact assessments, particularly in developing countries, is to ensure the inclusion of vulnerable and marginalised groups in the participatory process. The interests of marginalised groups and affected communities have informed this report.

## **Terms of reference**

This SIA has been conducted in accordance with the terms of reference, which require a study of the potential social and economic impacts of the envisaged Mine Expansion Project. The particular terms of reference were to:

- undertake a desktop study of current literature on social impact assessments, Namibian legislation and policy, the development environment in Namibia and existing information on the communities of interest,
- establish socio-economic baselines of the impacted environments which will serve to guide Rössing Uranium's management plans, social development programmes and mine closure plans,
- undertake wide, inclusive, transparent and ongoing public participation and consultation,

- assess the identified impacts, and
- develop avoidance/mitigation/enhancement measures.

## 2. Methodology

### **Introduction – the scoping phase**

This SIA forms part of the integrated Social and Environmental Impact Assessment (SEIA) for the Rössing Uranium Mine Expansion Project. Project planning meetings were conducted to ensure that the public participation process addressed the stakeholders' concerns relevant to both the environmental and the socio-economic assessments.

Rössing Uranium provided extensive background literature: assessments, reviews, reports, baseline studies, stakeholder engagement outcomes, projections and closure plans. Gaps were addressed, and information updated, mainly by focus group and key informant meetings. Electronic and telephonic questionnaires were also administered.

### **Identification, assessment and categorisation of expected impacts**

The public participation process, stakeholder engagement, knowledge of the mining process and the literature surveys facilitated the identification of critical areas to be addressed. A consideration of the resources, capacity and resilience of the receiving environment to cope with potential negative aspects, or maximise potential benefits, made the identification of likely impacts possible. In summary, the following aspects influenced the identification of impacts:

- the socio-economic baseline conditions in the communities of interest,
- the historical reaction of communities to large-scale impacts,
- knowledge of the sustainability of communities,
- the national and regional developmental context of the communities,
- the capacity of major stakeholders,
- input from the public participation process,
- experiences of communities in similar contexts and with similar socio-economic profiles, and in particular of communities that are dependent on a single or dominant economic base,
- input from Rössing Uranium, and
- professional opinion and experience.

A standardised and internationally recognised methodology is applied to assess the significance of the potential environmental impacts of Rössing Uranium's expansion project. This methodology is set out in detail in the integrated SEIA. It should be noted that this methodology is not optimal for socio-economic impacts which are subject to a wide range of nuances. This impact assessment stays within the ranking categories required by the Terms of Reference, but the definition of the rating category may change. Accordingly, explanatory notes are included with the ratings where necessary.



### 3. Potential socio-economic impacts of Rössing Uranium's Mine Expansion Project.

#### **Cross-cutting issues**

The consultation process for the SEIA process was comprehensive and inclusive, and resulted in the identification of cross-cutting issues across stakeholder boundaries. The categorisation integrates these cross-cutting issues and also reflects the commonality between stakeholders of many of the expected impacts. A number of specialist studies have been conducted, and where these address the socio-economic aspects of particular impacts, the impacts are not dealt with in detail in this assessment. Identified cross-cutting issues that have been subjected to specialist research are:

- noise,
- vibration,
- visual impact
- archaeology,
- radioactivity and public dose,
- water consumption,
- air quality, and
- traffic.

The Rössing Uranium Mine Expansion Project is to proceed in two phases. The components of Phase 1 are:

- a sulphuric acid plant and associated storage and transport,
- a radiometric ore sorter plant, and
- the mining of an ore body known as SK4.
- 

Phase 2 will consist of:

- extension of current SJ open pit mining activity,
- increased waste rock disposal capacity,
- increased tailings disposal capacity,
- establishing an acid heap leaching facility, and
- establishing a ripios disposal area.

#### **Cumulative socio-economic impacts**

A cumulative socio-economic impact is an impact which occurs:

- in a receiving environment which is experiencing, has experienced, or may experience similar impacts in the future;
- where there is the potential for synergistic interaction between impacts (i.e. the net impact is greater than the sum of the component impacts), and/or
- where economic or social thresholds may be breached by a number of consecutive or simultaneous impacts, which individually may have not have resulted in impacts.

The brief for this assessment was to identify and assess the potential impacts associated with the activities of Rössing Uranium's Mine Expansion Project. In the context of the current

expansion of uranium mining in Erongo Region, it is not longer feasible to assess the impacts of one mine in isolation. In this assessment, all the impacts already are, or will become cumulative. The success of interventions to avoid or mitigate negative impacts will depend on co-operative measures taken by the various mining operations.

It is very possible that the rating of impacts in this assessment will change significantly when these impacts are assessed as cumulative. Particular reference should be made to Impact No.1. in Section 4 below. Rössing Uranium may be successful in lessening Arandis' dependency on the company, but it is possible that the town's economy may become economically dependent on income from the other mines commencing operations in the area.

## **Format**

The format for the discussion of impacts is as follows:

- statement of the issue,
- discussion of the issue with regard to the location of the impact and the receiving environment,
- statement of the impact and categorisation before intervention<sup>1</sup>, and
- discussion of the basis for the categorisation. The non-empirical nature of conclusions about social issues means that some assumptions have to be made, both in the identification and assessment of the impacts and in the avoidance/mitigation/optimization measures.

---

<sup>1</sup> The assessment criterion for Reversibility is not applied to positive impacts.

## 4. Impacts

### **Impact No. 1. The sustainability of Arandis**

Currently Rössing Uranium owns 11 houses and 25 single quarters in Arandis and pays rent to the Town Council of Arandis (TCA) for an additional 55 houses for accommodation for Rössing Uranium employees. The company's direct contribution to the income of the TCA does not represent a remarkably substantial one. However, when the direct contribution of Rössing Uranium employees to the revenue of the town for housing, services and rates is taken into account, the economic impact of the company is significant. In 2005, more than 50% of the economic input into the town was derived from Rössing Uranium or the company's employees, and in 2009 one-third of the households were directly supported by mine salaries.

It was not possible to estimate the value of inputs into the Arandis economy other than the above. However, these are material, and include support from Rössing Uranium for local procurement and services, Corporate Social Investment spend, such as replacement of the water reticulation system, and indirect support, via the Rössing Foundation, for capacity building in the TCA and the community. It can safely be assumed that the economic dependence of the town on Rössing Uranium is of a magnitude that makes it vulnerable to changes that affect the continuity of direct and indirect inputs from the company. Additional complications are that the town's economy has never diversified, that it has not shed its dependency on Rössing Uranium and that the community has not shown the resilience to recover from shocks and setbacks.

Rössing Uranium has a corporate social responsibility not to intensify the relationship of dependency that exists between the company and the town. Mining companies are required to ensure the sustainability of the communities within their sphere of influence, which would, in this case, require that Rössing Uranium supports initiatives to promote the diversification of the town's economy and weaken the relationship of dependency.

This impact has been identified and ranked only from the aspect of Rössing Uranium's involvement in the economy of the town. It does not discuss the cumulative impact of mining-related investment which is currently coming into the town, and which could very well counteract the company's initiatives to promote the sustainability of Arandis.

**Table 1. Impact 1:**

**Increased investment by Rössing Uranium in Arandis, which will be required for the purposes of the Mine Expansion Project, will increase the town's economic dependence on the company and could magnify negative impacts in the event of closure or significant downscaling of Rössing Uranium's operations.**

---

Nature	Cumulative	The cumulative nature of the impact resides in the presence in the town of other mining companies who have employed residents for exploration and construction activities and service provision. Significant numbers of contract workers have found accommodation in the town. There are also indications that some of these companies will house the larger part of their workforce in Arandis.
	Negative	

---

Magnitude	High	The Mine Expansion Project could intensify the negative impacts of closure or significant downscale. These impacts could result in natural processes and cultural, social and economic functions being altered to the extent where the impacted environment deteriorates severely.
Duration	Long-term/ permanent	The duration will be long-term. Arandis has been particularly resistant to developing self-reliance and economic diversity. The history of the town, and of other mining towns that have been impacted by downscaling and/or closure, shows that economic regeneration is extremely difficult, and the required resources will, in all likelihood, not be available in Arandis.  The impact will be experienced during decommissioning, closure and post-closure.
Extent	Local Regional National	The impact will be felt nationally. An economy based on non-renewable resources, as the Arandis economy is, will collapse when the resource is depleted. The resultant loss of jobs will impact locally on individuals, families, local authorities and the local economy in general. Nationally, contributions to the Social Fund will decrease but demands on the Fund will increase, and labour-sending areas will lose an important source of income and livelihoods. Regionally the levels of unemployment and indigency may increase, placing a strain on social services such as health. Locally, in Arandis, the effects of the impact will be an out-migration of skills, increased indigency in the town and a return to a skewed demographic profile and the characteristics of a post-closure mining community.
Probability	Definite	The impact will definitely occur. The literature on communities dependant on a single or dominant economic activity shows that they have only survived the cessation of that activity with careful, timeous and co-operative planning. Even then, the challenges have been formidable.
Significance	High	In view of the weakness of structures to support sustainable development in Arandis, and the resultant vulnerability of the economy and the community to shocks, the significance is rated as high.
Reversibility	Medium	The projected closure date for Rössing Uranium is 2023, and the company has thirteen years to contribute to the sustainability of Arandis by decreasing the town's dependence on the mine and promoting initiatives aimed at economic diversification.
Confidence	Certain	The assessment of this impact is based on a wealth of information and a sound understanding of the socio-economic factors potentially influencing the impact.

## Impact No. 2. Construction Camps

Construction is commonly the most labour-intensive phase of any mining operation. Workers are employed on a contract basis and are often not permanent residents in the area. As a consequence, additional accommodation is required, and where the workforce is large, construction camps are usually established.

A construction camp will be required during the construction of the heap leach facility. The construction period will last approximately 18 months, and during that period an estimated 200-250 construction workers will require accommodation in such temporary facilities. The Social Management Plan will make recommendations about the location of the construction camp, its management and limitations on the size of the workforce to be housed there.

The social impacts of construction camps can be significant. Large numbers of single workers are without the normal distractions, duties and entertainment of family life. Alcohol abuse and an increase in commercial sex worker activity are common. This poses a risk to the health of the community and the workers, particularly with regard to HIV/AIDS and sexually transmitted diseases, and alcohol abuse increases the possibility of violent behaviour. The relatively high income earned by contract workers can create imbalances in local communities. Inflation in the prices of local goods and services can result in profiteering by some and loss of access to goods and services by poorer members of the community. The local economy will experience a level of decline once the construction phase ends.

The presence of a large number of construction workers raises the potential for local discontent. During public consultation processes for other projects in Arandis, women expressed concern about the possible proximity of a construction camp. Resentment was expressed by community members towards constructions workers who had been employed at the perceived expense of locals (Hoadley, 2005; Turgis Consulting 2007). Signs of nascent xenophobia are also discernable (Husselmann 2009. Pers. Comm.).

Ignorance of local customs and practices can result in tension and long-term damage to the social fabric of host communities as young people reject entrenched mores in favour of new practices brought in by the construction workers.

During the time of the Arandis Socio-Economic Baseline Study (Hoadley, *et al*, 2005) it emerged that the accommodation in the town that was most neglected was that occupied by contractor workers. As home ownership usually leads to care for property, it is reasonable to assume that houses that are occupied by construction workers will, when they are vacated, need restoring.

The most feasible town within which to establish a construction camp is Arandis, and requests from other companies for permission to establish a construction camp have been received by the Council. The town is close to the Rössing Uranium mine, it has all the required services, such a location would not increase traffic on the B2 between Rössing Uranium and the coast and there is space on the periphery of the town for a camp.

**Table 2. Impact 2:  
The housing of a large construction workforce in Arandis will disrupt the social, cultural, natural and economic functions of the community.**

Nature	Negative	
Magnitude	Medium	Natural processes and cultural and social functions will continue, but in a modified way.
Duration	Medium-term	The impact will persist for the duration of the construction period and the effects may endure for a considerable period of time after construction ends.

Extent	Local	The impact will be restricted to the Arandis community
Probability	Definite	Historical precedent, concerns expressed by stakeholders and the baseline conditions in small communities in the study indicate that this impact will definitely occur.
Significance	High	The negative consequences of the impact exceed the accepted parameters for progress in sustainable development within the impacted environment and residual impacts are likely to persist in spite of mitigation measures.
Reversibility	Irreversible	The impact is irreversible and residual impacts will manifest long after the closure of a construction camp.
Confidence	Certain	The assessment of this impact is based on a wealth of information and a sound understanding of the social factors potentially influencing the impact.

### Impacts No. 3 and 4. Employment creation

Unemployment levels in Rössing Uranium's communities of interest are high, and the majority of unemployed people are unskilled or have low-level skills.

The construction phase of a mining project is generally labour intensive and usually employs more people than are required during the operational phase. The number of jobs created for the construction phase must be weighed against the temporary nature of the employment. Many construction workers form part of the permanent workforce of contractors, but in view of the scale of construction activities in the region, additional workers will be required. Thus the Mine Expansion Project will contribute to the stability and continuity of employment and create additional employment during construction.

Figure 1 shows that, under steady-state operating conditions, Rössing Uranium's expansion projects will create a significant number of jobs between 2007 and 2023. As with most modern mining operations, these jobs are predominantly skilled and thus beyond the immediate reach of the majority of the unemployed in Erongo Region.

The benefit of the employment created by Rössing Uranium's Mine Expansion Project will be magnified through the economy by the multiplier effect whereby one job on the mine potentially results in several secondary/tertiary sector jobs. This creates further employment and stimulates development.

Secondary industries and commercial enterprises will be needed to further meet the needs of the mine for contract services and the needs of consumers as more expendable cash becomes available in the towns. The need for additional housing and business premises will stimulate the building industry.

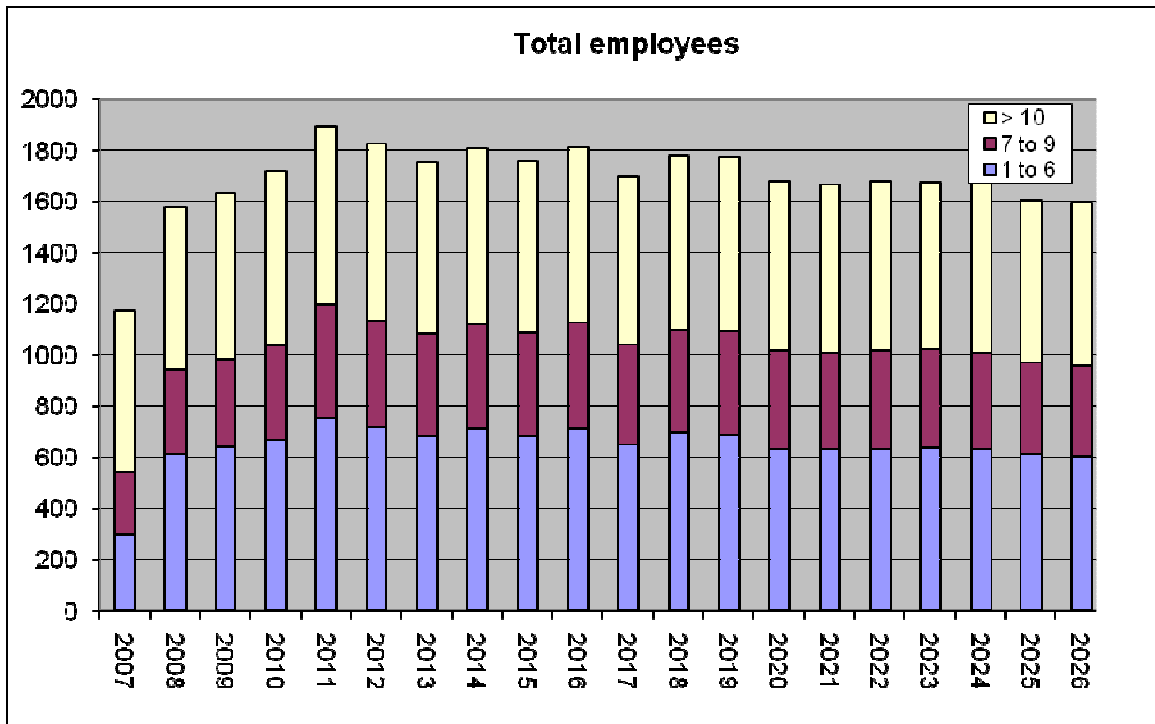


Figure 1: Projected employment at Rössing Uranium: 2007-2026. Employment at the various Patterson Grades (1- >10) is also shown.

**Table 3. Impact 3:**

**The construction phase of Rössing Uranium’s mine expansion project will provide employment opportunities and development benefits.**

Nature	Positive	Employment opportunities are created in an environment of high unemployment and job uncertainty. Opportunities for training and skills upgrading will be created.
Magnitude	Medium	The opportunities for livelihoods and the enhancement of socio-economic conditions are noticeably increased. There will be a temporary improvement of the unemployment situation, and the magnitude of the impact is limited by the fact that some of the workers employed during construction will already be in employment with the different contractors.
Duration	Long-term	The need for construction workers will cease in the short-term but the benefits of training and skills enhancement could make the duration of the impact long-term. The direct impact will be felt during the construction phase.
Extent	National	Locally, regionally and nationally, employment will be created. Local economies will benefit from an increased inflow of cash. Remittances to labour-sending areas will benefit dependants living there.
Probability	Definite	Additional employees will be needed during construction

Significance	Medium	The significance is medium due to the limited duration of employment and training opportunities. If the opportunities for skills acquisition during the construction phase are exploited, construction workers could be in a better position to take up permanent employment when construction is completed.
Reversibility	n/a	
Confidence	Certain	The assessment of this impact is based on a wealth of information and a sound understanding of the environmental factors potentially influencing the impact.

**Table 4. Impact 4:  
The operational phase of Rössing Uranium’s mine expansion project will provide long-term employment opportunities and development benefits.**

Nature	Positive Cumulative	Fewer jobs will be created during the operational phase, but they will essentially be permanent, creating opportunities for training, advancement in the workplace and livelihoods security.  The impact will be cumulative, as other mines will be hiring workers on a permanent basis as they go into the operational phase. Some have already done so.
Magnitude	High	The opportunities for livelihoods and the enhancement of socio-economic conditions are noticeably increased.
Duration	Long-term	The impact will be long-term and, with optimization, the benefits could last well beyond mine closure. The direct impact will occur during the operational phase of the mine.
Extent	Local Regional National	The benefits will be experienced nationally, given the wide range of origins of the labour pool available for employment and the support, via remittances, for livelihoods in the labour-sending areas.  There will be a marked impact on the surrounding economies, through direct cash injection, and on the developmental capacity of local authorities as more service charges and rates become payable.
Probability	Definite	This impact will definitely occur. Rössing Uranium will require additional employees as a result of the expansion, and the company has a history of providing skills training to its workforce, and of long service by employees.
Significance	Medium	The impact is of medium significance, but the optimisation potential is high. While mainly skilled/semi-skilled posts are available, the long-term nature of the jobs means that training programmes can be put in place to benefit employees at all levels. With diversified training, employees will also be in a better position to enter self-employment and so become creators of employment themselves.
Reversibility	n/a	
Confidence	Certain	The assessment of this impact is based on a wealth of information and a sound understanding of the socio-economic factors potentially influencing the impact.



## **Impact No. 5. Public health and safety**

Public health and safety impacts resulting from Rössing Uranium's activities can arise from either on-site or of off-site hazards.

The first group are broadly similar to the impacts that the workforce could be exposed to, as described in the Social and Environmental Impact Assessment Report, but the risk level is usually lower because the public is not actually performing work on site. Such impacts can be effectively managed by applying rigorous visitor induction programmes, ensuring that all visitors are guided by OHS-trained officials when on site and by providing adequate personal protective equipment.

The second group of potential impacts that could raise public concern arise from:

- dust generation,
- potential migration of pollutants down the Khan and Swakop Rivers,
- transport of material and product to and from the mine,
- operational hazards, such as blasting,
- catastrophic failure, such as collapse of the tailings dam.

The last example is not considered here as it is more appropriately addressed elsewhere. This impact deals only with those aspects of noise, vibration and dust which fall within the scope of a socio-economic assessment rather than a technical assessment. Traffic and transport impacts have been subject to a specialist study and are also considered under Impact No 11 in this report. Groundwater is the subject of a specialist study, and the response to public concerns by Rössing Uranium is discussed under Impact No 12.

Dust generation and pollution are biophysical impacts that have socio-economic dimensions as they potentially affect health and livelihoods. Blasting operations too, can have socio-economic effects, as they may affect the health and safety of adjacent communities and cause damage to infrastructure.

The identification of this impact was based largely on three meetings:

- with the Arandis community on 22 October 2008,
- focus group meeting with the agricultural community - small-scale farmers in the Swakop River Valley and farmers in the vicinity of Rössing Uranium's mine licence area, and
- a Public Information Meeting co-ordinated by Earthlife Namibia in Arandis on 30 October 2008.

Minutes of the first two meetings are included in Annexure F to the SEIA Report. Comments noted at the third meeting have also informed the assessment of this impact.

The first two meetings were convened to elicit information from the participants about their concerns around blasting operations at Rössing Uranium.

The meeting in Arandis on 22 October followed blasting operations at Rössing Uranium on the same day. The community stated that the severity of the blast had shocked them, and reported rattling of windows and teacups. They raised concerns about the effects on people

who were elderly and/or in ill-health, and on children. A major grievance was that the community received no warning that a blast was going to take place.

Blasting was blamed for the cracks in some of the houses in Arandis, and the drop in their market value. An opposing point of view was raised – that the deterioration of the houses was due to their age rather than to blasting.

At the second focus group meeting, held at Rossmund on 23 October 2008, participants commented that the blast of the previous day had been felt at a distance of 40 kilometres. Some of the farmers expressed a conviction that blasting was affecting their groundwater.

In response to these concerns, Rössing Uranium undertook further research into the effects of blasting. Continuous monitoring was set up at the farm Namib Plaas and the results were communicated to the concerned farmers. The conclusion from this monitoring was that “no results indicating ground vibration or air blast events emerged resulting from blasting operations during the monitoring period. The results of the monitoring programme indicated that blasting is within the suggested limits indicated in the *“The Rio Tinto Environmental Standards, Noise and Vibration Control Guidance Note Version 1”*.

Rössing Uranium further commissioned a desktop study of research on the impacts of blasting on groundwater and wells. The report, *Namibia Earthquake Hazard Assessment and Potential Risk to Groundwater Aquifers from Blast-induced Seismicity* concluded that blasting has very little long-term negative impacts on groundwater or wells (Xamine Consulting Services, 2009). This report, and the studies on which it was based, were made available to the relevant stakeholders.

A follow-up meeting was held in Arandis on 25 February 2009. Feedback from blast monitoring and the conclusions of the specialist report *Ground Vibration and Air Blast Study* (included in the SEIA) were presented. Briefly, these conclusions were that the current blasting operations at Rössing Uranium mine do not yield levels of ground vibration or air blast, that pose a direct threat to neighbours with regards to either personal injury or structural damage. Ground vibration and air blast are the effects that people could experience, but human response, in particular to air blast, is a significant factor in human perception of the effects of the blast. These perceptions do not necessarily align with the actual and measured effects of blasting on structures.

Recommendations to address and manage the concerns of the Arandis community will be included in the management plan.

Fears were expressed around the possible health effects of dust and the possibility that people were inhaling radioactive dust, especially after blasting and in particular when the wind blows from the mine in the direction of the town.

At the public information meeting co-ordinated by Earthlife Namibia, the community of Arandis, and some participants from Swakopmund, were informed of the dangers of uranium mining. These included a wide variety of cancers, respiratory diseases and birth and developmental defects. The community was informed of the possibility for class action, and encouraged to organise themselves for concerted protest. The community in turn spoke of

their fears, of children who had either physical and/or mental defects and of people who had been employed by Rössing Uranium and who had died of cancer.

Rössing Uranium has stringent programmes in place for dust suppression on the mine. A bitumen emulsion and recycled water are sprayed on the haul roads, and dust is controlled by dust extractors during the crushing process.

Rössing Uranium has undertaken air quality and dust deposition studies over a period of ten years. Dust is sampled, and the dust values analysed from dust monitors in Arandis. Computer-based analyses were done to study the effect on dust migration if the wind blows from the mine in the direction of Arandis. Rössing Uranium conducts three sampling programmes in Arandis by means of a PM10<sup>2</sup> sampler, a high volume sampler and a weather station. Data is collected monthly. Available monitoring results from a baseline survey undertaken from March to May 2009 show that the levels of sulphur dioxide, nitrogen dioxide and PM10 in the town were well below the relevant air quality guidelines. The results of the monitoring activities have not been made available to Arandis residents but Rössing Uranium has undertaken that, once a full set of results are collated and analysed, these will be made available to the public.

Namibia does not currently have ambient air quality standards, and the standards used for comparison include those of the World Bank Group, the World Health Organisation and the current and proposed South African standards.

On closure, the tailings will be covered with rock to ensure that dust is not dispersed and wind does not transport dust into the environment. Dust-dispersion modelling assuming this kind of cover for tailings has shown that there will be no long-term detrimental effects on the community.

An Air Quality Impact Assessment was undertaken for Phase 1 of the SEIA. Comprehensive specialist reports on air quality have been undertaken for Phase 2 of the SEIA and will be included in the SEIA Report (Radiation and Dose).

**Table 5. Impact 5:  
The mining activities at Rössing Uranium’s operations can impact on the quality of life of members of the public by raising fears and unease about their health and safety.**

<b>Nature</b>	<b>Negative</b>	
Magnitude	Medium	Altered social functions are manifest in the unease which stakeholders feel about blasting and, particularly in Arandis, air quality, and their fears for their health, safety and property.
Duration	Long-term	The impact will endure during the life-of-mine, and air quality concerns will continue after closure.

<sup>2</sup> Particulate matter less than 10 µm in aerodynamic diameter

Extent	Local	The impact is confined to the Arandis community and the farmers in proximity to the Rössing Uranium mine.
Probability	Definite	The impact has already occurred, and will continue
Significance	Medium	The impact is rated as of medium significance in spite of positive results from monitoring programmes. Management measures will be required to address the continued concerns of local communities.
Reversibility	Reversible	The impact is reversible. However, perceptions of the impacts of mining and, in particular, uranium mining, are not easily relinquished, and will persist, albeit less significantly.
Confidence	Sure	Assessment of the impact is based on a reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.

### **Impacts No. 6 and 7. Housing and accommodation**

As with any developer of a large-scale project, Rössing Uranium has an obligation to ensure that employees have access to basic needs such as health and education services, infrastructure services and acceptable accommodation. Similarly, the Company is obliged to minimise the impact of its housing requirements on local property markets and homeowners and buyers outside the minerals sector.

The increased workforce for Rössing Uranium's Mine Expansion Project will require an estimated 400 additional accommodation units.

All the towns in the vicinity of Rössing Uranium have a shortage of available accommodation, whether for sale or rental. The background to this impact is discussed in more detail in the accompanying Socio-Economic Baseline Study: Sections 5.1, 5.2 and 5.3 for Arandis, Swakopmund and Walvis Bay respectively.

A report by Stubenrauch Planning Consultants points out that there is a backlog of serviced stands in all towns, that the handing-over of parcels of land to developers increases prices and that the period from the initiation of a new development to the delivery of serviced stands is approximately three years (SPC, 2007).

Rössing Uranium is in the final stages of negotiating with the Town Council of Swakopmund for 400 erven to meet the Company's accommodation needs. New employment at Rössing Uranium will increase steadily and peak in 2011. It is not likely that these erven will be developed in time to provide accommodation for the increased workforce. Some employees may find informal accommodation in Mondesa and the DRC, but accommodation will not be readily available for the majority of new workers.

The development of blocks of housing which could form mining enclaves will be a constraint on community cohesion and integration. The Town Council of Swakopmund is insistent that such enclaves should be avoided.

In Arandis, Rössing Uranium has requested that 50 erven be reserved for the Company for its future housing needs. These arrangements still need to be finalised. No houses are available

for sale or rent in the town, and letting of space in houses to multiple tenants is indicative of the need for low-cost housing.

Rössing Uranium has not indicated that it will provide housing in Walvis Bay.

**Table 6. Impact 6:  
The requirements for housing Rössing Uranium’s workforce could destabilise property markets in Swakopmund and Arandis.**

Nature	Negative Cumulative	The cumulative nature of the impact resides in the demands that will also be made for accommodation for the workforces of other mining operations in the area, as well as the workforces for developments in other sectors.
Magnitude	High	In Swakopmund prices are already moving beyond the reach of local buyers and demand is exceeding supply. Prices in Arandis are escalating and property developers have bought large numbers of erven in anticipation of demand by mining companies and their contractors.
Duration	Medium	The housing shortage is expected to be addressed by market forces over the medium term as sustained demand results in additional housing projects. Swakopmund has an economic base which will require and absorb the extra housing post-closure, and the impact will not persist after that. The economy of Arandis is currently dependent on the mining sector, but Rössing Uranium plans to provide only fifty additional accommodation units and if these are vacated on closure it will not have a significant impact on the economy. The property market in both towns will in all likelihood stabilise, but at higher prices than are currently in force.
Extent	Local	The impact will be experienced primarily in Swakopmund and Arandis.
Probability	Definite	The Baseline Study discusses the shortage of accommodation and property price escalation in the study area. Property developers and speculators are buying property in both towns in anticipation of the needs of the mining companies. These practices drive prices up. In addition, the needs of other mines will create competition for scarce housing stock, which will also increase prices.
Significance	Medium	The impact does not breach the limits of requirements for sustainable development within the receiving environment, but management measures are required to maintain the effects of the impact within such limits,
Reversibility	Reversible	The impact will reverse in the medium term in response to market forces.
Confidence	Sure	Assessment of the impact is based on a reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.

**Table 7. Impact 7:  
A lack of accommodation for Rössing Uranium’s increasing workforce between 2010 and 2012 will impact negatively on employees and on communities in Swakopmund and Arandis.**

Nature	Negative Cumulative	<p>The cumulative nature of the impact resides in the fact that other mining companies and contractors will need accommodation for their employees at the same time as Rössing Uranium.</p> <p>Employees may not be able to bring their families with them, leading to an unsettled workforce and disrupted family units. Some employees may choose to find informal accommodation in Arandis, Mondesa or the DRC, and so add to the potential for physical and social ills which such accommodation promotes.</p> <p>The Company may incur unfavourable public perception. It may have to deal with an unsettled workforce, which can result in absenteeism and reduced focus by employees on workplace safety. It could prove difficult to attract skilled workers if accommodation is not available for them.</p>
Magnitude	Medium	Social and community processes will be notably altered
Duration	Medium-term	The impact will be operative until such time as Rössing Uranium has sufficient accommodation for all its employees
Extent	Local	The impact will be felt by the workforce and by communities in Arandis, Mondesa and the DRC
Probability	Definite	The impact will definitely occur. Rössing Uranium has not yet finalised its housing policy or its arrangements with local authorities in Arandis and Swakopmund. Once these have been finalised, even in proclaimed areas will need to be provided with services, and accommodation will need to be built. Where even in proclaimed areas are not available, the process will take longer.
Significance	Medium	The impact does not breach the limits of requirements for sustainable development within the receiving environment, but intervention is required to maintain the effects of the impact within such limits,
Reversibility	Reversible	Rössing Uranium has initiated the processes to provide accommodation for the workforce.
Confidence	Sure	The assessment is based on a reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.

## Impact No. 8. Local economies

While individual mines are no longer employers of thousands of people, they continue to be significant economic engines, capable of stimulating economies well beyond their site boundaries. The Baseline Study provides detail of benefits that can accrue to local economies (see Section 4 of the Baseline Study) as well as the economic environment in the three communities of interest.

Secondary industries and commercial enterprises will be required to meet the needs of the mine for goods and services, the needs of consumers as more expendable cash becomes available in the towns and the needs of the building and construction industries.

In 2008 just over N\$700 million, more than half of Rössing Uranium's procurement expenditure, was in the Erongo Region.

**Table 8. Impact 8:  
Local and regional economies will be positively impacted by increased spending by Rössing Uranium and its workforce.**

Nature	Positive Cumulative	The impact is positive due to the potential developmental benefits arising from economic stimulation.  As a number of other mining companies will be contributing to local economies, the impact is cumulative.
Magnitude	Medium	The sectors benefiting from the spending of Rössing Uranium and its employees will create further employment and livelihood opportunities. Socio-economic conditions will be enhanced, particularly by those benefits that accrue to local and regional authorities. Local and regional governments will be in an improved position to carry out development plans.
Duration	Long-term	The impact will last through the construction and operational phases. If local economies are carefully nurtured through the life-of-mine period, and attention is paid, particularly in Arandis, to economic diversification, the benefits of the impact will last beyond closure.
Extent	Local Regional	
Probability	Definite	The impact will definitely occur. Service payments to local authorities are not optional, and people need to buy their everyday necessities. Rössing Uranium will need additional supplies and services, and will, as in the past, source these from local suppliers and providers wherever possible.
Significance	Medium	
Reversibility	n/a	
Confidence	Certain	A wealth of information on and sound understanding of the socio-economic factors potentially influencing the impact.

### **Impact No. 9. Inward migration**

Unemployment levels in Namibia are high. There is a geographic mismatch between employment and centres of high population density – most jobs are in the central and coastal regions and most people live in the north. This causes substantial economic migration within Namibia. High levels of poverty in neighbouring countries such as Angola and Zimbabwe exacerbate this situation.

Large development projects offer people a unique opportunity for employment and access to better services and infrastructure. Such opportunities are rare in many rural areas in Namibia, and job seekers travel from their place of origin to perceived sources of employment and a better standard of living.

The current situation with regard to inward migration in each of the communities of interest is discussed in more detail in Section 5 of the Baseline Study.

**Table 9. Impact 9:**

**Inward migration of work seekers to Erongo Region will increase as a result of the perceived job opportunities offered by the Rössing Uranium Mine Expansion Plan.**

Nature	Negative Cumulative	<p>Inward migration of unemployed people increases local unemployment and an increase in the number of people living in inadequate, unsafe and unhealthy accommodation. Poverty, ill-health and social ills also increase, and greater demands are made on the resources of local and regional authorities and service providers.</p> <p>As inward migration results from the large number of developments in a number of economic sectors in Erongo Region, the impact is cumulative.</p>
Magnitude	Medium	<p>Cultural and social functions are expected to continue, but in a modified way. The cultural and social norms of those who are financially secure, have employment and live in formal housing will be affected indirectly, and the impact will be integrated into a modified lifestyle. Residents living in informal or lower-economic areas have, over a long period, adapted to the continuous inflow of people from other regions.</p>
Duration	Long-term	<p>There are few legal instruments for controlling migration and settlement in Namibia. Experience in other mining towns, such as Rosh Pinah, has indicated that migrants will move to new mining developments and, in the absence of other pull factors, do not easily move on. This tendency is also manifested in Walvis Bay and Swakopmund. Informal settlements are thus essentially permanent.</p>
Extent	Regional Local	<p>The impact will be felt locally and regionally. Resources which are needed in the more remote areas, such as health services, will need to be diverted to meet the needs of the urban centres where the vast majority of migrant work seekers settle.</p>
Probability	Definite	<p>This impact commenced a number of years ago, and shows no signs of abatement. Historic precedent also indicates inward migration as an inevitable consequence of large-scale developments in developing countries.</p>
Significance	High	<p>The negative consequences of the impact exceed the accepted parameters for progress in sustainable development within the impacted environment and residual impacts are likely to persist in spite of mitigation measures.</p>
Reversibility	Irreversible	
Confidence	Certain	<p>Confidence in this assessment is based on a wealth of information on and sound understanding of the socio-economic factors potentially influencing the impact.</p>

**Impact No. 10. Social services**

Communities, and their individual members, need access to a number of services to lead healthy, productive lives. These services include access to basic necessities, such as water and energy, health services and education services.



For the economically secure, there are a number of options as to how they access services. Thus some community members will have access to private medical care, and some will be able to send their children to private schools. Within Rössing Uranium's communities of impact there are large numbers of people who do not have these options, and as the numbers of such people increase, their reliance on state services places a severe strain on the capacity of the service providers.

Social services in Erongo are of a generally high standard, although access to them is not evenly spread across the population. State health services in Arandis are strained and inadequate. In Walvis Bay and Swakopmund, state health services are regarded as excellent, but they experience a high demand on their capacity as a result of the inward migration of largely unemployed people.

This impact specifically addresses the availability of schooling in Swakopmund, Walvis Bay and Arandis. This issue has emerged as one of major concern to stakeholders in the course of the consultations and public participation processes for the Mine Expansion Project. While it is likely that the larger proportion of new employees will reside in Swakopmund, Walvis Bay and Arandis, due to their proximity to Swakopmund, are the logical alternatives for schooling for the children of Rössing Uranium's employees.

The Erongo Regional Office of the Ministry of Education has calculated that, in 2013, an additional 5 250 pupils will require schooling as a result of increased mining activity only. Currently Swakopmund and Walvis Bay are short of places for in excess of 2 000 pupils. Schools have experienced a growth in learner numbers ranging from 28.3% to 53.8% since 2005. Arandis had spare classroom capacity in 2007; currently the schools need five extra classrooms.

The Baseline Study provides details of the capacity in schools in the two towns. Although this assessment is concerned with the impact of the Rössing Uranium mine expansion project, the impact is part of a cumulative one, as the other mines that are opening will have the same requirements for their workforce as Rössing Uranium. A further potential impact, which is not analysed here, is the impact on Rössing Uranium. Employees who are not assured of schooling for their children may choose not to come to the region, and this would apply particularly to skilled workers, who are in short supply and high demand, and can find work elsewhere.

**Table 10. Impact 10:  
With current capacity, the schools in Arandis, Swakopmund and Walvis Bay will not be able to accommodate the schooling requirements of Rössing Uranium's increased workforce.**

Nature	Negative	The impact is negative and cumulative. Children will either be sent away from their families for schooling or will be taught under conditions which are not optimal for learning. Some may simply be kept at home.
	Cumulative	

Magnitude	High	<p>The magnitude is high and the impact has a number of potential dimensions.</p> <ul style="list-style-type: none"> <li>• Overcrowding at schools could increase, and this is already impacting negatively on the learning/teaching environment.</li> <li>• Children could simply not be enrolled for schooling. This is currently happening in Kuisebmond, the DRC and Mondesa (Hoadley, 2009).</li> <li>• Children will either remain in the labour-sending areas or be sent to schools in towns where there is available space. This breaks up the family unit and frequently exposes children to a lack of care and, in some cases, abuse.</li> </ul>
Duration	Long-term	<p>The duration of the impact will be long-term, and will coincide with the life-of-mine. In some cases the effects of the impact will be permanent as the unskilled and semi-skilled sector of the population will increase, reducing the potential for employment, poverty alleviation and the achievement of the Millennium Development Goals.</p>
Extent	Regional	
Probability	Definite	<p>The impact will occur when the operational phase commences, and will cease with closure. It will definitely occur. As the Baseline Study indicates, there is no spare capacity in the schools in the three towns. This situation was confirmed by a number of key informants.</p>
Significance	High	<p>The magnitude, duration and extent indicate that the significance of this impact is high. The importance of education for sustainable development affirms this rating.</p>
Reversibility	Irreversible	<p>There is no indication that the Ministry of Education has any plans to increase capacity to any effective degree, and no discernible progress has been made with co-operative strategies by the uranium mining companies in the region.</p>
Confidence	Certain	<p>A wealth of information on and sound understanding of the environmental factors potentially influencing the impact.</p>

## Impacts No. 11 and 12. Infrastructure

As with impacts on social service delivery, increases in economic activity place additional strain on infrastructure. The requirements of large mining operations, such as Rössing Uranium, may impact on the availability and/or use of such infrastructure by communities. The major infrastructure services are water, electricity and transport routes. With regard to the latter, road use is the form of transport of particular interest to the public.

### Impact No. 11. Road Traffic

The roads used by vehicles that serve the Rössing Uranium operations are used by several other categories of users.

- The B2 forms part of the trans-Kalahari and trans-Caprivi road corridors and for this purpose the traffic consists of heavy vehicles.

- The B2 is the main tourist route to the coastal towns and to the Namib Naukluft Park, also giving access to tourist destinations such as Sossusvlei. The traffic consists of light vehicles and tour buses.
- Other uranium mines use the B2 for commuter transport and goods delivery. Traffic consists of heavy vehicles and buses with some light delivery vehicles.
- Light vehicle commuters and tourists are particularly prevalent on the section between Walvis Bay and Swakopmund.
- There are a number of other uses. Business travellers use the B2 between the coast and Windhoek, and travel for recreational purposes is particularly noticeable between Windhoek and the coast over weekends. Schoolchildren are taken in buses to their homes and brought back for the four school terms, and schools use the roads for educational and sports outings.

It can be assumed that the major increase in traffic on the B2 will be the result of the requirements of the uranium mines and increased traffic along the major corridor routes. The current and envisaged expansion of the Port of Walvis Bay indicates that the latter will be considerable.

While there is still adequate capacity on the road networks used by Rössing Uranium, the increase in traffic, particularly on the B2 between Arandis and Swakopmund, increases the risk of unsafe road conditions. The transport of employees in buses means that, should an accident occur, the risk of multiple fatalities is high. An increase in the number of heavy vehicles using the B2, especially during the construction phase, further increases the possibility of serious accidents. An increase in road traffic also places trucks carrying chemicals at greater risk of accidents and consequently, increases the risk of spillage.

Road and driving conditions increase the risk of road accidents. From Walvis Bay to Arandis, mist frequently decreases visibility, and between Walvis Bay and Swakopmund, sand blowing across the road is a further hazard. Long stretches of the B2 between Swakopmund and Usakos are hilly and windy, which makes overtaking difficult. The road shows signs of deterioration in places. The specialist study on traffic and road-use, included in the SEIA, provides details of the condition of the roads used by Rössing Uranium-related traffic.

Drivers who carry commuters between the coastal towns and Rössing Uranium do so at peak times in the morning and late afternoon, when they have to negotiate onto or off the B2 in the face of on-coming traffic from both directions. Increasingly, they also have to contend with heavy vehicles and buses servicing other companies, especially at the intersection of the B2 and the C28.

The workforce is predicted to increase by 700 new employees by 2011. If Rössing Uranium makes a decision to house the majority of its workforce in Swakopmund and/or Walvis Bay, this will mean that not only more buses will be on the road, but also more people. Increased commuter traffic will also result from the construction phase, as will the need for transport of materials by heavy duty vehicles.

<sup>3</sup>Rössing Uranium's employees are transported from Walvis Bay, Swakopmund and Arandis. Most of the commuter transport is by 48-seat and 18-seater buses. For reasons of safety, it is company policy that all employees should use the large buses. However, logistics and on-site manoeuvrability dictate that the use of mini-buses is at times unavoidable. Some employees choose to use their own cars. Total annual Scania bus trips are 25,428 and shuttle buses make an average of 1,770 scheduled trips annually. The annual distance covered by all commuter transport is 1,478,078 kilometers.

Rössing Uranium has stringent driver training and testing programmes in place. Buses are comprehensively fitted with safety and monitoring equipment. Drivers undergo annual medical screening and are subject to random alcohol and drug tests. To be considered for appointment, applicants need to be accredited to the K53 Scania Driver Academy and, once appointment, undergo annual refresher training with the Academy. All drivers on site at Rössing Uranium mine, regardless of who they are employed by, must undergo an annual Rössing Uranium driver assessment.

Over the past seven years, a total of 38 accidents/incidents involving Rössing Uranium vehicles have occurred. None of these resulted in fatalities, loss time injuries or injuries requiring medical treatment, and damage to vehicles was minor. (Rössing Uranium, 2009).

Wesbank Transport, Rössing Uranium's main transport service provider, also has stringent and comprehensive driver training and road safety programmes in place. It is not possible to comment on other service providers in this regard, but anecdotal information indicates that the condition of the vehicles of non-Rössing Uranium contractors could be of concern.

Rössing Uranium currently chairs the Erongo Road Users' Forum. This body, which includes representatives of a number of mining companies, as well as relevant authorities, meets monthly to discuss a wide range of problems associated with road use. These include congestion on the roads, driver fatigue, alcohol use and road conditions.

Apart from Rössing Uranium commuter buses, a large number of vehicles use the B2 on a daily/regular basis on Rössing Uranium business. It has not been possible to access exact details of these, and the following should be regarded as non-exhaustive and indicative only. Additional road traffic includes:

- Wesbank Transport – 17 heavy-duty vehicles per week and an average of 11 light-delivery vehicles per month,
- Basil Read commuter vehicles – sixty trips daily (large, medium and mini-buses),
- Rössing Uranium vehicles taking employees directly to their homes - 40-50 (weekdays)
- Rössing Uranium employees commuting in own cars – 30-60 (increasing at month end, on Fridays and during holidays),
- Non-Rössing Uranium contractor mini-buses – 50+ daily (includes contract cleaners, labourers for specific jobs, specialist maintenance contractors, mobile plant specialists).

---

<sup>3</sup> All data provided by Rössing Uranium personnel.

The increase in the number of vehicles that use the road as a result of the Mine Expansion Project will be significant. By 2013 the number of large commuter buses will be approximately 33. There will also be a concomitant increase in smaller and private commuter traffic, as well as non-Rössing Uranium contractors and heavy transport vehicles. A rapid increase can be expected of all types of traffic during the construction period.

**Table 11. Impact 11.**

Increased road use by Rössing Uranium and the company's service providers as a result of the Mine Expansion Project could impact on the safety of Rössing Uranium personnel and other road users

Nature	Negative Cumulative	The impact is negative and cumulative. The cumulative nature lies in the increased road use for commuter and goods transport by other mining companies and development projects in other sectors.
Magnitude	Medium	The rating of medium tends toward high. Road use will continue but in a modified way with an increased level of discomfort and unsafe road conditions and decreased enjoyment.
Duration	Long-term	The impact will peak during the construction period, but will not cease before closure.
Extent	Regional	
Probability	Definite	The rating is based on Rössing Uranium's requirements for additional permanent employees, construction workers and goods transport as a result of the Mine Expansion Project.
Significance	Medium	Increased traffic resulting from the Mine Expansion Plan does not breach the limits of requirements for safety on the roads for Rössing Uranium personnel and other road users, but intervention is required to maintain the effects of the impact within such limits,
Reversibility	Irreversible	The impact cannot be reversed, but it can be mitigated and managed. The Social Management Plan will present recommendations in this respect.
Confidence	Sure	The rating is based on a reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.

**Impact No. 12. Water**

Water consumption by Rössing Uranium is a cross-cutting issue, and has been addressed in the specialist report, *Water Management*, which is included as Annexure H in Volume 2 of the Social and Environmental Impact Assessment Report (Ninham Shand, 2008). A further specialist study on water balance (surface and groundwater) has been commissioned for Phase 2 of the SEIA. This section on water is complementary to the two specialist studies that have been undertaken.

The Erongo Region currently consumes about 12 million cubic metres (Mm<sup>3</sup>) of water annually, sourced entirely from alluvial aquifers in the Omaruru (the Omdel aquifer) and Kuiseb rivers. Walvis Bay draws water from the Kuiseb, and Swakopmund, Henties Bay and Arandis are supplied from the Omdel aquifer which is utilised to its maximum capacity. This aquifer also provides water to three mining companies, Rössing Uranium, Langer Heinrich and Areva. Rössing Uranium further abstracts groundwater from the Khan River, but this abstraction will cease in 2010.

Langer Heinrich Uranium Mine was commissioned at the end of 2006. NamWater could meet the water demand of the mine by increased abstraction from the Omdel aquifer in the Omaruru River. As a condition of permit for such abstraction, the Ministry of Agriculture, Water and Forestry (MAWF) only allowed the increased abstraction for five years, within which time NamWater should develop a desalination plant to meet the demands of the mines and other industrial water users on the central coast of Namibia. A further requirement was that abstraction from the Omdel Aquifer should be reduced to a sustainable yield of 5 Mm<sup>3</sup>/year (NamWater, 2009).

Predictions of water shortage in the Erongo region are of great concern, and this concern has been expressed publicly by numerous stakeholders, developers and consultants. There is much discussion about sea water desalination, but the only significant development in this regard is Areva Namibia Resources' desalination plant north of Wlotzkasbaken. Stakeholders have raised concerns about the potential effects of desalination on marine resources, the increase of an industrialised belt along the coastal strip and expanding inwards to the desert, the price of desalinated water and the energy required to operate a desalination plant.

A general lack of transparency and consultation has left the public in ignorance about future plans to address water supply in Erongo. A lack of documented and verifiable information constrains the extent to which major consumers can plan with certainty, both for future developments and for water management.

Namwater currently supplies 67 Mm<sup>3</sup>/a to the whole of Namibia. The projected requirements of the uranium sector indicate that, by 2011 supply will be put under severe strain and by 2015 these requirements will not be met. Table 12 only considers the uranium sector, and does not take into account demand from other sectors, both public and private, which is likely to increase.

Table 12. Projected water requirements of Namibian uranium mines (ElImies, 2009)

WATER REQUIRED BY URANIUM MINES	
Year	Mm <sup>3</sup> a
2008	7
2011	25
2015	48

In the course of the public participation process for the Mine Expansion Project, stakeholders expressed two major concerns: assurance of sustainable and affordable water to coastal

consumers, and Rössing Uranium's impact on groundwater quality and quantity of local aquifers. These concerns are addressed either by specific initiatives or by the Company's water management programmes as discussed below.

In 2004, in response to concerns raised by the farming community in the Swakop River Valley a groundwater study of the lower Swakop River was undertaken, which continued through to 2006. A radiation assessment was undertaken during 2006 and together these two studies concluded that the uranium anomaly, which raised the concerns, was a naturally occurring phenomenon in this part of the river, and related to uranium-bearing rocks, not to the activities of Rössing Uranium. The Company remains involved with the monitoring of water quality and levels.

Some concern about the effect of blasting at the mine on boreholes and water infrastructure was expressed during the consultation process. Rössing Uranium commissioned a study on this aspect, which concluded that blasting has very little long-term negative impacts on groundwater or wells.

At the mine, groundwater is continually controlled. Polluted groundwater is pumped out and recycled, and this system is monitored by water quality testing of 80-120 boreholes annually.

Water management programmes are in place to reduce the amount of fresh water used by the Company. Water is extracted from the tailings dam and reused, evaporative water losses are minimised and lower quality water sources are used wherever feasible. Water used for cleaning and dust suppression in the processing plant is returned to the mills or tailings pumps, and effluent from workshops is pumped to an oil separation plant, separated, mixed with semi-purified sewage effluent and re-used in the mine (Rio Tinto 2009).

Rössing Uranium has a supply agreement with Namwater for 4 Mm<sup>3</sup> annually, and the Company has never used the full amount.

Table 13. Rössing Uranium water consumption/reclamation 2004-2008

	2004	2005	2006	2007	2008
Fresh Water Consumption ('000 m <sup>3</sup> )	3,003	3,170	3,315	3,300	3,700
Fresh water per tonne of ore processed (m <sup>3</sup> /t)	0.27	0.27	0.28	0.26	0.29
Ratio of fresh water: total water	0.33	0.37	0.35	0.32	0.36
Seepage water collected ('000 m <sup>3</sup> )	2,381	2,018	2,736	3,050	2,740

An adequate, economic and assured supply of fresh water, which at the same time does not impact on the access of other users, is critical for the continuance and expansion of the Rössing Uranium mine, and the Company participates actively in water fora in the Erongo Region.

- The Coastal Bulk Water Users' Forum,
- The Uranium Stewardship Committee,
- The Kuiseb and Omaruru Basin Management Committees.

The various objectives of these fora include the joint management of the water resources of the Central Namib area. While the Coastal Bulk Water users' Forum and the Uranium Stewardship Committee are high-level fora, and address high-level issues such as desalination and water policy, the Basin Management Committees and the Swakop River Farmers Working Group are community-level fora, which aim to address the concerns of communities and include them in the planning, operation and management of their water supplies and resources.

Uranium mines are massive consumers of fresh water. The figures below show that Rössing Uranium is currently the biggest industrial user of water in the coastal area, followed by the Port of Walvis Bay. The figures also show the reliance of the sector on fresh water for its operations.

Table 14. Water consumption in the Erongo coastal region.

User	Period	Water consumption
<b>Rössing Uranium</b>	2007	3,300,000m <sup>3</sup>
<b>Port of Walvis Bay</b>	2008/2009	186,269m <sup>3</sup>
<b>Walvis Bay</b>	2008/2009	4,816,426m <sup>3</sup>
<b>Swakopmund</b>	March 2008 – March 2009	3,720,000m <sup>3</sup>

Possible alternatives for Rössing Uranium to source sufficient fresh water for its expansion plans include:

- Namwater desalination plant. The EIA for this project has been finalised, but it is unlikely that a record of decision will be handed down before the end of February 2010. The tendering process for construction has not started yet (Venter 2009, pers. comm.). The estimated construction period for the plant (with a capacity of 25 Mm<sup>3</sup>/a) is 24 months. Construction on the Areva plant (with a capacity of 20 Mm<sup>3</sup>/a) commenced towards the end of 2007 and the first module(s) will be commissioned in February 2010. There is a high risk that the Namwater plant will not be completed in time to meet increased demand.  
The first phase of the project will produce about 15 Mm<sup>3</sup> per annum, which will not meet the 2011 projected water demands of the uranium mines. Phase 2, to bring the total capacity to 25 Mm<sup>3</sup>/ per annum will be developed as water demand from the mines increases (CSIR, 2009).
- Purchase of water from Areva Resources Namibia. If Areva does sell water to other uranium mines, this will only be when the reverse osmosis modules have been commissioned, and a date for this could not be established. However, Areva will prioritise its own needs, and the price of water will also need to be agreed on. The same constraints apply to the possibility of Areva supplying water to other mines during the lag period.
- From the Omdel aquifer. This is dependent on the extension of Namwater's permit to extract water from the aquifer for uranium mining. The permit expires at the end of 2010, and it is possible that this route will be followed to provide water during the lag period before the desalination plant is commissioned. The MAWF requires abstraction from the Omdel to be reduced to a sustainable yield of 5 Mm<sup>3</sup>/a, and the projected water demand by uranium mines in 2011 is 25 Mm<sup>3</sup>/a. Rössing Uranium



will require 8 Mm<sup>3</sup>a by 2012 if the expansion plans are implemented. Technical details on the strength of the recent recharge event were not available for this report. If this alternative is followed, it should be borne in mind that the recharge rate of the aquifer is slow, and recharge events cannot be relied on to occur either regularly or timeously. In the event of a significant delay in the availability of desalinated water, continued use of water from the aquifer at the rate required, by uranium mines would impact on the entire region and across all components of sustainable development – social, economic and environmental. This alternative also carries a reputational risk for Rössing Uranium, as there is likely to be vigorous public reaction if the security of supply to non-mining consumers is threatened.

There is considerable risk to Rössing Uranium inherent in all the above alternatives.

**Table 15. Impact 12.**

If Rössing Uranium proceeds with the Expansion Project before an alternative source of water to the Omdel supply is available, Erongo Region could experience a water shortage which will impact on every sector and will breach the limits of sustainable development.

Nature	Negative Cumulative	The cumulative nature lies in the increased demand for water by other mining companies, development projects and communities.
Magnitude	High	Social and/or natural functions and/ or processes will be acutely altered.
Duration	Short-term	The assessment of duration is based on the assumption that any delay in the availability of desalinated water will not be longer than 12 months. If, however, the aquifer collapses due to over-abstraction, the effect could be permanent.
Extent	Nation	National
Probability	Definite	The rating is based on the current availability of fresh water, current use by consumers other than uranium mines, and the projected requirements of those mines.
Significance	High	The negative consequences of the impact exceed the accepted parameters for progress in sustainable development within the impacted environment and residual impacts are likely to persist in spite of mitigation measures.
Reversibility	Irreversible	.
Confidence	Sure	The rating is based on a reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.

**Energy**

Power consumption by Rössing Uranium was a major concern of the stakeholders who participated in the consultation processes for Phase 1 and Phase 2. The public is increasingly aware of, and vocal about the huge power requirements of new developments in

Erongo, and concerns were expressed about the impact of any increased consumption by Rössing Uranium on other users.

As a result of increased production, energy consumption in 2008 exceeded the target for that year. Rössing Uranium has responded in a number of ways to reducing consumption and increasing efficiency, and these initiatives include those which address climate change.

- A Power Efficiency Department was established in 2008 to track and optimise system efficiencies and to decrease energy usage.
- A Climate Change Communications Plan has been implemented throughout the mine to raise awareness about Climate Change and the company's standards and guidelines. The company aims to actively involve employees, contractors and relevant stakeholders in its objectives to meet energy use and GHG emissions reduction targets.
- Detailed energy efficiency studies and implementations aim to improve electricity consumption. These projects include demand-side management, alternative energy sources, and self-generation options.
- Six generators were procured as a result of the possible energy shortage in the Erongo Region to act as back-up during periods of short supply. Rössing Uranium now has stand-by capacity of 22 MW.  
(Rössing Uranium, 2008)
- Through the Chamber of Mines of Namibia, cooperation with NamPower has been strengthened by the Joint NamPower/Chamber Technical Task Team which reviews power demand in the mining industry and liaises closely on power issues (CoM, 2008).

The following is a summary description of the current and predicted future situation with regard to electricity capacity, consumption and demand in Namibia and at Rössing Uranium. The discussion is based on the latest available information.

Table 16: Namibia electricity demand and supply - 2010

Source of electricity	MW
South Africa	+ 140
ZESA (Zimbabwe)	150
Other outside sources	15
Guaranteed supply from internal generation (Ruacana, hydro power - 249 MW, van Eck, coal-fired, 120 MW, Paratus, diesel-powered, 24 MW)	+ 393
<b>Total MWs available</b>	<b>698</b>
Total usage (peak demand, excluding Skorpion Zinc)	+ 450
<b>Current reserves</b>	<b>248</b>

The following should be noted about the above sources:

- Eskom has been experiencing problems in meeting South Africa's demands since 2003 (Ninham Shand, 2007). South Africa's growing internal demand and the 2010 World Cup will limit the availability of any excess at a sustainable rate from South Africa.

- Van Eck only operates during peak demand periods because of its high running costs. The lifespan of this power station is limited, and currently the closing date is reported to be 2013, possibly a conservative estimate (Fitch, 2009).
- Paratus is also expensive to operate, and runs on a standby basis.
- Output from Ruacana is dependent on rainfall and subsequent run-of-river.
- In terms of a five-year PPA between ZESA and NamPower, signed in 2008, electricity supply from Hangwe commenced in 2008 and has been sustained (Fitch, 2009).

It is apparent from the above that Namibia will remain dependent on imported electricity in the short-to-medium term.

Namibia's energy requirements in 2012 are projected to be 690 MW<sup>4</sup>. The following options for sourcing additional power by that year are all at the implementation stage, and reasonable reliance can be placed on the additional electricity being available from them.

Table 17: Namibia energy demand and sourcing options, 2012

Source	MW
<b>Caprivi link (SNEL, ZESCO) (2010)</b>	100
<b>Mozambique (2010)</b>	30
<b>Ruacana (2012)</b>	92
<b>Anixas (2010)</b>	21.5
<b>Demand-side management<sup>5</sup></b>	50
<b>Total from alternative supply sources by 2012</b>	<b>293.5</b>
<b>Currently available</b>	<b>698</b>
<b>Projected availability in 2012</b>	<b>991.5</b>

Namibia will not be independent of imported electricity by 2012, nor will it have met the NDP3 target of domestic generation of 75% of internal consumption by that year. However, a sufficient secure supply will be in place for development. To achieve independence from external suppliers, a number of projects are under consideration. Only those with a high potential to proceed are listed below:

Table 18. Domestic generation projects with a high potential to proceed.

Project	Status	Capacity (MW)
<b>Kudu Gas</b>	Commercial terms to be decided, anticipated commercial operation 2013	800
<b>Walvis Bay coal-fired power station</b>	Feasibility	200-800
<b>Baynes Hydro</b>	Feasibility	360

<sup>4</sup> NamPower's Demand Forecast

<sup>5</sup> Demand-side management entails measures taken by a power utility to change the consumption patterns and demands of end-users so as to achieve reduced power consumption. An example of such a measure is the reduction of demand at peak-demand periods.

<b>Orange River Hydro</b>	Feasibility
<b>Renewables</b>	Planned to provide 10% of supply, first output of 40MW targeted for 2011

Figure 2 shows the demand forecast scenarios for Namibia to 2034. The above discussion, which is based on available information, and the scenarios in Figure 2, indicate that Namibia will have sufficient electricity to meet demand until 2020 under a high load projection

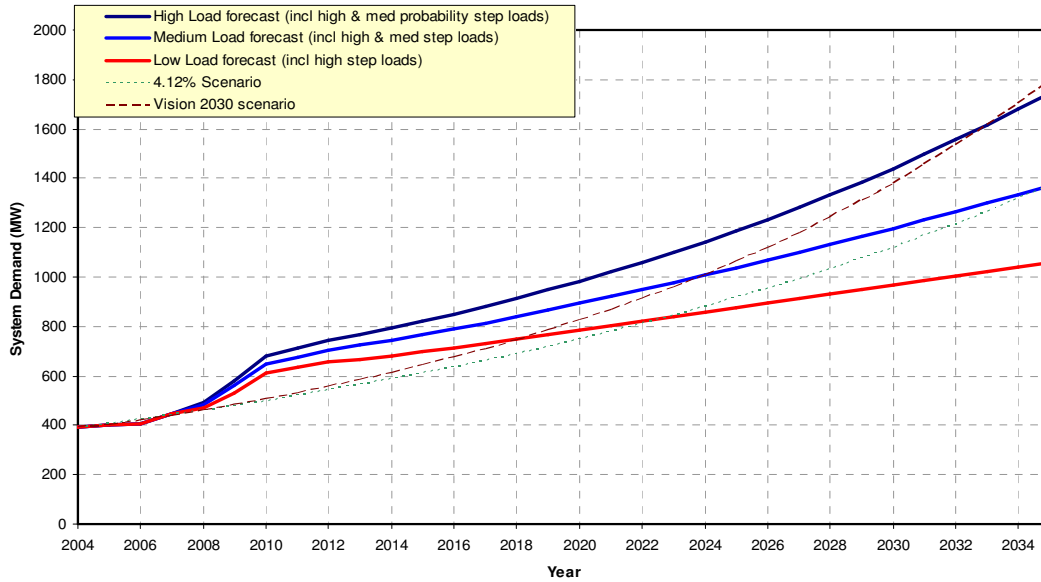


Figure 2. Namibian demand forecast scenarios (Source: NamPower)

Table 19. Rössing Uranium – current consumption and future requirements

<b>Present off-take from grid (2009)</b>	<b>35 MW</b>
Future requirements from 2010	35
Additional future requirements from 2011	25
<b>Total demand from 2011</b>	<b>60</b>
<b>Possible reductions in requirements from national grid through:</b>	
Efficiency improvements	5
Stand-by generation capacity	22
<b>Total reduction</b>	<b>27</b>
<b>Rössing Uranium reserve</b>	<b>2 MW</b>

Figures 3 - 7 are graphic representations of the energy scenarios described above.

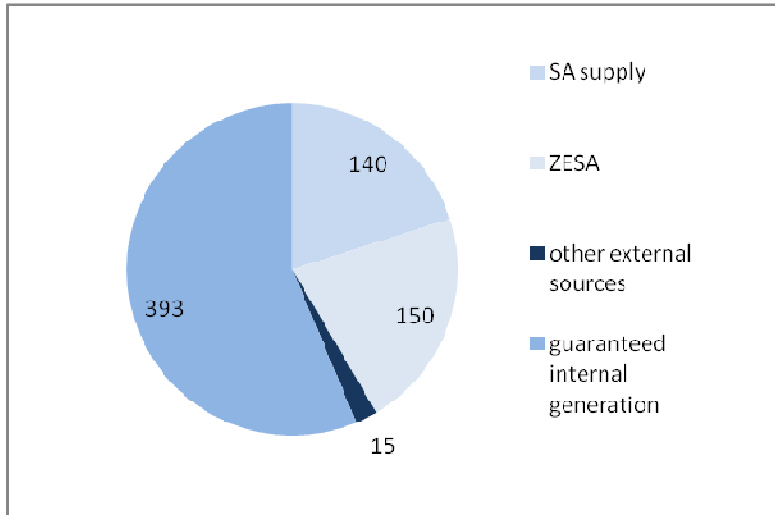


Figure 3: Energy availability and sources of supply (MW) - Namibia, 2008-2009

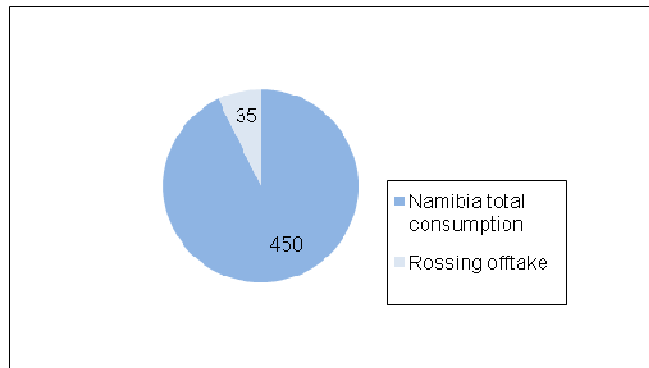


Figure 4: Rössing Uranium's current proportion of total Namibian consumption (MW)

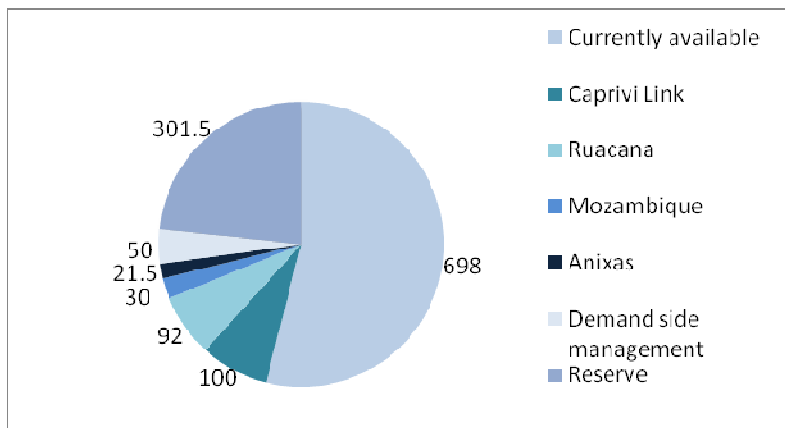


Figure 5: Projected available sources to meet Namibia's demand (690 MW) in 2012<sup>6</sup>

<sup>6</sup> The amount indicated as 'Reserve' represents the available power in excess of the power demand for 2012 as currently projected.

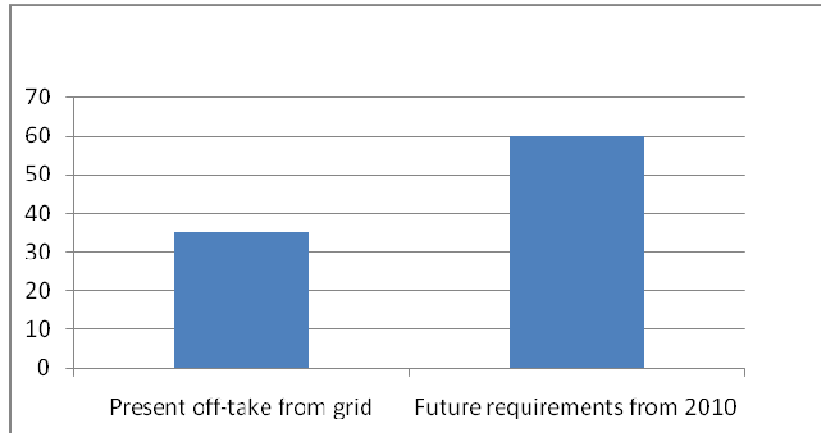


Figure 6: Rössing Uranium's current off-take from the national grid and future requirements from 2010

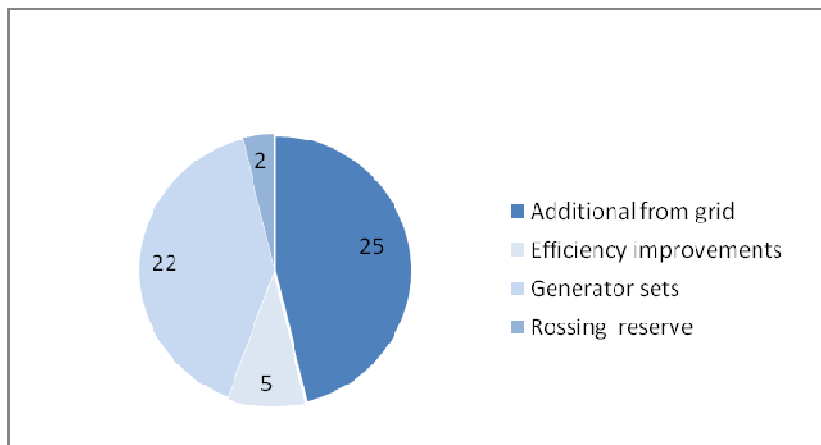


Figure 7: Rössing Uranium's potential reduction of requirements from the national grid

The foregoing discussion indicates that Rössing Uranium's increased requirements for electricity for the Mine Expansion Project will not impact on the availability of electricity to other consumers. This assessment is necessarily based on a number of assumptions. The most significant are:

- that NamPower can supply at least 35 MW to Rössing Uranium until proposed major power generation projects such as those mentioned above are commissioned, either through own production or from outside sources,
- that NamPower develops a strategy to significantly reduce consumption by all consumers,
- that Rössing is able to contain its own requirements from the national grid within the predicted limits.

The assessment does not address the issue of cumulative impacts of developments in the region, and it is in this context that I&APs expressed particular concern about energy consumption. Cumulative impacts will be addressed in the Strategic Environmental Assessment of the Erongo Region currently being initiated through the Chamber of Mines of Namibia.

## 5. Recommendations for a Socio-Economic Management Plan

The public participation and consultation process, stakeholder engagement, knowledge of the mining process and literature surveys facilitated the identification of critical areas to be addressed in activities around the Rössing Uranium Mine Expansion Project. A consideration of the resources, capacity and resilience of the receiving environment to cope with potential negative aspects, or maximise potential benefits, made the identification of likely impacts possible. Recommendations in this Socio-Economic Management Plans are based on the same considerations, and also on the resources and capacity of Rössing Uranium and other role players in the minerals sector to implement the recommendations.

Potential Impact	Impact No.	Impact environment	Significance before intervention	Recommendations for mitigation/optimisation	Significance after intervention
Continued investment in Arandis by Rössing Uranium will increase the town's economic dependence on the company and constrain its progress to sustainability after closure.	1	Sustainability of Arandis	High Negative	<p>Rössing Uranium should:</p> <ul style="list-style-type: none"> <li>◦ phase out ownership or rental by the company of property in Arandis and should not acquire any further property;</li> <li>◦ continue its Corporate Social Investment in Arandis until such time as the infrastructure for service delivery is in satisfactory condition. Thereafter Arandis should have the same status for benefits under Rössing Uranium's Corporate Social Investment as other towns and communities, i.e. it should not be prioritized for funding, but normalized;</li> <li>◦ continue its assistance for capacity building in the Town Council of Arandis;</li> <li>◦ continue its support of service providers in the town, and should support initiatives by other development agents to diversify the economy and decrease dependence on the mineral sector.</li> <li>◦ ensure that development initiatives in Arandis have sustainability before closure as one of their objectives;</li> <li>◦ together with the Town Council of Arandis and the Rössing Foundation, develop monitoring programmes which include Key Performance Indicators for monitoring progress towards sustainability;</li> <li>◦ inform the Arandis community as soon as downscaling and/or closure become possibilities; and</li> <li>◦ promote post-closure retention of skills in Arandis by aligning training and skills development with local economic development.</li> </ul> <p>The achievement of sustainability on closure will require concerted and aligned activities by all stakeholders, and particularly by mining companies. Rössing Uranium should promote and support initiatives to achieve commonality of vision and activities, in particular those initiated by the implementing organisation of the Strategic Environmental Assessment.</p>	Medium Positive
The construction phases of Rössing Uranium's mine expansion project will provide employment opportunities and development benefits.	3	Employment creation - construction	Medium positive	<ul style="list-style-type: none"> <li>◦ Tender criteria should require training and development of the contractor workforce by the Contractor. In particular, the Contractor should identify and focus on skills that would enable construction workers to become part of Rössing Uranium's permanent workforce when the construction phase ends.</li> <li>◦ Contractors should be required to prioritise local labour and to ensure employment equity by employing representatives of marginalised groups.</li> </ul>	Medium positive



Potential Impact	Impact No.	Impact environment	Significance before intervention	Recommendations for mitigation/optimisation	Significance after intervention
The housing of a large construction workforce in a small community will disrupt the social, cultural, natural and economic functions of the community.	2	Construction camps	Medium negative	<p>Rössing Uranium should:</p> <ul style="list-style-type: none"> <li>◦ ensure that, if a construction camp is required during the construction period, such camp is located at a sufficient distance to prevent disruption of any vulnerable community, such as Arandis.</li> <li>◦ undertake oversight of the construction camp management plan to ensure that construction workers have accommodation that is safe, hygienic and commensurate with an acceptable lifestyle.</li> <li>◦ make its construction camp policy public as soon as possible so as to manage expectations and curtail developments which are being undertaken in anticipation of accommodating the Rössing Uranium construction camp, and</li> <li>◦ use local labour and contractors wherever possible to limit the number of external contractors and employees who do not have accommodation in the area.</li> <li>◦ It is possible that there will be a number of construction camps in proximity to each other, serving different mining companies. To avoid labour unrest and ensure the stability of the construction workforce, Rössing Uranium should promote the establishment of health, safety and environment policies and programmes which are aligned across all the camps.</li> </ul>	Neutral
The operational phase of Rössing Uranium's mine expansion project will provide long-term employment opportunities and development benefits.	4	Employment creation - operation	Medium positive	<p>Rössing Uranium should:</p> <ul style="list-style-type: none"> <li>◦ through its recruitment policy, ensure equitable employment opportunities ensure for marginalized groups.</li> <li>◦ expand its skills and capacity development programme to address the disadvantages of low skills and experience in the labour pool and make these programmes available to the contractor's workforce;</li> <li>◦ maximise the benefits of long-term employment by: <ul style="list-style-type: none"> <li>▪ ongoing training of the Rössing Uranium workforce as currently practiced introducing training in alternative economic activities to enable members of the workforce to enter alternative economic sectors or to undertake self-employment in the event of downscaling or closure;</li> <li>▪ for the benefit of the Company and its employees, adopt retention policies which will constrain 'poaching' of workers by other companies.</li> </ul> </li> </ul>	High positive

Potential Impact	Impact No.	Impact environment	Significance before intervention	Recommendations for mitigation/optimisation	Significance after intervention
The mining activities at Rössing Uranium's operations can impact on public health, safety and livelihoods.	5	Public Health and Safety	Medium negative	<p>Rössing Uranium should:</p> <ul style="list-style-type: none"> <li>develop programmes and policies relating to dust and blast management;</li> <li>where emergency response plans involve local communities, ensure that such communities are aware of the contents of the plans and what is expected of them;</li> <li>provide advance notification to Arandis residents of blasting events;</li> <li>ensure that comprehensive monitoring of air quality is emplaced in Arandis;</li> <li>provide feedback to the Arandis community of the results of air quality and blast monitoring in Arandis;</li> <li>to address negative perceptions, provide practical demonstrations to the community of the way in which monitoring is done, where the monitors are and how they work; and</li> <li>establish a health baseline of Arandis, and initiate a health surveillance programme.</li> </ul>	Low negative
The requirements for housing Rössing Uranium's workforce will destabilise property markets in the towns in the study area.	6	Housing and accommodation	Medium negative	<p>Rössing Uranium should:</p> <ul style="list-style-type: none"> <li>as a priority, advise local authorities of its housing requirements for the Mine Expansion Project;</li> <li>avoid the increase in property prices that results from competition by working consultatively with other mining companies through the channels provided by the Implementing organisation of the Strategic Environmental Assessment;</li> <li>design housing projects for use by groups other than just mine employees and should maximise the possibility for post-closure use;</li> <li>ensure that the design of housing projects within a community is such that the development of "mining enclaves" is avoided;</li> <li>keep the cost of housing for employees as low as possible by avoiding, as far as is feasible, the use of property developers and estate agents.</li> <li>limit the number of houses it makes available in Arandis, and provide such housing only where the employee states a preference for living in the town;</li> <li>make its housing policy public as soon as possible so as to manage expectations and curtail developments which are being undertaken in anticipation of housing the Rössing Uranium workforce.</li> </ul>	Low negative
A lack of accommodation for Rössing Uranium's increasing	7	Housing and Accommodation	High negative	<p>Rössing Uranium should:</p> <ul style="list-style-type: none"> <li>as a priority, consult local authorities in Walvis Bay, Swakopmund</li> </ul>	Medium negative

Potential Impact	Impact No.	Impact environment	Significance before intervention	Recommendations for mitigation/optimisation	Significance after intervention
workforce between 2010 and 2012 will impact negatively on employees and on communities in Swakopmund and Arandis.				<p>and Arandis to ascertain what accommodation is available for rental;</p> <ul style="list-style-type: none"> <li>◦ consider providing housing, for re-sale at a later stage, in the Progressive Development Area in Swakopmund, which is ready for such development;</li> <li>◦ ascertain the housing requirements of the workforce to establish whether it would be possible to house some of them in temporary accommodation, such as mobile homes.</li> </ul>	
Local and regional economies will be positively impacted by increased spending by Rössing Uranium and its workforce.	8	Local economic development	Medium positive	<p>Rössing Uranium will continue its policy of local procurement wherever feasible and should :</p> <ul style="list-style-type: none"> <li>◦ develop mechanisms for improving local procurement by assessing local business opportunities for each contract,</li> <li>◦ when local service providers are available, but lack the capacity to be contracted to Rössing Uranium, assist such service providers to acquire the necessary capacity,</li> <li>◦ investigate opportunities and place support mechanisms in place to facilitate the participation of women in the local economy,</li> <li>◦ supply start-up funding to SMEs to provide goods and services to the company. Priority should be given to businesses that will also contribute to economic diversification.</li> <li>◦ Adopt procurement strategies that promote small, Namibian companies and encourage diversification and development of these companies away from dependence on Rössing Uranium.</li> <li>◦ advise service providers as soon as downscaling or closure become possibilities.</li> </ul>	High positive
Inward migration of work seekers to Erongo Region will increase as a result of the perceived job opportunities offered by the Rössing Uranium expansion projects	9	Inward migration	High negative	<p>There is no management intervention that can stem inward migration. However, Rössing Uranium should:</p> <ul style="list-style-type: none"> <li>◦ contribute to the prevention of backyard shack dwelling , informal housing and the attendant health and social problems by promoting home ownership and ensuring, as far as feasible, that its workforce lives in formal housing;</li> <li>◦ support the Arandis Town Council in its efforts to upgrade the state health services in Arandis so that these can cope with an inward migration of unemployed work seekers;</li> <li>◦ ensure the extension of its workforce health programmes, which should include tuberculosis, to all the company's communities of interest;</li> <li>◦ develop programmes addressing social ills, such as alcohol abuse and violence against women and children and extend these to all the company's communities of interest through the Peer Educator Programme.</li> </ul>	High negative

Potential Impact	Impact No.	Impact environment	Significance before intervention	Recommendations for mitigation/optimisation	Significance after intervention
With current capacity, the schools in Swakopmund and Walvis Bay will not be able to accommodate the schooling requirements of Rössing Uranium's workforce.	10	Social services	High negative	<p>Rössing Uranium should:</p> <ul style="list-style-type: none"> <li>participate in negotiations with the Ministry of Education, both in its own right and through the mechanisms established in the Implementing organisation of the Strategic Environmental Assessment, for the building of additional schools in the areas where its workforce will reside;</li> <li>consider building extra classrooms at schools where the shortage is most critical;</li> <li>negotiate with the Ministry of Education to secure placement for the children of Rössing Uranium's employees at schools so assisted;</li> <li>consider building a new school, in partnership with other uranium companies, to be handed over to the government on closure.</li> </ul>	Medium negative
Increased road use by Rössing Uranium for transport and for conveying the larger workforce to and from Rössing Uranium could impact on the safety of Rössing Uranium personnel and other road users	11	Traffic	Medium negative	<p>Rössing Uranium should:</p> <ul style="list-style-type: none"> <li>continue and improve its policies and programmes for driver training, vehicle maintenance and road safety;</li> <li>ensure that its Disaster Management Plan is continually updated and that there is adequate support, awareness and competency to implement such plans;</li> <li>provide additional support to the traffic department of NAMPOL, especially during peak commuter traffic times, at three critical points: the exit from Swakopmund going towards Arandis, the intersection of the B2 and the C28 and the Arandis intersection;</li> <li>introduce a code of conduct to be adopted by service providers which will address issues such as speed, vehicle maintenance, loading, driver proficiency, alcohol abuse and passenger safety;</li> <li>undertake a survey to establish more accurately the number of vehicles that use the road network to go to the mine regularly in order to establish whether further traffic management plans are required;</li> <li>encourage employees to use Company bus transport for commuting to and from the mine;</li> <li>with other uranium companies, lobby for the upgrading of the C34 to a tar road, and for assistance with the funding of such upgrading;</li> <li>in the event of the C34 is upgraded to a tar road, require that its service providers from Walvis Bay use this road;</li> <li>implement the recommendations of the specialist traffic study undertaken for Phase 2 of the Mine Expansion Project.</li> </ul>	Low negative

Potential Impact	Impact No.	Impact environment	Significance before intervention	Recommendations for mitigation/optimisation	Significance after intervention
If Rössing Uranium proceeds with the Expansion Project before an alternative source of water to the Omdel supply is available, Erongo Region could experience a water shortage which will impact on every sector and will breach the limits of sustainable development. 1	12	Water	High Negative	<p>Rössing Uranium should:</p> <ul style="list-style-type: none"> <li>◦ continue and intensify lobbying to fast-forward the Namwater desalination plant, both through the Chamber's channels and on its own;</li> <li>◦ undertake intensified consultation with Areva Resources Namibia to gain priority access to that company's excess desalinated water if this becomes available;</li> <li>◦ ensure continued improvement of surface and ground water management programmes through review and optimisation of processing activities;</li> <li>◦ prepare for hostile public reaction to water consumption by the mine;</li> <li>◦ use the existing fora of which it is a member to ensure that water concerns are given priority, and to maintain urgency in addressing these concerns; and</li> <li>◦ ensure the availability of a sufficient, sustainable and economic supply of desalinated water before taking a decision to implement Phase 2 of the Mine Expansion Plan.</li> </ul>	Neutral

## 6. Conclusion – significance before and after intervention

The existence of, or potential for, cumulative impacts affects the confidence with which an assessment of the significance of impacts before and after interventions can be made. Rössing Uranium’s interventions alone cannot mitigate impacts which are the result of a number of operations. Benefits, too, cannot be successfully optimised without an alignment of the initiatives of all role players.

Issue	Impact	Significance before intervention	Significance after intervention
All Phases			
Sustainability of Arandis. Impact No. 1	Continued investment in Arandis by Rössing Uranium will increase the town’s economic dependence on the company, and the economy will be severely affected in the event of closure or significant downscaling of Rössing Uranium’s operations.	High Negative	Medium Positive
Construction Phase			
Employment creation – construction Impact No. 3	The construction phases of Rössing Uranium’s mine expansion project will provide employment opportunities and development benefits.	Medium Positive	Medium Positive
Construction camps Impact No. 2	The housing of a large construction workforce in a small community will disrupt the social, cultural, natural and economic functions of the community.	High negative	Neutral
All phases			
Employment creation – operational Impact No. 4	The operational phase of Rössing Uranium’s mine expansion project will provide long-term employment opportunities and development benefits.	Medium Positive	High Positive

Issue	Impact	Significance before intervention	Significance after intervention
Public Health & Safety Impact No. 5	The mining activities at Rössing Uranium's operations can impact on public health and safety.	Medium negative	Low negative
Housing Impact No. 6	The requirements for housing Rössing Uranium's workforce will destabilise property markets in the towns in the study area.	Medium negative	Low negative
Housing Impact No. 7	A lack of accommodation for Rössing Uranium's increasing workforce between 2010 and 2012 will impact negatively on employees and on communities in Swakopmund and Arandis.	High negative	Medium negative
Local economies Impact No. 8	Local and regional economies will be positively impacted by increased spending by Rössing Uranium and its workforce.	Medium Positive	High Positive
Inward Migration Impact No. 9	Inward migration of work seekers to Erongo Region will increase as a result of the perceived job opportunities offered by the Rössing Uranium Mine Expansion Plan	High negative	High negative
Social Services Impact No. 10	With current capacity, the schools in Swakopmund and Walvis Bay will not be able to accommodate the schooling requirements of Rössing Uranium's workforce.	High negative	Medium negative
Traffic Impact No. 11	Increased road use by Rössing Uranium and the company's service providers as a result of the Mine Expansion Project could impact on the safety of Rössing Uranium personnel and other road users	Medium negative	Low negative

Issue	Impact	Significance before intervention	Significance after intervention
Water Impact No. 12	If Rössing Uranium proceeds with the Expansion Project before an alternative source of water to the Omdel supply is available, Erongo Region could experience a water shortage which will impact on every sector and will breach the limits of sustainable development.	High negative	Neutral

The above table shows that three potentially negative impacts – the collapse of the Arandis economy, the impact of a construction camp in the town and a regional shortage of water can be avoided. This is the optimal outcome of a Management Plan.

If interventions are successfully implemented, positive impacts will be enhanced and the negative impacts will, with the exception of inward migration, be mitigated. The impact of inward migration will prove resistant to mitigation, particularly to interventions undertaken by Rössing Uranium on its own. Even in concert with other companies, the residual impact will remain of high significance while the uranium sector in Erongo offers the potential for employment in a context of high national unemployment.

The Social Management Plan presents the recommendations for achieving the aims of interventions by Rössing Uranium to enhance or mitigate the impacts identified in this Assessment.



## References

- CoM (2009).** *Chamber of Mines of Namibia, 2008 Annual Review 2007-2008.*
- CSIR, 2009.** Environmental Impact Assessment for the Proposed Desalination Project at Mile 6 near Swakopmund, Namibia, Final EIA Report, CSIR Report No. CSIR/CAS/EMS/ER/2009/0015/A, Stellenbosch.
- Ellmies R (2009)** Strategic Environmental, Social and Economic Assessment for the Central Namib Uranium Rush. Presentation 2009.
- Fitch Ratings (2009)** *Namibia Power Corporation (Proprietary) Limited*
- Hoadley, M (2009)** *Baseline Overview of Community Development Organisations in Walvis Bay and Swakopmund.* Unpublished Report commissioned by Rio Tinto Rössing Uranium Limited. 2009
- Hoadley, E.M., D Atkinson, D Limpitlaw and J Tarr (2005).** *Arandis Socio-Economic Baseline Study.* A report commissioned by The Town Council of Arandis, The Rössing Foundation and Rössing Uranium Ltd. 2005
- Ninham Shand (2007)** *Social and Environmental Impact Assessment : Proposed Expansion Project for Rössing Uranium Mine in Namibia: Phase 1 ~ Acid Plant*
- Ninham Shand (2008)** *Social and Environmental Impact Assessment: Proposed Expansion Project for Rössing Uranium Mine in Namibia: Phase 1 ~ Acid Plant, Ore Sorter & SK4 Pit. Final Social and Environmental Impact Assessment Report (Report No 4560/402239)*
- Rio Tinto (2009)** *Rio Tinto and Water.*
- <http://www.riotinto.com./documents/RTandWater.pdf> downloaded December 2009.
- Rössing Uranium (2009)** *2008 Report to Stakeholders.*
- Stubenrauch Planning Consultants cc, (2007)** *Study and Strategy Development of Rössing Uranium Limited.*
- Turgis Consulting (Pty.) Ltd. (2007)** *Report of the Environmental and Social Impact Assessment, Trekkopje Uranium Project Erongo Region, Namibia.* November 2007.
- Namibia Water Corporation Ltd (2009).** [www.namwater.com.na/](http://www.namwater.com.na/) Accessed December 2009
- Venter, W (2009) Pers. Comm. 10 December 2009.** *Senior Manager: Fixed Asset Management, NamWater.* [VenterW@namwater.com.na](mailto:VenterW@namwater.com.na)
- Xamine Consulting Services (2009).** *Namibia Earthquake Hazard Assessment and Potential Risk to Groundwater Aquifers from Blast- Induced Seismicity.* Unpublished report commissioned by Rössing Uranium.