

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

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Social Impact Assessment

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Appendix 1: Vehicle Traffic Growth for 2007

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).

Rössing Uranium (RU) is preparing an application to the Ministry of Minerals and Energy (MME) for a mining licence in respect of the proposed activities to carry out the Mine Expansion Project. In terms of the Namibian Constitution (GRN 1990) and related environmental legislation, in particular the Environmental Assessment Policy (MET, 1995) and the Minerals Act (No. 33 1992), the Ministry of Environment and Tourism's Directorate of Environmental Affairs (MET: DEA) would need to issue a clearance for such expansion, subsequent to which the Ministry of Mines and Energy will be in a position to consider issuing the necessary mining licence to RU.

This Socio-Economic Impact Assessment (SIA) forms part of the integrated Social and Environmental Impact Assessment (SEIA) commissioned by RU for its proposed expansion project. The assessment is guided, in particular, by the following:

- the objectives of Namibia's Environmental Assessment Policy, which are to ensure:
 - that decisions makers are fully informed of the proposed operation, and so are accountable for their decisions,
 - that as many options and alternatives as possible to the existing development plans are considered,
 - that all sectors of Namibian society who could be impacted by the mining operation, whether positively or negatively, are consulted and given the opportunity to participate in the SEIA, and
 - that sustainable development, both inter- and intra-generationally, is promoted by ensuring that negative impacts are avoided or minimized and positive impacts are enhanced.
- 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".
- 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, and
 - assessment of
 - socio-cultural changes,
 - socio-economic variations,
 - environmentally induced effects, and
 - health issues.

1.1 *Structure of the report*

This report is structured as follows:

- Section 1: Introduction and background
- Section 2: Methodology
- Section 3: Identification and ranking of potential impacts
- Section 4: Conclusion

1.2 *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.

A SIA cannot dictate to a project proponent 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 individuals that could be impacted by the proposed development. It identifies potential impacts, both negative and beneficial, and in so doing can influence the planning process by presenting project proponents with alternative development possibilities and a sound basis for their decisions.

An 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 always uncertain. 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 these 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 concerns of marginalised groups and affected communities have informed this report.

1.3 *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 broad-based socio-economic baselines of the impacted environments,

- undertake wide, inclusive, transparent and ongoing public participation and consultation,
- assess the identified impacts, and
- develop mitigation/enhancement measures.

2. Methodology

2.1 *Introduction- the scoping phase*

This SIA forms part of the integrated Social and Environmental Impact Assessment for the RU Mine Expansion Project. Project planning meetings were conducted to ensure that the public participation process addressed the concerns of and included the stakeholders relevant to both the environmental and the socio-economic assessments. The scoping phase was initiated by three public participation meetings.

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

An unstructured approach was used for the meetings. The socio-economic baseline had to be developed over a short period of time, and an unstructured approach is the most productive way of gaining socio-economic information within a limited time-frame.

2.2 *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, and
- professional opinion and experience. This last aspect is open to subjectivity, and consultation and deliberation with the SEIA team were undertaken to ensure that subjectivity was avoided to the greatest extent possible.

A standardised and internationally recognised methodology¹ is applied to assess the significance of the potential environmental impacts of RU's expansion project.

¹ As described, *inter alia*, in the South African Department of Environmental Affairs and Tourism's Integrated Environmental Management Information Series (CSIR, 2002).

The nature of the impact (positive, negative or neutral) and the phase during which it occurs is stated. The EXTENT (spatial scale), INTENSITY (degree scale) and DURATION (time scale) will be described. These criteria are used to ascertain the SIGNIFICANCE of the impact, but it must be borne in mind that the assessment of significance before intervention is largely based on subjective considerations such as the context of the communities involved and the informed value judgements of stakeholders, interested and affected parties and specialists. The significance rating arrived at after intervention is similarly based, but includes a consideration of the capacity of, and constraints on, the proponent of any intervention.

The mitigation described in the integrated SEIA Report will represent the full range of plausible and pragmatic measures but this does not necessarily imply that they should or will all be implemented. The decision as to which combination of alternatives and mitigation measures to apply for will lie with RU as the proponent, and their acceptance and approval ultimately with MET:DEA and MME. The SEIA Report will explicitly describe RU's commitments in this regard. The tables on the following pages show the scale used to assess these variables, and defines each of the rating categories (Ninham Shand. 2007).

Nature of the impact	
-	Negative
+	Positive
Neu	Neutral

Phase: the particular phase of the mine life-cycle during which the impact will occur	
Exploration	E
Construction	Con
Operation	O
Closure	C
Post-closure	PC
All phases	All

Intensity: Negative Impacts	
Low (L)	The impact has no effect on natural, cultural and social functions and processes beyond that of nuisance value.
Moderate (M)	Natural processes and cultural and social functions continue, but in a modified way.
High (H)	Natural processes or cultural or social functions are altered to the extent that they temporarily or permanently cease, resulting in severe deterioration of the impacted environment.
Intensity: Positive Impacts	
Low (L)	The impact has a slight positive effect on natural, cultural and social functions and processes and a slight but discernible effect on livelihoods and socio-economic development.
Moderate (M)	Natural processes, cultural and social functions, continue in a noticeably enhanced way. The opportunities for livelihoods and the enhancement of socio-economic conditions are noticeably increased.
High (H)	Natural processes or cultural or social functions, opportunities for livelihoods and socio-economic development are altered to the extent where the sustainability of the impacted environment is considerably promoted.
Duration: life-time of the impact	
Short term (S)	0-5 years, the effects can be reversed in a short time.
Medium term (M)	5-15 years, the effects could be reversed over a medium time period, possibly coinciding with the life of mine.
Long term (L)	The impact will only cease after the operational life of Rössing Uranium.

Permanent (P)	The impact on the receiving environment will effectively be irreversible.
Extent: the geographical extent of the impact	
Local (L)	The impact will affect one or more of the communities of interest.
Regional (R)	The impact will affect Erongo Region.
National (N)	The impact will affect Namibia.
Significance	
High (H)	Positive benefits accrue to large sectors of the economy and population, with equitable opportunities for participation in benefits. OR 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.
Moderate (M)	Negative - 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, OR Positive - the impact has some benefits for the receiving environment, but intervention is required to maximise such benefits.
Low	The impact is so minor that the receiving environment is capable of sustaining it without any noticeable effects.
Very low	The impact will have no effect on the receiving environment which will not undergo any change as a result of the impact.

Once the significance of an impact has been determined, the PROBABILITY of this impact occurring as well as the CONFIDENCE in the assessment of the impact would be determined using the rating systems outlined in the tables below. It is important to note that the significance of an impact should always be considered in concert with the probability of that impact occurring (Ninham Shand, 2007).

Probability of the impact occurring	
Definite (D)	The chances of the impact occurring are greater than 95%.
Probable (P)	The chances of the impact occurring are between 5% and 95%.
Unlikely (U)	The chances of the impact occurring are less than 5%.
Confidence	
Certain	A wealth of information on and sound understanding of the environmental factors potentially influencing the impact.
Sure	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.
Unsure	Limited useful information on and understanding of the environmental factors potentially influencing this impact.
Potential for mitigation/optimization	
Low (L)	The potential for mitigation/optimisation is limited because of the severity of the impact and a lack of capacity/resources and coping mechanisms in the receiving environment.
Moderate (M)	The intensity is moderate and the receiving environment has some mechanisms to mitigate or optimize the impact, as well as resources that can be called upon.
High (H)	The intensity is low and the receiving environment has the capacity, resources and mechanisms to mitigate or optimize the impact.

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

3.1 Cross-cutting issues

The consultation 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 and vibration,
- visual impacts,
- radioactivity and public dose assessment,
- water resources management assessment,
- air quality and
- quantitative risk.

The RU 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:

- an open pit development of the remainder of the SK ore body,
- an open pit development of the ore body in the area designated as SH,
- the development of a heap leaching facility,
- the establishment of a vacuum belt filter plant within the existing plant area,
- the development of alternate processing facilities with their associated processing plant infrastructure,
- new rock waste disposal facilities in undisturbed areas, and
- new tailings disposal facilities in undisturbed areas.

This Socio-Economic Impact Assessment will assess potential impacts arising from both phases of the Mine Expansion Project, and is done concurrently with the Social and Environmental Impact Assessment for Phase 1.

3.2 *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.
- Discussion of the basis for the categorisation. Section 1.2 points out the non-empirical nature of conclusions about social issues. A number of assumptions have to be made, both in the identification and assessment of the impacts and in the mitigation/optimization measures.
- Statement of the significance of the impact after intervention. The intervention measures are not detailed, as these form part of the Social Management Plan.

3.3 *Impacts*

3.3.1 *The sustainability of Arandis*

Currently Rössing owns 16 houses and 25 single quarters in Arandis and pays rent to the Town Council of Arandis (TCA) for an additional 43 houses for accommodation

for RU employees. The company's direct contribution to the income of the TCA does not represent a remarkably substantial one. However, the direct contribution by Rössing employees to the revenue of the town makes the total direct contribution through housing and payment for services and rates highly significant. In 2005, more than 50% of the economic input into the town was derived from RU or RU employees, and one third of the households were directly supported by mine salaries. The income accruing to the TCA as a result of RU's involvement is therefore substantial. This assessment, and the above statistics exclude support from RU for local procurement and services, as well as 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. Although statistics on all the above support were not available, it can safely be assumed that the dependence of the town on RU is of a magnitude that makes its economy vulnerable to changes which would affect continued economic input by the company and its employees. Additional complications are that the town's economy has never diversified, that it has never shed its dependency on RU and that it has not shown the resilience to recover from shocks and setbacks.

RU, in view of its historical role in the establishment and development of Arandis, has a corporate social responsibility not to intensify the relationship of dependency that exists between the company and the town. This imperative is increased by the requirements of mining companies to ensure the sustainability of the communities within their sphere of influence, which would, in this case, require that RU supports initiatives to promote the diversification of the town's economy.

This impact has been identified and ranked only from the aspect of RU'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 initiatives of RU to ensure the sustainability of Arandis.

Impact 1: Continued investment in Arandis by RU will increase the town's economic dependence on the company and the economy will collapse on closure of RU's operations.

Nature	Intensity	Duration	Extent	Phase	Probability	Significance	Mitigation potential	Confidence
-	H	L/P	L/R/N	All	D	H	H	C

The impact is negative. The intensity is high, as natural processes and cultural, social and economic functions will be altered to the extent where the impacted environment deteriorates severely.

The impact will be felt nationally. An economy based on non-renewable resources 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. In Arandis, the effects of the impact will be an out-migration of skills, increased indigency in the town, a return to a skewed demographic profile and the characteristics of a post-closure mining community which it currently exhibits, and which are discussed in the companion Socio-Economic Baseline Study (the Baseline Study).

The impact will occur during all phases of the Mine Expansion Project. Arandis has failed to move away from dependency on RU, and while the company remains the dominant force in the economy of the town, it is unlikely that such a change will materialise.

In view of 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. The extent and duration of the impact support this rating.

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. A study of development in Arandis since 1992 indicates, too, that Arandis will continue its dependency on RU.

The mitigation potential is high. The projected closure date for RU is 2026, which means that the company has nearly twenty years to contribute to the sustainability of Arandis by decreasing the town's dependence on the mine and by participating in initiatives aimed at economic diversification.

3.3.2 Employment creation

Unemployment levels in communities affected by RU are high, and the majority of unemployed people are unskilled or have low-level skills. Long-term decline in the mine's profitability, although now reversed, resulted in large numbers of retrenchments which impacted on local communities and labour-sending areas in particular, and on Namibia in general.

The construction phase of a mining project is generally labour intensive, and usually employs more people than are required during the operational phase. The relatively large number of jobs created for the construction phase must be weighed against the temporary nature of the employment.

Figure 1 shows that, under steady-state operating conditions, RU's expansion projects will create a significant number of jobs between 2007 and 2026. 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 RU'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 locally 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.

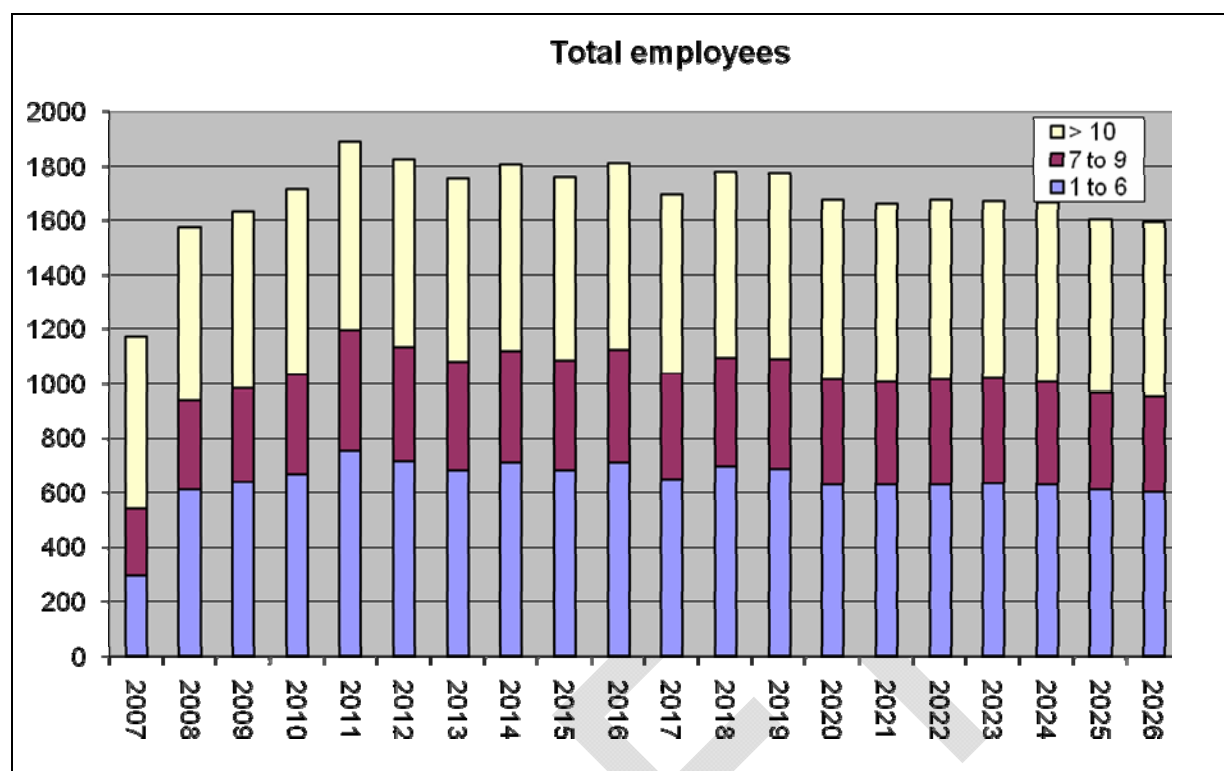


Figure 1: Projected employment at RU: 2007-2026.

Impact 2: The construction phases of RU's mine expansion project will provide employment opportunities and development benefits.

Nature	Intensity	Duration	Extent	Phase	Probability	Significance	Optimisation potential	Confidence
+	M	S	L/R/N	Con	D	M	M	C

The impact is positive as the employment opportunities are created in an environment of high unemployment.

The intensity is moderate. The opportunities for livelihoods and the enhancement of socio-economic conditions are noticeably increased, especially as every job created means livelihoods for a number of dependants.

The duration is short-term, as the need for workers during construction will cease when the expansion projects reach the operational phase.

The extent is local, regional and national. Locally and regionally, people will find employment, and economies will benefit from an increased inflow of cash. Nationally, remittances to labour-sending areas will benefit dependants living there.

The probability is definite. Additional employees will be needed during the construction phase.

The significance is moderate due to the limited duration of the impact.

The optimization potential is moderate. Contractors should commit to training their workforce during the construction period. If such training is focused on skills which make it possible for construction workers to become part of the permanent workforce after the construction period, the optimization potential is increased. However, the low skills, education and literacy levels of some unskilled workers could mean that they may not be able to make the transition. Their ability to access employment outside the RU work environment should, however, be enhanced.

Impact 3: The operational phase of RU's mine expansion project will provide long-term employment opportunities and development benefits.

Nature	Intensity	Duration	Extent	Phase	Probability	Significance	Optimisation potential	Confidence
+	M	L	L/R/N	O	D	M	H	C

The impact is positive. While fewer jobs will be created during the operational phase, they will be essentially permanent, creating opportunities for training, advancement in the workplace and livelihoods security.

The intensity is moderate. The opportunities for livelihoods and the enhancement of socio-economic conditions are noticeably increased. There will be a marked impact on the surrounding economies through direct cash injection and the increased viability of local authorities as more service charges and rates become payable.

The impact will be long-term and, with optimization, the benefits could last well beyond mine closure. 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.

This impact will definitely occur. RU 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.

The impact is of moderate 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. The optimisation of the construction phase employment impact will assist with the optimisation of the operational phase impact as training and skilling of local people will already have commenced and can be extended during the latter phase, allowing participation of local people, who would not otherwise have possessed the requisite skills, to be employed in the operational phase of the project. Trained people will be available for other sectors in addition to the mining sector. With diversified training, employees will also be in a better position to enter self-employment and so become creators of employment themselves.

3.3.3 Construction camps

Construction is commonly the most labour-intensive phase of any mining operation and requires more workers than steady-state operation. Workers are employed on a contract basis through contractors and are seldom permanent residents in the area. As a consequence, additional accommodation is required.

At the time of writing, final information as to the size of a construction workforce was not available. For the purpose of this assessment, it is assumed that 150 construction workers will need accommodation at any one time during the construction phases.

The social impacts of such camps can be significant as large numbers of workers, separated from their families, 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 related violence and assaults. The relatively high income earned by contract workers can also 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 those goods and services by the poorer members of the community. The local economy will also 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 the engagement process for UraMin's Trekkopje Uranium Project, women in both Arandis and Spitzkoppe expressed concern about the possible proximity of a construction camp. At a public participation meeting held in Arandis for the Trekkopje Uranium Project on 4 December 2004, extreme resentment was expressed by the residents towards construction workers, accommodated in the town, who had been employed at the perceived expense of locals.

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.

Impact 4: The housing of a large construction workforce in a small community will disrupt the social, cultural, natural and economic functions of the community.

Nature	Intensity	Duration	Extent	Phase	Probability	Significance	Mitigation potential	Confidence
-	M	M	L	Con	D	M	H	C

The impact is negative and of moderate intensity as natural processes and cultural and social functions will continue, but in a modified way.

The impact will be local and restricted to the town in which the construction workers are housed.

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.

Historical precedent, concerns expressed by stakeholders and the baseline conditions in small communities in the study indicate that this impact will definitely occur.

The significance of this impact is rated as high. The most feasible community within which to establish a construction camp is Arandis, and the town is economically and socially vulnerable to the impact. The pervasive hostility in the community towards the employment of outsiders, particularly construction workers, affirms this rating.

The mitigation potential is high. Mines that use sizeable construction crews either source labour locally, so that construction workers already have accommodation, or set up construction camps, with sound management plans, in areas away from settled communities. These alternatives result in a high mitigation potential.

3.3.4 Public health and safety

Public health and safety impacts resulting from RU'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 are 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 impacts could 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 fly rock from over blasting, and
- catastrophic failure, such as collapse of the tailings dam.

The last two examples are not considered here as they are more appropriately addressed elsewhere. Dust generation and pollution are strictly biophysical impacts, but they have socio-economic dimensions as they potentially affect health and livelihoods.

Impact 5: The mining activities at RU's operations can impact on public health, safety and livelihoods.

Nature	Intensity	Duration	Extent	Phase	Probability	Significance	Mitigation potential	Confidence
-	M	L	L	Con, O	P	M	H	S

The impact is negative. Transport-related, off-site impacts potentially result in loss of life and/or property. Dust and water pollution are potentially dangerous to health and impact on livelihoods and aesthetic aspects of the environment.

The intensity is moderate as the extent is local and public activities will continue, albeit in a modified way. Excessive dust may inhibit economic activity in Arandis – many industrial processes and service industries are sensitive to dust, either as a physical agent (abrasion, contamination,) or through aesthetic and visibility impacts. Migration of pollution along the Kahn and Swakop Rivers could potentially affect agricultural activities currently conducted downstream of RU.

These impacts are intermittent and may occur at any stage of the construction and operational phases of the project. The duration is thus long-term. Impacts, unless they involve a large scale spillage of hazardous materials, will be limited to the site of the accident.

The intensity, extent and duration combine to make the significance moderate.

The mitigation potential is high. RU has stringent road safety programmes and emergency response plans in place, as well as dust and water monitoring. In the latter respect, particular attention is paid to the quality of groundwater in the Khan and Swakop Rivers. This is discussed more fully in the Baseline Study.

3.3.6 Housing and accommodation

As with any large development project, RU has an obligation to ensure that employees have access to basic needs such as health and education services, infrastructure services and acceptable accommodation. RU's estimates are that, as a result of the Mine Expansion Projects, approximately 400 additional accommodation units will need to be provided for the increased workforce.

All the towns in the vicinity of RU have a shortage of available accommodation and erven for development. The sustained uranium boom in Erongo Region is exacerbating the housing shortage in Swakopmund and Walvis Bay, and limited housing stock is available in Arandis. Additional housing will have to be built as other mines in the area will be starting up and will have similar housing needs.

The 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, from the time a new development is initiated to the delivery of serviced stands, is approximately three years (SPC, 2007).

Impact 6 : The requirements for housing RU's workforce will destabilise property markets in the towns in the study area.

Nature	Intensity	Duration	Extent	Phase	Probability	Significance	Mitigation potential	Confidence
-	H	M-L	L	Con, O, C	P	M	L	S

The impact is negative and cumulative.

The intensity is high. In Swakopmund prices are already moving beyond the reach of local buyers, and even in traditionally lower-priced areas such as Mondesa and Tamariskia, people are moving to Arandis and Walvis Bay as these are cheaper options. Prices and rentals in Walvis Bay are predicted to increase as a result of limited land, investor buying and the requirements of mining companies. In Arandis prices are rising and property developers have bought up available erven in anticipation of demand by mining companies and their contractors.

As demand exceeds supply, house prices will rise dramatically, making houses less affordable for poorer people and entrenching existing inequalities.

The housing shortage is expected to be addressed by market forces over the medium term as sustained demand results in additional housing projects. In the larger centres, Swakopmund and Walvis Bay, there will be market for houses post-closure, and consequently the impact will not persist for the life-of-mine. Both these towns have economic bases which will require and absorb the extra housing. The property market in both towns will in all likelihood stabilise, but at a higher price than is currently in force. In the smaller centres, there is a risk of a housing market collapse when houses occupied by mine employees are vacated on closure. Usakos and Arandis are particularly vulnerable to this risk.

Demand in the larger centres may result in price escalations in the smaller towns as people move there to alleviate housing costs. Those who can no longer afford formal housing may be forced into informal settlements.

The impact will be experienced in all four communities, with Usakos arguably being the least affected as the town does not have adequate engineering infrastructure in place to support a significant expansion of the population.

There is a probability that this impact will occur. The Baseline Study discusses the shortage of housing and erven in the study area. In Swakopmund large parcels of land have been given to private developers, and in Arandis property is being bought on a speculative basis. These practices serve to drive prices up. In addition, the needs of other mines that will soon be commissioned will create competition for scarce housing stock, which will also increase prices.

The impact is of moderate significance but at the upper end of the scale approaching high significance.

The mitigation potential is low in view of the limited availability of developed erven and, more importantly, the limited availability of land for development.

3.3.7 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 4.3 in the Baseline Study) as well as the economic environment in the four towns.

Secondary industries and commercial enterprises will be needed to further meet the needs of the mine for contract services, the needs of consumers as more expendable cash becomes available in the towns and the needs of the building industry.

Impact 7: Local and regional economies will be positively impacted by increased spending by RU and its workforce.

Nature	Intensity	Duration	Extent	Phase	Probability	Significance	Optimisation potential	Confidence
+	M	M/L	L/R	Con, O	D	M	M	C

The impact is positive due to the potential developmental benefits arising from economic stimulation.

The intensity is moderate. The opportunities for livelihoods through increased employment by the sectors benefiting from the spend of RU and its employees will be increased, as will enhancement of socio-economic conditions, particularly from those benefits that accrue to local authorities.

The impact will be regional and 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.

The impact will definitely occur. Service payments to local authorities are not optional, and people need to buy their everyday necessities. RU will need additional supplies and services, and will, as in the past, source these from local suppliers and providers wherever possible.

The impact is of moderate significance. The differentiated optimisation potential constrains the ranking of the impact as high.

The optimisation potential is high in those towns where the economy is already sound and diversified. In Arandis it is moderate in view of the difficulties the town will experience in promoting economic diversification and its limited consumer infrastructure. In Usakos it is also moderate as much of the money flowing to the local authority will have to be used to upgrade the infrastructure. The town also does not have a sound economic base on which to build and consumer services, although better than Arandis, are still limited and unattractive.

3.3.8 *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, and the views and concerns expressed by stakeholders during the consultation period are discussed in the Baseline Study.

Impact 8: Inward migration of work seekers to Erongo Region will increase as a result of the perceived job opportunities offered by the RU expansion projects.

Nature	Intensity	Duration	Extent	Phase	Probability	Significance	Mitigation potential	Confidence
-	M	P	L/R	Con, O, C	D	H	L	C

The impact is negative and cumulative. 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.

The intensity is moderate as 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 framework.

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, once there, do not easily move on. Informal settlements are thus essentially permanent.

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.

The impact has already commenced and will continue through construction and operation, essentially for as long as there is a perceived possibility of employment.

The fact that inward migration as a result of mining activity has already commenced, and historical precedent, indicate that the impact is definite.

The significance is high as the effects of the impact – poor living conditions, health and social problems and unemployment – are a severe constraint on equitable sustainable development across socio-economic sectors.

The mitigation potential is low. While a large part of the population endures unemployment and poverty, people will move to where they perceive their quality of life can be improved. There are positive moves in Swakopmund, Walvis Bay and Arandis to deal with the living conditions of inward migrants, and these may mitigate the impact. Local authorities are unlikely to have the capacity and resources to effectively deal with the problem without considerable assistance from other sources.

3.3.9 *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. A large sector of a community, however, does not have these options, and if the numbers of such people increase, their reliance on state services will place a severe strain on the capacity of the service providers to deliver.

Social services in Erongo are of a generally high standard, although access to them is not evenly spread across the population. Health services in Arandis are strained and inadequate, although schools have capacity to cope with extra pupils. In Walvis Bay and Swakopmund, state health services are regarded as excellent, but do 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, where it is likely the larger proportion of new employees will reside, and Walvis Bay, as a possible alternative for schooling for the children of RU employees. Access to schooling, and the demands on already over-stretched capacity, was raised as a critical impact by a number of stakeholders.

The Baseline Study provides details of the capacity in schools in the two towns. Although this assessment is concerned with the impact of the RU 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 RU. A further potential impact, which is not analysed here, is the impact on RU. 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.

Impact 9: With current capacity, the schools in Swakopmund and Walvis Bay will not be able to accommodate the schooling requirements of RU's workforce.

Nature	Intensity	Duration	Extent	Phase	Probability	Significance	Mitigation potential	Confidence
-	H	L	R	O	D	H	L	C

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.

The intensity is high. There is a shortage of skills in Namibia, and a problem with learners reaching Grade 8 without being literate (ref?). In some areas the proportion of people who have not finished their schooling is high, and this makes it difficult for them to find employment.

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.

The extent will be regional. Parents will have few options with regard to schooling. Children can be sent to Arandis for schooling, and it is a well-established practice. However, these children are frequently inadequately cared for, and a number of them end up living in child-headed households. Another alternative is to send them to school in other parts of the region, but this breaks up the family unit and puts pressure on the capacity of receiving schools.

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 Swakopmund and Walvis Bay. This situation was confirmed by a number of key informants.

The intensity, duration and extent indicate that the significance of this impact is high. The importance of education for sustainable development affirms this rating.

The mitigation potential is low. There is no capacity at schools in Swakopmund and Walvis Bay and no indication that the Ministry of Education has any plans to increase capacity to any effective degree.

3.3.10 Infrastructure

While there is still adequate capacity on the road and rail networks, the increase in traffic, especially on the B2 between Arandis and Swakopmund, increases the risk of traffic accidents. 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.

As with impacts on social service delivery, increases in economic activity place additional strain on infrastructure. The requirements of large mining operations, such as RU, 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.

Bulk water supply is currently utilised to capacity and will not be able to provide for additional domestic or industrial usage. Water reticulation systems are ageing and require extensive replacement (for example, the Omdel line to Swakopmund).

Namwater has publically undertaken to complete a desalination plant at the coast by 2009 and the RU mine expansion projects will not be commissioned before then.

Electricity supply is similarly strained. Nampower is investing in alternative power generation capacity and supply infrastructure to meet Namibia's growing domestic and industrial demand and to decrease the country's dependence on Eskom, South Africa. Eskom has been experiencing problems in meeting South Africa's demands since 2003 (Ninham Shand, 2007). RU has an installed capacity of 30 MW and will co-produce 6-8 MW from the acid plant.

The Baseline Study provides details of the current situation of water and electricity reticulation and supply in the communities of interest. From these details it is apparent that, while some upgrading may be needed, the reticulation for both these services is in sound condition. The exception is the Omdel pipeline, which is ageing and in need of upgrading.

This is a cumulative impact exacerbated by the development of other mines in the region. However, the assessment of the impact is made only from the perspective of the impact arising from the RU mine expansion project.

The traffic impact study undertaken for the Trekkopje Uranium Project (Turgis Consulting, 2007) assessed the carrying capacity of the B2 which is the road linking RU with Swakopmund, Walvis Bay and Usakos. The road caters for all vehicle types, including heavy vehicles. As the terrain is generally flat, opportunities for overtaking are extensive. The general carrying capacity for this type of road is around 1,800 vehicles per hour in each direction, with variations depending on gradient and overtaking conditions. The relatively high roadway capacity is further ensured by the relatively low number of intersections.

Information in Appendix A, provided by the Roads Authority, shows that, between 2003 and 2007, the overall traffic increase on the B2 was 26%, about 6% per annum compound growth. Although there has been significant growth in road use over that period, the overall daily traffic volumes are relatively low. Peaking characteristics are evident in the vicinity of Arandis during weekdays in the morning and afternoon, and the largest proportion of daily traffic occurs during daylight hours. Based on the background traffic growth of 6% per annum, the main road is estimated to have sufficient capacity to cater for traffic demand until beyond 2020 (Turgis Consulting, 2007).

Impact 10: RU's requirements in terms of water, energy and transport for the Mine Expansion Projects could impact on the requirements of these services by the commercial and private sector.

Nature	Intensity	Duration	Extent	Phase	Probability	Significance	Mitigation potential	Confidence
Neu	L	L	R	Con, O	D	L		C

The impact is neutral. The increased demand on major infrastructure services by RU will not have an adverse effect on the availability of these services to private and commercial users.

The additional water demand by RU is not likely to impact on water supply to domestic and commercial water users. In terms of Rio Tinto's group wide policies, RU will be expected to continue to improve on water use minimisation and recycling, even though desalinated water will be available.

The increases in energy consumption through the activities associated with the Mine Expansion Plan will not be significant, and RU's total energy consumption will not impact on the availability of energy for domestic and commercial energy consumption.

The B2 has been indicated to have sufficient carrying capacity to beyond 2020 at the current rate of increase. Although the Mine Expansion Project will increase traffic on the road, particularly during construction, this increase will not affect the use of the road by private and other industrial users. RU's policies on road safety, driver training and vehicle maintenance, as well as the company's interventions to deal with identified traffic and road use hazards, will ensure that this potential impact remains neutral.

The intensity is low, as normal social and economic activities will not be affected adversely.

The duration of the demands by RU on major services will be long-term and will last through construction and operation to closure.

The significance of the impact is low.

4. 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 foreseeably 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 RU's Mine Expansion Project. In the context of the current expansion of uranium mining in Erongo Region, it is not longer feasible to view the impacts of one mine in isolation. In this assessment, all the impacts, with the exception of Impact 4, are, or will become, cumulative impacts, and the success of interventions 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. As an example, the predicted demands made by RU on energy and transport infrastructure is rated as neutral. However, as more mines are commissioned, demands on these will increase, and the impact would, in all likelihood, be a negative one.

Particular reference should be made to Impact No. 1 above. Whereas RU may be successful in lessening Arandis' dependency on the company, it is possible that the

town's economy may become economically dependent on income from the other mines commencing operations in the area.

5 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. RU'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	Continued investment in Arandis by RU will increase the town's economic dependence on the company and constrain its progress to sustainability after closure.	High Negative	Moderate Positive
Construction Phase			
Employment creation - construction	The construction phases of RU's mine expansion project will provide employment opportunities and development benefits.	Moderate Positive	Moderate Positive
Construction camps	The housing of a large construction workforce in a small community will disrupt the social, cultural, natural and economic functions of the community.	Moderate negative	Neutral
All phases			
Employment creation - operational	The operational phase of RU's mine expansion project will provide long-term employment opportunities and development benefits.	Moderate Positive	High Positive
Public Health & Safety	The mining activities at RU's operations can impact on public health, safety and livelihoods.	Moderate negative	Low negative
Housing	The requirements for housing RU's workforce will destabilise property markets in the towns in the study area.	Moderate negative	Low negative
Local economies	Local and regional economies will be positively impacted by increased spending by RU and its workforce.	Moderate Positive	High Positive
Inward Migration	Inward migration of work seekers to Erongo Region will increase as a result of the perceived job opportunities offered by the RU expansion projects	High negative	High negative

Issue	Impact	Significance before intervention	Significance after intervention
Social Services	With current capacity, the schools in Swakopmund and Walvis Bay will not be able to accommodate the schooling requirements of RU's workforce.	High negative	Moderate negative
Infrastructure	RU's requirements in terms of water, energy and transport for the Mine Expansion Projects could impact on the requirements of these services by the commercial and private sector.	Neutral	Neutral

The above table shows that two potentially negative impacts – the collapse of the Arandis economy and the impact of a construction camp in the town, can be avoided. This is the optimal outcome of a Social Management Plan.

If interventions are successfully implemented, all the 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 RU 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 RU to enhance or mitigate the impacts identified in this Assessment.

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

Socio-Economic Baseline Study

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EXECUTIVE SUMMARY

Rössing Uranium (RU) 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.

RU indicated that the Study should not focus solely on Arandis, but should also incorporate other communities of interest. This guidance, and a preliminary assessment, led to the identification of five communities: Arandis, Swakopmund and Walvis Bay, which already have strong economic ties with RU, and where the RU workforce resides; Usakos, which is to be considered in terms of its suitability for accommodating the workforce, and the Spitzkoppe/small-scale mining community. The latter was included because of its marginalised status in the centre of uranium mining activities, and because of the links it has with RU through the work of the Rössing Foundation.

The two chapters dealing with the developmental context of RU from a national and regional perspective show that the mineral sector, especially in view of the increase in 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 the rural and labour-sending areas. Mining has been a major employer in the Erongo Region, and is set to become even more significant in terms of development by the provision of livelihoods, training and support for local economies.

Specific ministries have their own developmental mandates, and those that are relevant to this Study have been identified. These mandates indicate that there is a need for close co-operation between the minerals sector and its stakeholders in government to ensure that development agendas are aligned for maximum benefit to those sectors in the country and the region which need to be addressed if Namibia is to achieve its objectives as stated in Vision 2030 and to reach its 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 areas such as Swakopmund, Walvis Bay and Henties Bay 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.

The Study foregrounds a number of concerns with regard to development in the Erongo Region. HIV/AIDS and TB are health aspects that pose a threat to community and regional well-being and development. The conditions that encourage the spread of these two 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 in Erongo are the mining and fishing industries, and these two sectors are also the major employers. Industrial activity is limited and 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 in Erongo 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, but these are usually at subsistence level.

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

Tourism is an important component of the region's economy, and is 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 in the region has implications for the region's water resources. Mines are huge consumers of water and this is one of the major concerns of stakeholders in mining projects. UraMin Namibia is constructing a desalination plant to the north of Wlotzkasbaken, but at the time of this Study it was not known what the benefits of this to private consumers and other economic sectors will be.

Mining also 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 effects of mining are already 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 the group of other mining companies active or becoming active 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 in the region. With the increase in the number of operating mining companies, 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.

Five communities/groups have been identified as communities of interest for the purposes of this Study. Identification has been made on the basis of historical socio-economic links and the potential future interaction between Rössing Uranium and the communities. The Spitzkoppe/small-scale mining group has been included in this Study because of its significant underdevelopment and marginalisation in a region which has the potential for major developmental advances. This community exemplifies the extreme disparity between such remote rural communities and urban centres, which have better access to services and usually benefit directly from mining activities.

Of the four towns, Swakopmund and Walvis Bay have the most diversified and established economies. Arandis' economy is dependent on the mining sector, and Usakos has a small commercial economic base. All towns have, in common, a lack of accommodation, houses

and developed erven. Equally, they all have good access to major transport routes, energy and water. Arandis' infrastructure problems are currently being addressed.

The main centres of Swakopmund and Walvis have a critical lack of capacity in the number of new learners their schools can accommodate. Usakos schools have capacity, but its health facilities and town infrastructure would need considerable upgrading if expansion of the town occurs. Arandis, too, has classroom space, but inadequate state health services and support infrastructure for commercial development.

The four towns experience similar social problems: poverty, unemployment and alcohol abuse. While specific significant health problems are not indicated for Arandis and Usakos, both Walvis Bay and Swakopmund have to deal with a high TB infection rate. Arandis does not have informal settlements or backyard shack dwellers, whereas these are major concerns in both Walvis Bay and Swakopmund.

The community at Spitzkoppe, where the livelihood activities centre largely on small-scale mining, manifests all the negative aspects of the four towns, and few of the necessities which could serve as a base for socio-economic development.

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Abbreviations

EPZ	Export Processing Zone
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GRN	Government of the Republic of Namibia
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
MTI	Ministry of Trade and Industry
MWTC	Ministry of Works, Transport & Communication
NDP	National Development Plan
RU	Rössing Uranium
SME	Small/Medium Enterprise
STC	Swakopmund Town Council
TB	Tuberculosis
TCA	Town Council of Arandis
UNDP	United Nations Development Programme

1 Introduction

1.1 *Terms of Reference*

This study was undertaken, in terms of the brief provided by Rössing Uranium (RU), to investigate and describe the national, regional and local socio-economic conditions of RU'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 RU 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:

- an open pit development of the remainder of the SK ore body,
- an open pit development of the ore body in the area designated as SH,

- the development of a heap leaching facility,
- the establishment of a vacuum belt filter plant within the existing plant area,
- the development of alternate processing facilities with their associated processing plant infrastructure,
- new rock waste disposal facilities in undisturbed areas, and
- new tailings disposal facilities in undisturbed areas.

This Socio-Economic Baseline Study will provide data on the receiving socio-economic environment for both phases. No significant changes in that environment are anticipated but if they do occur, an addendum to this study will be undertaken.

This Socio-Economic Impact Assessment will assess potential impacts arising from both phases of the Mine Expansion Project, and is done concurrently with the Social and Environmental Impact Assessment for Phase 1.

The socio-economic aspects of the Mine Expansion Project that are addressed in this Study concern both Phase 1 and Phase 2 of the Mine Expansion Project, even though the Phase 2 components will be subjected to a separate process and to a different programme.

Specific activities undertaken for the purpose of 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.

1.2 *Limitations and constraints*

The Terms of Reference required:

- that this study consider a wide range of development contexts and communities of interest, and
- that the description of these environments be undertaken in terms of the Sustainable Livelihoods approach.

As the Sustainable Livelihoods approach requires detailed baseline information if it is to be used successfully as an analytical tool, it was only possible to fulfil this requirement for Arandis, which is the only community of interest for which comprehensive baseline information exists. The limited time for the Study did not allow for detailed baseline information on other communities to be established.

The marginalized communities of Spitzkoppe and the small-scale mining community are presented briefly, as time limitations did not allow for the information on the former to be comprehensively updated or for an in-depth study of the latter.

1.3 *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' mandates as these are relevant to the Mine Expansion Project. The section also undertakes an overview of the Namibian economy, which includes a discussion of the contribution of various economic sectors to the growth of the country.
- Section 3: This section focuses on development perspectives in the Erongo Region and considers economic and social development. The region's development objectives in terms of the second National Development Plans (NDP2) are noted, as well as the constraints on achieving these objectives. Land use and tenure in the region are discussed, as well as particular land-use in the immediate proximity of the RU Mining License Area and the Accessory Works Area.
- Section 4: The section discusses important role players in the socio-economic development of Erongo. Within 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: RU's communities of interest are discussed. The discussions on Arandis and Swakopmund are the most detailed, as these are the communities which have been most impacted (both positively and negatively) by RU's activities in the past, and are likely to be most impacted in future developments. As required by the Terms of Reference, the discussion includes other communities and groups in the proximity of RU's mining operations – Walvis Bay, Usakos, and Spitzkoppe and the small-scale mining community.

1.4 Guiding principles and major input sources

This Socio-Economic Baseline Report, and its complementary Social Impact Assessment and Management Plans have been undertaken in accordance 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. In addition to a general literature survey, and input from the stakeholder engagement process, the following documents were consulted in compiling the Socio-Economic Reports:

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

2. Developmental context of the Rössing Uranium Mine Expansion Project.

2.1 *Regional and geographic location.*

The map in Figure 1 indicates the location of the Rössing mining lease area in relation to the towns and communities discussed in this report.



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, 105km from Usakos and 9km from Arandis. The mine lease area is situated on the inland edge of the Namib Desert. The seat of government and capital city of Namibia, Windhoek, is some 370km distant in the Khomas Region, and falls outside the impact region of the Rössing Uranium mine.

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(1), 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...”.

The Millennium Declaration and 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 goals¹. Figure 2 below shows the nine goals adopted by Namibia, and progress made towards the achievement of these goals by 2004.

GOAL	1992	2003	2006 target	Progress towards target
1. Eradicate extreme poverty and hunger				
Proportion of households living in relative poverty	38 %	-	28 %	Lack of data*
Proportion of households living in extreme poverty	9 %	-	4 %	Lack of data*
2. Achieve universal primary education				
Net primary school enrolment	89 %	92 %	95 %	Good
Survival rate for Grade 5	75 %	94 %	95 %	Good
Literacy rate, 15-24 years	89 %	89 %	94 %	Slow
3. Promote gender equality and empower women				
Primary education (girls per 100 boys)	102	100	100	Good
Secondary education (girls per 100 boys)	124	113	100	Good
Tertiary education (girls per 100 boys)	162	111	100	Good
Proportion of seats held by women in National Assembly	9 %	19 %	30 %	Slow
4. Reduce child mortality				
Infant mortality (per 1000 live births)	67	52	36	Slow
Under-five mortality rate (per 1000 live births)	87	71	54	Slow
Proportion of one-year-old children immunised against measles	63 %	72 %	80 %	Good
Underweight among children under five	26 %	24 %	17 %	Slow
5. Improve maternal health				
Proportion of births attended by trained health personnel	68 %	75 %	88 %	Good
Contraceptive prevalence rate	21 %	37 %	50 %	Good
6. Combat HIV/AIDS, malaria and other diseases				
HIV prevalence among 13-19 year old women	6 %	11 %	9 %	Worsening
HIV prevalence among 20-24 year old women	11 %	22 %	15 %	Worsening
TB treatment success rate	58 %	69 %	75 %	Good
7. Ensure environmental sustainability				
Proportion of rural households with access to safe drinking water	45 %	80 %	80 %	Good
Proportion of rural households with access to basic sanitation	15 %	21 %	50 %	Slow
Freehold land	5 %	6.1 %	8.5 %	Slow
Registered conservancies	0 %	4.9 %	10.9 %	Slow
8. Develop a global partnership for development				
Per capita overseas development assistance to Namibia (in US\$)	130	60	90	Worsening

Note: The table provides a quick overview of progress on selected targets for each of the eight MDGs. The data is grouped to represent the closest year to 1992, 2003 and the medium-term targets for 2006. The last column assesses progress against the medium-term target. Good means that if the rate of progress seen since the early 1990s continues then the target will be met. Slow means that progress since the early 1990s has been positive but is not strong enough to reach the 2006 target. Worsening means that the situation has deteriorated since the early 1990s.

* A new Household Income and Expenditure Survey will be finalised in 2004 which will update the income poverty figures.

Figure 2: Namibia's Millennium Development Goals and achievement by 2004 (GRN, 2005)

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 Millennium Development Goals, and its achievement requires a paradigm shift from sector

¹ <http://www.developmentgoals.org>

development to integrated approaches through strategic partnerships. Major concepts in Vision 2030 include:

- People's Quality of Life – this encompasses issues pertaining to equality and social welfare, human resource development and institutional capacity building, and population, health and development.
- Sustaining the Resource Base – this is organized around production systems and natural resources and also touches on 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 same level as that of their counterparts in developed countries. This goal sets out a clear framework for development and places short-term planning within a long-term perspective. Its aim is 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 the main vehicles for achieving its objectives and realizing the long-term Vision in a succession of 5-year plans. The country is currently awaiting the official launch of the third phase, NDP3.

The second National Development Plan (NDP 2, 2002-2006) articulates Namibia's national development objectives for the period 2002-2006. These are to:

- revive and sustain economic growth,
- create employment,
- reduce inequalities in income distribution,
- reduce poverty,
- reduce regional development inequalities,
- promote gender equality and equity, and
- promote economic empowerment.

In order to meet the National Development Targets, several National Strategies are discussed in NDP2. The following are among those that have relevance to this study:

- the private sector continues to play a leading role in the Namibian economy,
- economic policies aimed at promoting diversification are developed,
- the government budget is used to stimulate investment and create job opportunities,
- there is an emphasis on skills development and training and the promotion of a tripartite relationship between labour, business and Government,
- there is improved employer productivity through worker training and increased incorporation of women and other marginalised groups, and the participation of workers' organisations in areas of management,
- there are intensified efforts to develop medium and small scale enterprises with increased Government financial support, skills development and training,
- there is support for the development of informal sector activities,
- youth development programmes are focused on providing employment opportunities, skills training, HIV/AIDS prevention and promoting self-reliance,

- Regional Councils and Local Authorities establish permanent market places for informal sector traders, and
- a balanced geographical distribution of facilities and public services is achieved in all regions.

Decentralisation

The Namibian Government's approach has shifted from a national to a regional perspective, with emphasis on decentralization in development planning. The Regional Councils Act (No. 22 of 1992) legislated the establishment of Regional Councils, which are responsible for the planning and coordination of regional policies and priorities. They are also tasked with overseeing the general implementation of regional development activities in the region, and these include 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 with a view to:

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

(SAIEA, 2007).

The Regional Council has the authority to:

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

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.

2.3 Overview – 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 country is currently awaiting the promulgation of a revised Labour Act.

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

The mandate of the Ministry of Regional and Local Government and Housing and Rural Development (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 that 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, Transport & Communication (MWTC)

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.

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, facilitate 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.

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 could not complete junior or senior secondary phase in formal schooling.

Ministry of Health and Social Welfare (MHSW)

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 (TB, measles, diphtheria, pertussis, polio and tetanus),
- 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 wellbeing of mother and child.

The Ministry is responsible for radiation safety and is currently setting up administrative structures to facilitate the drafting of new legislation in this regard.

2.4 Overview of the Namibian Economy

The Namibian 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), and the expansion of the business sector, in particular finance and telecommunication services. Growth of the economy over the next 3-5 years is expected to be in the region of 4-5% annually (Finweek, 2007).

The productive capacity of the economy is based mainly on the extraction and processing of minerals for export. The mining sector accounts for 20% of GDP and employs about 3% of the population. The country is the fourth-largest exporter of non-fuel minerals in Africa and the world's fifth largest producer of uranium (Finweek, 2007).

Currently 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. Agricultural exports include livestock on the hoof, as well as de-boned meat. Fish and marine products, too, are 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.

In 2003 the agricultural sector contributed less than 5% to GDP, but it provides a means of subsistence livelihoods for over 50% of the population (Finweek, 2007). Poor soils, limited water resources and meagre rainfall constrain the development of 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 manufacturing sector relies to a large extent on meat and fish processing and on the production of beverages and food. The sector showed negative real growth in 2005, mainly the result of a 5% drop in onshore fish processing. The very narrow domestic market places an obvious limitation on 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.

Following international trends, the financial service sector has increased notably since independence. However, the credit allocation in the economy is biased towards consumption rather than to productive investment.

Tourism is currently the third largest economic sector in Namibia and is expected to contribute 3.8% to GDP in 2007. In 2006, the 71,800 jobs in this sector accounted for 17.9% of the country's total workforce. The expectations of the sector to generate much-needed foreign exchange earnings are high. It is estimated that the sector will generate N\$10,1bn of economic activity in 2007. According to a survey conducted by World Travel & Tourism, the sector is expected to grow by 6.9% annually over the next ten years - the eighth fastest growing tourist destination globally. 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 advantage the country has over other Southern African destinations (Finweek, 2007).

The fisheries sector has more than doubled its contribution to GDP since independence in 1990. In 2004 the sector contributed about 4% to GDP and accounted for 23% of total exports (Finweek, 2006). Analysts ascribe a decline in the economic contribution of the sector to the government's policy of allocating a number of concessions, resulting in numerous small operators struggling to make a living (Finweek, 2007). The consolidation of the sector, paving the way for economies of scale, seems to be reversing the decline.

Across all sectors, a serious constraint on the growth of the economy is identified as a lack of skills, which is compounded by the difficulties experienced by expatriates in obtaining work permits.

Social indicators continue to show high unemployment rates at 36.7% (The Namibian, 2006) and social exclusion. Since 2000, employment has increased in the urban areas, but at the expense of the rural areas (Finweek, 2006). 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). Even though Namibia is considered a middle income country, wealth distribution is extremely skewed. The high per capita GDP hides one of the most unequal income distributions in the world. An estimated 55% of national income accrues to only 10% of the population. The population growth outpaces job creation: only 7,000 of 20,000 annual high school graduates find jobs, and 60% of the workforce is unemployed or underemployed (USAID, 2006). Employment figures also reflect that women are still under-represented in the economy: 56.4% of males are employed, compared to 40.7% of females. The 2004 Namibian Labour Force Survey indicated that the unemployment rate among young people between the ages of 15 and 24 was 60% (The Namibian, 2006). Erongo Region shows the highest labour force participation rates (Finweek, 2006).

Namibia is ranked at position 125 out of 177 countries included in the United Nations Development Programme's Human Development Report (UNDP, 2005). This places it in the category of medium developed countries. However, underdevelopment is a significant problem in the rural areas, and the communities at Spitzkoppe and in the northern labour-sending regions are examples of this. In the Erongo Region, the relative affluence of areas such as Swakopmund, Walvis Bay and Henties Bay 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.

The increase in the price of uranium will increase the importance of the minerals sector, as it is now feasible to mine low-grade ore bodies and to extend the life of existing mines. As a source of uranium, and with an investor-friendly legislative environment, Namibia has leapt to prominence globally, and a number of foreign-owned companies are exploring or conducting feasibility and pre-feasibility studies in the country. However, the attraction of foreign investment, and the granting of mining rights to a number of companies, threatens the patrimony of Namibians in two crucial aspects. Water is a critical issue in any development project in the country, and mining projects are huge consumers of this commodity. 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 confirmed development in this regard is the proposed UraMin desalination plant north of Wlotzkasbaken. With regard to desalination, stakeholders have raised concerns about the potential effects on marine resources, the increase of an industrialised belt along the Erongo coastal strip, expanding inwards to the desert, the price of desalinated water and the amount of energy required to operate a desalination plant. A general lack of transparency and consultation has left the public in ignorance about any future plans to address water supply in Erongo.

A second concern is the impact on the Namibian 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 visual impacts of mining are already evident in the Namib Naukluft Park, in the //Gangu Conservancy, the West Coast Recreational Area and the coastal zones. Game migration patterns will be disrupted and noise, light and dust will interfere increasingly with the desert experience and the enjoyment of the park by tourists. The fragile ecology and valuable biodiversity will also experience significant and frequently irreversible impacts. Mining activities pose a serious threat to the natural resources that make Namibia a unique tourist destination.

3 Erongo Regional Development Perspectives

3.1 *The Erongo Region – social environment*

Erongo is Namibia's sixth largest region, extending over 63,720 km². The population in 2004 was 111,917 with a yearly growth rate of 1.3% (MHSS, 2004).

61.6% of the region's population lives in urban settlements, principally Swakopmund and Walvis Bay, where most of the urban growth has occurred. Rapid urban growth figures have distorted the region's population growth rates, which doubled from 1991 to 2001 (from 55,470 to 107,629). Part of this growth can be ascribed to the reintegration of Walvis Bay into Namibia in 1994, after which the town itself grew rapidly.

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. This increase in ethnic diversity, and in the population of Erongo, can be expected to continue as more mines commence activities in the region. An influx of job seekers can be expected from the northern labour-sending regions, where unemployment rates are of the highest in the country, and 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.

As many of the people arriving in Erongo are unemployed, accommodation is a problem, and has led to backyard squatting on a large scale. The problem is significant in the towns closest to the mining and fishing industries, Swakopmund and Walvis Bay. These work seekers add to the growing unemployed domestic population. The current unemployment rate in Erongo is estimated at 34%.

Erongo is considered to have some of the best schools in Namibia. There are 45 state schools in the region, and 13 private schools. Adult literacy rates are high compared to the national average: 92% of 15+ years are literate. However, remote rural areas such as the Brandberg and Omaruru have lower literacy rates than the regional average, while those of Swakopmund and Arandis are significantly higher.

Social welfare and community development has progressed relatively well in Erongo. The dependency ratio in 2000 compared favourably with the national average and the economically productive group of 20-64 year olds was high at 58.3 %, compared to the national average of 46.6% (GRN, 2000).

Health services in the region are relatively good. The construction of new health facilities has 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.

HIV/AIDS is a serious problem for the region's development. The regional prevalence rate of 27% is the highest in the country (The Namibian, 2006). The region also has the highest tuberculosis (TB) rate in the country at 1,380 per 100,000 population (Tshiteta, pers. comm.,

2007). The two most impacted communities are the coastal towns of Swakopmund and Walvis Bay. Walvis Bay has the highest number, globally, of Multi-Drug Resistant TB sufferers (Atiogbe, pers. comm., 2007). The poor housing conditions under which people in backyard shacks and informal settlements live contribute to deterioration in living standards and the spread of TB and HIV/AIDS.

3.2 *Economic environment*

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

Approximately 11% of people in the Erongo region depend on pensions for cash income, which is 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. After mining and manufacturing, the fishing industry is the second largest employer in the Erongo region.

Small/medium Enterprise (SME) activity is similarly limited and is concentrated mainly in trade and services and, to a lesser extent, in manufacturing (which includes beer/liquor brewing). Inputs for the manufacturing industry cannot be sourced locally and it is usually not possible to have machinery and equipment repaired locally. 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. Significant mining activities in the region are Rössing Uranium, the Navachab gold mine, Langer Heinrich Uranium and the coastal salt operations.

Like the rest of Namibia, access to economic opportunities and resources in Erongo is highly skewed. Some rural communities, such as Spitzkoppe and Tubuis, are isolated, marginalized and under-developed, and they 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. Small farmers along the Swakop River are engaged in the growing of crops such as asparagus and olives.

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.

There is an increasing volume of tourism through the region, which forms an important link between the Etosha National Park and Sossusvlei. Figure 3 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.

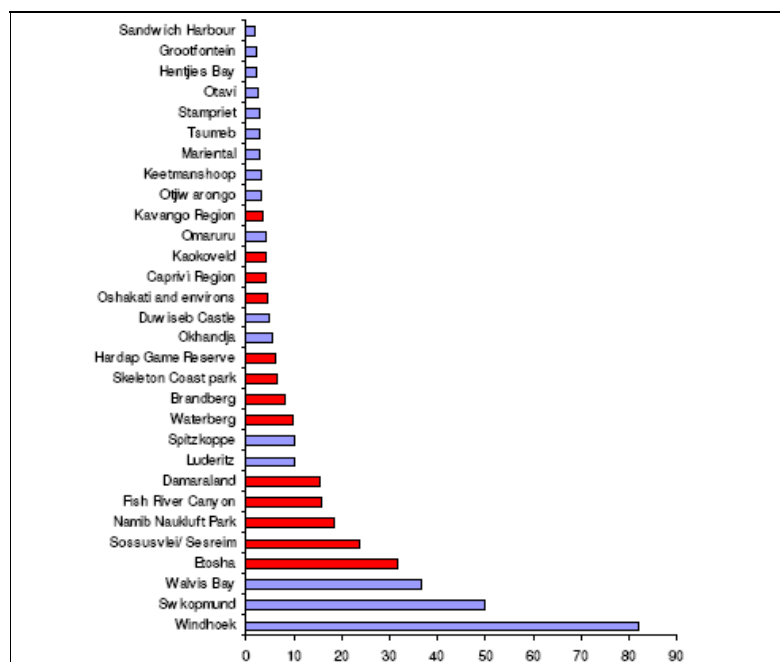


Figure 3: Percentage of visitors visiting various locations in Namibia. Red bars indicate designated protected areas and other nature areas (Turpie et al., 2005)

Table 1 presents a summary of the significance of the different sectors in the economy in Erongo.

Table 1: Summary of economic sector activity in Erongo Region.

Sector	
Mining	The sector is significant in the region and expanding rapidly. Larger operations, such as Rössing Uranium and Langer Heinrich, mine uranium ore. Gold is extracted at Navachab. A large number of small-scale operators exploit semi-precious and dimension stone deposits. Employment in the sector is set to increase with the opening of new mines and the extension of the Rössing Uranium life-of-mine.
Agriculture	Commercial farming accounts for 34% of land-use in Erongo. The main activities are livestock farming (both large and small), wildlife, tourism and, in the highlands, irrigation crops such as vegetables and fruit. 33% of Erongo Region is communal land. Communal farmers are involved in small-scale, largely subsistence, production, and in raising small livestock. Growth in the sector is constrained by the aridity of large parts of the region and, in some areas, the nature of the soil.
Manufacturing/Industry	Manufacturing is limited and based on fish processing, concentrated in Walvis Bay. SME activity is also limited and the main activities of this sector are in trade and services.
Tourism	Some of Namibia's major tourist attractions are in Erongo. These include Swakopmund, Walvis Bay, the Namib Naukluft Park and the Brandberg. If the initiative to develop lodges in the Namib Naukluft Park proceeds,

	this will add to the growth potential of this sector.
Fishing	Walvis Bay is the centre of the fishing industry, both catching and processing. Government policy of resource management should halt the over-exploitation of fish stocks and the sector is viewed as one of the fastest-growing in Namibia in terms of employment, export earning and contribution to GDP. This growth is off a low base due to the historical collapse of the fishing industry.

Developmental Objectives for Erongo

Paragraph 38 of NDP2 (Vol. 2) includes the following objectives for development in Erongo:

- diversify economic activity through value-adding to fisheries, mining and agricultural outputs,
- support self-employment in the secondary and tertiary sectors,
- maintain and improve the physical infrastructure of the region, especially in and to the outlying areas, and
- develop, initiate and implement empowerment programmes for women and marginalised groups.

Objectives for economic, infrastructure, social and institutional development which may be of relevance to communities falling within the impact zone of the Rössing Uranium Mine Expansion Project (from NDP2, paragraph 39) are:

- improving and broadening the scope of vocational/industrial training by establishing strategic partnerships between the business community and educational institutions,
- improving and providing health, sanitation services and social welfare benefits,
- establishing adult education programmes and facilities and promoting in-service training programmes, and
- supporting entrepreneurial, management and leadership skills training in both adult and formal education systems.

3.3 Land Use and tenure

Legislative and policy regime

The various kinds of land-holding tenure 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 or rent it, add to conservation areas. The administration of state land is the responsibility of the MWTC.

The Rössing mine licence area is situated on state land.

Communal land is vested in the State by the Constitution. The State has a duty to administer such lands in trust for the benefit of traditional communities residing on them, and to promote the economic and social development of the Namibian people. The Traditional Authorities Act (No. 25 of 2000) recognises Traditional Authorities as legal entities. The Act requires that Traditional Authorities and their communities engage in environmental planning to define successes and 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, allocated by the Chief or the traditional authority and verified by the local Land Board, and
- 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 Chief or traditional authority.

Communities gain further rights by registering a Conservancy. Community members who are registered as members of the Conservancy have:

- the right to sustainably manage and utilize wildlife, and
- the exclusive right to develop tourism accommodation and operate guided tours within the boundaries of the Conservancy.

Freehold or private ownership entitled 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. Commercial (freehold) farm land must be offered to the GRN first for the purposes of resettlement.

Major land-use activities

- Conservation

Much of the Namib Desert falls within conservation areas, and National Parks account for almost a third of the land use within the Erongo Region. These areas include The Namib section of the Namib Naukluft Park and the West Coast Recreational area. Currently there is one mine operational within the Namib Park, and a number of EPLs have been granted. Activities in terms of these have commenced.

The West Coast Recreational Area (WCRA), in addition to conventional tourist activities, is also used extensively for recreational fishing.

- 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. Consequently, they are generally of very low agricultural potential and cannot 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,

- tourism/lodges and game farms/guest farms, 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. Towards the interior portion of the Central Namib Desert, informal farming was conducted along the courses of most of the rivers and still continues along the rivers to the north of the Swakop River. Several groups of Topnaar raise goats, cattle and donkeys along the lower reaches of the Kuiseb River.

- Mining

Mining activities account for a significant portion of land-use in the Erongo Region. According to the Ministry of Mines and Energy, as at 1 September 2006, approximately 114 licences and/or Exclusive Prospecting Licences were registered or pending with the Ministry, though most of these have not yet been activated. The main commodities mined are uranium and gold. Extensive salt mining also occurs along the coast at Walvis Bay. Prior to the start of mining operations at Rössing, several small- to medium-scale prospecting and mining operations were located in the Central Namib region, focusing mainly on copper, tin and semi-precious stones.

Small-scale mining (SSM) is an important economic activity in the region. A total of 521 claims were registered or pending with the Ministry of Mines and Energy as at 1 September 2006. The main commodities are semi-precious stones, dimension stone and tantalite-cassiterite.

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 //Gangu Conservancy surrounds the Mining 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.

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, i.e. the transfer of political, administrative, legislative and financial management and planning authority from central government to regional and local authorities.

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.

The Regional Council Act requires local authorities to pay 5% of their collected rates and taxes to the Regional Council. These funds are redirected towards social investment projects such as support to primary education, health and safety. The ERC is bidding for additional resources directly from donors such as the European Union to augment its resource base and thereby expand investment in social development activities of the region. The Council is eager to forge public/private partnerships in this regard.

Major Constraints

The ERC is not only mandated to carry out development plans directly to communities and social services, but also to ensure the sound development of the infrastructure – transport, housing, energy, water - which make sound 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 places a serious constraint on the Regional Development Plan and the effective decentralisation of powers and responsibilities by central government.

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 (RU) workforce and RU's acceptance that the community on which it could impact was the entire Namibia.

Following the establishment of a Rössing Foundation 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.

In December 2006 the primary focus area of the Foundation's activities was identified as education. While the programmes focus on Arandis, Swakopmund and Ondangwa, the Foundation interacts with schools throughout the region. One of the objectives of the Foundation's educational programme is to build three computerised Mathematics centres and three Science laboratories in Arandis, Swakopmund and Ondangwa by the end of 2007. 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.

4.3 Rössing Uranium

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

Changes in the market for uranium have resulted in the current Rössing Mine Expansion Project which will extend the life of RU to 2026. The significance of the extended operational life to the local, regional and national economy can be estimated by past contributions. Figure 4 reflects economic contributions in respect of salaries and wages, and local (ie regional) and national procurement for the five years 2002-2006.

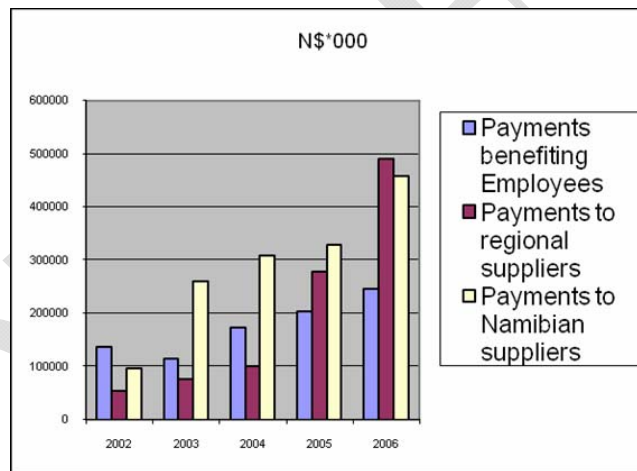


Figure 4: RU's contribution to wages and local and national procurement - 2002-2006.

The multiplier effects of the contributions reflected in Figure 4 extend the 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. Importantly, RU workers send part of their wages as remittances to families in other, very often underdeveloped, regions, and so contribute to poverty alleviation. Remittances also contribute to maintaining agricultural activities in labour-sending areas, thus decreasing food insecurity for family members.

The mine has been a major employer in Erongo since its inception. The work force in the eighties was estimated at 3,219. A decline in the price of uranium led to several retrenchment episodes between 1991 and 2000. In August 2005 RU had 828 employees and 472 contractors. With the proposed extension of the life of mine and the expansion of

operations, the workforce will increase considerably over the next few years, and the projected number of employees by 2007 is 1,089.

Figure 5 reflects the actual permanent workforce employed by RU for the period 2002-2007, and the projected permanent workforce to 2026.

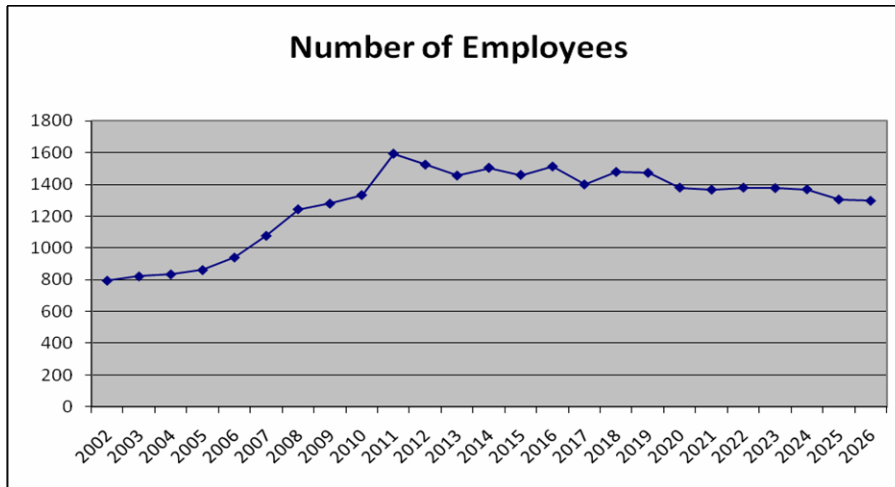


Figure 5 Permanent employment at Rössing Uranium: 2002-2026

The dependency ratio in Namibia varies widely. In Erongo, the average household size is estimated variously as 3.8 - 5. However, a more commonly used dependency ratio is 8:1, and in Oshikoto, one of the northern labour-sending regions, it can be as high as 30/40:1 (Ya Ndakolo, pers. comm., 2007). The generally high dependency ratios mean that wages paid to RU's workforce contribute to the livelihoods of a large number of people. Remittances are used in the labour-sending areas for agricultural purposes (so retaining a claim on land in the communal areas), education, daily subsistence and, critically, buying food to enable people living with AIDS to take their drugs.

Figure 6 presents RU's spend on community and social development for the period 2002-2006.

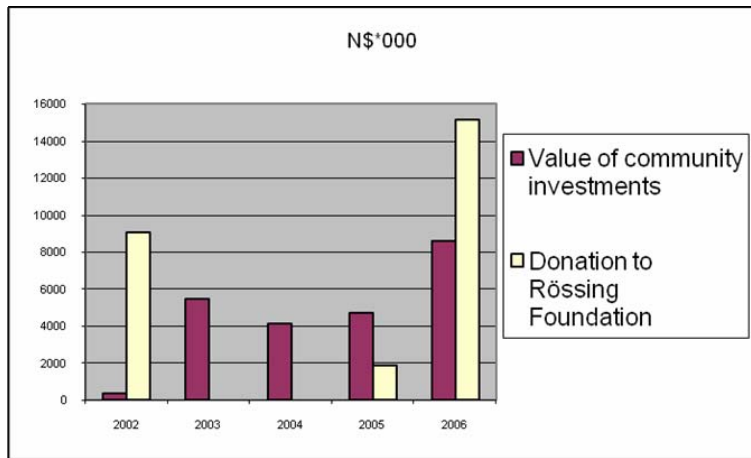


Figure 6: RU's contributions to community and social development, 2002-2006

RU's contribution to the community/social component of sustainable development is largely undertaken by the Rössing Foundation, but as Figure 6 shows, the company continues its own internal Corporate Social Responsibility programme. Beneficiaries of donations and sponsorship include local authorities, community groups throughout the region and NAMPOL. Among the most important contributions that RU makes to Namibia's sustainable development is its support for education and training, reflected in Figure 7. This includes support for apprentices, students at technical college and university, educational assistance and Management Development Programmes.

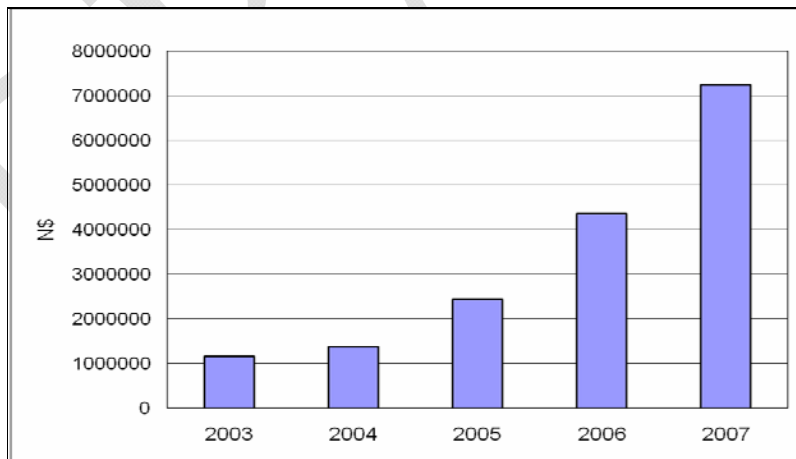


Figure 7: RU spend on education and training for the period 2003-2007

Although RU presented Arandis to the Namibian government in 1992, the company remains committed to the post-closure sustainability of the town. The town receives ongoing support from RU in various forms – from materials to replace the ageing water reticulation system to training the youth in marketable skills, such as tour-guiding.

After three years of not being able to declare profits, RU contributed N\$158 million in taxes in 2006. The company still has to meet many low-priced legacy contracts that were negotiated when the price of uranium was as low as US\$7 per pound U₃O₈. These contracts will expire over the next few years, and the higher earnings that will result from an increased sales price, aligned with high market prices, will increase the taxes paid to the Namibian government.

Other inputs to Namibia's economy include employee tax (N\$54.3 million in 2006), dividends to shareholders and interest on loans. The Mine Expansion Project will enable RU to contribute substantially to the Namibian economy for a further 15 years.

RU contributes directly to the revenue of the local authorities in Swakopmund and Arandis through the payment of rent, rates and service charges. The company currently owns 16 houses in Arandis and pays rent to the Arandis Town Council for an additional 43 houses to provide accommodation for its employees. In Swakopmund, the company owns 116 houses.

Comment [m1]: Waiting for update on payments to local authorities

4.4 *The Chamber of Mines of Namibia*

The Chamber of Mines of Namibia (the Chamber) opened its regional office in Swakopmund on 1 June 2007. The Chamber has, as one of its overarching objectives, the integration and alignment of activities in the minerals sector in Erongo. To achieve this, the Chamber has established the Health, Environment, Radiation and Safety (HERS) Committee, and representatives of member companies on this Committee also represent the highest level of decision making in each company.

The Chamber decided to establish an office in the centre of the uranium industry to facilitate the development of minimum standards for environmental health and environmental management for uranium mines, and to assist with a regional strategic socio-environmental impact assessment. The process is a multi-stakeholder one, and is done in conjunction with the International Atomic Energy Agency.

Relevant to this Study is the establishment of the Health, Environment, Radiation and Safety Technical Advisory Committee (HERSTAC) which will focus, amongst others, on Occupation Health standards, air and water quality and protocols for the management of HIV/AIDS and TB. Included in HERSTAC's brief are the cumulative impacts on social services which are likely to occur in the short term: education, transport, housing and health services.

Importantly, a Rehabilitation and Closure Committee has been established within the Chamber, and such a structure is critical for addressing the cumulative socio-economic impacts of closure in a timeous and co-ordinated manner (Chamber of Mines, 2007).

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 the 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.

The information in Table 2 was provided by the Chamber of Mines. The figures reflected should be regarded as indicative, rather than final. The recent increase in uranium prices has resulted in increased interest in the Erongo uranium province. Consequently, several mines are likely to be brought into production over the next few 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 2: Selected indicators for socio-economic impacts (Chamber of Mines, 2007)

Mine	Year at full production	No. Of employees at full production
Rössing 1 & 2	1980 (1) 2011 (2)	1597
UraMin	2009	500
Bannerman	2010	500
Langer Heinrich	2008	600
Swakop Uranium	2011	500
Reptile Uranium	2013	500
Valencia	2010	500

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

Table 2 shows that, by 2013, there will be an estimated 4,697 permanent employees in the uranium sector in Erongo. More than 50% of the positions will have been established in the previous four years. An interview with a recruitment agency that has 1,400 people on its database of employment seekers provided the following information relevant to the minerals sector:

Unskilled/no work experience	-	200
Qualified Artisan	-	150
Professional skills suited to the mining industry	-	45
Computer skills	-	50
Human Resources and Industrial Relations	-	35
Transport and freight managers	-	25
Administrative, clerical, accounting, senior and junior	-	250

(Swart, pers. com. 2007)

A number of the above job applications were received from outside the region, and some, particularly the more highly skilled, were submitted by expatriates. It will be difficult for companies and contractors to source a large part of their labour force locally. The implications are that, in addition to an inward migration of opportunistic work seekers, there will also be an influx of workers who have successfully applied for positions. A large proportion of these 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 estimation of the number of people who will be requiring 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. This approach considers the assets or capitals that a community needs for sustainable growth. The capitals are: institutional (e.g. state services, local authorities, development agencies), social (networks, institutions, groupings), natural (e.g. mineral resources, forests, valuable ecosystems), physical (e.g. infrastructure such as roads, houses, services), financial (salaries, savings, businesses, ability to create income) and human (e.g. skills, education, knowledge, experience, health). The presence, in healthy proportions, of all five capitals, creates the basis for independent and sustainable growth.

Institutional Capital

- The Town Council of Arandis

The Town Council of Arandis (TCA) has faced numerous constraints since it became a municipality in 1994. Its revenue base is narrow, and although the payment of municipal rates has also risen steadily since 2004, revenue remains insufficient to meet the TCA's expenses. The residents' payment record is poor, and apart from those who simply don't pay, even though they can afford to, poverty also impacts on the revenue flows of the TCA. In October 2007 the community was indebted to the TCA in the sum of N\$ 1.2 million. Attempts to collect outstanding payments are resented by the community who do not yet seem to have resigned themselves to paying for services.

The TCA depends for its revenue primarily on rates and sewerage charges. Electricity (which usually makes a profit) has been transferred to the Erongo Regional Electricity Distributor. Arandis residents have an extremely poor record of payment for water and this has had a significant negative impact on the revenue flows of the TCA. In 2007 Namwater and TCA entered into a management partnership whereby they are jointly looking at normalising the water delivery system in the town and addressing the enormous water losses.

The Town Council has relied on assistance, both financial and administrative, from Rössing and the Rössing Foundation in times of crisis.

The TCA has contracted Stubenrauch Planning Consultant to develop a town-planning scheme, and this is nearing finalization. The TCA now has the challenging task of developing a Local Economic Development plan to align with the infrastructural developments and land-use indicated in the town-planning scheme.

Development is also constrained by a lack of co-operation and trust between the town management and the Town Councillors.

- Health Services

Arandis has one state clinic and one private clinic. NIMT is in the process of registering its own clinic, and an initiative of the Chamber of Mines of Namibia, to establish a Namibian Environmental Health Institute in Swakopmund, includes the establishment of a satellite station in Arandis. Hopes were expressed that this facility could also serve the Arandis community.

Most of the residents in Arandis use the government clinic. A doctor visits once a week, and attempts by the TCA to get the clinic upgraded have not been successful. As the state hospital (no longer in use) is at an inconvenient distance for many people, the TCA has allocated two houses in the town for use by the state clinic services. This facility has not been utilized yet. Although this Study could not get confirmation about plans for upgrading health services in Arandis, a report by Stubenrauch Planning Consultants indicates that the MHSS intends, as part of its five-year plan for health services in the region, to upgrade the existing facility in Arandis in 2006/2007 (SPC, 2007). This does not seem to have proceeded.

A number of comments were made about the shortcomings of the state health services during the Arandis Study – low stocks of medicine, long waiting times for attention and for prescribed medicine, understaffing and the lack of an ambulance.

The private clinic in Arandis 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. In 2005 approximately 150 patients visited the clinic on a weekly basis, and of these, about 10% were not members of medical aid funds.

- Law Enforcement

The staff at Arandis NAMPOL numbers 20, including administration staff. The station is adequately staffed and the shortage of vehicles was alleviated by the donation of a vehicle by RU in October 2007. The Arandis branch's area of operation stretches from Arandis to Trekkopje and includes the Valencia and Bannerman EPL areas.

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 considerably, and the nature of criminal activities has changed. Housebreaking used to be mainly for food, but the items taken now are safes and money. Assault and crimes related to alcohol abuse 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.

NAMPOL and the TCA, through the Police Public Relation Committee, have a good working partnership and are achieving some success in two matters of great concern in the town – the proliferation of shebeens and the access of young children to alcohol.

- The Rössing Foundation

In 2004, the Rössing Foundation (the Foundation) redefined its organizational structure, with the establishment of the Rössing Foundation Erongo Region, based in Arandis. The Foundation acts as the community development arm of RU, and as such assisted the mine to prepare the Rio Tinto Five-Year Communities Plan. This plan specifically notes the need to focus on Arandis, and the need to build effective community institutions, support community initiatives, and expand educational opportunities in the town. The Foundation has been working with the Arandis Town Council to broaden the economic base of the town in a number of fields, including the promotion of small and medium enterprises. The two institutions are also partners in community education around important issues such as water and vandalism. A further collaborative partnership, which includes RU, is centred on the realization of the Arandis Sustainability Project, which has as its objective the creation of sustainable development projects for the town.

Capacity building in, and assistance to, the Town Council of Arandis has been identified as crucial to the sustainability of Arandis. The Foundation focuses on capacity building, and RU has undertaken to assist with selected infrastructure developments (Rössing Uranium, 2007). In addition, the Foundation also aims to facilitate the transfer of skills and capacity to other institutions within the town and into the community.

Natural Capital

- Agriculture

Natural capital is scarce in Arandis. Water from the five boreholes in the vicinity of RU 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. Since 1977 purified effluent water has been used for vegetable growing and watering of public spaces. For many years the equipment has been in a poor state of repair, but the reticulation system for grey water has been replaced and is again functioning optimally.

All soil samples tested (from 1988 to 2004) found that the soil contains a great variety of salts. This indicates that it is not suitable for agriculture. Two areas of approximately 150 hectares were identified as suitable for a pilot crop-growing scheme under drip irrigation – east of the Arandis pump station and south-east of the Arandis Hospital.

The Foundation is currently managing a mushroom-growing project, and the feasibility of introducing hydroponics is under consideration.

- 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 so alternative attractions need to be developed. Consequently, more reliance on the built environment is required (i.e. physical capital).

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 in Namibia and the Erongo Region (Ward and Niehaus, 2003). The study does, however, 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 RU, which is the main one.

Plans are advanced for the development of an open-air mining museum as part of a tourism initiative. This is a development in partnership between the Foundation, RU and the TCA. RU will donate equipment for the museum. A feasibility study is currently being undertaken.

Physical capital

- The built environment

Arandis has a good infrastructure, one which is sound enough for it to be integrated into a wider economy than is currently the case. However, without considerable repair and maintenance, the long-term sustainability of a significant part of the town's physical capital is at risk. Business premises and public amenities show signs of neglect, and houses are in need of renovation. The high incidence of vandalism in the town contributes to the neglected appearance of parts of the town, depreciation of the infrastructure and to further demands on the resources of the TCA.

Considerable upgrading has already been undertaken, especially to sports facilities. This has been undertaken by the Foundation, which has done much to promote sports in Arandis. The initial focus has been on those critical aspects of sports facilities that could be dangerous to users, such as resurfacing, repairing potholes and providing adequate lighting. A new swimming pool was donated to the town by RU as part of the company's 30th anniversary celebrations. The TCA has entered into a Roads Maintenance Project partnership with the Roads Authority, and the tarred roads in the town have been extended.

A few businesses in the central business district have shown an awareness of change within the town by upgrading their establishments.

The town of Arandis was largely developed during the late 1970's. A number of the older houses are now showing signs of damage which may be related to the construction of their foundations. A number of the buildings also have asbestos roofs. Neither of these situations presents an immediate health or safety issue, but both require future monitoring to ensure they remain in a safe condition.

There is currently no housing available in Arandis, and the waiting list for houses is more than two hundred. The TCA does not have any 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.

At the time of this report, no serviced erven, residential, business or industrial, were available. Large areas have been demarcated for development, including an area for low-cost housing, and this will be available in the short term.

- Services

All the residents of the town have access to electricity, safe, potable water, flush toilet facilities and to regular refuse removal. The water reticulation system has been an issue of serious concern but is currently being addressed with the assistance of funding from RU and the MLRGHRD. RU 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 TCA has no waste management equipment and Rössing Uranium supplies such equipment on an ad hoc basis. In a positive move to address the problem of waste and litter, the town has been divided into zones, with zone leaders taking responsibility for the control of litter in their wards. This initiative has been very successful, and zone leaders, in partnership with the Foundation and youth groups are now addressing the serious problem of vandalism in the town. The zone leader concept is being formalised into a business under the guidance of SME Compete and with funding from the TCA. However, a need for a long-term solution to waste was articulated.

Financial capital

- Sources of income

One third of the households in Arandis are directly supported by salaries earned in employment with RU. Other sources of income are government departments (schools, police and health services) a few medium size businesses, limited 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 by way of 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 until recently, no bank was prepared to open a branch in the town. Consumer choices are also extremely limited, and the choice of goods is unappealing, expensive and poorly presented. 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.

The unemployment rate in the town in 2005 was 36%. Job creation from new businesses, especially from new mines opening in the area, has been low and probably off-set by the influx of people looking for work. Planned new developments would create more job opportunities, but the low skills level of the residents could prove to be a constraint of local employment. A significant number of new people coming into the town are from Reheboth, an area that is known for its construction and building skills. It is extremely likely that these people have identified Arandis as a locality of future development and, therefore, employment.

A very significant percentage of the youth in the town are unemployed, and currently little is offered in the town which aims specifically to help young people to gain the skills necessary for employment.

- 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. The population is also slow, even apathetic, to grasp opportunities as they arise (Cloete, pers. com. 2007), 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.

The Arandis Business Association, which was formed to act as an umbrella organization for businesses in the town, has been incorporated into a local branch of the Namibia Chamber of Commerce and Industry. This organisation will hopefully address the lack of co-operation between businesses and assist them to co-operate in the interests of economies of scale and competitiveness on external markets.

Recent developments in the mining sector have created an interest in investing in the town. However, no developments which would create significant employment outside the mining industry, or encourage the growth of alternative economic activities, have been proposed, and current investment proposals appear to be opportunistically based on capturing benefits from mining activities.

Of the industries that are in existence in Arandis at present, a proportion is highly dependent on RU. For example, the pipe lining company, employing five or six people, relies on RU as its key customer. Similarly, a number of the SME's established in the town provide services to the mine, or rely on the custom of the mine to make them viable.

Comment [m2]: Waiting for procurement figures for Arandis

For many years Arandis received little funding from central and regional government. This is changing, and in the current financial year the Regional Council will contribute N\$ 1.5 million towards the development of an SME park.

The economy of Arandis is reliant on the mining sector, in particular on RU. Since RU 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 and 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 a household level, a lack of even the most rudimentary 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 respondents paying more than N\$ 2500.00 monthly on household debts (Arandis Study, 2005). This

excludes moneys due to the TCA for rental, home repayments, services and rates. Respondents to surveys carried out during the Arandis Study indicated that they pay household debts before they pay moneys due to the TCA.

In partnership with the Foundation, the TCA is currently conducting programmes on household budgeting for the residents.

Social capital

A number of mining companies have held initial public participation meetings in Arandis. The companies are commencing operations in the vicinity of the town. Subsequent to these meetings there are indications of inward migration into the town, largely people looking for employment. The population has increased from 4,500 in 2005 to an estimated 5,200 in 2006 (based on the results of the 2006 polio vaccine campaign).

Social networks are weak in Arandis. The strongest social groups are the youth groups, who take an active part in keeping the town clean and in the Foundation's programmes.

Social groupings in the town are identifiable on the basis of their isolation from other groups rather than on internal cohesion or organisation. The women and the elderly, in particular, lead isolated lives and no strong organisations exist to either support them or to 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.

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 or whether any organisation was taking on the responsibility of seeing to the welfare of these children.

The demographic, socio-economic and cultural profile of Arandis has remained virtually unchanged for decades, and the perception of the town as a place where low-skilled workers, of low-socio-economic status, live has similarly not changed. Little has happened to change the dependency mind-set of the residents, and they have been complacent in their belief that RU would solve all problems. Under these circumstances, they felt little need for social networks and support structures. An influx of new people, bringing in new ideas, an entrepreneurial spirit and skills, may very well galvanize the Arandis residents into playing a positive and productive role in the progress of the town towards sustainability.

Human Capital

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

- Skills and education

RU is the single largest employer in Arandis. Figure 8 shows that, in 2005, the majority of the (Rössing) Arandis workforce had achieved no higher than Grade 6. Grade 12 was not represented in the town as all. High-level skills are found almost exclusively in the professional sector, in state employ and in the Rössing Foundation. The entrepreneurial ability to create a demand for skills, and the technical skills to fill that demand, are both lacking.

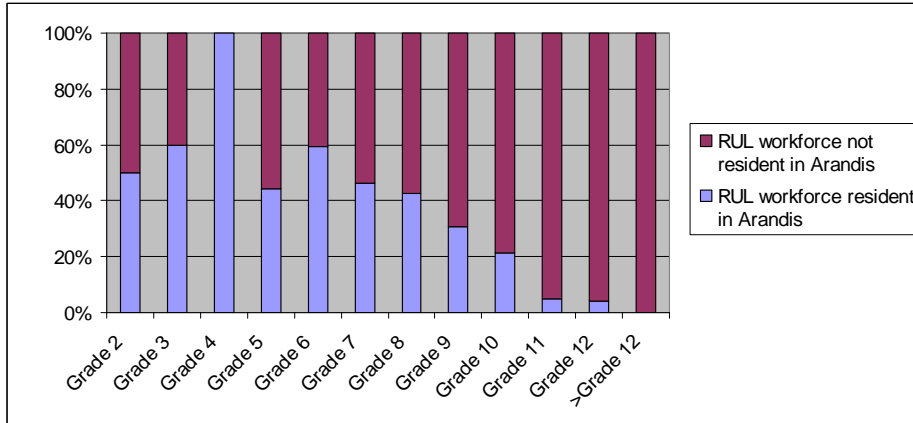


Figure 8 Skills in the Rössing/ Arandis workforce compared to skills in the total Rössing workforce.

- Community Health

The Arandis Study revealed no significant health problems in Arandis, and the town is viewed as having an extremely healthy climate. The major complaint recorded at the private clinic in 2005, and also by residents, is lifestyle-induced hypertension.

It is not possible to state the prevalence rates of HIV/AIDS in Arandis with confidence. Indications are that the rate is lower than the national and regional figures. This is largely due to the sound programmes conducted by Rössing for its workforce (SIAPAC, 2003: 61).

A significant problem is alcohol abuse, a social ill which extends to children as young as 11 years of age. The causes are complicated – a combination of poverty, unemployment and cash wages as more jobs become available. Many reported crimes are related to alcohol abuse. In the course of the Arandis Study, members of the youth group commented that the town had too much exposure to HIV/AIDS awareness-raising and not enough to alcohol abuse, the biggest problem in the town.

- Skills and education acquisition

The Rössing Foundation offers assistance to SMEs and is active in skills training, business advice and assistance. Women form the majority of participants at workshops organised by the Foundation. The courses they favour are Selling, Customer Care and Shop Display, Bookkeeping and Costing and Pricing (Ondigo, pers. comm., 2007). This is a positive move away from the non-marketable skills they were acquiring at the time of the Arandis Study, and the more business-oriented skills will put them in a position to compete on the job market.

SME Compete has been contracted by the Rössing Foundation and is undertaking mentoring of SMEs on request, so they are responding to identified needs. During the mentoring sessions the mentors identify weaknesses in a business, and keep a watching brief over these. A new emphasis is being placed on quality of goods produced, and there are tangible results, albeit few. A local resident has also secured a contract from a large national hardware company to manufacture steel security doors and fishing-rod holders. This development will, in all probability, create local employment.

With its stated focus on education, 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. Currently two students from Arandis are attending the Institute.

Rössing funds 82 students at NIMT, and is the only mining company in the region which supports the institution to a significant degree.

Primary and secondary schooling

There are three schools catering for primary and senior pupils in Arandis. These are 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 has identified its primary focus of activities as education, results from Arandis schools have improved. Teacher capacity remains problematic, but the Foundation is confident that this will be overcome. However, parents still give preference to schools in Swakopmund or Walvis Bay where the quality of state schools is considered to be better.

Table 3 shows that there is capacity in the Arandis schools to take in extra learners, a situation that has prompted a number of stakeholders to suggest that RU should house its enlarged workforce in Arandis, as spare capacity is almost unavailable at schools in Swakopmund and Walvis Bay. However, this could add to the social problems of children staying in the town under inadequate supervision if there is not sufficient family accommodation. Building new hostels is not an option viewed favourably by the Ministry of Education, as such institutions require heavy subsidization (Awaseb, pers. com., 2007).

Table 3: Classroom situation and learner numbers in Arandis schools (capacity is calculated on a learner : teacher ratio of 35:1).

	2005	2006	2007	Classrooms needed	Classrooms available
Kolin Foundation Secondary School	541	541	553	16	19
Classroom situation and learner numbers - feeder primary schools					
UB Dax Senior Primary School	432	381	360	10	14
Arandis Primary School	473	466	501	14	17

(source: SPC, 2007)

The foregoing assessment 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 and a clinic, NIMT, 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. With the mentorship of SME Compete, a lack of experience in running a business can also be addressed. Literacy and adult basic education are addressed, the upgrading of inadequate school-leaving qualifications is catered for and NIMT provides for tertiary technical training and qualifications.

Arguably the greatest lack is to be found in social capital. This manifests itself in poor relationships between community groups and between the community and the TCA, and is a real constraint on development. The community tends to see the TCA as a provider, rather than a service provider, and initiatives for development are frequently met with opposition and suspicion.

5.2 *Swakopmund*

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

Demographics

According to the polio vaccination programme of 2006, the population is currently between 40,000 and 42,000. This number more than doubles during peak holiday seasons as the town is a prime destination for both foreign and domestic tourists. About 6,000 people currently live in the informal settlement, the Democratically Resettled Community (DRC). According to the MHSS, the largest part of the migratory workforce occupies temporary housing facilities in Mondesa (MHSS, 2004).

Informants state that there has been a definite increase in the population, and that this opinion is informed by the number of vagrants in the streets and the rising crime rate, which is usually the result of unemployment (Kaukungua, pers. com., 2007).

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 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 RU 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, pers. com., 2007).

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 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. It is estimated to be in the region of 40% (Kaukungua, pers. com., 2007). The unemployment rate in the DRC is estimated to exceed 55% (Lawrence, pers. com., 2006).

Economy

The economy of Swakopmund is based on tourism, and this sector is growing. This is a fragile base, as tourism is very easily affected by crime. 50% of visitors who come to Namibia visit Swakopmund, and, as shown in Figure 3 above, Swakopmund is well-positioned for visits to the eco-tourism sites which give the region its unique appeal, and 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.

The commercial sector of the economy has expanded and some light manufacturing is undertaken. The town provides logistical support for a number of the uranium mines operating in the region, and to the Erongo Regional Council which has its official seat there. It also potentially the location for accommodation for the new and expanding workforces on the mines.

To address the high unemployment and poverty in the town, and ensure that its development is planned and controlled, and benefits all sectors of the community, the STC has contracted the Urban Trust of Namibia to assist with the development of its Local Economic Development Policy.

There are currently approximately 1,500 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. However, there will also be demands for business and residential space, which is not freely available.

Local Authority

The budget presented for 2007/2008 reflects conservative financial management. Two matters which particularly have a negative effect on the budget are 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 any dividends to the Swakopmund Town Council (STC), who is a shareholder. The possibility exists that the STC should consider an additional increase in assessment rates in order to recover the revenue lost due to the establishment of the company.

Expenses on non-remunerative services are going to be difficult to contain, given the disproportionate growth in informal settlements. The establishment of Erongo RED has affected the capacity of the STC to finance these services partially from the surpluses generated by the supply of electricity.

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

- assessment rates - 10%
- water supply - 10%-12%
- refuse removal - 5%-10%
- sewerage charges - 7.5%

(Swakopmund, 2006b)

Social concerns

A growing phenomenon in Swakopmund is street children. There is also a large number of AIDS orphans. Currently these children stay with families, and in a shelter, but there is an urgent need for a facility where the two groups can be housed together so as to contain the problem now, before it becomes difficult to do so.

Alcohol abuse is a serious problem. In the DRC there are more than thirty illegal shebeens.

Contributory causes of alcohol abuse are poverty, unemployment and poor living conditions. Most cases of domestic violence are attributed to alcohol abuse. 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. Past and current inward migration has resulted in a proliferation of backyard shacks. Almost every second house in Mondesa has a shack in the backyard and the total number of backyard shacks is estimated at 4,000 (Ipinge, pers. comm., 2007). These present the town council with serious problems, and it is trying to limit the number of shacks. People are paying 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. The town council is promoting the building of decent living quarters which will also improve the value of properties. However, 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 1,370 plots. Housing and living standards are sub-standard compared to the rest of Swakopmund.

The supply of water to the area has been outsourced to Water Master Namibia, and the company purchases water from the STC at the bulk water purchase price of N\$ 4.78/m³. Water is then sold through pre-paid water meters. The basic charge for water is N\$ 55 /m³, and this levy includes waste removal, cleaning of the toilets and rent for the land. The STC has also installed 25 communal water points, but there is no electricity for domestic consumption (Swakopmund, 2006b).

Toilet facilities have been installed by the municipality at the rate of two households per toilet. The system is a dry sewage system (called a Jo-jo) which should work well, delivering a product which can be used as compost. However, it develops mechanical problems because of misuse. The municipality has to use its back-up plan, which is to bring in a tanker to pump out the sewage (Lawrence, pers. comm., 2006).

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. However, some concerns were expressed, the most prominent being housing and accommodation, school capacity and the growth of informal settlements with the attendant social problems.

Housing

Housing is a major concern, and numerous stakeholders raised questions about the locality at which mining companies would house their workers. Currently there is no serviced land. The new 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 (see Figure 9). 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. In executing this mandate, to provide low cost housing to the Namibian people, the NHE constructs houses in a range varying from N\$60,000.00 to a maximum of N\$200,000 (SPC, 2007).

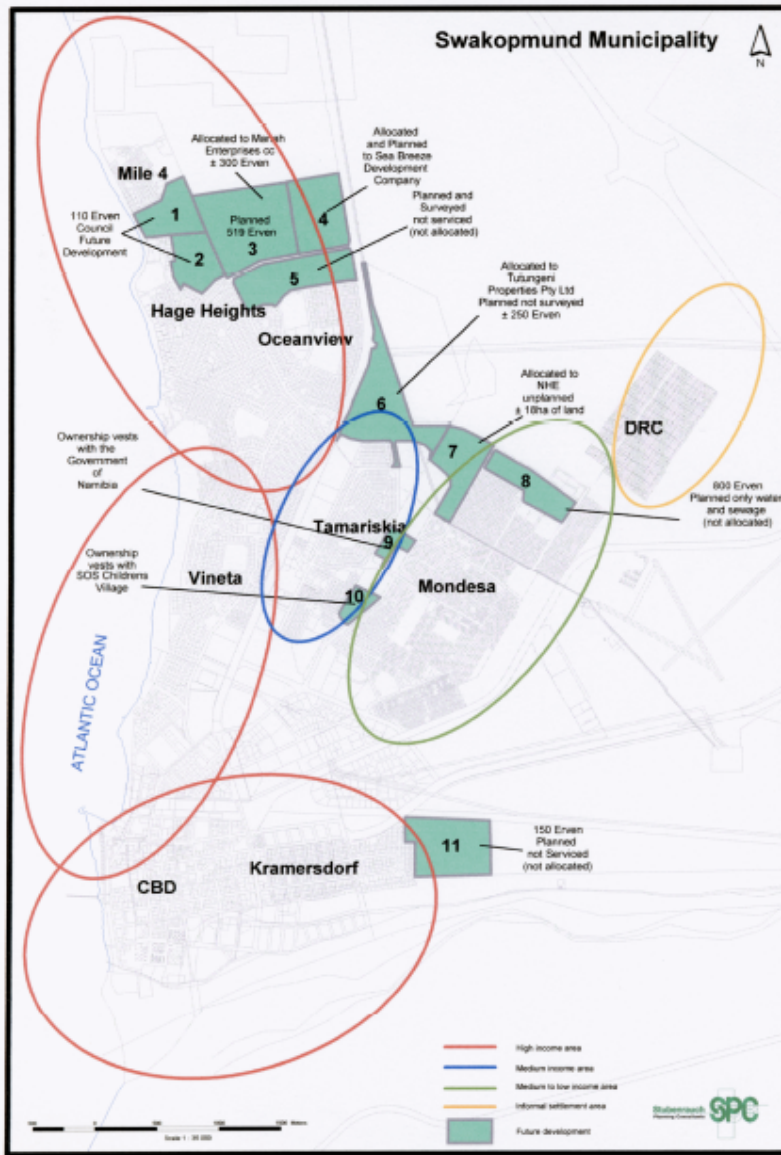


Figure 9. Swakopmund urban layout showing future developments (map: SPC, 2007).

No provision has been made by the STC for the servicing of land during the current financial year and it is doubtful whether such provision will be made for the next financial year (Holtzhausen, pers. comm., 2007).

Geographical constraints limit the growth of the town and future growth will in all probability be along the northern banks of the Swakop River and inland in a north-easterly direction.

800 erven are being developed between Mondesa and the DRC. This area is termed a Progressive Development Area and it is intended for low-cost housing, built so that people can improve their houses at a later stage. The erven are fully serviced with the exception of the provision of electricity, which still needs to be finalized. Conventional supply is extremely expensive and alternatives are being investigated (Holtzhausen, pers. comm., 2007). The STC is currently talking to the National Housing Enterprise about the possibility of providing some financing for building houses. The STC wants people living in the DRC and in backyard shacks to move into this area.

There has been a steady rise in building activities in the last three years: building plans approved in the 2004/2005 amounted to N\$ 162 866 092, in 2005/2006 to N\$ 188 286 008 and in 2006/2007 to N\$ 228 512 300 (Holtzhausen, pers. comm., 2007).

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. People are moving out of Swakopmund to both Arandis and Walvis Bay as accommodation in those towns is cheaper. 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 demands exceeds supply, the rentals are high.

Water

Swakopmund is supplied with drinking water from the Omdel aquifer. The Omdel Scheme is currently being utilised to the maximum as a result of an historical over-estimation of its capacity. The Central Coastal Area's water allocation is probably going to be reduced by 4-5 million m³ annually. Namwater has not yet completed the remodelling of the Omdel aquifer as required by Water Affairs, and this needs to be done to establish safe abstraction rates for the aquifer. At a key informant meeting, concerns were also expressed about the reliability of the Omdel line, which is very old and needs replacement (Holtzhausen, pers. comm., 2007).

The desalination plant that UraMin is erecting in the vicinity of Wlotzkasbaken is being built in a modular fashion, and Namwater has indicated that it will take up the spare 25 Mm³ available from the desalination plant to supplement the regional water supply. This would resolve any impending water shortage, as 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).

A preliminary estimate of the production cost of desalinated water, before adding the cost of supplying bulk water users, is N\$11 per m³, more than double the current cost of N\$4.78 per m³ for bulk water in Swakopmund (SPC, 2007). The condition of the Omdel pipeline will need to be addressed.

Figure 10 shows that, in spite of the physical expansion of the town, water consumption in Swakopmund has remained relatively stable for the last five years, probably as a result of the staggered water tariff and the fact that the public is becoming more aware of the need to

save water. Water consumption for Swakopmund for the 2006/2007 financial year was 3.167 Mm³, an increase of 5% on the consumption for 2005/2006, but still below the projected figure of 3.194 Mm³ (Holtzhausen, pers. comm., 2007).

A significant increase in the number of households and inward migration to informal settlements and backyard shacks could place demands on supply which will be difficult to meet. Consumption in the DRC increased from 6,678m³ in 2004/2005 to 8,978 m³ in 2005/2006 (Swakopmund, 2006b).

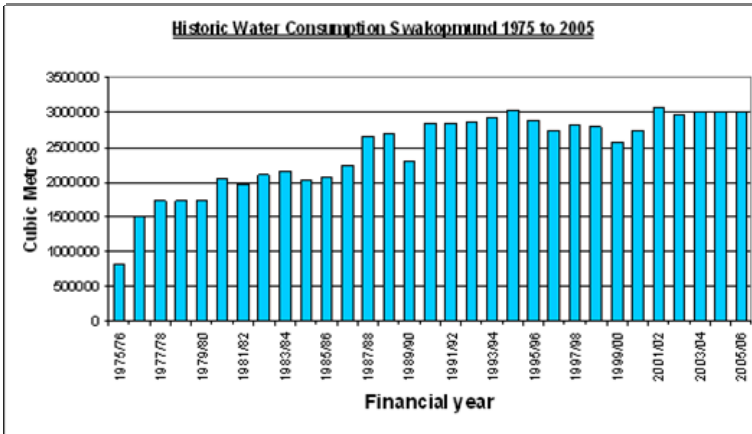


Figure 10: Historic Water Consumption in Swakopmund, 1975 to 2005 (Swakopmund, 2006b).

High water losses are still being experienced, and these are ascribed largely to illegal connections and faulty water meters. Proposed expenditure for the STC's 2007/2008 budget includes the replacement of lines and meters which are too old to meet the demands of the developing town, and also to limit water losses (Swakopmund, 2006b).

Cleansing

The cleansing systems in the town are not functioning optimally, and 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.com.). Swakopmund's solid waste dump needs to be replaced by a waste plant. The current dumping site is located on solid rock, and the expected capacity can therefore not be realised. Additional disadvantages of the current site are pollution in the desert and scavenging on the waste dumps by DRC residents.

To meet the demands of the developing town, an additional refuse compactor has been budgeted for in the 2007/2008 financial year (Swakopmund, 2006b).

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).

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 pressure of poverty. People need to live, and if they have no jobs so they turn to crime." (Shilongo, pers. comm., 2007).

Electricity

Swakopmund has no problems in terms of infrastructure for the supply of electricity to consumers, as this was part of the STC's master development plan. However, the old Swakopmund substation would need to be upgraded, should the town expand in the direction of Kramersdorf (SPC, 2007).

Erongo RED's systems and resources do not make allowance for services at short notice. They have to go through planning, budgeting and approval stages and demand upfront payment for any services required (Holtzhausen, pers. comm., 2007).

Education

Table 4 reflects the capacity of state schools in Swakopmund to absorb new learners. It is incumbent on any company to ensure that its workforce has, amongst other services, access to schooling. This will not be possible with the current capacity of schools. According to the Regional Office of the Ministry of Education, a significant increase in demand for places would be beyond the coping capacity of Swakopmund schools, nor can the Regional Office build extra facilities in the town. Funding from central government only allows for the building of two classrooms a year in Erongo, and that money is already committed to Walvis Bay for the next three years to 2010. 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, pers com. 2007).

Overcrowding is particularly severe in Grades 1 and 8. Two schools in town are currently teaching in two sessions. There are some spaces in the other grades, but, as the tables indicate, these are not plentiful.

Many applications are received from outside the Swakopmund area, and schools in the town have adopted a policy of local preference. Children from outside Swakopmund stay in hostels: there are two secondary hostels and one primary, all of them full.

Table 4: Capacity in state schools in Swakopmund (capacity is calculated on a learner:teacher ratio of 35:1) (data: SPC, 2007).

Classroom situation and learner numbers in secondary schools					
	2005	2006	2007	Classrooms needed	Classrooms available
Westside High School	870	870	883	25	24
Swakop Secondary School	850	815	797	23	20

Namib High School	568	550	540	25	24
H Gmeiner Secondary School	457	423	443	12	11
Atlantic CS	790	820	815	23	21
Classroom situation and learner numbers in feeder primary schools					
Swakop Primary School	506	523	615	18	16
Tamariskia Primary School	942	930	952	27	27
Festus Gonteb Primary School	466	537	574	15	12
Vrede Rede Primary School	380	476	541	15	10
Namib Primary School	340	382	383	11	20
Hanganeni Primary School	275	278	289	8	7
Classroom situation and learner numbers in secondary schools					
	2005	2006	2007	Classrooms needed	Classrooms available
Westside High School	870	870	888	25	24
Swakop Secondary School	850	815	806	23	20
Namib High School	568	870	888	25	24
H Gmeiner Secondary School	457	423	435	12	11
Atlantic CS	790	820	815	23	21
Classroom situation and learner numbers in feeder primary schools					
Swakop Primary School	506	523	615	18	16
Tamariskia Primary School	942	930	936	27	27
Festus Gonteb Primary School	466	537	540	15	12
Vrede Rede Primary School	380	476	541	15	10
Namib Primary School	340	382	383	11	20
Hanganeni Primary School	275	278	289	8	7

Fees at state schools vary, but for primary schools they range between N\$400-500 annually. Secondary school fees average at about N\$700 annually.

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 phenomenon of illiteracy in learners in higher grades is a regional one. The Rössing Foundation is addressing this at a number of schools. Only two schools in the region offer technical subjects at secondary level. The problems experienced in mathematics and science tuition persist, even though these subjects are offered by all schools. The Rössing Foundation is assisting in this respect as well, but the spokesperson for the regional office of the Ministry of Education indicated that the Foundation's assistance was needed by more schools.

Mother tongue education is offered from Grades 1-3, but this facility depends on the language. At the moment schools in the region offer teaching in four mother tongues, but other languages, such as, for example, OshiHerero, could pose problems if there are very few learners who have it as a mother tongue. An estimated 20 learners would be required to start a class for a particular language group (Awaseb, pers com. 2007).

Table 5 reflects the current learner enrolment and the capacity of the three private schools in Swakopmund.

Table 5: Capacity in private schools in Swakopmund (SPC, 2007).

School	Current no. of learners	Current no. of teachers/staff	Available capacity per grade	School fees
Swakopmund Christian Academy	84	Pre-primary: 1 caretaker per 10 learners	Pre - primary - 8 learners Grade 1 - 5 learners Grade 2-10 - 10learners	Enrolment N\$ 1,000 Gr 1-8 N\$ 12,000 annually or N\$ 1,000-1,400 per month.
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 nd 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

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 Medi Clinic reported improved hospital occupancy in the first half of 2007 which could be indicative of a growing workforce in the Swakopmund area. With bed occupancy of approximately 30%, the facility has sufficient capacity to accommodate many more patients. Similarly, the two operating theatres have a utilisation rate of 8%, well below the normal "busy" hospital rate of 30%. The only concern expressed by this respondent was that it is difficult to assess the impact that the uranium boom would have on the region, on Swakopmund and ultimately on the Clinic, particularly as the number of people to be employed by the mines could not be established (Sander, pers. comm., 2007).

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 60%. 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.

Over a three-year period, the number of in-patients regionally has increased from 6 to 8 thousand per year, largely people living in informal settlements and backyard shacks. The health services are feeling the strain and the out-patients departments are overcrowded (Tshiteta, pers. comm., 2007).

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 Erongo is one of the highest in the world, and 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 17.3%, expectations are that these will escalate again with significant inward migration. Social ills and alcohol abuse are also expected to increase (Tshiteta, pers. comm., 2007).

At present the Chamber of Mines of Namibia is engaged in negotiations with a number of institutions (including the Government of Namibia) to establish an Institute for Environmental Health in Swakopmund. This will optimally be located at the centre of the uranium industry in Namibia – Swakopmund. Its functions and role will have to be negotiated but would include liaison and development of links with identified international institutions (such as the International Atomic Energy Association, the World Nuclear Association and the Royal Colleges) and the oversight of satellite operations (including Arandis), quality assurance and monitoring of relevance to changing demands in the wider environment (Swiegers, pers. comm., 2007).

Medixx Occupational Health Services is a new service provider which recently opened clinics in Swakopmund and Walvis Bay in response to a perceived need for specialized occupational health services for the growing uranium industry in the Erongo Region. The range of services offered to companies includes entry and exit medical examinations, risk based periodical examinations and surveillance.

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 do 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 RU 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 RU 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 RU, the Swakop River Farmers Working Group, of which RU 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 undertaken by RU at the request of the farmers indicated 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.

5.4 *Walvis Bay*

The estimated population of Walvis Bay is 61,000 (2007). A significant number of migrant workers from other regions move in and out of the town depending on the seasonal availability of work opportunities, but information on their numbers was not available.

Economy

Walvis Bay is the principal port of Namibia. The major economic activities in the town are fishing and the onshore processing of fish. Locally, the industry provides approximately 40% of the employment in Walvis Bay (Kruger, pers. comm., 2007). 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. However, the economy is fairly diversified.

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 has been invested in developments in Walvis Bay. 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 but creates much needed employment.

Most of RU'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, pers. comm., 2007).

Another emerging sector is tourism. 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. Tourism in Walvis Bay increased by an estimated 15-20% in the period 2005/2006 (Namibia Economist, 2007). The upgrading of the Walvis Bay airport will provide further stimulus for the growth of this sector.

Namport manages the port of Walvis Bay, a key aspect of the Walvis Bay 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 also 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, pers. comm., 2007).

Services

Walvis Bay receives potable water from 57 boreholes in the Kuiseb well field. According to a municipal spokesperson, there are currently no problems with water delivery, and the reticulation system is in good condition. 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. Currently, Walvis Bay consumes 29MVA, and 35MVA is available. No problems for development in the immediate future are foreseen in the town (Kruger, pers. comm., 2007). However, at a focus group meeting with Walvis Bay municipal officials, it was indicated that, because of concerns around the dependability of the supply of power from South Africa, the erection of a coal-fired power station had been discussed. A European company is also investigating the possibility of producing energy through the use of wind turbines (Municipality of Walvis Bay, 2007b).

Walvis Bay is the only town in the Erongo Region using load controllers to manage the electricity consumption during peak times. Erongo Red plans to install the technology in Swakopmund.

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 will be constructed in 2008 to meet the requirements of Langstrand and Dolphin Park.

Housing

Walvis Bay has virtually run out of land. The expansion area is towards Langstrand where there are still undeveloped stands, but the area is not particularly favoured because of high prices and its lack of facilities. The current high demand for residential properties in the area is largely for investment or holiday-home purposes. According to a recent report from the Municipality of Walvis Bay, the town is experiencing "an unprecedented boom in property development, especially along the beach" (Municipality of Walvis Bay (a), 2007).

As in the PDA in Swakopmund, the spiralling cost of electricity infrastructure is having an impact. In the PDA, it is a constraint on the development of the erven which are fully serviced except for power reticulation to the individual erven. At Langstrand the cost of installing electricity services has more than doubled over the last 18 months and has contributed to the increase in property prices (SPC, 2007).

It was not possible to establish how many RU employees currently live in Walvis Bay, but they are sufficient to require two buses a day to take them to site. The majority of Langer Heinrich's employees are renting accommodation in the town. Rentals are expected to increase by 20% as more mines open in the area and look for accommodation (SPC, 2007).

The Municipality of Walvis Bay has provided for approximately 363 erven in the different suburbs, but these will only be available within 18 months. The NHE recently bought approximately 250 erven and these can be available for development within 2 years. Property prices in general are expected to increase as no serviced land is made available by the Municipality.

Although the accommodation situation in Walvis Bay is not as critical as the one in Swakopmund, it will still be difficult to accommodate a large demand for new properties.

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 SABS and international standards and is one of only two in 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. Hopefully, growing industrialization in the town will lead to more stringent government enforcement (Municipality of Walvis Bay, 2007b).

Education

Table 6 shows that, as in Swakopmund, there is a critical lack of capacity in state schools to accommodate new learners. Of the eleven schools reflected in the table, only three have spare capacity. It was not possible to establish which grades could be accommodated.

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

Table 6 Capacity in state schools in Walvis Bay (capacity is calculated on a learner:teacher ratio of 35:1) (SPC, 2007).

Classroom situation and learner numbers in secondary schools					
	2005	2006	2007	Classrooms needed	Classrooms available
Kuisebmond SS	783	799	812	23	20
De Duine SS	828	793	873	25	23
Walvis Bay HS	508	511	508	15	21
Duneside HS	351	351	355	10	21
Duinesig CS	722	863	1187	35	23

Classroom situation and learner numbers in feeder primary schools					
Tutaleni PS	683	710	734	21	14
Narraville PS	1508	1504	1552	44	33
Immanuel Ruiters PS	1055	1508	1053	30	27
Flamingo PS	415	457	523	15	10
Walvis Bay PS	536	522	570	16	22
JP Brand PS	276	293	290	8	7

Table 7 reflects the situation with regard to the availability of private schooling in Walvis Bay.

Table 7: Capacity in private schools in Walvis Bay (SPC, 2007).

School	Current no. of learners	Current no. of teachers/st aff	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

Health

Walvis Bay has one state hospital (120 beds), one private hospital, the Welwitschia Medi Clinic (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.

At the state hospital, normal bed occupancy rate is about 50%. There is a casualty department which is in need of equipment. The spokesperson for the hospital commented that there would always be staff shortage problems.

The hospital provides services very largely to the indigent and the very poor. Most of the people who are admitted as in-patients suffer from HIV/AIDS-related illnesses or TB.

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 (noise and odour from fish factories) and poor implementation of occupational health practices.

The HIV prevalence rate in Walvis Bay is slightly 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. For the period July 2006-June 2007 in excess of 50% of deaths were AIDS-related.

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.

Currently about 1% of the population is infected with TB. In the 2006/7 period there were 483 new TB patients. The disease is caused largely by poverty and poor living conditions. In Walvis Bay, environmental factors play a role as well. It is cold and windy, and people tend to keep their windows closed, circumstances which favour the spread of infection. The notification rate in Erongo is around 800-1,000 per 100,000, one of the highest rates in the world (Tshiteta, pers. comm., 2007). Walvis Bay has the highest number, globally, of Multi-Drug Resistant (MDR) TB sufferers. In September 2007 the hospital had 22 in-patients. There is a block where thirty patients could be treated, but the hospital does not have enough staff to do so (Atiogbe, pers. comm., 2007).

Social

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 is 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. A further sign of social distress is the number of attempted suicides that are treated – at least one every two days. This was ascribed to substance abuse and poverty (Atiogbe, pers. comm., 2007).

Concern was expressed in relation to possible impacts on health 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.

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.

At the meetings with stakeholders in Walvis Bay, the concern about backyard shacks was expressed on a number of occasions. The social and health problems arising from these, and the difficulty in ending the practice, are the same as those experienced in Swakopmund. The backyard shack culture is entrenched in both towns, 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, pers. comm., 2007).

5.5 Usakos

Usakos is located on the Trans-Kalahari highway, and is the junction of the branch railways to Tsumeb and the Angolan border, Outjo and Grootfontein from the line to Windhoek. Until the 1960s Usakos was a busy centre which serviced the steam locomotives plying the narrow gauge railway. Once the steam locomotives were replaced by diesel locomotives and the large workshops were moved to Windhoek, the economy of the town went into decline, and has not recovered since.

The current population of the town is an estimated 6,700, and unemployment and poverty rates are high. Unemployment is very largely in the unskilled and low-skilled sectors of the population. The biggest employer is the state – education and health. There are a few commercial enterprises, and a number of small-scale miners. Most of the traders selling semi-precious stones at the intersection of the Hentie's Bay road and the B2 are from Usakos. Their parents still live there, and they return home at intervals (Jantze, pers. comm., 2007).

A significant number of young people are unemployed, and this causes problems of alcohol abuse.

Most of the residents in Usakos are farmers in the traditional areas. The current drought in the area means that they are unable to make a living.

The property market in Usakos is stable, as there is little demand for housing or erven. Existing housing stock is limited, and vacant and serviced property for development is not readily available. However, the Town Council can make land available if there is a demand for it. It has recently planned for approximately 200 new residential erven that could be available within 36 months. Houses are available for rental from TransNamib, but no details were available.

A few Rössing employees come from Usakos, but they live in Swakopmund, and their wages do not contribute to the Usakos economy. The Usakos Town Council has been approached by Valencia Uranium Mine with a view to housing the mine employees in Usakos, as the town is closer to the mine than Swakopmund. Valencia is also planning to recruit the majority of their employees from Usakos or Karibib so that they do not destabilise the property markets in these towns (SPC, 2007).

There are two informal settlements on the perimeter of the town, with a total of about 130 residents. They come to Usakos because it is the centre of the district, and they believe that there is a possibility of employment.

The existing infrastructure is in poor condition and will need extensive upgrading if the town experiences an increase in demand for housing, services and consumer requirements. The electricity substation, too, will need to be upgraded.

Usakos has eight boreholes, of which five are currently in use. These supply 50% of the town's water requirements. The remainder is supplied by Namwater.

Payment for municipal services is good because it is undertaken by debt collectors.

The Usakos State hospital has 65 beds, and the district is served by six clinics. According to the MHSS, part of its five-year plan for health services in the region is the upgrading of the existing facility in Usakos in 2008/2009 (SPC, 2007). Problems are experienced with the lack

of an ambulance. The hospital uses the Council ambulance but, as the hospital caters for a very large surrounding area, the main concern is transport. If people are ill, or involved in an accident, it is not possible to transport them in a pickup. The community hopes that, with the onset of mining activities, the Roman Catholic hospital will be reopened as a private hospital. This was reputedly a very good facility, and all the equipment is still in place.

There are occurrences of TB in the town, but no statistics were available. According to the spokesperson for the Usakos Municipality, many people who have TB think they have AIDS and are scared to go for testing. As a result they die, unnecessarily, of TB (Jantze, pers. comm., 2007).

No statistics were available on HIV/AIDS prevalence rates in the town.

Schooling is adequate and all the schools have capacity to accept additional learners. There are four state schools, one private school and enough teachers. The teachers are well-qualified, as the government has introduced a programme for teacher upgrading, and this has to be undertaken within in a stipulated time. In the secondary school, students have been sent to other schools in the region because of renovations. The community hopes that the arrival of the mines will speed this process up.

5.6 Spitzkoppe and the small-scale mining community

Information of Spitzkoppe in this section is drawn from the research undertaken for the Trekkopje Uranium Project (Turgis Consulting, 2007).

The area around the Erongo Mountain, including the Groot and Klein Spitzkoppe, is one of the regional hubs of the small-scale mining sector. The community around the Spitzkoppe granite dome is the most marginalised within the area covered by this Study.

The community is neither traditional nor long-established. Forty years ago there was no community resident in the vicinity of the Spitzkoppe. After the San people died out or left the area, the area remained uninhabited until the late 1960's. Under the policies of the former South African apartheid government, in this case specifically in terms of the Odendaal Commission, a small community of Damara people was resettled there. The community at Spitzkoppe is referred to locally as "Spitzkoppe Skool".

The land on which the community lives is communal land and, as such, falls administratively under the Erongo Regional Council. Traditional leadership plays an important role in the life and development of the community.

In April 2006 there were approximately 1,600 people in the community. Unemployment is high, but respondents' information that the rate is more than 75% should be taken to refer to formal employment only.

There is a clinic, but no full-time staff member. Health services by a doctor were reported to be irregular and infrequent. The nearest centre for medical attention is Usakos.

The community has little of the infrastructure and few of the services required for the practice of viable economic activities or for making any progress towards sustainability. There is no postal service, refuse removal, banking facilities or law enforcement presence. A small store provides everyday household goods, but fresh vegetables are not available. Septic tanks have been installed, but these are not functioning properly. Leakages and

overflows result in effluent contaminating the drinking water. No funding is available for repairing and maintaining the sewage system (Naruseb, pers. comm., 2006).

The school has electricity from a generator. The houses are fitted with solar panels installed by donor funding. These serve for lighting, but many of them are in a state of disrepair and do not function.

There are 260 learners at the local school, and five teachers, including the principal. Pupils can complete Grade 7 at the school, and number of learners who do not go on to complete their schooling is in excess of 50%. The school is underutilized because of a lack of water (Awaseb, pers. comm., 2007). The community also has a pre-school centre for children under the age of 5. Income from the Spitzkoppe Community Camp is used to pay the salaries of four teachers and one cleaner at this institution.

Recreational facilities consist of a small play-ground for children and soccer and netball fields.

The literacy rate in the community appears to be considerably lower than the regional average of 92.3% (NPC, 2003). None of the respondents indicated that the literacy rate in the community is above 50%.

The community is scattered over a fairly large area, with most formal dwellings concentrated in Spitzkoppe Skool. The number of informal dwellings has increased recently. As a result of drought, some parents can no longer afford to pay the fees for the school hostel, and they are erecting corrugated iron shacks so that their children can live with them and still attend the local school (Naruseb, pers. comm., 2007).

The roads in the settlement are untarred, and some are in a very poor state of repair. Along the road to the settlement, children sell semi-precious stones from small shelters made of tree branches.

The community gets its water from boreholes. Although a number of boreholes have been sunk, only three of these are in operation. The community has made representations to get more boreholes functional, but have been told that there is no funding (Naruseb, pers. comm., 2006). When this baseline information was updated (September 2007) the school had been without water since the previous week, nor was there water for livestock. Water is brought in tankers, but is completely inadequate for the community's needs. The reverse osmosis plant, installed by the Department of Water Affairs to supply water to the community, was not functioning, and had been in a state of disrepair for a long time (Naruseb, pers. comm., 2007).

The community is isolated with regard to communications. There is no regular bus or train service, and very few members of the community have cars. The respondents indicated that between 5-10 members of the community have telephones (mobile or fixed line). One phone number usually serves as a message centre/answering service, and faxes have to be sent to, and collected, in Usakos.

The remoteness and isolation of the community ensures that economic opportunities are limited. It lives far from any employment opportunities and travel to potential centres for employment, such as Swakopmund, is erratic. The area is too remote for the establishment of any formal commercial or industrial activities, and it is far from markets and sources of

supply. Tourism affords the greatest potential for people to improve their income and living conditions.

Community members make a living from a few goats and cattle, and more recently from the community-run Spitzkoppe Community Camp, which employs fifteen permanent staff members. Those who are formally employed are mainly in the public sector. A few people are employed at the community camp site. The income from tourism is not sufficient to manage the camping area adequately and there are very few facilities. Near a few of the campsites pit latrines and/or rubbish bins are provided, and the community is responsible for the removal and disposal of refuse, and the maintenance of the sandy access tracks. The community also sells firewood and water to campers.

A Namibia Association of CBNRM² Support Organisations report of 2005 indicates no income generating activities during 2004 by the //Gaingu Conservancy, within which the community is situated. This situation had not improved at the time of this Study.

Development constraints in Spitzkoppe

The Spitzkoppe communities lag behind the average statistics for the Erongo Region in almost every respect. The area is underdeveloped, and the opportunities for alternative economic activities are extremely limited. Potential for generating income for the community does exist, but resources are not being optimally exploited and opportunities are not being taken up.

A key informant stated that the community has received no direct state funding since independence, either from regional or central government. The community depends for income on its own projects, the main source of income being the Spitzkoppe camp. The Headman maintains that assessment of problems areas, such as housing, sewage and water, is cursory at best, and that there are never any results from such assessments. He is of the opinion that the interests of the Spitzkoppe community are not well-represented in the Erongo Regional Council (Naruseb, pers. comm., 2006).

A serious constraint on development is the tensions within the community, and the numerous conflicts which make newspaper headlines on a regular basis.

Although the Spitzkoppe Community Camp is making a profit, there is no formal management structure nor is there a strategic plan to improve facilities in and around the camp site, and so to create more employment. The skills levels are generally low, and identified needs include business management skills as well as training in hospitality, tourism and environmental stewardship. It was also apparent, at the time of this study, that there is an urgent need for the identification and conservation of the cultural artefacts with which the area is richly endowed.

There are approximately 700 licensed small-scale miners in the Erongo Region, but a recent census indicated that there are about 2,300 active in the sector. In the study area they are situated mainly around the Spitzkoppe, and mine mainly in the Erongo Mountains.

The main economic activity in the Spitzkoppe area is small-scale mining and the sale of low-value gemstones and curios. No beneficiation is done, and the stones are sold at low prices to passing tourists.

² Community-based Natural Resource Management

There is a significant informal settlement at the intersection of the B2 and the road to Henties Bay, some 20 km SE of the Spitzkoppe Community. The self-given name of this settlement, which originated in about 1996, is Uiba Ôa meaning "searching for a living". Members of the community earn a living mainly by selling semi-precious stones to passing tourists. The Uiba Ôa community has no access to water other than what members buy from a local farmer at N\$ 5,00 for 20-25 l (Roeiss, pers. comm., 2006). There are no services for the community, no formal housing and no official transport for the children to get to school. In the two years since this community was first observed, in 2006, no discernible improvements in the community's living conditions have taken place.

A current multi-stakeholder initiative is the development of a formal craft market at the intersection. One of the objectives of this initiative is to promote formalization of the small-scale mining sector, and a further one is to ensure a fair price for the stones the miners sell.

This development has been delayed a number of times, and the current delay is the need for trucks to bring stones from Spitzkoppe mountain for the buildings. There is optimism that the first phase will be completed by February 2008.

The Rössing Foundation takes a lead in development projects within the SSM sector, and a spokesperson for the Foundation commented that the miners don't earn a decent living from their activities, that it is really just very arduous subsistence labour. Women are plentiful in the sector, and not exempt from the very hardest form of labour. It is very rare to find children doing hard labour, but they are also impacted by the unsustainable livelihoods earned in the sector. In the rural areas, many of them are not attending school. Especially in January, when the tourists have left, economic conditions are so bad that parents can't afford to pay their children's school fees. Although it is illegal, children who can't pay school fees are often turned away from schools in the more remote rural areas (Ondingo, pers. comm., 2007).

The Foundation was the driver of the establishment of multi-stakeholder Small-Scale Mining Forum. This is not functioning perfectly because of a lack of commitment on the part of some of the members of the Forum, but the Foundation spokesperson is optimistic that things are changing. The SSM sector now has direct links with MME, and programmes for capacity building have been developed. An Association for small-scale miners has been established, and a number of co-operatives have become members. The Foundation, in conjunction with a number of other members of the forum, conducted two introductory courses on cutting and polishing. Although the participants were interested and enthusiastic, this development, which would make a significant difference to the viability of the sector, cannot move forward because of the capital cost of the equipment.

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 chapter will inform the Social Impact Assessment and the Social Management Plan for the Rössing Uranium Mine Expansion Project.

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Socio-Economic Component
of the
Social and Environmental Impact Assessment
Report for the
RÖSSING URANIUM MINE EXPANSION PROJECT
Statement of Alternatives

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1. Introduction

This Statement of Alternatives considers different ways of achieving the objectives of the Socio-Economic Impact Assessment and the Socio-Economic Management Plan - to mitigate or enhance the potential impacts arising from Rössing Uranium's (RU) Mine Expansion Plan. A variety of alternatives were considered, based on baseline socio-economic conditions and information gathered during public participation and consultation process. Alternatives have been considered with regard to:

- their sustainability and/or their impact on sustainable development,
- the availability of infrastructure and services,
- distance to RU where alternatives concern a choice of locality, and
- liabilities accruing to RU, including negative public perception.

2. Construction camps

1. House the construction workers in Arandis in permanent free-standing houses which can, on completion of the construction phase, provide housing for RU permanent employees and other residents of Arandis.

Positive indicators
Close to RU
Services are in place
No increased traffic on the B2
Social and communal life
Increased economic activity in Arandis
Negatives indicators
Social impacts on community
Mini economic boom and bust
Type of housing built for construction teams will further entrench the perception of Arandis as a place of residence for the lower socio-economic sector.
If the economy of Arandis does not diversify and expand, there will be a glut of houses in the town.
Housing will have to be restored at the end of the construction period.

2. Investigate, with UraMin Namibia, the possibility of using the construction camp which that company is erecting on the Trekkopje Uranium Project mine site.

Positive indicators
Water, energy and good access roads are available
Remote from any community, so negative social impacts are avoided
Impact on road use will be less than on the section of road between Arandis and Swakopmund
Environmental degradation will be limited to one site by addressing a cumulative impact in a concerted way.
Negative indicators
Timing of two constructions processes should align.
Project management and scheduling conflicts with the Trekkopje Project (including increased liabilities for Trekkopje's rehabilitation of the contractor site)
Distance from RU
Impact on Trekkopje access roads
Isolation of workforce
Environmental impact

3. Identify the owners of the farms situated to the north-east of RU and negotiate with them to establish the possibility of a lease over a portion of the farms for the erection of a construction camp.

Positive indicators
Remote from any community, so negative social impacts are avoided
Impact on road use will be less than on the section of road between Arandis and Swakopmund
A high likelihood that the land has been previously disturbed
Negative indicators
Distance from RU
Isolation of workforce
Environmental impact
The likelihood of no water and power

The alternative of negotiating with the owners of farms shares the advantages of road use and remoteness with the UraMin site. However, services – water and electricity – are not in place. This constraint can be addressed, but at some considerable expense.

4. Build houses in the Progressive Development Area in Swakopmund and sell these on completion of the construction phase, either to Rössing employees or on the open market.

Positive indicators
The impact of social disruption will be less severe in a larger and more cohesive community
After the construction phase the housing can be used for RU's permanent workforce or for occupation by people living in informal accommodation in the DRC and Mondesa

All services are available except for electricity reticulation to individual stands
Social/communal amenities
Spend by construction workers will not impact on the local economy
Negative indicators
Distance to RU
Increased road-use on the B2 between Arandis and Swakopmund
Post-construction phase liability for vacant housing
Disappointed expectations will cause some negative public perceptions of RU.

Discussion: the main considerations in assessing these alternatives have been:

- sustainability of communities,
- economic feasibility (infrastructure availability),
- road use, and
- provision of a decent lifestyle for construction workers.

The alternative of placing the workforce in Arandis should not be considered. The effects of housing a construction workforce in the town are discussed in the Social Impact Assessment (SIA) under Impact No. 4. Additional to that discussion, Arandis could be left with redundant housing stock as RU will not be housing many members of the permanent workforce in the town. This alternative, if chosen, will have a negative effect on progress towards sustainability in Arandis.

The optimal alternative is No. 2 - negotiating with UraMin to share the construction camp facilities at Trekkopje. As RU's construction phase is envisaged to start when UraMin's is winding down, the facilities will probably not need to be increased significantly, if at all. All services will be in place, including recreational facilities. Road use on the B2 between Trekkopje and RU is not as heavy as that between RU and Swakopmund. The site is remote from any community, and access by social visitors is easy to control.

The alternative of negotiating with the owners of the farms Vergenoeg and Trekkopje shares the advantages of road use and remoteness with the UraMin site, and the land on these farms is already disturbed. However, services - water and electricity - are not in place. This constraints can be addressed, but at some considerable expense.

Housing the construction workforce in the Progressive Development Area in Swakopmund has several advantages. The social impacts will be less severe, and, with the exception of reticulation to individual stands, services are in place. This alternative would be welcomed by the Town Council of Swakopmund who would like to see progress towards the socio-economic integration of the town. It would also provide housing, after the construction period, either for people living in the DRC or in backyard shacks in Mondesa, or for permanent members of RU expanded workforce. However, distance, travel time and the relatively high road use on the B2 between Swakopmund and RU are constraints.

3. Housing for RU's permanent workforce

1. House the majority of the workers in Arandis and the higher grades in Swakopmund, who can afford more expensive accommodation, in Swakopmund.

Positive indicators
Proximity to RU
Increased housing stock in the town
Increased income for the local authority
Cash injection into the local economy by consumer spending
Capacity in schools
Normalised demographic profile of the town
Maintains the status quo. Positive public perception of RU and its commitment to Corporate Social Responsibility
Negative indicators
Increased dependency on RU-related income in Arandis.
Increased property prices as a result of speculation and commercial developers buying up large tracts of land for development to service mining companies.
The lack of a diversified economy to absorb the extra housing stock and the decline of the Arandis Town Council's revenue base on closure. Possible collapse of the Arandis economy.
Negative impact on RU's public image on closure.
Lower socio-economic status of Arandis becomes entrenched.
Resentment of the Arandis residents as non-local people who have been employed by RU move in.

2. House the majority of the workers in Swakopmund and/or Walvis Bay and supply housing in Arandis to those employees who indicate that they want to live there.

Positive indicators
Benefits and risks are spread across communities
Employees are given a wider choice
Swakopmund and Walvis Bay have diversified economies that can absorb the impacts of increased accommodation prices and sustain the impacts of closure.
Negative indicators
Potential destabilization of housing markets in Swakopmund and Walvis Bay
No capacity in schools in Swakopmund and Walvis Bay.
The lower socio-economic status of Arandis will become entrenched as employees who choose that location are likely to be on the lower grades.
Some negative public perceptions of RU.
Possible pressure at government level on RU to house the workforce in Arandis.

Discussion: the main considerations in assessing these alternatives have been:

- sustainability of communities,
- the stability of property markets and
- the impact on RU's public image.

The availability of accommodation or land for development has not been considered as an indicator in the alternatives as none of the towns have land or accommodation available currently.

Alternative 1 has the highest number of favorable indicators, but the fact that this alternative will impact negatively on the sustainability of Arandis means that it should not be considered as an alternative. Arguably the most significant constraint on the sustainable development of Arandis is its dependence on RU's economic input into the town.

Alternative 2 has numerous constraints. However, sustainability in Walvis Bay and Swakopmund will not be affected by housing the workforce in either or both of those towns in view of their large populations, diversified economies and continued growth.

4. Schooling for the children of RU's workforce

1. Build extra classrooms at existing schools

Positive indicators
Economically feasible
Capacity can be built in schools and grades where it is currently most lacking
Negative indicators
Children of RU's workforce will not be guaranteed of placement
The Ministry of Education may wish to control at which schools classrooms should be built
Provision of education is a function of government and it is not desirable or sustainable for mining companies to take over the role of government.

2. Build a new school, in collaboration (through the Chamber of Mines of Namibia) with other mining companies, and hand the school over to the Ministry of Education on closure.

Positive indicators
Collaboration makes the alternative economically feasible
The Ministry of Education (Erongo Region) has indicated that it has the capacity to take over and maintain such a school post-closure
The Ministry of Education indicated, during the public participation process, that this was an option favored by it.
Public image enhancement for the uranium sector.
Negative indicators
Two schools will be required (or a comprehensive one) for both primary and secondary schooling

Provision of education is a function of government and it is not desirable or sustainable for mining companies to take over the role of government.

3. Build a hostel in Arandis, to be run by the Rössing Foundation.

Positive indicators
Arandis has capacity in its schools but no hostel facilities.
Priority can be given to children of the RU workforce.
It is not necessary to house the workforce in Arandis to ensure schooling for their children.
As part of the vision for Arandis is to develop it into a Centre of Excellence in Education, such a hostel could become part of the infrastructure of such a Centre on closure.
The hostel could also accommodate some of the learners in Arandis who are currently living in the town without any supervision.
Negative indicators
Ongoing funding will be required until closure.
The schools do not have sufficient capacity to accept all the children of the RU workforce.
The standard of schooling in Arandis is not highly regarded and parents prefer to send their children to Swakopmund or Walvis Bay.

4. Lobby government, through the Chamber of Mines, to build new schools, either in Swakopmund, Walvis Bay or both.

Positive indicators
Government takes up its responsibility, but there is room for partnership collaboration with the minerals sector.
Based on the nature of the collaboration, the Chamber of Mines can negotiate for dedicated space for the children of mining workforces.
Cost efficient
Children can attend school from their homes.
The minerals sector, because of its contribution to the Namibian economy and RU, in particular, because of its history of funding education and training, either through its own Corporate Social Investment initiatives or through the Rössing Foundation, is in a strong lobbying position.
Negative indicators
One school is unlikely to be sufficient for the extra demands of the minerals sector as well as the annual growth of learners coming to schools in the coastal town.
Historically, education in Erongo has been poorly funded by central government. It is likely that the Ministry of Education is waiting for the mining sector to take the initiative in this regard.

Discussion: the alternatives have not been considered in terms of which schools have the most capacity. The coastal towns do not have any, and that is where the larger part of the workforce

is likely to reside. Arandis has some capacity, but most of the workforce will not be residing there.

Alternative 1 is not regarded as feasible as RU will not be able to secure dedicated places in the classrooms.

Alternative 2 has constraints in the sheer size of the schooling requirements. This is a cumulative impact, but possibly it is not one that can be dealt with by collaboration between the mining companies.

Alternatives 1 and 2 share the undesirable indicator of the minerals sector abrogating the role of government.

Alternative 3 has a number of positive indicators, but it will be only a partial solution, and only for the children of the RU workforce, as the schools do not have large capacity to absorb additional learners. The reluctance of parents to send their children to schools in Arandis is a constraint which is currently receiving attention from the Rössing Foundation, and the quality of schooling should have improved by the time RU's requirements increase.

This alternative should be born in mind as a potential initiative in conjunction with Alternative 4.

Alternative 4 is the optimal one in terms of sustainability and roles and responsibilities. It has the possibility of dedicated places, but no estimation can be made of how many such spaces would be made available. The sheer size of the requirements and government reluctance to fund schooling in Erongo will make it difficult to implement, but it is the preferred alternative.

5. Conclusion

The above alternatives do not present unequivocal choices, and the prioritizing of alternatives, particularly where these involve Arandis, would seem to contradict most of the indicators listed in Section 1. Arguably the most significant tension presented in the alternatives is that between the sustainability of Arandis and the negative public perceptions of RU. This Statement of Alternatives has, however, prioritized the long-term sustainability of Arandis, which would be severely constrained by continued and increased dependency on RU.

As stated in the accompanying Socio-Economic Impact Assessment, the presentation of recommendations "... does not necessarily imply that they should or will all be implemented. The decision as to which combination of alternatives and mitigation measures to apply for will lie with RU as the proponent...".

DRAFT