

CHAPTER 5:

SOCIO-ECONOMICS

FINAL REPORT



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CHAPTER 5. MARINE RELATED SOCIO-ECONOMIC ENVIRONMENT

5.1 INTRODUCTION

The establishment of Namibia's first phosphate mining project will have significant short, medium and long-term socio-economic impacts for Namibia. This project can raise Namibia's profile as a country with currently the seventh largest reserves of phosphate in the world. The full production of 3 million tonnes per annum of export quality phosphate will place Namibia amongst the top ten world producers.

The purpose of this chapter is to give a description of the receiving socio-economic environment in which the marine mining activities of the proposed Sandpiper Phosphate Project will take place. This will form the baseline against which key sensitivities and associated impacts will be identified. Consequently, only information relevant to this specific study will be highlighted. A full impact assessment of all the potential impacts will be conducted in the Socio-Economic Impact Assessment under the terrestrial EIA.

Aspects of the Erongo Region relevant to this project will be described in order to contextualize the proposed development within the broader region. In addition, certain features of the social and economic environment of Walvis Bay, including the Namibian Fishing Industry, will be discussed.

It should be noted that the full scope of the project's socio-economic implications will be discussed in detail in the terrestrial component of the project EIA. Separate but co-dependant Environmental Contracts will be established for these components.

5.2 OVERVIEW OF THE ERONGO REGION

5.2.1 *Social Environment*

5.2.1.1 Population and Growth

In 1991 the Erongo Region had a population of 55 470. A decade later, this number had increased to an estimated 107 663, resulting in a growth rate of almost 94% during the period 1991 to 2001 (NPC, 2001). This can partly be attributed to the inclusion of Walvis Bay into Namibia in 1994, as well as migration to the urban coastal towns. The latter is also reflected in that only 40% of the regional population was born in the Erongo Region while about 7% were born in areas outside Namibia. The remaining 53% were born across Namibia, 30% of which were born in the north-central regions of Namibia (NPC, 2001).

The Erongo region comprises seven constituencies, namely Karibib, Daures, Omaruru, Arandis, Brandberg, Walvis Bay Rural, Walvis Bay Urban and Swakopmund. The latter two constituencies

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have the highest population and are the main growth centres in the region (NPC, 2001). According to the 2001 Population and Housing Census, an estimated 80% of the Erongo Region population resided in the urban areas (ERC, 2007; Enviro Dynamics, 2009). Pull factors to the region include the fishing industry, mining activities, and more recently, the 'Erongo Region uranium rush'.

Table 5.1 indicates the population figures for the main urban centres within the Erongo Region. The total current urban population amounts to 108, 200 people, while the Uranium Rush SEA estimates the current regional population to be 135, 250, which is higher than the 2001 regional population of 107, 663 (SAEIA, 2011).¹

Table 5.1: Population Figures for the main towns in the Erongo Region (SAEIA, 2011)

TOWN	TOWNLAND AREA (KM ²)	POPULATION	SOURCE FOR POPULATION DATA
Arandis	29	7,600	NPC, 2003
Henties Bay	121	3,300	NPC, 2003
Karibib	97	3,800	NPC, 2003
Omururu	352	4,800	NPC, 2003
Swakopmund	193	42,000	2006 polio vaccination campaign, quoted in UraMin 2007
Usakos	58	3,000	NPC, 2003
Walvis Bay	29	43,700	NPC, 2003
Total urban population		108,200	
Total estimated Erongo Region Population		135,250	

5.2.1.2 Poverty and Unemployment

The Erongo Region is one of the most affluent regions in Namibia, with the second highest per capita income at N\$16 819 per annum. This income is mainly obtained from the tourism, fishing, and mining industries (Enviro Dynamics, 2009). Hoadley (2009), reported that compared to other regions in Namibia, this region has the second highest level of development and the second lowest rate of human poverty, yet it still has a high unemployment rate at 34 % in 2001.

The private sector employs approximately 68% of the employed population, while 16% are employed by the government and the remaining 16% is unaccounted for (ERC, 2007). The fishing and mining industries are the main employers, while the main economic drivers are the mineral sector, fishing, tourism, the Walvis Bay Corridor Group and Namport (SAEIA, 2011).

¹ The Table below is an excerpt from the Uranium Rush Strategic Environmental Assessment conducted by SAEIA, 2011.

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5.2.1.3 Economic Environment

The economic activities of the Erongo Region revolve around its natural resources both renewable such as fish, as well as non-renewable resources which include minerals. Over the past few years, Namibia has experienced an unprecedented interest in its uranium deposits. This resulted from a sharp increase in demand and the resultant increase in the price of uranium oxide. A number of predominantly international mining companies commenced with exploration and development of new mines, mostly in the Erongo Region. According to the Uranium Rush SEA, the mining industry as a whole throughout Namibia accounts for approximately 20% of the GDP, while in 2009, 4% of the GDP was accounted for by the uranium industry (SAEIA, 2011).

Industrial infrastructure is provided by a railway connection that is also used by the mines to transport ore to Walvis Bay from where it is shipped for export. Consequently, an increase in mining activities has also contributed to the increase in container shipments through the Port of Walvis Bay. The Erongo Region is also connected by the national road network to the rest of the country via Okahandja, Windhoek, and Otjiwarongo and forms part of the Trans Kalahari Highway. Thus, the transport networks within the Erongo Region play a key role in the facilitation of trade via Walvis Bay, supporting it as a hub for commercial trade.

The fishing industry is another key economic activity and forms the base of the industrial activity in the region (SAEIA, 2011). The commercial fishing industry contributed 5 % to the Gross Domestic Product (GDP) in 2005 according to a study undertaken by Investment House Namibia (2011). This industry also is the cornerstone of Walvis Bay's economy and is discussed in more detail under Section 5.3.2.1.

5.3 OVERVIEW OF WALVIS BAY

5.3.1 *Social Context*

5.3.1.1 Population and Growth

According to the 2001 Population and Housing Census, the population of Walvis Bay is estimated at 42 015 people which represents 26% of the total Erongo Region population. However, with the polio vaccination in 2006, a shortage of vaccines indicated that the population is closer to 60 000. This number was expected to grow to 70 000 by the end of 2009, and to almost double within the next 10 to 12 years (Marques, N. 2009, Walvis Bay Municipality *pers. comm.*).

The population of Kuisebmond, one of the main neighbourhoods in this harbour city, has seen an increase from 23 259 in 1997 to an estimated 33 570 in 2004. This resulted in an estimated average annual growth rate of 5.35% (Walvis Bay Municipality, 2004). In a study conducted by Hoadley in 2008, it was mentioned that this community is largely poor and the general skills level is low.

The Walvis Bay Community Needs Survey conducted in 2004, revealed that only 20.1% of the heads of household in Kuisebmond were born in Walvis Bay. In addition, 44% of the participants indicated that they came to Walvis Bay alone, 18.7% brought their families with and 37.3% only let their families come at a later stage (WBM, 2004).

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The main sources of income are wages and salaries, as approximately 78% of all the households earn a living through paid labour (NPC, 2001). Thus, households are very vulnerable to losing a wage earner since few other options for earning an income exists within Walvis Bay and its surroundings.

A great pull factor that contributes to the multi-ethnicity of Walvis Bay and immigration over the years is the fishing industry and its related employment opportunities, especially at the fish processing factories. This is reflected in that the population of Walvis Bay can increase by up to 10 000 people during the months of March to August when the fishing season peaks, and activity at the fishing industries increases (Marques, N. 2009, Walvis Bay Municipality *pers. comm.*). Apart from the fishing industry, many people are also employed at the harbour terminal and for the processing of sea salt.

5.3.1.2 Poverty and Unemployment

The unemployment rate for Walvis Bay is estimated at 36%. The unemployment rate for women in both the Walvis Bay Urban and Rural Constituency is higher than for males, with a rate of 40% for women in urban areas versus 29% for males, and 56% for women in rural areas versus the 32% for their male counterparts (Figure 5.1).

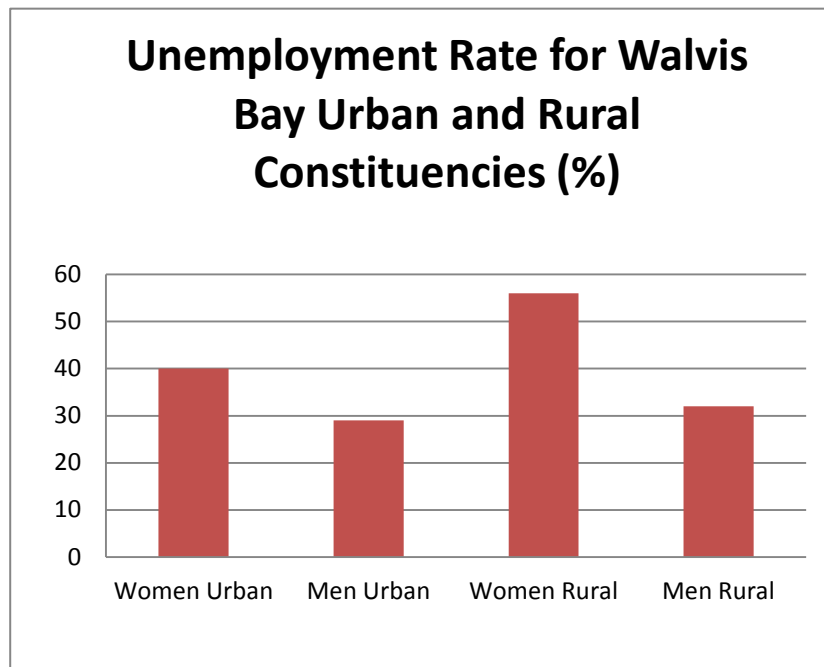


Figure 5.1: Unemployment rate for Walvis Bay Urban and Rural Constituencies (NPC, 2007).

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There are a number of factors which contributes to the high unemployment rate in Walvis Bay. It includes a population growth rate which is higher than the number of jobs created partly due to an influx of job seekers, the seasonal variation of the fishing industry and when heads of households who immigrate to Walvis Bay bring along their families.

5.3.1.3 Health and Disease

Walvis Bay has the highest rate of tuberculosis (TB) infections in Namibia. In part, this can be ascribed to the high number of foreigners who call at the Port of Walvis Bay, contributing to the spread of TB as well as other diseases. Another contributing factor is the overcrowded conditions, especially in Kuisebmond, where airborne diseases can spread more easily. It was found that those between the ages of 16 and 40 years are mostly affected and mainly belong to the lower income groups (Marques, N. 2009, Walvis Bay Municipality *pers. comm.*).

In addition to this, according to the 2008 Ministry of Health Centennial Surveillance Survey, Walvis Bay had a HIV/AIDS prevalence rate estimated at 21.4%. This implies that about one fifth of Walvis Bay's workforce is HIV/AIDS positive. In general, the age group 30-39 has the highest prevalence rate, while in the urban area specifically, the age group 40-49 was found dominant. Contributing factors are the high levels of in-migration, seasonal employment opportunities, and the fact that it is a port, located at the end of two transport highways (SIAPAC, 2002).

5.3.2 *Economic Environment*

The economic activities of Walvis Bay rest on four pillars, namely fishing, tourism, manufacturing, and the harbour. For the purpose of this report, only the fishing industry will be discussed, since the proposed activities under investigation take place in the marine environment some distance from Walvis Bay. A more detailed discussion on each of the other economic pillars will follow in the full Socio-Economic Impact Assessment under the terrestrial EIA.

5.3.2.1 The Namibian Fishing Industry

The Namibian shoreline is home to a diversity of fish stocks which has allowed for a competitive fishing industry to be established over the last 50 years. The commercial fishing industry is the cornerstone of Walvis Bay's economy as well as a great role player in the Namibian economy with foreign currency earnings of N\$4.8 billion in 2010 (CNFA, 2012). There has however been a decline in its contribution in terms of GDP from 7.1% in 2003 to 5% in 2009 (IHN, 2011).

David Russell (2012, CNFA, *pers. comm.*) noted that according to the Ministry of Fisheries and Marine Resources (MFMR) Employment Verification Report of 2010, this industry directly employed 13,380 people in 2010 of whom 3,994 were offshore and the remainder (9,386) were onshore. Employment opportunities arise at the more than 2 km of fishing industry related infrastructure along the shores of Walvis Bay north of the commercial port. According to the MFMR website, the current workforce is estimated to range between 14,500 to 15,000 employees.

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There are two main categories of fishing, namely, pelagic and demersal. For pelagic fishing, the fish factories at Walvis Bay have a processing capacity of over 100 000 tonnes per month during the peak periods. Sardine is principally used for canning while fish-meal and oil are produced from by-catch species. Unlike pelagic fishing, demersal species are caught near the seabed, there is a closed season in October for hake.

Table 5.2: Two Fishing Categories and Definitions

CATEGORY	DEFINITION	EXAMPLES
Pelagic Fish	Fish found near the upper layers of the open sea.	Pilchards, Anchovy, juvenile Horse Mackerel, Tuna, Sardines.
Demersal Fish	Fish found close to the seabed.	Hake, Monk, Horse Mackerel.

Catches are made both north and south of Walvis Bay, with the quality of fish caught in the latter area being found to be superior to those caught north of Walvis Bay (Scoping report 2011). Etosha Fishing (Pty) Ltd caught 17% of their quota near the NMP MLA over the last three years. During pilchard and juvenile horse mackerel purse seine operations, catches are made as close as 500 m from the coast offshore from the Paaltjies area (Scoping Report, 2011). According to historical catch data 0.86% of the hake trawl, 0.32% of the midwater horse mackerel and 6.34 % of the monk trawl fisheries take place within the MLA. Fishing grounds of species such as horse mackerel and other small pelagic species do not overlap extensively with the MLA (Specialist Study Appendix 1b).

Hake and horse mackerel are currently the two main fishing sectors, with smaller fisheries for pilchard, and monk. There is also a large pelagic fishery for tunas and sharks using poles and longlines that operates offshore and is not in the proposed mining areas. Niche markets have been found in Europe, Australia, United States and Hong Kong for processed high value fish and its related products. Spain is the main market for hake since 90% of it is exported there. For the past 50 years, sardine and hake have formed the core of Namibia’s pelagic and demersal fishing industry although the sardine fishery collapsed in the mid 1960s and no longer sustains a major fishery. Because of the fluctuations in fish stocks employment opportunities may change, although Namibia has in recent years stabilised employment in the sector through appropriate management of its fishery resources.

Management actions included the introduction of Total Allowable Catches (TAC) and the fisheries management mechanisms. The hake sector has seen a reduction in total allowable catches in recent years, while the number of horse mackerel vessels has been reduced. The hake fishery is closed for the month of October to allow the resource to rest and reproduce (CNFA, 2012). The TAC for horse mackerel was increased from 247.000 tonnes to 310.000 in 2011.

There has been a decrease in fish landings since 2003, but it has seen a slight recovery in 2010 (IHN, 2011). According to a study conducted by Investment House Namibia, fish landings were

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expected to increase marginally in 2011 due to higher TACs, better fishing conditions and catch rates.

Even though the fishing industry is subject to seasonal and stock variation, it continues to play an important role in economy of Walvis Bay. More than 70% of the industries in Walvis Bay are directly or indirectly dependent on the fishing industry (Kruger, G. 2009, Walvis Bay Municipality, *pers. comm.*). Investment opportunities are present in the support and service sectors, including marketing, production and packaging related to the industry.

5.4 ASPECTS OF THE PROPOSED PROJECT RELATING TO THE SOCIO-ECONOMIC ENVIRONMENT

Namibia Marine Phosphate (Pty) Ltd has secured a Mining Licence Area of 2,233 km² off the coast of Namibia near Conception Bay. The proposed development of these deposits will be undertaken to support an annual recovery of 5.5 million tonnes of the phosphate rich sediment to produce a final export product of 3 million tonnes phosphate rock concentrate. These levels of production are expected to require approximately 43 weeks of continuous dredging.

The Fisheries Specialist Study (Appendix 1c) lists the following potential impacts resulting from the mining operations on the fishing industry:

- The dredging operations will potentially cover a large portion of the historical monk trawling grounds as well as small proportions of the hake and horse mackerel fisheries.
- Commercial fishing operations are not expected to be directly impacted in a broader area extending outside the MLA to within a 25 km zone.
- Indirect impacts will primarily relate to dredger vessel movements and normal trawling patterns with vessels expected to maintain a safe working distance from the MLA as well as having to trawl along tracks that may vary from the historical effort in the zone.
- Based on recent historical catch and effort data in the MLA and Zone 1, 5.03% of hake trawl catch, 1.08% of horse mackerel midwater trawl catch and 19.75% of monk trawl catch is likely to be affected. (Note this does not imply that this proportion of catch will be lost but that the fishery in this area will in some way have to adjust normal fishing operations).
- The mining will result in displacement of fish resources away from the disturbed area and loss of essential habitat occupied by these resources (such as monk, gobies, hake and others).
- Significant alteration of the ecosystem characteristics only in the immediate target mining sites is expected (although the broader effects of the mining on the ecosystem in the region have not yet been determined).
- In the mined area, there will be a serious impact through the permanent physical removal and destruction of substrate.
- With regard to biodiversity, the impact in the immediate mining area will be severe and will result in loss of marine flora and fauna.

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- The likely impact on fish recruitment in the mined area is considered to be low relative to the total recruitment area potential in Namibian waters.
- Mining, although localised, will result in a modification of the behaviour of mammals and seabirds.

With respect to the economics, the economic model that supports this project has been established using a 'discounted cash flow' methodology. The model and its outcomes are robust, given the reasonable assumptions of the model and its conservative application. The operation will significantly contribute to Namibia via:

- Company tax;
- Mining royalty, and
- Employee taxation.

To date Namibian Marine Phosphate has invested US\$ 4.1 million in exploration and project related development work. The project Technical Scoping Study (2010) indicated a capital cost of approximately US\$ 140 million for establishment of the shore facilities, which include the coastal buffer pond, pipelines, processing plant and ancillary works. In the Economic Scoping Study, operating costs are estimated to be approximately US\$ 330 million per year. These costs will be refined in the Definitive Feasibility Study, which is expected to be completed towards the end of the first quarter of 2012.

The dredger has a minimum manning requirement of 10 persons and a dredging operational team of 27 persons. Of this total complement (37) 11 positions can be assigned to Namibians who have suitable certification and work experience. The dredger crew will work in shifts based on a three week cycle. At the time of a crew change, it is expected that 50% of the time the crew might stay at a local guesthouse i.e. in Walvis Bay.

The dredger requires the operational support of a 1000 HP tug for activities such as the transfer of crew, transfer of materials, stores and equipment, etc. It is intended that the tug be sourced and manned locally, i.e. it will be based in the Port of Walvis Bay. A minimum manning of two persons is required, who are supported by a crew of 3 or 4 persons.

In terms of maintenance services, all repairs except dry-docking can be sourced locally. With respect to the latter, Namdock is too small to handle the dredger, thus dry-docking will have to take place in Cape Town. The following services can be made use of in Walvis Bay:

- Lifting services when the vessel is at the quay;
- Inspection diving for damage to propellers, hull, bottom doors, etc;
- Welding and steel-working;
- Electrical & hydraulic repairs;
- Assistance on board during planned or unplanned repair: welders, technicians, labour

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The marine operation will make extensive use of local suppliers and contractors; pay ongoing port charges and corporate taxes, thereby bringing potential benefits to the community of Walvis Bay and to Namibia as a whole.

5.5 KEY SENSITIVITIES

Based on the baseline information provided above, a number of key sensitivities have been identified, the impact of which will be assessed in the terrestrial EIA. The table below outlines these key sensitivities and associated impacts, both positive and negative for specific socio-economic features.

SOCIO-ECONOMIC FEATURE	SENSITIVITY	POTENTIAL IMPACT/ ENHANCEMENT
Employment	Both the Erongo Region and Walvis Bay have estimated unemployment rates higher than 30%.	Contribution to job creation, both on the vessel and support services.
Expertise and Skills	Low skills level, especially in lower income areas and also since this project will be a world first, specific skills will need to be acquired.	Skills transfer and training as more Namibians are trained to form part of the dredger crew.
Local economy	Every three weeks there is a crew change, 50% of them staying over at local guesthouses.	Local guesthouses will profit.
Local Economy	Every three weeks with the crew change a number of them will fly out of and into Namibia.	Airline tickets will be purchased for the crew contributing to the local economy.
Local Economy	Certain maintenance and support services will be conducted in and from Walvis Bay.	Local companies specialising in ship maintenance will profit.
Local Economy	A local ships chandler will be used for supplies.	The purchasing of supplies via a local ships chandler will contribute to the local economy.
Immigration	The project in totality, including the marine mining aspect, can act as a pull factor job seekers.	An influx of workers will add to already pressurised resources.
National income	Paying of taxes and royalties.	NMP will contribute to the national economy by paying taxes and royalties.
Fishing Industry	Monk trawling and other fishing activities to a lesser extent take place in and near the MLA.	Monk trawling and other fisheries to a lesser extent and their associated economic contribution will be negatively affected by dredging operations.
Fishing Industry	The MLA and surrounding area forms part of historical fishing grounds.	Trawlers and other fishing operations will have to keep a safe distance from

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SOCIO-ECONOMIC FEATURE	SENSITIVITY	POTENTIAL IMPACT/ ENHANCEMENT
		the MLA and a restriction zone will be established. Thus they will now have to alter trawl and other fishing operations with potential economic implications for the operators.
Fishing Industry	The fishing industry and marine scientists are sensitive to the impacts and changes to fish stocks, spawning and recruitment, and available fishing grounds.	Changes can negatively impact the fishing industry, related services and industries as well as its contribution to GDP.
Fishing Industry	The Fishing Industry currently employs almost 14 000 people.	Changes in the fishing industry and its economy can lead to job loss in this industry.
Health	Walvis Bay has the highest TB infection rate in Namibia as well as high HIV infection rates.	TB and HIV infections of the NMP workforce can lead to absenteeism and fatigue, ultimately impacting on productivity. The crew changes can also contribute to the spreading of these illnesses.

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