

SECTION 5 INDUSTRIAL MARKET ANALYSIS

5.1 INTRODUCTION

Saldanha has developed into the largest industrial centre along the West Coast and there is further growth potential in the downstream steel manufacturing sector, agricultural sector and the mining sector, which can lead to job creation. Further growth potential in the oil and gas industries along the coast could also alter the function of the area.

As a cautionary note it may be added that the town operates within a particularly sensitive marine and atmospheric environment highly vulnerable to air and water pollution. Great care will have to be taken to ensure sustainable maintenance of a healthy environment. The town is fully dependent on the already heavily taxed Berg River for its water supply - a strategically vulnerable limitation in terms of possible development.

Apart from creating a vibrant industrial sector and supportive services and infrastructure, development in the region should also focus on creating a quality of life that contributes to a productive labour force and a favourable working-playing-living environment. This includes initiatives for human resource development, community empowerment, local economic development and basic infrastructure provision.

In order to determine the development opportunities that can be exploited for the purpose of industrial establishment in the IDZ, it is necessary to assess the potential provided by existing economic activities in the province, as well as to identify opportunities through planned development initiatives in the country.

Linked to this, are the current international market trends in product trading, the potential of establishing industries in the value chain of existing production lines and the potential of products to be manufactured competitively in South Africa (refer to **Annexure A: Industrial Market Overview / Indicators**). Several potential development opportunities could be identified for the IDZ, based on the following:

- ✓ The existing economic environment in the area, which was analysed to determine sectoral opportunities.
- ✓ Opportunities already identified by research institutions nationally and studies conducted previously in the country and province;
- ✓ An indication of product-related opportunities through the analysis of current imports and exports in the West Coast / South Africa.

This section of the report focuses on the industrial market segment, with the objective of estimating the development potential within the designated area of Saldanha Bay. In order to reach this objective, the demand for development within the market area should be identified and assessed in light of current trends.

Subsequent sections provide a concise overview of the industrial market within the Saldanha Bay Municipal area in terms of the following aspects:

- ✓ Core Industries within the Saldanha Bay Municipal Area

- ✓ Key Sectors / Anchors, Downstream Opportunities and Industrial Cluster Identification
- ✓ Importance of Industrial Clusters
- ✓ Industrial development impact on tourism
- ✓ Industrial building plans passed and buildings completed
- ✓ Industrial Locational Factor Analysis
- ✓ Industrial Net Space Demand Modelling
- ✓ Concluding Remarks and Recommendations
- ✓ Synthesis

Note: The various sectors, development opportunities and clusters that will be discussed throughout this section, will not be discussed in any particular order. Not all of these industries / clusters will develop within the Saldanha Bay Municipal area and are merely potential projects that were identified through various sources and interviews. Further investigations and feasibility studies will have to be undertaken in the next phase (feasibility phase) in order to identify which projects will be most suitable for the Saldanha Bay Municipal area. All future plans and possible proposed projects will depend on the findings of the EMF (Environmental Management Framework) and will have to be aligned accordingly.

5.2 CORE INDUSTRIES WITHIN THE SALDANHA BAY MUNICIPAL AREA

Saldanha has a strong manufacturing industry, but the town also developed into a fully-fledged harbour town, as well as a commercial and institutional core (especially in terms of the Military Academy, Special Forces and Navy). The economy is based on the manufacturing industry, agricultural / fishing industry, tourism industry and harbour industries. In this regard there are large fish factories, processing plants and the Saldanha Steel plant.

Situated within the Saldanha municipal area are various well-known national companies such as Sea Harvest, Southern Seas Fishing, Saldanha Steel (currently known as Arcelor Mittal, but for the purposes of this report still referred to as Saldanha Steel), Namakwa Sands (currently known as Exxaro, but for the purposes of this report still referred to as Namakwa Sands) and Duferco, only to mention a few. The most important natural assets are the mineral and fish resources, while the important infrastructural advantage is the deep-sea harbour. This harbour has developed as an iron-ore export facility, while the possibility of developing a waterfront is under investigation for the near future. Ultimately this harbour could relieve the pressure on Cape Town and both of the above mentioned hold possible future growth potential for tourism development.

The industrial Companies on the West Coast range from iron and steel suppliers to fishing companies, from oil refurbishing to lumber suppliers. There is a concentration of heavy steel and mineral industries and supporting services within the Saldanha Bay Municipal area. Concentration has occurred due to the location of the Saldanha Harbour. In addition, this area is located next to the Saldanha / Sishen railway line which transports raw mineral materials, from north of the West Coast Region and Sishen where the majority of these minerals are mined, to Saldanha.

The most prominent industries currently operating in the Saldanha Bay Municipal area are **Saldanha Steel** and **Namakwa Sands** which will be discussed in more detail below:

Saldanha Steel (Arcelor Mittal): Saldanha Steel was established in the second half of the 1990s using state of the art technology to produce a very high standard of flat steel, including ultra-thin hot-rolled coil. The rationale for the investment was to convert a larger proportion of the high grade iron ore being mined in the Northern Cape and shipped through the Saldanha port. The project was heavily financed by government, through the Industrial Development Corporation (IDC). The IDC took a 50% equity stake, with Iscor holding the other 50%.

This project was completed in June 1999 and about 790 permanent jobs were created. Saldanha Steel also has a policy that states that 60% of the employers have to be local people. In addition to these, Saldanha Steel outsource most of its work such as engineering, cleaning, slag handling, etc, which creates about 400 to 500 jobs. This is not a constant figure and varies slightly from time to time according to Saldanha Steel's needs.

The project was beset by difficulties from the start, running considerably over budget in the construction phase, followed by problems with the Corex technology utilised in the plant. The large losses being made led to ongoing government support through re-capitalisation by the IDC and then the acquisition of 100% ownership by Iscor in 2001. Very soon after the acquisition the main technical problems were resolved and Saldanha Steel began to earn healthy profits for Iscor share-holders and a doubling of capacity was even mooted by Iscor. This reflects the low input costs of steel manufacture in South Africa. South Africa has cheap energy, abundant high-grade iron ore, and coal. Iscor (now called Arcelor Mittal) is in a particularly favourable position due to its access to iron ore at cost of extraction.

The granting of the 37E tax concession by government for the Saldanha investment was made on condition that steel sold to the local market would not be priced at import parity levels. However, Saldanha Steel's production was 100% for export, meaning that the question of pricing to the local market did not arise. Some steel was further processed locally by Duferco Steel Processing, but this was subject to a constraint that it must be exported.

On the acquisition of Saldanha Steel by Iscor in 2001 the Competition Tribunal placed the requirement that Duferco be no longer subject to this constraint and thus be able to sell into the local market and compete with Iscor's own products. While there is now some local sales, both from the Saldanha plant and by Duferco, the pricing of these products is set by Iscor on an import-parity basis in line with price lists for supply from the main flat steel plant at Vanderbijlpark.

Pretoria Portland Cement (PPC) provides Saldanha Steel with dolomite and lime from its quarries, as well as the transport and handling of coal on site on Saldanha Steel's behalf and they use slag from the production process of Saldanha Steel. This is transported off site to PPC's factories, which are located at De Hoek and Riebeek-Wes.

Saldanha Steel manufactures flat steel products from the iron-ore pellets which they import from Brazil, they obtain the coal from Limpopo and from a mine in Graspan, and they import coke from China or obtain it from Vanderbijlpark. The raw materials go through various processes and in the end the final product is low carbon steel coil (1.2 million ton per annum capacity). They sell their products inland (sell 10 000 tons per month), to Duferco (sell 20 000 tons per month to them) and the rest is exported. Their

target market is Africa, namely West Africa (sell 10 000 ton per month) and East Africa (sell 15 000 ton per month).

The products that they manufacture can be used for various things, such as tubing pipes, oil and gas and Duferco use it for the purposes of re-rolling. Saldanha Steel produce low and medium carbon steel. The proposed second phase of Saldanha Steel is currently on hold, but they are investigating other / different options in terms of the Midrex Plant. They mentioned that if they were to attain gas in future it could double their capacity. They currently buy their hot-briquette from South America and they also buy the pellets from South America which is very expensive.

Mittal acquired Trident Steel recently in order to add value to their company. They can now sell hot-rolled coil sheets directly to the buyers. They can also sell cut sheets and straighten the coil. They also have slit coil which they can sell locally to pipe makers, but there are currently only a few local customers. The sheets are thus exported, due to the fact that the West Coast does not have a strong market for this.

Namakwa Sands (Exxaro): Namakwa Sands has been in business for 14 years and was started by Anglo American in 1995. The Namakwa Sands project was initiated in two phases at a total nominal cost of R2.1 billion. Namakwa Sands was recently sold to a South African Resources and Mining Group, called Exxaro. Exxaro is South Africa's largest black controlled diversified resource company. Namakwa Sands (now called Exxaro) is a heavy minerals mining and beneficiation business and are the third biggest producer in the world.

The heavy minerals resources mined by Namakwa Sands are found on the coastal plain along the West Coast. The company's operations comprise of various phases namely, Mining, Mineral Concentration, Separation and Smelting Operations. The three heavy mineral products are zircon, rutile and ilmenite. Titania slag and pig iron are produced from ilmenite in a smelter near the Saldanha Bay harbour. While the high quality rutile and zircon products are railed to storage facilities at the Smelter near the harbour before being shipped to customers, ilmenite is delivered to the furnaces for smelting. Pig iron and Titania slag are tapped from the furnaces and further treated to produce various grades of pig iron, chloride-grade slag and sulphate-grade slag.

At full capacity, 20 million tonnes of ore per annum is mined to produce $\pm 200\,000$ tonnes of Titania slag, $\pm 120\,000$ tonnes of high purity pig iron, $\pm 25\,000$ tonnes of rutile product and $\pm 125\,000$ tonnes of zircon. The operation generates significant export earnings. Namakwa Sands exports more than 95% of its final product to overseas markets, resulting in annual foreign exchange earnings of more than R1 billion. The company also has a significant direct impact on the local communities (e.g. salaries, rates and taxes, local procurement and water and electricity) and also support a number of projects designed to enhance local small business development, community health and education.

The product range of Namakwa Sands consists of four distinct types, with very diverse applications: the minerals zircon and rutile, and the industrial materials Titania slag and pig iron.

Zircon: Namakwa Sands produces premium grade zircon, which is ideally suited for the ceramics industry, where it is used as an opacifier in the production of tiles and sanitary ware. Other applications include refractories, TV screens, foundry sand, zirconium chemicals and metals.

Rutile: This natural Titanium dioxide mineral is used in the production of welding electrodes, titanium dioxide pigment and titanium metal production (e.g. aerospace, aircraft, high-tech engineering, tennis rackets, golf clubs etc.).

Titania Slag: Ilmenite is smelted to produce Titania slag and pig iron. Two grades of Titania slag are sold as feedstock for the production of titanium dioxide pigment. The pigment is used mainly in the manufacture of paint, paper and plastics.

Pig iron: Several grades of high purity material are produced. These are used in the foundry industry for the casting of automotive and engineering components. The pig iron is also sold to local businesses such as the foundry in Atlantis.

They employ about $\pm 1\ 000$ employees (400 employees at the mine, 400 employees at the smelter and 200 employees at the mineral separation plant) and most of the labourers are local people ($\pm 70\%$).

Environmental management forms an integral part of all the mining- and processing related activities of Namakwa Sands. An ISO 14001:2004 Environmental Management System has been established, implemented and maintained since 2003 to ensure compliance with the applicable legal requirements. They spend huge costs on rehabilitating the area (*Capendale, 2009*).

Others (refer to www.saldanhabaybizz.co.za):

Steel:

- ✓ West Point Processors

Mines, Quarries & Mineral Processing

- ✓ Trans Hex Groep Bpk
- ✓ Holvlei Clay mine
- ✓ JPB Beleggers
- ✓ Lime Sales Ltd
- ✓ Elandskloof Sand (Pty) Ltd
- ✓ CJ Smit

Harbour:

- ✓ Transnet National Ports Authority

Fishing

- ✓ Sea Harvest Corporation
- ✓ Southern Seas Fishing
- ✓ Oranje Vis
- ✓ Blue Bay Aqua farm
- ✓ AJF Eigelaar
- ✓ Bongulethu Group of Companies
- ✓ St Helena Bay Fishing
- ✓ Suid Oranje Visserij

Diverse:

- ✓ PPC Saldanha
- ✓ Lafarge
- ✓ Spoornet / OREX

Engineering:

- ✓ Tidle Engineering
- ✓ Hansing engineering
- ✓ Genwest Steel and Industrial Services
- ✓ Morning Dew
- ✓ Palela Engineering Services
- ✓ Westland Civils
- ✓ Moutons Transport and Civil
- ✓ Heunis Engineering

Services:

- ✓ Adelberg Auto
- ✓ Wesglas & Aluminium
- ✓ Supe Marine Auto
- ✓ Enlee Trading
- ✓ Arno Mostert Motors
- ✓ Actech

Training:

- ✓ SAS Saldanha
- ✓ Vital Connection
- ✓ Helping Hands Skills Academy
- ✓ Military Academy
- ✓ West Coast FET College
- ✓ Saldanha Lighthouse Christian Academy
- ✓ Diazville Adult Learning Centre
- ✓ St Helena Bay Community Learning Centre

A preliminary list of possible development opportunities that could still be targeted for investment within the Saldanha Bay Municipal area were identified through previous studies and documentations (as mentioned below), but a more in-depth analysis of the key sectors, development opportunities and identified clusters will follow in the next section. These identified development opportunities are as follows:

- ✓ Metal processing
- ✓ Non-ferrous metal beneficiation;
- ✓ Mineral beneficiation
- ✓ Agri-processing
- ✓ High-value agriculture;
- ✓ Food processing
- ✓ Construction
- ✓ Engineering services & training
- ✓ Fabrication facilities
- ✓ Possibility of smelters (titanium / iron-ore)
- ✓ Aquaculture & Mariculture
- ✓ Storage and warehousing facilities needed
- ✓ Cold storage and packaging

- ✓ Containers needed and container manufacturing
- ✓ Oil and Gas opportunities / refinery

The following paragraphs serve as a broad overview of the most important economic sectors, opportunities and clusters within the Saldanha Bay Municipal area. The nature and structure of the existing and planned economic activities in and around the Saldanha Bay Municipal area give rise to a number of broad economic development opportunities that can be exploited in terms of value adding activities and processing in the proposed Industrial Development Zone. These sectors and clusters will be discussed below in more detail, but in no particular order.

5.3 KEY SECTORS / ANCHORS, DOWNSTREAM OPPORTUNITIES AND INDUSTRIAL CLUSTER IDENTIFICATION

The following section provides a brief sector profile summary of the various sectors with the highest economic importance within the Saldanha Bay Municipal area. These sectors were identified as priority areas of intervention through various documents within the Province, District and Local Municipality, such as the Micro-Economic Development Strategy of 2006, the West Coast Growth and Development Strategy of 2007, the West Coast Regional Economic Development Strategy of 2007, the Saldanha Bay Municipality Local Economic Development (LED) Strategy of 2005 and the Saldanha Bay Local Municipality Integrated Development Plan (IDP) Review of 2008/09.

These strategic sectors have been identified in the West Coast area as the sectors / industries that could shape the economic profile of the West Coast region. These sectors were identified by the study as the potential industries which can be upgraded or expanded through the widening of supporting industries to be established.

These sectors will be discussed (in no particular order) according to the following: a) Status Quo of the sectors with the highest economic potential, b) Identified Downstream Opportunities (mega projects) – which were identified through various studies / documentations completed and interviews with key stakeholders and c) Identified / Targeted Clusters for the proposed Saldanha Bay Industrial Development Zone. These will include the following sectors / industries:

- ✓ Renewable Energy
- ✓ Oil and Gas
- ✓ Maritime Industry
- ✓ Manufacturing
- ✓ Mining and Mineral processing

The location of different user groups or clusters of industries in the same IDZ brings added advantages to the marketing and efficient management of the IDZ. Economic, international and national market studies have identified a series of industries, which would enjoy comparative and competitive advantages if attracted to the IDZ. Adopting a cluster approach will also ensure the effective use of land as the form and content of each cluster should also take into account ground conditions, topography, infrastructure requirements, climate and environmental considerations. While the conventional separation of heavy and light

industries is an effective planning control mechanism, it does not necessarily produce benefits of functional synergy resulting from cluster development.

The benefits of industrial synergy where one manufacturing, assembly or business activity is based directly upon the products manufactured by a neighbouring plant, can apply to a variety of development clusters with significant potential for Saldanha Bay. Grouping industries produces economies in the provision of appropriate standards of infrastructure, access and services.

In terms of these sectors mentioned above, various clusters were identified (through several interviews and meetings with the municipality, core industries, key stakeholders, the client etc.) for the Saldanha Bay Industrial Development Zone. Linkages of the various clusters with other sectors and services will also be identified throughout this section. The clusters that were identified which should be targeted for further investment could include the following (these clusters are not prioritised / discussed in any particular order):

- ✓ Renewable Energy Production and Manufacturing Cluster
- ✓ Dry Dock – Oil and Gas Cluster
- ✓ Maritime – Ship Building and Repair Cluster
- ✓ Steel Production and Manufacturing Cluster
- ✓ Minerals Production and Manufacturing Cluster

The relatively sophisticated nature of these industries means that for Saldanha Bay to be an attractive long-term location for production requires local clustering to build a framework to support the on-going development of firms' production capabilities. This depends crucially on a committed and coordinated approach by industry, government and other stakeholders, including education and research organisations. A more in-depth description of clusters and their benefits to firms are further discussed in **Annexure B**.

5.3.1 Renewable Energy Production and Manufacturing

a) Status Quo of Renewable Energy

Energy is one of the most critical components of development. The production and consumption of energy are often linked to other major issues including poverty alleviation, environmental degradation and security concerns. A well-balanced fuel mix, in which all energy resources are appropriately utilised, is essential for sustainable development. Renewable energy technologies are available in plenty and promise a delivery of clean energy. They are of special significance in South Africa when viewed in the context of the diversity and size of the country. Since renewable energy resources are diffused and decentralized, compared to concentrated fossil fuels, they are more appropriate in meeting the ever-expanding and diversified energy needs of consumers in remote locations.

South Africa is advancing its renewable energy drive. The Department of Minerals and Energy (DME) stated that the country is reaffirming its commitment to sustainable energy development as stated in the White Paper on Renewable Energy, which was approved by Cabinet in November 2004. The target set by the White Paper entails that South Africa will produce 10 000 GWh (10 million MWh) of electricity using renewable energy sources over

the next ten years. This energy will be produced mainly from biomass, wind-power, solar-power and small-scale hydropower projects.

Parastatal electricity utility Eskom and the State-owned Central Energy Fund (CEF) will play a substantial part in the development and financing of these projects. CEF has established the Energy Development Corporation, which is to investigate opportunities in the field of renewable energy and prepare business cases for viable initiatives.

Government is looking into creating an incentive scheme for project developers active in the different fields of sustainable energy to encourage wider participation. This will initially take the form of once-off capital subsidies, to be replaced in the long term with other possible instruments, such as renewable energy certificates.

South Africa has an energy intensive economy, highly reliant on fossil fuels, and sees economic growth based on energy intensive industries as a key means to development. In the field of renewable energy resources, wind energy is the technology with the lowest production cost of electricity. This form of energy generation has increasingly becoming established in Europe, the USA and India. As South Africa is blessed with abundant wind energy, especially along its coastline, it makes sense to develop and apply existing technology to local conditions and needs.

As mentioned above, Government (*White Paper, 2003*) has stated that it wants to generate 10 000 GWh (10 million MWh) from renewable energy sources by 2013 – an equivalent to 4% of the forecasted power demand, which is equivalent to one 1 200 MW power station. Within the next decade, close to 70% of the country renewable energy needs to come from wind.

The Government believes that renewable energy can in many cases provide the least cost energy services, particularly when the social and environmental costs are included, and will therefore provide focused support for the development, demonstration and applications of renewable energy. Furthermore, renewable energy would lead to the introduction of a new technology and possibly new industry into South Africa with a high potential for job creation (Wind Power having the greatest potential on that matter compared to the other), an important goal of Government.

A large number of projects are currently being proposed and planned for South Africa and a few has been developed over the last years. These include biogas projects at several landfill sites countrywide; a commercial wind farm near the Western Cape town of Darling; a 50 MW wind farm to be built by Spanish utility EHN elsewhere in the Western Cape; a 100 MW concentrated solar power plant using receiver technology earmarked for construction in Upington in the Northern Cape of which the EIA was completed in 2006 (funding is, however, still needed); a wind-assisted pumped-storage scheme in the Eastern Cape; and a mini-hydro plant in Bethlehem, in the Free State. The Saldanha Bay Municipality is also proposing a 200 MW solar farm within the municipal area as a part of a 450 MW hybrid power plant (220 MW onshore and offshore wind farms and 6 x 5 MW biomass generators).

Government's non-grid electrification programme implemented in 2001, which focused on using renewable energy as a cost-effective solution to provide electricity to remote areas, is still under review. The sooner that South Africa accepts that there is only a finite supply of

fossil fuels and starts to make the transition to sustainable energy sources, the more affordable it will be, the greater benefits will be obtained and the less the impact on climate change will be (*Le Roux, 2005*).

The South African environment is one that is evolving rapidly as far as renewable energy goes. It is becoming more attractive to local and foreign investors wanting to enter the renewable energy market. For example:

- ✓ Indian Wind Energy companies came to South Africa, which was initiated and hosted by the Department of Trade and Industry. The government is thus taking this industry development seriously.
- ✓ The Danish government hosted a round-table session with the wind energy players in South Africa to look at various options for back to back collaboration with Danish companies as well as with Danish Government agencies.
- ✓ The Dutch wind energy broking teams have already set up some operations in South Africa.
- ✓ The British government brought out various carbon trading and energy development companies to look for projects in South Africa.
- ✓ The carbon trading and emissions trading market is gearing up especially from the CDM point of view and projects are taken up fast by companies like CO2e.com, Eco Securities etc.
- ✓ Green electricity trading companies are emerging and marketing green energy to many large companies in South Africa, thus the voluntary market is developing well.

Government Initiatives that has been taken already in terms of renewable energy:

- ✓ The Department of Minerals and Energy has actively developed the countries Renewable Energy framework. Wind is a key aspect.
- ✓ The Department of Minerals and Energy has established the Renewable Energy Finance and Subsidy Office (REFSO), whose mandate includes: The management of renewable energy subsidies; and offering advice to developers and other stakeholders on renewable energy finance and subsidies. This includes information on the size of awards, eligibility, procedural requirements, and opportunities for accessing finance from other sources.
- ✓ The Western Cape provincial government has completed its sustainable development conference at which they indicated that they want a target of 25% renewable energy by 2020. This amounts to 1 000MW. This is priority, as the province has a good wind regime (average 6,5ms at 10m)
- ✓ The City of Cape Town made a large commitment to renewable energy and has signed a PPA with the Darling IPP for 38c/kwh.

As can be seen from the above, renewable energy is of high priority in South Africa. In the Saldanha Bay Municipal area, most winds occur during May to September and November to February. Strong winds of over 20km/h are common in this area. During the winter months the wind blows from a north-western direction and during the summer months from a south-eastern direction (*Spatial Development Framework, 2008*).

This illustrates that the Saldanha Bay Municipal area could be the ideal place to implement wind energy (renewable energy), due to the constant occurrence of wind throughout the

year. The Saldanha Bay Municipality is already involved in various activities regarding renewable energy (*Saldanha Bay Municipality LED, 2005*).

The National Energy Regulator of South Africa (NERSA) has released a consultation paper for phase-two of the renewable energy feed-in-tariff (Refit). This was structured as follows:

A qualifying renewable energy generator under phase two of the Refit would be defined as a new investment in electricity generation using the following technologies: concentrated solar power (CSP) plant without storage; solid biomass; biogas; solar photovoltaic (PV) systems, large ground or roof-mounted; concentrating PV; concentrated solar power central tower.

Considering the market conditions, reference technology cost, and performance assumptions, NERSA, in its consultation document, outlined the levelised cost of electricity for CSP without storage as R3.132/kWh. For PV greater than 1MW the levelised cost of electricity is R4.488/kWh; solid biomass is R1.181/kWh; biogas is R0.962/kWh, concentrating PV without storage is R5.481/kWh; and CSP tower with storage is R2.308/kWh.

NERSA published the initial Refit guidelines on March 26 this year (2009), and following public comments requested the inclusion of additional technologies. They said they would investigate and consider the possibility of including other technologies under the tariff, after six months. Under the existing Refit, a wind tariff of R1.25/kWh was sanctioned, while small-scale hydro would receive 94c/kWh, landfill gas 90c/kWh and concentrated solar would receive R2.10/kWh. NERSA stated that all regulatory concepts and principles adopted in the first phase regulatory guidelines would remain unchanged and applicable to Refit phase two (*Engineering News, July 2009*).

b) Identified Downstream Opportunities within the Renewable Energy Sector:

Various **interviews** were held with key stakeholders within this sector such as with Mr Peter Stuienberg, lead consultant to the Saldanha Bay Municipality IDZ and related Maritime Hub, Mr James Fortuin, Municipal Manager for the Saldanha Bay Municipality and Mr Ralph Damonse from Genesis Eco Energy (he is currently involved with various Renewable Energy projects along the West Coast and the Western Cape) regarding possible downstream opportunities within this sector. The following opportunities were identified:

Projects identified by the Saldanha Bay Municipality

Mr Stuienberg stated that a MOU has been signed between landowners, SHARP Japan and WindsSA (a joint venture of BlueH and Eagle) to build a 450 MW hybrid power plant which include a 200MW/year PV solar assembly plant. The project will create 1 200 direct jobs. Solar panel and wind turbine assembly plants will be created to produce for Sub Saharan Africa. The PV solar assembly plant will start with 25MW and will increase to 200MW/year. The wind turbine assembly and gearbox production unit will start with 100MW productivity and will increase to 500MW. The project turnover is estimated at US\$1.2 billion. This clean industry will deliver in over 5 years approximately 3 500 jobs, mostly for unskilled labour.

He also indicated that they had discussions with the University of Stellenbosch regarding the opportunity to create a Renewable Development area within Saldanha, similar to Silicon

Valley. He also stated that the hybrid power plant would carry the world's biggest 700ha solar farm, which will be branded intensively before the 2010 World Cup Soccer in order to stimulate further business development and eco-tourism.

The Municipality is currently busy with several EIAs and the EMF process. They've also signed a MOU with other landowners in the proposed Saldanha IDZ area and are currently busy with their application to the DTI for an IDZ designation.

The specific sites which were identified for the first phase of the proposed development, is the: Parklands IDZ site (300ha) and the IDC site (50ha).

Projects identified by Mr Ralph Damonse – Genesis Eco Energy:

Mr Damonse stated that their company is currently involved in major investment deals throughout South Africa regarding renewable energy – especially regarding wind energy. He also mentioned that Investec recently signed a deal with community members in Paternoster regarding the establishment of wind farms.

Genesis Eco Energy has identified three zones throughout South Africa which would be the best options for wind farms, namely: Overberg, Laingsburg and Saldanha Bay (Vredenburg, Paternoster and St Helena Bay). The wind speed of these areas is 6.5m/s+, which make it very viable for this development. Genesis Eco Energy also identified a site (private sector land situated between Vredenburg and St Helena Bay) which they plan to use for the purposes of renewable energy. They plan to produce 500MW over the next four and a half years throughout the Western Cape, of which 150MW will be produced within the Saldanha Bay Municipal areas. The EIA process for this planned development will also be starting shortly.

Mr Damonse stated that if the South African wind industry grows to its full potential, further component construction activities could be set up and that Saldanha Bay, especially, has a lot of potential in terms of this. He stated that there will be various opportunities that can be established within the proposed IDZ regarding renewable energy, such as turbine manufacturing, blade manufacturing, renewable components manufacturing, assembly plants etc. He said that there is already a lot of interest from various investors for downstream manufacturing activities within the Saldanha Bay municipal area.

He also mentioned that assembly plants are a big opportunity for Saldanha Bay, which could also lead to overseas manufacturing plants moving to Saldanha Bay in future, due to cheaper production costs. They could then export to other countries. He also stated that the blades (fibre technology) could be manufactured locally in Saldanha Bay and could then be supplied to the rest of South Africa, Kenya, and Nigeria.

He said that a 50MW wind farm would consist of about 12 turbines. He indicated that Saldanha Steel (Mittal) wants to be an investor / shareholder in wind farms. Saldanha Steel is currently busy with wind tests and erected wind masts on their premises some time ago.

Genesis Eco Energy signed a R1 Billion deal for a manufacturing plant recently (July 2009) of which Siemens International and General International forms part of. Various United States companies are also interested to establish manufacturing plants (carbon fibre) within South Africa in order to manufacture blades and turbines.

Mr Damonse stated that the turbines must be situated at least 500m away from residential and industrial areas, according to NERSA legislation. Only 4 turbines (2.39W) can be situated per km².

According to Mr Damonse, two sites have already been identified within the proposed IDZ. The one is situated on the premises of Saldanha Steel (as mentioned earlier) and the other will be situated on the premises of Namakwa Sands. Namakwa Sands recently put out a tender for a wind developer to establish and operate on their land.

There is also a Chinese Consortium that is interested to establish their operations within the Saldanha Bay/West Coast area. According to Mr Damonse, Inner Wind also signed a Memorandum of Understanding (MOU) with the municipality for a 25MW wind farm situated close to the mountain in St Helena Bay.

Mr Damonse also stated that if a wind farm should be established in close proximity to the airport, then negotiations will first have to take place with Civil Aviations. The turbines cannot be situated too close to an airport, due to interference with the radar system.

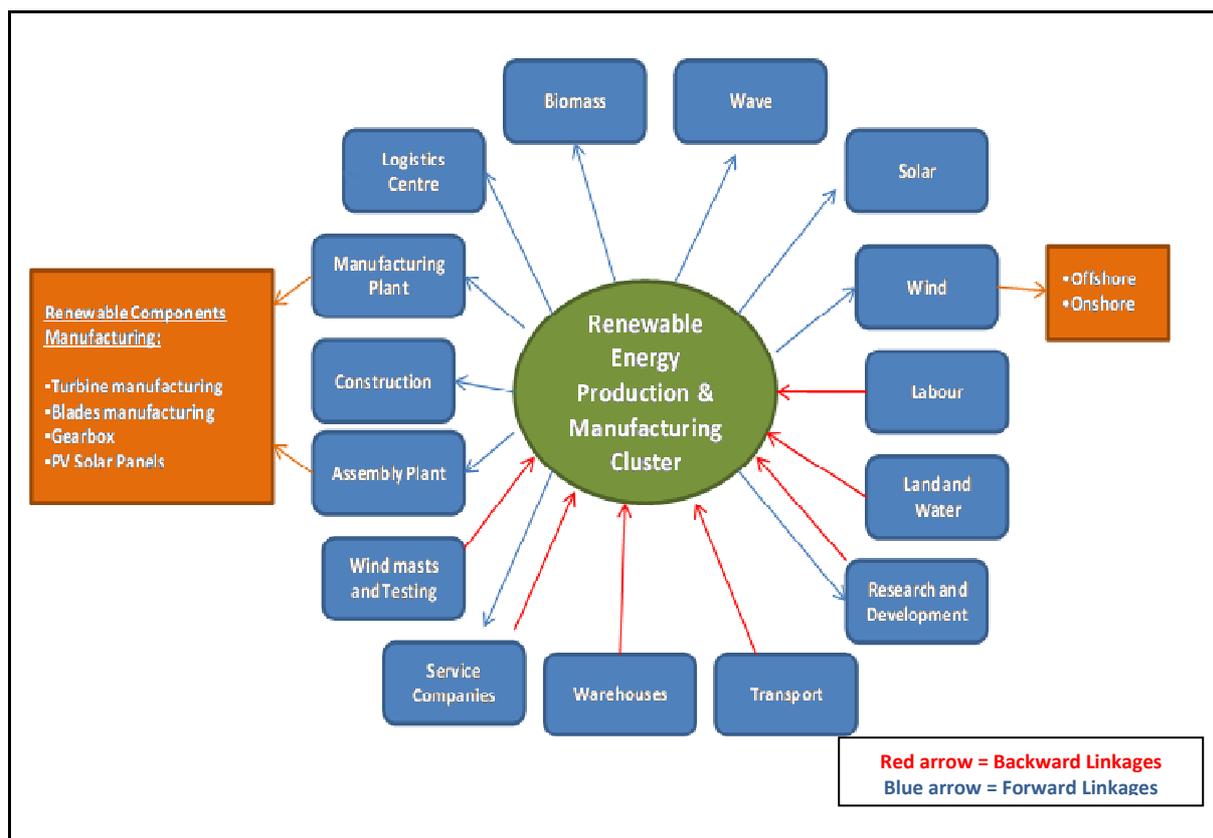
He stated that the best options for downstream opportunities regarding renewable energy within the proposed IDZ would be:

- ✓ Manufacturing of renewable components and assembly plants
- ✓ Service companies and warehouses to be situated within the IDZ
- ✓ Wind masts and testing.

c) Identified / Targeted Clusters for the proposed Saldanha Bay Industrial Development Zone

Renewable Energy Production and Manufacturing Cluster:

Figure 5.1 illustrates the possible forward and backward linkages occurring in the proposed Renewable Energy Production and Manufacturing Cluster within the Saldanha Bay IDZ.

Figure 5.1 Renewable Energy Production and Manufacturing Cluster

Source: Demacon, 2009

5.3.2 Dry dock - Oil and Gas

a) *Status Quo of the Oil and Gas Sector*

The Offshore Oil and Gas industry in South Africa is spreading amongst many companies within the country. Therefore the National Ports Authority (NPA) plays a big role in providing an export corridor from the South African shores through its strategically placed ports in Cape Town and Saldanha Bay to the West African Market. The Saldanha area has been targeted to establish a support industry to service the West African Oil and Gas fields.

However, to establish such an industry some key constraints have to be solved among which are the following:

- ✓ Quality and service delivery of the South African oil and gas industry
- ✓ Quality, service delivery and costs of the South African Ports
- ✓ Attracting global role players to operate the repair facilities (such as dry docks) in order to guarantee quality, price, service delivery and to attract customers.

Mr Marc Els from Wartsila made the following statement: “*Put an international recognized flag on the repair facilities and the client will come in*”.

Mr Harold Linssen, the director of Keppel Verolme, NL and responsible for the oil rig repair and maintenance on behalf of KeppelFels for the African continent, made the following statement: “*Copy the KeppelFels yard in Angro dos Reis, Brazil, and we discuss business*”.

According to the Saldanha Bay Municipality, key local engineering companies are opening branches in Walvis Bay that are targeting the offshore oil and gas market more efficiently than the South African role players. They stated that in the foreseen future South Africa might lose its grip on the South African gas and oil repair and maintenance opportunities if the policy with regards to the above mentioned does not change soon.

Saldanha Bay Municipal Input:

Global Forecast

Globally, offshore oil and gas exploration is a multi-billion dollar industry; however, it is severely under stress due to the peaking of global oil. Within this respect it is quite questionable whether in the relative near future a fossil fuel orientated industry can survive. The amount of energy needed to supply an energy source is 1:1 (exploring tar sand) and in using offshore oil exploring technologies 1:3. Compared to 50 years ago figures were close to 1:20, which are very similar to renewable energy exploration technologies today.

There are some global turnarounds in industrial awareness today. Germany invested 400 billion Euros in a concentrated solar plant in Northern Sahara, which will deliver approximately 15% of European energy needs in the future. The United Kingdom is investing 100 billion Pounds in the development of wave energy farms, which will deliver approximately 30% of European energy needs in the future. Germany wants to produce 1 million electrical cars by 2020 and they've already created a renewable energy industry where 240 000 people found employment. India also invested 100 billion dollars in wind farms and China installed two coal power plants of 450 MW/week. They are currently taking the lead in PV solar production (*Saldanha Bay Municipality, 2009*).

In 2004, the South African Oil and Gas Alliance estimated the value or market size for supplies and services to the West Africa exploration market at US\$830 million or R5.4 billion offshore explorations. The offshore Oil and Gas industry comprises four main segments:

- ✓ Offshore exploration
- ✓ Supply and services to exploration firms: generic and specialised
- ✓ Production and processing of oil and gas
- ✓ Repairs and maintenance including modifications to floating offshore structures
- ✓ Fabrication and construction of new assets or exploration structures

The prospects within the oil and gas industry resulting from the discovery off the West Coast to the North of Saldanha Bay are very promising. This, as well as the existing fields off the West African Coast offers various opportunities for the manufacturing and services sectors. This could lead to first servicing the existing platforms and later manufacturing components, which will lead to further job opportunities within the area.

The South African Oil and Gas Alliance Western Cape (SAOGA) is a government funded neutral facilitator for promoting the growth and development of the Oil and Gas industry. Ferromarine Africa is spending R155 million on facilities and R85 million on equipment for the fabrication and construction of offshore structures within the Saldanha Bay Municipal area. The Saldanha area has been targeted for the fabrication and construction of new oil and gas exploration structures and Cape Town as well as Saldanha has been targeted for the repair and maintenance of offshore structures.

The idea is amongst others to develop Saldanha Bay as a supply hub and fabrication centre for supplies and services (which could provide chemicals, drilling strings, consumables etc.), maintenance and new build projects for the offshore oil and gas exploration industry. The supply hub has to be, however, very competitive and for that reason global operators as mentioned before should be attracted.

Equipment can easily be manufactured in South Africa which is currently being imported from Europe and America. Value will also be added by industries or economic actors supplying inputs to, or buying inputs from, the new project / oil and gas industry. This is the effect on the intermediary sector of actors who interact with the direct actors referred to above.

Whereas the economic effects resulting from direct employment will be obvious, much more so will be the impact on the local economy by a number of firms both directly involved in the hub / industry and those that supply the first tier of companies. Depending on the number of firms in place and where their sourcing patterns are, the multiplier effects will even be greater where local suppliers are more involved.

Saldanha Bay has an inherent competitive advantage due to its location on the strategic sea route and is thus strategically placed to add significant value to the industry especially in terms of a possible supply hub. The Saldanha Bay Municipal Oil and Gas hub will need a strong industry to service its needs. Some of the most important support industries are identified as follows:

- ✓ Logistics
- ✓ Ship repair
- ✓ Fabrication and construction
- ✓ Skilled labour for fabrication
- ✓ Engineering design
- ✓ Steel industry
- ✓ Labour Force
- ✓ Customs legislation

Ship repair has largely relied on the Western Cape's strategic position. But, the captive markets for the Western Cape ship repair industry are not stable and important enough to sustain the industry alone. Foreign markets have to be sought and exploited. The industry needs to address skills training, skills retention and the flexibility required in an industry where demand varies significantly month to month. In addition, better management of the port infrastructure and expansion of repair facilities is crucial for growth of this labour-intensive activity. The Province needs to be ready to take full advantage of the regional boom in support vessel, workboats and tugs maintenance and repair. It must also reposition

itself to ensure it is capable of absorbing the projected world ship repair market growth for the next 10 years, at least.

However, it appears that the Western Cape is missing an opportunity in this area. Dramatic increases in shipping indicate greatly increased demand for repair services. This is an area in which the Province has developed capabilities and there are no insurmountable technology requirements. The biggest obstacle is simply the capacity and organisation of the relevant infrastructure. Improving service will further add to the reputation and set in place a virtuous dynamic.

While competition among Asian producers is fierce, there is a clear market niche which the Province could exploit in smaller vessels such as tugs and harbour craft, targeted particularly at the West African market including oil and gas. The distance from Asian producers provides an inherent advantage to the Western Cape. The only producer is currently performing well and has potential for expansion. Entrants could be local, but also European firms given the ongoing importance of sourcing design and engines from major multinational companies. An important obstacle is the availability of finance schemes to facilitate the purchase of these crafts by other African governments (*Micro Economic Development Strategy, 2005*).

From key informant interviews it was confirmed that a panoply of ship repair services are provided by many small, specialised, sub-contracting operations and by a small number of larger companies offering comprehensive round-the-clock services. The services offered can generally be categorised as follows:

- ✓ Ship rating: outfitting cabins involving joinery, marine woodwork, etc.;
- ✓ Steel work: boiler making and welding;
- ✓ Piping: steel and copper;
- ✓ Electrical work;
- ✓ Rewinding motors and generators;
- ✓ Heavy machine shop and mechanical engineering;
- ✓ Engine fitting;
- ✓ Rigging: hoisting - crane/chain block lifting;
- ✓ Salvage & Diving - generally include pollution abatement, propeller polishing, sealing of stern tubes, pumping, underwater blanking of apertures and hull damage repair work;
- ✓ Dry-dock marine services; and
- ✓ Offshore services.

While there are many smaller companies performing any of the above tasks, few are large enough to tackle a full range of repair and maintenance services to sea going vessels. They compete for a variety of national and international clients including Portnet South Africa, foreign port authorities and/or governmental agencies, the fishing industry, the offshore oil/gas exploration and production industry and the diamond industry.

National Ports Authority: The Port of Saldanha is the deepest and largest natural port in the southern hemisphere (and is also the only iron ore handling port in South Africa) ideally located along the South West Coast of Africa to hold a dominant position on the major oil shipping lanes from the West Coast of Africa and the Middle East. It offers an

existing fabrication yard with extensive industrial zoned land available for large-scale offshore construction projects. There has been a noticeable shift in attention to West African oil exploration with various international factors combining to make the region a very attractive source of oil and gas. The Port of Saldanha is thus ideally located to play a supporting role in the growth of the oil industry up the West Coast of Africa and could also play a significant role in the growth and development of the local economy.

Proper management of a synergy between NPA management and Spoornet (Orex) management has ensured reliable connection between the port and the iron ore mines at Sishen (some 860 km north-east of Saldanha). The port also serves base metal mines, an adjacent heavy minerals smelter as well as the crude storage facility near the port.

Originally constructed during the early 1970's to facilitate the export of iron ore, bulk crude oil and break-bulk terminals were subsequently added to the facilities in the port. Port facilities consist of a 990m long jetty with two iron ore berths and one crude oil berth joined to the north shore of the harbour by a 3 100 m causeway. In addition, an 874m multipurpose terminal quay facilitates break-bulk cargo handling.

The Port can play a significant role by constructing and modifying vessels for the Offshore Oil and Gas Industry (OOGI). As mentioned earlier, the offshore oil and gas industry is a multi-billion dollar enterprise. Up until the mid 1990's the use of fixed-leg jackets for wellheads and to support major processing facilities dominated the market. The Mossgas Quay was built specifically for the purpose of jacket fabrication as part of the Mossgas Project which was launched in 1987. After the Mossgas Project, the construction of counterfort units for the MPT has been the only other major use of the Mossgas Quay.

The trend in OOGI vessels is now tending more towards floating systems, due to their mobility and the greater water depths that can be reached (*NPA OOGC, 2004*). The demand for fabrication and assembly yards, as well as repair facilities, is therefore on the increase.

The potential market share for a South African fabrication and assembly yard can be expected to be approximately 4% of the total African market, which in monetary terms is approximately \$254 million. By 2012, this figure could increase to \$372 million (*NPA OOCG, 2004*).

According to the Saldanha Bay Municipality, if you take into account that Africa needs approximately 43 new floaters (from 2009 to 2013) valued at US\$85 billion, then tapping into this market segment would only deliver a mere R3 billion to R4 billion turnover.

While the Port of Cape Town has established itself as a hub for vessel refurbishment and modification, there is still a demand in the construction sector. This is the sector that the Port of Saldanha could potentially enter.

Today, the role of the Port of Saldanha is still that of a major iron-ore export facility, as is evident in current plans to increase the capacity of the terminal from approximately 30 million tons per annum to approximately 90 million tons per annum. The development of an Industrial Development Zone could however see the break-bulk terminal playing a more important role in the future (*The Port of Saldanha will be discussed in more depth in Chapter 6: Physical Environment Assessment*).

Saldanha Fabrication Facility and Dry Dock: An oil and gas fabrication facility (at the old Mossgas construction site) in Saldanha has been handed over to Grinaker-LTA Mechanical & Electrical which is taking responsibility for the operation of the facility. The facility is part of the MAN Ferrostaal Offset Project and the Department of Trade and Industry's National Industrial Participation Programme.

Grinaker-LTA Mechanical & Electrical, a division of Aveng (Africa) Ltd, took responsibility for the operation of the facility and is poised to accept work at this world class offshore oil and gas fabrication facility. Grinaker-LTA Mechanical & Electrical will lease this facility from Ferromarine Africa (Pty) Ltd, the head lessee to the National Ports Authority (NPA) of South Africa.

A decision to invest in the Saldanha fabrication facility was taken as a result of global growth in the offshore oil and gas industry, which has required facilities of this nature to support it. The facility will provide fabrication services to support market growth for West Africa and other regions, currently serviced by yards in Southern Europe, Korea and the Middle East.

The establishment of the facility could create significant employment opportunities for the surrounding communities and could further contribute to the region's economic growth. Further opportunities will also present themselves in the region, specific to the support and facilitation of the oil and gas industry. Entrepreneurial ventures and SMMEs in particular are expected to reap the benefits of the growth in this sector.

There is currently a limited Oil and Gas Upstream industry in South Africa. This fabrication facility will need to compete in the international market. To achieve this, the company requires a solid track record, an established client base, a skilled management team and a cost effective fabrication facility.

The Saldanha Fabrication Facility has the capacity and capability to support the West African facility. The 250 000m² facility includes a compacted fabrication area, outside storage area, lay down and assembly area at the quayside of 218 000m²; a high bay fabrication workshop of 5 000 m² with two 25 tons and two 15 tons capacity gantry cranes and 14 metres under hook; a blasting and priming workshop of 560m² and a pipe spool fabrication and electrical and instrumentation workshop. The facility will also have a Custom Control and Bonded Warehouses and medical and first aid facilities.

Also included are materials warehouses with a floor space of 825m², a cutting and profiling shop of 240m², a plate rolling building of 730m². A heavy pile / can welding of 3 682m² will make up the balance of the facility. All mobile equipment will be supplied by Grinaker-LTA Mechanical & Electrical. This world class facility has an integrated communications infrastructure with administrative buildings as well as on-site accommodation for up to 250 people.

Grinaker-LTA's Nigerian facility has focused on piles, sub-sea structures, manifolds, jackets, bridges and decks of up to 1 500 tons, however, the Saldanha Fabrication Facility will also include topside modules of up to 5 000 tons and possibly pressure vessels. It will have the competitive advantage of being able to receive technical support from the Nigerian operation. Saldanha will be a first class fabrication facility that will benefit from South Africa's infrastructure and support services.

The offshore industry has essentially been dormant in South Africa since Mossgas - apart from some PetroSA initiatives. Offshore fabrication differs from onshore fabrication and the skills required are different from those needed in conventional fabrication. Grinaker-LTA is developing a skills base with ongoing training, skills development and transfer.

Operations on the site have not yet started, but Grinaker-LTA has received special concessions within the oil and gas industry. Permission for operation was received and only the final details still need to be finalised by SARS.

Local companies in Saldanha Bay will be needed for various jobs, such as:

- ✓ Construction
- ✓ Fabrication
- ✓ Welding and grinding
- ✓ Gas
- ✓ Lubricants
- ✓ Painters
- ✓ Equipment supply
- ✓ PPE (Safety Equipment)
- ✓ Material supply
- ✓ Installations etc.

During the production phase various opportunities will also be available, such as:

- ✓ Specialist Services
 - Well Services
 - Well Equipment
 - Well Chemicals
- ✓ Transport
- ✓ Catering
- ✓ Labour
- ✓ Fuels
- ✓ Barge Support Vessels
- ✓ Onshore Services
- ✓ Maintenance

The direct resources that would be required in order for the success in the offshore oil and gas industry are skilled resources that will be required to serve the market. Especially in terms of the following:

- ✓ Ship repair and maintenance - 1 000 skilled resources needed
- ✓ Fabrication and construction - up to 650 or more skilled resources needed

This development could have a significant impact on the local area and economy and could lead to various opportunities in the future. These opportunities will only be possible once international standards are adhered to by local companies.

EXISTING FACILITY



NEW FACILITY



Saldanha Bay Municipal Input:

Next to the Saldanha Bay Fabrication facility there could be a potential demand for a dry dock in order to repair and maintain oil rigs and to service VLCCs. The pre-feasibility study is in line with the information obtained in 2003 by Steve Hrabar, in terms of the *Offshore Oil and Gas Report* issued to TNPA in August 2004. The *Report* is with reference to the competitive edge of the Western Cape oil and gas opportunities outdated, however, noteworthy is that the *Report* identified Saldanha to host oil rig construction facilities including a dry dock with quay space of 2 x 500 ton and 1 x 700 mobile cranes, several 50 ton forklifts and 2 tug boats. The total investment in Saldanha would total R1.469 billion and in Cape Town R371 million. The building of oil rigs in Saldanha Bay is a possibility which should be further investigated.

PetroSA: South Africa's state-owned oil and gas company PetroSA is looking for further gas resources to extend the life of its offshore platform beyond 2013 and is looking for further projects in Namibia and Mozambique. PetroSA has two potential projects on the Mozambican coast and another off Namibia. There are another two prospects off South Africa's West Coast.

PetroSA stated that there would be concrete development on Namibia's Block 1711 and that there is still a lot of exploration to do in this block. Depending on the size and quality of the deposit, gas could be piped down to Mossel Bay, linking up with production from the two West Coast prospects. This could lead to significant opportunities within the Saldanha Bay Municipal area. However, there has to be a market for the gas before such plan could be implemented.

PetroSA believes that its involvement in acreage on the West Coast will act as a catalyst for other upstream players to become actively involved in exploration and development. Exploration on the West Coast will potentially add to the gas resources of the country as the West Coast of South Africa has so far been found to be more gas than oil prone. This gas could be used for the much required gas-to-electricity power generation and in industrial applications, especially industries within the proposed Industrial Development Zone.

PetroSA has also partnered with Forest Oil on gas exploration in the offshore Ibhuesi field, north of Saldanha Bay, where reserves of an estimated 1.3-trillion cubic feet have been found.

Forest Exploration International: Gas exploration company Forest Exploration International and its project partners plan to spend between US\$3 billion and US\$4 billion over the next 20 years to develop the Ibhubesi gas field, off South Africa's West Coast.

The initial drilling programme into the gas field has been highly successful, producing a gas well that tested better than any other well drilled off the South African coast. However, the second phase of the US\$100 million drilling programme was less successful. Forest Exploration International commercial director Mr John Langhus stated that it had not yet defined a definitive resource estimate of the gas field. However, they do consider it a world-class asset and a world-class discovery and it is large enough to move ahead.

Mr Langhus stated that the company was awaiting a decision from the Department of Minerals and Energy (DME) on whether production at the Ibhubesi gas field could go ahead. If the production right was received within the expected date (June this year), it is likely that production would start in 2012.

The gas from the project is most likely to be used for electricity production and Mr Langhus stated that although the company did not have any definitive off take agreements in place, it was in advanced discussions with several parties. He stated that they are very confident that there is plenty of market there to be developed.

Mr Langhus stated that they planned to draw 100-million cubic feet of gas a day and that this was expected to rise to about 225-million cubic feet. The initial supply would be enough to power a 700-MW combined-cycle gas turbine to supply base-load electricity or 400 MW of peaking power from an open-cycle gas turbine. These power stations would be able to compete with coal-fired power stations but would be cleaner and could be constructed in a shorter time (*Engineering News - Mr Langhus, March 2009*).

Economic Benefits of Ibhubesi Gas Development

"One of the most difficult tasks faced by the South African Government and Forest is determining the proper blend of government and private sector participation that will allow a viable gas project to move forward. Too much risk on the private sector and the project is un-financeable. Too much support by the government and the project is seen as non-commercial. Forest believes that the 3 co-anchor market approach provides the proper blend. A Forest led CCGT power plant selling into the national power pool provides a secure market for half of the initial gas supply while the blended cost of power to the South African consumer is virtually unnoticeable. Yes, the initial cost of this electricity is higher than the existing already cross subsidised electric rates of Eskom but only until new incremental base load power is needed in 2010. However, this initial CCGT power plant represents less than 2% of Eskom's generation capacity. What if Eskom's cost estimates is wrong or power is needed sooner. Even Eskom admits it will need peaking and mid-merit power long before 2010. West Coast power costs from a new CCGT plant will be less than a new coal plant. When evaluated over a 15 year period the net present value of the cost of power from a new CCGT plant is overwhelmingly positive for the South African power consumer. Add Kyoto CO2 emission credits to the mix and the CCGT plant looks even better."

West Coast Gas and Market Development Strategy

1. Electricity produced from a West Coast CCGT plant built today cannot compete with electricity from a 1960-70's era fully depreciated coal based plant in Mpumalanga. However, once incremental base load power is required in South Africa (2010) the cost of power from the

- Saldanha Forest CCGT should be less than the incremental cost of a new coal based plant in Mpumalanga;
2. Key anchor market is the 800-1400 MW Forest CCGT IPP at Saldanha - what does the Forest led consortium need to make this happen:
 - a) RSAG enabling legislation to allow a Forest (West Coast) led consortium to build an 800 – 1400 MW CCGT Independent power Plant (IPP) in the Saldanha area to include;
 - ✓ Gas producers – minimal role up to 15% max;
 - ✓ International Power Developers – major role up to 75% max;
 - ✓ Local SA Companies (Eskom Enterprises) – minority rule up to 25% max;
 - ✓ Local West Coast BE Community – 10%
 - ✓ City of Cape Town has right to take 200 MW of base load power from the IPP;
 - ✓ Cost of power under the Forest PPA blended into National Power Pool;
 - ✓ Power Purchase Agreement (PPA) for the sale of electricity to Eskom for inclusion in the Eskom power generation pool – PPA price agreed to for 15 years;
 - ✓ Transmission of power from Saldanha CCGT IPP to City of Cape Town;
 - ✓ Eskom extension of the nearby 400 KV system to Saldanha;
 - ✓ RSAG will not undo the Forest PPA or Saldanha IPP when it deregulates electricity in South Africa;
 - ✓ Establishment of a West Coast CCGT training centre for South African’s and NEPAD at the Saldanha IPP site;
 3. Gas sales from Ibhuesi to West Coast co-anchor markets will support further offshore gas development plus will provide reservoir and well performance data to guarantee future gas markets and pipeline infrastructure development with little or no financial risk to the people of SA;
 4. Gas sales in the Western Cape will reduce the risk and cost of supplying gas to the PetroSA GTL plant in Mossel Bay. The PetroSA GTL plant will not run out of gas over night. As gas supply from the Southern region declines you can reduce plant output or replace natural gas with condensate.
 5. Western Cape Gas development will begin a long term process of job creation and economic upliftment for the people of the Western and Northern Capes;
 6. A Phased development of the offshore gas field, onshore gas markets and the gas pipeline transmission infrastructure will reduce the risk to the South African people and help keep pipeline tariffs lower;
 7. Gas producer funding of a preliminary engineering and EIA studies will move the CCGT program forward;
 8. Phased development will attract additional gas exploration to the West Coast; and will provide an economic outlet for Kudu gas;
 9. Phased development will reduce future exploration and development costs while creating long term job opportunities;
 10. LPG fuels will be reduced in price due to competition with natural gas resulting in their introduction to rural areas as a much safer paraffin replacement;

Forest believes that the positive economic benefits of job creation, the export of semi finished iron from a HBI plant and finished steel from a Saldanha Steel expansion; along with the industrial energy savings and emission reductions from switching to natural gas, will more than offset the initial higher cost of the Forest / Saldanha CCGT IPP electricity.

The South African Government and Forest have the opportunity to work together for the common good of the South African consumer. Ibhubesi natural gas represents the first domestic natural gas energy source to be developed in South Africa in the last 15 years. The gas pipeline infrastructure necessary to support the initial production from the Ibhubesi gas field will be the catalyst to draw additional exploration companies from around the world. The more companies, the more chances of success and the more foreign investment dollars and the lower the future energy costs for the South African people (*Ibhubesi – Natural Gas for South Africa’s Energy Independence Draft, July 2006*).

b) Identified Downstream Opportunities within the Oil and Gas Sector:

Various **interviews** were held with key stakeholders within this sector such as the Saldanha Bay Municipality, Grinaker LTA, Forest Oil and the National Ports Authority (NPA) regarding possible downstream opportunities for this sector. The following opportunities were identified:

Opportunities for oil and gas within the Industrial sector: In the industrial sector gas can be used in two major fashions; as a feedstock and as a fuel. As a fuel, gas can be used in many ways, including steam rising, process heat, drying and metal working. Gas competes with coal or fuel oil in most cases but also with further refined fuels when the quality of heat is important (e.g. glass manufacturing). As a feedstock gas is mainly used in the production of fertilizers, methanol and petrochemicals. The direct reduction in the iron and steel industry is used as another feedstock application.

For fuel applications one should be looking at major energy consumers like the iron and steel, non-metallic minerals, paper and pulp and the cement industry. From a process point of view any industry where steam production, metal working, drying or the production of process heat are important should be considered a potential customer. Less bulky consumers in e.g. the bricks and tiles, leather, textile and food processing industries are also potential users. As the latter are generally speaking of a less capital-intensive nature, they grow in importance when employment effects are given high priority.

Gas offers a number of advantages over competing fuels when used as an industrial fuel:

- ✓ Gas burns cleaner. Hydrogen sulphides are normally removed from the raw gas before delivery as pipeline quality gas and unlike in oil or coal hydrocarbons burn completely. These characteristics are important in two fields:
 - Environment, gas pollutes less than competing fuels
 - Processes where it matters to avoid product contamination e.g. glass, white cement, ceramics etc.
- ✓ The temperature of a gas flame is easier to control
- ✓ Gas can provide heat at a higher temperature than coal/oil
- ✓ In assessing the value of gas in fuel-uses the principal elements will be:
 - Economic cost of the alternative fuel
 - Any differential capital and operating cost (highly location specific)

In a single source – single pipeline – single (or multiple few) customer scenario, it can safely be assumed that the supply economics require a large amount of certainty on a possible base load. Investment is unlikely to take place assuming “blue sky” scenarios in new industrial development, particularly heavy metals industry or petrochemical and chemical

industry. It will probably only happen through some form of co-operation or tacit agreements between the pipeline owner and new industries (or government).

Three large project possibilities have been identified as the most likely large-scale users and beneficiaries following the introduction of gas. These projects were used as the basis for assessing potential industrial uptake and should be investigated further:

- ✓ **Hot Briquetted iron** – The possible second phase of Saldanha Steel could involve the use of lump iron ore from Sishen and natural gas to produce directly reduced iron in briquette form. A 1.2 million ton/annum plant would utilise about 14 – 18 million GJ of natural gas. Competitive advantages are availability of competitively priced iron ore and electricity and location at a harbour for exports. Saldanha Steel Phase II is considered a long-term development opportunity.
- ✓ **Cement** – A sizeable cement plant (Alpha Cement) has been planned for Saldanha, but at the moment it depends on aspects of permission (both for factory and mining operations) and market demand. The plant could use coal or gas as fuel, at a level of about 2 million GJ per annum. The best demand scenarios indicate, however, that the plant is only likely to be established after 2010.
- ✓ **Ceramic tiles** – South Africa is currently a net importer of ceramic tiles. The West Coast area has the advantage of abundant supplies of high quality deposits of kaolin, quartz sand and limestone and a harbour. A 3 million m² plant would require about 1.2 million GJ of natural gas. This option is considered a real possibility (*e3 Energy and Environmental Management, 2000*).

Projects identified by the Saldanha Bay Municipality:

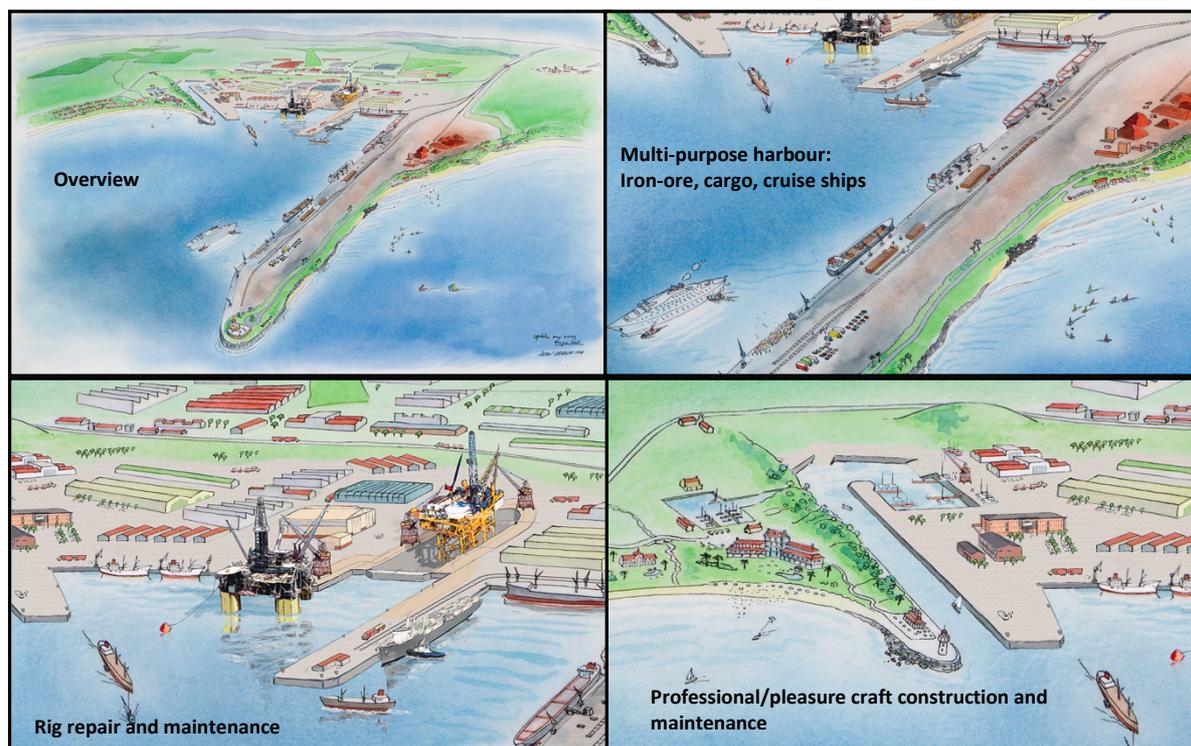
Interviews were held with Mr James Fortuin, the Municipal Manager at the Saldanha Bay Municipality, Mr Charles Barends, the LED Assistant of the Saldanha Bay Municipality and Mr Peter Stuivenberg, lead consultant to the Saldanha Bay Municipality IDZ and related Maritime Hub, in order to identify various opportunities for the area in terms of the oil and gas industry. The following opportunities were mentioned:

- ✓ Develop Saldanha Bay as a supply hub and fabrication centre for supplies and services, maintenance and new build projects for the offshore oil and gas community in West Africa. This will unlock the potential benefits of the multibillion dollar industry to local firms. In order to do this the feasibility of such a supply and service hub must be investigated and strategic partnerships must be formed in order to skill the local labour force. Saldanha Bay has a competitive advantage due to its location on the strategic sea route and is placed to add significant value to the industry. Success in this regard could double the GDP of the municipality from its current R2.2 billion.
- ✓ They also mentioned the necessity to develop a dry dock in the Saldanha Bay area in order to maintain oil rigs, service VLCCs, fabrication to take place, further construction, as well as the possibility of ship repairs.
- ✓ They mentioned that an electricity generation plant could be feasible wherever the gas is landed. An additional nuclear power plant will probably be situated in the southern parts of South Africa, but an electricity generation plant could possibly be developed in the Saldanha Bay area (possibly Hondeklip Bay) if the gas is landed there.
- ✓ South Africa depends on coal for some 90 percent of its energy supply and the government has long identified nuclear as a way to diversify power supply to reduce

its carbon footprint. The Government and Eskom will be constructing the first unit possibly in the beginning of July 2012, with the first 4 000 MW plant to be operational by July 2018. Two other facilities with the same capacity are planned to be operational by 2020 and 2022, respectively. The EIA proposal suggests three potential sites for the next plants - the western coast, where the existing plant is located, on the south- eastern coast near St Francis Bay and on the south-western coast near Pearly Beach. This could have a significant impact on the local community.

Further discussions with the municipality indicated that future plans were already in place for the development of a dry dock in Saldanha Bay. Various investors are very interested in Saldanha as a hub and identified Saldanha Bay as their preferred choice for future development. These investors will be the operational managers and will train and prepare the local people. According to the Saldanha Bay Municipality, the timeframe for the construction of the dry dock is approximately five years and more than 2 000 direct jobs and 8 000 to 10 000 indirect jobs might be created. The National Ports Authority already has their Investment Plan in place, but according to the municipality NPA indicated that they will be willing to shift their plans if the Saldanha Bay Municipality can bring forth bankable projects.

Artist Impression of the Port in future (2015)



Source: Saldanha Bay Municipality, 2009

The Saldanha Bay Municipality is currently planning a state of the art dry dock for maintenance, repairs and construction of oil rigs and vessels. The *Offshore Oil and Gas Final Report on the Impact of the Port Infrastructure in the Western Cape for National Ports Authority* (August 2004) identified a 1.5 billion dollar investment. The following were identified:

- ✓ Near customer strategy, servicing West African coast
- ✓ Customer services, zero VAT
- ✓ Skills Factory – highly qualified accredited labour, ISO certified industrial environment, first world transport and communications
- ✓ PetroSA identified Saldanha Bay as service ‘hub’
- ✓ Engineering, Construction and Operations by world leading consortiums assuring top notch quality and deliverables
- ✓ Under full operation: 2 500 jobs direct, 10 000 jobs indirect

Grinaker-LTA planned projects: An interview was held with Mr Steve Hrabar, the Engineering Manager of the Mechanical and Electrical Business Unit of the Oil and Gas Division within Grinaker-LTA. He stated that they have various projects planned at the Saldanha Fabrication Facility within Saldanha Bay, but that it is confidential at this stage due to final negotiations with their client and due to the sensitivity of the project.

He mentioned that the project consist of the possibility of a **modular oil refinery with related oil projects**. The project will consist out of 5 phases of which the first phase will contribute almost US\$1.7 billion to the area and US\$700 million will be for labour alone. The first phase will consist of a simple oil refinery and the following will be needed for this:

- ✓ Pressure vessels
- ✓ Steel
- ✓ Piping
- ✓ Painting
- ✓ Pumps
- ✓ Heat exchanges
- ✓ Boilers
- ✓ Heaters
- ✓ Engineering design
- ✓ Lagging
- ✓ Weld consumables

He stated that all of the abovementioned could be obtained from within the Western Cape Province, except for steel and piping. The next four phases will also contribute approximately US\$1.7 billion each over the long-term. This would lead to significant growth within the local economy as well as further investment and downstream opportunities within the area.

He also briefly mentioned other projects that are planned for the area and further possible opportunities which should be further investigated. They are as follows:

- ✓ PetroSA - with the possible development of a refinery in Coega, a proposal has been made for the refinery to be fabricated in modular form. These modules could be fabricated in Saldanha Bay and shipped to Coega for integration on the site.
- ✓ SASOL is selling its GTL technology to overseas countries. As a result refinery plants have to be built where Sasol has to supervise the work and its technology. It has been proposed that these plants could be in modular form, built in Saldanha and exported to the country in question. This procedure has been done for ESCRAVOS in Nigeria. These modules were built in the Middle East and shipped to Nigeria for integration into the overall plant.

- ✓ Saldanha as a supply hub for the offshore oil and gas community in West Africa. They could provide chemicals, drilling strings, consumables etc. to the offshore industry, but they have to be very competitive. Equipment can also be manufactured in South Africa, which is currently imported from Europe and America. An IDZ that includes a quay side and lay down area will thus be needed for this.
- ✓ Dry docking – could support the offshore industry, but according to Mr Hrabar the NPA does not have the funds for this. A pre-feasibility was done for this and Transnet must decide what to do in future. Province is also negotiating with Transnet in terms of this. Decisions should be made; otherwise the opportunity will pass us by. Namibia is already taking over on various opportunities and a lot of South African companies are relocating to Walvis Bay.
- ✓ Tank farm – there are currently no bunkering of ships in Saldanha Bay, due to the fact that they do not have bunker services. The ships have to bunker in Cape Town. In earlier years Saldanha wanted to put up tanks for fuel for ships, but the space was taken over by ore facilities. There is still the opportunity to have a tank next to the fabrication facility, where you could pump fuel via pipe into the bunker barge and onto ships. The IDC stated in earlier years that this is not viable for Saldanha Bay, but Saldanha Bay have got permission from NPA to provide this service. All they need is location, funds and to build the facility in order to make it work. There might, however, not be enough traffic in the area; there are currently about 150 ships passing through the area.
- ✓ Forest Oil – Forest Oil have received a licence to develop the Ibhuesi Field on the West Coast of Africa. The final development would be three TLP's (Tension Leg Platforms) and ninety-nine subsea modules. Depending on the size of the reservoir fabrication of this project could be done in Saldanha Bay for the TLP structures and the subsea modules.

Projects identified by Forest Oil:

Mr Langhus identified some possible downstream opportunities that can come from the Ibhuesi gas field if the company gets the go ahead for production from the Department of Minerals and Energy (DME). Possible opportunities that were identified should be further investigated and were as follows:

- ✓ In order for the gas to be sold locally a pipeline will be needed. The methane gas cannot be transported via road or rail, but only via a pipeline. The pipeline costs about R15 million per km to build and will be approximately 400 km long. To build the pipeline will take approximately 2 years including the EIA phase. This could be a significant infrastructure project for the West Coast.
- ✓ There is the possibility that a desalination plant can come of this pipeline, which should be further investigated by interested parties. However the need for more bulk water will be decided by the type of industries that will be attracted to the IDZ.
- ✓ Plastics, fertilizers, smelters, aluminium production, electricity generation can all come from this pipeline and use gas as their main feedstock. Bigger industries such as Saldanha Steel could also use the gas as their main feedstock. South Africa is moving strongly towards greenhouse gasses such as natural gasses. Natural gas is more economically competitive with coal and is also cheaper, cleaner and safer.
- ✓ Forest Oil wants to produce power further up the West Coast to mines or industry users in order to have guaranteed electricity. This could also benefit Saldanha Bay.
- ✓ Mr Langhus also stated that local companies could be able to build the modular topsides for the offshore facilities. Various companies can build different bits and

pieces for the topsides which could be put together. All that should be taken into account is workmanship and cost. He also stated that they want to use locally sourced materials.

Projects planned by the Port of Saldanha:

An interview was held with Nimi Ramchand, the Manager of the Planning and Development Department within the Transnet National Ports Authority (NPA) at Saldanha Bay. She mentioned the various existing development plans that NPA has as well as possible future plans. They are as follows:

- ✓ **Iron-ore Terminal Expansion** – A project currently underway at the port is the proposed expansion of the iron-ore facility. The project includes two additional iron-ore berths, an increased stock-yard area and additional ship-loaders, stacker reclaimers and tipplers.
- ✓ **OOGI (Offshore Oil and Gas Industry) Vessel Construction and Modification** – The port is in the process of concluding a deal that involves the extension of the Moss gas quay and the provision of additional landside area for the construction and modification of OOGI vessels.
- ✓ **Containers** – The Port of Saldanha does not currently have a container terminal and no new development is anticipated in the short term. However, in the event that the new outer basin project at the Port of Cape Town does not proceed, the Port of Saldanha will be required to accommodate some of the container demand in the medium to long term (2016 to 2036). It is envisaged that a 5 berth container terminal could be constructed alongside the causeway, to the north of the MPT. The capacity of this new terminal would be 3 million TEU's and would cost approximately R9.2 billion.
- ✓ **Ship Repair** – The Moss gas quay is returned to a functional state, an additional 515m of quay wall are added and the back-of-quay area increased in size. Ship repair in the form of vessel construction and modification takes place at the expanded Moss gas terminal. Total quay length is 550m and the landside area is 41 hectares. The depth alongside the quay is -8m CD over 150m and -14m CD over 400m.
- ✓ **Bunkering services** – At present gas and diesel are available at the ore berths and are supplied from drums and road tankers. This service should be extended to all berths.
- ✓ **Recreational users** – Small craft vessels, restaurants etc. are not accommodated within the port, but could be a development possibility.
- ✓ **Economic Processing Zones (EPZ)** - An Economic Processing Zone is an area within which port specific industries or activities are located. The EPZ could be designated as bonded land providing tax incentives. No EPZ's have been established in South Africa to date. Sea ports however provide excellent opportunities for the creation of value added industries within bonded areas. Demand for the facilities in Saldanha is unknown, but it might offer an opportunity for the port, which might merit further investigation. The area to the north-west of the port that is zoned as industrial land (incorporating the IDC land), could be rezoned or partially rezoned as an EPZ.

Immediate Implementations & Feasibility Studies of NPA:

- ✓ **Land Acquisition:** Most of the ports in South Africa cannot expand in a landward direction due to the encroachment of the surrounding town or city. The Port of Saldanha is fortunate in that there are large tracts of undeveloped land surrounding the port. In order to maximise on this opportunity in the future, the port is looking to acquire this land as soon as possible.
- ✓ **Iron-ore Terminal Expansion Feasibility Study:** The increase in capacity of the iron-ore terminal from 76 million tons per annum to 90 million tons per annum is currently at a pre-feasibility stage. The requirements of this project need to be revisited in order to ensure that the future demand can be met (i.e. 94 million tons per annum). Commissioning of this project is currently planned for 2013 with the result that demand will not be met in 2012. This project is therefore already on critical timeline and should be advanced as quickly as possible.
- ✓ **Ship Repair Facilities Feasibility Study:** The first phase involving the extension of the existing Moss gas quay is well advanced and due for completion by 2010. The second phase involving the construction of an additional 400m quay, dredging and terminal surfacing is currently at a pre-feasibility stage and should be advanced to a feasibility stage as soon as possible.

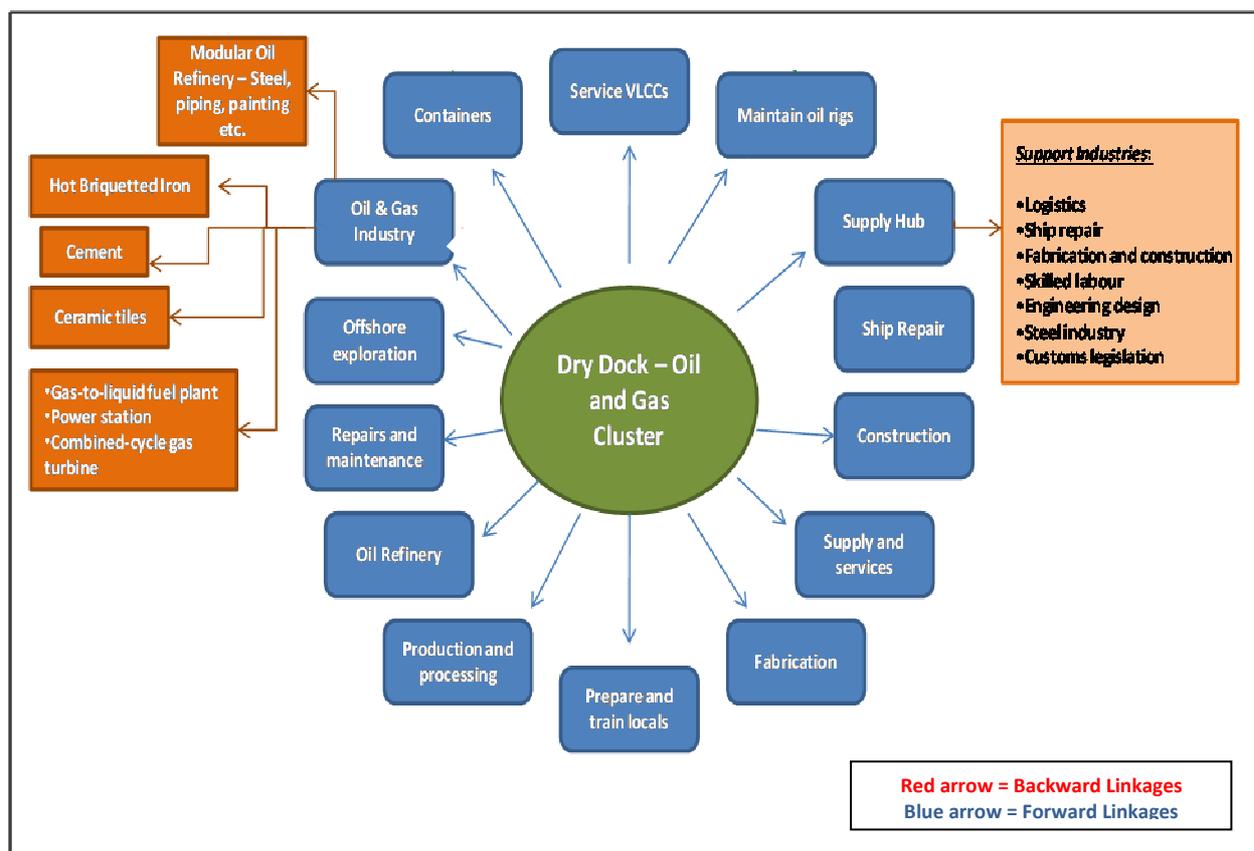
The Port of Saldanha is expected to see an average annual increase in demand for liquid bulk of <1% over the next 30 years whilst iron-ore is expected to increase by 19% and MPT by 6% over the next 7 years. In order to meet this demand Transnet will need to invest R18 billion and R27 billion at the Port of Saldanha. The extent of this investment will depend on whether a new container terminal is constructed in Cape Town or Saldanha (*Port of Saldanha: Development Framework Plan, 2007*).

c) Identified / Targeted Clusters for the proposed Saldanha Bay Industrial Development Zone

Dry Dock – Oil and Gas Cluster:

Figure 5.2 illustrates the possible forward and backward linkages occurring in the proposed Dry Dock - Oil and Gas Cluster within the Saldanha Bay IDZ.

Figure 5.2 Dry Dock - Oil and Gas Cluster



Source: Demacon, 2009

5.3.3 Maritime Industry – ship building and repair

a) Status Quo of the Maritime Industry

The Maritime Transport Industry (MTI) constitutes economic activities that have some direct and indirect relationship with the sea. Several maritime activities are concerned with the exploitation of the resources of the sea and the seabed off South Africa’s shores. Many others are involved in some way or another with the sea trade on which the South African economy largely depends, whilst to some extent a variety of activities that derive their purpose from the supply of marine transport for different purposes.

Thus, the Maritime Transport Industry serves as an input into every other industry in the National economy as well as many of those across the South African borders. In addition cognisance is taken of the fact that the Maritime Transport Industry is a fairly complex one, with some companies in the sector, involved in business that fall outside the ambit of the Maritime Transport Industry.

The Maritime Transport Industry of the economy is often associated with shipping lines involved in the carriage of cargo as well as including associated services providers. More specifically, economic activities in South Africa which have maritime links comprise amongst others the following:

- ✓ Enterprises concerned with the marine transport of cargo and services ancillary to such transport;
- ✓ Enterprises concerned with the manufacture, provision, maintenance and repair of marine equipment, including marine craft;
- ✓ The commercial ports system, authorities responsible for the provision and operation of navigational aids, including lighthouses;
- ✓ Institutions concerned with the rescue, salvage and anti-pollution operations;
- ✓ Government Departments and agencies concerned with international maritime relations, administration of maritime safety, the protection and conservation of the marine environment and law enforcement within South Africa's offshore jurisdiction; and

For the purposes of the Maritime Industry especially in terms of the Saldanha Bay area, we will only be concentrating on ship building and boat building.

Ship-building

Due to the Western Cape's historical geo-strategic maritime position, ship building and repair activities have been long-established, expanding and contracting as the growing economies of the region and as the emerging Western Cape Ports, demanded. Ship-building and ship repair are quite different activities and, while there are many ship-repair companies and much activity, there is only one active sizable ship-building company in the Western Cape. Opportunities to grow ship-building were identified in previous studies due to increased demand along the West Coast of Africa for small and medium crafts such as tugs and harbour vessels. Steel fabrication is the major concern in being competitive in such as craft; designs and engines are sourced internationally (*Micro Economic Development Strategy, 2005*).

Boat-building (yacht manufacture)

The Western Cape dominates national boat-building activity. The industry has grown rapidly in the past decade based on a strong export platform. It involves a host of different technologies, materials and processes. In the Province the industry has developed through strong inter-firm linkages and the development of local capabilities over time. Issues of skills and appropriate support measures (for small businesses and to penetrate export markets) are important for sustainable growth of the industry. Maintaining international competitiveness also requires attention to material costs and support for product development and research (*Micro Economic Development Strategy, 2005*).

The challenge, however, in the yacht cluster is to build on the success of the cluster. This largely involves generic actions to break bottlenecks and facilitate firm growth. Of additional note is the need to learn from the experience of countries such as New Zealand that created massive industry growth through a co-ordinated boat-building plan. The establishment of the South African Boat-builders Business Council and more recently the Cape Town Boat-building and Technology Initiative are to be welcomed in this regard.

Factors reducing competitiveness:

Key factors impeding on South Africa's and the Western Cape's global competitiveness include the following factors:

- ✓ **High cost of launching:** Constraints exist in terms of cost and accessibility. According to the Saldanha Bay Municipality, this offers also an opportunity for Saldanha Bay where these costs will be minimal once building on the waterfront.
- ✓ **High cost and shortage of moorings:** With boat-builders needing to keep boats in the harbour for a minimum of 5 days for boat completion, testing or simply waiting for suitable weather to depart, mooring facilities are required within the vicinity of launching that is relatively safe and clean. (Currently one boat-builder is paying R30 000 per month for a mooring outside the Cape Grace). According to the Saldanha Bay Municipality, this aspect can also offer an advantage for Saldanha Bay where moorings facilities can be build in future.
- ✓ **High import duties:** There is no discrimination in terms of products used for boat-building or any other use. An example given is the plastic sheeting used to sandwich between the carbon fibre outer and protective inner, comprising the major component of the luxury yacht, has a 25% import duty place on it as it is classified as plastic. According to the Saldanha Bay Municipality, an IDZ with CCA and tax incentives might be a perfect solution given the fact that most yachts (which are planned) will be produced for export markets.
- ✓ **Time consuming export / import administration:** This requires dedicated staff members in each firm which can only be afforded by larger firms. Those producing one to two boats a year cannot justify the employment of a dedicated staff member to deal with government red-tape.
- ✓ **Shortage of skills:** Management with boat-building experience and a lack of skilled staff. The training offered by the Cape Town Marine school is valued but the standard is deemed to be too low and the number of graduates too few. Some boat-builders are sourcing their skilled staff from Europe and New Zealand to ensure they meet the high quality standards expected by clients. According to the Saldanha Bay Municipality, the Dutch HISWA organisation also offers substantial support in rolling out training programmes.

b) Identified Downstream Opportunities within the Maritime Industry:

An interview was held with Mr Peter Stuivenberg, lead consultant to the Saldanha Bay Municipality IDZ and related Maritime Hub, regarding the Maritime Industry and the potential opportunities for Saldanha Bay associated with the industry.

He stated that the maritime transport sector could have huge potential for Saldanha Bay in terms of ship repair and pleasure craft boat building. He mentioned that this sector is very labour intensive and will need highly qualified craftsmanship, as well as national support. He mentioned that the water conditions in Saldanha Bay are suitable for building next to the water. He also stated that completing and fitting of the yachts in the water will be possible, which could save costs in terms of factory space. A facility to train the people should also be created within Saldanha Bay and the communities should be re-linked with the maritime industry. He stated that this industrial sector could capitalise upon existing markets in Europe and the United States. He also mentioned that the area between the Navy Base and Sea Harvest is ideal for the refurbishment of mega-yachts, once tapping into this market segment.

In order to develop the maritime sector, specialised courses and training institutes should be established and – more in general for the SA yacht industry - quality control and quality performance programmes should be implemented.

In addition to the above mentioned there are potentially spin-offs that could be created, such as:

- ✓ The establishment of multifunctional harbour (launching & mooring facilities) providing opportunities for diverse developments including:
 - Aligned industries e.g.:
 - Boat and ship repair industry
 - Supply and service industries to boat building
 - Yacht and small craft marina
 - Accommodation e.g.:
 - Hotels
 - Housing developments
 - Commercial precincts e.g.:
 - Retail outlets
- ✓ Promoting adventure tourism and charter industry:
 - Requiring a network of safe moorings around the coast

In terms of the opportunities of ship repair and boat building, this could be further investigated in future. According to the Provincial Department of Economic Development and Tourism, the majority of this sector will be situated in Cape Town. There are deep linkages within this sector with electronics, engineering etc., which could make it very difficult in terms of this to service the Saldanha Bay area.

The building of oil rigs in Saldanha Bay is a possibility which should be further investigated, also due to the fact that Cape Town wants to move that industry out within the short term. This could hold huge potential for the Saldanha Bay area in the future.

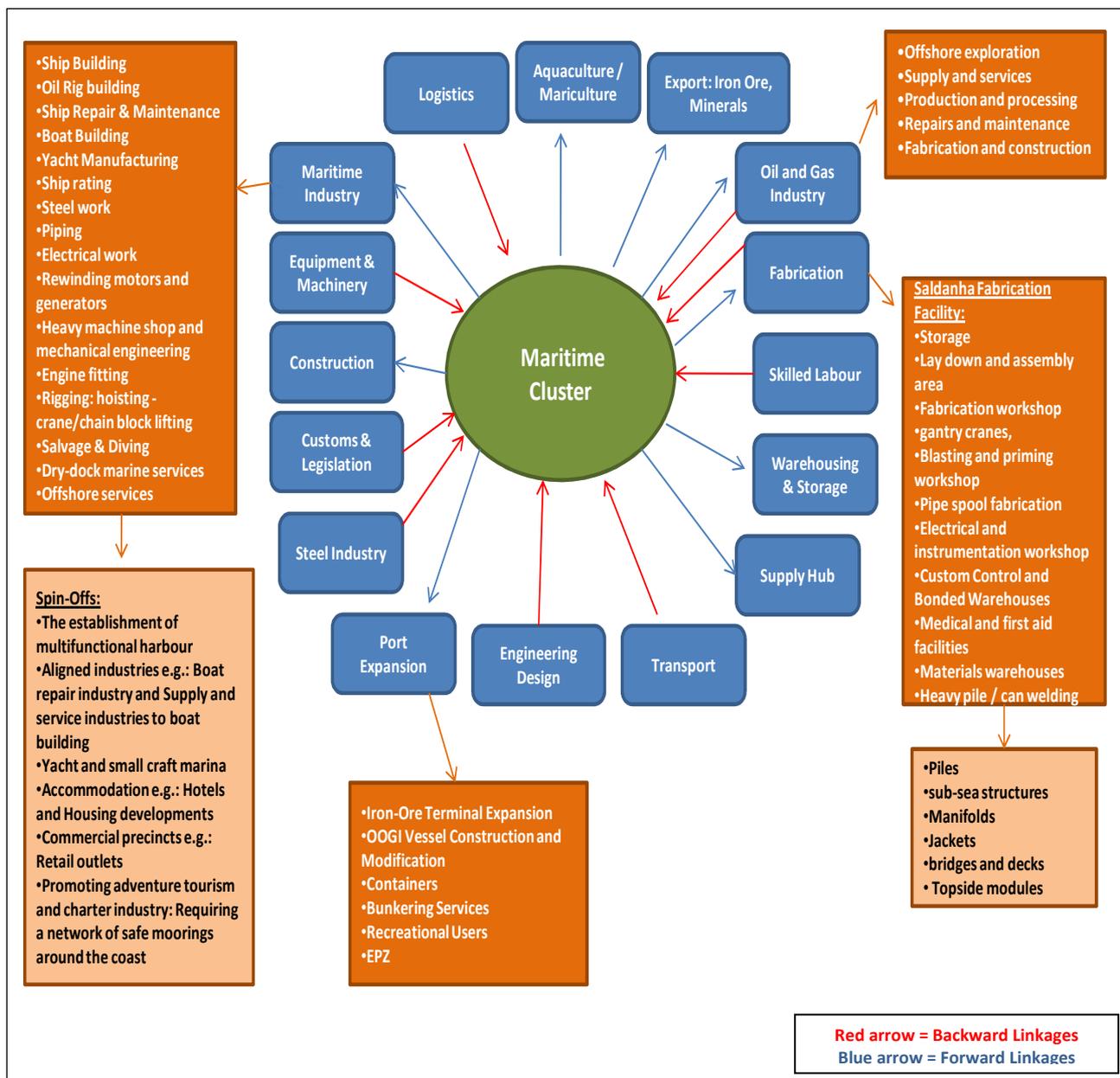
c) Identified / Targeted Clusters for the proposed Saldanha Bay Industrial Development Zone

Maritime cluster:

As mentioned above, the Port of Saldanha is a deepwater port with a 22 metre deep entrance channel. It offers an existing fabrication yard with extensive industrial zoned land available for large-scale offshore construction projects. The Port of Saldanha is ideally located to play a supporting role in the growth of various industries (such as the Maritime cluster and the Dry dock-oil and gas clusters etc.) and could lead to further growth and development within the Saldanha local economy.

Figure 5.3 illustrates the possible forward and backward linkages occurring in the proposed Maritime Cluster within the Saldanha Bay IDZ.

Figure 5.3 Maritime Cluster



Source: Demacon, 2009

5.3.4 Steel Production and Manufacturing

b) Status Quo of the Manufacturing Sector

The Manufacturing sector was previously discussed in-depth in the Saldanha Economic Profile chapter (refer to Chapter 3) and will only briefly be discussed in this section.

It has already been illustrated that the Manufacturing sector has a very important role to play in the expansion and improvement of the Saldanha Bay Municipal economy. The manufacturing sector is one of the most important sectors within the municipality in terms of GGP, trade and employment and is well integrated into the district economy.

The Manufacturing Sector is the most dominant sector within the Saldanha Bay Municipal area as it contributed 32.9% to the GGP (R751 million in 2007) and contributed almost 49% to the District economy, which illustrates its importance to the West Coast economy. The disaggregation of the Manufacturing sector shows the dominance of the metal products (54.2%) and food and beverage (31.7%) subsectors. These two sectors alone account for over 80% of Manufacturing.

With an estimated 70% of South African fishing based on the West Coast, the large contribution from the foods subsector is driven largely by fishing and related processing. Export from the steel-manufacturing plants near the port of Saldanha, shipped in from the mines in the Northern Cape, account for the high metals contribution.

The employment within the Food and beverage (46.6%) and the Metals (32.5%) sub-sectors made the highest contribution to employment within the Manufacturing Sector in 2007. The average annual growth rate of the Saldanha Bay Municipal's local economy in terms of the manufacturing sector during 1995 to 2007 amounted to 4.3%. The average annual growth rate of the district economy in terms of the manufacturing sector amounted to 3.7%.

The major import commodities identified during 2007 within the West Coast District were as follows:

- ✓ *Mineral Products (43.5%)* – which consist mostly of ores, slag and ash (66%) and mineral fuels, oils etc. (34%)
- ✓ *Machinery and Mechanical Appliances (17.2%)* – which consist mostly of nuclear reactors, boilers etc. (75.8%) and electrical equipments etc. (24.2%)
- ✓ *Base Metals and articles (12.6%)* - which consist mostly of iron and steel (81%), articles of iron and steel (11.8%), aluminium (2.5%), miscellaneous articles (2.9%) and tools (1.7%).

The major export commodities that were identified during 2007 within the West Coast District were as follows:

- ✓ *Base Metals and articles (32.5%)* – which consist mostly of iron and steel (99.9%)
- ✓ *Vegetables (20.9%)* – which consist mostly of edible fruit, nuts etc. (81.1%), oil seed, grain etc. (15.3%) and edible vegetables etc. (2.8%)
- ✓ *Mineral Products (16.7%)* - which consist of ores, slag and ash (100%)

The manufacturing sector is through its inherent nature a very important sector in a given economy. It provides a host of employment opportunities, investment opportunities, and opportunities for small entrepreneurs to start their own businesses, and it serves as a catalyst for economic growth. Industries usually attract similar industries as well as other concerns that provide inputs to, or utilise outputs from a given industry. If the market is sound, this situation usually leads to sustainable economic growth, not only in the manufacturing sector, but with a spin-off effect on the whole economy.

c) Identified Downstream Opportunities within the Manufacturing Sector:

The following downstream opportunities were identified through **previous studies and documentations** completed and are as follows:

- ✓ Food processing and packaging
- ✓ Metal processing
- ✓ Non-ferrous metal beneficiation
- ✓ Stainless steel fittings, wire and kitchen ware
- ✓ The assembly of earthmoving, mining and food processing equipment
- ✓ The manufacturing of tools, stainless steel, ceramic sanitary ware and tiles.
- ✓ The assembly of light transport equipment for entertainment and sport purposes (micro-lights, bicycles and motorcycles, jet-skis, rubber-ducks, catamarans and accessories, etc)
- ✓ Container manufacturing
- ✓ Generic electrical and non-electrical motors and generators
- ✓ Training and education projects that focuses on the provision of general skills and techniques in manufacturing etc.
- ✓ Projects focusing on the recycling of used products (development of a recycling plant that uses old equipment, materials, etc as inputs in the production of new products) – Industrial Ecology to take place within the IDZ.
- ✓ Technology and skills development, especially engineering services & training
- ✓ Metal fabrication and engineering
- ✓ Storage and warehousing facilities needed
- ✓ Containers and container manufacturing
- ✓ Increase footprint in energy sector
- ✓ Renewable energy – wind farms, manufacturing of blades, turbines, assembly plant
- ✓ Maritime Industry – ship repairs, fabrication, maintenance
- ✓ Dry dock – supply and services

Various **interviews** were held with key stakeholders within this sector such as Saldanha Steel (Arcelor Mittal) and the Saldanha Bay Municipality regarding possible downstream opportunities for this sector. The following opportunities were identified:

Saldanha Steel: As mentioned before, Arcelor Mittal acquired Trident Steel recently in order to add value to their company. In terms of this a **Pod Mill** could be a possibility for the Saldanha Bay area, but it needs to be located close to the market. A **Pipe Mill** could also be a possibility for the area, but in terms of transport it could be difficult. Saldanha Steel also mentioned (as stated above) that they produce slit coil which could be sold locally to pipe makers. They only have a few local customers which means that this could also be a possible opportunity for local companies in terms of **pipe making**.

The pellets that Saldanha Steel uses are imported from South America and are very expensive to import. A possible opportunity for the Saldanha area is thus to establish a **Pelletisation Plant**, where they could produce their own iron pellets from the ore. Saldanha Steel stated that this will benefit them hugely. They stated that in terms of a pelletisation plant no reduction will be needed and that the iron-ore only need to be manufactured and crushed in order to make a pellet. They also stated that gas will be needed in terms of this plant. In terms of producing the pellets, Saldanha Steel stated that such production only need basic technology and is not difficult to operate. Saldanha Steel also stated that they could have a supply agreement with the person / company that will build the plant in future.

Saldanha Steel also mentioned that they currently have to buy liquid petroleum gas. In terms of the possible **oil and gas development** they mentioned that it would be very beneficial to them if that development were to happen. The volume of gas that they would acquire is approximately 40 000 tons+ per month and if they, however, do acquire gas they will also increase their Midrex output. They also mentioned that if Saldanha were to establish a big plant locally, the electricity will be a major constraint. In terms of their electricity demand, they use 165MW per hour per month continuously. They also mentioned that plants will need to look at water recycling in future. Saldanha Steel tries to reuse what they can.

Saldanha Steel stated that **containers** are urgently needed within the Saldanha port area. They stated that they containerise locally, but they also send approximately 2 000 tons per month via Cape Town. They stated that they won't be able to do that for very much longer due to the port at Cape Town becoming congested. They feel that the port at Saldanha is underutilised and this should be a development possibility. They use about 80 containers alone as does Duferco (DSP). This could also attract Cape Town businesses to Saldanha Bay in terms of the containers.

They also mentioned that if someone could **supply scrap** locally, they will be very interested in buying that. Saldanha Steel needs about 5 000 – 7 000 tons per month, which they currently attain from Namakwa Sands.

Other opportunities: The primary material in **fabrication and construction** is steel. South Africa has an abundance of iron ore and produces in excess of 90% of the South African carbon steel requirements. It must be noted that steel producers aim to produce at full capacity utilisation, to reduce unit costs. Due to the insufficient demand from the Southern African market, up to 50% of locally produced carbon steel is exported as a primary product. A further 10% to 15% is exported as value added products. Locally produced steel conforms to a wide range of international specifications and quality standards.

Manufacturing related opportunities and potential projects identified by Wesgro and the Saldanha Bay Municipality over the years - that could still be feasible in future:

- ✓ Steel Pipe and tube manufacturers (casing and tubing pipe)
- ✓ A Ferro-alloy Plant
- ✓ Alpha Cement Plant: This is still being seriously proposed and considered by the Saldanha Bay Municipality
- ✓ The pelletisation plant: This could still be a very viable option for Saldanha Bay as mentioned earlier.
- ✓ Manganese Ore – There is the potential for beneficiating the Manganese ore from Sishen which is currently transported to and processed in Gauteng and then shipped to the East Coast. It could be more cost effective to transport and process the ore in Saldanha prior to export.
- ✓ Stainless steel rolling facilities
- ✓ Manufacturing of Drilling equipment, Cargo equipment for rigs. Specialist down-hole tools, processing equipment, sub-sea oilfield equipment.
- ✓ Steel service and packaging centre
- ✓ Large bore steel pipe
- ✓ Small bore steel tube

- ✓ Automotive steel pressings
- ✓ Steel doors, frames shelving and racking
- ✓ Galvanised sheet products
- ✓ Colour coated cold rolled steel
- ✓ Exhaust systems
- ✓ Automotive components ductile iron castings
- ✓ Stainless steel

Manufacturing related companies currently interested in establishing in Saldanha Bay:

RMI – Rare Metals Industries Pty LTD: The project that they want to undertake in Saldanha Bay is a speciality metals production. The cost to build this would be approximately US\$ 1,200 million and will consist of local and Russian investors. They will need approximately 150 ha for this development which will employ 2 200 persons in terms of the operational phase and 10 000 persons during the construction phase. They will need about 150 MW and they will require access via rail and road. In terms of emissions, it will be mostly recovered and all will be treated and in terms of waste, all will be recovered or neutralised and disposed of. The project turnover is estimated to be US\$ 2,000 million per annum and the foreign currency earned is estimated to be US\$ 1,800 million per annum.

The products to be produced are as follows:

- ✓ Titanium Sponge and Titanium alloys – used in aircraft and spacecraft industries
- ✓ Magnesium and magnesium alloys – used in the aircraft and spacecraft industries
- ✓ Pure Silicon and Polycrystalline Silicon – manufacture of electronic semi-conductors and Solar Panels
- ✓ Zirconium and Zirconium alloys – nuclear and chemical industries
- ✓ Vanadium alloys – very special alloys used in the aerospace industry.

Main feedstocks:

- ✓ TiO – 40 000 tpa dry bulk by rail
- ✓ MgC1 – 20 000 tpa dry bulk by rail or ship
- ✓ Zirconium Silicate – 20 000 tpa dry bulk by rail

d) Identified / Targeted Clusters for the proposed Saldanha Bay Industrial Development Zone

Steel Production and Manufacturing Cluster:

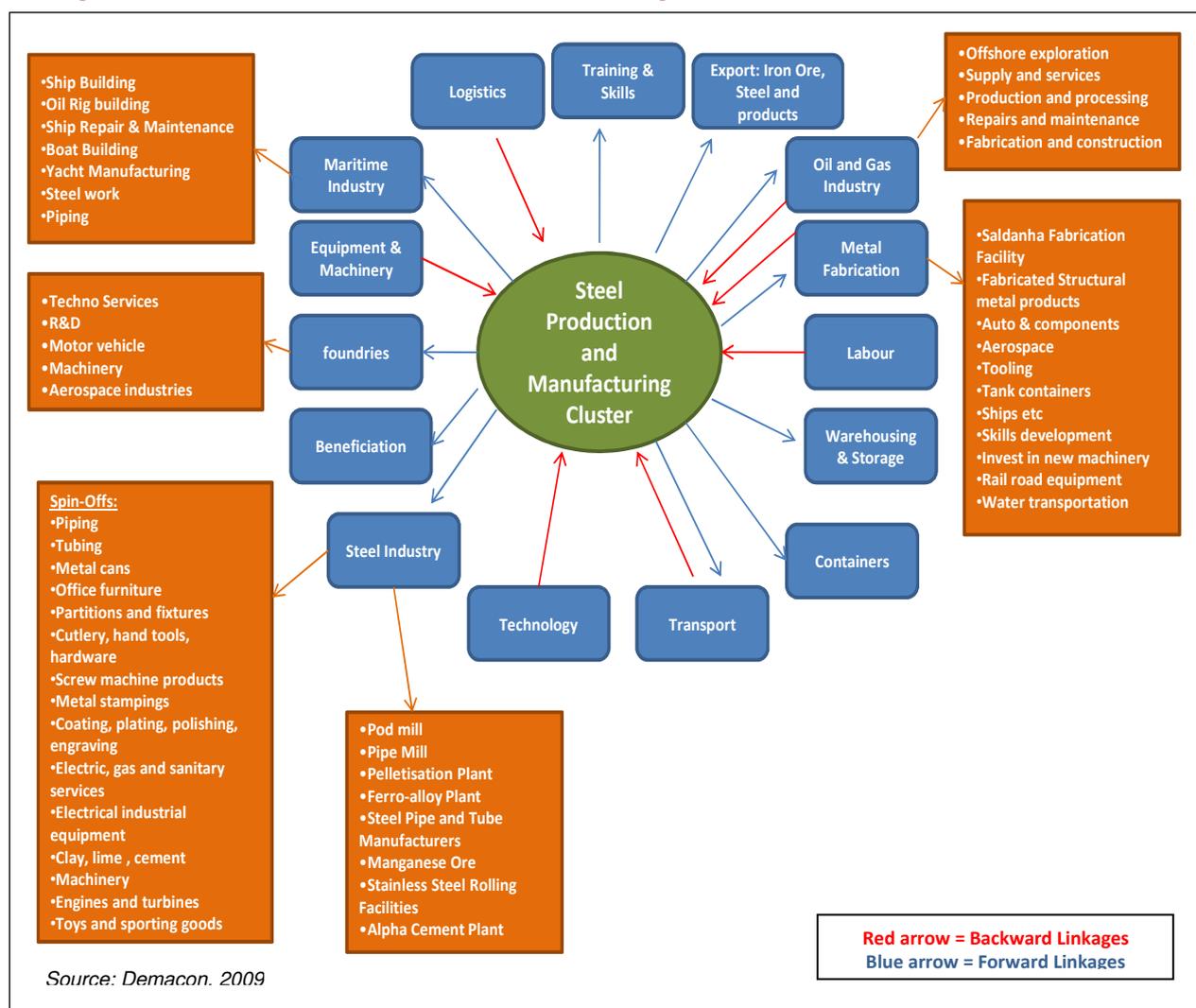
Manufacturing is defined as the physical or chemical transformation of materials or compounds into new products, whether the work is performed by power-driven machines or by hand, whether it is done in a factory or in the worker's home and whether the products are sold wholesale or retail. The assembly of products from component parts is considered to be manufacturing. This major group includes the following:

The operation of blast furnaces, steel converters, rolling and finishing mills; and the manufacture of primary iron and steel products, i.e. the production of:

- ✓ primary ferrous metal products in granular or powder form or in the form of pigs, blocks, lumps or liquids from ore or scrap;
- ✓ iron of exceptional purity by electrolysis or other chemical processes;
- ✓ pig iron, including spiegeleisen and ferro-alloys, and of sponge iron; steel by pneumatic or hearth processes;
- ✓ steel or alloy steel ingots;
- ✓ blooms, billets, slates, or other forms of semi-finished iron, steel or alloy steel;
- ✓ rolled, drawn, extruded or forged iron, steel or alloy steel products. The products may be subjected to treatment while hot or cold or may start hot and end cold. Products of the rolling, finishing and tube mills are sheets, plates, strip coils; bars and rods; hollow drill bars and rods; angles, shapes, sections and wire; tubes, pipes and hollow profiles of iron or steel, seamless, including cast, tubes, pipes and hollow profiles open seam or welded, riveted or similarly closed; railway and tramway track construction material, e.g. unassembled rails; and other finished iron or steel products.

Figure 5.4 illustrates the possible forward and backward linkages occurring in the proposed Steel Production and Manufacturing Cluster within the Saldanha Bay IDZ.

Figure 5.4 Steel Production and Manufacturing Cluster



Gap Analysis:

Opportunities existing in the industrial sector include the expansion (in terms of backward and forward linkages) of existing sectors and the incorporation of new sectors. Possible opportunities that exist in the area include: metal and food processing, engineering services, fabrication facility, aquaculture / mariculture, beneficiation of raw materials and training opportunities (especially as engineers). These opportunities pose a large number of possibilities for the Saldanha IDZ.

The Electricity/Water/Gas and Construction sector both pose comparative advantages in terms of provincial production value. Since these sectors are dependent on development in other economic sectors, it can be expected that production will increase with the establishment of new industrial and commercial activities in the area.

The importance of the education sector lies within its contribution to a higher quality of life through social support and training. This, in turn, will contribute to the attractiveness of the proposed Saldanha IDZ for industrial investors. The need was expressed that a higher level of cooperation between the different educational institutions should be achieved that would support the proposed IDZ core industries in terms of research, training and social support. This cooperation and resulting leadership development will serve as one of the main incentives for the proposed IDZ.

5.3.5 Mineral Production and Manufacturing

a) Status Quo of the Mining Sector

This sector includes the extracting and beneficiating of minerals occurring naturally, including solids, liquids, crude petroleum and gasses. It also includes underground and surface mines, quarries and the operation of oil and gas wells as well as all supplemental activities for dressing and beneficiating of ores and other crude materials. The Oil and Gas sector will, however, be discussed as a separate section.

A variety of industries within the mining and quarrying sector are active throughout the region to beyond Vredendal. Mining and quarrying themselves are not important income generators in the Saldanha Municipal area, however, the processing of the minerals play an important role in the West Coast economy. Namakwa Sands (Exxaro) and Saldanha Steel (Arcelor Mittal) plants process minerals mined outside the region, whilst some cement is produced at De Hoek and Riebeek-West. Salt is also produced from the sea water at Velddrif.

The mining sector is the smallest sector within the Saldanha Bay Municipal area and contributed only 0.3% to the regional economy in 2007. This sector only provides work to 1% of the working population in the Saldanha Bay Municipal area. It is, however, considered to be important due to the linkages that exist between this sector and the manufacturing sector.

A small number of companies currently dominate the output and employment of mining activities in the West Coast. Namakwa Sands in Saldanha Bay, for example, employs 62% of the total number of people employed in the mining sector on the West Coast Region. This

situation causes the mining sector to be vulnerable to the closure or downscaling of these concerns.

The main issues are that many of the large mining operations are owned by global or national companies and much of the profits and expenditure leaks out of the West Coast Region. This extends towards mines bringing in outside labour.

The Mining sector consists of a number of large well established companies (e.g. TransHex, Namakwa Sands etc.) and a larger number of small, often unsustainable and short-lived, prospecting companies largely involved in prospecting for diamonds. The main mining activities in the Region are as follows:

- ✓ South: Sand Mining by PPC cement and a number of quarries
- ✓ North / Matzikama: Sand Mining by Namakwa Sands
- ✓ Coastal areas: diamond mining both on- and off-shore

The nearest mine is situated at Brand-se-Baai, approximately 400km north of Cape Town on the West Coast. Non-magnetic and magnetic concentrates are used here and transported to the Mineral Separation Plant of Namakwa Sands near Lutzville. Three products, namely ilmenite, rutile and zircon are separated there and then dispatched by rail, via the Sishen-Saldanha line to the Smelter in Saldanha Bay. The ilmenite is processed into two grades of titanium slag and several grades of pig-iron. The zircon and rutile stay in the pure form and are stored, prior to shipping via the Saldanha Bay Harbour to the international markets.

Most of these products are exported in un-beneficiated form to international markets. There are substantial beneficiation opportunities to transform the raw material using local factors (labour and capital) to a more finished product that has a higher value than the sale of the raw material.

Scientific and technological skills are a crucial limiting factor to future technological growth. However, South Africa does have current technological resources on which it can draw, although these are not widespread within the industry. Another limiting factor within this sector is that all downstream opportunities in terms of this industry have very high energy requirements which will have to be addressed in future.

The mining sector in the West Coast does not currently have strong linkages with other economic sectors in the region. Due to long distances and high volume cargo, the transporting of mineral products from the West Coast is relatively expensive. The larger mining companies on the West Coast have developed contracts with Spoornet; in which special freight trains link the mines and quarries with the major towns (e.g. Namakwa Sands have a service between Klaver, Koekenaap and Bitterfontein).

The core operations in Saldanha focuses on the rail transportation of export iron ore. The Saldanha / Sishen rail link, which is between the Sishen iron ore deposit and the Saldanha harbour, are used for these purposes. Other linkages between the mining and transport sectors are found in Saldanha, where the harbour is used as a bulk freight harbour. In addition, slag and coal, processed at the material handling factory in Saldanha is transported to the PPC factories at Riebeeck-Wes and De Hoek (*West Coast Development Strategy, 2000*).

The Mining sector can be a powerful force in economic development within the Saldanha Bay Municipal area. Beneficiation of minerals should take place rather than exporting raw materials. This can create jobs directly and indirectly as well as opportunities for growth for lateral or downstream opportunities / businesses.

c) Identified Downstream Opportunities within the Mining Sector

The following downstream opportunities were identified through **previous studies and documentations** completed and are as follows:

- ✓ The beneficiation and processing of minerals (zircon, limestone, rutile, titanium, pig iron, phosphate, glass sand and kaolin) – various downstream opportunities.
- ✓ Titanium smelters – investors already interested in the Saldanha Bay area.
- ✓ The beneficiation of raw materials, turn into finished product which could be exported or sold locally (minerals, tiles, iron-ore) – could also lead to SMME development.
- ✓ Oil and Gas opportunities / refinery / Gas fired power station (availability of oil storage facility at Saldanha Bay)

Various **interviews** were held with key stakeholders within this sector such as Namakwa Sands (Exxaro) and the Saldanha Bay Municipality regarding possible downstream opportunities for this sector. The following opportunities were identified:

- ✓ **Pig iron Foundry** – There is a large foundry industry within South Africa with significant potential which could be further investigated. Namakwa Sands does supply locally (also to Atlantis), but the quality of their product is very high. The quality that is required in South Africa is much lower than what Namakwa Sands produce. Currently only Namakwa Sands, Exxaro and Richards Bay supply to the local South African market.
- ✓ **Titanium Pigment** – Titanium pigment is produced in markets where there is a significant demand for the product. Currently the South African market is too small. This product need to form part of an industrial complex and must be closely linked to other products such as chlorine, petroleum etc. to make it viable. Titanium pigment is normally found where there is a supply of chlorine. A **Pigment Plant** (which Namakwa Sands wanted to establish) could be established in Saldanha Bay, but Saldanha Bay is not economically the ideal location and the local market is very small. It could, however, be viable if the product is exported and should thus be further investigated.
- ✓ **Titanium Metal Production** – The Titanium metal production must also be closely linked to chlorine, high investment and high technology in order to make it viable. Such a production will need billions of dollars to make is sustainable, but could be a possibility for Saldanha Bay and should be further investigated.
- ✓ **Welding Electro Plants** – Namakwa Sands wanted to invest in this, but nothing came of it. Welding Electro Plants are much smaller plants, low technology is needed and no other inputs (such as chlorine) are needed regarding this. This could be a very viable option for the Saldanha Bay area and should be further investigated.
- ✓ **Iron Foundry** – Namakwa Sands wanted to establish an Iron Foundry – a **Cast Iron Pipe Plant** within Saldanha. The advantage of this plant within Saldanha would be that iron is already produced in Saldanha which could then supply the iron directly

into the foundry in Milton form, so it does not have to be processed again. This will have cost and time savings and will also be a low-tech operation. This could also lead to further potential downstream activities, which could be of high importance to the Saldanha Bay Municipal area.

- ✓ **Zircon Grinding Facilities** – There are currently only two grinding facilities in South Africa which are situated in Richards Bay. The zircon needs to be grinded into a much finer size (micron size) in order to be used in the ceramic industry (ceramic glaze and sanitary ware). A **Zircon Milling Plant** could be very viable within the Saldanha Bay area. This plant will be a low-tech, low investment project and should definitely be further investigated.
- ✓ **Zirconium Metal** – Zirconium Metal is a high value final product and there are currently only one or two producers in the world. This industry does, however, need a technology partner and final end-use applications. This could be further investigated for the Saldanha Bay area, but is only recommended in the long-term.
- ✓ **Gas into Electricity** – Namakwa Sands are currently producers of gas and would be very interested to turn gas into electricity. This could also be further investigated and negotiations could take place with Namakwa Sands regarding this.

Common Factor for downstream opportunities in this sector:

- ✓ All downstream opportunities have very high energy requirements which will have to be addressed in future
- ✓ Scientific and technological skills are crucial in some of the opportunities that were identified.

Mining related opportunities and potential projects identified by Wesgro and the Saldanha Bay Municipality a few years ago - that could still be feasible in future:

- ✓ **High grade phosphate** – the potential product will be phosphate rock and the potential market will be the fertiliser industry.
- ✓ **Limestone** – the potential product will be cement feedstock, clinker, filler and agricultural lime.
- ✓ **Titanium metal** – (as also explained above)
- ✓ **Titanium dioxide pigment** – (as also explained above)
- ✓ **Hot briquetted iron (HBI)**
- ✓ **Zircon based refractories** – refractory plant

Mining related companies currently interested in establishing in Saldanha Bay:

Coega Chemicals Pty LTD: The project that they want to undertake in Saldanha Bay is a Chemical Production Factory. The cost to build this would be approximately US\$ 80 million and will consist of local and Malaysian investors. They will need approximately 30 ha for this development which will employ 300 persons in terms of the operational phase and 1 500 persons during the construction phase. They will need about 18 MW and they will require access via rail and road. In terms of emissions, it will be minimal and in terms of waste, all will be recovered or neutralised and disposed of. The project turnover is estimated to be US\$ 120 million per annum and the foreign currency earned is estimated to be US\$ 90 million per annum.

The products to be produced are as follows:

- ✓ Chlorinated Paraffin – used as plasticiser in the PVC and rubber industry
- ✓ Calcium Hypochlorite – used for water treatment for human consumption
- ✓ Sodium Hypochlorite – bleaching agent
- ✓ Monochloroacetic Acid – chemical intermediate and used in Pharmaceutical industry
- ✓ Carboxymethyl Cellulose – used in chemical, pharmaceutical and food industries
- ✓ Thioglycolic Acid – used in chemical and PVC industries

Main feedstocks:

- ✓ Salt (NaCl) – 100 000 tpa – dry bulk by ship
- ✓ Paraffin – 8 500 tpa – liquid road / rail tanker

According to the Saldanha Bay Municipality, certain industries might possibly not be permitted in future due to the balance between nature and industry (pollution). All future plans and possible proposed projects will depend on the findings of the EMF and will have to be aligned accordingly.

c) Identified / Targeted Clusters for the proposed Saldanha Bay Industrial Development Zone

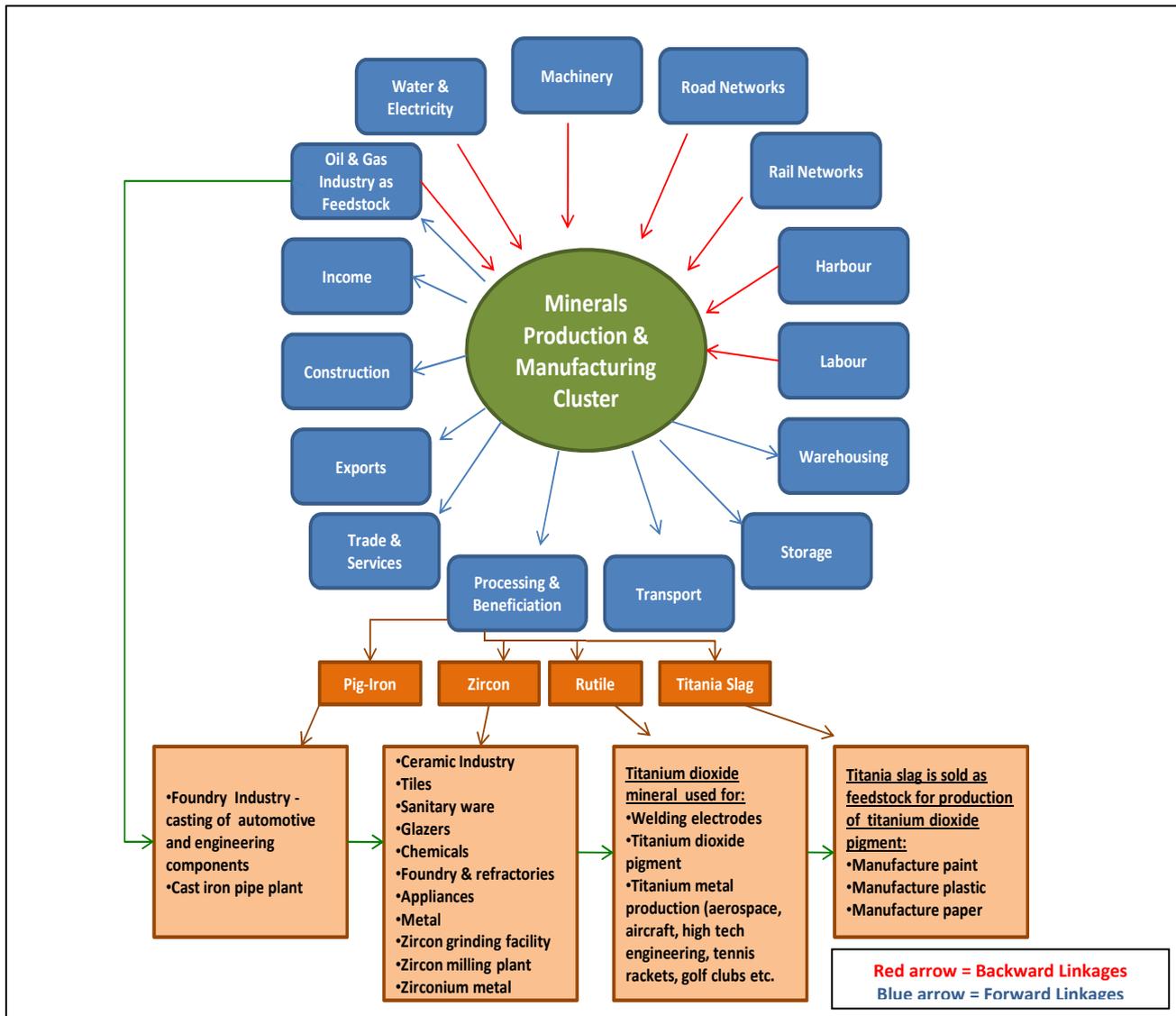
Minerals Production and Manufacturing Cluster:

Mining and quarrying is used here in a broad sense to include the extracting, dressing and beneficiating of minerals occurring naturally, for example solids such as coal and ores; liquids such as crude petroleum and gases such as natural gas. Mining includes underground and surface mines, quarries and the operation of oil and gas wells and all supplemental activities for dressing and beneficiating ores and other crude materials such as crushing, screening, washing, cleaning, grading, milling, flotation, melting, pelleting, topping and other preparation needed to render the material marketable.

As mentioned before, the three heavy mineral products that are mined and beneficiated by Namakwa Sands are zircon, rutile and ilmenite. Titania slag and pig iron are further produced from the ilmenite. While the high quality rutile and zircon products are railed to storage facilities near the harbour before being exported. Pig iron and Titania slag are tapped from the furnaces and further treated to produce various grades of pig iron, chloride-grade slag and sulphate-grade slag. There are thus various forward and backward linkages occurring within the proposed mineral cluster.

Figure 5.5 illustrates the possible forward and backward linkages occurring in the proposed Minerals Production and Manufacturing Cluster within the Saldanha Bay IDZ.

Figure 5.5 Minerals Production and Manufacturing Cluster



Source: Demacon, 2009

Gap Analysis: The mining sector offers various opportunities for the Saldanha Bay IDZ. However, the availability of various minerals in the area might be exploited and processed in the IDZ. Titanium smelters were identified as a possible development opportunity.

5.4 IMPORTANCE OF INDUSTRIAL CLUSTERS

Importance of industrial clusters and opportunities - and the strength of the linkages between them:

- o **Creating Linkages:** Local manufacturing and light industrial service industries should be linked with other activities that will be developed within the proposed Saldanha IDZ. This will ensure that a local market is developed for products manufactured on the site. Adequate provision in the planning of these facilities therefore needs to be made.

- **Attracting the correct industries to the cluster** needs to occur in order to ensure that the benefits of agglomeration within the proposed sectors / clusters can be developed and to allow strong backward and forward linkages within the industry to be maximized.
- **Establishing a critical mass:** An industry can only be feasible if it achieves a certain economy of scale, i.e. it has to produce a certain amount to make a success or in other words a minimum turnover is required to render a business feasible. In a cluster, critical mass also needs to be achieved. For instance a cluster will not be successful if there is only one concern located within it and it needs a minimum occupancy rate of 60% in order for it to prosper.
- **Safety and security:** There is a perceived lack of safety and security in the area and focused attention should therefore be taken in the early stages of development to create an environment where people feel safe and where investments in buildings and infrastructure will be secure.
- **Training and support services:** The development of training and support services should be developed in conjunction with any development (e.g. manufacturing development). Training programmes should be focused on specific operational skills, as well as business, finance and marketing skills which directly relate to the manufacturing activities proposed to be developed. Support systems should assist entrepreneurs to engage with other larger organisations, provide advice with respect to financing and marketing.
- **Appropriate scale and rent structure:** Any manufacturing concern should be of a relatively small scale to allow for smaller concerns to obtain premises. In addition, rentals must be of such a magnitude that smaller concerns will be able to afford it.

5.5 INDUSTRIAL DEVELOPMENT IMPACT ON TOURISM

Tourism is not an economic sector on its own, but forms part of other sectors especially the Trade (Catering, Accommodation etc.), Transport and Finance sectors. However, due to its increasing importance as an income and employment generator in South Africa, it is believed that this sector should be included as a sector.

Tourism in the West Coast benefits from its proximity to Cape Town. However, some estimates show that only around 2% of tourists to Cape Town visit the West Coast area. Increasing this proportion in order to increase tourism numbers and trip length in the West Coast represents one of the critical opportunities and challenges facing the District.

However, tourism is seen as one of the sectors with the most significant growth potential. The region is well known for its fynbos and flowers, which attract many visitors to the region each spring. The region is also at the centre of South Africa's fishing industry, with rich fishing grounds supporting capital-intensive industries. Economic development has, however, brought environmental challenges, including air and water pollution, salinisation of the coastal aquifer, ribbon development and inappropriate land use.

Tourism numbers in the Saldanha Bay municipal area have increased over the last couple of years. As a result the Saldanha municipal area has an established tourism market, which includes the following activities:

- ✓ Water sports, including yacht races and regattas, which are held in the bay

- ✓ Golf course
- ✓ Unique flora and fauna, including wild flowers in Spring
- ✓ Sporting facilities, including swimming beaches, boating, fishing, hiking etc.
- ✓ Breathtaking views and natural attractions, including the hillside rocks known as Adam and Eve, the bay and the harbour views.
- ✓ Casino
- ✓ Unique West Coast Architecture
- ✓ Restaurants specializing in a range of food types including seafood, which is caught locally.
- ✓ Cultural and Historical attractions such as the Fossil Park, the West Coast National Park and the Lighthouse (*Saldanha Bay Municipality LED Strategy, 2005*).

The Trade sector (of which tourism forms part of), contributed approximately 15.1% to the GDP of the Saldanha Bay Municipality. However, bear in mind that the Trade sector consists of wholesale and retail trade, catering and accommodation, of which tourism only forms a small part off. Tourism only contributes partly to this sector which was estimated to be approximately 6%. The manufacturing sector contributed more than 30% to the GDP of the Saldanha Bay Municipality, which shows that this sector has significant potential especially in terms of downstream opportunities (as was discussed previously).

In terms of Industrial development within the area, this will have a significant impact on tourism, especially once infrastructure (roads, electricity lines etc.) are in place. The impact of the industrial development on tourism will be regarded in terms of the impacts on the visual and physical appearance of the area. The industrial development will take the environmental issues such as green areas, air pollution, water etc. into account when proposing to establish the industrial development and a full Environmental Impact Assessment will first have to be completed before any development can take place. The proposed industrial development would rather have an impact on the visual area, than on the actual attraction of visitors to the area. Tourists will still come to areas such as Langebaan, Paternoster, and St Helena Bay in order to visit the area. Saldanha Bay should also tap into the Cape Town tourist market.

Concern has been raised in earlier years regarding the harmful impact of the steel mill on the tourist industry, although for operators within the region there was no doubt as to the benefits of the increased economic activity on tourism. After the steel mill was build, major resorts experienced rapid growth in occupational rates and several new resorts were also planned.

The concept of establishing an IDZ in Saldanha is not a new concept in the market and has been proposed for more than ten years as part of the plans of Government. The establishment of Saldanha Steel and other industries within that specified area compromised the area a long time ago. The impact of the proposed industrial area / possible IDZ has by and large already discounted (been negotiated for) in the market in terms of the property values over the years and is taken into consideration by various land owners and speculative buyers when trying to sell their land.

The Saldanha Bay Municipality rather wants to focus on keeping the area clean (especially from the red dust) and attract green industries to the area. A possible suggestion could then be to situate the cleaner (lighter) industries closer to the Saldanha Bay and Vredenburg

areas in future and situate the heavier industries away from the towns, closer to where Saldanha Steel is currently situated.

In terms of establishing an IDZ, the area will be fenced off which will make it more aesthetically appropriate and visually more attractive for the residents of Saldanha as well as for the tourists. Further opportunities such as industrial tourism could also be beneficial to Saldanha and attract further tourists (educational tours) to the area. The industrial development will lead to the creation of employment within the area, capital being invested in the area, upgrading of the area, increased tax base, inflow of wealth / foreign capital into the area and more investment.

5.6 INDUSTRIAL BUILDING PLANS PASSED AND BUILDINGS COMPLETED

Table 5.1 indicates the industrial building plans passed and buildings completed for the Saldanha Bay Municipal Area for 2004 to 2007.

Table 5.1: Saldanha Bay LM Industrial Building Plans passed and Buildings completed, 2004-2007

INDUSTRIAL & WAREHOUSE SPACE			
Building Plans Passed			
Year	No of Buildings	Total Square Meters	Value (R'000)
2007	17	7 229	14 599
2006	7	3 404	5 572
2005	15	17 186	16 025
2004	3	2 047	1 595
Total	42	29 866	37 791
Buildings Completed			
Year	No of Buildings	Total Square Meters	Value (R'000)
2007	0	0	0
2006	2	1 948	2 410
2005	0	0	0
2004	9	26 186	17 291
Total	11	28 134	19 701

Source: StatsSA, 2009

Findings: (Table 5.1)

Building plans passed:

- It is interesting to note that the number of industrial building plans passed within the local municipal area increased from **3 to 17 between 2004 and 2007**.
- These building plans are distributed between two categories including industrial and warehouse space.

Buildings completed:

- In terms of industrial buildings completed, a different trend evolved with **9 completed in 2004 decreasing to 0 in 2007**. This indicates a decrease in industrial developments in the area over the past few years.

5.7 INDUSTRIAL LOCATIONAL FACTOR ANALYSIS

Due to the idiosyncratic demands that exist with regards to generic opportunities, the choice regarding the most suitable location for a specific type of economic activity does not take place at random. It involves the application of decision criteria that combines the knowledge of economic resources and markets with the financial principles of cost-benefit analysis. The unique characteristics of the Saldanha Bay municipal area combined with the size and location of product markets suggest that the municipal area is suitable for very specific types of economic activities. Furthermore, the alignment of policies to national policies and initiatives also has an effect on the location of economic activities and provides for a need for intervention. A strategic framework analysis is then conducted to highlight key areas for intervention and the alignment of policies to national and provincial policies.

The purpose of this section is to identify the major factors that influence the location of economic activities and to interpret the findings into specific implications for the location of economic activity in the proposed Industrial Development Zone (IDZ) within the municipal area.

✓ **Industrial Locational Factors**

The theory of industrial location identifies five major factors that influence the choice of the location of individual economic activity, namely:

1. Labour Orientation
2. Market Orientation
3. Resource Orientation
4. Agglomerative Economy Orientation
5. Logistics Orientation

Subsequent sections of this section discuss each of these factors with cross-referencing being made to the proposed Industrial Development Zone.

1. **Labour Orientation**

A firm is said to be labour-oriented if it chooses its location in such a way as to take advantage of favourable labour conditions in that location. Labour-orientation can be taken in two ways, that is, either the cost of labour in the area is lower or they have no effect at all. Labour-orientation is influenced by a number of interrelated factors such as:

- ✓ Wage levels
- ✓ Productivity
- ✓ Turnover and work stoppage rates
- ✓ Supply of adequately skilled labour
- ✓ Labour laws

Characteristics of the Saldanha Bay Municipal labour force where discussed in Chapter 4 of this study with emphasis having been placed on the level of education, occupation, wage levels among other factors related to labour.

Implications for the proposed Industrial Development Zone

Chapter 4 presented the labour market profile of the Saldanha Bay Municipal area and the type of occupation indicates relatively low skills levels in the area. This suggests that attempts to attract industrial development to the area have to be accompanied by an extensive and focused skills development program. However, other orientations described below could make use of the available labour and start successful ventures.

2. Market Orientation

Market orientation is the traditional explanation for industrial location with a firm being market oriented if it attempts to reduce the cost of transporting output, be it final or intermediate, by locating in proximity to the market where these goods are sold.

Market size is predominantly driven, directly or indirectly, by population size, hence the concentration of approximately 48.8% of West Coast's manufacturing concerns is situated within the Saldanha Bay Municipal area. The Growth Potential of Towns in the Western Cape (2004) identified Saldanha and Vredenburg as one of the potentially "high" to "very high" growth points in the province. The criteria normally utilised to determine these growth points are:

- ✓ Population concentrations
- ✓ Level of economic activity
- ✓ Availability of infrastructure
- ✓ Strategic location of developmental corridors
- ✓ Economic development potential

According to the criteria set out above, it can be seen why the Saldanha Bay Municipal area would be identified as a potential growth point. The Saldanha Bay Municipal area has all the attributes described above and the locally economy is made up of ten economic sectors that make up the national economy.

Implications for the proposed Industrial Development Zone

From a market orientation perspective, industrial development opportunities exist relating to the beneficiation of primary products, either at the source or in the municipal area. Small scale manufacturing opportunities also exist with linkages to tourism.

3. Resource Orientation

Resource orientation refers to a situation when firms locate near firms in the primary resource extracting sector mainly mining. The objective being to reduce the transportation costs of primary inputs as they are extraordinary bulk loads which are costly. Typical examples in this category include food processing, lumber processing, and primary metal industries. The use of primary resources often results in a net weight loss in the manufacturing process from primary inputs to final product. Hence cost savings incurred on the processed product provide motivation for a firm to locate in the proximity of its source of primary resources. Industrial activities that benefit from primary resource extractors are

called first stage resource users. Firms with a resource orientation also include producers that utilise products of first stage resource users.

Implications for the proposed Industrial Development Zone

The local economy is essentially primary resource based and thus provides opportunities for resource oriented firms. Specific opportunities exist in the processing and beneficiation of mining and manufacturing products as well as agro-processing.

4. Agglomerative Economy Orientation

Agglomeration refers to the spatial concentration of related and inter-dependent economic activities. Due to the relationship between these firms and the spatial proximity to one another, strong inter-industrial linkages develop which enables the respective firms to maximise profits and become more effective. There are two prominent and distinct types of agglomeration and these are:

- ✓ **Localisation economies:** Applies to all firms in a particular industry that tend to locate together. This is motivated by factors such as factor input/output materials source and forward and backward linkages with auxiliary industries in the same locality.
- ✓ **Urban concentration economies:** These benefit all firms in all industries as a result of the following:
 - Large market
 - Large pool of skilled labour
 - Commercial and financial services and other support services.

Implications for the proposed Industrial Development Zone

Agglomeration economies in the Saldanha Bay Municipal area can be identified in the localisation economies with potential opportunities for forward and backward linkages.

5. Logistics Orientation

Logistics can be defined as an organisation of movement and relates to an integrated network of transportation, communications, distribution and auxiliary facilities and institutional arrangements that facilitate investment and the movement of goods and services. The networks include roads, bridges, railways, and air links.

In terms of the Saldanha Bay Municipal area an extensive transport network is in place, including roads, railways, air links and the port. Saldanha Bay Municipal area is mainly supported by its strong Transportation/Communication role as an important harbour and railway node. The Port of Saldanha is the only iron-ore handling port in South Africa and is managed by Transnet National Ports Authority.

Various roads lead to the Saldanha Bay Municipal area, such as the R45 (between Malmesbury and Saldanha), the R27 (coastal route between Cape Town and Saldanha) and there are a number of railway lines connections (all freight). These roads also contribute to the area's nodal communication function, also taking into account its central location with respect to the service area for the surrounding towns within the municipality. The airport is not currently being used to its full potential and could be further developed into a cargo / passenger airport. The Saldanha area is regarded as the gateway to the West of Africa

because of its strategic location. The port at Saldanha has the potential to act as the major oil industry servicing site for the entire Western African Coast.

Implications for the proposed Industrial Development Zone

The existence of the industrial development zone and related infrastructure presents opportunities (forward and backward linkages) for investment projects in the Saldanha Bay Municipal area. Specifically projects that present further export opportunities could be explored. Further opportunities in terms of ship repair, storage facilities and containers were all identified during this study as very important.

✓ Proposed Industrial Development Zone Site Assessment:

Market potential is influenced not only by consumer income and expenditure, but in particular also by the characteristics of the area under consideration. Demand for residential and commercial uses are influenced by specific location requirements and for this reason an assessment of selected location criteria is needed. To this effect, the *Demacon Site Evaluation Models* © are utilised.

The Demacon model is pragmatic and is based on the assignment of values to various location factors. Firstly, the site is evaluated on a ten-point scale, with ten being the highest. Secondly, weights are attached to these factors, in order of importance (1 to 5, with 5 being the most important).

Table 5.2 indicates the industrial / warehousing location assessment of the proposed Industrial Development Zone within the Saldanha Bay Municipal area as identified in the Spatial Development Framework (2008).

Table 5.2: Industrial / Warehousing Location Assessment

Location Factors	Grade 1-10	Weight 1-5	Points
Micro location	8	5	40
Accessibility	8	4	32
Exposure & sight value	8	5	40
Suitably differentiated residential markets	7	4	28
Image as successful industrial precinct	6	4	24
Boss theory	6	5	30
Linkages / agglomeration	8	5	40
Workforce	8	4	32
Infrastructure	7	4	28
Future Development Trends	7	5	35
Proximity to retail & services	7	5	35
Sufficient parking & access for heavy vehicles	7	4	28
Good security	6	4	24
Performance of existing node	7	4	28
		Total points	444
		Score	71.6%

Source: Demacon, 2009

* **Note:** 80%+ indicates an exceptional site rating; a site rating of 70 – 80% is high and indicates that most important fundamentals for successful industrial development are in place; a rating of 60 – 70% indicates some critical factors may be lacking but could possibly be addressed; projects with a sub 60% rating are not recommended for consideration.

The proposed Saldanha Industrial Development Zone rated high (**71.6%**) as a potential industrial locality / possible IDZ.

The most important needs for an Industrial Development Zone especially when considering locational factors, as mentioned in Chapter 2, are the following:

- ✓ Stable labour relations
- ✓ Predictable environmental regulations
- ✓ Common services
- ✓ Infrastructure
- ✓ Property management

5.8 INDUSTRIAL NET SPACE DEMAND MODELLING

The following paragraphs provide definitions of respectively demand and supply for the industrial and commercial market for the Saldanha Bay Municipal area and for the Saldanha Bay Municipal area with an IDZ Catalytical Effect.

✓ Defining Demand

The demand in the industrial and commercial market is dependent on the following aspects:

$$D_{\text{whol}} = f \{P_o, P_{\%}, Q_w, R, T_x, Y; R_s; R_{s\%}\}$$

Where:

P_o	=	Population size
$P_{\%}$	=	Population growth
Q_w	=	Quality of existing facilities
R	=	Rental levels
T_x	=	Property rates and taxes
Y	=	Household income
R_s	=	Retail sales
$R_{s\%}$	=	Retail sales growth

✓ Defining Supply

The supply of industrial and commercial land users can be described as being the following:

$$S_{\text{whol}} = f \{D_{\text{whole}}, C_w, V_w, L_u, I_a, GLA_w, C_c\}$$

Where:

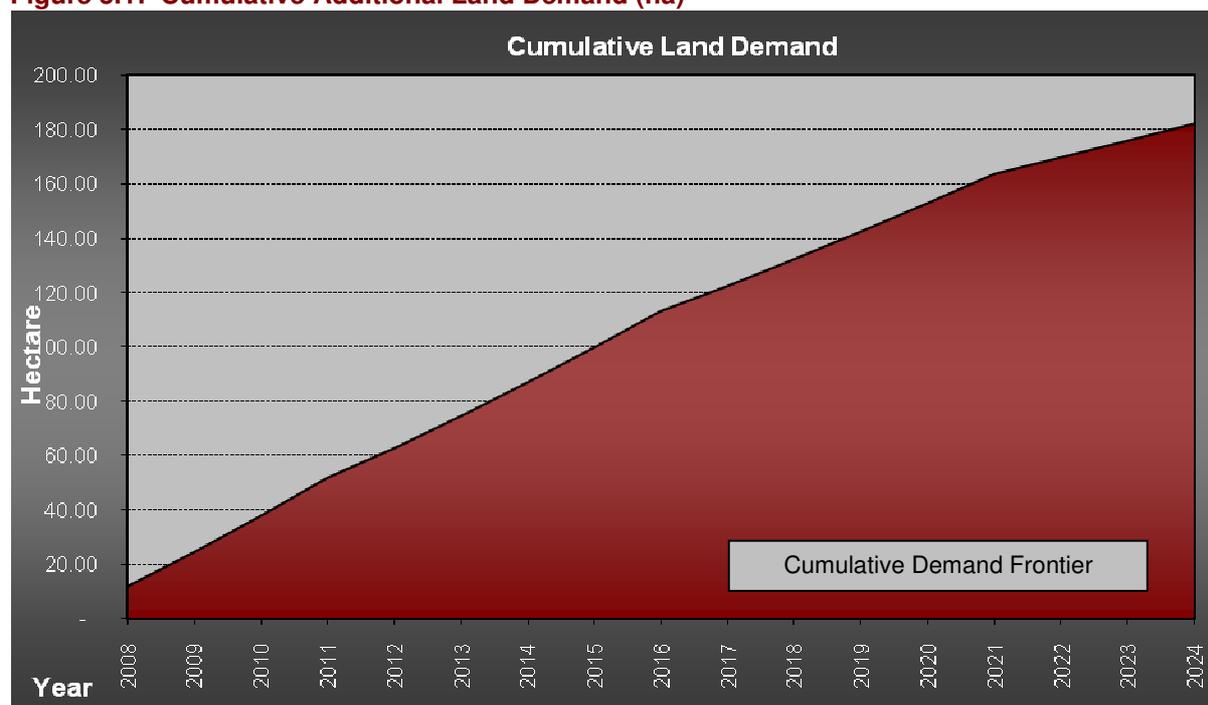
D_{whole}	=	Demand
C_w	=	Competition
V_w	=	Vacancies
L_u	=	Surrounding land uses
I_a	=	Infrastructure availability
GLA_w	=	Current usable / rentable area
C_c	=	Construction cost

✓ **SPACE DEMAND MODELLING - SALDANHA BAY MUNICIPAL AREA**

It is known that the demand for industrial / commercial space depends on the production of goods within a specified area. The following figures illustrate cumulative additional land demand for the specified area – Saldanha Bay Municipal area.

Subsequent demand modelling indicators provide insight to the performance of current and future demand of the industrial market of the Saldanha Bay Municipal area.

Figure 5.1: Cumulative Additional Land Demand (ha)



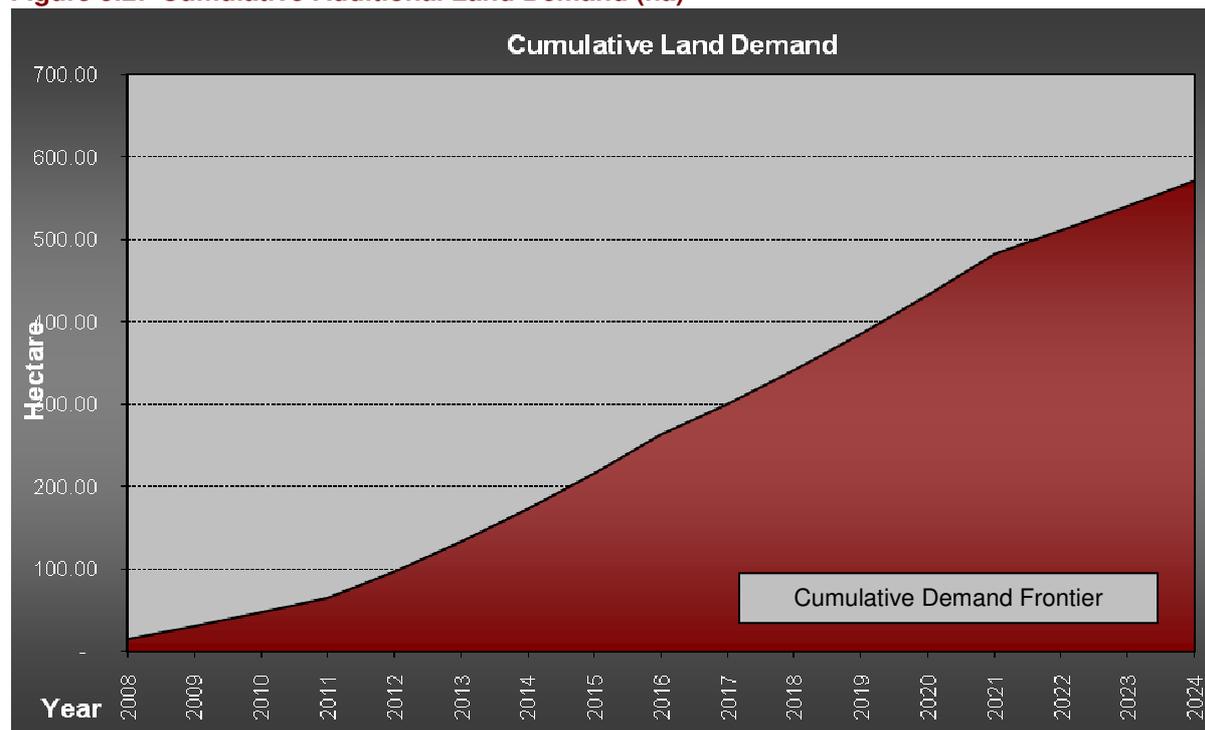
Source: Demacon Space Demand Model, 2009

Findings: (Figures 5.1)

Cumulative additional industrial land demand in the Saldanha Bay Municipal area will be approximately 182.56 hectares by 2024. The proportional land take-up reflects that the largest take-up will be between 2019 and 2024.

✓ **SPACE DEMAND MODELLING – SALDANHA BAY AREA WITH AN IDZ CATALYTICAL EFFECT**

The following figures illustrate cumulative additional land demand for the Saldanha Bay area with IDZ Catalytical effect. Subsequent demand modelling indicators provide insight to the performance of current and future demand of the industrial market within the Saldanha Bay area with an IDZ area.

Figure 5.2: Cumulative Additional Land Demand (ha)

Source: Demacon Space Demand Model, 2009

Findings: (Figures 5.2)

Cumulative additional industrial land demand in the Saldanha area with an IDZ Catalytical effect will be approximately 572.10 hectares by 2024. The proportional land take-up reflects that the largest take-up will be between 2019 and 2024.

The following tables provide a synthesis of industrial space demand modelling results presented in this chapter.

✓ Synthesis of industrial space demand modelling – Saldanha Bay Municipal Area

Table 5.3: Synthesis of Space Demand Modelling Results (ha)

Cumulative Additional Land Demand	Up to 2014	2014-2019	2019-2024
Manufacturing	34.86	55.93	70.51
Warehousing	52.29	86.88	112.05
Total - Saldanha Bay Municipal Area	87.15	142.81	182.56
Minimum Share (50%)	21.79	35.70	45.64
Maximum Share (60%)	30.50	49.98	63.90
Total hectares	26.15	42.84	54.77

Source: Demacon, 2009

Table 5.4: Recommended Sizes

Recommended Sizes	Rand per annum / m ²
Size of development (sqm) (up to 2024)	214 209.4m ² (214ha)
Capital investment (2009 constant values)	R964 million
Employment opportunities	3 895
Parking	4 284
Parking infrastructure & landscaping cost (2009 constant values)	R396 million
OPME	2010 / 2011

Source: Demacon, 2009

✓ **Synthesis of industrial space demand modelling – Saldanha Bay Municipal Area with an IDZ Catalytical Effect**

Table 5.5: Synthesis of Space Demand Modelling Results (ha)

Cumulative Additional Land Demand	Up to 2014	2014-2019	2019-2024
Manufacturing	68.68	149.15	217.34
Warehousing	104.46	236.99	354.75
Total - Saldanha Bay Municipal Area*	173.14	386.14	572.10
Minimum Share (50%)	43.29	96.53	143.02
Maximum Share (60%)	60.60	135.15	200.23
Total hectares	51.94	115.84	171.63

Source: Demacon, 2009

* **Note:** The model forecasts space demand and assumes, for technical purposes, a 100% occupancy rate. Private sector ventures typically include an additional 20 - 30% buffer value, which affords flexibility to absorb future growth. Public sector ventures are informed and guided by slightly different rules / dynamics and, given the extent of the capital outlay, consciously choose to exceed the buffer value by 100- 300%, i.e. service 100 - 300% more land than what would actually be taken up by the market over the short to medium term (i.e. the first 3 - 5 years). The scale economies afforded to a large public sector turn-key investment are very different from a pure profit-driven private sector development. Hence, public sector finance models are arguably less sensitive to huge capital outlays to finance bulk infrastructure and related services.

Table 5.6: Recommended Sizes

Recommended Sizes	Rand per annum / m ²
Size of industrial (sq m) (up to 2024)	579 205.7m ² (579ha)
Capital investment (2009 constant values)	R2.6 billion*
Employment opportunities	7 723*
Parking	11 584
Parking infrastructure & landscaping cost (2009 constant values)	R1 billion
OPME	2010 / 2011

Source: Demacon, 2009

* **Note:** This reflects investment in bricks and mortar (once again at 100% occupancy / maturity). Employment is also reflected as a figure for the project at maturity, on-site - for the operational phase.

Space demand calculations reflect positive growth within the **industrial sector**. The above figures reflect aggregate market growth capacity within the market area and it is evident that the current situation reflects a favourable outlook for **industrial developments** over the medium to long term.

Given the rate of market growth, in terms of the Saldanha area with an IDZ Catalytical effect, it is anticipated that an industrial component of approximately **572 ha** could be supported within the proposed node between 2014 and 2024. It will require a capital investment of approximately **R2.6 billion** and will create approximately **7 723 employment opportunities**.

5.9 CONCLUDING REMARKS & RECOMMENDATIONS REGARDING THE IDENTIFIED CLUSTERS

In order to unlock the economic development potential of the main towns of the Saldanha Bay Municipality (Vredenburg and Saldanha), the towns must become integrated and the link between Saldanha and Vredenburg must be continuous. This vision can be realised through the promotion, encouragement and development of an industrial development zone between Vredenburg and Saldanha. This IDZ development would not only create opportunities for employment, but also create the preconditions for the optimal performance of these urban areas. For example – distances would be shortened, resulting in the optimal utilisation of the services and transportation infrastructure between the towns.

The largely vacant and underutilised land between Saldanha and Vredenburg has well-developed road and rail infrastructure (pre-requisites for industrial development). Moreover, the land is well-located relative to the sea and holds the potential for rail transportation of goods. Due to a number of factors the Back of Port area has the potential to attract existing firms who would want to relocate to well-located and accessible locations. The Back of Port area therefore has the potential to attract new and existing firms as the opportunity exists to optimise the location of the area relative to the sea and rail transport opportunities. It is therefore logical that industrial development be encouraged in this area.

While the location of specific industries will be determined by market forces, it is important that higher impact industrial activities be located further away from residential areas. Harbour-related industrial activity should also be encouraged within the industrial development zone. The upgrading of roads is necessary to ensure that they have sufficient capacity to accommodate additional traffic. Roads will have to be planned and constructed within the area to cater for future growth (*Urban Dynamics, 2008*).

Concluding Remarks regarding the Identified Clusters:

In terms of the five identified clusters mentioned throughout this section, a short summary of what is already in place in terms of the cluster and the timeframe for development of this particular cluster will be briefly discussed here.

Note: These cluster / sectors are not discussed in any particular order. Not all of these clusters will develop within the Saldanha Bay Municipal area and are merely potential clusters that were identified through various sources and interviews. Further investigations and feasibility studies will have to be undertaken in the next phase (feasibility phase) in order to identify which projects / clusters will be most suitable for the Saldanha Bay Municipal area. All future plans and possible proposed projects will depend on the findings of the EMF (Environmental Management Framework) and will have to be aligned accordingly.

✓ **Renewable Energy Production and Manufacturing Cluster:**

Already in place:

As mentioned before, a MOU has been signed between landowners, SHARP Japan and WindsSA (a joint venture of BlueH and Eagle) to build a 450MW hybrid power plant which include a 200MW/year PV solar assembly plant. The sites for development were already identified and the agreements with the landowners are already underway. The specific sites which were identified for the first phase of the proposed development, is the: Parklands IDZ site (300ha) and the IDC site (50ha). The first phase of the EIA process is already

completed. Construction will start in September this year and the development will be launched before 2010. According to the Saldanha Bay Municipality, about 900 to 1 000 jobs will be created in 2010.

Saldanha Steel and Namakwa Sands are already undertaking plans to develop wind energy. Saldanha Steel erected wind masts on their premises in order to initiate wind tests and Namakwa Sands recently put out a tender for a wind developer to establish and operate on their land.

There is already significant interest in Saldanha Bay from various investors, nationally and internationally, in terms of this industry.

Timeframe for development:

According to the Saldanha Bay Municipality it will only take 6 months.

✓ ***Dry dock – Oil and Gas Cluster:***

Already in place:

As mentioned before, future plans were already in place for the development of the dry dock in Saldanha Bay. According to the Saldanha Bay Municipality, various investors are interested in Saldanha as a hub and policy makers from the Embassy of Netherlands indicated that Saldanha is their preferred choice for future development. The Saldanha Bay Municipality joined the South African Netherlands Transport Forum (which developed the corridors of Walvis Bay, Dar es Salaam and Maputo), specifically in terms of the above mentioned. It was indicated that approximately 2 000 direct jobs and 10 000 indirect jobs could be created. According to the Saldanha Bay Municipality, NPA indicated that they will be willing to shift their plans if the Saldanha Bay Municipality can bring bankable projects to them, especially in terms of the dry dock. There might also be further opportunities for ship repair, maintenance of oil rigs, servicing of VLCCs and fabrication to take place.

Timeframe for development:

According to the Saldanha Bay Municipality it will take 1 year for the technical engineering and 2 years for construction of the dry dock.

✓ ***Maritime Cluster:***

Already in place:

As mentioned before, it was indicated that there is a shortage in the capacity in the oil yard sector. Only one year is needed to start this industry up and the various parts of the manufacturing range could be outsourced to various local companies. This could be an opportunity within this sector, but skilled labour is needed in terms of this. It was also stated that the maritime transport sector could be a possible potential for Saldanha Bay in terms of ship repair and pleasure craft boat building. This pleasure craft sector is very labour intensive and will need highly qualified craftsmanship and national support.

According to the Provincial Department of Economic Development and Tourism, the majority of the maritime sector will be situated in Cape Town. There are deep linkages within this sector with electronics, engineering etc., which could make it very difficult in terms of this to service the Saldanha Bay area.

According to the Saldanha Bay Municipality (in terms of ship building), Province MEC - Alan Winde -indicated that Saldanha Bay would be the preferred hub for ship building as well as for the dry dock, due to the fact that no space is available in Cape Town.

There is also the possibility to build oil rigs within Saldanha and this could also be built inland. This could be a viable option for Saldanha, since Cape Town wants to move that industry out within the short term. In terms of the Maritime industry, the Port will be a significant contributor to this industry.

Timeframe for development:

According to the Saldanha Bay Municipality, this sector will be developed before 2014.

✓ ***Steel Production and Manufacturing Cluster:***

Already in place:

Saldanha Steel and Trident Steel (which was recently acquired by Arcelor Mittal) are already situated within the Saldanha area. Various downstream opportunities were identified throughout the study, indicating that further developments could be possible. One of the most possible development opportunities that were identified for this industry was a Pelletisation Plant, where iron ore pellets could be produced locally.

The Saldanha Fabrication Facility is already situated within Saldanha, which could lead to various possible downstream opportunities such as fabricated structured metal products, containers, ships etc. within this cluster and add significant value to the local area. According to the Saldanha Bay Municipality, the Saldanha Fabrication Facility should capitalise upon the opportunities along the West Coast of Africa within the strong developing oil and gas industry. This segment might be lost to Walvis Bay, Namibia and Angola if not acting adequately in future. The local operator Grinaker-LTA should merge with a global recognised role-player in order to secure deliverables such as costing, quality, timeframes and to attract first-rate clients.

The Port is a significant contributor to this industry and as mentioned before, NPA is currently busy with a project to expand the iron-ore facility (terminals).

If the oil and gas industry develops in future, this will have a significant impact on this industry. Saldanha Steel already indicated that they would like to acquire gas (40 000 tons+ per month) and that they would also increase their Midrex output if this happens.

Local and Russian investors are already interested to undertake a project in Saldanha Bay of speciality metals production which would cost approximately US\$ 1.200 million. They will need 150 ha for this development which will employ 2 200 people in the operation phase and 10 000 people during construction. In terms of emissions, it will be mostly recovered and all will be treated in terms of waste. It will further be recovered, or neutralised and disposed of. Project turnover is estimated to be US\$ 2.000 million per annum.

According to the Saldanha Bay Municipality, this project might possibly not be approved due to the amount of bulk water and energy needed and the possible impact on the environment. The EMF undertaken will predict which industries will be allowed in the Saldanha area. All

future plans and possible proposed projects will depend on the findings of the EMF and will have to be aligned accordingly.

Timeframe for development: Extensive industries normally have a long lead time, for example: negotiations and procurement take between 12 to 36 months, after which the building plans must be approved which take another 12 to 36 months, then only after the Environmental Impact Assessments construction can take place which could take between 36 to 72 months (the whole process up to construction can take between 6 to 8 years).

✓ ***Minerals Production and Manufacturing Cluster:***

Already in place:

Namakwa Sands already identified various downstream opportunities regarding this industry, due to the fact that they have various minerals that could be used for further beneficiation and processing – such as zircon, rutile, titanium, pig-iron, limestone etc. These raw materials can be beneficiated and turned into finished products which could be exported via the Port or sold locally (minerals, tiles, and iron-ore). This could also lead to further SMME developments.

Various investors are already interested in the Saldanha Bay area in terms of a Titanium smelter. A very viable option also for Saldanha Bay could be a Welding Electro Plant. These are smaller plants that need low technology and no other inputs. Another viable option would be a Cast Iron Pipe Plant. The advantage of this plant within Saldanha would be that iron is already produced in Saldanha which could then supply the iron directly into the foundry in Milton form, so it does not have to be processed again. This will have cost and time savings and will be a low tech operation. A Zircon Milling Plant would also be very viable for Saldanha. This plant is a low tech, low investment project.

Other investors, such as Coega Chemicals, are also very interested in Saldanha in terms of a Chemical Production Factory. This cost to build this would be US\$ 80 million and will consist of local and Malaysian investors. They will need 30 ha for the development and they will employ 300 people in the operational phase and 1 500 people during construction. All emissions will be recovered or neutralised and disposed of. The project turnover will be US\$ 120 million per annum.

As mentioned before, the EMF undertaken will predict which industries will be allowed in the Saldanha area. All future plans and possible proposed projects will depend on the findings of the EMF and will have to be aligned accordingly.

Timeframe for development:

Extensive industries normally have a long lead time, for example: negotiations and procurement take between 12 to 36 months, after which the building plans must be approved which take another 12 to 36 months, then only after the Environmental Impact Assessments construction can take place which could take between 36 to 72 months (the whole process up to construction can take between 6 to 8 years).

5.10 CLUSTER / SECTOR PRIORITIES FOR THE SALDANHA BAY MUNICIPALITY

It is the view of the Saldanha Bay Municipality that the identified clusters / sectors, mentioned throughout this section, should be prioritised in the following order:

Cluster / Sector priorities for the Saldanha Bay Municipality:

1. Renewable Energy Production and Manufacturing Cluster
2. Dry Dock – Oil and Gas Cluster
3. Maritime - Ship Building and Repair Cluster
4. Steel Production and Manufacturing Cluster
5. Minerals Production and Manufacturing Cluster

Saldanha Bay Municipal Input:

Green Environment:

Development of the clusters, as mentioned above, will take place in harmony with the nature, which offers a few opportunities with respect to further development of the eco-tourism sector. Environmental studies will have to be completed and the Environmental Management Framework (EMF) will finally identify the industrial footprint.

Awaiting the outcome of these studies, it is anticipated by the Saldanha Bay Municipality that industries which contribute to further pollution of the air and the Saldanha Bay area as well as the lagoon area to a certain extent, have to be avoided. The potential further development of the eco-tourism sector from a R100 million industry (1 200 – 1 500 job opportunities) to a R500 million industry (by efficiently tapping into the Cape Town tourism market of 1.2 million visitors/year) can possibly add an additional 5 000 to 6 000 job opportunities within the municipal area.

According to the Saldanha Bay Municipality, the industrial development (as stated in the Memorandum of Understanding signed the 14th of May 2009 between the South African Netherlands Chamber of Commerce, the Executive Mayor of Saldanha Bay and the MEC Finance, Economic Development and Tourism, Mr Alan Winde) should take place with respect to the natural environment offering a platform to further develop the eco-tourism sector. Besides a high-tech fabrication hub capable of servicing and maintaining a full range of facilities for the 'oil and gas' sector and the 'maritime' industry, the Saldanha Bay Municipality plan to develop a sustainable production platform for the pleasure craft boating industry.

Over the long term, the Saldanha Bay Municipality plan to develop an industrial sector that takes into account the imminent peaking of global oil production and which will reach beyond the oil-era in order to create and secure a sustainable economic and social development programme for its inhabitants. According to the Saldanha Bay Municipality, focus will be given to the development of new technologies and products to develop the transport and renewable energy sectors by leveraging the region's natural resources in this regard.

Note: The objective of above mentioned MoU is to link the business platform of SANEC and the Saldanha Bay Municipality in order to provide members new networking opportunities and partnerships between South Africa, the Netherlands, Southern Africa, EU and other regions. Also and

in addition MoUs will be signed in future with the Cape Regional Chamber and the Combined Vredenburg-Saldanha Sakekamer in order to strengthen a local business platform and to establish a tripartite relationship between Cape Town, the Saldanha Bay Municipality and Rotterdam, NL.

5.11 SYNTHESIS

The chapter highlighted factors that are important when choosing the potential location of an economic activity. These factors are labour, market, resource, agglomeration opportunities, and logistics orientation. As such, these factors define the sort of opportunities that are feasible for a given area.

- ✓ Given the various resources (wind, harbour, minerals, steel etc.) in Saldanha, it is clear that taking other factors as given; there are opportunities for resource based activities such as renewable energy, metal and mineral processing and beneficiation. There are also opportunities for market oriented industries as well as agglomerative opportunities are presented by the forward and backward linkages that exist between the various sectors. The importance of the development zone in presenting logistics based opportunities is also underscored.
- ✓ Investment initiatives must build on the area's true competitive advantages, that is, its resource base as well as strategic location.
- ✓ Development initiatives should take full advantage of the identification of Saldanha Bay as a priority zone for intervention. The spatial concentration combined with a selected cluster approach should provide some form of balance to investment initiatives.