



**Western Cape
Government**
Economic Development
and Tourism

MARKET ANALYSIS: WESTERN CAPE MARINE MANUFACTURING AND ENGINEERING SERVICES INDUSTRY

Final Report

December 2019

Prepared by:

ExecuThink
ENTERPRISE DEVELOPMENT & SME SERVICES



FINAL REPORT MARKET ANALYSIS:
MARINE MANUFACTURING & ENGINEERING SERVICES INDUSTRY AT
THREE PORTS IN THE WESTERN CAPE



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"South Africa is geographically strategically placed on the global map to lure gigantic trade volumes, amidst other marine-related activities. It's distressing that a country that has so much potential is abstaining from promoting its credentials."

Captain Ian Rosario - Former director of operations at Mediterranean Shipping Company (Durban, South Africa)¹

"The current demand for ship repair requiring the use of the drydocks and syncrolift at the Port of Cape Town is largely for the repair of ships used for fishing, mining, supply and services, coastal patrol, salvage, rescue and pleasure (passenger vessels) as well as harbour craft and cable ships. Most of the trading ships repaired, apart from those requiring emergency repairs, are small coasters. Few ships involved in international trade have been drydocked for routine survey and repairs in recent years and such business seems to have been lost to Cape Town mainly because it is not a terminal port for regular voyages."

Leila L. Goedhals-Gerber - Department of Logistics, Stellenbosch University²

¹ <http://www.ftwonline.co.za/news/column/193852/How-the-port-of-CT-could-avoid-weather-related-delays>

² The Market for Ship Repair Facilities in the port of Cape Town - Leila I. Goedhals-gerber - corporate ownership & control / volume 12, issue 1, 2014, continued - 4

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ABBREVIATIONS and ACRONYMS	
BBBEE	BROAD BASED BLACK EMPOWERMENT
CHIETA	CHEMICAL INDUSTRIES EDUCATION TRAINING AUTHORITY
DAFF	DEPARTMENT OF AGRICULTURE, FORESTRY & FISHING
DEDAT	DEPARTMENT OF ECONOMIC DEVELOPMENT & TOURISM
DTI	DEPARTMENT OF TRADE & INDUSTRY
DWT	DEADWEIGHT TONNAGE (WEIGHT OF EVERYTHING A SHIP CARRIES)
ESD	ENTERPRISE & SUPPLIER DEVELOPMENT
IDZ	INDUSTRIAL DEVELOPMENT ZONE
IMO	INTERNATIONAL MARITIME ORGANISATION
ISO	INTERNATIONAL STANDARDS ORGANISATION
MERSETA	MANUFACTURING, ENGINEERING, & RELATED SERVICES SETA
MMF	MARINE MANUFACTURE & FABRICATION
OEM	ORIGINAL EQUIPMENT MANUFACTURERS
SAASOA	SOUTH AFRICAN ASSOCIATION OF SHIP OPERATORS & AGENTS
SAASR	SOUTH AFRICA ASSOCIATION SHIP REPAIRERS
SABBEX	SOUTH AFRICAN BOATBUILDING EXPORT COUNCIL
SADSTIA	SOUTH AFRICA DEEP SEA TRAWLING INDUSTRY ASSOCIATION
SAIMI	SOUTH AFRICA INTERNATIONAL MARINE INSTITUTE
SAMSA	SOUTH AFRICA MARITIME SAFETY
SAOGA	SOUTH AFRICA OIL & GAS ASSOCIATION
SAQA	SOUTH AFRICAN QUALIFICATIONS AUTHORITY
SARS	SOUTH AFRICAN REVENUE SERVICES
SBIDZ	SALDANHA BAY INDUSTRIAL DEVELOPMENT ZONE
TETA	TRANSPORT EDUCATION TRAINING AUTHORITY
TEU	TWENTY FOOT EQUIVALENT
TNPA	TRANSNET NATIONAL PORT AUTHORITIES
TVET	TECHNICAL & VOCATIONAL EDUCATION & TRAINING
ULCC	ULTRA LARGE CRUDE CARRIER
UNCTAD	UN CONFERENCE ON TRADE & DEVELOPMENT
VLCC	VERY LARGE CRUDE CARRIER

1 EXECUTIVE SUMMARY

This report analyses the ship and oil rig repair industry at three Provincial ports. The antecedents for enabling the industry are discussed and the capital-intensive nature of shipping is described. South Africa's strategy for managing shipping issues is explained in terms of the Ports Act, as well as TNPA's role as landlord for all port infrastructure. Alignment with international requirements are emphasized repeatedly as precedents for creating an efficient repair and vessel-building sector.

The global distribution of maritime facilities determines carriers' choice of repair port, which are located at global shipping hubs, located outside the Cape Province and Southern Africa. Few cargo ships are repaired here because Cape Town is not a terminal port. Cape Town remains the centre of ship repair because its infrastructure is appropriate for fishing trawlers, research, mining, commercial and various coastal vessels. Cape Town port is increasingly becoming a destination for yachts, cruise liners and upmarket accommodation, which may cannibalise ship repair operations.

Port efficiency has become increasingly important in global shipping and is influenced by governmental processes managed by SARS (Customs), Department of Home Affairs, Department of Environment Forestry and Fisheries, The South African Navy, the Department of Higher Education, the relevant SETAs and the Department of Public Works. Alignment of state processes with international industry requirements is a recurrent theme for strengthening the repair industry's performance.

The repair and new-builds industry remain largely pessimistic because the provision of maritime services remains poor and declining ship visitations have eroded profit margins. The captains of industry have suggested that if business continues as usual then the repair sector will downsize and jobs will be lost. Similar sentiments are echoed in the new-builds sector where TNPA's cost structure is seen as uncompetitive. Underlying their perspective is a desire for a business model which is friendlier to privatization.

This study confirms industry reports that the repair sector is under pressure and identifies reasons for changes in work volumes. TNPA's planning has not been communicated effectively to the private sector; however, improvements to port infrastructure suggest that market rejuvenation is possible.

Accordingly, the report concludes with a number of recommendations for DEDAT including – *inter alia* - the establishment of a Special Purpose Vehicle for vessel building and repair, marketing support for yacht and boat-builders, development of a comprehensive maritime curriculum in South Africa and investigating green ship recycling as a new industry segment.

1. BACKGROUND TO THIS STUDY

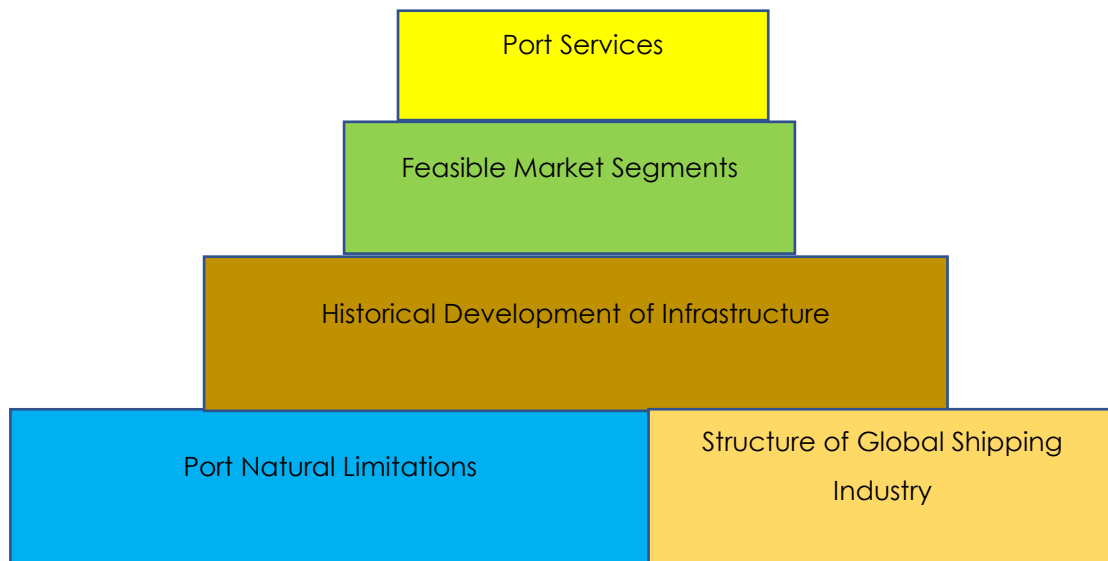


Figure 1: Order of precedence for segmenting port offerings

The fundamental premises of this report require understanding of a port's geographical location within the global shipping industry and the natural limitations of the port itself. Natural geographical endowments and the resultant infrastructure determine which vessels a port is able to accommodate and consequently which services it is able to offer feasibly, including logistics and intermodal transport of cargo between the sea and land. Ships and oil rigs do repairs where they do business, which is normally done at their home ports.

This order of precedence arising from a port's natural limitations and geographical location, the historical development of its infrastructure, the feasibility of serving specific market segments and the port services which it offers, are causal influences on ship repair and the building of new vessels. Accordingly, the Western Cape is able to accommodate smaller vessels for both dry docking and new-builds. The largest ships are not able to enter Cape Town port, the centre of the repair and build sector, while they are able to enter Saldanha Bay which has almost zero ship repair capacity. Mossel Bay is not a ship repair destination.

Shipping is a capital-intensive industry and the cost of building a new ship could cost anything between \$45 million and \$120 million, depending on vessel size. Ships have a lifespan of approximately 25 years, up to 35 years for smaller vessels, which along with international standards, influence the schedule for new vessel-building. The high capital cost of ships means that port efficiency, as enabled by limiting anchorage and short docking times (for cargo handling and repairs), is the major influencer when a carrier chooses a vessel repair destination. Ports with fast turnaround times attract more carriers because downtime is reduced and the vessel's productivity is enhanced. It is also important to note that

uncontrollable factors related to a port's natural limitations, such as the width of its entrance channel or weather conditions, may also affect a port's efficiency. Cape Town and Mossel Bay are prone to delays owing to inclement weather.

All ships are mandated to undertake scheduled maintenance every 2 to 3 years and repairs must comply with international standards as prescribed by classification societies.³ Adherence to standards enables guarantees by OEM's and meets insurers' criteria. Accordingly, a strong ship building and repair industry also requires a skills base which is class-certified. These class criteria supersede national standards and have to be acceptable to classification societies, if warranties and insurances are to be honoured. An effective marine manufacturing industry requires infrastructure, port services as well as a pool of OEM and class-approved skills, for sustainability in this global industry. The South African maritime industry is straining under the pressure of local redressive policies and a monopolistic business model which does not complement long-standing international industry practice.

Vessel repair is an on-going activity which responds to scheduled, unscheduled and emergency work. Vessel-building however is a planned activity and project completion ranges from one to three years, depending on size and place of construction. Provincial ports are able to manufacture only smaller ships of up to 60 metres and a building cycle of approximately 3 years is evident. In the Western cape, ships are generally not built in dry docks but in premises at the harbor or with access to launch facilities.

All port infrastructure in South Africa is owned by TNPA which charges tariffs to shipping lines, fees for repair facilities and rentals for land-based leases. TNPA also provides services such as piloting, crantage, waste disposal, utilities, and landside infrastructure to customers. With regard to ship repair, a clear reporting structure exists within TNPA, headed by a national ship repair manager who communicates with port-based ship repair managers, who in turn manage repair facility managers such as dry docks. Regulated by the Ports Act of 2005, the private sector's input is mandated through the Ports Consultative Committee (PCC), which is convened by the manager of each port. A National Ports Consultative Committee (NPCC) harnesses the work of all PCC's.

The supply chain into ship repair is both horizontally and vertically integrated with carriers. Ship repair is possible only if port services enable docking of the vessel, whether at berth or dry dock, after which equipment (crantage, gasses, compressors etc.) is required to proceed. The supply chain comprises diverse activities ranging from management of logistics to sourcing

³ Classification societies set technical rules based on experience and research, confirm that designs and calculations meet these rules, survey ships and structures during the process of construction and commissioning, and periodically survey vessels to ensure that they continue to meet the rules.
https://en.wikipedia.org/wiki/Classification_society

internationally accredited parts, to class-certified repair skills. Companies involved in repairs specialize in different disciplines such as skills development, supply of specified parts, specialized engineering services, dry docking skills, vessel-design and building expertise as well as a range of uniquely specialized agency arrangements. A number of different industry organisations have arisen in each sub-segment and formal communication between them is inherently fragmented. This contrasts sharply with TNPA's well-defined internal structure and may complicate communication through the PCC.

Transnet is primarily concerned with freight and TNPA's business model is also cargo-based. Ninety percent of the country's cargo comes through our ports, an activity which generates foreign exchange. It appears that TNPA has been a cash cow for Transnet, generating a greater percentage of profit than its contribution to income. Over the past decade, these profits probably cross-subsidised Transnet's other ventures while port infrastructures were not maintained.

The announcement of Operation Phakisa in 2014 raised expectations of rapid infrastructure improvement but until this year, there has been little evidence of progress and industry has been demoralized. Suffice it to say that over the past few months, infrastructure repairs have been visible both on and off land. It is equally important to note that TNPA has developed a craft replacement strategy to improve its maritime services, to increase general port capacity (such as pilotage) with a view to improving efficiency.

South Africa's location at the tip of Southern Africa offers it a geographical advantage to attract ships rounding the Cape. The Western Cape serves as a conduit for traffic to and from the Americas and Europe while Durban serves Asia and Sub Saharan region. These comparative advantages support Western Cape ports as marine manufacture and repair destinations. In terms of world shipping, only Durban is regarded as an international shipping hub. The Western Cape's ports are medium-sized and they perform specialized functions, serving niches which are not economical for large hubs.

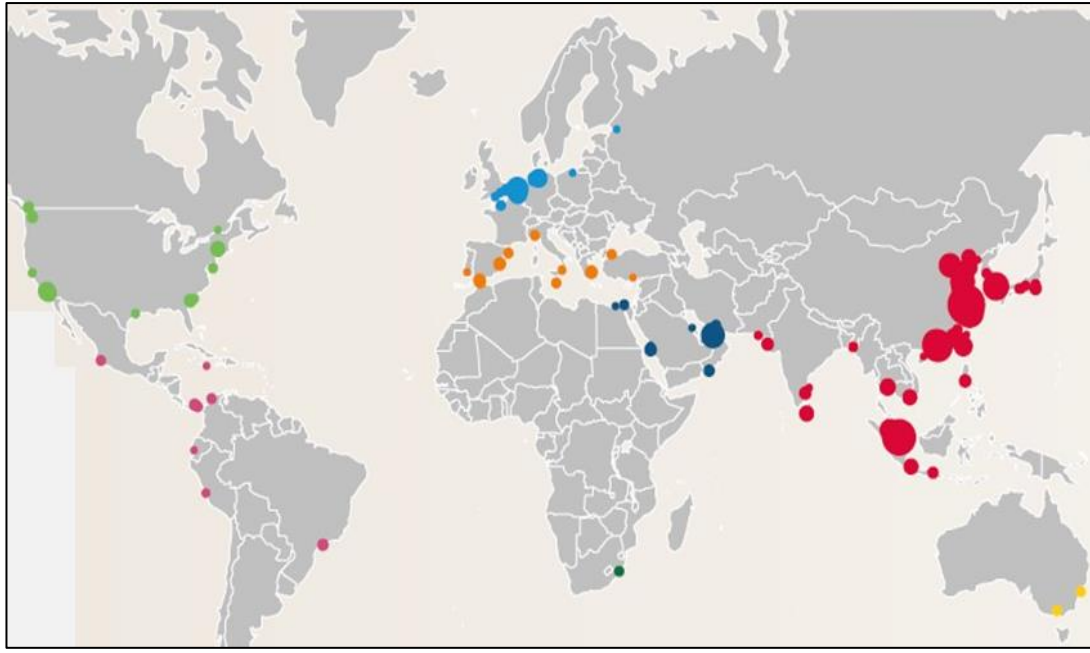


Figure 2: Distribution of world's largest ports ⁴

Most of the world's shipping routes are concentrated in the Northern Hemisphere. The South African coast however, is one of the world's busiest shipping routes and probably more than 5 000 journeys traverse Southern African waters.

In the same vein, many of the sea routes bypass the subcontinent completely. As ships become increasingly larger and the need for bunkering and fresh supplies decreases, they are able to undertake long journeys without stopping at a South African port. The exceptions are when emergencies occur or scheduled maintenance is planned.

⁴ Strengthening Africa's Gateways to Trade – PWC 2018

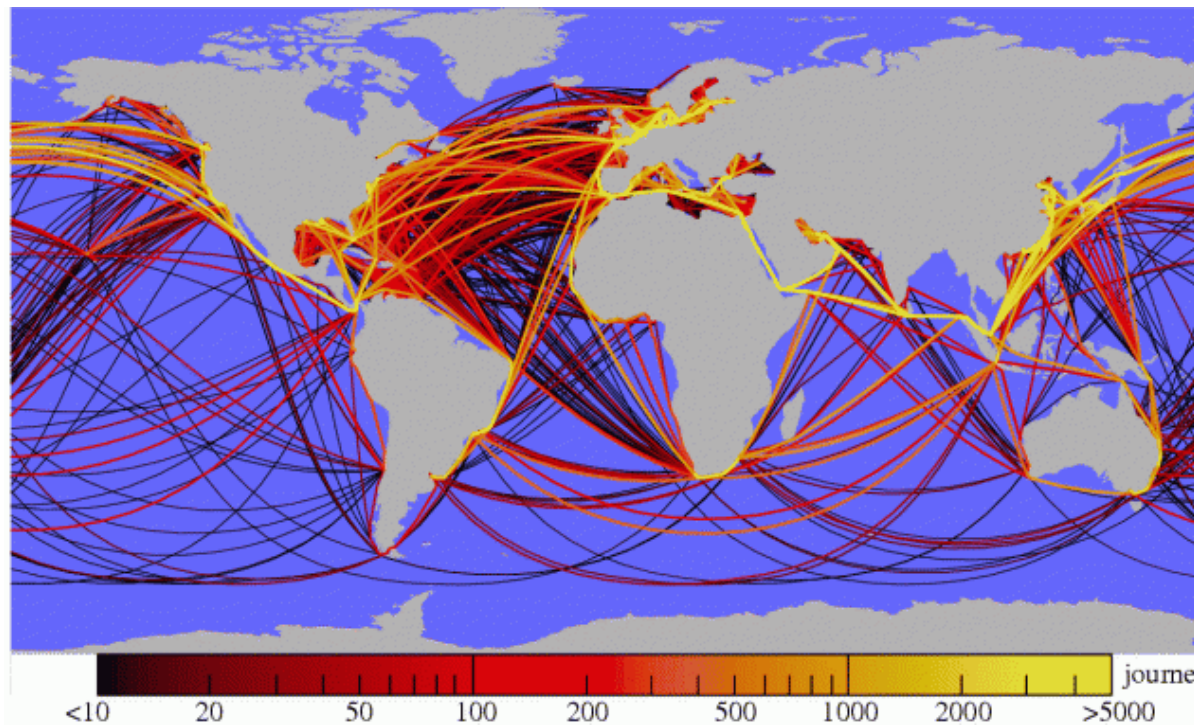


Figure 3: World Shipping Lanes ⁵

In its endeavor to boost income from the ocean economy, the SA government launched Operation Phakisa in July 2014 to fast-track the implementation of the National Development Plan goals. One of the focal areas of Project Phakisa is the development of the ocean's economy. "The oceans have the potential to contribute up to 177 billion rand to the gross domestic product (GDP) and create just over one million jobs by 2033"⁶. One of the six focal areas of the Oceans Economy include marine manufacture and repair. The state intended to increase earnings from R15 billion in 2010 to R23 billion by 2019, increasing the number of jobs from 15 000 to 50 000 ⁷.

A number of projects have already been initiated and conceivably, early evidence of success is being reported. The ports of the Western Cape are distinguished by different service offerings and specialize in cargo handling, containerization, oil and gas, ores or dry bulk.

Accordingly, they also accommodate different varieties of maritime vessels and require supply chains tailored to the port's function. Table 1 outlines the services which Western Cape ports are able to offer, for ships of different sizes. Additional details of different types of ship are detailed in Appendix B.1.

REPAIRS AND ENGINEERING SUPPLIES

⁵ <https://www.wired.com/2010/01/global-shipping-map/>

⁶ <https://www.operationphakisa.gov.za/operations/oel/pages/default.aspx>

⁷ Project Phakisa, www.operationphakisa.gov.za

	Major	Minor	Other
Cape Town	<i>Neo Panamax and smaller, trawlers</i>	<i>All</i>	<i>Various specialisations</i>
Saldanha Bay	<i>Oil Rigs, fishing craft</i>	<i>VLCC and smaller</i>	<i>Oil industry and ore specialisations</i>
Mossel Bay	<i>Highly unlikely or impossible</i>	<i>In-port: 130m ships Out-of-port: 204m or 32000 dwt</i>	<i>Engineering supplies, oil industry</i>

Table 1: Assumed Capacity of Western Cape Provincial Harbours for Maritime Repairs

This report identified key organisations and theorized their impact on industry decision-making. Two dimensions are considered (1) their direct interest in the industry and (2) the level of influence they have.

The stakeholder map in Figure 5 offers a view from a policy-maker's perspective. Regulators and implementers of regulations are shown in the top left quadrant. The industry itself is shown in the top right quadrant and is labelled as "Supply Chain". The customers are shown in the bottom right quadrant, these are the recipients of services and regulations offered by the other quadrants.

The bottom left hand corner is relatively empty because we were unable to identify an organisation which monitored the progress of the MMF sector as a whole.

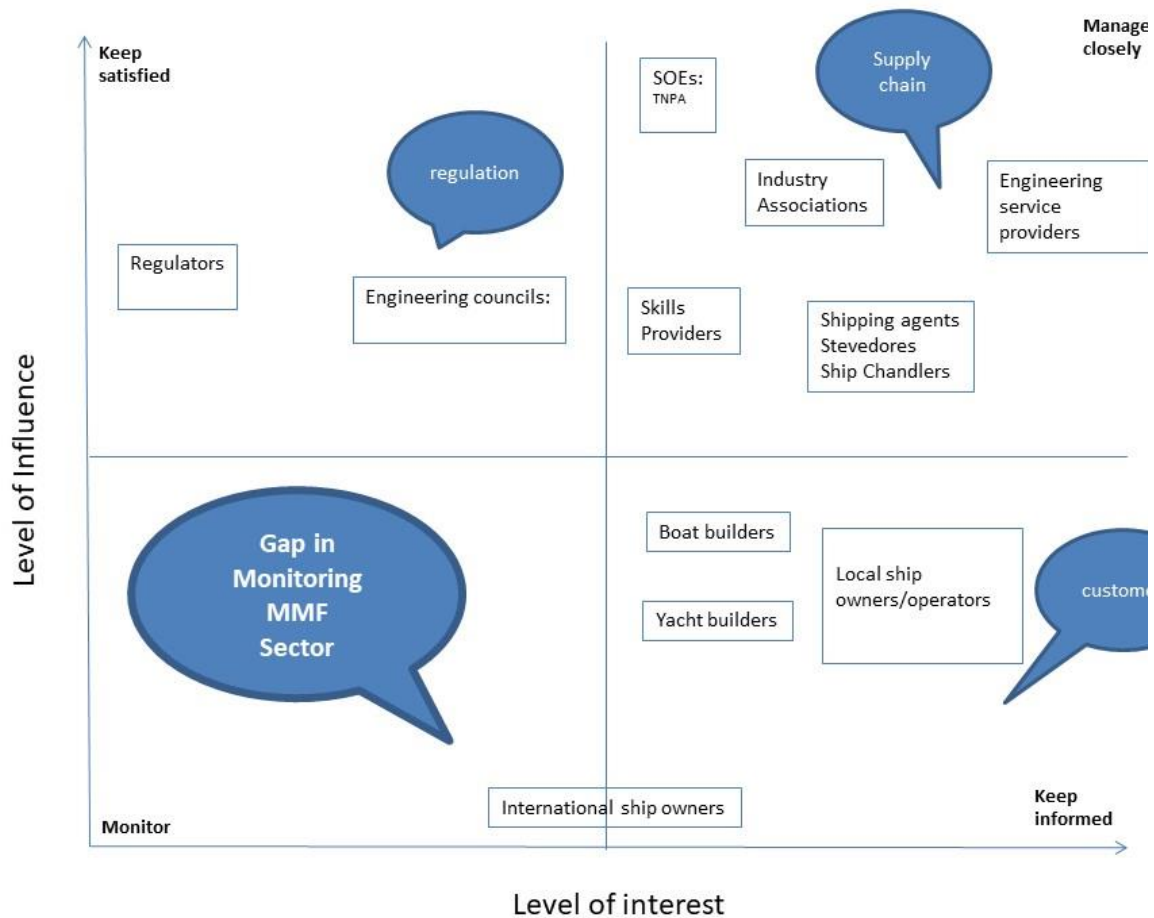


Figure 4: Stakeholder mapping

The industry appears to be somewhat fragmented and coordination between different organisations is not clear. This may also be a ripe area for policy development or intervention by the province, to optimize the initiatives proposed by Operation Phakisa and the industry at large. There appears to be a gap in industry leadership by a single, unified stakeholder voice.

TNPA is the largest industry player because it owns and controls all port infrastructure by law. TNPA's business model has been developed almost entirely around cargo-handling and this is reflected in its pricing strategy. At the same time, it also makes maritime repair infrastructure available for necessary support services. In South Africa ports are also not subsidized by government – unlike countries such as China – and consequently TNPA's strategy is structured around commercial imperatives, which is to supply more than 90% of South Africa's cargo as profitably as possible.

This report offers a situational analysis of the province's ports in relation to developments in the global shipping industry. It outlines the strategic position of provincial ports in world shipping, explains challenges faced by the industry and projects its possible future.

2. METHODOLOGY

2.1. Conceptual Methodology

In its effort to understand the market, this study employed concepts and terms to facilitate understanding of industry dynamics.

The study is located within an understanding of global shipping, as well as the manufacture and repair of vessels. Even though 13% of the world's fleet visit South African ports annually, less than 1% of ship repair occurs here. South Africa is not a builder of large ships; its strongest competencies lie in yacht and boat building, which require different supply chain, skills sets, infrastructure and logistics. Segmentation of different vessel types and port functions is essential for understanding the industry.

The province does not have terminal ports for large carriers and is home only to fishing fleets. Segmentation identifies which niches our provincial ports serve and where potential gaps may exist for industry growth. The identification of niches is dependent on a detailed understanding of the vessels, ports, facilities and related services required to support those segments/niches.

Marine repair and manufacture is a recognized industrial sector and uses unique terminology. Sometimes terms are used interchangeably and this may result in confusion. This study distinguishes between ships, yachts and boats as distinctly different vessels, in order to clarify supply chain implications. Within these different vessel types, further differences apply and these are related to the physical capability of a port, to handle such vessels. Similarly, the physical capacity of each of the three ports is described and the types of vessels which they can accommodate are described accordingly. In the same vein different types of oil rigs are also described.

The unique contribution of this study will be the new information it uncovers from interviews with experts, based on a review of available literature and the media. While information from previous studies will be used, these will serve to illuminate areas which require further clarification, for possible action by DEDAT. Results of personal interviews comprise the backbone of this study and could inform future policy direction for DEDAT, to support the provincial MMF sector.

2.2. Explanation of Industry Terminology

In August 2019 we submitted an inception report which defined various terms and industry jargon at length, to facilitate understanding of different market segments.

Some important terms are clarified here:

- Ships, boats and yachts require different definitions. Within the industry, terms are used interchangeably. Vessels are distinguished by length in metres, weight in tonnage, hull material, and function. All ships have metal hulls. Boats are generally assumed to be less than 24m. Boats tend to be under 25gross tons. Craft used for leisure or sport are considered as yachts although very large yachts may be considered as ships. SAMSA does not have a standard definition for different vessel types. Anecdotally "a ship can carry a boat but a boat cannot carry a ship".
- Wet and dry repairs are required on all vessels. Wet repairs refer to work done while the hull is afloat and dry repairs occur in a dock. Different infrastructure, skills and technology are used for these different categories of repair.
- Scheduled maintenance and unscheduled repairs. All vessels require class inspection periodically e.g. hull checks. Depending on the type of material, hull inspections and maintenance will vary. Wooden hulls must be slipped annually while metal hulls every 2-3 years. Unscheduled repairs occur unexpectedly and are therefore not always easily accommodated. Hull maintenance requires sandblasting, sometimes metal plate repairs and welding, as well as spray-painting. These are noisy and potentially polluting activities which may have to be scheduled in accordance with the V&A Waterfront's conditions. This limit working hours at two dry-docking facilities, thereby incurring delays with repairing damaged vessels. Unscheduled repairs, especially when requiring dry docking, can be very costly for ship owners.
- Stacking – “parking” of vessels often alongside each other in a harbor, to save berthing space. This is often the case with derelict ships
- Warm and cold stacking refers to vessels (specifically rigs) which are placed in storage or mothballed. If warm-stacked a larger number of crew are required to keep vessel functions operational and this is more expensive; however, start-up costs are lower when the vessel returns to work. Cold stacking requires a minimal crew and parts are protected for longer periods of non-operation; cold stacking costs are lower but start-up costs are significantly higher.
- Draft – This is the depth of a vessel or port, determining which type of vessel may enter. When a port offers a shallow draft, it limits the type of vessel it can accommodate
- Beam – Width of vessel at its widest point. The waterline beam is the widest point when the hull is at the waterline. Modern ships have increasingly larger beams and older dry docks are not able to accommodate them.
- Docking is a process of settling a vessel onto wooden blocks in dry dock or on land. Failure to align the hull correctly could result in costly damage to the vessel.
- Slipping is the process of pulling vessel onto land, possibly parked on the side of the facility, or side-slipped onto a holding facility once the vessel is on land.

- Capital dredging refers to deepening the draft of a port by changing the structural, navigational features of the port. The activity allows larger vessels to enter port.
- Bunkering refers to the supply of fuel to vessels via pipeline or barge.

The shipping industry has its own extensive language and it is not possible to list all terms here. When read in conjunction with our Inception Report, we believe that terminology has been explained adequately, for the purpose of this research.

2.3. Data Collection

2.3.1 Secondary

A number of reports have been provided by DEDAT as background research for a situational analysis. These reports include:

- Department of Trade and Industry (March 2017) – Ship- and Boat-Building Maintenance & Repairs, And Associated Services
- Stratecon (2017) – Western Cape Maritime Repair & Maintenance (2017 Review)
- Stratecon (2018) – Western Cape Maritime Industry (Operation Phakisa) 2018 – Economic Contribution
- Andre Roux (2019) – Oil, Gas & Marine Industry - Scenario Planning Report
- OPOceans Final Lab Report – Industry data for MTM Lab 2019
- Accelerating Job Creation & growth in the Western Cape. Report on the First Phase October-December 2014: Project Khulisa Report – Ministry of Economic Opportunities Western Cape Government

These reports offer helpful baseline information. They outline policy intentions, quantify industry performance and contribute to a high-level situational analysis.

We have sourced additional information from other sources including:

- SAIMI & Ernst & Young (2017) – How can the marine manufacturing industry release the binding skills constraints facing the sector?
- United Nations Conference on Trade and development (2018) – Review of Maritime Transport
- United Nations (2019) – World Economic Situation and Prospects
- PWC Report (2018) – Strengthening Africa's Gateways to Trade
- Boat International (2019) - Business of Yachting: Global Order Book 2019
- Goedhals-Gerber, Leila L - The Market for ship repair facilities in the port of Cape Town, Logistics Department, US, 2014

Other older studies have been reviewed but the information is outdated and is not expected to add significant value to forecast future developments. We have used www.vessletracker.com to verify the types of vessels visiting the three ports considered in this study.

Secondary reports were drawn from publicly available internet documents and sites; information has been extracted from several newspaper articles and websites.

2.3.2 Primary

Archival data offers a partial picture of specific sub-sectors which required further investigation by interviewing industry experts. Participants shared information either through personal interviews or focus group sessions.

Based on the archival information, a question schedule was developed and was tailored for each specific sector. Yacht manufacture and repair for example, differs substantially from ship repair and boat building, even though supply chains may intersect. We had opted for open-ended questions which invited participant discussion on the issues we identified in the literature; opportunity was created for participants to explore areas which archival documents had not considered. We adopted an approach which allowed participants to share their authentic opinions.

The general question schedule is attached as Appendix 1.

Accordingly, the purpose of interviews and focus groups was to:

- Confirm or validate findings of archival research
- Negate archival findings or policy assumptions
- Corroborate existing findings and extend the boundaries of thinking
- Illuminate entirely new aspects for which clear conceptualisation has not been formulated.

All participants agreed that their interviews could be recorded and could be used confidentially. This ensured accuracy of transcription and provided an audit trail.

2.4. Consideration of Quantitative Data

An industry study which analyses markets is always more robust when reliable statistical data is available. DEDAT had commissioned Stratecon to perform statistical analysis which measured the extent and nature of ship repairs and manufacture in the province. Stratecon's analysis ends at 2018 and was helpful for the purpose of projection. Some recent data was also found on the Project Phakisa website, specifically regarding project-completion timeframes for specific initiatives.

Having understood that Cape Town is the centre of ship and oil rig repair in the province, the data provided by Stratecon is helpful to make informed assumptions but are not sufficient to quantify projections accurately. The mix of statistical data and interview feedback provided a foundation for considering future industry growth, from a largely qualitative perspective.

2.5. Presentation of Results and Discussion

This study is largely qualitative in nature and investigates the enablers for a competitive, growing marine manufacture and repair sector. The causal factors identified from interviews, as well as trends identified in the literature, provide a rich picture of industry dynamics in the province and at each port. Interviews provided granular information which sought to explain the current condition of the industry and attempted to forecast its future. Initial results were presented to DEDAT in the form of two working reports and two presentations. The second presentation to a group of industry representatives further refined the analysis, in an attempt to focus on the factors which most critically influence growth.

These results are presented and discussed below. Micro-economic factors have been identified as enablers of growth or stagnation, irrespective of global trading conditions or trends in shipping. This report uses the Pareto Principle (also referred to as the 80/20 rule where roughly 80% of the effects come from 20% of the causes) to identify the most likely factors affecting industry success. The assumption is that by isolating a small number of the most influential factors, it will be possible to address most problems, through effective interventions. The results and discussion below truncates our findings accordingly, within the context of global trends and national developmental initiatives.

3. SEGMENTATION OF MARITIME VESSELS

3.1. Life Cycle of Vessels

Segmentation of marine vessels is a necessary technique for identifying potential industry opportunities. The graphic below depicts the life of a vessel from origination to retirement, by showing which functions will be required throughout its lifetime.

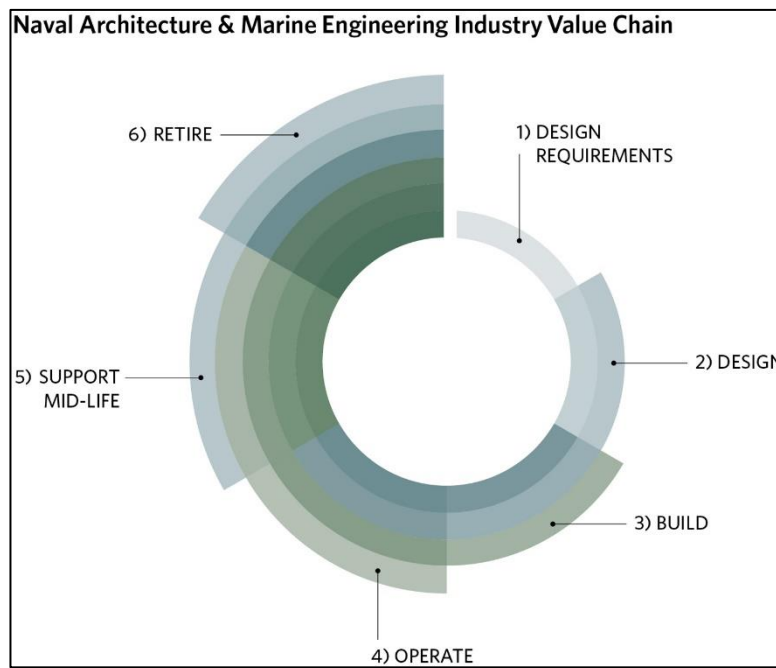


Figure 5: Lifecycle of marine vessels

The theoretical lifespan of a modern ship is approximately 30 years; we note however that recessionary conditions and environmental legislation also impact lifespans. A new vessel begins when a need is identified, developed into a specification and then a design is sought. Building proceeds from design after which construction begins. Smaller vessels may take three years to build. During early operation, scheduled maintenance will be required. During mid-life, additional repairs will be required, over and above scheduled maintenance. In the final phase of its working life, maintenance becomes too expensive for profitable operation and the vessel has to be retired. New-builds occur during the first three phases and the province is able to provide a full supply chain for yachts and boats, in several locations. For ships it can provide phases 2 and 3 in Cape Town and it appears that designs are purchased from abroad. Repair and maintenance occurs during phases 4 and 5, for which some infrastructure is available mainly in Cape Town, notably for smaller ships. During the final phase (the point at which it has reached approximately 15% of its initial value), retirement requires shipbreaking. This activity has occurred sporadically in Cape Town, and also with fishing vessels in Saldanha and Mossel Bay. Traditionally, most of the world's ships were run aground on beaches in South

Asia and were broken up to the detriment of the environment and workers. Green ship recycling however, is an emergent industry worldwide and may be considered as a new segment within the industry. The retirement of vessels potentially offers opportunities for further diversification of MMF.

The Western Cape is involved in four of the six phases in the life cycle of ships. Ship design is not a significant offering in this province and is largely dependent on qualifications offered by educational institutions. The retirement phase of ships has also not been considered seriously by this province. The province is however able to offer a full supply chain for all phases of the development for boats and yachts, where its competency is recognized globally. It is also able to offer services to oil rigs only during the three phases of their operational lives only. The province's core MMF competency therefore lies in the building of smaller craft and repair of vessels which ports are able to accommodate.

Segmentation of ship types is helpful for understanding which repair services may be offered for different vessels. Several different measures are used to describe ships including their depth in the water, width, length and tonnage. All these measures can be expressed in variations in the units of measure, explanation of which is not helpful for this report. Greater details on the segmentation of ships by length, depth and tonnage can be studied in Appendix B2.

4. EXPLANATION OF PORTS' CAPABILITIES

Ports are understood in terms of their ability to accommodate vessels of different dimensions. The most common measures are the depth of water offered, the length of ship which it can accommodate and from a repair perspective, the width of the vessel at the waterline.

Other factors include the number of vessels which a port is able to pilot into the harbour, facilities available for piloting the vessel to the quayside, cargo-handling facilities, waste disposal, as well as repair infrastructure and services.

Cape Town can accommodate large vessels of over 300 metres in length but is too shallow for the largest vessels and those with the deepest drafts. The port's dry docks are also too small for the largest vessels, which are designed for hub ports. It is however, the centre of the province's repair and new builds industry.

Saldanha Bay is a natural deep water harbour which can accommodate the largest ships but offers no repair facilities and few services. Mossel Bay offers a small, shallow water harbour and is very limited in its ability to accommodate large ships. Repairs in Mossel Bay are restricted to fishing vessels and small vessels.

Appendix C below provides detailed information about each port and the type of vessels which each is able to accommodate.

5. TRENDS IN THE MARITIME SECTOR

Having described different vessel types, we proceed to describe the trends for each viz. ships, yachts and boats. The trends indicate that these are distinct segments with their own market dynamics and principles of operation.

5.1. Trends in Shipping

Marine repair is dependent on the number, age and condition of ships visiting a specific port for business purposes. The industry is complex, capital intensive, labour intensive and becoming increasingly competitive. At the present time, the trends identified below characterize the shipping sector.

a) Shipping Industry Alliances - The industry is attempting to exploit economies of scale by building ever larger carriers, which demand increasingly higher capital expenditure and increased investment risk. As the competitive landscape evolves, shipping alliances are also transforming the face of the industry. The industry is consolidating and becoming more monopolistic, with larger carriers dominating the major hub ports, by building larger technologically-sophisticated vessels. Carriers with smaller vessels are expected to be in weaker strategic position when it comes to larger hub ports but will hold an advantage serving smaller ports.

Formalisation of such alliances has gone even further through mergers and acquisitions in the industry. A recent PWC report noted that larger shipping lines have consolidated in order to generate efficiencies. "The consolidation wave results in fewer customers for ports and terminals."⁸ This will increase the bargaining power of carriers and their shipping agents who will "...increasingly put pressure on African ports and terminals to invest in new ships while simultaneously driving down port charges".⁹

Importantly, these alliances attempt to reduce resource-wastage in the containerization sector and do not refer to tankers or dry bulk carriers.

Alliance	Partners	Ships	Weekly services	Ports	Port pairs	Capacity (TEUs)
Ocean Alliance	CMA CGM, COSCO, OOCL, Evergreen	323	40	95	1,571	3.5m

^{8,9} An Analysis of Port Development in Sub Saharan Africa: Strengthening Africa's gateways to Trade April 2018 - PWC

THE Alliance	MOL, NYK Line, Hapag-Lloyd, K Line, Yang Ming	241	32	78	1,327	4.4m
2M	Maersk Line, MSC	223	25	76	1,152	2.1m

Table 2: Shipping Industry Alliances - Wikipedia

While container ships comprise around 13% of the global fleet, these alliances require industry approval and have a lifespan, as regulated internationally, presumably by the IMO.

Three major alliances dominate containerization. “Ocean Alliance (23.5%) and the 2M Alliance (27.7%) control about 51.2% of the world’s TEU movements.”¹⁰

“THE Alliance” is an acronym for “Transport High Efficiency Alliance” and is attempting to grow even further, along the Europe-Asia axis. “THE Alliance revealed that it would deploy a fleet of more than 249 ships connecting 76 ports throughout Asia, North Europe, the Mediterranean, North America, Canada, Mexico, Central America, the Caribbean, Indian Subcontinent, the Middle East and Red Sea.”¹¹ Importantly, Southern Africa is not mentioned in THE Alliances growth plans.

The Ocean Alliance has approval to extend its arrangements until 2027. “Under the new service offering, the partners said they would cover 38 services using 330 vessels with an estimated carrying capacity of around 3.8 million TEUs.”¹² The Ocean Alliance has streamlined its services, increased tonnage and the number of ships.

The most mature alliance appears to be between Maersk Line and MSC which was launched in 2014. Initially, the 2M Alliance was planned for ten years and covered vessel-sharing agreement on the Asia-Europe, trans-Pacific and trans-Atlantic trades.

Very significantly, the 2M Alliance saw the need for increased communication within the entire industry “In an effort to forge even closer working relationships between the carriers, technology specialists from MSC and Maersk have joined forces [in 2018] with their counterparts from CMA CGM, Hapag-Lloyd and Ocean Network Express (ONE) to form a neutral, non-profit entity to discuss the digitalization, standardization and interoperability of the container shipping industry in the future, rather than develop or operate their own digital platform.

¹⁰ <https://freighthub.com/en/blog/shipping-alliances-mean/>

¹¹ <https://worldmaritimenews.com/archives/267061/the-alliance-to-deploy-over-249-ships-in-2019/>

¹² <https://worldmaritimenews.com/archives/268878/ocean-alliance-gets-extended-until-2027/>

The information technology system (known as Tradelens) jointly created by the 2M Alliance will be openly available, free of charge, to all stakeholders in the wider container shipping industry."¹³

Such a global initiative is only possible if driven by large industry players, who are able to integrate all aspects of the supply chain into a single platform. The move also demonstrates cooperation between alliances and the desire for standardization of logistics in the industry.

Changes in industry structure will have implications for port development and will influence the strategies which port managers adopt, when competing for business. The balance of power is set to swing in favour of the carriers, according to some sources.

Ports which do not keep up with industry developments, specifically the formation of gigantic companies with increasingly huge ships, will find themselves competing for niche opportunities offered by smaller carriers. By the same token however, shipping alliances will depend more on large, hub ports which will be the only ones able to accommodate them efficiently.

As shipping alliances and large ports become more integrated, other major and medium sized-ports will be compelled to actively redefine their position in the industry and not simply rely on their geographical locations.

b) Growth in Cargo Volumes

The UNCTAD reported stated that in 2017 growth in sea freight was 4% over the previous year, with dry bulk comprising more than 50% of the 10,7 billion tons transported. Containerised trade increased by 6,4% while dry bulk commodities increased by 4%. Petroleum and gas increased by 3,9%. Sea borne trade is projected to increase by 3,8% from 2018 to 2023. Since the release of the report however, geopolitical issues and trade policy risks, rebalancing of the Chinese economy to greater internal consumption, slower growth of global value chains and changes in the world's energy mix have influenced growth forecasts. It should be noted that "Shipping consultancy Drewry has downgraded its forecast for global port throughput growth in 2019 to 3%, from the previous prediction of 3.9%, amid numerous headwinds."¹⁴

c) Change in Fuel Type IMO 2020

The implementation of IMO 2020 will impact the industry for an indeterminate period. Changes in the international regulatory environment as prescribed by IMO 2020

¹³ <https://www.joc.com/maritime-news/container-lines/2m>

¹⁴ <https://worldmaritimenews.com/archives/279558/drewry-lowers-2019-container-growth-forecast-to-3-pct/>

regulations, which require reduction of sulphur content of fuel to reduce emissions from 3,5% to 0,5% will have wide-ranging effects on shipping, as well as upstream and downstream suppliers.

By January 2020 all ocean-going vessels will be obliged to comply and three options have emerged for carriers.

- Firstly, ships may be retro-fitted with scrubbers (exhaust gas cleaning systems [EGCS]) at estimated costs of \$5 to \$10 million per ship
- Secondly, carriers may switch to low-sulphur fuel immediately even though costs will be higher and are expected to increase even further. UNCTAD states that 66% of carriers are opting for low-sulphur fuel.
- Thirdly, some carriers are converting ships to use LNG at a cost of \$25 million per ship.

One report stated that around 16% of the ocean carrier global fleet – equating to 36% in terms of TEU capacity – will be equipped with exhaust gas cleaning scrubber systems to comply with the IMO 2020 0.5% sulphur cap, according to Alphaliner.¹⁵

In May 2019 another article stated "...that fewer than roughly 2,000 ships (about 3% of the global fleet of 60,000 ships) are likely to have scrubbers by 2020. And that number will climb only gradually, rising to about 11,000 at most by 2025."¹⁶

The Hellenic News article outlines four scenarios for IMO implementation and attaches time frames for industry disruption accordingly:

- Base Case – 3 years of disruption
- Delay – Delay of 2 years, disruption 1 year
- Quick Shift – 1,5 years
- Slow Burn – 5 years

Further investigation is also required on the use of methanol as ship fuel since some new ships are being built to use methanol and ports keep supplies of this fuel.

¹⁵ By Mike Wackett (The Loadstar) More Carriers Turn to Scrubbers Ahead of IMO 2020 May 29, 2019 by The Loadstar.

¹⁶ Hellenic Shipping News Worldwide - Just How Disruptive Will IMO 2020 Be? in International Shipping News, Shipping: Emission Possible - 17 May 2019.

d) Limitations on shipping imposed by ECAS

Some parts of the world including the North American coast, Baltic Sea, North Sea, Hawaiian Islands, Puerto Rico and Virgin Islands have been specially-designated Emission Control Areas [ECAS] where the Sulphur emission limit has been 0,1%, having been implemented since 2006 in some regions. Non-compliant may not sail there unless they change fuel. ECAS also creates a vision for even more stringent control of pollutants in the future.

e) Shipping Prices and Rates

At the time in 2017, UNCTAD noted that improved global market fundamentals, growing world seaborne trade and increased ton miles (i.e. goods are transported over longer distances), would result in stronger industry performance. Greater demand would exert upward pressure on industry prices.

Large capital investments were expected to exert upward pressure on shipping prices. The prospect of fines for non-compliance would exert further upwards pressure on prices. Use of new fuel types may also have implications for insurance policies, as well as guarantees or warranties offered by OEM's. Despite downward revisions of trade growth, prices are still likely to rise.

f) Ports Prices and Rates

TNPA controls pricing of all South African ports because it is the owner of major coastal infrastructure. The TNPA pricing model favours cargo-handling, specifically exported primary goods, which attract lower rates than imported manufactured goods.

TNPA has taken the position that "the benchmarking of ports and their pricing system is an art and not a science."¹⁷. Anomalies within the pricing structure were going to be addressed, as stated by TNPA officials at a Transport Forum meeting in Durban in September 2015. A new strategy was to be negotiated with the Ports Regulator, in an effort to remain competitive and fair to all stakeholders. Western Cape ports will face increasing competition from other African ports and pricing could become a contested terrain.¹⁸

¹⁷ <https://www.iol.co.za/business-report/opinion/benchmarking-of-ports-pricing-systems-an-art-1884151>

¹⁸ https://www.engineeringnews.co.za/article/south-african-port-costs-debated-2015-09-07/rep_id:4136

g) Industry Consolidation

At an industry level, some of the largest companies are consolidating through mergers and acquisitions. It appears that this trend is deepening as alliances are renewed, intensified and complemented with innovations for additional efficiencies.

h) Industry Expansion

Despite concentration at the top of the industry, several individual carriers (including some involved in mergers and acquisitions) have acquired new shipping destinations. This has resulted in overall expansion of the shipping network as carriers find new markets. The world has also seen an increase in the number of companies offering shipping services, the first expansion since 2004.

i) Economies of Scale reflected in Ship sizes

Ships are generally becoming larger and bigger harbours and port infrastructure are needed. Smaller harbours are unable to accommodate larger, technologically advanced vessels. This limits them to smaller and often outdated ships.

j) Economies of Scale reflected in Port development

Larger ships are designed to deliver bulk cargo to break-bulk points, for further distribution to regional environments. Smaller ports will therefore not be able to attract the huge tonnages and TEU's which are likely to increase in future.

k) Specialisation of Vessels

Within the global shipping fleet, fewer general cargo ships are being ordered and there is a move towards specialization. Smaller (peripheral) ports that cannot be containerized will continue to rely on the general cargo carriers. The implication is that port managers should invest in specialized terminals with specific reference to "gearless container ships"¹⁹, if they wish to attract the growing number of large container vessels.

l) Larger Ships require Deep Water Harbours

Deep water harbours are becoming more important for large containerized fleets, for transshipment of goods, in all regions. Ports which are not naturally endowed with deep drafts should consider appropriate investments, in accordance with their capacity to accommodate certain types of ships.

m) New ship designs & Related Infrastructure

¹⁹ Gearless ships do not have their own cranes on board and depend on port's craning

The implementation of IMO 2020 is disruptive and will influence the building of new ships, propulsion and emission systems. It will also impact on fuel suppliers and bunkering services at all ports. Ports should be vigilant about investments on shore, in the logistics and supply chains.

n) Integration of Digital Technology in Shipping Supply Chain

Carriers are constantly seeking efficiencies to reduce the unit cost of each ton transported. This study is aware of one platform in which South African shipping lines are participating. Digital technology is a recent and fast-growing phenomenon in global shipping. "TradeLens is the result of a collaboration agreement between Maersk and IBM, a blockchain-enabled shipping solution designed to promote more efficient and secure global trade, bringing together various parties to support information sharing and transparency, and spur industry-wide innovation."²⁰

Large South African companies, Grindrod and Safmarine, are part of the Tradelens initiative. The platform intends to become a global standard for integrating all players in the shipping supply chain, enhancing efficiencies and reducing costs significantly. The system currently includes five of the world's six largest cargo carriers and extends to more than half of the world's ocean container cargo.

Full automation yields best economic benefits to major world ports and no South African ports will be able to fully exploit such automation. Cape Town is a mid-sized port and may wish to investigate semi-automation along with other interventions.

o) Increasing Competition from African Ports

Across the world countries are competing for increased numbers of ships and cargo volumes. Our continent is no exception with several projects being planned along all African coasts in Sub Saharan Africa. Significant development is occurring at nearby Walvis Bay in Namibia and along the West African coast developments are planned in Ghana and other countries. A competitive business model will be required to deal with new market entrants.

p) Carriers opting for more efficient ports

According to a recent PWC report, the key to attracting increased shipping is by focusing on the port's core competencies and enabling more efficient operations.

²⁰<https://newsroom.ibm.com/2018-08-09-Maersk-and-IBM-Introduce-TradeLens-Blockchain-Shipping-Solution>

“Improving the way ports are managed, creating greater capacity and reducing delays to shippers is key to making ports more efficient.” (PWC page 3: 2018)

African ports are significantly less competitive than many global ports owing to:

- Poor operational performance
- Increasing logistics costs
- Reduced reliability
- Port assets which do not keep pace with trade growth
- Small shipment sizes which increase the cost per unit shipped (exports from Africa are 1,5 to 3,5 times greater)

The most important metric for carriers is the efficiency of loading or unloading cargo, to reduce berthing time. Container processing capacity and dwell times; the lower, the more efficient. Stacking capacity and cranes influence storage capacity. Even if storage capacity is high, longer dwell times may be the result of inefficiency.

Walvis Bay is benchmarking against the world's most efficient ports in direct competition with South African ports.

q) Increased Chinese Investment

China, however, has seen the potential for investing in African ports and has sacrificed short-term gain in return on investment, for long-term benefits. “In value terms, for every \$1 invested China benefits \$13 in trade”. (PWC 4:2018) Long-term investment horizons by the world dominant exporter are linked to its global success.

r) Consideration of Concessions

In West Africa many ports have private sector operators whereas East Africa is characterized by government-owned ports. It may be helpful for TNPA to review the extent to which it wishes to control infrastructure and how much leeway it has to be landlord to private companies.

s) Efficient use of Vessel Cargo capacity

Bulk carriers carry exports but imports arrive by container ship. Ships visiting our ports may not be using their capacity optimally and are fully-laden for only one leg of their journey. This increases operating costs and goes against the trend of reducing unit costs, as driven by major carriers. Bulk carriers are specialized to carry a certain type of cargo (e.g. oil or grain) and are limited to same cargo type, for their return journeys. Most of South Africa's exports consists of commodities and primary products while manufactured goods are imported, reflecting the country's level of industrialization.

Balancing imports and exports is a function of logistical support, as well as the country's ability to produce products which the world demands. The literature hints at increasing containerization of dry bulk because containers offer greater flexibility for holding different types of cargo.

5.2. Trends in Yacht Purchasing

The Western Cape is known globally as a manufacturer of high quality yachts, specifically smaller varieties and catamarans. Yacht and boat-building yards are scattered around the province and have organized themselves into a significant exporter and earner of foreign exchange. The depreciation of the South African Rand is likely to promote such exports.

Globally, more smaller yachts are on order as a larger number of wealthy individuals and sports persons become attracted to yachting. South Africa may build some superyachts but is not a leader in this niche. One interviewee said: "Superyachts come here quite frequently but there is no qualified person to work on these yachts – you need to work to high specifications."²¹

South African yacht-building is a young industry which offers niched competencies and has substantial room for further development in design, research and development, construction and maintenance.

Globally customer focus is shifting towards semi-custom, smaller yachts which indicate a greater emphasis on personalization and design. Over the past few years, the largest global growth has been in the 24m to 27m size class of superyacht and this owes largely to increased investment in model development. The leading European manufacturers excel in these competencies and dominate the industry's intellectual property.

At the same time, a small number of very large yachts are being built, specifically in the UK. The global industry has produced mega yachts in the top bracket and an expansion of smaller yachts lower down. The Western Cape has the advantage of a good reputation and competitive pricing, over the rest of the world and well positioned to capitalize on the growth areas.

The trend towards smaller yachts is influenced by growth in "starting yachts", for first-time yacht-owners. It appears that opportunity exists for market development in Africa, for emerging business classes who may have an appetite for yachting. Some analysts predict that by 2050, emerging economies will see significant increases in yacht ownership

Yacht construction is also seeing increased emphasis on open boats owing to smarter hull construction, better engine efficiency and new propulsion systems. These trends are led by the

²¹ <http://www.boatingsouthafrica.co.za/2018/11/05/blackbeard-to-set-up-superyacht-hub-in-ct/>

leading European manufacturers. South Africa is however, recognized as a world-leader in double-hulled catamarans and this offers a foundation for further support to the sector.

Sailing yachts remain a small category, around 12% of total globally and it is not yet known how popular they are in the province. The market has also seen an increase in second-hand yacht sales abroad, as buyers seek good value purchases in the lower segments.

Many yacht builders started as small family-owned, cottage industry businesses but the sector is being "corporatized" as more companies have large overseas owners²². It appears as if the Western Cape has not consolidated its yachting/boating companies through mergers, acquisitions or buy-outs and the sector is dominated by around 40 small companies. Smaller companies may not be able to tap into government support (e.g. in skills development) for reasons mentioned below.

²² Business of Yachting 2019

5.3. Trends in Boat Orders

Boat building is a private sector activity in South Africa and government regulation is often an obstacle to achieving efficiencies.

High port tariffs, visa bottlenecks, and critical skills shortages continue to frustrate South African boat builders to the detriment of the national economy. This emerged at the City of Cape Town's first boat building 'sector engagement' under the helm of Alderman James Voss, the City's Executive Head of Economic Opportunities and Asset Management. Voss invited comments and questions from many of the country's top builders — among them Robertson & Caine and Damen Shipyards – and he received honest and forthright questions and comments.

Of particular concern to those who spoke was the sector skills crisis, currently compounded by the Department of Home Affairs which stands accused of blocking work visas for skilled professionals needed on boat building projects.

Transnet's tariffs and service capabilities also came under the spotlight, with several builders claiming Cape Town harbour is pricing itself out of the market. Transnet's pricey lease agreements with port tenants has fueled criticism that the parastatal is not genuinely interested in growing the blue economy. TNPA's business model is in fact, not geared towards marine repair.

"The City would do well to build an alternative harbour if it wanted to promote sector growth" was the slightly cynical opinion of more than one commentator at the sector function. However, speakers also spoke of the sector's huge potential, particularly when considering the broader value chain incorporating other water sports. There were encouraging words from SABBEX chairman Bruce Tedder and Voss himself, who said the City plans to explore "the best possible ways to support the industry and how to best address challenges such as skills development and access to (affordable) land." "The City is keen to support sectors such as the boat building sector to facilitate accelerated economic growth, job creation and economic inclusion through skills development," Voss said.²³

Voss also highlighted the City's recent success in co-funding the South African stand at the recent Miami Boat Show, which prompted a return visit from a US business delegation from Miami Dade County together with the CEO of the Port of Miami and the Miami International Airport. He said the City was also considering supporting the Cape Town International Boat Show, and would explore ways of addressing problems within the Port. Lance Greyling, City of

²³ <http://www.boatingsouthafrica.co.za/2019/04/04/boat-builders-bemoan-state-bureacracy/>

Cape Town Director of Enterprise and Investment, said the visa problem needed to be urgently addressed: "It is something we will continue to lobby for," Greyling said.²⁴

While the private sector requests support, the state is not only a regulator but also a significant purchaser of boats. The DTI report provided details of plans by various government departments to purchase millions of rands of boats, over several years. These craft could be produced locally and also attract at least 60% of local content. State purchases could boost the boat-building industry significantly if the government cooperated more closely with SABBEX, the industry organization. Project Phakisa is attempting to bridge the divide by improving communication between all stakeholders.

5.4. Trends in Marine Engineering Skills and Training

South Africa has been aware of limitations in maritime education for several years. "The 2011 Maritime Skills Development Study and subsequent Maritime Skills Summit, facilitated by the South African Maritime Safety Authority (SAMSA), in collaboration with strategic partners, identified the skills needed to grow the maritime sector and ensure South Africa's effective participation in the "Blue Economy"²⁵

Just as we distinguished between different types of vessels, we have conceptualised marine manufacturing as a distinct industrial segment. Building ships and boats requires different competencies to those required for repairing vessels. Marine component manufacture is an engineering specialization, ship-building requires additional skills in design and naval architecture, while repairs also require diagnostic ability beyond building.

Support services depend on logistical capability as offered by shipping agents, ship chandlers, and stevedores. These functions optimize the use of port infrastructure and are vertically integrated into the shipping supply chain, each dependent on the other.

²⁴ <http://www.boatingsouthafrica.co.za/2019/04/04/boat-builders-bemoan-state-bureacracy/>

²⁵ <http://www.saimi.co.za/about-background.html>

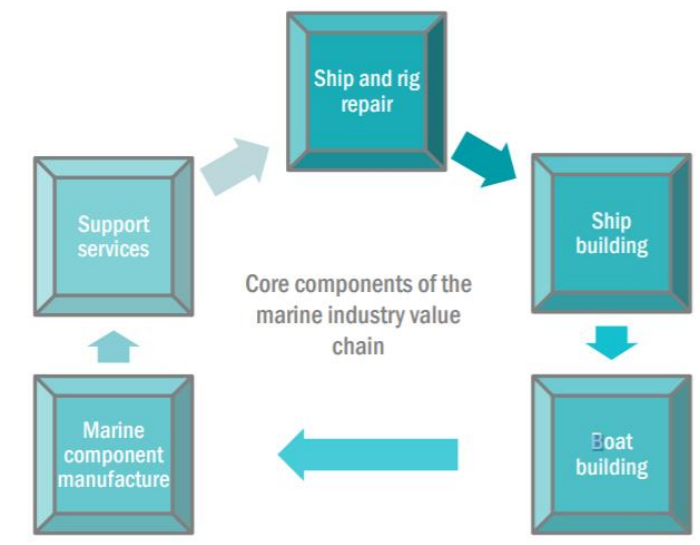


Figure 6: Marine industry value chain

South Africa faces two major challenges maintaining its maritime engineering skills. First is the brain-drain of engineers who are leaving the country and are able to find better job prospects elsewhere. Second is the slow pace of upskilling of new maritime skills, both at the artisanal/engineering and tertiary levels.

Industry expert Steven Kaplan says the brain drain happening in industry is devastating. "It costs the country a lot of money and resources to produce world-class engineers, to lose them because they cannot find work, in a country where they are needed the most, is a travesty."

The SAICE, being one of the biggest professional voluntary associations in the country with 12 000 members, has lost 1.73% of its members to emigration over the last three years. The institute conducted a survey among 1 367 of its members, in which 932, or 68%, of the surveyed engineering professionals indicated a willingness to work in the public sector.

The slump in construction has also affected engineer's propensity to remain in South Africa. "In terms of the official investment figures, we are expecting a contraction of 2 percent for both 2019 and 2020, improving slightly to a contraction of 1.2percent in 2021 ²⁶

Project Phakisa had identified the need to train 18 172 artisans, semi-skilled workers and professionals (initiative 12). However, its own website (updated July 2019) has indicated an alarming lack of progress.

²⁶ <https://www.iol.co.za/business-report/economy/decline-in-civil-engineering-sector-set-to-continue-21014276>

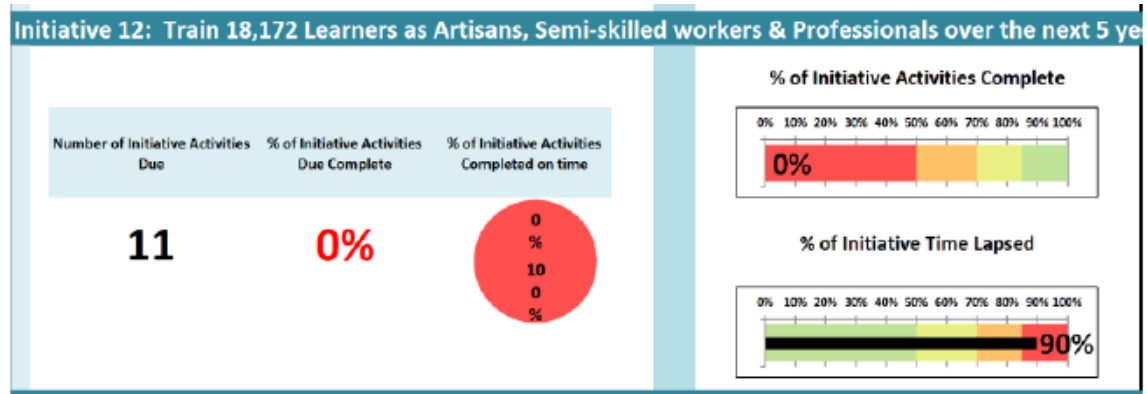


Figure 7: Operation Phakisa: Initiative 12 progress

Project Phakisa's initiative 11 intended to establish Recognition of Prior Learning Centres of Specialisation in Saldanha Bay. As the graphic below shows, no progress has been made.

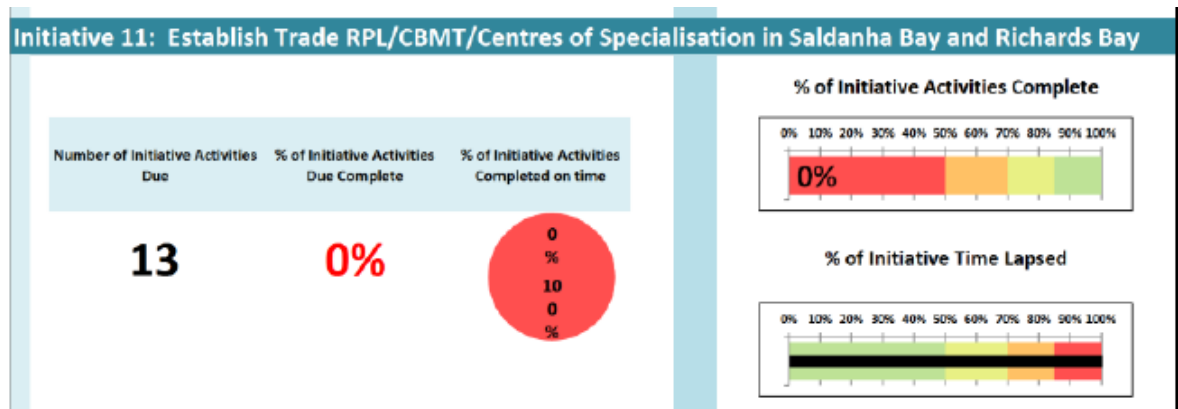


Figure 8: Operation Phakisa: Initiative 11 progress

Initiative 9 intended to train 2550 TVET graduates on 18-month Workplace-based Experiential Learner programmes. No progress has been made here even though project time frames have elapsed.

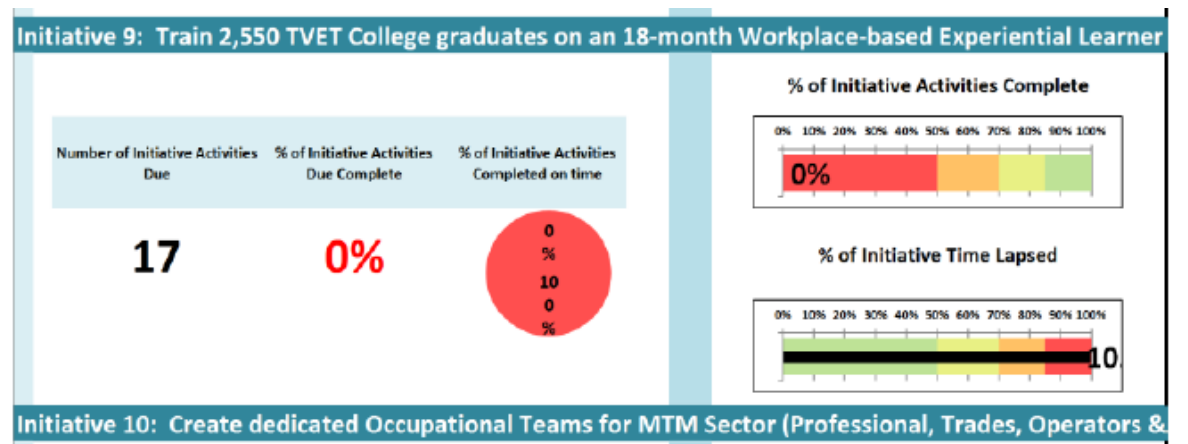


Figure 9: Operation Phakisa: Initiative 9 progress

SABBEX addressed the need for further skills training, claiming more action was required to plug a serious skills gap. “We need to get beyond just talking about the problem,” one executive said.²⁷

The depletion of the country’s engineering base and inability to supplement skills is hindering the progress of the marine engineering sector. The country is aware of the need to improve skills but it appears as if efforts are fragmented and not sufficiently coordinated in accordance with industry requirements.

A key question also concerns recognition of South African qualifications by the global industry and the adherence to international standards; further investigation is required.

It is important to note that no *research-based* higher education qualification in marine engineering is available in South Africa. Nelson Mandela University offers a marine engineering qualification, the only one of its kind in South Africa (this may have been influenced by SAIMI, which promoted the idea). Cape Town offers SAQA linked courses in boat-building. SAMSA, through its institutional partnerships, offers marine engineering for very small coastal craft like fishing boats.

INSTITUTION	KIND OF QUALIFICATION	ACCREDITATION
MOGA	Ship, Rig Repair & Ship Building Short Courses & Full Time	SAQA
False Bay College	Yacht and Boat Building NQF L2 – L4	SAQA
CPUT	National Diploma: Marine Engineering (discontinued)	SAMSA
College of Cape Town	National Certificate N1 – N3	SAQA
Nelson Mandela University	Bachelor of Technology in Marine Engineering	SAMSA, ISO, STCW 2010
SAIMENA	CPD	
SSTG	MM1, MM2	SAMSA
Private Companies (e.g. Damen Shipyards)	Apprenticeship Training	MerSETA, Chieta

Table 3: Dedicated Marine Engineering Skills Development Programmes

A number of institutions offer support courses for the marine economy (e.g. health and safety, commercial aspects). The main requirement however appears to be at an artisanal level in

²⁷ <http://www.boatingsouthafrica.co.za/2019/04/04/boat-builders-bemoan-state-bureacracy/>

engineering disciplines. The table below outlines the skills and professional programmes we have identified, specifically for marine engineering.

Despite South Africa's underperforming economy, the marine manufacturing sector highlights surprisingly strong export potential for leisure boats.

Imports for marine manufacturing have decreased except for cranes and equipment. Many stakeholders agree that this sector is dependent on skilled labour to compete against an international market, where shipping lines are based.

In 2014 the DTI identified the following opportunities:

- Local procurement of materials to build working vessels
- Utilisation of local labour
- Establishment of a centrally funded “demand led skills programme” establishing ship/boat building cluster

Analysis of the skills profile across the MMF sector has identified the core skills required and as a result, has found constraints and gaps in skills development. The industry knows which skills are required. Actions recommended to develop these skills are summarized in the four focal areas proposed by SAIMI/Ernst & Young:

- Strategic Focus Area 1 – Attracting strategic sourcing of experienced artisans
- Strategic Focus Area 2 – Large employers source newly qualified artisans and “train for the market”
- Strategic Focus Area 3 – Incentivise and enable employers to provide work-based learning to apprentices/technicians/engineers.
- Strategic Focus Area 4 – Support employers to establish/improve specialists through on-the-job training (delivering on specialist needs)²⁸

At the time, these projects were to be coordinated by SAIMI, MIASA and MMWG. Funding agencies and training providers would supply support in skills development.

The ship and boat building sectors could replace South Africa's ageing fleet, specifically the fishing fleet and local public procurement can be used to create jobs in the MMF sector. It may be helpful to initiate a review of industry subsidies especially because building of fishing boats involves high local content and requirements are less stringent than for ships.

The boat building sector could capitalise on South Africa's reputation for craftsmanship and customisation at low cost, if it restored its skills base. The market recognizes that certain buyers

²⁸ SAIMI and EY (2017) – How can the Marine Manufacturing Industry Release the binding skills constraints facing the sector? – Industry & Skills Research Report

are less susceptible to macroeconomic developments (e.g. wealthy yacht owners and budgeted state expenditure). Efforts to retain skills and maintain positive perceptions of the industry will be helpful and efficient methods of upskilling are desirable.

We summarise a baseline situation for skills development as follows:

- (a) Despite industry complaints about poorly qualified workers the majority of employers offered no training before 2015 and this situation appears to have continued
- (b) Inadequate skills lead to poor quality, rework, materials wastage, slower production processes, extra time and lost opportunities for new work. Deteriorating infrastructure has only worsened the situation
- (c) Yacht and boat builders serve a private client base and are export-orientated. They have embedded internationally-accepted management processes into their production. Some skills may be transferable to ship repair and building of other boats but more detailed consideration is required
- (d) The country suffers a major shortage of qualified artisans and technicians with specialist maritime skills, which requires general engineering foundations
- (e) The industry has few or no mechanisms for retaining skilled staff, including the lack of RPL mechanisms and career pathing
- (f) Employers report difficulty sourcing candidates with the right educational foundations from TVET colleges
- (g) Most companies in MMF are small businesses and do not have the capability to manage complex administrative processes, red tape and high training costs. They are unable to benefit from some government support initiatives
- (h) SME's often do not know how to integrate training back into their work processes, possibly reflecting a lack of strategic management expertise
- (i) The country lacks maritime trainers and lecturers and is unable to retain specialist providers, courses and materials
- (j) Most employers "fall outside of the skills development legislative requirements ... where small employers are able to access grants the process is overly complex and costly and the benefits generally too small to justify the effort."²⁹
- (k) Many firms sub-contract work and therefore do not invest in training their own staff. Staff stability needs further investigation.

²⁹ SAIMI and EY (2017) – How can the Marine Manufacturing Industry Release the binding skills constraints facing the sector? – Industry & Skills Research Report: page 29

- (l) Companies prefer to hire staff who already have the skills and poaching within the industry does not allow employers to recover investments in training. The industry is however, positively disposed towards staff being recruited by other repairers because no single company is able to sustain permanent employment of a large workforce.

Lack of appropriate skills and shortages of skills, specifically in marine engineering, along with failed programmes to attract and develop expertise, continue to plague the MMF sector.

6. STAGES OF DEVELOPMENT: RIG AND VESSEL REPAIR AND NEW BUILDS

6.1. Vessel Repairs

This study has considered the status of MMF at the different ports in terms of the port's evolution and the life cycle of the function itself. Based on qualitative feedback from industry, MMF is represented in the life cycle diagram below, which offers a qualitative interpretation of the sector's strategic position at each port.

The diagram below is based on an understanding of industry life cycles as developed by Ischak Adizes³⁰, based on feedback received during interviews and information in secondary reports. The growth of the industry is "measured" against sales and profits, which are plotted against hypothetical time frames, which in turn describe the phases of the industry life cycle.

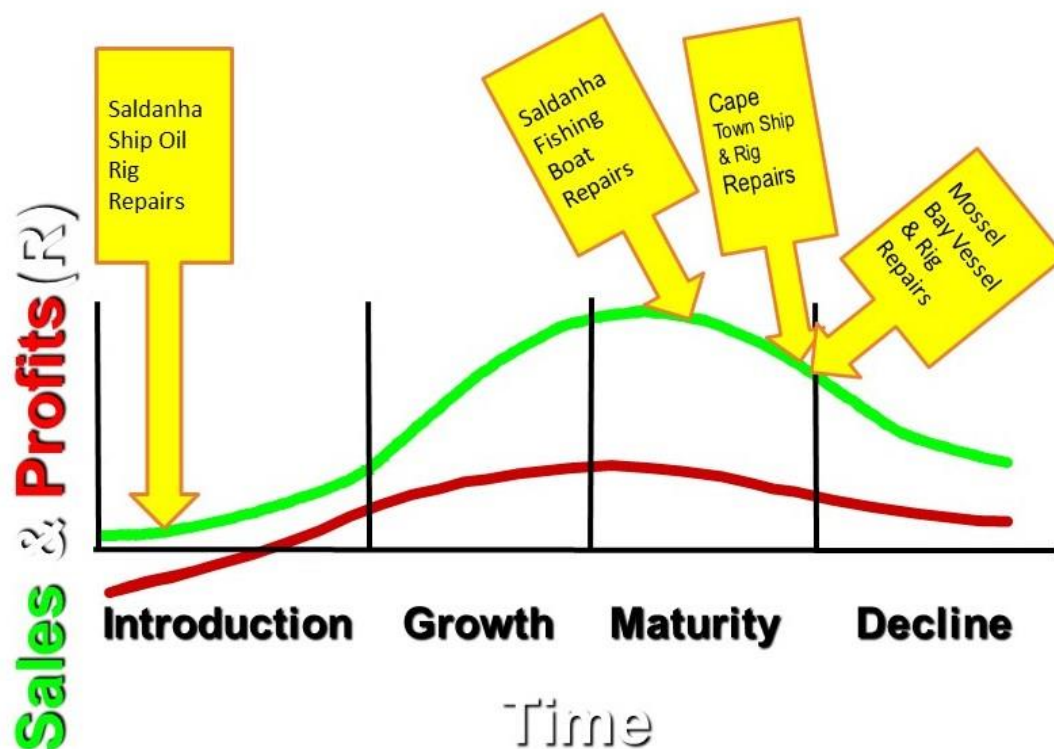


Figure 10: Lifecycle of vessel repair services in WC ports

Saldanha Bay is not a ship repair hub nor does it offer facilities to repair oil rigs. The port is able to slip fishing boats at the fishing quay. Berth 205 was initially envisaged as an oil rig repair facility but TNPA subsequently used it for manganese exports, when the oil market declined. No other ship repair facilities exist. A yacht repair facility run by a private company is available outside the port itself. For these reasons, we see Saldanha Bay as new entrant into maritime

³⁰ <https://adizes.com/lifecycle/>

repair, specifically for oil rigs. Fishing boat repair can occur in this port, at a facility managed by Sea Fisheries (and owned by the Department of Public Works). The infrastructure is not new and appears to be in frequent use, hence our conclusion that fishing boat repair is in its mature phase.

Likewise, Mossel Bay is a historical repairer of fishing boats but broken infrastructure has seen loss of business, higher costs to customers and reluctance to repair there. The wooden slipway urgently requires replacement and the port can only repair boats up to 180 gross tons. Dry dock repairs are in serious decline and if the envisaged slipway repairs do not occur by 2020, the repair sector may disappear completely.

Cape Town is the premier repair port in the province but is also in its late maturity owing to run-down infrastructure, excessive costs of port rentals, uncompetitive contractual terms, failure by TNPA to provide services as promised and thereby incurring additional costs to customers, loss of clientele and ultimately, industry's negative attitudes towards vessel repair at this port.

Ship repair occurs in ports where ships do business. Only in the event of an emergency will a ship dock at a port which it does not usually serve. Larger ports will attract larger, more complex repairs, for larger vessels; these create more employment opportunities in the host port. A port's connectivity to shipping lines is a determinant of future expectations for ship repair volumes.

The PWC report³¹ distinguishes between different types of ports based largely on the sizes of ships they can accommodate and hence the cargo volumes which they can handle efficiently, to the benefit of carriers.

The study describes the emergence of major container hubs, which will serve as break-bulk nodes, for distribution of cargo to other destinations. Durban will remain South Africa's major hub, with Cape Town in second place and Nqura (Coega) projected to occupy third place. The emergence of hubs is attributed to 3 factors:

- Shipping liner connectivity
- Trade volumes
- The size of the port hinterland

Even though Cape Town is fairly well-connected by Sub-Saharan African standards, it is unable to compete with the comparative advantages bestowed by Durban's geography. From a ship repair perspective therefore, industry growth is likely to remain tied to smaller vessels.

³¹ Strengthening Africa's Gateways to Trade – PWC 2018 page 5

The trawling industry is a significant contributor to Cape Town's ship repair market. SADSTIA reports that dozens of vessels of various sizes comprise the South African fishing fleet, as operated by large companies like Sea Harvest, I & J and Oceana. The trawlers have a replacement value of R3.7 billion and are maintained at a cost of R 300 million annually. Repairs and maintenance, which includes dry-docking, occurs every 18 to 36 months. This study confidently assumes that most repairs and dry docking occurs in Cape Town, primarily in the Robinson Dock and Synchronfit.³²

Cape Town also benefits from an anchor client in Sturrock Dock, which project manages scheduled maintenance of its diamond dredging ships. Half of the dock is used for six months of year, with each ship docked for approximately two months, throughout the year. The smaller section of the dock is available throughout the year for other repairers, vastly increasing capacity for the repair of smaller vessels. It should however be noted that since December 2016, the inner caisson collapsed and reduced repair capacity significantly. Temporary repairs in February 2019 offer the prospect of restoring workloads once again, subject to alignment of other factors related to port efficiency. Potentially therefore, the repair industry in Cape Town may not be heading for inevitable decline and could be rejuvenated, subject to efficient management and wise strategic choices.

It should also be noted that Namibia's Walvis Bay has recently completed its \$300 million expansion of container facilities and will compete directly with Cape Town. "Namport has already started moving equipment from the existing 350 000-TEU container terminal to the new 750 000-TEU terminal, which has four super post-Panamax ship to shore gantries to replace the current rubber-tyred gantries."³³

Walvis Bay is a relatively new entrant in the industry and it will take time to establish itself as a significant cargo port and maritime repair centre. It is limited in terms of all three of PWC's criteria for it to become a hub; it does however have a floating dry dock. It could however compete with Cape Town for both cargo and possibly small dry and wet repairs, given their non-hub status. The problems cited around Cape Town's ageing infrastructure will only encourage competition.

The PWC report concludes that "spending on existing facilities may yield better results than trying to create alternatives to established nodes in the network."³⁴ The type of investment should focus on ports' inherent function, including deepening of channels and transshipment

³² <https://www.sadstia.co.za/fishery/facts-and-figures/>

³³ <http://www.ftwonline.co.za/article/194024/Africa-s-newest-container-terminal-due-to-come-on-line>

³⁴ Strengthening Africa's Gateways to Trade – PWC 2018 page 6

facilities." Nonetheless, Walvis Bay may offer sufficient competition to reduce business flows to Cape Town in future especially if it captures European and trans-Atlantic trade.

It should also be noted that China, while investing in Africa, has also invested heavily in Hambantota Port in Sri Lanka at a cost of \$974 million and plan a further \$1,12 billion, to serve as a hub to East Africa. While distant, this upgraded port may impact on Durban and possibly Cape Town.

Cape Town's repair industry is vulnerable and causal factors underlying industry success go beyond infrastructure alone. Complex issues of ownership, governance, management, communication and the regulatory environment impact on the sector. If these are not aligned to the expectations of the global shipping industry, growth in the repair sector will be slower than projected by Operation Phakisa.

6.2. Vessel Manufacturing

Cape Town is the centre of vessel-building in the province, including yachts, boats and ships. Yacht-building is a successful, privately-run industry which contributes significantly to exports. It also markets the city internationally, largely using its own resources. It is a growth industry and with appropriate support, can be expected to increase its contribution to the provincial economy. Commercial boat building and exporting is also a major industry in Cape Town. Seventy percent of the country's yacht and boat building capacity is located in Cape Town. Large vessels are built mainly in Durban.

Statistics downloaded from the DTI's trade statistics show vessel exports from South Africa since 2015. Data for HS codes was extracted and show that the ship-building sector has been in a slump since 2017; this may also reflect cyclical activity in ship-building. Boat and yacht-building activity is more consistent and the fluctuations are not as extreme as with ship-building.

VESSEL EXPORTS FROM SOUTH AFRICA

	2015	2016	2017	2018
SHIPS (HS 8901)	138 133 627	481 309 142	197 273 616	49 300 837
BOATS (HS 8903)	1 473 483 434	1 161 125 625	1 626 140 172	1 631 223 661
	1 611 617 061	1 642 434 767	1 823 413 788	1 680 524 498

Figure 11: SA vessel exports ³⁵

³⁵ The DTI, www.thedti.gov.za

Commercial boat building is a significant segment in Cape Town which boasts prominent boatbuilders like Damen, Veecraft, Tallie Marine, Legacy Marine, Nautic and companies like Two Oceans Marine which manufacture yachts and boats. The sector is supported by an extensive supply chain which sources supplies globally and nationally. Commercial boats are built-for-purpose and a wide variety of designs are available owing to the diversity of functions they perform (fire-fighting, rescue, pollution control, surveying, supply etc.) It is an exporting, sustainable sector and trade statistics show that boats and yachts are by far the largest category of vessel exports, exceeding export of ships by several multiples.

Trade data and industry reports suggest that the yacht and boat sectors are geared for growth and should be supported accordingly. The criteria required for international maritime compliance of these craft are also less stringent than those for ships.

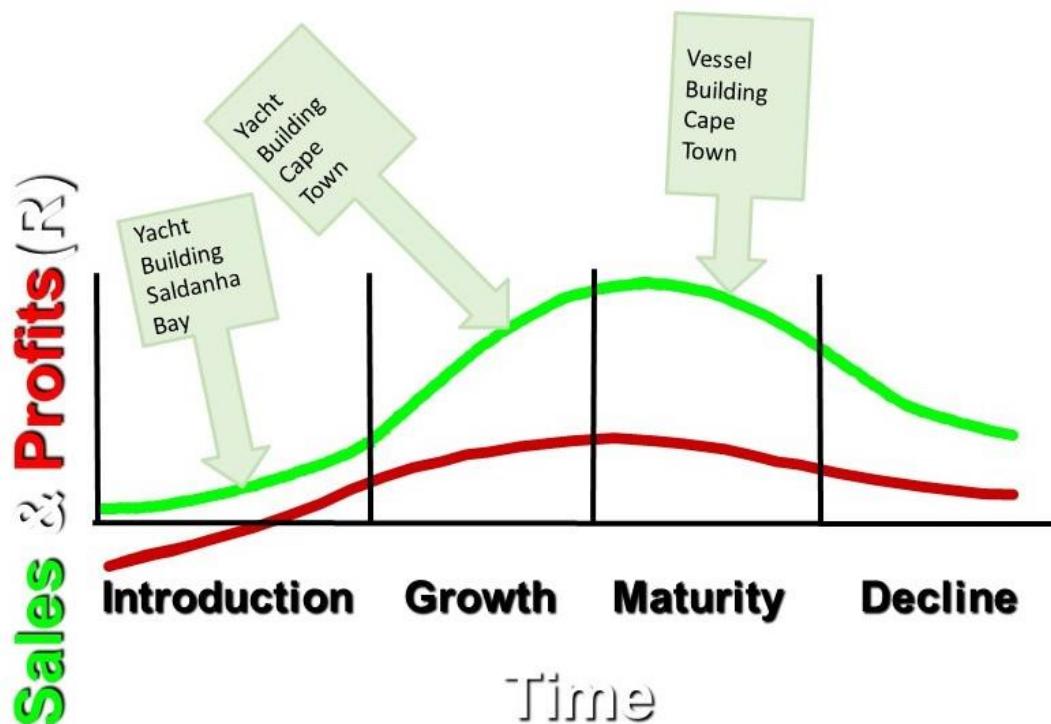


Figure 12: Lifecycle of vessel building in WC

Ship-building in Cape Town however, is under threat because of regulation, local content demands and uncompetitive contracts by TNPA. Large ocean-going vessels must necessarily comply with international standards for manufacture, repair, insurance, safety and pollution controls. Shipping is a capital-intensive, high-risk, global industry in which technological rigor is critical for proper operation, South African policy demands concerning redress are not compatible with international industry requirements. Along with the inefficiencies of TNPA and

apparent fragmentation within the shipping sector itself, the view that the new-builds sector may be heading for decline is realistic.

Accordingly, therefore, we find that vessel-building in Cape Town is racing towards late maturity. Not because of infrastructure, but because the business environment is generally not supportive.

The sector has also not been well-supported by the South African state, government departments and scheduled organisations which have either taken their business elsewhere or failed to promote the local industry. Robust debate will be required on the application of redressive policies in the context of long-standing international requirements.

6.3. Projection of Future Port Performance re: Repairs

Stratecon's 2017 and 2018 reports indicate that income from repairs increased in 2018, following two years of decline in 2016 and 2017. New builds increased from 2015 to 2017 and then slumped by 45% in 2018. Both subsectors are not easily predictable and volatility may be the result of poor infrastructure, loss of markets, macro-economic factors and the vessel-building business cycle itself.

Our initial findings suggest that the industry is struggling to stay afloat because profit margins are reportedly slim. Shutdowns of key facilities from 2019 onwards may negatively impact dry repairs. On the other hand, the yacht sector is stable and may grow slowly but steadily, while the fishing sector's ageing fleet will require both new-builds and on-going maintenance.

Industry feedback suggests that the sector is under great strain because of – *inter alia* - poor infrastructure, excessive pricing and very poor service levels from TNPA. Concern has been expressed that the sector will decline within a decade if its concerns are not addressed. The relocation of companies away from the port and the complete disappearance of others are indicative of an industry under threat.

TNPA is simultaneously aware that it owns Southern Africa's only large dry dock and other major dry-docking facilities. While competing ports are capturing some business from Cape Town in particular (and possibly Mossel Bay), they are not able to replicate the city's advantages, such as a large supply chain. TNPA also reports that it is able to secure rentals within the port at market-related rates and has no incentive to reduce prices, in favour of ship repair or fabrication. It appears not to have considered that the sector is forecasting possible decline and prefers pursuing its own cargo-based strategy.

The figures presented in the Stratecon reports imply an overall upward trend since 2015, based on the assumptions of the writers. Despite its helpful contribution, underlying industry dynamics were not investigated owing to the quantitative nature of Stratecon's work. Our investigation suggests that complex dynamics are at work and that the context from which data arises should be considered for projection over the next few years.

The ship repair market in the Western Cape has been volatile over the last few years, as evidenced by erratic swings in repair and new-build activity on a quarterly and annual basis. It is risky to forecast income, which further complicates planning and commitment to fixed costs. The safest option is to juxtapose the qualitative findings of this study on historical data and to suggest activity for the port of Cape Town, the centre for the industry.

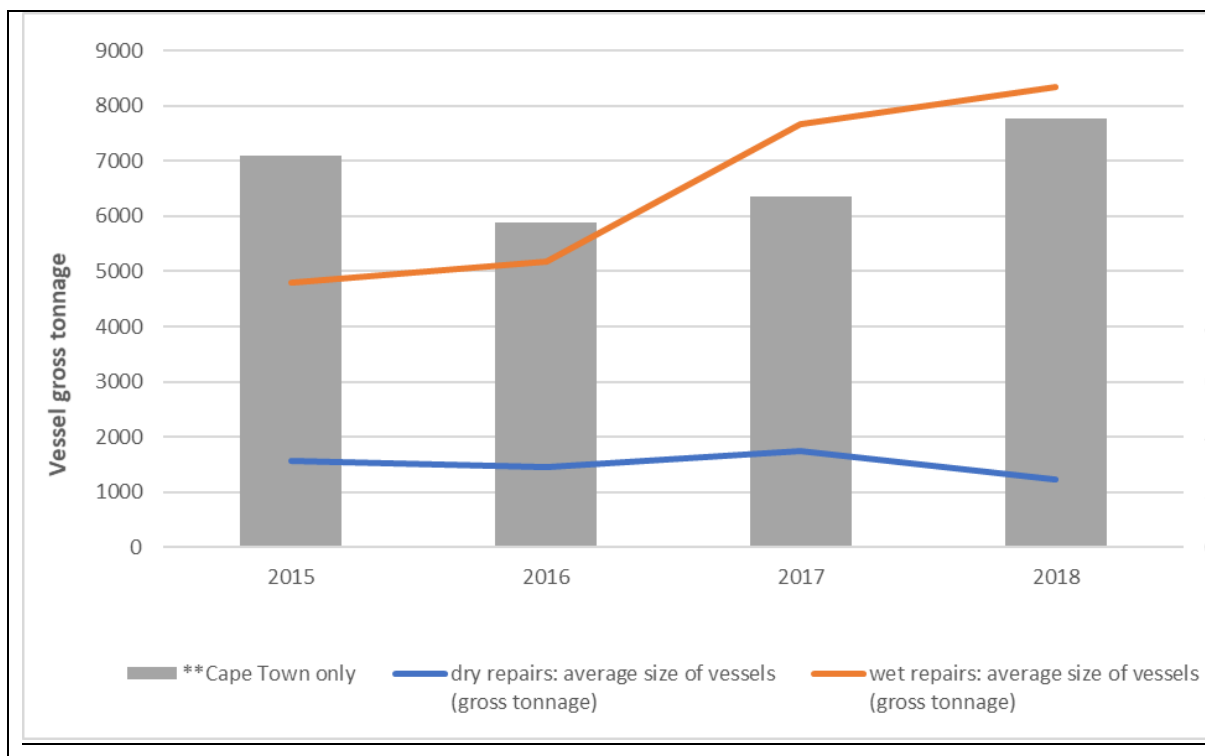
Prior to 2019 global demand for dry docks was increasing by 13% per annum. Current global trading conditions, oil price fluctuations and political tensions are increasing uncertainty about

future trade flows. Erratic demand will revise Operation Phakisa's growth projections downwards of 4% per annum, for South Africa.

Cape Town has seen a significant decline in dry dock utilization over the three years since 2015. This may have been due to ageing facilities, a conscious decision by port management or closures forced by upgrading infrastructure. Further upgrading from 2019 onwards is likely to improve forecasting based on reasonable assumptions, possibly beyond Operation Phakisa's projections.

7. MARKET FORECAST

Cape Town completely dominates the ship repair and manufacturing market and the other two ports have no impact on market forecasts. Figure 26 below shows the tonnage of vessels for wet and dry repairs over the past four years. The average size of vessels for wet repairs has increased steadily while dry repair tonnage has dropped. During 2017 and 2018 Sturrock Dock's inner caisson was broken and the numbers demonstrate the versatility of the supply chain to do both types of repairs. If this trend continues and wet repair capability is enhanced, it is reasonable to expect that wet repairs on increasingly larger vessels will increase.

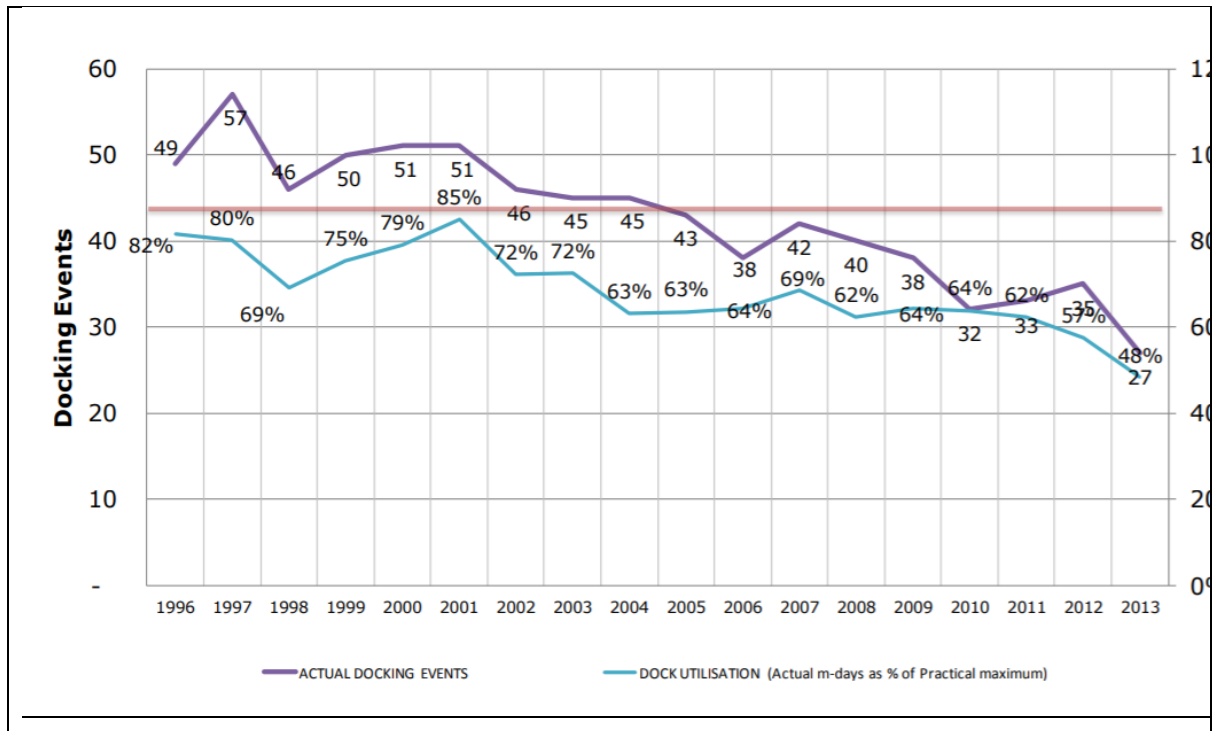


Graph 1: Cape Town average vessel size ³⁶

The limitations of current secondary data however, do not enable rigorous forecasting and require detailed longitudinal data from the port itself. Available data does not segment repairs by facility and we are unable to discern the volumes and vessel details docked at Sturrock, Robinson or the Synchrolift. Historical data is helpful but is not necessarily a predictor of future performance. The condition of infrastructure and very limited feedback from vessel owners themselves, also impact forecasts. A major consideration is the contribution of the anchor client at Sturrock Dock, without whose support numerous smaller entities would collapse, and TNPA's rental and tariff income would drop noticeably.

³⁶ Stratecon WC Maritime industry (operations Phakisa) 2018, Economic contribution

In a paper written in 2014 an academic at Stellenbosch University, Dr Goedhals-Gerber, provided data for dockings and utilisation of the three dry docking facilities in Cape Town.



Graph 2: Trend in occupation Robinson dry dock³⁷

At Robinson Dock, since 1996 until 2013 the number of dockings declined significantly. The actual utilization of the dock itself had also dropped over the same period. Details are represented in Graph 2.

The same trend was noted for Sturrock where the number of dockings decreased in the period 2001 to 2013. The utilization trend for the dock also trended downwards, as shown in Graph 3.

The Synchrolift also showed a downward trend in docking events from 2001 to 2013. The trend for dock utilization was also downwards, with occasional peaks, as shown in Graph 4. The synchrolift is the most popular facility because it is cheaper than the traditional dry dock and is able to accommodate four ships simultaneously, possibly a fifth on the lift itself.

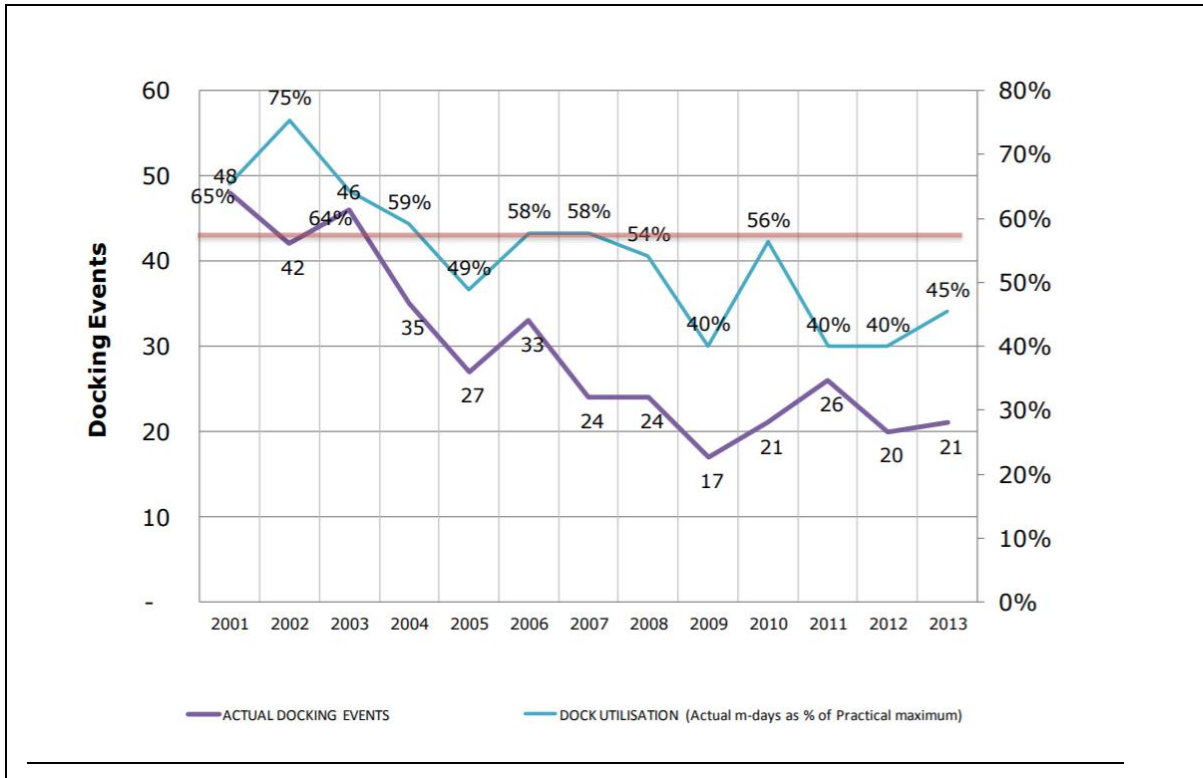
Sturrock Dock is better suited to larger international vessels while Robinson Dock may be used more frequently for local trawlers.

Recent reports by Stratecon also show a decrease in number of vessels at dry-docking facilities between 2015 to 2018. In 2013 there were 209 total dockings but by 2015 the number increased to 331, after which it progressively declined each to 272, 174 and 171 in 2018. The consistent

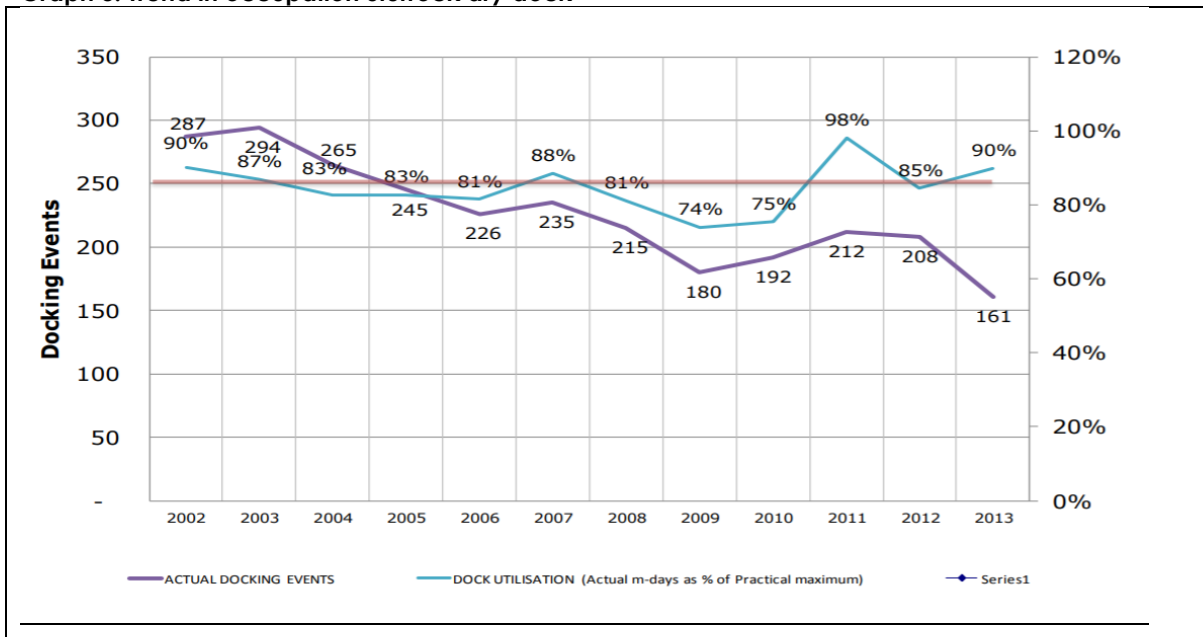
³⁷ The Market for ship repair facilities in the port of Cape Town, Leila L. Goedhals-Gerber, 2014

trends suggest that industry cycles may affect these swings in docking numbers and that infrastructure usage is subject to these broader, global dynamics. ³⁸

Both Robinson Dock and the Synchrolift largely serve the fishing industry, where at least some of the explanation may be found.



Graph 3: Trend in occupation Sturrock dry dock ³⁹



Graph 4: Trend in occupation synchrolift ⁴⁰

³⁸ Western Cape Maritime Industry (Operation Phakisa) 2018 – Economic Contribution - Stratecon

³⁹ The Market for ship repair facilities in the port of Cape Town, Leila L. Goedhals-Gerber, 2014

^{40, 41} The Market for ship repair facilities in the port of Cape Town, Leila L. Goedhals-Gerber, 2014

Goedhals-Gerber's paper identifies provides helpful information about fishing vessels admitted to Cape Town, in Table 4.

Year	Foreign Fishing vessels	Local Fishing Vess
	Number	Number
2003	1061	43
2004	855	97
2005	984	175
2006	757	124
2007	636	278
2008	568	255
2009	461	199
2010	77	126
2011	95	116
2012	95	128
2013	69	96

Table 4: Fishing vessels admitted to Cape Town ⁴¹

It is very clear that international trawlers had found alternatives to Cape Town over the last fifteen years, although some continue to patronize the port. Local trawlers however, also display peaks and troughs, related primarily to the granting of fishing quotas. The last round of quotas was granted in 2005/6. From 2005 to 2008, the number of fishing vessels visiting the harbor increased sharply, after which numbers gradually dropped off.

We can expect the same pattern to repeat itself in 2020/1, when new fifteen-year fishing quotas will once again be awarded. We can forecast an increase in repair business at Robinson Dock and the Synchronlift from 2021 onwards, for at least three years, after which business will subside to normal levels again. We can also expect increased demand for new-builds of trawlers and opportunity for import-substitution exists, subject to marketing by local ship builders.

The future of Sturrock Dock and the repair berth is fairly secure for as long as its anchor client remains. Any additional business from international vessels which are too large for the other docks, will be welcomed but is also not certain. International cargo vessels do not visit Cape Town for scheduled maintenance and prediction is risky.

Riskiness of prediction is broadly summed-up in the uncertainty of the business environment in South Africa and specifically, industry's unhappiness with TNPA's pricing strategies. Little doubt remains that non-competitive pricing of rates and tariffs contributes to business declines, as seen recently with the withdrawal of major importer ArcelorMittal from Saldanha Bay. In its

letter to the Ports Regulator, Arcelor Mittal stated that "increases in electricity, port and rail tariffs over the past number of years have made ArcelorMittal uncompetitive locally and internationally. Constant tariff pressures, however, risk the continued viability of its current operations and consequently are under constant review at present."⁴² This industry faced strenuous competition in the wake of a drop in the steel price. Increased port fees of 4,8% contributed to the shutdown of this significant employer.

Industry however, has made a substantial argument about TNPA's methodology which appears to be designed to gauge money from clients. SASSOA's very detailed letter to the Port's Regulator analyses several accounting methods used by TNPA to extract super-profits from the private sector. Point 18 states "With the utmost respect, this letter constitutes a textbook example of rent-seeking. In the face of the Regulator revising its methodology to ensure that the TNPA does not inadvertently earn supernormal profits, the TNPA utters dire threats about being deprived about R32bn in supernormal profits, in present value terms". SASSOA continues in point 49 that "the depreciation allowance granted by the Regulator has not been matched by capital expenditure maintaining the asset base. This goes completely against the principle of financial capital maintenance that underpins "the appropriate application of depreciation".⁴³

Both international trends and the internal business environment do not favour increased vessel visitations to our ports. It is also becoming evident that the cumulative pressures arising from the South African business environment are encouraging disinvestment or commercial failure.

Accordingly, we are obliged to conclude by outlining scenarios and depending on South Africa's choices, these will influence the direction of the repair and new-builds industry.

⁴² Arcelor Mittal – Letter to the Ports Regulator 16 September 2019

⁴³ SASSOA – Letter to Port Regulator 16 September 2019

8. RESULTS AND DISCUSSION

Arising from the interviews, stakeholders raised dozens of points which we have consolidated below. *Availability of infrastructure* is the major enabler for success of the repair and new-builds sector and a direct causal relationship can be confidently asserted. Access to infrastructure is a secondary causal influence and impacts on efficiency and cost-effectiveness of the sector.

We refer to four types of infrastructure:

- Repair facilities themselves which include dry docks, synchrolift and slipways, and related repair infrastructure such as piped gasses, cranes and staff facilities, all of which enable repairs on land for which docking fees are charged
- Berthing facilities at which vessels lay-up for wet repairs or queue up for access to dry-dock facilities and reflected in port tariffs
- Workshops and administrative offices in the port precinct which are subject to rental lease agreements
- Port services which enable efficient scheduling and movement of vessels for docking, repair or launch, all of which attract port tariffs and docking fees

Further details of infrastructure are included below, when each port is discussed in greater detail.

8.1. Infrastructure Development and Management

The primary enabler for both ship repair and building new vessels is efficient infrastructure which is managed in accordance with industry expectations. In an industry whose existence depends on traversing the globe, port performances are compared regularly and competitive port services are becoming increasingly important for attracting shipping lines.

Cape Town is the centre of ship and oil rig repair in the province because it is able to provide generalist and some specialist skills, to other ports. The repair sector is mature but has recently seen the demise of some companies and this has been related to the loss of shipping clients. Infrastructure at the three provincial ports has deteriorated over the past two decades, increasing expenses throughout the supply chain. The overarching reason for pressure on the industry appears to be the deterioration of repair infrastructure and TNPA's failure to provide services alongside Cape Town's dry docks facilities such as crange, water reticulation, piped gasses and staff facilities. In some cases, broken infrastructure has damaged vessels and poor docking skills have reportedly also caused concern and loss of business. TNPA is perceived not to be service-orientated nor "does it have a maintenance mentality" and is regarded with suspicion as an industry enabler.

Dry docks are the gold standard for ship repair. Even though Cape Town's Sturrock and Robinson docks were built for world-war 2 naval vessels, they can accommodate sizable ships which have a beam of less than 38 metres at the base of the dock. The Synchronlift and Robinson Dock are able to accommodate vessels of around 60 metres in length because of the limitations of the Alfred basin. These facilities serve a niche market of smaller ships and appear to be occupied frequently. There may however be a need for additional docking facilities (such as a floating dock) which may increase repair volumes. It is not clear whether the industry is requesting a floating dock or how this requirement is being articulated to TNPA, whether by individual companies or by the sector as whole. The fragmented nature of industry communication does not enable cohesive, strategic communication. Improvements to infrastructure would benefit from well-coordinated communication from the industry itself.

Berthing facilities at Cape Town's repair quay enable wet repairs, a repair category which has grown over recent years. Concern has been raised about ageing berths and the ability of bollards to secure large vessels safely. There is concern that delays caused at dry docks impose higher berthing fees to customers and that TNPA's pricing model does not offer customers reasonable options for cost reduction. It has been mentioned that TNPA ignores its own inefficiencies and blames private customers instead, for causing delays.

A recent article reported that "a ship repair source said he remained skeptical of Transnet's investment promises. "I'll believe it when I see it," he said, adding current repair work amounted to little more than "patch-up jobs". These sentiments go beyond criticism: "There is huge frustration. It is like Cape Town airport with no airplanes – essentially that is what is going on at the port," he said. This appears to be a complaint about low work volumes in the repair sector because cargo volumes are increasing.

Concern has been expressed about high rentals in the port precinct, reducing competitiveness and potentially driving away investment. There is a perception that high vacancies exist within Cape Town port but TNPA is not aware of this. TNPA follows a property valuation model based on waterside location for Cape Town; it believes that this approach will yield maximum income to itself but also does not recognize the negative effect of high property rentals on industry cost-structure. The terms of the TNPA property lease has also been questioned for its short duration (5 years), seemingly punitive pricing terms if an investor improves the property. Excessive annual increases are also cause for concern. It is conceivable that some companies may relocate outside the port or possibly disinvest completely.

In an era where efficiency influences shipping lines' port of choice, industry reports that perceptions of Cape Town port are unfavourable. Industry is unable to plan effectively because TNPA appears not to prioritise access to the port and its facilities according to global

industry standards. However, TNPA claims that scheduling is a complex activity which involves factors outside the field of vision of industry players (e.g. priority to ships in distress, passenger liners, carriers of dangerous substances, inclement weather, large cargo ships etc.). Cape Town is also very busy and can only pilot one vessel into port at a time. There appears however, not to be any relief to customers for delays caused even though TNPA management mentions that internal mechanisms are available, if different internal departments are navigated. Concerns have been raised about the efficiency of management for the port and its facilities. TNPA management believes that the Port Consultative Committee (PCC) is the forum for raising industry concerns but it appears that this mechanism is not being utilized to its full potential.

Despite Operation Phakisa's visible profile industry has become disillusioned and disappointed at repeated delays in infrastructure repairs and has absorbed additional costs itself, passing these onto vessel owners. Industry has also mentioned non-responsiveness to its concerns by TNPA. This disillusionment *may account* for industry opting to proceed independently and not participating in the PCC, as meaningfully as it could. It would appear that the PCC is not functioning optimally in Cape Town and Saldanha Bay.

Some boat builders and repair companies are located outside the port precinct, notably in Paarden Eiland. They report that loss of business is impacting their sustainability and that the entire supply chain is struggling to survive. Industry experience contrasts with the port's income data which shows an overall increase in repairs in Cape Town, despite damage to infrastructure. More detailed investigation into the nature of repairs will be helpful and *may indicate* that profit margins on repair work is decreasing, even though overall volumes may have increased. If this is the situation it means that private companies continue to carry the costs of perceived inefficiencies, to sustain the industry. Ultimately this scenario will not be sustainable.

One area which has showed promise is the luxury craft sector, in which South Africa ranks as the 13th largest producer globally. Even though the sector is still feeling the effects of the 2008 global recession, it remains robust and serves an international market. Robertson and Caine is the market leader of 13 catamaran builders on the SABBEX directory. Some of these multihull builders also serve as brokers, dealers and agents in the used yacht market. The sector is well-supported by several marinas in Cape Town harbor, V & A Waterfront and Hout Bay. Knysna and Mossel Bay also offer yachting facilities, while Saldanha Bay offers a yacht repair facility with the country's only 100 tons hoist, for vessel up to 26m in length and 9m beam. Yacht-building capability is spread around the Western Cape and boat yards have been established in St. Helena Bay, Velddrif, Saldana Bay, Swellendam, George, Knysna with most major builders in Cape Town. While yacht sales have been highest in the USA and Caribbean, industry

analysts forecast that opportunities will also arise in Africa in future. Cape Town has not yet built mega yachts and while some design capability is evident, R & D and ownership of intellectual property requires further development. The success of this sector offers benefits to the Western Cape economy beyond yacht-building itself and contributes to building Cape Town's brand as a global market leader in leisure.

Vessel builders whose premises are outside the port precinct reported good relationships with traffic authorities in Cape Town when transporting yachts and boats to launch facilities, located at the synchrolift or the Royal Cape Yacht Club in the harbor. Portside services such as cranaage also incur additional costs, both for yacht launches and dry dock repairs. Limitations in the size of our launch facilities also limit the size of vessels which can be built in Cape Town. The yacht and boat-building building sectors are peripheral to TNPA's cargo-based business model. It is however very clear that they contribute significantly to the national economy and adequate provision should be made to foster their sustainability, including possible use of small harbours.

All segments of the industry are *almost entirely dependent on TNPA* for provision of effective infrastructure and port services. TNPA is the major power-broker in the maritime sector; the parastatal has not communicated well about the promises it has continually broken, reinforcing disillusionment with management at different ports. Perceptions of poor port management coupled with the inability of Operation Phakisa to communicate its progress has impacted business confidence negatively. Provincial intervention may be helpful to facilitate constructive communication between port management and the industry.

Historically Cape Town houses the I&J fleet which operates 18 vessels from the Victoria basin. South Africa's total trawling fleet includes at least 51 vessels of various sizes but SADSTIA suggests a higher number. Along with foreign trawlers, mainly from Asia, these vessels are assumed to require regular maintenance and their patronage should be retained, to utilise facilities to their full capacity.

Estimates by DTI and PWC suggest that Cape Town port capacity is 40% under-utilised. Port capacity simultaneously considers seaside and landside capacity.⁴⁴ PWC's analysis strongly suggests that port operations are inefficient. Similarly, repair capacity is not being fully utilized. Increased traffic to the port is likely to increase vessel repair. It would therefore appear that significant room for growth is available, if the key issues are addressed.

Having reviewed several websites which describe the port it appears that some services (eg. rig repair) may be under-marketed while others could be described more accurately to niche

⁴⁴ Strengthening Africa's Gateways to Trade – PWC 2018 page 28 also at <https://www.pwc.co.za/african-ports>

markets. The synchrolift for example has limited capacity but its location in the Alfred Basin, which has a small entrance channel and relatively shallow draft, also limits dry repair of larger ships. The upgrades to Sturrock Dock could however, accommodate large ships possibly up to Panamax dimensions and depending on whether the dock will be subdivided or not, could potentially attract very lucrative repair/maintenance contracts which other ports cannot do. The port also has the ability to host oil rigs and supply most, if not all their requirements. Every year between 57 and 59 rigs locate along the West African coast and these too require regular maintenance.⁴⁵

Five years after the launch of Project Phakisa, industry has not yet seen direct benefits of the promised projects, reflecting a mood of impatience and uncertainty within the industry. The overall picture is one of an under-performing port which requires intervention, if it wishes to compete for a greater share of global business. Only when the port performs well will the MMF sector improve its performance.

Cape Town is the only port which can provide bunkering services in the province and this function could potentially increase traffic to the port. It should however be noted that bunkering occurs by barge because pipelines have been degraded to the point that they can no longer be used; it is not clear whether one barge is sufficient and whether sufficient fuel is available for larger-scale supply. In 2019 Sturrock Dock became fully operational again and dry docking of larger ships will once again become possible. It appears as if some land-based and marine services infrastructure is being repaired. We conclude our analysis of Cape Town port by acknowledging its strengths in yacht-building, boat building, dry repair of smaller ships and wet repair of all ships and recognize that incremental upgrades to infrastructure may rejuvenate the ailing industry. Saldanha Bay and Mossel Bay have no influence on the ship repair or new builds sectors. Further commentary is made about these ports in the concluding sections of this report.

8.2. Skills Development

Three decades ago, the Western Cape had developed a significant skills base through apprenticeships, many of which were honed in the dockyards of Simonstown. It appears that the country is attempting to upskill again, at the lowest level of entry for small-craft construction. Efforts by SABBEX have yielded a single qualification in boat-building, offered by False Bay College. Reportedly it took 11 years for the boat-building programme to be offered by an institution, during which time many industry skills would have retired. Other isolated courses for small craft (related to SAMSA approval) are available by private providers but no

⁴⁵ Petrodata Weekly Rig Count August 2019

internationally-certified ship-building programme is available at our TVET or higher education institutions.

In boat-building it is deemed that at least 8 years of experience are required before one can be considered a boat-builder. Hands-on industry experience is valued much more highly than certification offered by an institution, which is seen only as a starting point.

The development of skills across the spectrum of small and large craft will require an extensive study of internationally-recognized requirements. Most importantly it will require discipline by South Africa not to attempt to "reinvent the wheel" because the global shipping industry prescribes its own recognition agreements. Upskilling cannot proceed effectively without substantial input from the private sector and with relative independence from local accreditation criteria.

The availability of a pool of artisans and skilled professionals is essential in both ship repair and vessel manufacture. Large repair jobs require hundreds of artisans, as well as highly skilled engineers, planners, project managers and logistical support personnel. Scheduled maintenance on ocean-going vessels requires a substantial downstream supply of engineering workshops which offer a range of specialist design and fabrication services. Cape Town is the only city able to provide such service on the West Coast of Sub Saharan Africa. The next large supply chains will be found in Durban and Port Elizabeth.

Ship building requires adherence to international standards, criteria established by the IMO and requirements of classification societies. These global standards are not easily accommodated by SETA's and require a different organizing framework. Skills development within the SETA framework is applicable only to the building of small craft like fishing boats and some yachts, whose hulls are constructed primarily of fibre-glass or wood (metalworking is considered an elective) and can be authorized by SAMSA. In the engineering sector, ship repair skills are available for hull-cleaning and spraying, as taught in mechanical engineering specialisations such as welding or boiler-making. Internationally-certified coded welders are available in Cape Town and Mossel Bay to perform scheduled maintenance, as well as divers to perform underwater surveys and related work. These skills however, do not arise from dedicated maritime programmes but from general engineering training and upskilling in industry itself.

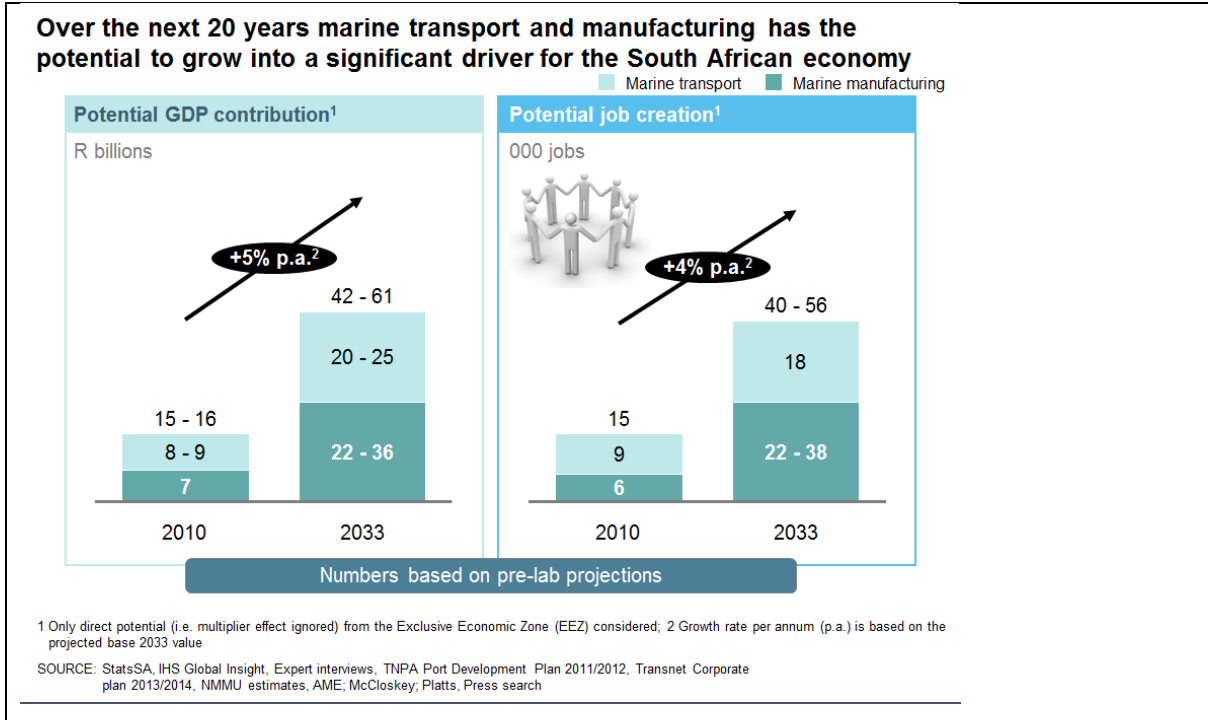


Figure 13: Operation Phakisa Growth Targets ⁴⁶

When skills are not locally available, some vessel repair jobs require the import of specialists, as prescribed by OEM's and class criteria (eg. engine repairs), thereby driving up repair costs. On a provincial level, specialized skills are sourced in Cape Town to service repairs at other ports. Cape Town remains the hub through which specialized skills are sourced.

The complexity of upskilling for international business may explain the slow (or no) progress made by Operation Phakisa. Initiatives 9, 11 and 12 (which are described above) which set out to produce thousands of interns, artisans, semi-skilled and professionals within a five-year period, has not been able to report on progress. It is also not clear how the growth targets projected below can be achieved (at 4% per annum), in the absence of a mechanism for massive skills development. Operation Phakisa's progress details for November, for each initiative have been removed from the its website and are no longer visible. In the context of a shrinking economy and downwardly revised growth rates, it is not possible to endorse Operation Phakisa's growth projections. The implications for skills development are dire and the industry may suffer shortages over the next few years.

The availability of skills is directly related to the efficiency with which repairs can be effected. Efficiency of repairs is directly related to achieving the country's growth targets. Operation Phakisa assumed 5% growth in potential contribution to GDP, by the sector and 4% growth in jobs per annum, until 2033. It is not clear how these projections have been determined. Given the long-time frames for skills development and shrinking growth of the economy, a major

⁴⁶ <https://www.operationphakisa.gov.za/operations/oel/marineTrans/pages/default.aspx>

intervention is required to boost skills development for all segments of vessel repair and manufacture.

8.3. Employment Opportunities

The most immediate opportunities for job creation is to increase scheduled maintenance on trawling vessels on Cape Town's Synchronlift and Robinson Dock, and larger vessels in Sturrock Dock.

Extension of working hours at the synchronlift and Robinson Dock should be considered as an employment-creation initiative. If a "24/7" approach is adopted, repair turnaround time will decrease and along with it, significant cost savings to clients. Reduced costs, along with improved services (and TNPA service levels) will provide a basis for a competitive marketing strategy, which should attract former clients back to the port. At the time of writing the synchronlift had just been serviced and greater attention is seemingly being paid to maintenance. TNPA also reports that further upgrades are occurring on all facilities even though they may not be visible to the public. If the Robinson Dock and the Synchronlift are covered, if noisy equipment like compressors can be housed in soundproof chambers and if reticulation systems enable a safe working environment, then it should be possible to do repairs around the clock.

Sturrock Dock suffered a broken inner caisson for nearly 2 years, thereby significantly reducing dry repair capacity on larger vessels. Now that the caisson has been repaired, half of the dock will be available all year round (theoretically). The other half of the dock should be in use for only six months (again in theory only) because the anchor client requires it for scheduled maintenance. Substantial dry-docking capacity should be available for ship repair in the years ahead. It is therefore reasonable to expect higher volumes of work, specifically dry repairs, over the next few years.

When Sturrock Dock's inner caisson was broken, the repair sector increased wet repair activity. The implication is that the industry already has the capacity to expand wet repairs. Wet repairs do not create as many jobs a dry docking does. However, it remains a significant job creator and enhances the port's image as a repair destination. Systematic marketing of industry capacity should include wet repairs and this may encourage vessels to visit the port again.

Mossel Bay's slipway is able to accommodate only smaller craft of up to 180 gross tons in the foreseeable future and employment will be limited to fishing boat repair. Saldanha Bay has no capacity to create significant employment in ship or rig repair. Conceivably a few jobs could be created by stacking oil rigs in the port.

Larger numbers of jobs could be created in the medium term by marketing vessel-building to South African government departments, parastatals and scheduled organisations. Active lobbying and messaging to organizational units which require vessels should proceed as a matter of urgency. In the past year we have already seen South Africa lose an order of R 100 million from the Robben Island Trust, which commissioned a ferry build in Singapore.⁴⁷ To make matters worse “Its arrival was announced on July 12 but, according to workers, it has since failed two SA Maritime Safety Authority (SAMSA) inspections. A source told the Cape Times 16 faults were found on the Krotoa's last inspection on September 16.”⁴⁸ Potential customers for new builds may be flailing without knowledgeable support about vessel-building in Cape Town. Allegations of corruption are an ever-present theme in public administration. However, a proactive provincial government may be able to prevent poor decision-making by official organizations such as Robben Island Museum (RIM). The press also reports that RIM's next two vessel purchases must be ordered locally.

At the very least we expect that the repair sector will retain jobs and at best, it could expand, specifically in Cape Town.

8.4. Potential Market Opportunities

Improved service levels by TNPA will significantly boost competitive marketing to carriers which previously patronized Cape Town port. It appears that industry's disillusionment and possible under-utilisation of the PCC, has not held TNPA and port management accountable for service levels. TNPA has requested case-by-case information so that it may address inefficiencies through the PCC. Further investigation is required as to why this mechanism is not communicating effectively. It is a structure mandated by the Ports Act to enable participation by all role players and is essential for developing an integrated, competitive marketing strategy which aims to retain customers and expand the client base. The PCC's reported difficulty to harness the energies of industry jeopardises future marketing opportunities, some of which are discussed below.

The most prominent vessel-building opportunity lies in the trawling sector. After 2021, vessel builders should prepare for recapitalization of the fishing fleet, including trawlers. The average size of SADSTIA wet-fish trawlers is 600 gross tons (45m) while freezer trawlers can be as heavy as 2 900 gross tons (30m – 90m). This is well within the capacity of local vessel builders and facilitation may be required regarding optimal design. Local builds will also develop the

⁴⁷ <https://www.pressreader.com/south-africa/sunday-times-1107/20191020/281775630932832>

⁴⁸ <https://www.iol.co.za/capetimes/news/robben-island-workers-fear-for-jobs-after-pay-delay-defective-r100m-new-ferry-33588704>

province's design capacity, a scarce skill which will benefit the South African vessel-building industry.

Another area in which the province is not engaged is the large-scale breakup of retired vessels. The world is seeking cleaner and greener ways of retiring old ships and increasingly, traditional shipyards are seeking accreditation for green ship recycling. The development of new ship-breaking infrastructure may not be defined as a port and *may not require TNPA approval* (this is not clear in the Ports Act). Green ship recycling may provide an opportunity for investors to open a new industry segment as a totally private venture. The West Coast and Saldanha Bay IDZ may wish to consider possibilities for this globally emerging segment.

Sub-Saharan Africa offers opportunities for commercial vessels and South Africa's extensive diplomatic leadership on the continent should be leveraged, to secure orders for new-builds of ocean-going and coastal vessels. South African embassies and consular offices abroad are usually happy to support business linkages. In the face of orders recently lost to India, the importance of market vigilance by the South African shipbuilding sector cannot be overstated.

Other opportunities which are not directly related to vessel building or repair have been reported by industry. Supplies from Cape Town continue to be rated highly by passing vessels, notably by ULCC's and VLCC's which are too large to enter the port. This service could be increased if off port limits (OPL) were marketed more aggressively by a dedicated marketing effort, which works in conjunction with the port and shipping agents.

The luxury craft sector has developed a vision to turn Cape Town into a high-end maritime playground for the wealthy. It envisages involving local manufacturers of several sport items (kites, surfboards, yachts) into a campaign which markets the city and its leisure industries. Marketing support from the city and province will be helpful.

8.5. Policy, Regulatory and Legislative Issues

The National Ports Act of 2005 clearly states that "the Shareholding Minister must ensure that the necessary steps are taken for the National Ports Authority as a company...." and "incorporate National Ports Authority of South Africa under the name 'National Ports Authority (Pty) Ltd' with Transnet as the sole shareholder."⁴⁹. All major ports fall under the jurisdiction of TNPA, which operates as a division of Transnet. TNPA's balance sheet is owned by Transnet and ultimately strategic decisions are made by the Transnet board. At this stage, TNPA is not able to operate as a corporate entity, which explicitly contradicts the requirements of the National Ports Act. The National Ports Act also requires the establishment of a Ports Regulator

⁴⁹ National Ports Act 2005 - Chapter 2 Section 3 (2) and (3)

which ensures that the provisions of the act are adhered to. It is not clear when national port assets will be transferred to the 'National Ports Authority (Pty) Ltd'.

TNPA is viewed as a cash cow for Transnet and it appears that its profits have cross-subsidised other divisions of the giant parastatal. In 2018 TNPA contributed 14% of Transnet income and 21% of its EBITDA (earnings before interest, tax, depreciation and amortization). Only 11% of capital invested was allocated to TNPA and it appears that very little of this amount was allocated to Western Cape ports.⁵⁰ It is also notable that Transnet uses EBITDA as the metric to report its business success, focusing on short-term operations rather than the cost of replacing infrastructure. The unbundling of TNPA from Transnet will be a long, disruptive process and in the foreseeable future the "cash cow" mentality will continue to rival a customer-centric perspective.

An efficient industry would be supported by government processes which are aligned to industry operations. Industry would like to see the rapid granting of visas to individuals who have specialized skills and vessel owners who wish to stay in the country for longer than three months, to oversee completion of their craft. The most pressing short-term complaint from industry concerns the red tape around visas and customs. Some of these issues may be addressed by South Africa's new e-visa system. It is however important to note that business visas, or scarce skills visas, appear not be included in the e-visa system.

Shipping is a global 24/7 industry which operates all the time. South African government departments observe a normal working day and this may cause delays to vessels which need to enter port after-hours. The operating procedures and opening times of visa and custom-related services at major ports should align with industry operating hours. No mechanism is currently available to discuss such alignment of regulatory concerns with industry operations.

South Africa's major policy initiative is Operation Phakisa which intends to harness the economic benefits of the ocean economy. Ship repair and building features prominently in Operation Phakisa's plans but benefits have not been visible to industry, which has been disappointed repeatedly over the years. Lack of effective communication between TNPA ports and industry appear to be one reason for misalignment of goals. TNPA management is perplexed about why industry does not understand it while the private sector is frustrated by the inexperience, inefficiencies and reportedly dismissive attitude of TNPA management. While many of these problems arise from the legal structure in which TNPA remains locked, changes in legal structure as prescribed in the National Ports Act, may not resolve poor communication. TNPA has created a clear reporting structure for ship repair in which all major ports have dry dock managers who report to port ship repair managers, who in-turn report to

⁵⁰ Transnet Financial Results Presentation 31 March 2018

a national ship repair manager. The national ship repair manager, who is seated in Pretoria, is ultimately responsible for delivery of infrastructure upgrades at ports. At port level, the ship repair manager is represented on the Ports Consultative Committee (PCC), along with the port manager. The shipping industry however, operates in several horizontally and vertically integrated sub-sectors and is fragmented by design; it also operates in a global context in which international standards predominate. Consequently, several shipping-related industry organisations exist and no single entity represents the entire sector. Fragmentation within the shipping industry itself, may also contribute to misaligned communication with TNPA. Ship repair and vessel-building communication may be diluted in this context.

The policy, regulatory and legislative environment in South Africa is complex and challenging. The provincial government of the Western Cape may be able to position itself to facilitate more constructive dialogue between the different parties.

8.6. Enterprise and Supplier Development

Support from the state in the form of incentive and subsidy programmes will positively influence new-builds. The DTI has attempted to support small companies through its National Industrial Participation (NIP) Programme. Regrettably it appears that programme demands on SME's are cumbersome, administration is very slow and the benefits are minimal. It also appears as if DTI does not understand the vessel-building industry and in effect, has demoralized at least one small vessel-builder. Corporate South Africa appears not to have identified vessel-building as part of its supply chain and there are no reports of Enterprise and Supplier Development (ESD) support (as described in the BBBEE codes), possibly because this sector is remote from their core businesses.

The presence of OEM's positively influences the industry. A healthy base of engineering workshops involved in maritime repair is available at all three ports. To date, they have met the industry's requirements, albeit with difficulty. The ability of the engineering sector to supply OEM and class-approved supplies would further improve sector efficiency. The industry reports that inventory levels have dropped in recent years and longer waiting periods are required, increasing vessel downtime and reducing efficiency. Wärtsilä and Caterpillar have been mentioned as locally-based OEM's who supply engines, propellers and generators. OEM's have no need to conform to BBBEE requirements because they serve a captive, private and international market. There may be opportunities to increase OEM representation in Cape Town, especially those which intend to develop local industries.

It should be noted that luxury craft attract a very high percentage of imported supplies and that yacht buyers are brand conscious, insisting on specific designer components.

Commercial boat builds however attract a higher percentage of local content and the emphasis is on function and compliance with maritime regulations.

South African marine insurance companies could enhance support for the ship-building sector which is dependent on imported supplies. High imported content is inherent to vessel-building because the major working parts of a ship are manufactured abroad. South Africa has no capacity to manufacture ship engines, for example. As importantly however, are the requirements of insurance companies, which demand OEM specifications in both building and repair and these are all internationally-driven. Santam Marine is the country's largest insurer for new builds and repairs. There may be possibilities to approach Santam for ESD support.

The Western Cape already has some champions of enterprise and supplier development in the maritime sector. It appears as if South African owned companies are sensitive to BBBEE requirements, notably the trawling sector which is proud of its support for SME's, including boat builders. It would be useful to investigate the trawling sector's initiatives and assess how it could support the smaller vessel builders.

Room exists for the province to develop programmes to stimulate vessel-building, possibly by liaising with the DTI to improve their own offering. Even though South African marine insurers (Indwe Risk Services, Santam Marine, Hollard) are underwritten by large foreign companies, the sector is organized locally through ASISA (Association for Savings and Investment of South Africa). ASISA is already active in developing ESD programmes on behalf of the entire insurance sector and developing relationships with them may be benefit for ESD support.

9. STRATEGIC OPTIONS AND RECOMMENDATIONS

9.1. General Recommendations

- a) Private sector associations require assistance with overcoming the inherent fragmentation in the shipping industry. A single point of reference which is dedicated to the industry is required, to match TNPA's formal communication platforms and reporting lines. All role-players will benefit from clarifying terms and standardized language, for ease of communication to all stakeholders. Ship repair and manufacture is a very large sector which will impact the regional economy significantly.

Provincial government should consider the establishment of a Special Purpose Vehicle in the vessel-building and repair sector. Similar initiatives have been pursued in the craft sector (with the CCDI now the CDI) and in the conventions sector (Western Cape Convention Bureau). Communication through the PCC, as legislated in the National Ports Act, should be more effective if properly capacitated. In this regard the objectives, attendance and actions of the PCC needs to be redefined and all stakeholders represented (see Figure 5 above).

- b) Berthing and dry dock costs are significant. One third of the world's large carriers require dry docking annually. Scheduled MMF activity enables carriers to plan for the most competitive pricing. The province's ports are "out-of-position" to compete for scheduled work on larger ships because they lack a competitive proposition for global shipping. The world is moving towards very large ships which can serve only designated hub ports, which become break-bulk points for further inter-modal distribution. The Western Cape is able to serve large container ships, up to panamax size but is unable to compete with Kwazulu Natal's natural comparative advantages. Strategies will be required to support the unique competencies of each provincial port, in order to position their unique advantages, to global shipping. Moreover, Cape Town is not a terminal port and ships have no reason to choose it for scheduled maintenance.

Marketing assistance is required to position all provincial ports in accordance with their unique value propositions.

- c) Upgrade of port facilities in South Africa is a positive step and needs to be considered in the context of competition from other African ports. These upgrades should be a mixture of refurbishment and some technological upgrades, in accordance with TNPA's ability to provide finance. Industry's voice should influence TNPA's infrastructure repairs and this is dependent on authentic participation. Ports may be planning to invest in infrastructure which is not economically appropriate. A conservative ap-

proach would invest in strategies which have worked in the past i.e. *stick to the historical competencies*. At the same time, the global shipping industry is changing rapidly and strategies which *combine legacy infrastructure with innovations* require deeper investigation. Ships and ports are specializing by type of cargo, purpose of the port, available infrastructure, break-bulk and transshipment for further distribution. Marine repair could become a more prominent feature for ports like Cape Town and Saldanha if marketing is properly targeted

The province should facilitate industry input, into TNPA's infrastructure choices as well as service offerings at a port level.

- d) Attempts are being made to containerize dry bulk, as containerisation is set to expand from its current 13% of overall cargo handling. Containerisation is likely to increase in future and will drive technological innovation and modernization. In addition to engineering competencies, supportive maritime and logistical services also require support, to ensure an efficient supply chain.

Support for logistics companies will be helpful, especially as electronic technologies become more important in vessel design and port management.

- e) In order to reduce unit costs of cargo, increasingly larger vessels are used and inter-modal facilities need to be prepared for this. Port strategies need to complement economies of scale offered by larger vessels. Logistical support and back-of-port efficiencies are not emphasized in the literature. Integrated planning is required especially because back-of-port activities involve role players outside the shipping sector.

The province could play a useful role by coordinating policies of the port (TNPA), municipalities and national government departments.

- f) It has been predicted that smaller ports will serve smaller, less efficient vessels and will find it more difficult to integrate into modern, sophisticated supply chains. Western Cape ports do not appear in the world's top 100 (Durban was ranked number 66 in the Lloyds's Ranking list)⁵¹. On a global scale, provincial ports are medium-sized or very small, even though Cape Town and Saldanha Bay are able to accommodate large vessels. TNPA is already engaged in modernization of ports but there is a risk of developing inappropriate infrastructure.

The Province needs to assist with the provision of skills not only for MMF but also for related port functions.

⁵¹ Lloyd's list 100 Ports 2018

- g) Wet repairs in Cape Town have increased markedly in the three years since 2015, alongside a decline in dry repairs. It is apparent that despite infrastructure inefficiencies, Cape Town was still able to provide services which did not require dry-docking, on a significant scale. In the past, naval facilities at Simonstown were prolific in producing skilled artisans; reportedly these facilities are no longer being used effectively, a claim which requires verification.

Provincial government may wish to consider programme development for wet repairs as an independent repair activity; it may be worthwhile to examine capacity at Simonstown Naval base for upskilling.

- h) Map out the entire curriculum from small craft to large vessel building and repair. Skills development in the sector is limited and smaller employers especially are not being served. Red tape and inefficient processes, competition for experienced staff, the lack of a corps of maritime trainers, slow replacement of experienced technicians and the drain of engineering skills, are hindering the progress of the industry. International industry certifications should be foremost, rather than SAQA-related criteria only. Bring back industry-based apprenticeships. Grow emphasis on electronic and digital skills. Make provision for RPL of existing skills. Time frames for implementation of all qualifications should be expedited. The province should consider a comprehensive maritime curriculum and benchmark against the global industry.

9.2. Recommendations Cape Town

The single largest factor inhibiting increased work in Cape Town has been the inefficiency of infrastructure usage. The main causes for inefficiency include (1) broken infrastructure especially Sturrock Dock's inner caisson (2) TNPA scheduling procedures which are reportedly not aligned to customer planning and (3) limited working hours at the V & A repair facilities.

The inner caisson at Sturrock Dock has been temporarily repaired and TNPA reports that in the near future, a new caisson will be installed. The current repair is intended only to restore functionality and is not a substitute for a permanent fix. For now, the dock is able to accommodate two vessels. TNPA also reports that it intends to replace the outer gate of the dock, as part of a comprehensive repair. At this time, TNPA does not have a project plan which it is able to share with industry and it is not possible to put time frames to intentions for upgrade. TNPA expects to publish a report which can be shared with industry by March 2020.

It will be necessary for industry to monitor the release of such report, through a suitable industry organization.

TNPA has indicated the difficulty which the harbour master experiences in prioritizing port entry “because Cape Town is a busy port”. Industry has resigned itself to paying for port inefficiency but in the process, the market has been eroded. In a capital-intensive industry, lost time translates to increased costs and lost income. An intervention geared at reducing vessel waiting time will be helpful to all stakeholders. TNPA is currently implementing the IPMS (Integrated Port Management System) but despite this, congestion is still a major problem at busy ports. Durban is experiencing the most serious challenges and discussions are underway to relocate the Transnet Head office to KwaZulu-Natal (not TNPA head office)⁵². It is helpful to benchmark against the world's best international ports and a recent function hosted by the Dutch Embassy, the Port of Rotterdam (the world leader in efficiency) presented the effectiveness of its digital Pronto system. At this stage, all TNPA ports are obliged to use the IPMS which, it is hoped, will improve port efficiency. If a port is inefficient, shipping lines go elsewhere and repair business is lost. Regular feedback on the efficiency, at port level, is essential for efficient management and market retention.

Strengthening of reporting and communication platforms is required, possibly through the PCC.

Probably the single most important factor for increasing repair work is the alignment of working hours at the Synchronlift and Robinson Dock with the industry norm of 24/7 operations. The V & A's efforts to retain the feel of a working harbour while simultaneously meeting hospitality requirements, is limiting the growth of maritime repair. A land-use conflict exists as the hospitality sector cannibalizes the repair sector. TNPA appears to have little appetite to address this situation. It is conceivable that quieter technologies and covered facilities could become available, to extend working hours without disturbing surrounding accommodations.

Persuasive discussions with the V & A will be helpful, by a prominent provincial decision-maker.

9.3. Recommendations Saldanha Bay

Saldanha Bay is not a repair destination for shipping or oil rigs. TNPA's original plans to host an oil rig repair facility at berth 205 have been shelved until oil exploration booms again. It is not clear whether Berth 205 will become available for rig repairs because it has become a manganese export terminal. TNPA is planning to build an offshore supply base for completion by 2025. However, their apparent withdrawal of rig repair infrastructure has disappointed local industry and the SBIDZ. Communication has also not been effective. Other than stacking of oil rigs, no significant repairs are anticipated in the immediate future.

⁵² Freight & Trading Weekly 25 October 2019 No. 2367

The province is obliged to wait for the release of TNPA's infrastructure project plan in March 2020, before deciding any support.

Saldanha Bay could lead recycling initiatives in the province. The Western Cape does not offer ship-breaking on an industrial scale. The world is seeking clean ways of disposing of retired ships. Green ship recycling is an emergent industry and can be regulated by various international standards. Ships yield large quantities of metal, wood and other recyclable materials. It also contains undesirable materials which require specialized disposable facilities. It is conceivable that this industry could be hosted in Saldanha Bay, possibly at the SBIDZ.

A Dutch investor has already expressed interest in green ship recycling and requires support navigating through South Africa's complex regulatory environment. This industry could create thousands of semi-skilled jobs fairly quickly, and requires significantly less infrastructure than ship-building.

9.4. Recommendations Mossel Bay

There is no doubt that Mossel Bay is a fishing repair port with very limited possibilities for repairing large vessels and oil rigs. While future gas exploration will require increased offshore supplies, there is no direct implication for vessel repair.

The current slipway has been damaged for several years and the situation is being managed by allowing smaller vessels onto the facility, far below its original tonnage. Under this scenario, only smaller fishing boats can be repaired on the wooden slipway. Port management and TNPA senior management report that a new, steel slipway will be available by 2020 and this will once again enable repairs to vessels up to 500 tons. Port management also speaks about capital dredging, which would provide access for larger vessels with deeper drafts but these would be too heavy for the dry dock facility anyway. Provision has been made for repair facilities around the slipway. Mossel bay will however remain a repairer of small vessels and fishing boats.

The press has published discussions for a cruise liner facility which would allow passengers to disembark directly onto the quayside, instead of arriving by ferry. Port management speaks about requirements to extend the breakwater as part of a vision to enlarge the port but these do not appear in actual plans. TNPA national management appears not to be aware of Mossel Bay's published intentions.⁵³ It is possible that the province's repair industry may consider large expenditures on cruise line infrastructure as inappropriate because resources could be more profitably deployed elsewhere.

⁵³ Shipping News September 7 2018

Provincial input into the feasibility of developing a cruise line facility would be most helpful.

Future plans for Mossel Bay require further clarification but port management has mentioned that multiple developments are under consideration. The current TNPA vision for 2048 has been published for comment⁵⁴ and shows areas for maritime engineering and repair around the slipway. It is not clear where the passenger disembarkation facility will be located. TNPA is not able to share any of its plans with industry at present and will attempt to do so by March 2020, when it will lay out its masterplan for infrastructure development. It will be best for the Province to wait for plans at that time, before deciding on its role.

9.5. Recommendations to DEDAT

- a. DEDAT should initiate discussion amongst provincial organisations for a Special Purpose Vehicle focused on maritime repair and building of new vessels. Similar initiatives have been pursued in the craft sector (with the CCDI now the CDI) and in the conventions sector (Western Cape Convention Bureau). Communication through the PCC, as legislated in the National Ports Act, should be more effective if properly capacitated. In this regard the objectives, attendance and actions of the PCC needs to be redefined and all stakeholders represented (see Figure 5 above).
- b. Provide financial support to the yacht and boat sector for attendance at international trade fairs. Provide access to schemes by DTI and any other government agencies, to facilitate marketing planning to expand the yacht-building sector.
- c. DEDAT should participate in decision-making about port developments to ensure that proposed new infrastructure developments are appropriate eg. the proposed cruise liner berth at Mossel Bay. DEDAT should persuade the provincial government to make inputs into TNPA's (or municipalities' thinking) about the best use of funds, from a provincial perspective.
- d. Logistics companies will require additional skills as the shipping world and TNPA ports digitalise. These new skills sets fall outside the scope of SETAs and require integration with shipping lines and ports. Shipping agents are close to the industry and will be able to advise on the best training options. DEDAT should investigate financial support to train existing and new shipping agency staff, as advised by SAASOA.
- e. Intermodal transport requires cooperation between TNPA, private companies and different levels of government. DEDAT should ensure that national policies and interventions by provincial government favour port efficiency. Increased port efficiency will grow vessel visitations and as a result, increase vessel repair.
- f. Wet repairs have demonstrated growth potential in Cape Town. New technologies and skills develop constantly and the industry will benefit from support. In conjunction

⁵⁴ <https://www.mosselbayadvertiser.com/News/Article/General/comment-on-port-plans-201908271201>

with industry, DEDAT should conduct research into methods of growing wet repairs, to position Cape Town as a leader especially for larger vessels.

- g. Initiate discussions between the industry and the V & A Waterfront to consider extension of working hours at the Synchronlift and the Robinson dock, accordance with international dry-docking practice.
- h. Initiate a viability study into the establishment of a green ship recycling operation on the West Coast, possibly in conjunction with the SBIDZ. The study should consider the International Maritime Organisation's Hong Kong International Convention guidelines.
- i. DEDAT should arrange events between local trawling companies and local vessel-builders, to discuss new-builds. Ideally such discussions should identify real possibilities for purchasing and maintaining craft locally, instead of offshore procurement.
- j. It may be helpful for DEDAT to consult the industry about the usefulness of a floating dock in one or more provincial ports. Cape Town's strategic advantage is its dry docks, which offer the best functionality for repairs. More effective utilization of dry docking facilities will require additional infrastructure, which should be compared to investing in a floating dock. Within the context of TNPA's current business model, the private sector's risk appetite to invest in a floating dock, is uncertain. DEDAT should consult SAASR and perhaps other industry bodies about viability. DEDAT could then decide whether a feasibility study on floating docks should be commissioned, to facilitate the industry's decision-making.

10. CONCLUSION

If business continues as usual, we do not expect significant growth of the repair sector. Figures are not yet available for 2019 in the format provided by Stratecon and we expect marginal improvement, owing to the repaired caisson at Sturrock Dock and the supply chains growing competency in wet repairs. The overall trend of fewer visitations however, may depress performance and single-digit growth in the next year. After 2021 however, rapid growth can be expected because fishing quotas will be granted; this business will however, be subject to peaks in a long 15-year cycle.

	Business as Usual	Competitive Strategy
Infrastructure	Temporary solutions Under-utilisation	Depreciation allocations spent on capital upgrades Market capacity to appropriate segments Work facilities 24/7
Rates & Tariffs	Rent-seeking behaviour Landlord & operator Irrational financial policies	Competitive vs monopolistic model Privatise or grant concessions for some operations Policy certainty and consistency Investment-friendly environment Competitive pricing
Port Efficiency	Slow upgrades Narrow focus on cargo Cannibalisation of repair sector by other port functions	Aggressive upgrades in port services Balance all port functions for holistic offering Mediate solutions between competing land use

Table 5: Scenarios for MMF sector

If, however, the country chooses a competitive strategy, it will in fact deliver what it has promised and align operations to international requirements. It will adopt an investment-friendly environment and enable greater private sector control over infrastructure and operations. Services will improve rapidly to bring more traffic into port, with quicker turnaround times and a balanced bouquet of offerings to shipping lines. Under this scenario, increases in

30% of dry dock utilization are within the realms of possibility. For wet repairs, limits reside only in the capacity of the supply chain.

Business-as-usual remains the order of the day for vessel repair. The expected peak in 2021 will mask the reality of declining industry attractiveness to international carriers. Infrastructure upgrades alone will not restore the former glory of the repair sector. Investment in appropriate technologies, geared towards the segments which ports are able to serve, are more sensible. The yacht and boat sectors are likely to be more successful because they already operate commercially. It is conceivable that the trawling industry approach local shipbuilders for new-builds after 2021 but that also depends on how well ship builders market themselves.

In the context of global shipping and ship repair, none of the province's ports are home to a cargo fleet and are therefore not terminal ports. Cape Town is not a major shipbuilder and has only small shipping yards. Increasingly larger ships no longer need to stop at Cape Town for bunkering or supplies. In short, the competitive position of our ports has weakened owing to global developments arising from commercial influences beyond South Africa's borders. At the time of writing, provincial ports remain in the grip of South Africa's business malaise, which is characterized by a dominant state and policies which are out of alignment with international practice. The province's competent but fragmented private sector is trapped by the constraints of contradictory government policies on the one hand and being overtaken by international developments on the other. Under conditions of long-cyclical peaks and policy inconsistency, the industry is likely to struggle for both vessel repair and manufacture projects, until South Africa repositions itself as a competitive maritime force.

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2 Appendix A: Questionnaire

SUPPORT FOR INFRASTRUCTURE DEVELOPMENT PROJECTS

1. To what extent has port infrastructure met your company's requirements for vessel maintenance?
2. What back-of-port changes are necessary to support more efficient vessel repair activity?

SKILLS SHORTAGES AND DEMAND FROM INDUSTRY WITH A STRONG FOCUS ON ARTISAN TRAINING AND HIGH-LEVEL SKILLS

3. What do you think are the critical skills shortages, if any, for repair of your company's vessels?
4. How does your company deal with inefficiencies in the supply chain?

EMPLOYMENT OPPORTUNITIES

5. How does your business source vessel repair services?
6. How successful have incentives offered by SETA's been (e.g. through learnerships, accrediting institutions) been in providing skills required?
7. To what extent has "job-hopping" and "poaching" by compromised shipping logistics?

POTENTIAL MARKET OPPORTUNITIES THAT WILL EXPAND AND ATTRACT INVESTMENT INTO THE REGION

8. Which factors make Western Cape ports attractive for vessel-building?
9. Project Phakisa is investing in port infrastructure upgrades. What else needs to be done to stimulate the vessel repair sector?

POLICY REGULATORY AND LEGISLATIVE ISSUES THAT NEEDS TO BE ADDRESSED

10. From a policy perspective, what can government do to attract investment into vessel repair?

ENTERPRISE & SUPPLIER DEVELOPMENT PROGRAMMES NEEDED TO DEVELOP THE CAPACITY AND CAPABILITIES OF EXISTING AND NEW ENTERPRISES

11. What possibilities do you see for large companies to support enterprise and supplier development programmes in MMF?

BEST PRACTICES FOR DEVELOPING AND GROWING THE SECTOR

12. In terms of global best practice, how technologically-advanced is our vessel-building and repair sector?

2.1 B1 Ships

Ships are specifically manufactured to carry cargo, people or perform a function (e.g. military, drilling). They are large vessels usually made of steel for ocean-going journeys or deep-water transport. They are usually large and require ports of considerable size to accommodate their bulk. For the purpose of this study we have chosen to focus on the physical dimensions of ships because they impact directly on a port's ability to service them.

Segmentation of Ships

Classification of ships is usually related to its tonnage, whether fully-laden or empty. Larger ships have larger tonnage. Other ways of classifying ships include their length, draft (or depth required for safe passage), cargo capacity and various units of tonnage. These dimensions determine whether a ship is able to enter a harbor or use a repair facility and provide an objective basis for segmenting the global fleet and the kinds of facility each segment is able to use.

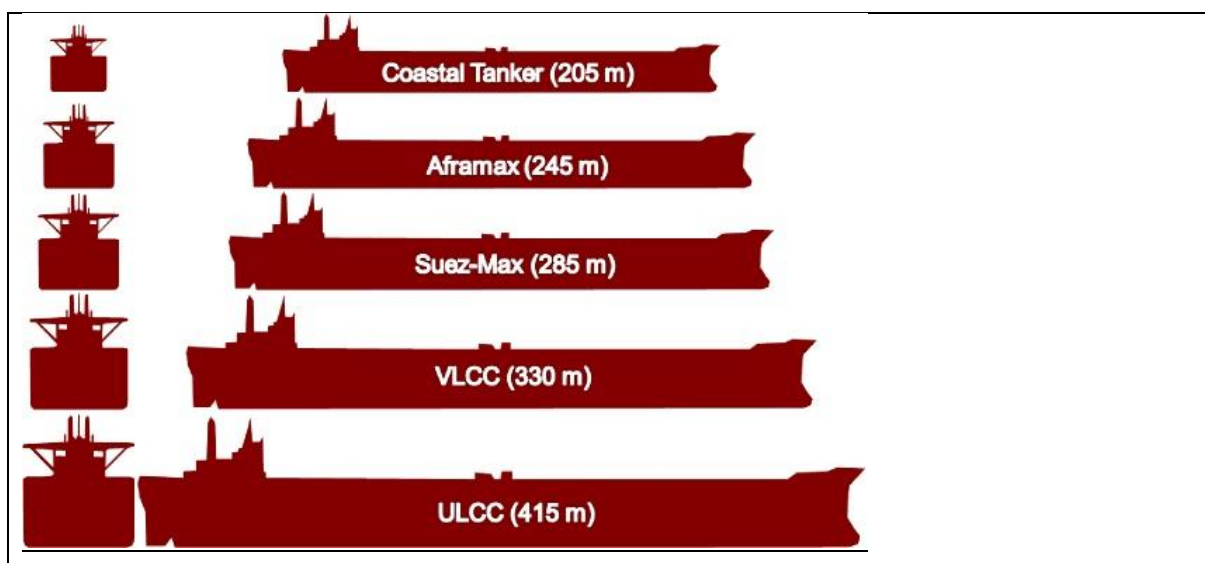
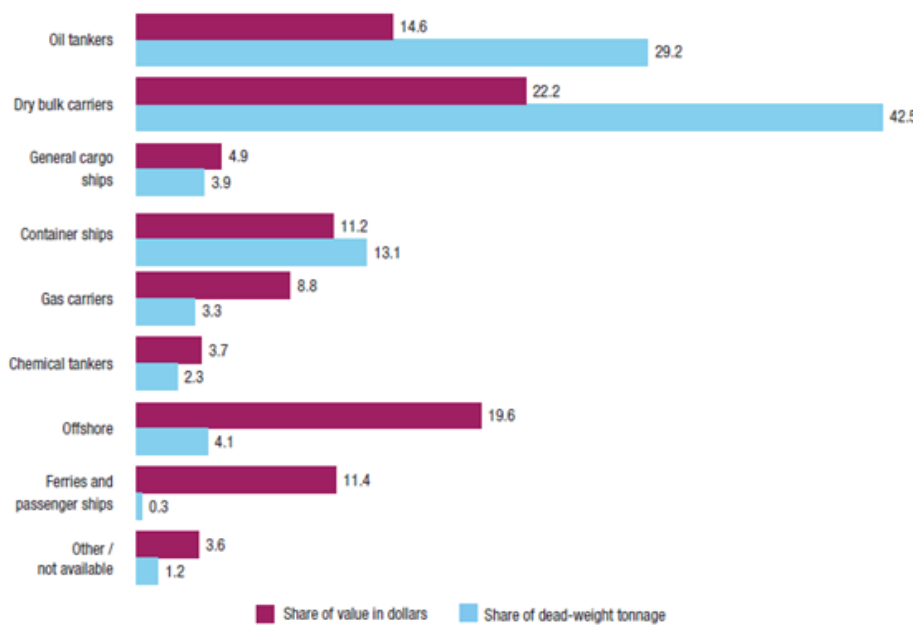


Figure 14: Segmentation of ships via length

Container ship cargo volumes are expressed as TEU (twenty-foot equivalent units) whereas dry cargo expressed in dead weight tonnage (DWT). TEU's refer to twenty-foot containers as the standard whereby ship capacity is measured; many ships can accommodate forty-foot containers (which equate two TEU's). DWT is a measure of how much weight a ship can carry. DWT is the sum of the weights of cargo, fuel, fresh water, ballast water, provisions, passengers, and crew.

Larger ships require larger ports, larger container terminals and more complex maritime services. It should be noted that the biggest Southern African ports are average in size by global standards. The largest ships South Africa can welcome seems to be 11 600 TEU (in Durban) while East Africa accommodates much smaller ships of 2 900 to 5 000 TEU. West Africa houses mid-sized ships from 5 500 TEU to recently, 13 000 TEU.

Weight is a fundamental measure for describing a ship's ability to enter a port and therefore also the port's ability to service such a ship. The large variety of vessels and the varying restrictions imposed by harbour's geologies imply a certain measure of port specialization.



Graph 5: World Fleet by principal vessel type, 2018 (percentage) – UNCTAD ⁵⁵

This report has found it helpful to segment the global shipping fleet by DWT and adopts the categorization offered by UNCTAD. “On 1 January 2018, the world commercial fleet consisted of 94,171 vessels, with a combined tonnage of 1.92 billion dwt.”⁵⁶ Dry bulk carriers (ore, grain) comprised the largest deadweight tonnage (dwt) and the highest share in US dollars. Oil tankers are the second largest category, followed by container ships, off-shore vessels, general cargo ships, gas carriers and chemical tankers.

Approximately 13 000 ships of various tonnages, sizes and specialisations call on South Africa's ports annually. TNPA estimates that demand for ship repair in South Africa ranges between

⁵⁵ United Nations Conference on Trade & Development – Review of Maritime Transport 2018, page 26

⁵⁶ United Nations Conference on Trade & Development – Review of Maritime Transport 2018

2500 to 5 500 per annum. This wide range reflects the volatility of ship repairs at our ports, as verified by secondary data ⁵⁷. Global demand for dry docks was increasing at 13% per annum, prior to the US-China trade war and the shipping industry was preparing for busier times. Approximately 33% of bulk carriers, container ships and cargo vessels dry dock annually for regular maintenance, a compulsory and regulated requirement, for all types of ships. Against this background of growth, it is understandable that some countries have invested in shipping infrastructure, to attract their share of the global trade.

<i>Classification of Ships: Provincial Ports' Ability to Accommodate different Vessel Types</i>							
Vessel Type	VLCC & ULCC		Neo Panamax (366m)	Panamax 65 000 kwt (320m)	Suezmax (285m)	Aframax 80 000 kwt (245m)	Handymax / SupraMax/ Handysize (200m)
	Very Large (470m)	Capesize (470m)					
Draft	Up to 20m and 25m		15,2m	12,04m	20,1m	20m	10m
DWT	200 000	150 000	120000	65000 - 80000	120000-200000	80 000	60 000
Beam	Up to 60m		49m	32,31m	50m	32,3m	Not Given
Cargo Capacity			12 000 TEU	5 000 TEU			
TANKERS							
Crude	Saldanha Bay		Saldanha Bay	Saldanha Bay	Saldanha Bay	Saldanha Bay	Mossel Bay Saldanha Bay
Chemical							
BULK CARGO							
Dry	Saldanha Bay		Saldanha Bay	Saldanha Bay	Saldanha Bay	Saldanha Bay	
Fruit			Cape Town	Cape Town			
Ore	Saldanha Bay						Saldanha Bay
CONTAINER SHIPS			Cape Town	Cape Town			
OTHER SHIPS			Cape Town	Cape Town			
							Mossel Bay

Figure 15: Ship classification by port

In South Africa, TNPA had allocated R2,18 billion over five years for 26 ship repair projects around the country. (TNPA Home page), specifically upgrades to infrastructure. A portion of these funds have been allocated to Cape Town and Saldanha Bay, to be invested primarily into upgrading port facilities, which could host ships of different sizes. We describe the characteristics of different ship sizes and where they are able to dock in Figure 8 above. This tool provides an overview of capacity at the three provincial ports.

Provincial harbours can accommodate most types of ships. The VLCC's may be accommodated at Saldanha Bay for ore and delivery of petroleum, owing to the deep draft

⁵⁷ <https://www.timeslive.co.za/sunday-times/business/2016-06-19-marine-firms-departure-flags-parlous-state-of-ports/>

of 23m. No container facilities are however available at Saldanha Bay. Cape Town accommodates large container and cargo ships possibly up to Neo Panamax size.

Mossel Bay's shallow water limits its ability to repair large ships and its limited supply chain permits only minor repairs; the offshore mooring point allows larger craft to receive supplies and minor maintenance, outside the harbour.

Tankers and specialized ships have different route planning to optimize cargo efficiency; it is possible for tankers to change their routing depending on the efficiencies offered by competing destinations. Container ships however, carry general cargo and have preset routes. Consequently, it may be easier to schedule repairs for container ships because of predictable scheduling.

Crew need to be refreshed after a certain period at sea, for all ships and oil rigs. Specialised ships may offload crew in places distant from the crew's home towns and will fly them back. Container ships follow more predictable routes and can plan crew differently whereas tankers and bulk carriers have more flexible crewing requirements.

Ships call at ports with which they do business and where they can secure services required for efficient operation. Cape Town remains the centre for all maritime services except for the largest vessels, which are accommodated at Saldanha Bay for cargo operations only. Mossel Bay is unable to repair most ships in port and could perform limited wet repairs outside port.

2.2 B2 Yachts

At the outset, we will distinguish between yachts and boats. The two have different marketing, supply chain and training implications but have been used interchangeably in the literature. The main differences are tabulated below. It should be noted that the tabulation below does not imply mutually-exclusive categories and provides general guidelines only.

DISTINGUISHING YACHTS FROM BOATS

	Yacht	Boat
Purpose	Recreational	Work or recreation
Size	12m upwards to 100's of metres, some yachts are ships	5m to 10m, some largereg. Specialised craft
Waters	Deep water, oceans	Shallows, lakes, harbours, near shore
Duration of trips	Longer, oceanic trips	Short, localised trips
Staffing	Captain and specialised Crew	Captain
Propulsion	Larger, more powerful, longer distances	Sails, smaller engines, shorter distances, human power (oars)
Technology	Advanced navigation and detection systems	Less advanced, less expensive

Figure 16: Comparison between yachts and boats

It is important to note these differences because they have supply chain implications and may affect government regulations, as well as potential business opportunities. This simple distinction will also affect the way in which boat-building is marketed, including influencing the state's diplomatic efforts to assist with finding niche opportunities in Africa. Notable boat builders and internationally renowned yacht builders are found in Cape Town, with smaller fishing and leisure craft builders found along the west and south coasts.

Segmentation of Yachts

Cape Town is the world's thirteenth (13th) largest yacht manufacturer and the second largest builder of double-hulled catamarans. The largest ten manufacturers are shown below, with the largest in Europe.⁵⁸

⁵⁸ Global Order Book 2019 – Boat International

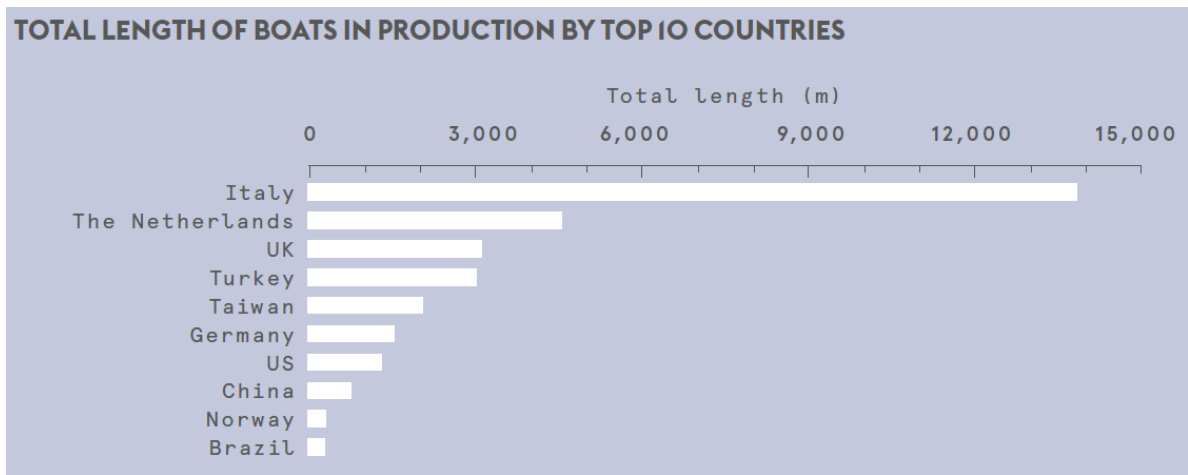


Figure 17: Top ten yacht manufacturing countries

Yachts however, can also be segmented into smaller niches and the table below distinguishes between different types based on length and function of craft.

		Sailing Yachts			
		Cruiser	Yacht	Super Yacht	Mega Yacht
		7 - 12m	12m plus	24m plus	40m plus
Day cruiser yacht	No cabin, sparse amenities	Blue			
Weekender yacht	1 or 2 basic cabins, basic galley appliances & plumbing		Blue		
Cruising yacht	Sufficient amenities for living for extended periods			Blue	
Sport fishing yacht	Yacht with living amenities and sporting fishing equipment	Blue	Blue		
Luxury yacht	Similar to the last three types of yachts, with larger dimensions and			Blue	

Figure 18: Segmentation of yachts

A substantial second-hand market for yachts has existed for many years. Refurbishment of older yachts is an established sub-sector and includes restoration of classic, heritage yachts.

To underline the importance of distinguishing niches in yachting we quote extensively from Worth Avenue Yachts: "Exact definitions of mega yachts vary tremendously, although some believe that around 200-feet or 60-meters to be the starting size for a mega yacht for sale. The larger superyachts for sale (often mega yachts) will sometimes have special passenger licenses allowing them to accommodate more than 12 guests. Mega yachts generally carry large crews to offer a simply spectacular level of service, with guest-to-crew ratios only dreamt of in elite hotels. On mega yachts, gyms, spas, helipads, private owners deck and even cinemas become standard features, while many sport palatial beach clubs, high-speed chase boats, and even submarines. It is useful, however, to know that the term 'mega yacht' is not a

universally-recognized term and its exact meaning is debated, although it has gained common currency in the United States and in mainstream media around the world."

Cape Town remains the country's centre for yacht building and does not compete in the mega yacht segment. Major companies in this segment include Robertson and Caine, Southern Wind Shipyard and - *inter alia* - Two Oceans Marine Manufacturing.

2.3 B3. Boats

Boats are usually between 6 and 12 metres long and specialised craft used by industry can be significantly longer. Many are used for recreational or sporting purposes while fishing remains the major use for boats. Length of vessel depends on distance from the shore it is intended to sail.

Boats are specialized according to function eg. military or naval, firefighting, scientific, patrol, supply, pollution control etc. Fishing boats comprise the largest number of craft around Cape waters. Industrial craft comprise a high percentage of imported hardware, often in accordance with the specialized functions they serve.

It is important to note that on 29th July 2019, India handed over two military boats to Mozambique to be used for coastal surveillance. These 30-metre-long vessels are part of a diplomatic initiative with India; potentially however, these boats could have been supplied by South Africa, including the on-going maintenance and supply contracts.⁵⁹

The positioning of vessels as boats and not yachts or ships, is significant for prospective marketing to governments, especially since some boats rival the sizes of super yachts. Companies like Damen, Nautic, SA Shipyards and many others have the ability to manufacture commercial boats locally. Local content for boats is generally around 60% (excluding major working parts like engines) and specialist components are imported.

The boat sector is significant because government tenders for these craft, through various departments including SARS, DAFF, EADP and the military. As opposed to yachts and ships, the boating sector could contribute to import-substitution and South Africa's many respected boat-builders have the ability to supply Sub-Saharan Africa.

⁵⁹ <https://www.defenceweb.co.za/featured/india-hands-over-interceptor-boats-to-mozambique/>

2.4 B4. Oil Rigs

An oil platform, offshore platform, or offshore drilling rig is a large structure with facilities for well drilling to explore, extract, store, and process petroleum and natural gas which lies in rock formations beneath the seabed. In many cases, the platform contains facilities to house the workforce as well.

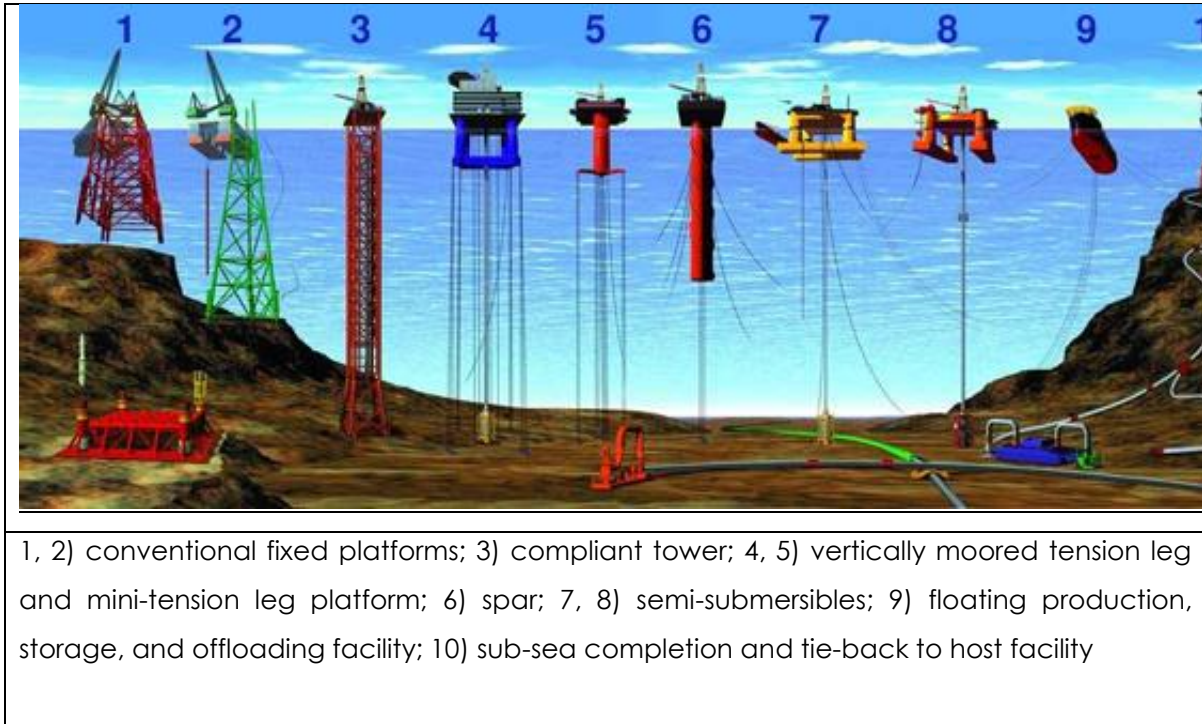


Figure 19: Different types of oil rigs

Different types of rigs are shown in the figure above.⁶⁰

Oil rigs are mobile assets and specialised engineering support may be required for different types of rig. They can be moored offshore owing to their specialized design. All three provincial ports have the ability to host and supply rigs. At the current time however, only Cape Town is able to service rigs.

Appendix C: Ports capabilities

2.5 C1. Saldanha Bay

A dedicated ore and oil port, Saldanha offers a specialist deep water harbour for the largest vessels. The port is unique because:

⁶⁰ https://en.wikipedia.org/wiki/Oil_platform

- It has a direct rail link to the Sishen iron ore mining region
- The only port with an IDZ attached to portland
- Arrangements are in process to create a freeport area
- Ample space for development of additional facilities e.g. new LPG gas facilities
- Arrangements with a concessionary (Saldehco) to develop Africa's first dedicated offshore supply base.

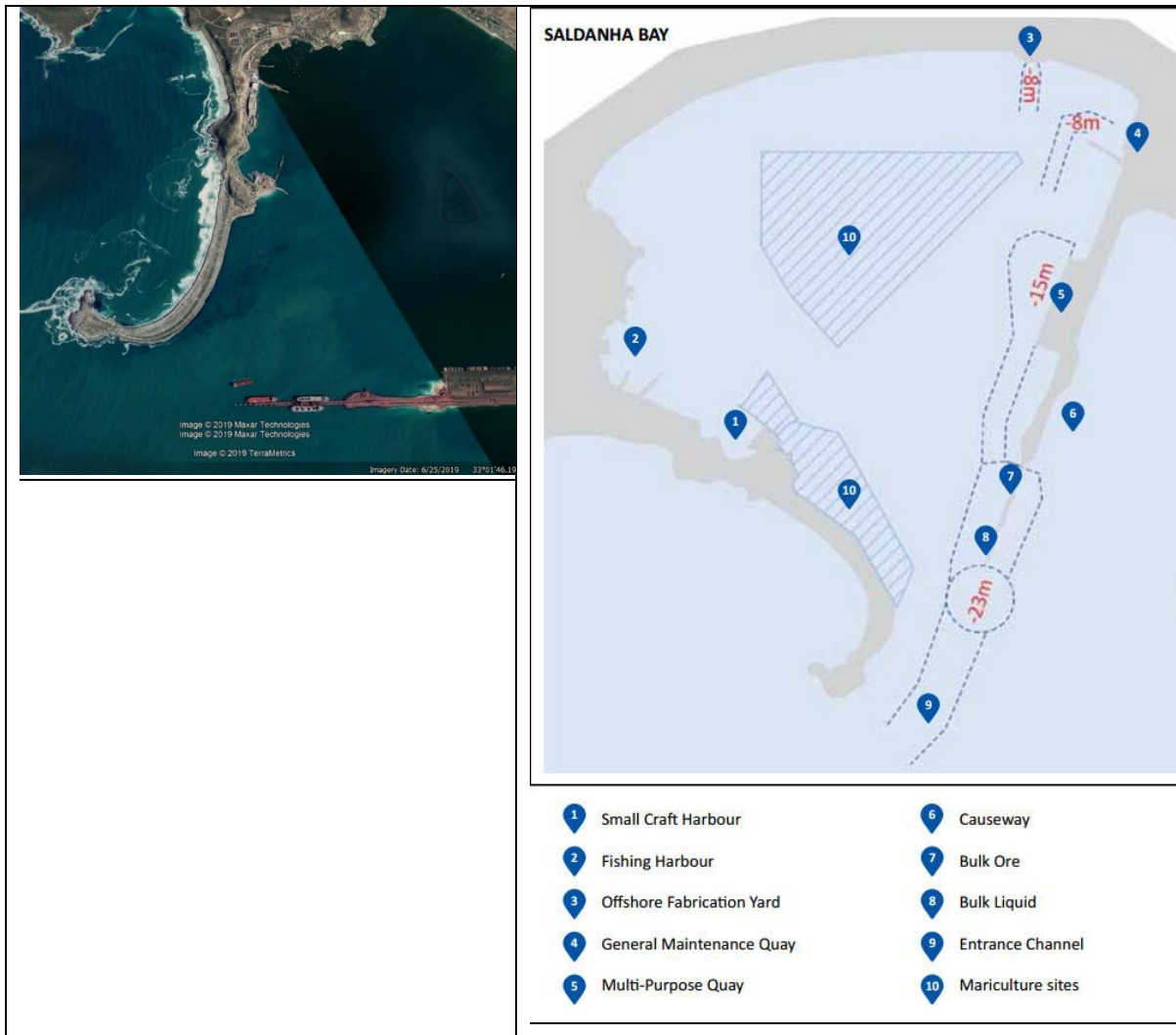


Figure 20: Aerial view and Schematic representation of Saldanha Bay port

The port of Saldanha Bay accepts vessels with a draught of up to 20.5m although the harbour master conditionally accepts vessels with a draught of 21.5m. The entrance channel has a minimum width of 400m. The turning basin seaward of the jetty has a diameter of 580m. The draught at the multi-purpose quay is 12m for berth 201 and 13.4m for berths 202 and 203.

Saldanha Bay was intended to be the province's rig repair port. "In 2016 TNPA completed a project to develop and extend the port of Saldanha's existing General Maintenance Quay (GMQ) infrastructure to accommodate new port users with the purpose of supporting the oil

and gas complex. This 294m quay provides the offshore oil and gas industry with a modern and adequately supply base that can effectively support offshore oil and gas vessels. The worldwide economic slowdown and drop in oil prices has put investment in new oil infrastructure on hold."⁶¹

Saldanha Bay offers business potential beyond oil and ore. A recent report stated that "The world-class Sunrise Energy LPG import facility in Saldanha started operation in May 2017. Key players in Saldanha Bay realized that its development has to benefit the LPG industry as a whole and ensure a competitive environment that will ultimately benefit the LPG consuming public."⁶²

The development of LPG should be considered in the context of recent gas discoveries in the Outeniqua Basin and the increasing trend towards environmental sustainability and the potential of Saldanha Bay as a specialist energy hub. Essentially, Saldanha Bay can accommodate vessels of all sizes and with expansion of its facilities, it will require an extended maritime repair supply chain in future.

The availability of land from the SBIDZ provides ample space for numerous back-of-port facilities, within relatively short distances from the major quays. As the country's only freeport, Saldanha is ideal for bonded warehousing which eliminates tariffs on imported supplies for ship repairs (provided they are used within 30 days). The port has been developing these initiatives since late 2013 and has a first-mover advantage against other ports.

Saldanha Bay lacks containerization facilities and is set to become a major hub for oil, ore, LPG and related repair of vessels in those three categories. Oil tankers, dry bulk carriers and gas carriers comprise approximately three-quarters of the world's deadweight tonnage; with competitive marketing, Saldanha Bay could occupy a dominant position as a hub for larger ships and energy related vessels, in Sub-Saharan Africa and especially the West Coast.

Yacht building has been established at this port. YachtportSA is purpose-designed and has a fully-equipped boatyard with the only indoor maintenance and repair shed in Southern Africa. YachtportSA launches newly-built yachts and prepares them for their delivery voyage. They have the largest travel lift in the country capable of handling up to 25m length and 9m beam width and 100-ton displacement.

Saldanha Bay is promising as a hub for fuel, ore and wet repairs of large ships. It is able to stack rigs in the harbor itself. The presence of the SBIDZ offers substantial opportunity to develop the marine supply chain and can be scaled as business volumes grow. The presence of the free

⁶¹ Operation Phakisa: National Ports Authority – Transnet page 9

⁶² https://www.engineeringnews.co.za/article/tnpa-to-prioritise-ship-repairs-oil-and-gas-facilities-at-cape-town-saldanha-ports-2018-09-10/rep_id:4136

port offers Saldanha a competitive advantage over other South African ports, as well as African ports. It has capacity to launch and repair yachts, with some unique facilities, including a marina.

Limitations include short term skills, parts and supplies which have to be obtained from Cape Town. Saldanha is unable to bunker and this has to be done in Cape Town.

Cannibalisation of boat, yacht and ship repair markets between provincial ports is a possibility, especially for wet repairs which do not require dry docks. The greater threat however may be from West African ports, which are competing for global shipping and oil markets. The future of its oil rig repair industry lies entirely with TNPA, if it decides to make berth 205 available for oil rig repair.

2.6 C2. Cape Town

Globally, Cape Town is not considered as a hub port and is often omitted in global rankings of the most important ports. It does not appear in world's top 100 container ports ⁶³

While small by global standards, Cape Town is a relatively old port and its infrastructure was built between 140 and 70 years ago, to service a shipping industry of yesteryear. Its facilities are adequate for ships up to 350 metres (Neo Panamax size) but repairs are limited to the size of entrance channels to dry docks, length of vessel and the draft which entrance channels are able to accommodate.

Historically the port performed four functions but diversification occurred over time and today Cape Town is a multipurpose port, as shown in Figure 14

Historical Function	21 st Century Functions
Supplies	Dry Bulk
Mail	Oil Terminal
	Container Terminal
Fishing	Fishing Harbour & Processing
	Retail Mall
	Tourism
	Residential
	Passenger Terminal
	Yacht Marina
Naval Vessel Repair	Vessel Repair

⁶³ www.worldshipping.org/about-the-industry/.../top-50-world-container-ports and also Lloyd's List One Hundred Ports

Figure 21: Functions of Cape Town Port

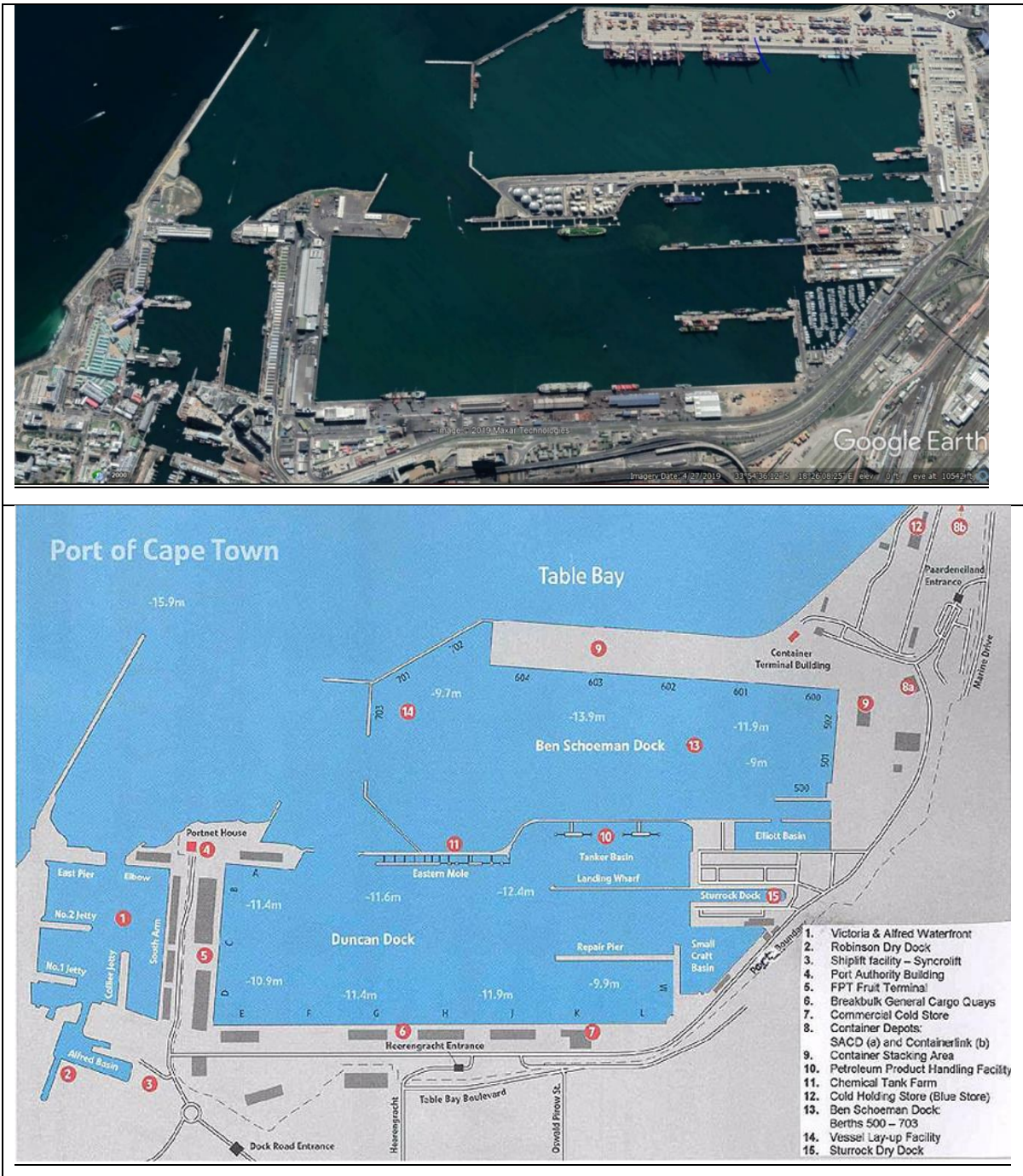


Figure 22: Aerial view and Schematic representation of Cape Town port

The map above shows the major docks and location of repair facilities. The well-known V&A basin provides access to the Synchrolift in the Alfred basin and Robinson dry Dock. These facilities are limited by the width of the channels into Alfred Basin, which can accommodate

vessels up to 61m in length and a beam of 15m. Only the smallest of ocean-going vessels (e.g. trawlers, coastal ships) are able to enter for dry repairs.

The harbour's entrance channel is 15.9m deep at lowest tide. The entrance to the Duncan Dock, which provides access to repair berths and the Sturrock Dock, is 180m wide and the depth varies between 9,9m and 12,4m. The main dry dock, known as Sturrock Dry Dock has an overall docking capability of 369.6m length and is 45.1m width at the entrance top with a depth of 14m; it is however being refurbished and new dimensions are not yet known. The dock may be divided into two sections of varying lengths. Sturrock Dock is unable to accommodate VLCC's or ULCC's and could accommodate a single large container ship for dry repairs (from Handysize to possibly Panamax vessels).

Ben Schoeman Dock varies from -9m to -13.9m, suitable for vessels up to Panamax size. Dredging has been done in the Ben Schoeman Dock since 2010 (container terminal) to provide deeper berths for new generation container shipping. The 34 berths in the harbor and its ship repair facilities are limited to smaller cargo vessels which do not exceed the maximum draft of any of the docks.

The Container Terminal contains six deep-sea berths. They are served by a fleet of post-panamax gantry cranes for the larger container ships now in service. The Multi-Purpose Terminal in Duncan Dock handles fruit, steel, paper, maize, wheat, rice, timber, coal, scrap and other general cargo, as well as passenger cruise ships.

After South Africa's largest port Durban, Cape Town is rated as the next major port with no possibility to become the national hub because of its distance from markets in Sub Saharan Africa. Hubs handle the largest container ships and more than 2 million TEU per annum because they can accommodate drafts of 20m. Cape Town handles around 750 000 TEU and can accommodate a maximum draft of 13,9m. In terms of port efficiency, PWC's port efficiency tool allocates a score of 85 to Cape Town, as compared to 125 for Rotterdam, the world leader. Durban's score is close to 100.

South African port connectivity to shipping lines is poor compared to global averages⁶⁴. Cape Town is limited in its ability to berth the largest vessels and is therefore also unable to offer the most competitive economies of scale to carriers. PWC estimates that Cape Town handles approximately 45 containers per hour, which is 40 fewer than Rotterdam. Natural limitations and the port's relative inefficiency imply that it could be vulnerable to competition.

From a ship repair perspective, the port handles mostly smaller vessels and Sturrock Dock is able to handle a large vessel, if the beam does not exceed 38m. Smaller tankers tend to have

⁶⁴ Strengthening Africa's gateways to Trade – PWC – April 2018

a somewhat longer lifespan than larger ships, which are scrapped more quickly when trading conditions deteriorate. The older a ship becomes, the more maintenance it requires. This may benefit Cape Town's specialization for repair of smaller ships.

In Stratecon's recent report a decline in repairs using dry docks accompanied an increase in wet repairs (Stratecon 2017). This change in ratio of wet and dry repairs probably reflects breakages of the 74-year-old infrastructure, which was built to accommodate British and US naval vessels after 1945. In February 2019 Engineering News reported that "TNPA noted that it is investing significantly to restore ship repair facilities, including an investment of R950-million to modernise the Port of Cape Town's ageing facilities, such as the Robinson Dry Dock, the Repair Pier, the Sturrock Dry Dock and the Synchronlift".⁶⁵

Operation Phakisa's response to the harbour's denuded facilities included:

- New recirculating pumps at the Sturrock dry dock
- Repairs to the traverser at the synchronlift
- First phase repairs to Robinson Dock

Operation Phakisa promised to invest R950 million into upgrading repair facilities, from 2019 to 2022.



Figure 23: Fishing trawler on synchronlift

⁶⁵https://www.engineeringnews.co.za/article/new-floating-caisson-to-improve-productivity-at-cape-town-dry-dock-2019-02-07/rep_id:4136

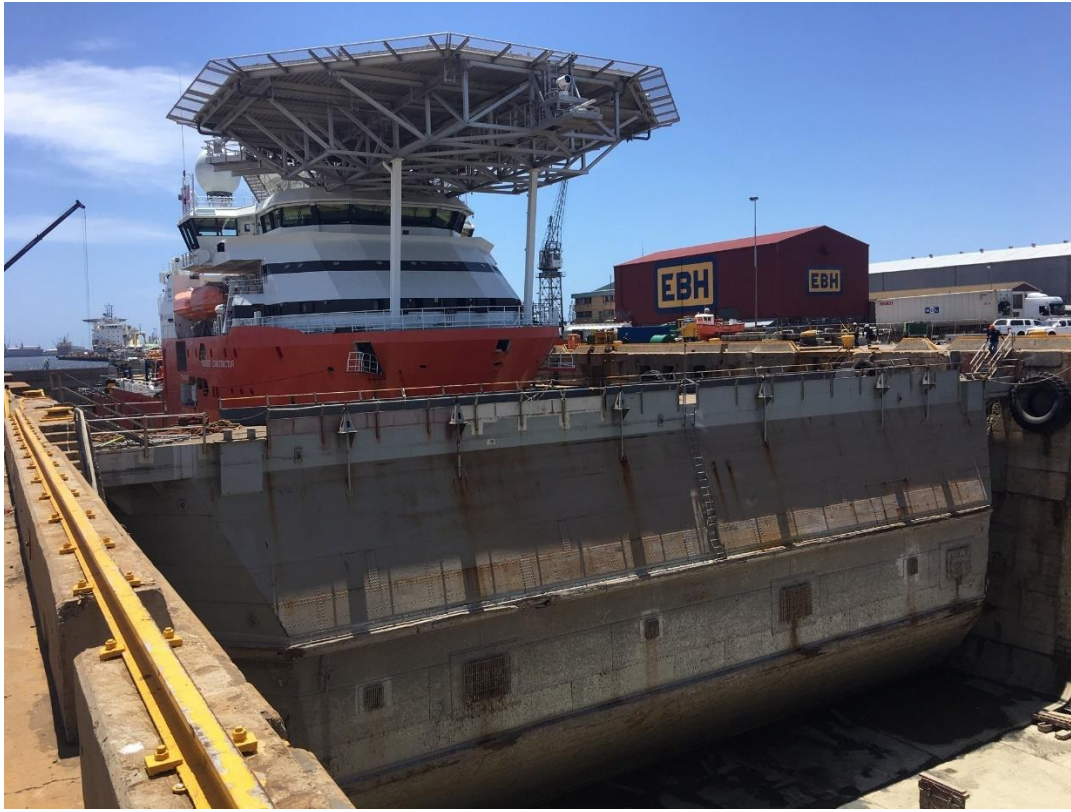


Figure 24: Inner caisson at Sturrock dock.

The inner caisson at Sturrock Dock, which broke catastrophically in December 2016, has been repaired temporarily and the dock is now able to accommodate two vessels simultaneously. Upgrades on the walls of the dock are also underway. The synchrolift has been serviced recently but the extent of work is not known.

Vessel repair however, is also dependent on the marine services offered by the port. The port is able to accommodate only one vessel in the entrance channel at any one time. In recent years, adverse weather conditions prevented vessel entrance to the port because tugs are not sufficiently powerful. TNPA has addressed this situation by purchasing two new 70-ton bollard pull tugs (the Umbilo and the Usiba) which are able to pilot large vessels into port. "TNPA is executing a craft replacement strategy at the port including acquiring two new workboats and a helicopter for marine pilot transfers in the near future."⁶⁶ By 2022 two new tugs will be available: "The engines of the new workboats will be about 20% more powerful than the two workboats currently in operation at the port and the bollard pull will be 80% greater as a result of advanced propeller and rudder designs."⁶⁷

⁶⁶ <https://www.sashippingnews.com/2019/10/18/port-of-cape-town-boosts-tug-fleet-with-umbilo/>

⁶⁷ http://www.engineeringnews.co.za/article/tnpa-to-acquire-two-new-workboats-for-port-of-cape-town-2019-09-20/rep_id:4136



Figure 25: Umbilo tug in Cape Town

There is also concern that high swells cause surging of vessels when they are in the port, largely related to the stilted design of Ben Schoeman dock. An influential industry player has recommended a Shore Tension system which “enhances the mooring capabilities of large ships by providing high tension and pays out upon experiencing peaks in load, ensuring the minimum breaking load of the mooring ropes is never exceeded.”⁶⁸ It is not yet known whether TNPA is considering the Shore Tension system.

Cape Town port's infrastructure is old and there appears to be tangible signs that TNPA is improving repair and marine service facilities, albeit temporarily. Implications of restored infrastructure and more efficient port services are discussed below.

⁶⁸ <http://www.ftwonline.co.za/news/column/193852/How-the-port-of-CT-could-avoid-weather-related-delays>

2.7 C3. Mossel Bay

The port's physical limitations allow only small vessels with an entrance channel depth of 8m, while inside the harbour the maximum permissible draught is 6.5m. Ships anchoring outside port must keep clear of the approaches to the entrance channel or risk running aground.

Larger vessels have to anchor offshore at a buoy which accommodates ships in the handysize category, with a maximum length of 204m and a draft of no more than 12m. The second mooring is a single point mooring (SPM) connected to three hoses and is used primarily for the export of Moss gas products.

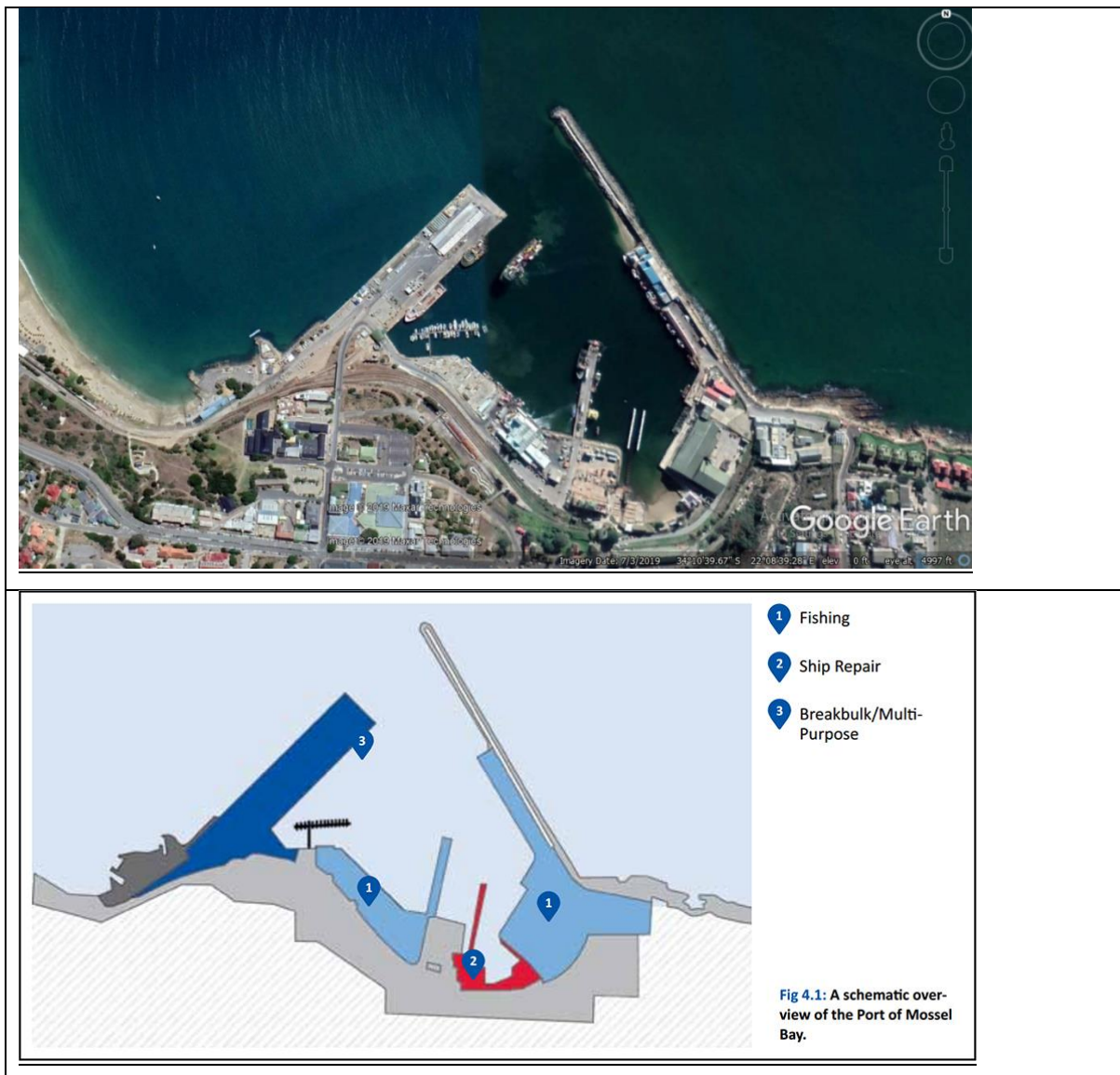


Figure 26: Aerial and Schematic representation of Mossel Bay harbour

Inside the harbour vessels of up to 130m and a 6.5m draught can be accommodated at quay 4. There is a slipway for ship repair which originally accommodated vessels of up to 500 tons but has been downgraded to 180 tons. The wooden slipway is old and has damaged vessels

in recent years. Mossel Bay is a *common user port* with ships worked on a first-come-first-served basis. Berthing is subject to wind and swell conditions.

The harbour of Mossel Bay caters mainly for fishing and service craft for the local oil industry, which are major employment creators in the region. The port handles little commercial cargo, and therefore has little in the way of sophisticated infrastructure.

It is “the only South African port that operates two off-shore mooring points within port limits. It also serves as an offshore supply vessel base for one of its key clients, PetroSA. The port is capable of accommodating passenger and project vessels that call there. The port's main role is to import and export petroleum products. It also serves as a base for the local fishing industry. The port is dredged every second year.”⁶⁹

Despite these limitations, Mossel Bay is expecting the return of the Deepsea Stavanger rig in 2020, which will stay for several months to drill for natural gas in the Outeniqua basin. The presence of the rig will boost business in the area and the shipping agent Afrishore has already created an email address inviting businesses to service the rig.

Very little information is available for Mossel Bay's engineering supply chain for maritime repair and we may infer that:

- Very few ship repairs can be done and for larger vessel only wet repairs are possible; major repairs to boats will be more common
- Most repairs relate to OSV's and fishing vessels, which are able to enter the port
- Complexity of repairs is very limited
- A specialized and small supply chain limits work to the port's core functions, fishing and supply vessels
- More offshore moorings may offer opportunity to develop the maritime engineering supply chain, specifically for oil and gas.

The picture that emerges for Mossel Bay is one of a small port which is dedicated to two industries. It is able to accommodate large rigs and smaller ships out of port, at two facilities. With Total's discovery of gas condensate at the Brulpadda field and the declining utilisation⁷⁰ of PetroSA's facilities⁷¹, rejuvenation of these facilities is being negotiated. Our overall analysis of Mossel Bay suggests that business will increase when Brulpadda delivers condensate and it is hoped that existing jobs will be retained. At this time, insufficient information is available to draw any firm conclusions.

⁶⁹ <https://www.transnetnationalportsauthority.net/OurPorts/Mossel%20Bay/Pages/Overview.aspx>

⁷⁰ <https://www.businessinsider.co.za/central-energy-fund-petrosa-mosselbay-gas-to-liquid-refinery-natural-gas-jobs-department-of-energy-2019-9>

⁷¹ <https://mg.co.za/article/2019-02-15-00-gas-find-could-save-petrosa>

The port's limitations on repair of vessels and rigs imply that it requires closer integration with major repair facilities, preferably in Cape Town instead of Coega, in the Eastern Cape. The idea of ferrying cargo and even people along the South Coast has been raised, to alleviate congestion on the Garden route road. Mossel Bay is a small, specialist port and offers limited opportunity for physical expansion.

With the award of a recent tender, TNPA was unable to accommodate the Mossel Bay Boat and Yacht Club after the mooring area was awarded to a company with a strong developmental agenda. Yacht enthusiasts may need assistance with creating a yacht-friendly environment and facilities, even if they wish to introduce newcomers to starter yachts (largely sail-driven and amenable to intermodal transport). Sailboats are popular in Mossel Bay, which is home to the Garden Route Sailing Academy and conducts training in conjunction with the Skipper Foundation. Wind-driven boats would appear to be a specialization for this port, which could potentially be used to market the port's yacht and boat-building industry to African countries. While Mossel Bay is small, it has created maritime initiatives which distinguishes it from other ports.

In a significant development, Mossel Bay hosted a large oil rig from Singapore on 9th August 2019.

The Yantai semi-submersible rig was moored outside the harbor and took on new crew, supplies and parts for its onward journey.⁷²

The project is notable for the cooperation between TNPA and SAMSA, for delivering this "big quick result", as envisaged by Operation Phakisa (but not because of Phakisa).

Port manager Shadrack Tshikalange said the Port of Mossel Bay was well-equipped to service the needs of large vessels such as the Deepsea Yantai despite being the smallest of TNPA's commercial ports on the South African coast.

"We commend the efforts of all role players in ensuring the safe arrival of the Deepsea Yantai. TNPA values the opportunity to assist vessels of this nature and size in the future, which will earn us the trust of international organisations," Tshikalange said.⁷³

⁷² (<https://www.mosselbayadvertiser.com/>)

⁷³ (<https://www.mosselbayadvertiser.com/News/Article/General/bring-on-brulpadda-201908080727>)

In the near future the province may expect an increase in rigs, exploration vessels and cruise liners outside port limits. A significant increase in vessel repairs however, is not expected until the slipway is restored to its original capacity of 500 tons, reportedly with a redesigned steel facility.

Appendix D: SWOT Analysis of Provincial Ports

The table below summarises the strengths, weaknesses, opportunities and threats for each port, based on all the information in preceding sections.

SALDANHA BAY				
	S	W	O	T
Ships	Natural deep water harbour which can accommodate up to VLCC and large ore carriers; SBIDZ offers extensive back-of-port facilities and services; freeport available; has some yacht building and repair facilities, some unique to Southern Africa.	No containerisation facilities ; many skills recruited from Cape Town ; fabrication capacity limited ; proximity to airport is distant ; limited logistics ability; jettys are dedicated to tankers and ore ships; local facilities geared towards fishing vessels; bunkering facilities limited to 19m air draft and 22m at ore jetty ; vessel repair not promoted as a distinct service	Free port will stimulate growth of logistics services ;	West African port development projects in Walvis Bay and Ghana (Takorade) ; proximity of Walvis Bay to Europe shorter than to Saldanha
Yachts	Negotiation to establish yacht manufacture facility at port	Limited capacity to build and berth yachts	Potential for concession in yacht building;	Cannibalisation by other SA manufacturers
Boats	Host extensive trawling fishing fleet which have concession for operating at fishing quay	Diesel for boats most likely trucked in, increasing cost ; IMO 2020 fuel cannot be transported by truck	Potential for establishing boat-building yards	Global boat manufacturers
Oil Rigs	Port able to accommodate	Unable to provide a full supply chain of services eg. crewing	Proactive marketing to attract scheduled work	Competition from Eastern Cape, Coega

MOSSEL BAY				
	S	W	O	T
Ships	Two offshore mooring buoy for Handysize tankers ; capable of hosting oil rigs offshore ; well-developed supply function to oil-related vessels; well developed logistics infrastructure ; have divers who can do underwater repairs for all vessels in port	Cannot accommodate ships of any size inside the harbour ; very limited ability to repair ships, only minor repairs		
Yachts	Interest in starting yachts and in the form of an organisation called the MBYBC	Yacht berthing not given consideration by TNPA	Possibility of developing leisure yachting facilities	Lack of support from TNPA and Public Works
Boats	Have OSV's to transfer personnel and supplies ; hub for fishing vessels; has a number of its own specialised workboats	Can only supply diesel, cannot bunker larger vessels ;	Opportunity to develop ferrying along South Coast	
Oil Rigs	Able to host offshore ; suitably located for drilling at Brulpadda; PetroSA facilities located in the region	Have to recruit crew from surrounding metros	Increased hosting for exploratory rigs for Brulpadda ; general increase for demand in the supply chain	

	CAPE TOWN			
	S	W	O	T
Ships	Can accommodate variety of ships with draft up to 13,9m ; has ship repair facilities; has supply chain for vessel repair ; mentions ship repair facilities but not services ; only provincial port which can do bunkers	Limited draft in dry dock facilities ; entrance to Alfred basin limits size of ship to synchrolift to small ships; Largest dry dock (Sturrock) is not working ; Phakisa funds used for restoration rather than development	Saldanha Bay unable to repair larger vessels ; bunkers can only be procured from Cape Town;	Proximity of Walvis Bay to Europe shorter than to Cape Town ; environmental regulations/concerns driving changes in ship liner's behaviour
Yachts	Has marina for international visitors and locally-owned yachts ; strong yacht-building industry ; globally recognised as catamaran builder; export-orientated sector	Limited skills supply ; limited berthing opportunities ;	R & D into new designs and local ownership of IP ; megayacht niche not yet tapped ; marketing to upper class in Africa ; decline in ZAR	Other yacht manufacturers who have R & D as well as design capability ; distance from markets in US and Europe
Boats	Home to many of SA's of local and international boat builders ; produces for local market and export orientated ; large number of specialised boats to service port operations and tourism	Limited skills ; lack of clarity on state procurement of boats from local manufacturers; insufficient marketing to SSA govts and organisations ; possibly poor understanding of category of vessel which can be built/repared locally as opposed to being put out on international tender.	More state procurement locally ; SSA and African procurement ; aggressive marketing of building and repair sectors	Global boat manufacturers
Oil Rigs	Has the ability to host oil rigs for repair and supply;	Limited marketing of ability to repair oil rigs and apparent gap in whose responsibility it is.	Potential to target between 57 and 59 rigs located on African West coast annually	Slow pace of legislative approvals in SA eg. obtaining operating licence

Table 6: SWOT Analysis of 3 provincial ports

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