



THE SOUTH AFRICAN

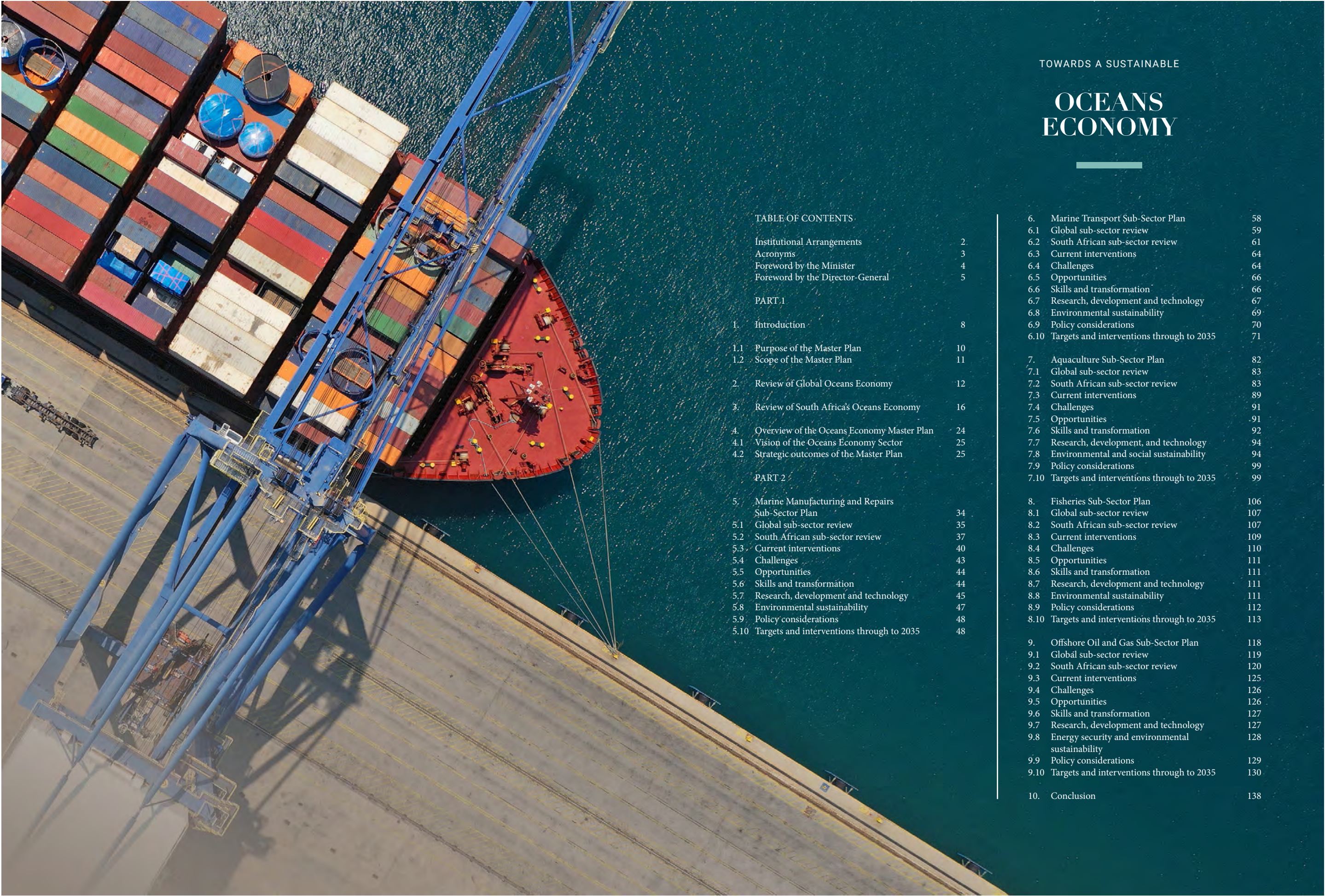
# OCEANS ECONOMY

Master Plan to 2035

DRAFT 4. Version 1







TOWARDS A SUSTAINABLE

# OCEANS ECONOMY

TABLE OF CONTENTS

Institutional Arrangements	2	6. Marine Transport Sub-Sector Plan	58
Acronyms	3	6.1 Global sub-sector review	59
Foreword by the Minister	4	6.2 South African sub-sector review	61
Foreword by the Director-General	5	6.3 Current interventions	64
		6.4 Challenges	64
		6.5 Opportunities	66
		6.6 Skills and transformation	66
		6.7 Research, development and technology	67
		6.8 Environmental sustainability	69
		6.9 Policy considerations	70
		6.10 Targets and interventions through to 2035	71
PART 1			
1. Introduction	8	7. Aquaculture Sub-Sector Plan	82
1.1 Purpose of the Master Plan	10	7.1 Global sub-sector review	83
1.2 Scope of the Master Plan	11	7.2 South African sub-sector review	83
2. Review of Global Oceans Economy	12	7.3 Current interventions	89
3. Review of South Africa's Oceans Economy	16	7.4 Challenges	91
4. Overview of the Oceans Economy Master Plan	24	7.5 Opportunities	91
4.1 Vision of the Oceans Economy Sector	25	7.6 Skills and transformation	92
4.2 Strategic outcomes of the Master Plan	25	7.7 Research, development, and technology	94
		7.8 Environmental and social sustainability	94
		7.9 Policy considerations	99
		7.10 Targets and interventions through to 2035	99
PART 2			
5. Marine Manufacturing and Repairs Sub-Sector Plan	34	8. Fisheries Sub-Sector Plan	106
5.1 Global sub-sector review	35	8.1 Global sub-sector review	107
5.2 South African sub-sector review	37	8.2 South African sub-sector review	107
5.3 Current interventions	40	8.3 Current interventions	109
5.4 Challenges	43	8.4 Challenges	110
5.5 Opportunities	44	8.5 Opportunities	111
5.6 Skills and transformation	44	8.6 Skills and transformation	111
5.7 Research, development and technology	45	8.7 Research, development and technology	111
5.8 Environmental sustainability	47	8.8 Environmental sustainability	111
5.9 Policy considerations	48	8.9 Policy considerations	112
5.10 Targets and interventions through to 2035	48	8.10 Targets and interventions through to 2035	113
		9. Offshore Oil and Gas Sub-Sector Plan	118
		9.1 Global sub-sector review	119
		9.2 South African sub-sector review	120
		9.3 Current interventions	125
		9.4 Challenges	126
		9.5 Opportunities	126
		9.6 Skills and transformation	127
		9.7 Research, development and technology	127
		9.8 Energy security and environmental sustainability	128
		9.9 Policy considerations	129
		9.10 Targets and interventions through to 2035	130
		10. Conclusion	138



Institutional Arrangements

Overall Master Plan Coordination and Project Management  
André Share

Overall Master Plan Support  
Kgothatso Magongwa

Working Group 1:

Marine Manufacturing and Repairs  
Ntsiki Mbono; Chuma Mpahlwa (DoT); Sithembiso Sojola; Anele Mbejeni.  
Supporting Services (Co-Chairs: Patrick Kammerman; Colin Shreuder).  
Legal, Regulation and Administration (Chair: Stefan Hrabar).

Working Group 2:

Marine Transport (including Freight, Logistics and Cargo)  
Ntsiki Mbono; Chuma Mpahlwa (DoT); Sithembiso Sojola; Anele Mbejeni.  
Infrastructure and Equipment (Co-Chairs: Judith Everitt; Fisokuhle Bhengu).  
Supporting Services (Co-Chairs: Kgomotso Mogale; Louise Wiggett).  
Legal, Regulation and Administration.

Working Group 3:

Aquaculture (Freshwater and Marine)  
Nitasha Baijnath-Pillay; Keagan Halley; Cillesteen Martin.

Working Group 4:

Fisheries (Commercial and Small-scale)  
Temba Tanci; André Share; Abongile Ngqongwa; Cillesteen Martin.  
Commercial Fisheries.  
Small-scale Fisheries.  
Transformation, skills development, job creation and opportunities (Chairs/Deputy: Shamera Daniels; Pheobius Mullins).  
Enterprise development, supplier development, value chain and value chain analysis (Chair/Deputy: Tasneem Wesley; Adrian Smith).  
Climate change, the impact of climate change, the Ecosystem Approach to Fisheries, resource allocation, Sustainability (Chair: Dr Johann Augustyn).  
Legal, Regulations and Administration (Chair: Clyde Bodenham; Innocent Dwayi).

Working Group 5:

Offshore Oil and Gas  
Ntsiki Mbono; Shonisani Manyaga (DMRE); Avuyile Xabadiya (DMRE); Sithembiso Sojola; Anele Mbejeni.  
Infrastructure, Transport and Special Economic Zones (Co-Chairs: N Ephraim; K Beukes; F. Bhengu).  
Regulation, Legal and Administration (Chair: A Futter)  
Localisation, Enterprise Development, Supplier Development, Skills Development, Technology and Innovation (Chair: A Strydom).  
Competitiveness, Just Transition and Sustainable Development (Chair: M Ranoszek).  
Funding Mechanisms (Chair: A Futter).

Acronyms

ADEP	Aquaculture Development Enhancement Programme
ADF	Aquaculture Development Fund
ADZ	Aquaculture Development Zone
AFASA	African Farmers' Association of South Africa
AISI	Aerospace Industry Support Initiative
ARC	Agriculture Research Council
BMA	Boarder Management Authority
DAEARDLR	Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (Northern Cape)
DALRRD	Department of Agriculture, Land Reform and Rural Development
DBSA	Development Bank of Southern African
DEL	Department of Employment and Labour
DFFE	Department of Forestry, Fisheries and the Environment
DFI	Developing Financing Institution
DHET	Department of Higher Education and Training
DIRCO	Department of International Relations and Cooperation
DMRE	Department of Mineral Resource and Energy
DoT	Department of Transport
DPE	Department of Public Enterprises
DPWI	Department of Public Works and Infrastructure
DSBD	Department of Small Business Development
DSI	Department of Science and Innovation
dtic	Department of Trade, Industry and Competition
DUT	Durban University of Technology
DWAS	Department of Water and Sanitation
CAF	Consultative Advisory Forum
CEF	Central Energy Fund
CMT	Coastal and Marine Tourism
CPUT	Cape Town Peninsular University of Technology
CSIR	Council for Scientific and Industrial Research
ECIC	Export Credit Insurance Corporation
EEZ	Exclusive Economic Zone
ER	Exploration Right
E&P	Exploration and Production
FEWCOOPSA	Food Energy Water South Africa Tertiary Cooperative
FM	Fisheries Management (DFFE)
FIC	Financial Intelligence Centre
FRAP	Fishing Rights Allocation Process
GDP	Gross Domestic Product
GCIS	Government Communication Information System
IAC	Inter-departmental Authorisations Committee
IDC	Industrial Development Corporation of South Africa
ILO	International Labour Association
IMO	International Maritime Association
ITAC	International Trade Administration Commission of South Africa
ITF	International Transport Workers' Federation
IUU	Illegal, Unregulated and Unreported (fishing)
NCRS	National Regulations for Compulsory Specifications
NEF	National Empowerment Fund

NERSA	National Energy Regulator of South Africa
NDB	New Development Bank
NDT	National Department of Tourism
NEMA	National Environmental Management Act
NEMBA	National Environmental Management Biodiversity Act
NMU	Nelson Mandela University
NSF	National Skills Fund
NYDA	National Youth Development Agency
O&G	Offshore Oil and Gas
OHS	Operational Health Services
ONPASA	Onshore Petroleum Association of South Africa
OPASA	Offshore Petroleum Association of South Africa
PASA	Petroleum Association of South Africa
PIC	Public Investment Corporation
PR	Production Right
SAAFF	South African Association of Freight Forwarders
SAASR	South African Association of Ship Builders and Repairers
SABEX	South African Build Environment Exchange
SADSTIA	South African Deep Sea Trawling Industry Association
SAIMI	South African International Maritime Institute
SAIMENA	South African Institute of Marine Engineers and Naval Architects
SAMSA	South African Maritime Safety Authority
SANSA	South African National Space Agency
SAOGA	South African Oil and Gas Alliance
SABS	South African Bureau of Standards
SACAA	South African Civil Aviation Authority
SAAMA	Southern African Asset Management Association
SALGA	South African Local Government Association
SAMSA	South African Maritime Safety Authority
SANDF	South African National Defence Force
SAPS	South African Police Service
SARS	South African Revenue Service
SEDA	Small Enterprise Development Agency
SEFA	Small Enterprise Finance Agency
SETA	Sector Education and Training Authority
SEZ	Special Economic Zone
SHD	Small Harbours Development
SITA	State Information Technology Agency
SOE	State-Owned Enterprises
TAASA	Tilapia Aquaculture Association of South Africa
TCF	Trillion (Standard) Cubic Feet
TCP	Technical Cooperation Permit
TE	Transnet Engineering
TFR	Transnet Freight Rail
TIA	Technology Innovation Centre
TISA	Trade and Investment South Africa
TNPA	Transnet NationaDOTI Ports Authority
TPL	Transnet Pipelines
TPT	Transnet Port Terminals
TVET	Technical Vocational Education and Training
UTT	Upstream Training Trust

## FOREWORD BY THE MINISTER

---

TO BE CONFIRMED

## FOREWORD BY THE DIRECTOR-GENERAL

---

TO BE CONFIRMED





TOWARDS A SUSTAINABLE

# OCEANS ECONOMY

---

# PART 1

---



# 01. Introduction

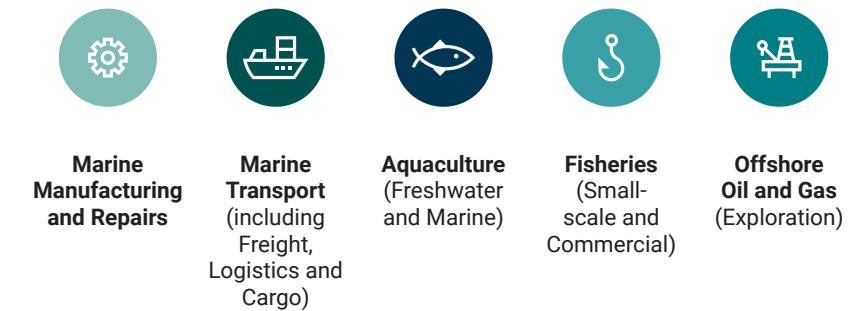
*The ocean is central to South Africa's economy. With around 40% of the population living within 60km of the coast,<sup>1</sup> and over 90% of all trade having a maritime element, South Africa has been described as a 'maritime economy'.<sup>2</sup>*

South Africa is strategically located on one of the world's major shipping routes, critical to global marine transportation. It also has the second longest coastline in Africa, influenced by three oceans, namely the Atlantic, Indian and Southern oceans. Furthermore, its rich and productive coastal waters support thousands of jobs across various ocean-based industries and contributes billions of Rand to the national economy each year. A recent study captured the breadth of social and economic benefits of the oceans economy to South Africa, finding that it accounted for 4.47% of the country's total Gross Domestic Product (GDP) and 2.86% of total employment in 2020.<sup>3</sup>

Despite the overwhelmingly maritime nature of South Africa's geography, its clear dependence on the ocean, and the contribution of the marine sector to the overall national economy, South Africa has not fully explored the enormous potential of its ocean space. The sector, in other words, requires continuous interventions to maximise its potential. At a national policy level, it has been heavily supported by Government in the form of the Operation Phakisa-Oceans Economy initiative, which was launched in 2014. The initiative has focussed on unlocking the potential of several priority areas within South Africa's broader ocean economy, with the sector expected to contribute between ZAR129 and ZAR177 billion to the national economy and creating between 800 000 to 1 million direct jobs by 2033.<sup>4</sup> To date, the implementation of Operation Phakisa-Oceans Economy has had varying successes and impacts, and further work is required in unlocking the economic potential of South Africa's oceans.<sup>5</sup> It is also becoming clear that the COVID-19 pandemic has impacted negatively on many ocean-based sectors (although some sectors, notably boat building, actually grew), which necessitates a review of Phakisa's initiatives to ensure economic recovery and growth post COVID-19.

The South African oceans economy sector faces several structural challenges in realising its full potential, including infrastructure inefficiencies, limited private sector involvement and procurement bottlenecks, while simultaneously dealing with a struggling national economy and depressed regional markets. However, at the same time, the sector exhibits substantial growth potential. Forecasts for 2035 for the total oceans sectors, in terms of the Standard International Classification (SIC), suggest a GDP contribution of around 4.54% (ZAR166,6 billion) and approximately 608 253 potential jobs (representing 2.9% percent of total employment), which can result in significant economic multipliers along the value chain within the South African economy.<sup>6</sup>

It is within this context that the Department of Forestry, Fisheries and the Environment (DFFE) commissioned the drafting of a South African Oceans Economy Master Plan to further unlock the development of the sector and its ocean-based industries. The drafting of the document was guided by the Master Plan Framework, as outlined by the Department of Trade, Industry and Competition (the dtic). The Oceans Economy Master Plan is an intentionally aspirational plan developed closely with stakeholders that seeks to stabilise, revive and grow key sub-sectors of South Africa's Oceans Economy through to 2035. While there are many sub-sectors within South Africa's broader oceans economy<sup>7</sup> - ranging from marine transport and manufacturing, fishing and aquaculture (farming), defence and sea rescue, policing and customs, marine and coastal management, and marine tourism to research and education, pharmacology, communication, construction, desalination, science and technology and energy (renewable) generation - this Master Plan specifically focuses on five sub-sectors. These are:

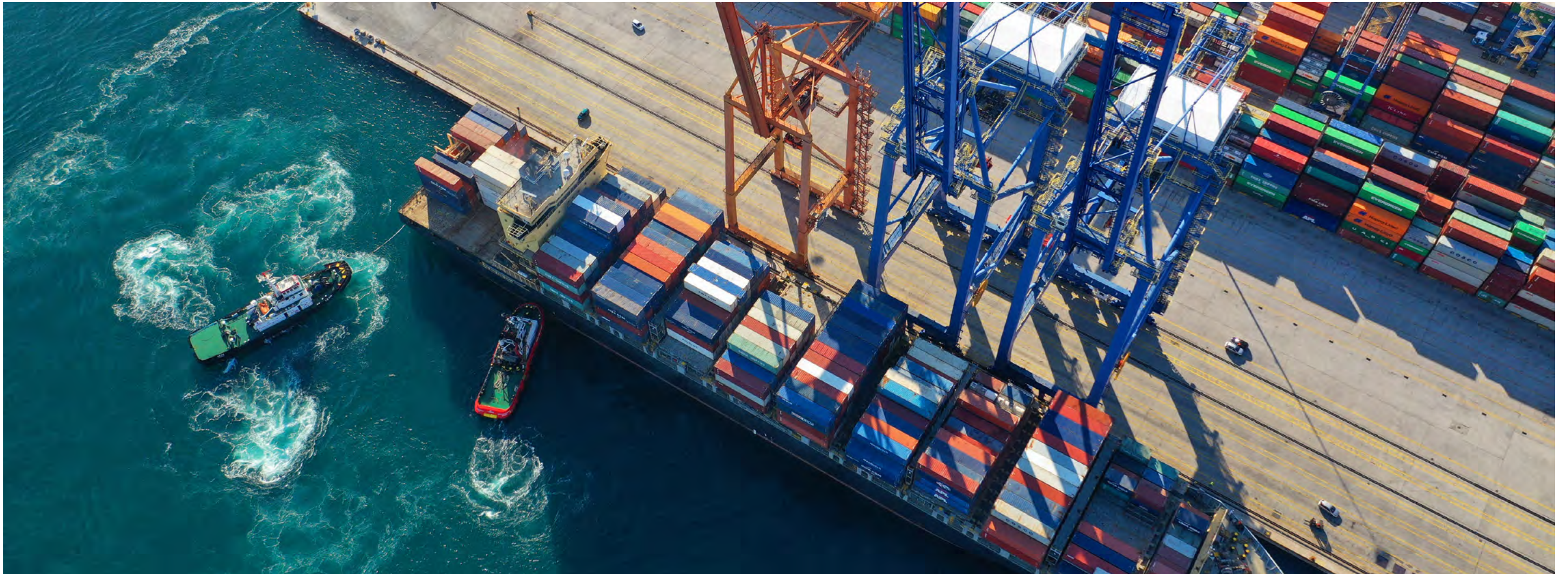


The development of the Master Plan entailed dedicated working sessions and engagements with the respective stakeholders, which include organised labour, business (industry), civil society (community-based co-operatives), Nedlac community constituencies<sup>8</sup>, academic institutions, and Government and its State-owned entities. The formulation of South Africa's Oceans Economy Master Plan builds on the initiatives of Operation Phakisa-Oceans Economy and expands the scope to other sub-sectors that had not originally been dealt with by the Phakisa process. Compared to other sectors in the national economy, the oceans economy sector is complex and diverse, as is also represented by a cluster of industries - each one with their own unique dynamics and opportunities.

1. Rochelle Wigley, 2011. Geohazards in coastal areas, Council for Geoscience, Western Cape Unit, 2011.  
2. Timothy Walker, 2018. 'Securing a sustainable oceans economy South Africa's approach', Institute for Security Studies (ISS), June 2018.  
3. Derek Zimmerman, 2021. The Ocean Economy of South Africa & Operation Phakisa: A Baseline Assessment & Forecast, study commissioned by Department of Forestry, Fisheries and Environment (DFFE).  
4. DFFE, 2016. Operation Phakisa Oceans Economy Progress Report, Department of Forestry, Fisheries and Environment (DFFE).  
5. DFFE, 2020. Towards a South African Oceans Economy Master Plan: Draft Discussion Document, Department of Forestry, Fisheries and Environment (DFFE).  
6. Zimmerman, 2021. The Ocean Economy of South Africa & Operation Phakisa

7. The United Nations Conference on Trade and Development (UNCTAD) has identified at least 13 sectors and 52 sub-sectors within the global oceans economy, consisting of over 780 ocean-based industries. See: UNCTAD, 2021, Advancing the Potential of Sustainable Ocean-Based Economies: Trade Trends, Market Drivers and Market Access: A First Assessment.  
8. Nedlac is the National Economic Development and Labour Council, a statutory body that seeks to ensure effective public participation in the labour market and socio-economic policy and legislation, and to facilitate consensus and cooperation between Government, labour, business and the community in dealing with South Africa's main socio-economic challenges





## 1.1 PURPOSE OF THE MASTER PLAN

Government approved the Reimagined Industrial Strategy (RIS) for South Africa in June 2019. A cornerstone of the RIS is the development of sector-focused Master Plans in 15 priority sectors, of which the oceans economy is one. The development of the Master Plan also gives effect to the Government's Economic Reconstruction and Recovery Plan to revitalise the South African economy, especially post COVID-19. A Master Plan is a comprehensive and clear plan of action developed by Government, Business and Organised Labour, which seeks to achieve a common policy objective, such as job creation and economic growth. It is typically time-bound and incorporates various actions by stakeholders, sequenced to achieve maximum socio-economic impact. The primary objective of this Oceans Economy Master Plan process is to develop an agreed-upon set of actions, with timeframes, that all stakeholders in key sub-sectors of South Africa's oceans economy commit to implementing for the benefit of the marine sector. The key objectives of this Master Plan are to encourage sector growth, investment, job creation and also enhance competitiveness within South Africa's ocean's economy.<sup>9</sup>

## 1.2 SCOPE OF THE MASTER PLAN

South Africa's oceans economy involves multiple, diverse and sometimes overlapping industries that operate (directly or indirectly) within the marine environment. Hence, this Master Plan includes separate, but mutually reinforcing, sub-sector plans that collectively form South Africa's Oceans Economy Master Plan. The Oceans Economy Master Plan is presented in two parts. Part 1 provides a general overview of the global and South Africa's oceans economy and presents the core tenets of the Oceans Economy Master Plan, including the vision and associated set of targets for the South African oceans economy, as well as the pillars and foundations that are intended to frame the development of the sector through to 2035. Part 2 introduces individual plans for the five identified oceans economy sub-sectors, which are intended to give life to the aspirational vision, objectives and strategic framework agreed upon by stakeholders to optimally develop the South African oceans economy through to 2035.

9. It is worth noting that, while environmental issues impacting each of the five sub-sectors are highlighted in the masterplan, the broader conflict between economic growth and environmental protection in South Africa falls beyond the scope of the document. As such, key issues on climate change, such as equity (including inter- and intra-generational equity), differential treatment and the precautionary principle are not discussed in any detail.



## 02. Review of Global Oceans Economy

*Ocean-based industries are important for national economies, because oceans provide numerous resources for human nutrition, health and economic development.<sup>1</sup> Global interest in developing ocean economies is taking an increasing importance in the policy and economic realm.*

This resource, if responsibly managed, promises to provide sustainable solutions to many of the pressing issues facing humankind today, including poverty, inequality, unemployment, economic development, and the impact of climate change.

The underlying link between the oceans, economic activity and human survival was underlined by a 2015 United Nations (UN) report, which explains that:

The ocean covers more than 70% of the Earth's surface	More than 60% of the world's population lives on or near the coast	More than 3 billion people rely on the oceans for their livelihoods	Fish provide 4.3 billion people with at least 15% of their intake of animal protein	At least 90% of the volume of global trade is seaborne <sup>2</sup>
---	--	---	---	---

The fundamental drivers of the global oceans economy are fishing, shipping (both in trade and manufacturing), and tourism, with more than 350 million jobs linked to oceans worldwide.<sup>3</sup> It is important to also acknowledge significant economic activity in upstream petroleum subsector in regions with significant resources and mature oil and gas industry. Yet, despite holding the promise of immense resource wealth and economic growth, there is no accepted definition of the concept of an 'oceans economy',<sup>4</sup> mainly because marine activities vary from one geographic location to the next. In fact, numerous countries have attempted to delineate the size of their ocean-based economies, but this has been particularly challenging because of variations in definitions, standardisation methods and scope boundaries.<sup>5</sup> For the purposes of this Master Plan, the following definition is used:

*"The ocean sector (economy) is one that includes all economic activities closely linked to the ocean resources and environment and/or dependent to some meaningful degree on the ocean".<sup>6</sup>*

Aside from the lack of a standard definition, the United Nations Conference on Trade and Development (UNCTAD) also reports that there are significant data gaps on ocean-based industries worldwide, including on the size and trends of the global oceans economy, market access, challenges and opportunities, and on the supply side. Moreover, even less is known about the inter-connectivity between trade and the various sub-sectors of the oceans economy - as well as the impact of these sub-sectors on oceans ecosystems. As a result, UNCTAD suggests that the availability of data is "more necessary than ever, [because] governments cannot afford to draft policies and strategies that are not fact-based, and investors and businesses will only take steps to develop an industry if they have data indicating its potential".<sup>7</sup>

Despite this data gap, a review of international research suggests that general trends on ocean-based industries can be reliably identified. The Organisation for Economic Co-operation and Development (OECD) flagship publication The Ocean Economy to 2030 estimated that the ocean economy's output in 2010 was USD1.5 trillion (ZAR24 trillion) or approximately 2.5% of global GDP, with full-time employment for around 30 million people. In 2015, the United Nations estimated the global oceans economy at USD3 trillion (ZAR45 trillion) annually, representing roughly 5% of global GDP.<sup>8</sup> In the same year, a report by the World Wildlife Foundation (WWF) placed this figure a bit lower at around USD2.5 trillion (ZAR40 billion), adding however that the ocean drew on assets worth at least USD24 trillion (ZAR390 trillion). As shown in Figure 1 below, these key ocean-based assets include: direct outputs from the ocean (USD6.9 trillion or ZAR112 trillion); trade and transport (USD5.2 trillion or ZAR84 trillion); and adjacent assets (USD12,1 trillion or ZAR196 trillion).<sup>9</sup>



1. UNCTAD, 2021, Advancing the Potential of Sustainable Ocean-Based Economies.  
2. Julie Ritz, 2015. 'The Oceans, Seas, Marine Resources and Human Well-being Nexus', in: United Nations, 2015. Global Sustainable Development Report: 2015 Edition.  
3. Ritz, 2015. 'Chapter 3: The Oceans, Seas, Marine Resources and Human Well-being Nexus'.  
4. The term oceans economy is often used interchangeably with the term 'blue economy', although the latter is cited mostly when related to the sustainable use of the oceans. Both concepts continue to change and adapt.  
5. Province of the Eastern Cape, 2020. Oceans Economy in the Eastern Cape and South Africa: A status quo and baseline assessment.  
6. Stephen Hosking, 2017. Progress overview on the contribution of the South African Ocean Sector, Cape Peninsula University of Technology (CPUT).

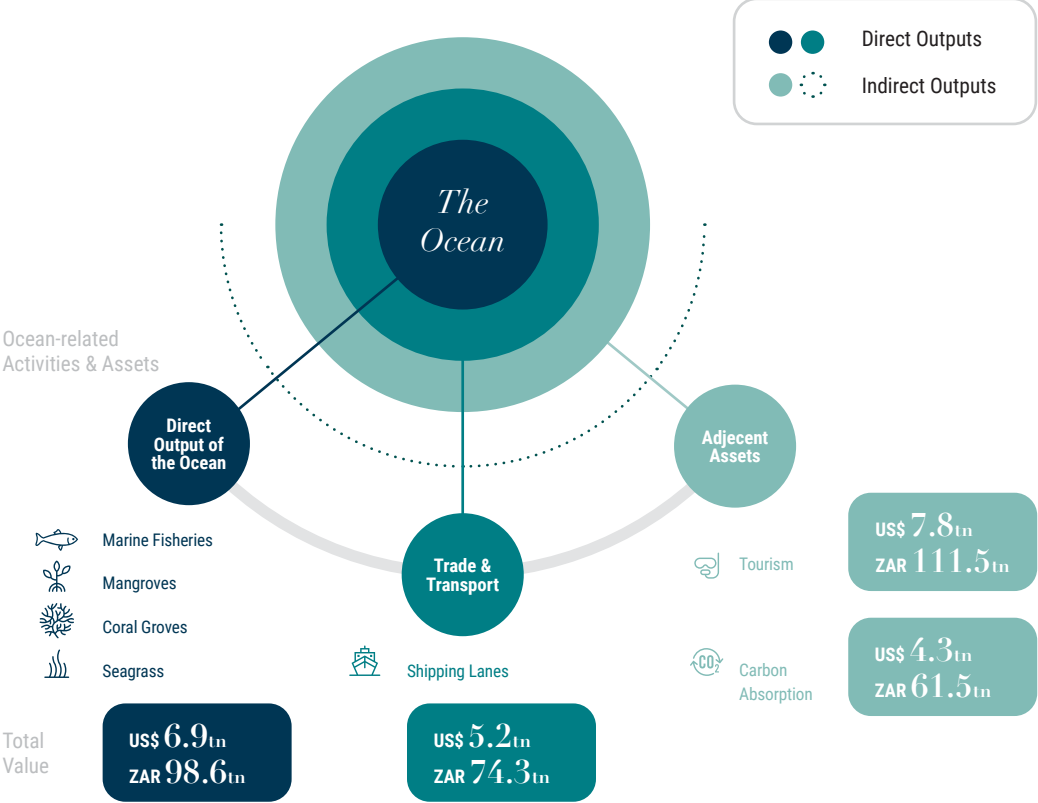
7. UNCTAD, 2021, Advancing the Potential of Sustainable Ocean-Based Economies: Trade Trends, Market Drivers and Market Access, United Nations Conference on Trade and Development (UNCTAD), 20 October 2021.  
8. Ritz, 2015. 'The Oceans, Seas, Marine Resources and Human Well-being Nexus'.  
9. Ove Hoegh-Guldberg et al, 2015. Reviving the Ocean Economy: the case for action - 2015, WWF International, Gland, Switzerland, Geneva.



Global Ocean Asset Value: 2015

(Source: WFF, 2015: Reviving the Ocean Economy)

THE OCEAN PROVIDES WIDE-RANGING VALUE, FROM FOOD AND TOURISM TO COASTAL PROTECTION AND MUCH MORE.



Trade statistics from UNCTAD show that the combined export value of various ocean-based sub-sectors in 2018 was around USD2.5 trillion (ZAR38 trillion). The export value of ocean-based goods was estimated to be around USD1 trillion (ZAR15.2 trillion), while the export value of ocean-based services was estimated at around USD1.5 trillion (ZAR22.8 trillion). The largest sector in terms of export value was tourism (USD1.1 trillion or ZAR16.7 trillion), followed by high-technology and other manufactured goods (USD595 billion or ZAR9 trillion) and marine transport and related services (USD399 billion or ZAR6 trillion).<sup>10</sup>

UNCTAD further reports that: (a) an increasing number of countries are trading less traditional industries, such as processed seafood, sport boats and marine-based cosmetics, while leading countries are venturing into new products with high economic value and developing value chains; (b) the energy sector is growing significantly in terms of volume, investment and the number of countries that are implementing clean energy; and (c) there is a growing relevance of non-tariff requirements<sup>11</sup> (particularly sanitary and phytosanitary requirements), as well as technical barriers to trade.<sup>12</sup> With regards to the latter, it appears that tariffs in the goods sector are highest in low-income countries and, conversely, lowest in high-income countries.<sup>13</sup> According to UNCTAD, high tariffs are usually the result of countries' desire to protect domestic processing industries.<sup>14</sup>

In terms of future economic outlook, the OECD's The Ocean Economy to 2030 report projected a marked acceleration in a range of ocean economic sub-sectors by 2030 - particularly aquaculture, fisheries, marine fish processing, offshore wind power and port activities - and suggested that the value add generated by ocean-based industries globally could double in size from USD1,5 trillion (ZAR23 trillion) in 2010 to USD3 trillion (ZAR46 trillion) in 2030.<sup>15</sup>

However, since this analysis was conducted, governments have invariably taken drastic action in response to the COVID-19 pandemic. In the wake of the crisis, the OECD recently stated that marine economic activity is "broadly expected to slow down and some years may pass before pre-crisis levels are reached again".<sup>16</sup> Likewise, UNCTAD predicts that there will be "an uneven downwards trend in most oceans economy sectors because of COVID-19 and its impact on exports" and according to its latest available data, the value of the largest global oceans economy sector, namely marine and coastal tourism, was severely affected in 2020 and beyond due to COVID-19.<sup>17</sup> Critically, UNCTAD also underlines that the global pandemic has "highlighted the lack of product and market diversification, and the necessity for industries to move towards more value-added products", and concludes that countries "that have suffered the most are those highly dependent on a few commodities or services [such as tourism] and in which industries are adding little value to raw material".<sup>18</sup>

10. UNCTAD, 2021. Advancing the Potential of Sustainable Ocean-Based Economies.  
11. Sanitary and phytosanitary, or SPS, refers to measures which are applied to protect human, animal or plant life from risks arising from the introduction, establishment and spread of pests and diseases and from risks arising from additives, toxins and contaminants in food and feed.  
12. UNCTAD, 2021. Advancing the Potential of Sustainable Ocean-Based Economies.  
13. Tariffs are customs duties levied by governments on imported goods, which must be paid for before entry into market.  
14. UNCTAD, 2021. Advancing the Potential of Sustainable Ocean-Based Economies.  
15. OECD, 2016. The Ocean Economy in 2030, Organisation for Economic Co-operation and Development (OECD) Publishing, Paris.  
16. OECD, 2016. The Ocean Economy in 2030.  
17. UNCTAD, 2021. Advancing the Potential of Sustainable Ocean-Based Economies.  
18. UNCTAD, 2021. Advancing the Potential of Sustainable Ocean-Based Economies.

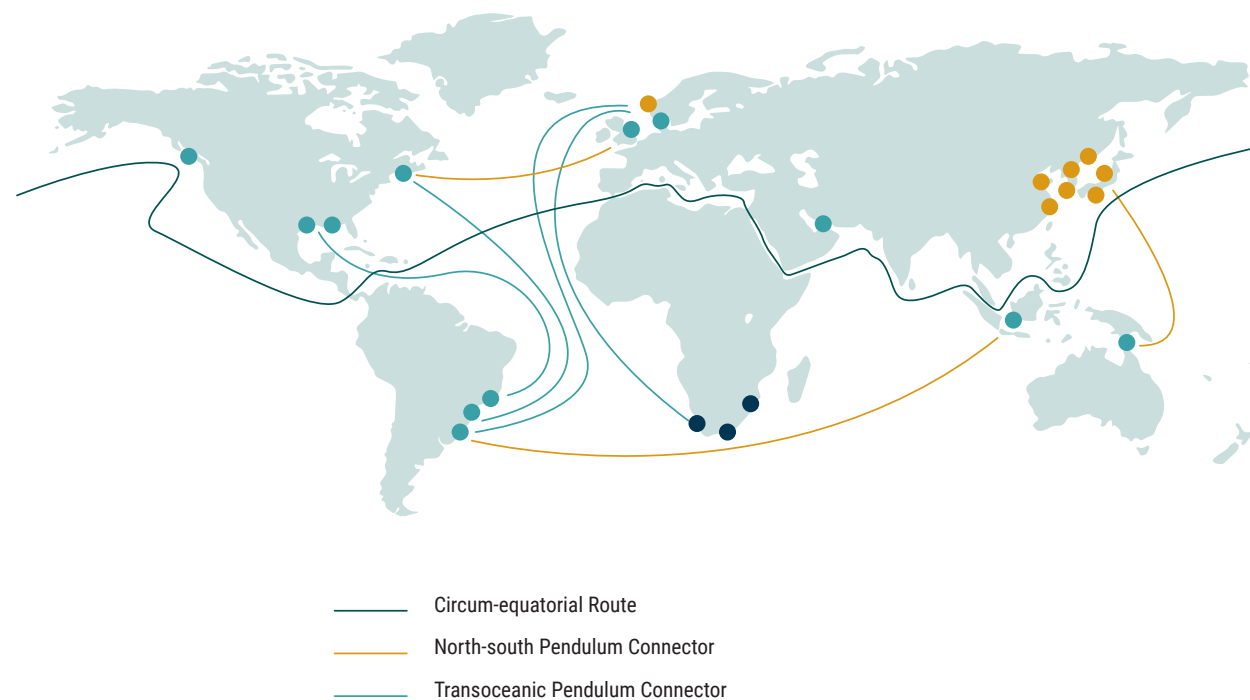


### 03. Review of South Africa's Oceans Economy

The South African oceans economy has followed the global trend by assuming increasing importance. South Africa's strategic location at the most southerly point of Africa means it is influenced by three oceans - the Atlantic Ocean to the west, the Indian Ocean to the east, and the Southern oceans to the south. This places South Africa at a strategic point along one of the world's major shipping routes,<sup>1</sup> mainly the South-South trade corridor from Asia to the East Coast of South America and the connector routes along the East and West coasts of Africa (see Figure 2 below).<sup>2</sup>

#### South Africa's strategic location in relation to international shipping routes

FIGURE 2 Source: Invest SA (2016) South Africa's Ocean Economy



1. Walker, 2018. 'Securing a sustainable oceans economy South Africa's approach'.  
2. Invest SA, 2016. South Africa's Ocean Economy.

South Africa has a coastline of some 3 900 km, including its two sub-Antarctic islands,<sup>3</sup> and has an Exclusive Economic Zone (EEZ) of 1.5 million square km (see Figure 3 below), an area which exceeds its total land territory of approximately 1,2 million square kilometers. The EEZ is the site of considerable sea traffic and activity, with an estimated 30 000 vessels sailing through South African waters annually. The ocean area is governed in terms of South Africa's Maritime Zones Act of 1994 and the United Nations Convention on the Law of the Sea (UNCLOS), agreed to in 1982.<sup>4</sup> These regulations grant South Africa the rights to develop and sustainably utilise marine resources and associated resources contained within the EEZ and its oceans economy.<sup>5</sup> South Africa's Constitution also makes provision for the protection, conservation and sustainable use of the environment, including the oceans.

The size of the EEZ roughly constitutes the size of South Africa's ocean economy. The area is rich in biodiversity and other natural resources, which provides opportunities for economic growth.<sup>6</sup> The oceans economy also sustains and facilitates a wide range of industries and economic activities, including: shipping transport, recreation, fishing, defence and sea rescue, policing and customs, marine and coastal management, coastal and marine tourism, research and education, and also mining, aquaculture, pharmacology, communication, construction, desalination, science and technology and energy generation.<sup>7</sup>

#### South Africa's main ports and extended EEZ

Source: Walker (2018), Securing a sustainable oceans economy South Africa's approach

FIGURE 3



3. The two islands, located around halfway to Antarctica, are Marion Island and Prince Edward Island in the Southern Ocean.  
4. Stephen Hosking et al, 2014. 'The Economic Contribution of the Ocean Sector in South Africa', Studies in Economics and Econometrics, 38:2.  
5. Walker, 2018. 'Securing a sustainable oceans economy South Africa's approach'.  
6. Charles Griffiths et al, 2010. 'Marine biodiversity in South Africa: an evaluation of current states of knowledge', Plos One.  
7. Zimmerman, 2021. The Ocean Economy of South Africa & Operation Phakisa.



In order to unlock the economic potential of South Africa's oceans economy (as well as other sectors), Cabinet in 2014 approved the piloting of the Malaysian Big Fast Results (BFR) methodology. The initiative, known as Operation Phakisa-Oceans Economy, was designed to fast-track the implementation of the objectives of the 2030 National Development Plan (NDP), such as eradicating poverty, unemployment and inequality.<sup>8</sup> Among other identified economic sectors, including health, agriculture, and ICT in education, Operation Phakisa-Ocean Economy served as an operational outlet to optimise the economic potential of the country's oceans as a natural resource.<sup>9</sup> The planning phase of the initiative took place in mid-2014 (which was first led by the then Department of Environment), and saw Government gather over 600 South African maritime stakeholders and experts from 68 institutions together for a series of working sessions (or 'Delivery Laboratories') to interrogate the South African maritime sector and identify areas with the greatest economic growth and employment potential. Six (6) priority areas and (2) two cross-cutting themes were identified, namely:

1. Marine transport and manufacturing
2. Offshore oil and gas exploration
3. Fishing and aquaculture
4. Marine protection services and ocean governance
5. Small harbour development
6. Coastal and marine tourism
7. Skills and capacity building
8. Research, technology and innovation<sup>10</sup>

Although only a few of the abovementioned areas have been interrogated in some detail since the launch of Operation Phakisa-Oceans Economy, a comprehensive economic analysis on behalf of the Department of Forestry, Fisheries and the Environment (DPFE) was conducted in 2021 on nine (9) Phakisa sub-sectors which were deemed to be in need of attention as at 2014.<sup>11</sup> These are:

1. Marine Transport and Manufacturing;
2. Tourism;
3. Offshore Oil and Gas;
4. Construction and Real Estate;
5. Renewable Energy;
6. Fisheries and Aquaculture;
7. Communication;
8. Desalination; and
9. Other.<sup>12</sup>

The analysis estimated that Operation Phakisa-Oceans Economy had the potential to contribute between ZAR129 to ZAR177 billion to South Africa's GDP by 2033 (compared to ZAR54 billion in 2010) and create between 800 000 and 1 million jobs (compared to 316 000 in 2010). The medium-term forecasts suggested that the country's GDP could grow by an additional ZAR20 billion, with an additional 22 000 direct new jobs potentially created by 2019. It is worth noting that this analysis was conducted with specific assumptions and when the global and local economy was at a particular growth trajectory.<sup>13</sup>

The implementation phase of Phakisa has now been running several years. Updates reported for 2020 portray modest economic results, with the initiative having varied success across the six (6) priority areas. The economic impact across these areas is estimated at ZAR153 billion in turnover (total production), ZAR41 billion to the GDP (with ZAR41 billion investments) and 48 506 jobs.<sup>14</sup> Some of the major challenges that have impacted Phakisa's progress include:

- Depressed global and local economic climate;
- Global trade growth and commodity prices under downward pressure;
- Low oil prices impacting negatively on the oil and gas sector;
- Slowdown in investments especially from the private sector;
- Government slipping back to 'business-as usual'; and
- Red tape and bottlenecks in procurement processes.

8. François Vreij, 2019. 'Operation Phakisa: reflections upon an ambitious maritime-led government initiative', *Scientia Militaria*, 47:2 (2019).  
 9. DPME, Operation Phakisa, Department of Planning, Monitoring and Evaluation, accessed 13 December 2021, available at: <https://www.operationphakisa.gov.za>  
 10. It is important to note that these sub-sectors are not necessarily deemed to be fully representative of the total ocean economy in South Africa.

11. See: Zimmerman, 2021. The Oceans Economy of South Africa & Operation Phakisa. The study indicates that an exact fit of Operation Phakisa-Oceans Economy sub-sectors was not possible due to different ocean sectors being acknowledged and measured. An additional ninth sub-sector, which includes the two cross-cutting themes of Skills and Training and Research and Development and Innovation, together with the Marine Protection Services and Ocean Governance and Small Boat Harbour Development sub-sectors, was accommodated under the differential 'Other'.  
 12. These assumptions include an assumed real GDP growth of 1.8%, and expecting nominal GDP growth of around 7%. These figures were informed by National Treasury and South African Reserve Bank forecasts for economic growth and inflation figures at that time.  
 13. Zimmerman, 2021. The Ocean Economy of South Africa & Operation Phakisa.  
 14. The term 'Total Oceans Economy Sectors' is used to express South Africa's oceans economy as a sub-set, or secondary economy, within the National Accounts Framework, which is typically measured and analysed in terms of GDP. This is similar to the 'Satellite Accounts' methodologies used for other second tier economies, such as tourism and education.





While South Africa’s oceans economy is comparatively small globally, it makes a substantial macroeconomic contribution to the South African economy. According to the abovementioned 2021 DFFE study, the sector’s full contribution to GDP (‘Total Ocean Economy Sectors’) was estimated at 4.47% and employment at 2.86% in 2020, as shown in Table 1 below.

South African Ocean Economy Vs Operation Phakisa Targets

Source: Zimmerman, 2021: The Ocean Economy of South Africa & Operation Phakisa

TABLE 1

#	SA OE Baseline & Forecast vs Operation Phakisa Targets	Metric	2020	2024	CAGR*
1	GDP (2010 Prices, Real) SA National Economy - Direct Only	ZAR bn	2 664	2 924	2.4%
a	GDP (2010 Prices, Real) SA OE Forecast - (10 sub-sectors)	ZAR bn	119	129	2.1%
b	GDP (2010 Prices, Real) OP Targets - (8 sub-sectors above)	ZAR bn	70	96	9.3%
c	GDP OP Target Variance - Percentage of SA OE Forecast	Percent	(41.1%)	(25.8%)	
2	Output (2010 Prices, Real) - SA National - Direct Only	ZAR bn	5 584	6 163	2.6%
a	Output (2010 Prices, Real) - SA OE Forecast - Direct Only	ZAR bn	240	261	2.2%
b	Output (2010 Prices, Real) - Operation Phakisa - Targets	ZAR bn	168	229	9.1%
c	Output (Current, 'CPI Inflated') - Operation Phakisa - Targets	ZAR bn	275	329	4.9%
d	Output (Current) - Operation Phakisa - 'Investment Recorded'	ZAR bn	41		
3	Employment - SA National Economy Forecast - Direct Only	Jobs	15 109 698	16 571 482	2.4%
a	Employment - SA OE Forecast - Direct Only (10 Sub-Sector)	Jobs	431 587	471 907	2.3%
b	Employment - Operation Phakisa (OP) Targets - (8 sub-sec)	Jobs	407 733	556 000	9.1%
c	OP Target Variance - Percentage of SA OE Forecast	Percent	(5.5%)	17.8%	
4	GDP - SA OE as a % of National Economy	Percent	4.47%	4.41%	
5	Jobs - SA OE as a % of National Economy	Percent	2.86%	2.85%	

Note\*: CAGR: Compound Annual Growth Rate. The mean or average growth rate over a year as a percentage.

The direct contribution to GDP, however, has remained somewhat stagnant over the last decade, recording an average of 4.4% to GDP from 2010 to 2020 (valued at between ZAR110 and ZAR117 billion).<sup>15</sup> At the same time, the oceans economy sector exhibits substantial potential. Projections for 2025, assuming there is sustained growth, forecast a slight increase in the GDP contribution, in Rands, of the Total Oceans Economy Sectors at 4.39% (valued at ZAR130,7 billion), translating to 480 440 jobs (2.85% of total jobs) in South Africa (figures based on the Standard International Classification, using StatsSA and Quantec data). Forecasts for 2035 (using the same data and methodology) suggest a GDP contribution of around 4.5% (ZAR166,6 billion) and 608 253 jobs (2.9% percent of total jobs), which can potentially result in significant economic impacts along the value chain within the broader South African economy (see Table 2 below).<sup>16</sup>

15. DFFE, 2020. Operation Phakisa Progress Report; and: Zimmerman, 2021.The Ocean Economy of South Africa & Operation Phakisa (Table 32).  
16. Zimmerman, 2021.The Ocean Economy of South Africa & Operation Phakisa (Table 26).



TABLE 2

Forecasted GDP Growth and Job Creation in the Oceans Economy, 2022-2040

Source: Zimmerman, 2021: The Ocean Economy of South Africa & Operation Phakisa

Contribution (Billion ZAR)	2022	2024	2025	2030	2035	2040
GDP	R125	R129	R131	R147	R167	R194
Jobs	457 694	471 907	480 440	539 520	608 253	702 216

Marine transport and manufacturing are expected to be the largest contributors to economic growth in the form of GDP by 2035, with fisheries and aquaculture potentially the largest contributor to job creation, if construction is excluded. More specifically, it is estimated that marine transport could contribute up to ZAR11 billion to GDP and up to 19 000 jobs by 2035, primarily driven by growth in cargo handling, with container volumes projected to increase by 6% per annum. Marine manufacturing is expected to contribute over ZAR10 billion to GDP and around 29 000 jobs in 2035, mainly driven by repairs and refurbishment that could contribute approximately 6% growth in both GDP and job creation. Projections for fisheries and aquaculture suggest a combined GDP contribution of ZAR 4.8 billion and potential jobs at over 56 000 by 2035, while offshore oil and gas is forecasted to contribute around ZAR5billion to GDP and create around 10 000 jobs by 2035.<sup>17</sup>

From the 2021 economic analysis of the Total Oceans Economy Sectors, as part of the Operation Phakisa analysis, the GDP and jobs per sector are reflected as baseline (2020) and forecast figures (2024) in Table 3 below:

TABLE 3

Operation Phakisa Targets as at 2020 and 2024

Source: Zimmerman, 2021: The Ocean Economy of South Africa & Operation Phakisa

Sectors	GDP growth (Million ZAR)		Job creation (Million ZAR)	
	2020	2024	2020	2024
Marine Transport and Manufacturing	23 604	32 188	22 000	30 000
Tourism	13 750	18 750	85 938	117 188
Offshore Oil and Gas	6 417	8 750	458	625
Construction	9 396	12 813	182 646	249 063
Renewable Energy	7 104	9 688	458	625
Fisheries and Aquaculture	5 958	8 125	96 250	131 250
Communication	3 896	5 313	19 250	25 250
Desalination	56	63	733	1 000
TOTAL	70 171	95 688	407 733	556 000

At the back of the global economic climate following the COVID-19 pandemic, together with the current state of the South African economy, there is a need to re-assess these projections. The commencement of the national lockdown in March 2020 saw significant changes in South African marine-based industries. With the decline of global trade, particularly the demand for goods from China, it is estimated that port operations operated at 60% capacity in 2020. This, in turn, dropped demand across other sub-sectors of the oceans economy, particularly in shipping, aquaculture, offshore oil and gas, (which has also been impacted by a drop in oil prices), and tourism - this therefore adversely affected jobs numbers. Thus, South Africa is now faced in the short to medium term with the challenge of striking a balance in preserving public health without compromising the country's capacity to trade and continue with its other economic activities.<sup>18</sup>

It is important to note that the South African oceans economy is supported by a world-class maritime skills development and capacity building framework. Firstly, the South African International Maritime Institute (SAIMI) was established in 2015 in response to demand from the maritime sector to coordinate maritime skills development, training, education and research, as well as to support the implementation of skills development, of which the National Cadet Programme (NCP) is one of the initiatives. The NCP, which was originally launched by the South African Maritime Safety Authority (SAMSA) in 2010 and supported by the Department of Higher Education and Training (DHET), the Department of Transport (DoT) and the Transport, Education and Training Authority (TETA) has since 2011 added more than 600 seafaring officers to South Africa's maritime skills base, with a reported 90% success rate for employment with local and international shipping lines. Examples of vocational training in the maritime sector include port operations, freight and logistics, vessel operations and vessel construction among others. Secondly, South Africa also offers world-class education, training and certification for seafarers, ranging from high school subjects to university qualifications in the fields of maritime/navtical studies, maritime economics, maritime law, maritime civil engineering, oceanography, petroleum geoscience, oil and gas engineering, marine engineering, and customs and excise. In 2019, South Africa had approximately 5 000 seafarers compared to 3 500 in 2015.

The country's oceans economy is also underpinned by research, technology and innovation as a cross-cutting strategy across the respective sub-sectors. Dedicated research, coupled with technological

advances provide innovative solutions to support various initiatives within the oceans economy, including developing technologies than can meet the challenges brought about by the green evolution and activate labour productivity improvements, which have a direct impact on localisation and economic growth.

The levels of transformation across the sub-sectors of South Africa's oceans economy varies and further efforts are required to ensure meaningful transformation of the maritime sector, which includes the empowerment of women, young people, people with disabilities and Small, Medium and Micro Enterprises (SMMEs).

The Oceans Economy Master Plan research suggests that South African ocean-based industries face several challenges. The domestic oceans economy remains relatively small compared to the global oceans economy, with relatively small shipbuilding and repair plants, an underdeveloped marine components industry relative to competitors, and a nascent upstream oil and gas industry. In this regard, a comprehensive sub-sector SWOT analysis completed with stakeholders, as part of drafting the Master Plan, reveals some of the critical underlying challenges presently facing South Africa's oceans economy. Major existing weaknesses and threats were noted, including unfavourable policy and legal frameworks, red tape and cumbersome and protracted procurement processes, lack of transformation data and monitoring, and ageing and unmaintained infrastructure. The identified weaknesses and threats were not viewed as debilitating to the future success of the oceans economy, however. Many existing strengths and future opportunities were also highlighted. For example, the sector's strengths were recorded as abundance of natural resources, strategic location, large industries and manufacturing, service offerings, research skills, and environmental sustainability. Major opportunities identified ranged from investment in cleaner and renewable energy, expanding and upgrading of existing infrastructure, to building on current skills and re-skilling.

The large number of opportunities identified reveals the extent of the potential for the long-term development of the South African oceans economy. The sector has the potential to support the growth and development of various oceans-based industries - and the South African economy more generally. How the oceans potentially support South Africa's economic development, and realises its full potential through to 2035, constitutes the critical challenge to which this document now turns.

17. Zimmerman, 2021.The Ocean Economy of South Africa & Operation Phakisa (Table 26); and: Province of the Eastern Cape, 2020. Oceans Economy in the Eastern Cape and South Africa (Tables 4 and 5).

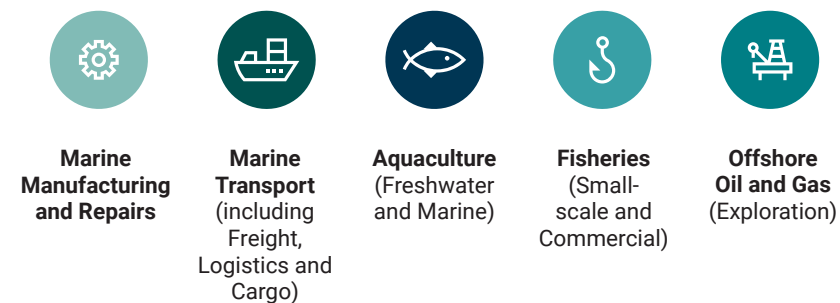
18. UNCTAD, 2021, Advancing the Potential of Sustainable Ocean-Based Economies: Trade Trends, Market Drivers and Market Access: A First Assessment, the United Nations Conference on Trade and Development (UNCTAD), New York.



## 04. Overview of the Oceans Economy Master Plan

*South Africa's oceans economy involves diverse, multiple and sometimes overlapping industries that operate - directly and indirectly - within the marine environment.*

Respective sub-sectors are governed by policy and legislation of different Government departments and State-owned entities, through specific legislative mandates. Accordingly, this document includes separate, but mutually reinforcing, sub-sector plans that collectively form an Oceans Economy Master Plan, which seeks to stabilise, revive and grow key sub-sectors of South Africa's Oceans Economy through to 2035. These sub-sectors are:



Each sub-sector plan, while in practice accountable to different Government departments, is ultimately linked to the successful realisation of others. In this regard, the aforementioned sub-sector plans are presented in this Master Plan in separate sections below. Each of the sections includes a global and national overview of a sub-sector, including current and projected economic trends, followed by an indication of challenges, opportunities and tables that visually unpack various interventions which aim to stabilise, revive and grow each sub-sector through to 2035, including important policy considerations.

Before these sections are explored in more detail, it is worth unpacking the overall vision of South Africa's Oceans Economy sector and how the Master Plan aims to realise this vision, as well as the sector's overall developmental objectives, through to 2035.

### 4.1 VISION OF THE OCEANS ECONOMY SECTOR

Based on engagements with stakeholders, the following working 2035 vision has been developed for South Africa's Oceans Economy:

To sustainably unlock the socio-economic potential of the Oceans Economy so that South Africa is globally recognised as a fully-fledged maritime nation by 2035.

### 4.2 STRATEGIC OUTCOMES OF THE MASTER PLAN

The vision of the South African oceans economy sector can only be realised through the achievement of key targets for each of the five sub-sectors outlined above. These targets are to be achieved by implementing high-level, mutually reinforcing interventions that are to be prioritised in three broad thrusts, which align to the Medium-Term Strategic Framework (MTSF) and the Medium-Term Expenditure Framework (MTEF) respectively. These thrusts, with dedicated timeframes for delivery, include the following:

- **Stabilisation:** 0 - 2 years;
- **Revival:** 2 - 5 years; and
- **Growth:** 5 years and beyond.

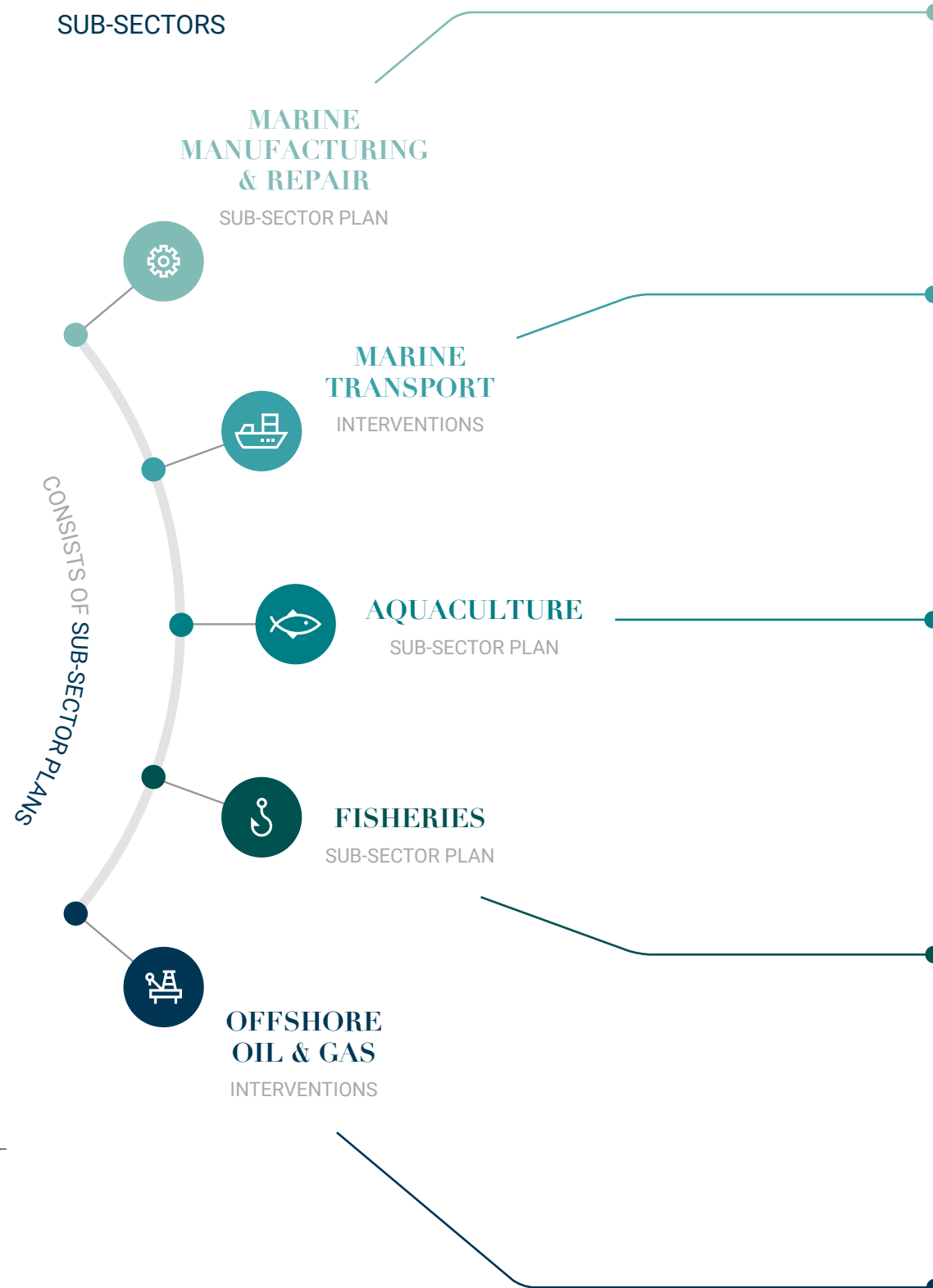
In broad terms, the various interventions will initially aim to stabilise each sub-sector by arresting a decline in economic growth and returning ocean-based industries to a level of stability to amongst others ensure job retention. Having attained and maintained stability, the second phase of the Master Plan articulates high-impact interventions, which seek to revive the sub-sectors and returning each one to a growth trajectory. Building on the growth rate attained during the second phase, the third phase will aim to increase the implementation of measures to accelerate the sustainable growth of the sub-sector towards its overarching objective of creating between 800 000 and 1 million jobs and contributing between ZAR129 billion and ZAR177 billion to South Africa's GDP by 2035.





# OCEANS ECONOMY

TOWARDS A SUSTAINABLE



- Infrastructure and Equipment
- Funding and Resourcing
- Tariffs and Fees
- Skills and Capacity
- Health and Safety
- Market Growth
- Accelerated Transformation
- Environmental Sustainability
- Research and Innovation



- Infrastructure and Equipment
- Market Growth
- Port Efficiency
- Accelerate Transformation
- Skills and Capacity
- Job Creation
- Health and Safety
- Climate Change and the Environment
- Funding and Resources
- Legislation and Policies
- Tariffs and Fees
- Institutional Development
- Maritime Security
- Emergency Response



- Access to New Sites
- Research to Guide Diversification of Commercially Viable Species to Improve Competitiveness and Increase Diversification of the Sector
- Improve Environmental Sustainability
- Stabilise and Expand Markets
- Skills and Enterprise Development
- Streamline Authorisation and Administrative Requirements and Processes
- Reduce Operating Cost
- Small-Scale Aquaculture and Production: Enabling Legislation
- Access to Funding for Small-Scale Aquaculture
- Clustering of Small-Scale Aquaculture
- Small-Scale Aquaculture Skills and Knowledge Development
- Access to Production Inputs
- Technical Support to Small-Scale Farmers and Operations
- Market Access to Small-Scale Farmers and Operations
- Small-Scale Industry Baseline Data



- Legislation, Policy and Fishing Rights
- Administration and Authorisations
- Resource Management
- Infrastructure, Assets,
- Funding and Markets
- Access to Fisheries Resources
- Storage and Processing Facilities
- Road Infrastructure and Access Fees
- Direct Market Access
- Fishing Industry Monopoly
- Conflicts with other Sub-Sectors of Ocean Economy
- Government Intervention Programmes
- Transformation, Skills Development and Capacity Building



- Legislation and Policy
- Accelerated Transformation
- Institutional Arrangements
- Exploration and Appraisal
- Industry Development
- Environment and Just Transition
- Skills and Capacity Building
- Infrastructure
- Research and Development
- Resourcing and Investment
- Public Sector Awareness





Based on the research completed for this Oceans Economy Master Plan, eight (8) fundamental Master Plan pillars have been identified as key focus areas to be actioned through to 2035. As outlined in Figure 4 below, these pillars are envisioned to actively support the realisation of the 2035 vision of the South African Ocean Economy sector, provided that three foundational elements - namely, an enabling legal and policy environment, skills and capacity building, and infrastructure - are urgently prioritised by Government and stakeholders. The eight identified pillars are:

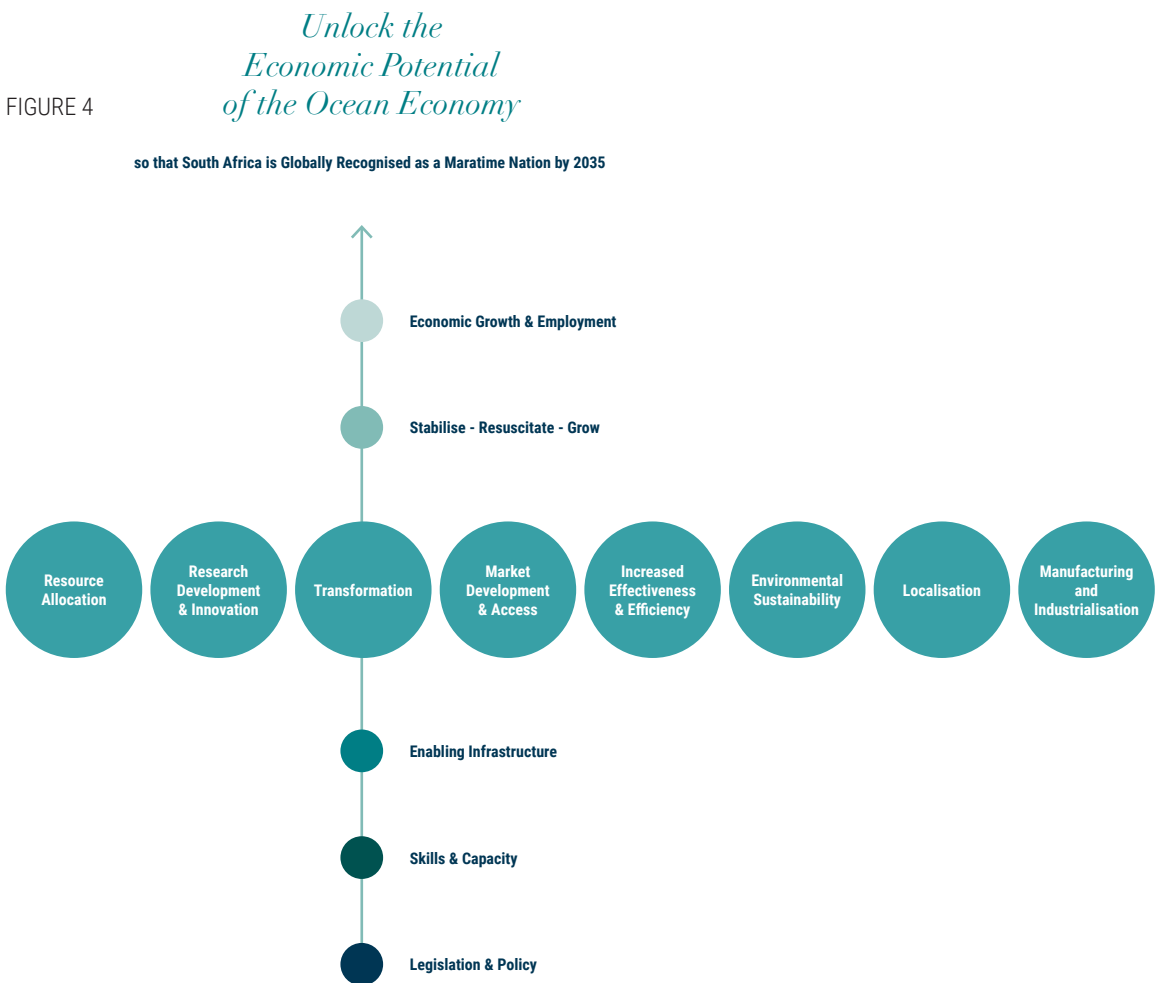
- **Resource Allocation**, which ensures equitable and transparent access to ocean resources;
- **Research, Development and Innovation**, which drives the decision-making, planning and the rapid development of the oceans economy;
- **Accelerated Transformation and Skills Development**, to ensure that the legacy of apartheid is addressed through equitable high-impact transformation interventions to also empower women, the youth, people with disabilities, as well as SMMEs;
- **Market access and development**, which ensures access to local, regional, and global markets, whilst also protecting and advancing the South African national interest;
- **Increased effectiveness and efficiency** which enhances the competitive and comparative advantage of South Africa's oceans economy;
- **Environmental, social and governance sustainability**, to ensure that the industry addresses potential negative environmental and social impacts;
- **Localisation of value chains**, to increase market share for local enterprises and SMMEs, as well as deliberate implementation of meaningful supplier development programmes to increase the local footprint, as well as enhance local capabilities to internationally acceptable standards throughout these value chains; and
- **Manufacturing and industrialisation**, which drives value-addition within the broader industrial economy, and particularly the oceans economy.

The implementation of these pillars for the Oceans Economy Master Plan, within the proposed timelines, ultimately aims to unlock the potential of South Africa's oceans in order for the country to become globally recognised as a maritime nation by 2035 and beyond. By and large, the successful implementation of these pillars will rely on the adoption of appropriate policy and legislation, combined with infrastructure, skills and capacity, as well as research and development and innovation to drive high-impact interventions. These, in turn, are expected to produce the following developmental objectives:

- new product offerings;
- new entrants and increased SMME participation in the sub-sectors;
- enhanced economies of scale for locally produced components that are in use in several sectors, including marine industries;
- new markets, and increased and diversified market access;
- incentives to accelerate growth and investment;
- fair, just, transparent and efficient resource allocations;
- new local supply chains through localisation;
- increased manufacturing output and industrialisation of operations to support value-addition;
- equitable access to infrastructure and services; and
- effective and efficient protection of ocean resources to ensure sustainable use.

# STRATEGIC PILLARS OF THE OCEAN ECONOMY MASTER PLAN

FIGURE 4





TOWARDS A SUSTAINABLE

# OCEANS ECONOMY

---

## PART 2

---





SUB-SECTOR PLAN

# MARINE MANUFACTURING AND REPAIRS

05







## 05. Marine Manufacturing and Repairs Sub-Sector Plan

Marine manufacturing and repairs includes ship and boat building, manufacturing of floating structures (drills, pontoons), manufacture of marine components and equipment, ship and boat repairs, rig repairs, ship recycling, specialist marine services (including maintenance, hull cleaning, and refurbishment, marine engineering and design), and marketing, sales and distribution of vessels and equipment. The industry may also include manufacturing and other facilities outside of the boat and shipyard, which provide specialist original equipment, parts or services for boat and ship building activities within a yard.

This section of South Africa's Oceans Economy Master Plan presents a sub-sector plan for the Marine Manufacturing and Repairs industry. The plan deals with the following:

- A global review of the industry;
- A national review of the industry;
- Current interventions;
- Challenges;
- Opportunities;
- Skills and transformation;
- Research, development and technology;
- Environmental sustainability;
- Policy considerations; and
- Targets and interventions through to 2035.

### 5.1 GLOBAL SUB-SECTOR REVIEW

The United Nations Conference on Trade and Development (UNCTAD) explains that the global shipbuilding, repair and recycling industry is highly concentrated and specialised, and characterised by entry barriers - such as delivery times, reliability of yards, location of production and logistics - which often discourage new firms from entering the market.<sup>1</sup> At present, global marine manufacturing and repair activity is concentrated in Asia. Since repair activity is carried out mostly by shipbuilding companies, high shipbuilding activity is also concentrated in the same region.<sup>2</sup> Thus, China, Japan and the Republic of Korea dominate the global shipbuilding and ship repair markets (by tonnage), together representing just over 90% of all global shipbuilding activity.<sup>3</sup> China alone accounts for around 40% of total global activity (in gross tonnage), making it the largest shipbuilding economy in terms of both ship completions and new contracts,<sup>4</sup> while Japan and the Republic of Korea boast shares of 25% each. Each of these countries specializes in different shipping segments. China is the leading builder of bulk carriers (56%), offshore vessels (58%) and general cargo ships (34%); the Republic of Korea, of gas carriers (62%), oil tankers (59%) and container ships (41%); and Japan, chemical tankers (54%).<sup>5</sup> In Africa, marine manufacturing and ship repair capacity is largely concentrated in Egypt, Morocco, Kenya and South Africa, with the latter accounting for just over half of 498 tenders issued in 2020.<sup>6</sup>

Due to low labour costs, lower safety and environmental standards and other factors, the ship recycling industry<sup>7</sup> is also mainly concentrated in Asia, notably in Bangladesh, Pakistan, India, and China. These four countries together account for around 90% of global demolition volumes and, in 2017, they collectively demolished just under 18 million tons, which represents around 628 vessels (which are mostly large ocean-going vessels, such as oil tankers and ore carriers). Turkey, which shares some relative economic similarities to South Africa, is the fifth largest ship breaking destination, accounting for around 6% of world total for ship recycling.<sup>8</sup>

In 2020, the global shipbuilding and ship repair markets were valued at around USD126 billion (ZAR1.9 trillion) and USD30 billion (ZAR476 billion) respectively,<sup>9</sup> with the size of the leisure boat market estimated at around USD41 billion (ZAR634 billion).<sup>10</sup> According to UNCTAD, ship deliveries declined by 12% from 2019, mainly due to lockdown-induced labour shortages during the first half of the year that disrupted marine-industrial activity - but continuing the downward trend observed since 2011, as shown in Figure 5 below). As in 2018 and 2019, the ships delivered were mostly bulk carriers, followed by oil tankers and container ships.<sup>11</sup> In 2021, 704 vessels were sold for scrap worldwide, with a combined deadweight tonnage (dwt) of 26.4 million and a total scrap value of USD2.7 billion (ZAR39.1 billion). Almost half of the recycling was of bulk carriers, with 301 vessels sold for scrap. The total number of vessels sent for demolition climbed by 20% since 2020 (583) and 26% since 2019 (558).<sup>12</sup>

The COVID-19 pandemic affected shipbuilding and repair facilities around the world to a large extent, disrupting almost all areas of the industry, with all levels of operations affected by site closures, labour shortages and logistical challenges. UNCTAD figures indicate that, between January 2020 and January 2021, the global orderbook declined by 16%, with the sharpest reductions recorded for bulk carriers (down 36%), followed by ferries and passenger ships (down by 32%). By contrast, other segments grew, including liquefied gas carriers (up 10%) and general cargo ships (up 6%).<sup>13</sup> For instance, deliveries from China fell to their lowest level in 15-years, with only four ships reportedly delivered in 2020.<sup>14</sup> In the same year, French shipyards did not receive any orders for new seagoing vessels and Spanish ship production declined by about 70% compared to 2019. Conversely, Russian shipbuilding activity increased significantly in 2020 driven by new orders for Liquid Natural Gas (LNG) carriers and icebreakers related to Russia's Arctic oil and gas exploration and exploitation.<sup>15</sup> Unlike shipbuilding, the ship recycling market appears to have been less impacted by the pandemic, with the tonnage of ships sold for recycling increasing by 44% in 2020 - even though according to UNCTAD recycling levels remain lower compared with historic levels.<sup>16</sup>

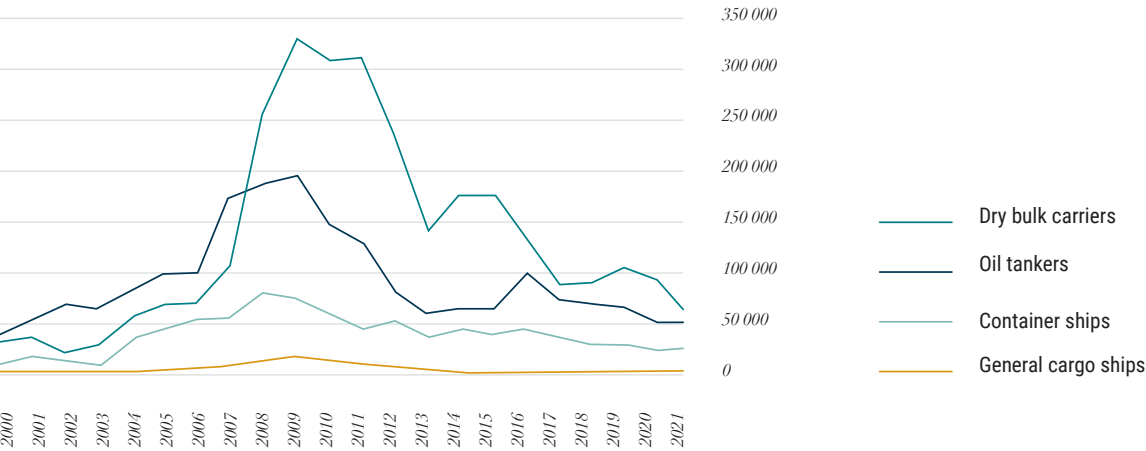
1. BRC, 2020. Ship Repair and Maintenance Services Market: Global Industry Analysis, Size, Share, Growth, Trends, and Forecast, 2021-2031, the Business Research Company (BRC).  
2. UNCTAD, 2021. Advancing the Potential of Sustainable Ocean-Based Economies.  
3. The shipyards owned by Chinese State Shipbuilding Corporation (CSSC), the state-owned shipbuilding conglomerate, accounted for about 40% of all ship completions in China. See: OECD, 2021. Shipbuilding Policy and Market Developments in Selected Economies, OECD Science, Technology and Industry Policy Papers, Paper No. 119, September 2021.  
4. UNCTAD, 2021. Advancing the Potential of Sustainable Ocean-Based Economies.  
5. Veitch, C, 2021. Maritime Transport and Marine Manufacturing in South Africa, Who Owns Whom, July 2021.  
6. The ship breaking and recycling industry disassembles steel and other recyclable items of end-of-life vessels. Many parts of a ship - from the hull structure to the machinery - can be recycled and reused as scrap metal.  
7. OECD, 2019. Ship Recycling: An Overview, OECD Science, Technology and Industry Policy Papers, No 68, April 2019.  
8. The Business Research Company, Ship Repairing Global Market Report 2021: COVID-19 Impact and Recovery to 2030.  
9. Grand View Research, 2021. Global Industry Report, 2021-2028  
10. UNCTAD, 2021. Review of Maritime Transport 2021, the United Nations Conference on Trade and Development (UNCTAD), New York.  
11. Maadmond Maritime, 2022. Daily Collection of Maritime Press Clippings 2022, Number 030.  
12. UNCTAD, 2021. Review of Maritime Transport 2021, United Nations Conference for Trade and Development (UNCTAD), United Nations Publications: New York.  
13. UNCTAD, 2021. Review of Maritime Transport 2021. United Nations Publications: New York.  
14. OECD, 2021. Shipbuilding Policy and Market Developments in Selected Economies.  
15. UNCTAD, 2021. Review of Maritime Transport 2021.  
16. Mordor Intelligence, 2021. Ship Building Market - Growth, Trends, Covid-19 Impact, and Forecasts (2022 - 2027)



Word tonnage on order by ship types, 2000-2021 (tdw)

Source: UNCTAD, 2021: Review of Maritime Transport 2021

FIGURE 5



Despite the overall drop in production rates caused by pandemic-induced interruptions, the global marine manufacturing and repair market is expected to grow over the next decade. As world trade has gradually recovered since the pandemic, the demand for ships has increased, with UNCTAD recording record-breaking orders for new container ships - almost eight times those in the first half of 2020. According to the latest economic forecasts, shipbuilding is expected to increase to just under USD176 billion (ZAR2.7 trillion) in 2027 (up from USD132 billion or ZAR2 trillion in 2021), primarily due to increasing seaborne trade, rising energy consumption, the advent of robotics and Artificial Intelligence (AI) in shipbuilding, and also the demand for eco-friendly ships and other vessels and shipping services.<sup>17</sup>

In terms of the latter, shipbuilding companies around the world are increasingly using green shipbuilding technologies to construct energy saving and low carbon emission vessels, including technologies such as waste heat recovery systems, exhaust gas recirculation systems, advanced rudder and propeller systems, fuel and solar cell propulsion systems, as well as the use of Liquid Natural Gas (LNG) fuels, green hydrogen and green ammonia for propulsion and auxiliary engines.<sup>18</sup> The shift in the industry towards greener technologies is further being promoted by international shipping companies implementing their own internal stringent ship recycling regulations that ensure that their end-of-life vessels are recycled in

compliant facilities. This changing market dynamic is expected to open opportunities for certified Green Ship Recycling Facilities in key locations around the world.

With regards to the multilateral instruments that govern the industry globally, some of the key international regimes include the: The United Nations Convention on the Law of the Sea (UNCLOS); the Basel Convention; the Marine Environment Protection Convention (MARPOL); and several regulatory legal instruments of the International Maritime Organisation (IMO). Between these and other institutions, there have emerged a number of recent conventions dealing with compliance to ship recycling, specifically the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ship (2009) and the Ship Recycling Regulation of the European Union (2013). Both of these regulations place responsibility on ship owners, ship builders, suppliers, recycling facilities and national authorities to ensure the safe environmentally viable management of hazardous material and the sustainable recycling of ships.<sup>19</sup> The EU regulation in particular is the only legally binding and comprehensive instrument on ship recycling in force in the world today. Currently, there are just 30 compliant yards, most of them located in the EU, but also in Turkey and the USA, and additional yards in Turkey and India are expected to be added on list in the near future.<sup>20</sup>

5.2 SOUTH AFRICAN SUB-SECTOR REVIEW

The South African marine manufacturing and repair sector is predominantly made up from three segments: ship repair, boat building and ship building. Until 2014, when the global oil industry went into decline due to a plunging oil price, rig repairs in South Africa was a major contributor and job creator, but currently is almost non-existent. The marine manufacturing and repair supply chain has been mapped out by the DFFE to include several segments (see Table 4 below), but almost all are dependent on the foundation of ship/boat building and repair. All three segments, but especially ship building and repair, are currently under severe pressure to survive. Once interventions are implemented to ensure the health and sustainability of

these segments, growth in the other segments will be possible. Ship repair in particular has been in decline for some decades, and many jobs lost, due largely to the infrastructure to repair vessels (specifically dry docks, repair quays and workshops in the harbours) being outside of industry control, as these are State-owned. Nevertheless, ship repair has the potential to expand significantly and generate many jobs. Amongst other considerations, this requires finding the right balance between the use of State-owned common user facilities, to guarantee Government inclusion objectives, ensuring that businesses have equitable access to infrastructure, facilities and engineering equipment in order to participate successfully in the value chain, especially for new entrants and local enterprises.

Industry supply chain in South Africa

TABLE 4

Segments	Current status	Growth potential
Ship repair	Well-established	High growth potential when priority interventions applied
Boat building	Well-established	High growth potential when priority interventions applied
Ship building	Well-established	High growth potential when priority interventions applied
Rig repairs	Skills still exist	Interventions required to revive
Ship recycling	New venture	No infrastructure
Component manufacturing and localisation	Extremely limited due to low local demand	Significant growth potential and export market development once local demand is stimulated
Marine engineering and design	Limited but aging skills base exists	Potential for growth and export opportunities once local demand is stimulated
Funding	Limited public funds for past decades	Considerable potential for private funding once public-private-participation framework is defined and underspending is addressed
Market access	Historically fragmented	Requires "Team SA" approach
Research and Development, Innovation and Technology Transfer	Extremely limited due to low local demand	Potential for growth once local demand is stimulated

The importance of the industry to the economy has been underlined in a number of recent policy documents. In 2017, the Comprehensive Maritime Transport Policy for South Africa (CMTP17) argued that the industry "has the potential to offer significant employment opportunities for thousands of South Africans". A year later, the Department of Trade, Industry and Competition (the dtic) published its Industrial Policy Action Plan (IPAP) for the period 2018-2021 noting that "the marine manufacturing industry is at the core of economic growth", with high growth potential and major spin-offs to other industries, including steel, engineering equipment, port infrastructure, trade and shipping services.<sup>21</sup> Likewise, as identified by the dtic (and classified under SIC Codes 38410 and 38420), the manufacture and

repair of ships and boats in South Africa, is viewed as a highly strategic industry with high economic multipliers, generating employment and growth across numerous sub-sectors in the industry's value chain, particularly the component manufacturing sector.

South Africa's marine manufacturing and repair industry is well-established and has a reputation for quality and customisation.<sup>22</sup> Ship building and boat building<sup>23</sup> clusters are predominantly based in Cape Town, Durban, Knysna and St Francis, which build and repair various classes of ships (24m and up) and boats (24m and below). Around 90% of locally-built vessels - notably catamarans, yachts, rescue craft and patrol boats - are exported worldwide, primarily to the United States (US) and the Caribbean.<sup>24</sup>

17. The Business Research Company, 2021. Ship Repairing Global Market Report 2021.  
18. MAPROF, 2020. Report on the European List of Ship Recycling Facilities: Updated report (December 2020).  
19. The European Commission, 2019. New EU regime for safer and greener ship recycling enters into force, 8 January 2019, available at: < [https://ec.europa.eu/info/news/new-euregime-safer-and-greener-ship-recycling-enters-force-2019-jan-08\\_en](https://ec.europa.eu/info/news/new-euregime-safer-and-greener-ship-recycling-enters-force-2019-jan-08_en)>  
20. the dtic, 2018. Industrial Policy Action Plan (IPAP) 2018/2019 - 2020/2021, Pretoria.

21. Invest SA, 2016. South Africa's Oceans Economy.  
22. It is important to distinguish shipyards and boat building hubs. Ship building requires supporting port infrastructure and port proximity inclusive of dry docks and floating dry docks. Boat builders do not require dry docks, but instead need road access and craneage for launching of boats. This means they can be located a greater distance from a port.  
23. Veitch, C, 2021. Maritime Transport and Marine Manufacturing in South Africa.  
24. This includes the construction of two mining supply vessels for the De Beers Group under a ZAR150 million contract with SMIT Amandla Marine, a specialist marine solutions provider based in Cape Town, the largest black-empowered company in the marine industrial sector in South Africa.



Additionally, some local companies have developed capacity in niche segments in commercial and publics sector markets, including fire-fighting boats, crew transport boats for the oil and gas sector, and specialised supply vessels for the diamond industry - underlying South Africa's growing capacity to build high-quality specialised vessels locally.<sup>25</sup>

There are three drivers of marine manufacturing and component manufacturing in South Africa. The first are world-class recreational boats, particularly catamarans, built for private sale and charter use - and almost exclusively for export. South Africa has carved out a substantial niche in this market, with some local companies seen as global leaders. In fact, South Africa is the second largest producer of catamarans globally, after France. This is largely driven by one production yard - Robertson and Caine - which currently produced more than 220 boats per year and employs around 1 700 people;<sup>26</sup> and one superyacht builder - Southern Wind Shipyard - which produces award-winning monohulls in the superyacht category.<sup>27</sup> The second driver are ships of up to 150m for civilian and military use built locally for Government (subject to a local content requirement of 60%) and also for private clients, both locally and abroad. The third are South African-designed ships and boats that are built overseas. Both the ship and boat building segments are backed by an established supply chain of manufacturers, technicians, fabricators, installers and system integrators.

Compared to other industries worldwide, South African shipyards tends to have long production cycles: the manufacturing of a ship usually takes place over an extended time period (i.e. long production timing) for a single unit output (i.e. lower volume of production) and at high production cost (i.e. high unit values).<sup>28</sup> In short, contracts tend to be project-based and the manufacture of a single ship may take more than a year to complete.<sup>29</sup> Long production timescales mean that local manufacturers often deal with long cash flow cycles and are exposed to changes in inputs costs driven by inflation or exchange rates, while final product price is typically fixed upfront. The requirement for availability of such working capital at the initial stage of a project often constitutes a

high barrier to entry. Based on reported information on imports, it is estimated that, on average, 12% of components used in the manufacture of ships/boats are directly imported, and that 47% of their inputs are indirectly imported by suppliers, making a total of 59% of inputs attributable to imports.

Local manufacturers are heavily reliant on imported components, because key components and raw materials are not locally available with the required international marine certifications, and because local manufacturers are often not in a position to obtain the said certifications, due to the high cost involved with international auditing. The result of this problem is two-fold. First, most components and materials are sourced from companies with strong brands and global support networks. Second, local equipment and materials importers are highly exposed to exchange rate volatility and global supply chain disruptions, while local component manufacturers are more exposed to low demand volumes.<sup>30</sup>

The industry's heavy reliance on imports is viewed as a major challenge for South Africa to develop a sustainable ship and boat building industry all the way down the value chain, given that such capabilities would make a significant contribution to employment creation.<sup>31</sup> Notwithstanding these challenges, the marine manufacturing industry plays a significant role in South Africa's oceans economy, although there is still room for improvement. The industry as a whole appears to have contracted in recent years, with figures from the dtic indicating that the industry secured ZAR6.9 billion (or 26.4% of total sectoral investment) in 2018,<sup>32</sup> dropping to ZAR4.4 billion in 2019 and down again to ZAR3.4 billion in 2020.<sup>33</sup> The decline in revenue is owed primarily to a reduction in profits in commercial manufacturing. One likely reason for this is that Government, since 2014, has struggled to maximise the economic opportunities afforded by the Operation Phakisa-Oceans Economy, as discussed in Part 1.

Around 70 local companies operate in the ship and boat building and repair industry. The majority of these are micro and small owner-managed enterprises and collectively provide over 4 500 direct jobs.<sup>34</sup> Of the total

jobs, around 3 000 are in recreational and luxury boat building,<sup>35</sup> with the segment consistently generating large export volumes and boat yards having full order books over several years. Just over half of total industry revenue comes from this segment, estimated at around ZAR2.2 billion in 2019, followed by the commercial ship building segment (27%), vessel and equipment marketing, sales and distribution (10%), marine services including vessel maintenance, repairs and testing (9%), and component manufacturing (3%). In 2020, the value of total vessel exports (ships, boats and floating structures) totalled ZAR2.8 billion (marginally down from ZAR2.9 billion in 2019), while imports totalled ZAR831 million (down from ZAR994 million in 2019).<sup>36</sup>

In terms of repair and refurbishment, South Africa has maintenance and repair facilities in two main

commercial ports, namely in Cape Town and Durban, one military port in Simon's Town, as well as limited drydock facilities in the port of East London (see Table 5 below). While South Africa is a proven location for resupply, repairs and maintenance for regional and international shipping companies, the country accounts for less than 1% of the global market valued at ZAR490 billion, with marine repairs undertaken on approximately 5% of the estimated 13 000 vessels that visit South African ports annually.<sup>37</sup> Because the national capacity available for ship repair has steadily declined over the last decade despite major fleet growths worldwide, at present numerous ships are often turned away because of dry dock and floating dock unavailability. Should this capacity not be addressed in the near term, it is estimated that the available market will exceed South Africa's ship repair capacity by more than fifteen-fold.<sup>38</sup>

TABLE 5

Drydock and floating dock space in South Africa

Port	Dock	Capacity (tons)	Length (m)	Width (m)	Draft (m)	Activities
Cape Town	Robinson	17 000	161	20.7	7.9	Supports vessels and larger fishing vessels
	Sturrock	120 000	360	45	13.7	Supports voyage repairs, surveys and much longer than modernisation and upgrades
	Synchrolift	1 800	61	15	6	Supports vessels and larger fishing vessels
Simon's Town	Selbourne	45 000	230	29	1	Supports vessels and larger fishing vessels
	Synchrolift (Navy SMTN)	2000	60	15.5	11	Supports smaller Naval vessels and larger fishing vessels
East London	Princess Elizabeth	30 000	200	24	10	Overflow from Durban
Durban	Prince Edward Graving Dock	70 000	352	33.5	12.5	Supports mainly voyage repairs and periodic surveys
	Sandock Austral Floating Dry Dock	4 500	109	22	6	Supports vessels and larger fishing vessels
	Dormac's Floating Dry Dock	8 500	155	23.5	8	Supports vessels and larger fishing vessels
	Synchrolift (Navy Durban)	2280	60.5	20	11	Supports smaller Naval vessels and larger fishing vessels.
Port Elizabeth Slipway	(Inshore working areas load degraded due to delayed DPW Repair project)	1 200	60	12	4.5	Supports vessels and larger fishing vessels
Mossel Bay	Slipway	200	30	12	3	Supports small fishing vessels
Saldanha Bay	Nil	-	-	-	-	Emergency on board assistance only
Richards Bay	Nil	-	-	-	-	Emergency on board assistance only
Ngqura	Nil	-	-	-	-	-

25. BlueCape, 2021. Marine Manufacturing, accessed on 22 February 2022, available at: < https://blue-cape.co.za/sectors/marine-manufacturing>  
26. Joseph Boysen, 2018. 'Local luxury boat exports contributes R1bn to economy', IOL, 28 September 2018.  
27. Invest SA, 2016. South Africa's Oceans Economy.  
28. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.  
29. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.  
30. the dtic, 2018. Industrial Policy Action Plan (IPAP).  
31. the dtic, 2018. Industrial Policy Action Plan (IPAP).  
32. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.  
33. Employment figures are variable due to the highly cyclical nature of the industry, with companies typically boosting their permanent workforce with temporary contract workers or outsourcing processes to subcontractors when required.  
34. Boysen, 2018. 'Local luxury boat exports contribute R1bn to economy'.

35. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.  
36. Docking is the mooring of a ship to a pier or quay, while berthing is the mooring of a ship within an allotted space at that particular pier or quay. See: TNPA, 2022. Port Statistics, website of the Transnet Port National Authority, available at: <https://www.transnetnationalportsauthority.net>  
37. SASR, 2013. Meeting the Challenges for an African Maritime Economy Ship Repair and New Builds 2013, South African Association of Shipbuilders and Repairers (SASR).  
38. Table adapted from: Brian Gowans and Keith MacHutchon, 2009. 'Opportunities for future expansion of ship repair in South Africa', Southern Africa Shipping News. (64)3, pp 10-14. Southern African Shipyards Publishers.



With regards to market access, drydock space availability is perhaps South Africa's most valuable commodity in the industry, representing one third of the total dry-docking capacity of the entire southern hemisphere. However, two crucial factors are limiting South Africa's ability to attract additional foreign clients and local businesses in the country's commercial ports.

The first concerns the competitive forces between private sector dry docks (which tend to limit public access due to their corporate and internal business processes) and State-owned docking facilities (some of which are under-maintained and inefficient). Other than three (3) privately owned floating docks in Durban, three (3) additional concrete dry docking facilities are owned and managed by Transnet's National Port Authority (TNPA). Industry is therefore largely dependent on the TNPA for docking facilities and marine services, and any port inefficiencies have a potential detrimental impact on industry's ability to operate and to be internationally competitive.

The second limiting factor relates to legislation, more specifically Section 56 of the National Ports Act 12 of 2005, which has been a hindrance to growth due to the lengthy timeframes required for TNPA to secure potential port concession partners (including businesses owned by historically disadvantaged individuals). Attracting new entrants into South Africa's ports will therefore require streamlining relevant legislation to timeously allow investment in new ship manufacturing and repair facilities, which will be important for job creation, transformation, infrastructure development, and small business support.

It is generally agreed within the industry that more facilities need to be built and/or established within this sub-sector of the oceans economy. TNPA requires a floating dock and ship lift facilities dedicated to the Transnet fleet in Durban, in order to free up capacity in the larger concrete graving docks. To this end, the TNPA's tug and dredger fleet has increased, and over the last 5-years TNPA has utilised more than 50% of available time capacity within the larger graving docks. However, during this same period, TNPA has been executing Operation Phakisa-related projects in all three TNPA graving docks, inclusive of trying to keep operations running at acceptable levels.

Finance lies at the heart of any successful marine manufacturing and repair industry to help facilitate the delivery or repair of vessels. Historically, South African commercial banks have been largely unwilling to accept the production of boats and ships as collateral, especially for longer projects that are

vulnerable to exchange rate fluctuations, making it near impossible for local firms to access finance. That said, several local stakeholders provide funding support to the industry, including commercial banks, development funding institutions (DFI's) as well as other niche funding programmes or initiatives. These institutions are further supported by well-established export credit institutions, such as the Export Credit Insurance Corporation (ECIC), and trade finance products, specifically provided by commercial banks.

Due to the operating nature and activities of ship/boat builders and repairers, funding requirements generally includes a combination of financial instruments, including: guarantees/performance bonds, working capital, export credit support and currency hedging instruments. Boat builders, as mentioned above, are focused primarily on the export market, and therefore tend to have marginally different marketing and funding requirements compared to their ship building counterparts. Commercial ship builders, on the other hand, typically contend with longer and more expensive projects and the sustainability of their operations and supply chains have been hampered by procurement bottlenecks and lack of long-term planning. To date, the industry as a whole has not benefited from any meaningful government incentives, other than support for marketing and to attend international pavilions and trade shows provided by the Export Marketing Investment Assistance (EMIA) programme and other similar programmes.

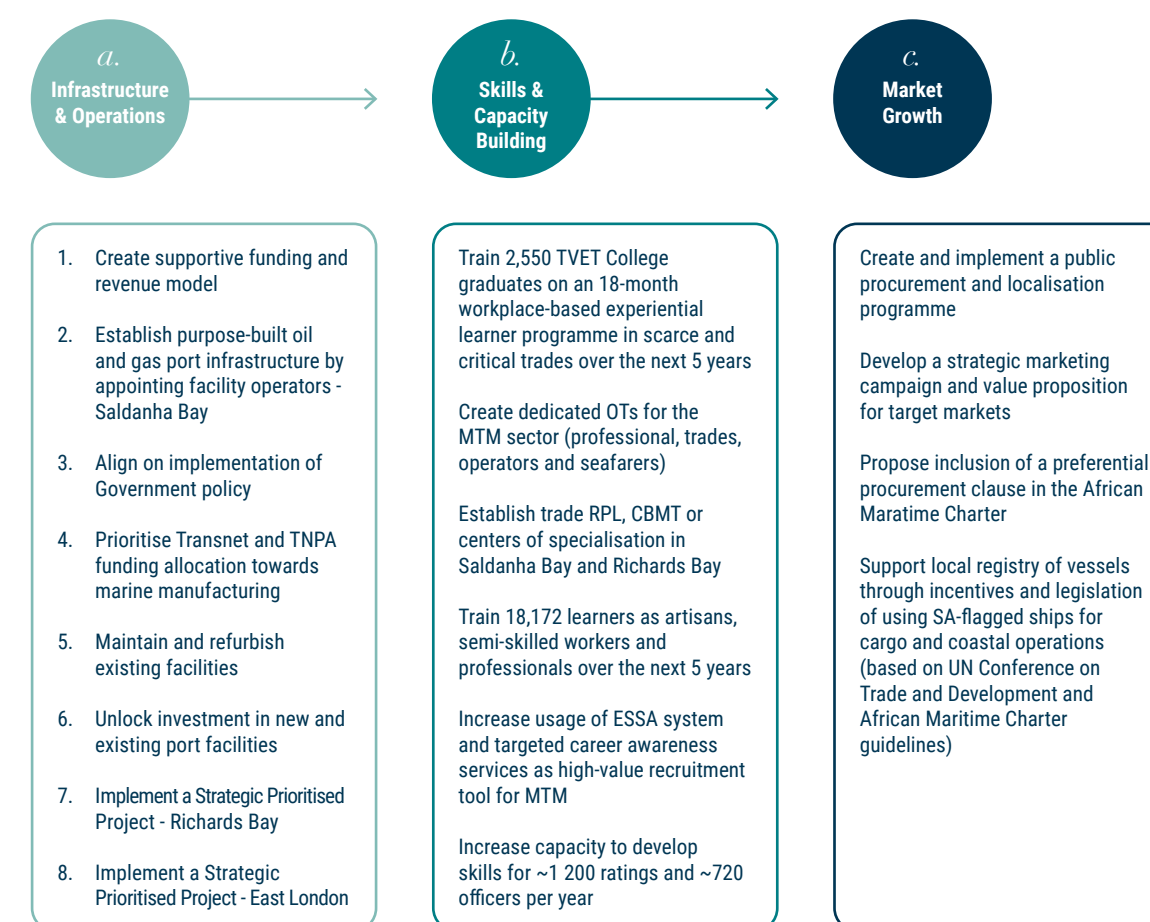
### 5.3 CURRENT INTERVENTIONS

The ocean-leg of Operation Phakisa is currently the most active Government intervention in the industry. In 2014, a set of eighteen (18) initiatives under Phakisa were proposed to improve port infrastructure and operations, accelerate skills and capacity building, and boost market growth (see Table 6 below). Most of these initiatives were expected to be completed and deliver significant direct jobs and revenue for South Africa by 2019. Critically, a key developmental objective of the initiatives included the promotion of local content, with a 10% increase in the use of locally manufactured components in boat and ship building. When announced in August 2014 by then-President Jacob Zuma, the marine manufacturing industry was optimistic that Phakisa would yield growth and create sustainable jobs. However, while a significant number of projects have been completed on schedule, the intervening years have seen many others being delayed or cancelled due to several challenges and stumbling blocks faced by Government.

## Operation Phakisa: Overview of Marine Manufacturing and Transport Initiatives

Source: DFFE, 2020, Growing the Oceans Economy

FIGURE 6



An example of the slow progress in some projects includes Transnet's intention, under Operation Phakisa-Oceans Economy, to improve and refurbish port infrastructure by erecting cranes at various dry docks, without which the efficiency of ports is severely impacted. The published delivery date of 2017 was not achieved - with serious consequences to the ship repair industry - and the current planned delivery is scheduled for 2026. Likewise, while slow progress has been made with the planned refurbishment and upgrading of Durban and Cape Town's dry docks,

much is still planned. On a more positive note, South Africa's initiative to acquire a hydrographic capability<sup>39</sup> (which includes a South African Navy Hydrographic Office, a Hydrographic Survey Vessel, three Survey Motor Boats, and a Sea Boat) and a multi-mission inshore patrol capability (which includes three Inshore Patrol Vessels, three Boarding Boats and three Sea Boats) from local boat and ship builders did materialise as planned - and indeed the initiative is considered by industry insiders as the salvation of the local commercial ship and boat building industry.<sup>40</sup>

39. The Southern Africa - Towards Inclusive Economic Development (SA-TIED).

40. Hydrography, which is the knowledge of the shape and nature of the seafloor, its characteristics and its hazards, is as a critical element to the oceans economy. Almost every human activity that takes place in, on or under the sea requires some knowledge of the hydrography of the area, including shipping, port operations, environmental planning, marine spatial planning, and maritime security and defence.



As shown in Table 6 below, other Phakisa initiatives aimed at maintaining and refurbishing existing facilities (under Initiative 5), unlocking investment in new and existing port facilities (under Initiative 6) and implementing ‘Strategic Prioritised Projects’ (under Initiatives 7 and 8) where the 2019 deadline has been missed include:

Goals and status of selected Operation Phakisa projects

TABLE 6

Phakisa initiative	Port	Projects	Completion Status
5	Cape Town	<ul style="list-style-type: none"><li>• RDD New CaissonFEL3</li><li>• SDD Infra Upgrade</li><li>• Synchrolift mechanical</li><li>• SDD Inner Caisson</li></ul>	Approved and Tender
5	Durban Cape Town	<ul style="list-style-type: none"><li>• 3 x Facilities Capstans Upgrade</li></ul>	Approved and Tender
5	Durban	<ul style="list-style-type: none"><li>• Inner Caisson refurbishment</li><li>• Dry Dock Pumps (73% complete)</li><li>• Shop 24 and Pumphouse Overhead Cranes</li></ul>	Execution
5	Cape Town	<ul style="list-style-type: none"><li>• Phakisa Training Centre</li><li>• SDD and RDD Pumps</li><li>• RDD Electrical infrastructure</li><li>• Synchro Electrical and Synchro Civil</li></ul>	Execution
5	East London	<ul style="list-style-type: none"><li>• Dry Dock Main Shut Off Valve</li><li>• Phakisa Training Centre (96% Construction)</li></ul>	Execution
5	Port Elisabeth	<ul style="list-style-type: none"><li>• 1200-ton Slipway cradle (24% complete).</li></ul>	Execution
5	Mossel Bay	<ul style="list-style-type: none"><li>• Slipway Execution Gate Review stage</li></ul>	Pending approval
5	Cape Town	<ul style="list-style-type: none"><li>• RDD &amp; Synchrolift Electrical and Synchrolift Civil</li></ul>	Pending approval
	Cape Town Durban East London	<ul style="list-style-type: none"><li>• 24 dry dock jib cranes (CPT, Durban: 10 each; EL: 4)</li></ul>	Pending approval
7	Richards Bay	<ul style="list-style-type: none"><li>• Floating Dock</li></ul>	Initial RFP in the market yielded no appetite and Transnet shelved the project. New strategy to partner with SEZs in resuscitating the project
8	East London	<ul style="list-style-type: none"><li>• Ship repair yard</li></ul>	Expression of interest for boat building was unsuccessful. An alternative option of advertising land for ship recycling/marine manufacturing was also non responsive

Two key reasons for delay in the take-off of these projects are protracted procurement processes for the execution of Operational Expenditure (OPEX) and Capital Expenditure (CAPEX) programmes and less than anticipated uptake by private investors through private sector participation (PSP). While private companies have been generally willing to invest in drydock facilities themselves, a recent report by SA-TIED<sup>41</sup> explains that low investor interest can be traced to the lack of a proper PSP institutional policy

capable of merging private investments into state developed infrastructure programmes.<sup>42</sup> In this regard, protectionist government policy (specifically, a commitment to a ‘common user’ principle to maintain control over port facilities) and monopoly pricing (including the over-valuation of assets) has caused some private companies to shy away from investing in public infrastructure projects - resulting in projects being re-advertised or cancelled, and even causing some ship repair yards to move out South Africa.<sup>43</sup>

To counteract this problem, and through the progressive implementation of Operation Phakisa-Oceans Economy initiatives, Government plans to introduce a new industry policy which aims at developing a more business-friendly environment and encourage greater private sector involvement by:

- reviewing policy and legislation for Private Public Partnership (PPP) mechanisms;
- reducing red tape and streamlining procurement processes for public infrastructure projects (without breaching governance requirements), including those proposed by this Master Plan and ensuring that common user port facilities are efficiently managed and adequately maintained and upgraded.

5.4 CHALLENGES

At present, South African marine manufacturers and repairers are dealing with several challenges that have been exacerbated by the COVID-19 pandemic. Since the 2020 pandemic, imported components used in ship and boat building have been in short supply, due to global supply chain disruptions, resulting often in delayed build times. In addition, stringent travel restrictions have made it difficult for international clients to enter South Africa to take delivery of new boats.<sup>44</sup> Overall, between 2015 and 2020, fewer vessels have arrived at South African ports (apart from container volumes which increased by 3% in the same period),<sup>45</sup> and the demand for ship maintenance, repairs and other marine services has been subdued. In this regard, major industry challenges include:

- Insufficient and aged dry-docking space and repair facilities;
- TNPA monopoly over ports infrastructure, services over-pricing of port access and poor performance of ports authority;
- Common-user principles and requirements limiting private investment;
- Poor management and lack of maintenance of dry docking and repair facilities;
- Insufficient launching facilities and berthing for small (primarily recreational)boats, especially in Cape Town and Knysna;
- Lack of implementation of strategic plans for the ports;
- High costs related to commercial activities in national ports;

- Port Inefficiencies leading to a decline in vessels visiting SA for repairs and maintenance;
- Poor coordination and planning with local authorities to preserve land surrounding ports and small harbour for port/harbour activities and to support the marine manufacturing;
- Low and declining local demand which inhibits the development of local component manufacture;
- Insufficient public funding and no framework for attracting private investment;
- Limited funding support initiatives available for three key streams (i.e. government vessels, private sector, and export markets) that can be utilised as an equity investment or contribution;
- Limited and irregular ship orders, resulting in the inability of local manufactures to generate regular income, conduct new product development, and upskill their workforce;
- Misalignment of Government departments/legislation and industry needs;
- Increasing competition from regional ports (e.g. Walvis Bay);
- Lack of deliberate development and capacitation of small medium and micro enterprises (SMMEs) on business-related skills throughout the marine industries value chain;
- Potential risk of TNPA outsourcing core competencies to the SEZs, constituting a risk of the oversight functions of the Ports Authority, potentially increasing costs (particularly for port users) and reducing transparency of associated costs for infrastructure projects, and also creating confusion in the market place;<sup>46</sup> and
- Lack of transparency and clear criteria for appointing SEZs to execute projects that should be undertaken by the TNPA and concessioned through objective and transparent process based on merits (capacity, expertise to execute and run such operations) and in line with the provisions of the National Ports Act 12 of 2005.

41. Khalid Bichou, 2021. Development of a strategic plan for port performance improvement in South African container terminals, SA-TIED, October 2021.

42. Natalie Greve, 2014. ‘Ship repair sector stifled, drifting to neighbouring shores’, Engineering News, 16 April 2014.

43. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.

44. Ports Regulator of South Africa, 2021. Ports Sector Review” A five-year regulatory review of the South African port system developed by the Ports Regulator of South Africa 2020/21

45. It also true that SEZs do not always have the requisite skills and expertise to implement projects and provide services on behalf of the TNPA, which increases the risk of further sub-contracting, inflating the cost passed onto the port uses. For example, the Coega SEZ was tasked to conduct work on the Manganese terminal, although it has no tangible experience in mining or running such terminals. See, for example: DoT, 2021. Proposals to Transnet National Ports Authority’s Alteration of Tariffs for 2022 - 2023, letter from the National Port Consultative Committee to the Chairman of the South African Ports Regulator, 21 October 2021.

46. The Presidency, 2017. National Development Plan 2030: Our Future - make it work.



## 5.5 OPPORTUNITIES

Despite the challenges, South Africa's marine manufacturing and repair industry can, with urgent interventions, reverse the declining trends and generate significant jobs and inflow of foreign exchange for the following reasons:

- The availability of baseline infrastructure, facilities and engineering equipment for port users (albeit in poor condition and with inefficient and costly operating models);
- Drawing on the local manufacturing base for marine components once local demand volumes increase;
- Sufficient skills to kick-start a recovery and training institutions to feed future expansion;
- Building on the foundation laid by boat building exports;
- South Africa's well-placed geographic position to tap into the international and regional market;
- Private investors (local and foreign) willingness to invest once bureaucratic red tape is reduced and a more streamlined Private Public Partnership (PPP) framework is in place;
- Identifying components utilised in marine and other industries in order to target those for marine classification, given international demand, and utilise these to achieve localisation targets and reduce importation;
- Building on growing global trends for ship recycling and green ship breaking;
- Capitalising on recent indigenous and regional offshore oil and gas discoveries;
- Expanding the Critical Skills List published by the Department of Home Affairs in 2022 to include artisanal skills that are required for the industry to thrive; and
- Introducing capacitation programmes to establish more SMMEs in the value chain, particularly those that focus on developing business-related skills within the industry.

## 5.6 SKILLS AND TRANSFORMATION

Skills development and transformation require a developing and sustainable industry that would promote inclusivity and participation of designated groups. Transformation requires more than just Black Economic Empowerment (BEE) and includes transformation of land use and property access for inclusivity in the marine economic activities. This falls in line with the philosophy of inclusivity articulated by the National Development Plan 2030 (NDP), which argues that economic transformation is not only about improving living standards and creating

jobs, particularly for the historically disadvantaged, but also about broadening access to services, and equity in ownership of assets, income distribution, and professions and skilled jobs.<sup>47</sup> Thus, new entrants and opportunities for previously disadvantaged groups need to go hand-in-hand with job creation in the marine manufacturing and repair industry, which therefore presupposes the successful and urgent implementation of initiatives to turn around the declining state of the industry. This goal will require having a competent labour force and first-rate enterprises that can increase the number of new entrants - especially youth, women, and persons with disabilities (onshore) - with meaningful participation in the industry.

A key project launched by the dtic in 2019 is the Marine Manufacturing, Maintenance and Repairs, and Associated Services Development Programme, which falls under the Aerospace Industry Support Initiative (AISI), and hosted by the Council for Scientific and Industrial Research (CSIR). The programme has two components. The first is focused on supporting marine standards and accreditation, and the other on supporting technology enhancement. The overall aim of the programme is to support local companies, especially SMMEs, to obtain the required standards and accreditations to participate in the local and global marine supply chains. To date, the programme has contracted 14 beneficiaries and completed eight (8) projects, six (6) of which were standards and accreditation projects. Furthermore, the bulk of the beneficiaries supported by the programme are SMMEs with Broad-Based Black Economic Empowerment (B-BBEE) levels of one or two.

Broadly speaking, the demand and supply of skills in the marine manufacturing and repair sub-sector is considered in terms two occupational categories, namely: engineering/technically skilled occupations (artisans, engineers and technicians); and management and technical professionals in this regard, a 2018 study by the South African International Maritime Institute (SAIMI) highlighted a slight disconnect between the type of skills being produced and those required by various sectors of the oceans economy.<sup>48</sup> Critical skills identified as constraining the marine manufacturing and repair industry included: naval architects, production managers, designers, electricians, electronics, metal fabricators, fitter, boiler makers and welders, riggers, technicians, boat builder and repairer.<sup>49</sup> The SAIMI report is intended to dovetail into a national maritime skills development strategy and implementation plan, as tasked by the Department of Higher Education and Training (DHET),<sup>50</sup> and in cooperation with the DFFE Oceans Economy Master Plan Working Groups.

While skills development within the broader maritime sector is spread across 14 different Sector Education and Training Authorities (SETAs), the Manufacturing, Engineering and Related Services Sector Education and Training Authority (MerSETA) oversees skills development in various sectors associated with the broader manufacturing industry. Further specialised training in maritime engineering (including marine, naval architecture, electrical and electronics) is supplied through various universities and academic institutions, technical vocational education and training (TVET) colleges, and private providers spread across the country.

With renewed emphasis on marine manufacturing, in line with national directives such as Operation Phakisa and this Oceans Economy Master Plan, training in the industry has become increasingly important. In this regard, TVET Colleges have been identified by the DHET as an area underutilised and undercapitalised in terms of providing a skilled workforce in the South African economy. The primary aim of TVET Colleges is to provide qualified people to the various industries fuelling the economy, and as such, TVET Colleges are expected to support the oceans economy sector as a whole and stimulate employment and economic growth through capacitating individuals. However, at present, TVET colleges face poor public perception, primarily due to:

- a complicated mix of programmes and qualifications;
- conflicting and uneven quality assurance mechanisms;
- complex funding systems;
- the lack of or inadequate infrastructure; and
- no criteria for the provision of qualified lecturers.

In order to achieve this, the cooperation between industry players, business sector and relevant TVET institutions is absolutely necessary to tackle the abovementioned skills gap in the industry.<sup>51</sup>

Although progress has been made in transforming the marine manufacturing and repair industry in South Africa, with two (2) of the largest ship repair companies now 100% black owned, the industry remains male-dominated and women (especially black women), as well as persons living with disabilities are severely underrepresented.<sup>52</sup> However, there is a challenge of poor coordination and capturing of data to enable the monitoring of performance and progress made in transforming marine-related industries in South Africa. Insight is needed in its transformation achievements to enable viable management and growth. This requires improvement in reporting on these variables by industry in a manner that does not compromise

competitiveness of the industry players in the market and within the acceptable standards, as required by South Africa's competition and anti-trust laws.

## 5.7 RESEARCH, DEVELOPMENT AND TECHNOLOGY

Research and development (R&D) in Government is implemented largely in a disjointed manner, whereby each Department operates autonomously and strictly within its own mandate, budget and programs. The result is that there is no current mechanism to co-ordinate a "marine" or "maritime" R&D cluster. While specialisation and compartmentalisation are often critical to excellence in science and innovation, greater collaboration and forward thinking is required to improve planning, directing and control for maritime research in South Africa, ideally instituted by and chaired from the Presidency.

Despite this challenge, various research capabilities (researchers and infrastructure)<sup>53</sup> are available that support current maritime R&D efforts, including funded Research Chairs at various national universities (including in renewable energy), test facilities (such as CSIR wind tunnels and the Overberg Test Range), and maritime technology demonstrators (including for weapon system components for naval combat vessels, harbour surveillance, and panoramic thermal infrared systems developed for the South African Navy by the Institute for Maritime Technology, or IMT, a division of Armscor).<sup>54</sup> This demonstrates that the design and development of technologies is as important as research capabilities to enhance South Africa's marine manufacturing and civil engineering capabilities.

In 2020, the CSIR in partnership with the SAIMI developed the Research, Innovation and Knowledge Management Road Map for the South African Maritime Sector, which was formulated as a roadmap for research, innovation and technology development to support Operation Phakisa-Oceans Economy. In this regard, SAIMI has conducted various research and skills audits and facilitated the establishment of research in collaboration with the National Research Foundation (NRF), which itself provides funding and cutting-edge research, technology and innovation platforms for marine-related industries. The CSIR and SAIMI have also collaborated with the universities of Stellenbosch, KwaZulu-Natal and Nelson Mandela Bay (NMU) on various R&D projects, including: conducting long wave and wind studies to improve the stability of vessels during storm surges, boat and ship design, container design, and the development of green energy technologies.<sup>55</sup> SAIMI is furthermore involved in funding a Marine Robotics Centre, established at NMU in 2020

47. SAIMI, 2018. Oceans Economy Skills Development Assessment, South African International Maritime Institute (SAIMI).

48. DFFE, 2019. Operation Phakisa: Progress Summary Report 2019.

49. SAIMI, 2019. Strategic Plan 2019 - 2023, The South African International Marine Institute (SAIMI).

50. TETA, 2019. Assessment of Selected TVET Colleges to Offer Maritime Programmes, report commissioned by the Transport Education Training Authority.

51. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.

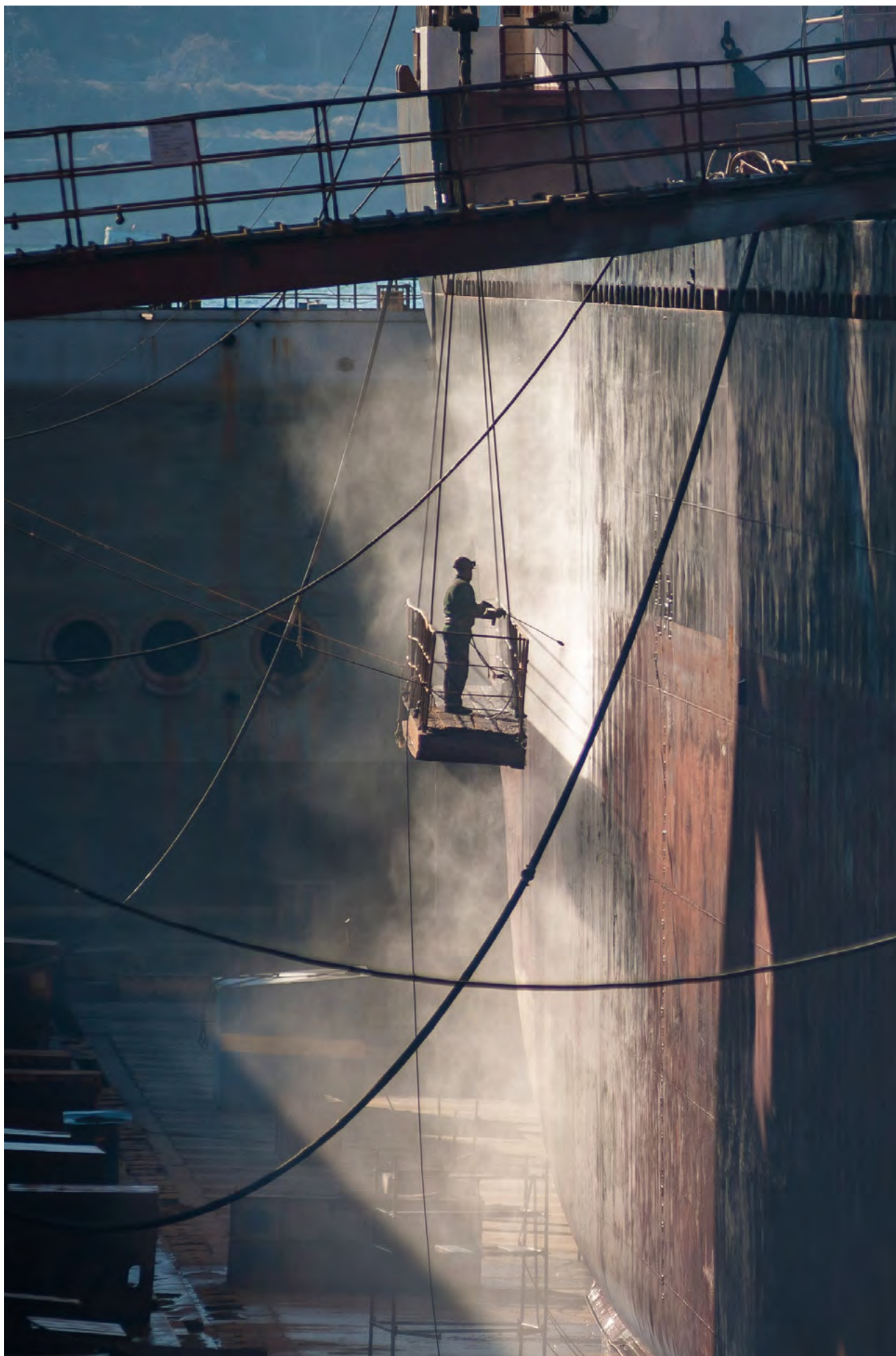
52. Predominantly aimed at post graduate academic institutions and maritime research institutions.

53. Nikki Funke et al, 2014. Reflections on the State of Research and Technology in South Africa's Marine and Maritime Sector, report published by the Council for Scientific and Industrial Research (CSIR) and funded by the South African Maritime Safety Authority and Department of Science and Technology.

54. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.

55. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.





to provide new knowledge, expertise and support in the areas of robotics, artificial intelligence, modelling, and underwater systems and oceanography.<sup>56</sup> The latter is particularly important for the offshore oil and gas industry and offshore construction industries.

Stemming from the designation of vessels at 60% local content, the Marine Manufacturing, Maintenance and Repairs, and Associated Services Development Programme (see heading 5.6 above) has been critical in assisting SMMEs to obtain globally competitive standards and accreditations. Of the 14 beneficiaries that have benefited from the programme since 2019, eight (8) projects have been completed, two (2) of which were technology enhancement projects.

Two other areas where attempts are being made to support R&D in the marine industry include the Innovation Campus at the Saldanha Bay IDZ and the Technology Innovation Agency (TIA). Firstly, the Innovation Campus is intended to become a world-class research and development hub to support the maritime and energy sector. Within the next few years, and in partnership with industry, academia and Government, the Campus is expected to establish capacity and support research to help build South Africa's marine manufacturing and repair capacity, as well as in oil and gas sector, in order for the country to achieve international standing in these areas.<sup>57</sup> Secondly, TIA, under the Department of Science and Innovation (DSI), was created in 2013 to support Government in funding and stimulating technological innovation in various sectors across South Africa. This includes the commercialisation of bio-technologies and enterprise development (including access to science, engineering and technology services).<sup>58</sup> In 2019 TIA sent a call for proposals for aquaculture funding, and more recently it has stated its intention to assist Government in setting up technology stations to support private individuals and SMMEs and increase the number of new entrants in the marine manufacturing and repair industry.

## 5.8 ENVIRONMENTAL SUSTAINABILITY

In line with international environmental regulations, principally with the International Maritime Organisation's (IMO) International Convention for the Prevention of Pollution from Ships (MARPOL), local marine manufacturers are steadily investing in technologies to achieve the required reductions in exhaust emissions of carbon dioxide and other greenhouse gases from ship and boat engines. To a degree, South Africa is already a world leader in the electrification of recreational vessels, as exemplified by its internationally recognised electric sailing catamaran yachts.<sup>59</sup>

Yet, despite South Africa's commitment to reach net zero emissions by 2050 and decarbonising its transport sector (both on land and sea),<sup>60</sup> vessels carrying heavy fuels with a sulphur content exceeding the current international limit of 0.5% are permitted to enter South African waters - provided they are installed with exhaust gas cleaning systems (EGSCs), commonly referred to as 'scrubbers'. This limit was made compulsory in January 2020 following an amendment to MARPOL Annex VI, which specifically deals with sulphur content of marine fuel oils (the previous content amount was 3,5%). Although scrubbers are regarded as an appropriate means to meet the sulphur content cap, vessels operating in South African waters and ports are essentially carrying non-compliant fuel.

As a party to the IMO, South Africa needs to abide by its regulations, and therefore cannot avoid the increasing international demand for zero carbon shipping fuels and components to meet decarbonisation targets. For a start, this would require the domestication of MARPOL Annex VI into existing or new legislation to enable the country to enforce the new regulation.<sup>61</sup> It will also require improving the global competitiveness of local manufacturers that already produce IMO compliant components for scrubbers intended for local and international ship builders by supporting and incentivising their operations. This will be critically important to reduce their dependency on importing original equipment manufacturers (OEMs) parts.

56. SBIDZ-LC, 2021. Corporate Plan 2020-2021, Saldanha Bay Industrial Development Zone Licensing Company (SBIDZ-LC).

57. DSI, 2021. Technology Innovation Agency: Annual Report 2020/21, the Department of Science and Innovation (DSI).

58. This includes the Voyage 590e, which was recognized with a special award in the 2022 Boat of the Year competition, which is run annually by Sailing World Magazine, the world's largest sailing news network.

59. See, for example: DoT, 2018. Green Transport Strategy for South Africa: (2018-2050), Department of Transport (DoT).

60. SAMSA, 2019. South African national workshop on implementation of MARPOL Annex VI on 0.50% sulphur limit regulation, report by the South African Maritime Safety Authority (SAMSA).

61. Ricardo Energy and Environmental Defense Fund, 2021. South Africa: fueling the future of shipping: South Africa's role in the transformation of global shipping through green hydrogen-derived fuels, Global Maritime Forum.



These challenges aside, a recent study found that South Africa is well placed to produce zero carbon shipping fuels and components for the global shipping industry.<sup>62</sup> According to the study, the adoption of zero carbon propulsion technologies at South Africa's ports could attract investment of up to ZAR175 billion in onshore infrastructure by 2030. It suggests, furthermore, that the transition towards greener technologies would greatly contribute towards the country's decarbonisation targets, whilst at the same time acting as a catalyst for South Africa's oceans economy - specifically by opening new export markets, supporting an equitable transition, and creating new jobs.<sup>63</sup>

A key regional organisation in facilitating compliance with MARPOL Annex VI and promoting the uptake of low-carbon technologies in Africa is the Maritime Technology Cooperation Centre for Africa (MTCC-Africa). Through MTCC-Africa, a number of regional partners have been established throughout the Continent, including the South African Maritime Safety Authority (SAMSA) in southern Africa. The MTCC-Africa is currently involved in two pilot projects, which have been supported by the IMO and funded by the European Union (EU). The first project looks at adopting energy efficient technologies and operations in African ports. The second project focuses on collecting data on fuel consumption and emissions, which has included the participation of SAMSA officials.<sup>64</sup>

## 5.9 POLICY CONSIDERATIONS

There is a host of legislation and regulations pertaining to the marine manufacturing and repair industry, including the National Ports Act 12 of 2005, which is primarily responsible for overseeing the activities of the TNPA to ensure compliance with the Act, and the South African Maritime Safety Authority Act 5 of 1998, which, among other things, is responsible for:

- The development and implementation of national and international maritime safety and marine environment protection standards;
- The enforcement of technical and operational standards for all shipping operations in South African waters and for South African ships anywhere in the world, and the promotion of responsible operations, in terms of seaworthiness, safety and pollution prevention; and
- The enforcement of training and competency standards.

In March 2020, the Department of Transport (DoT) gazetted the Merchant Shipping Draft Bill. Among other key objectives, the Bill aims to regulate the design, manufacture, construction, installation, operation, use, handling, alteration, repair, maintenance and conveyance of machinery and safety equipment on vessels in South Africa in line with international standards and best practices.

Further to this, additional proposed changes that could be considered for the current regulatory and tax policy framework to ensure that Government is in a position to stabilise and grow the industry include:

- Introducing tax incentives for repairers and ship owners for vessels and other equipment that stay longer than six (6) months in port facilities for purposes of ship and rig repairs;
- Encouraging industry to optimize local content requirements for private sector orders, including considering introducing tax and export incentives for local manufacturers;
- Incentivising manufacturers that exceed both National Industrial Participation Programme (NIPP) and Defence Industrial Participation Programme (DIPP) targets, to encourage further growth in the value chain; and
- Reviewing lessons learnt from the Motor Industry Development Programme (MIDP), including investigating the possibility of offering similar incentives for the marine industry.

## 5.10 TARGETS AND INTERVENTIONS THROUGH TO 2035

South Africa's marine manufacturing and repair industry is viewed as a highly strategic industry with high economic multipliers, generating employment and positive spin-offs across numerous sub-sectors of the oceans economy value chain. The industry also has cross-sectoral linkages with other marine and non-marine industries, including with aquaculture, architecture, construction, interior design, the aerospace and automotive sectors, information technology, communications and electronics, clothing and textile manufacturing, renewable energy and green technologies.<sup>65</sup> Thus, the impact of any intervention in this industry is expected to have multiplier effects on many other sectors in the South African economy, including component manufacturers, if strategically targeted for spin-off growth.<sup>66</sup>

Tabled below is the sub-sector plan relating to the Marine Manufacturing and Repair sub-sector of South Africa's Oceans Economy. The scope of the plan spans three strategic thrusts through to 2035 that collectively aim to realise the growth targets of the industry. However, before these can be rolled out, a set of urgent interventions in the immediate term (0-6 months) are needed for the industry to immediately start stabilising. These interventions must prioritise the core segments of the local marine manufacturing industry, namely: ship repair, ship building and boat building. In this regard, it is crucial that the TNPA is adequately managed and resourced to (i) support these core segments, underpinned by a strong commercial focus, and (ii) to strengthen its own engineering capacity to undertake priority port infrastructure projects in a timely and efficient manner. Other priority interventions to be pursued by Government include:

- Conducting an infrastructure, skills and financing audit;
- Reviewing tax policy to expand the value chain, including consideration of:
  - tax incentives for foreign vessels and imported equipment that remain in port and docking facilities for longer than six (6) months for the purposes of ship and rig repairs;
  - tax incentives to encourage industry to implement minimum local content requirements for private sector orders;
  - export incentives for local marine manufacturers similar to those developed under the MIDP;
- Accelerating TNPA facility maintenance and repair works;
- Ensuring adequate financial provisions and enhancement of dedicated project management and other required capacity at the TNPA to ensure effective oversight and execution of all the existing and new facilities upgrades and development;
- Prioritising the detailed design and scoping of projects to ensure that existing and new facilities operate effectively upon project completion;
- Ensuring coherent management direction within the TNPA in guiding the entity's implementation of the policy objectives and ensuring effective port operations;
- Optimising and devolving adequate delegations of authority at middle management (i.e. operational level) to enable efficient decision-making, especially for teams that will implement the priority projects contained in this Master Plan;
- Ensuring that critical engineering capabilities (including design) that have been lost from the TNPA's relocation to Ngqura are retained and possibly enhanced within the Authority;
- Minimising high costs to industry, particularly high rental port charges;

- Evaluating how TNPA can rent out its facilities, such as ship repair workshops, to both emerging repairers and established repairers for more competitive rentals;
- Optimising the landlord/tenant model to better serve the industry;
- Reviewing existing business models and private sector investment in infrastructure to ensure better commercial alignment between TNPA and industry (procurement, procedures and protocols);
- Investigating the need to establish a Port Development Authority to use, operate and manage certain ship repair facilities jointly with private companies (i.e. shared services user facilities);
- Ensuring ship repair facilities are concessioned and leased to private parties;
- Expediting Transnet's lease agreement;
- Accelerating marine infrastructure at the SBIDZ;
- Fast-tracking accreditation to ship repairers; and
- Investigating new investment opportunities.

With these immediate interventions in place, the first strategic thrust (0-2 years) can focus on reversing declining growth and bring about stability to the industry by implementing a range of interventions aimed at creating market awareness, funding, and revenue models, which will establish a platform for refurbishing aging and building new infrastructure, as well as for increasing health and safety measures. These efforts are expected to increase local and international demand for ship repairs and marine manufacturing services, which, in turn, will draw from the localisation of value and production chains.

Once the sector has stabilized, the next thrust (2-5 years) will focus on reviving the industry through the introduction of increased training and capacity building, which will increase both the competitive and comparative advantages of the industry. The attractiveness of the sector to both local and international investors and clients will also be accelerated by implementing competitive tariffs and fees.

Once the sector has been stabilised and revived, the next thrust (5+ years) will aim to facilitate sustained growth in a manner which balances economic and environmental sustainability. Accordingly, interventions in this phase will focus on expanding marine engineering and design capacity, continuously attracting more investment, accelerating specialised training, establishing a green ship recycling capacity, and reconfiguring the TNPA to manage increased demand and sustainable growth, all under the overall umbrella of an enabling operational and regulatory environment.

The interventions to stabilize, revive and grow the sub-sector to 2035 are detailed below.

62. Ricardo Energy and Environmental Defense Fund, 2021. South Africa: fueling the future of shipping.

63. MTCC-Africa, Pilot Project on Voluntary Fuel Consumption Data Collection and Reporting (DCR).

64. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.

65. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.

66. DOT, 2017. Comprehensive Maritime Transport Policy (CMTP) for South Africa, The Department of Transport, Pretoria.



TABLE 7

Intervention	Implementation Time Frame			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
INFRASTRUCTURE AND EQUIPMENT					
Maintain and upgrade existing marine manufacturing and repair facilities, by:  <ul style="list-style-type: none"><li>Expanding and upgrading floating docks, graving docks, ship lifts and repair berths</li><li>Establishing and upgrading cranes (wharf and floating)</li><li>Establishing workshops in port precincts</li><li>Accelerating execution of capacity upgrade of TNPA facilities and maintenance and repair programme</li><li>Upgrading rail infrastructure to ports</li><li>Replacing and upgrading dysfunctional equipment at the various ports</li><li>Coordinating with local authorities on port access, congestion, and expansion (incl. upgrading of roads)</li></ul>	X	X	X	<ul style="list-style-type: none"><li>Increased maintenance and upgrading of infrastructure to a fully operational state</li><li>Increased number of operational facilities</li><li>Increased numbers of concessions</li><li>Port plans integrated with SDF and transport plans</li></ul>	<ul style="list-style-type: none"><li>DPE (TNPA)</li><li>Ship Repair Industry</li></ul>
Unlock investment in new and existing port infrastructure by:  <ul style="list-style-type: none"><li>Creating a more efficient process, mechanism and vehicle to enable public and private investment</li><li>Considering issuing TNPA concessions and leases to operate and maintain ship repair facilities in a transparent process</li><li>Identifying land outside port limits currently not utilised for commercial boundaries of ports, which can be developed and utilised to extend breakwaters and quay walls to accommodate ship building, repairs and boat building facilities</li></ul>	X	X	X	<ul style="list-style-type: none"><li>Increased numbers of operational facilities</li><li>Increased numbers of platforms to engage with private and public sector (including port authority and land owners</li><li>Feasibility studies conducted to establish space for additional docking facilities at the Ports of Cape Town and Mossel Bay</li><li>Increased number of infrastructure and facilities for ship building, repairs, recycling and boat building developed (all ports)</li></ul>	<ul style="list-style-type: none"><li>DPE (TNPA)</li><li>DPWI (Infrastructure SA)</li><li>Local DFIs (all spheres) Economic development, transport, and public works departments (all spheres)</li><li>Local government</li></ul>
Establish purpose-built oil and gas and marine services port infrastructure at Saldanha Bay by:  <ul style="list-style-type: none"><li>Ensuring industry engagement and consensus on required infrastructure</li></ul>	X	X	X	<ul style="list-style-type: none"><li>Industry consensus of required infrastructure</li><li>Established and operational port infrastructure</li></ul>	<ul style="list-style-type: none"><li>DPE (TNPA)</li><li>National Treasury</li></ul>
Implement a Strategic Prioritised Projects in Richards Bay (ship repair: new floating dock and repair to the existing quay) by:  <ul style="list-style-type: none"><li>Addressing the onerous terms and conditions linked to the scoping of RFIs and RFPs for the ship repair tenders issued by the authority (0-6 months)</li><li>Creating new port infrastructure and water side access availability to support the marine industries in Richards Bay.</li></ul>	X	X	X	<ul style="list-style-type: none"><li>Established and operational port infrastructure</li><li>Increased number of concessions concluded.</li><li>Established ship repair infrastructure in Richards Bay</li><li>Port Infrastructure and waterside access created</li></ul>	<ul style="list-style-type: none"><li>DPE (TNPA)</li><li>National Treasury</li></ul>
Implement a Strategic Prioritised Project in East London by:  <ul style="list-style-type: none"><li>Manufacturing a Caisson Gate in the dry dock for ship repair.</li><li>Facilitating boat building on a smaller scale, ship recycling or any other marine industry operations).</li></ul>	X			<ul style="list-style-type: none"><li>Established and operational port infrastructure</li></ul>	<ul style="list-style-type: none"><li>DPE (TNPA)</li><li>National Treasury</li></ul>
Establish Green Ship Recycling facility (Saldanha; Port of East London)			X	<ul style="list-style-type: none"><li>Green Shipping Recycling facility operational</li></ul>	<ul style="list-style-type: none"><li>TNPA</li><li>Ship Repair Industry</li></ul>

Intervention	Implementation Time Frame			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
FUNDING AND RESOURCING					
Create supporting funding and revenue model for the sector by:  <ul style="list-style-type: none"><li>Prioritising TNPA and Transnet funding allocation towards marine manufacturing for ship and rig repairs</li><li>Streamlining TNPA procurement procedures and protocols</li><li>Partnering with local DFIs in financing public and private sector investment</li><li>Increasing access to private local and international capital through commercial banks, private equity funds and institutional investors</li><li>Enhancing funding for SEZs through the SEZs fund to enable financing of marine industries</li></ul>	X			<ul style="list-style-type: none"><li>Increased funding allocation</li><li>Increased revenue for the sector</li><li>Increased SEZ funding allocation</li><li>Built in accountability</li></ul>	<ul style="list-style-type: none"><li>DPE (TNPA)</li><li>Ship Repair Industry</li><li>National Treasury (DBSA)</li><li>the dtic (IDC, SEZs)</li><li>Local and international DFIs</li><li>Local and International commercial banks</li><li>Private equity funds and institutional investors</li></ul>
Increase investment attraction by:  <ul style="list-style-type: none"><li>Reviewing and updating lease periods to improve ability to raise funding</li><li>Establishing collaborative Fund and partnership between DFI and the banking sector to finance manufacturing and repair projects</li><li>Developing Risk Assessment model for marine manufacturing and repair</li><li>Establishing performance/bond guarantees for the marine sector</li><li>Exploring industry specific incentives, (i.e. tax reduction, duties, incentives) that will support local manufacturers and repairers in domestic, regional and international market</li><li>Developing tailor made funding packages focused on supporting new entrants (i.e. SMMEs) and projects on the continent</li><li>Securing long term leases for back of port and water frontage for all investors</li><li>Reducing port costs and the leasing of land within port precincts</li><li>Reconsider issuing licences to private sector stakeholders to acquire and operate their own floating docks, allowing for a more cost competitive operating environment and ability to access the necessary facilities on a more regular basis</li></ul>		X		<ul style="list-style-type: none"><li>Increased investment levels</li><li>Increased commercial financing</li></ul>	<ul style="list-style-type: none"><li>DPE (TNPA)</li><li>the dtic (IDC, SEZs, ECIC)</li><li>Local and International commercial banks</li><li>Local and International DFIs</li><li>Private equity funds institutional investors</li></ul>
TARIFFS AND FEES					
Establish globally competitive tariffs and fees by:  <ul style="list-style-type: none"><li>Reviewing port tariff structure and institute competitive tariffs</li><li>Reviewing leases for marine manufacturing and ship repair</li></ul>		X		<ul style="list-style-type: none"><li>Globally competitive tariffs operational</li><li>Increase in number of leases issued</li></ul>	<ul style="list-style-type: none"><li>TNPA</li><li>Ship Repair Industry</li><li>the dtic</li><li>SARS</li><li>National Treasury</li></ul>
SKILLS AND CAPACITY					
Ship repairer skills acceleration through:  <ul style="list-style-type: none"><li>Completing skills audit</li><li>Accrediting ship repairers</li><li>Up-skilling and improving of skills in the oil and gas sub-sector</li><li>Identifying possible partner initiative to address skills gap</li><li>Creating dedicated Operational Teams (OTs) for the sector</li><li>Establishing trade and centres of specialisation</li><li>Increasing usage of ESSA system</li><li>Developing a database of local component manufacturers, product range and certifications, education procurement managers, and SMMEs</li></ul>	X			<ul style="list-style-type: none"><li>Aligned higher institutions' curricula with industry requirements</li><li>Higher institutions output aligned with industry requirements</li><li>Private industry internal artisan training schemes to be included in evaluation of and reporting on skills requirements</li><li>2 550 TVET college graduates trained (2014 3 ft. plans)</li><li>18 172 learners trained (2014 3-ft. plans), as artisans and semi-skilled workers and professionals</li><li>SMME capacitation target</li></ul>	<ul style="list-style-type: none"><li>DHET (SAIMI, SETAs)</li><li>Tertiary institutions</li><li>the dtic</li><li>DSBD (SEDA, SEFA)</li></ul>

Intervention	Implementation Time Frame			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
Accelerate short-term training and capacity building by: <ul style="list-style-type: none"><li>• Training college graduates in scarce and critical trades</li><li>• Training learners and SMMEs</li><li>• Ensuring that industry assists to incubate and capacitate more marine related SMMEs in the value chain</li><li>• Developing criteria for the provision of qualified lecturers</li></ul>			X	<ul style="list-style-type: none"><li>• 2 550 TVET college graduates trained</li><li>• 18172 learners trained, as artisans and semi-skilled workers and professionals</li><li>• Increased number of qualified lecturers</li><li>• More marine related SMMEs created, incubated and capacitated with business skills</li></ul>	<ul style="list-style-type: none"><li>• DHET (SAIMI, SETAs)</li><li>• the dtic</li><li>• Tertiary institutions</li><li>• DSBD (SEFA, SEDA, NYDA)</li><li>• Industry (including associations)</li></ul>
Marine Engineering and Design skills and capacity development by: <ul style="list-style-type: none"><li>• Establishing research and testing facilities</li><li>• Establishing large 5 Axis milling machine capabilities and large 3D printing facilities</li><li>• Creating innovation hubs and programmes for maritime engineers and designers</li><li>• Funding facility for innovation within the marine engineering and design sector</li><li>• Developing a database of funding opportunities</li><li>• Establishing and supporting B-BEEE rated Maritime Design Houses</li></ul>		X		<ul style="list-style-type: none"><li>• Marine Engineering and Design Facilities operational</li><li>• Increased utilisation of existing Marine engineering facilities</li><li>• Increased B-BBEE rated Maritime Design entities</li><li>• Research chair in Maritime engineering of South Africa created</li></ul>	<ul style="list-style-type: none"><li>• DHET (SAIMI, SETA)</li><li>• DSI (TIA)</li><li>• Tertiary institutions</li><li>• DSBD (SEDA, SEFA)</li></ul>
Increase training capacity by: <ul style="list-style-type: none"><li>• Including maritime curricula into TVET colleges curricula</li><li>• Developing an incentive scheme and system to match graduates with employers, and industry to provide in-service training</li><li>• Expanding apprenticeship programme and on-the-job training initiatives</li><li>• Establishing Centres of Specialisation within TVET colleges</li><li>• Expanding the number of schools offering maritime studies.</li><li>• Providing training of teachers and lecturers to teach maritime-related courses</li></ul>	X			<ul style="list-style-type: none"><li>• Increased number of operational training institutions in the manufacturing and repair industry</li><li>• Increased availability of qualified and experienced lecturers for the higher educational institutions.</li><li>• Increased numbers of tertiary institutions which include marine manufacturing, design and/or repair related fields in their curriculum</li><li>• Improved teaching in maritime subjects at schools and TVETs</li></ul>	<ul style="list-style-type: none"><li>• DHET (SAIMI, SETAs, NSF)</li><li>• DBE</li><li>• SA College Principals</li><li>• Transnet Academy</li><li>• Industry</li><li>• SAIMENA</li><li>• the dtic</li></ul>
<b>HEALTH AND SAFETY</b>					
Increase compliance with Health and Safety Requirements through awareness campaigns and ensure that port facilities and infrastructure are maintained and repaired to enhance safety	X			<ul style="list-style-type: none"><li>• Reduction in injuries and fatalities</li><li>• Increased incident-free days</li><li>• Increased compliance levels within manufacturing and repair industry</li></ul>	<ul style="list-style-type: none"><li>• DPE (TNPA)</li><li>• Manufacturing</li></ul>
<b>MARKET GROWTH</b>					
Increase local demand and supply for marine manufacturing by: <ul style="list-style-type: none"><li>• Introducing incentive scheme for local manufacturing</li><li>• Recapitalising government fleet as stimulus for marine manufacturing</li><li>• Campaigning to market SEZs and attracting short to medium term investment locally and internationally</li><li>• Creating and implementing a public procurement programme and accelerate the implementation of the localisation programme</li></ul>	X			<ul style="list-style-type: none"><li>• Incentive scheme operational</li><li>• Recapitalised government fleet</li><li>• Increased investment in IDZs and SEZs</li></ul>	<ul style="list-style-type: none"><li>• the dtic (IDC)</li><li>• Provincial development agencies</li><li>• National Treasury (SARS)</li></ul>

Intervention	Implementation Time Frame			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
Increase demand for ship repair and boat building by: <ul style="list-style-type: none"><li>• Fast-tracking ship repair and building facilities in SEZs</li><li>• Establishing tax incentives for the sector</li><li>• Issuing TNPA concessions and leases (commensurate with investment) of ship repair and boat building facilities</li><li>• Considering moderation of Port fees and duties and increased access to the water side for ship repairers</li><li>• Streamlining section 56 processes and introduce a mechanism for consideration of unsolicited bids</li><li>• Ensuring expansion of land and/or extending leases for boat/ship building, recycling or repairs</li></ul>		X		<ul style="list-style-type: none"><li>• Increased number of operational repair and building facilities</li><li>• Increased number of TNPA concessions and leases (commensurate with investment) issued for ship repair and boat building</li><li>• Enhanced Tax incentive schemes for the sector</li><li>• Increased expansion of land and/or number of extended leases for manufacturers and repairers</li></ul>	<ul style="list-style-type: none"><li>• National Treasury (SARS)</li><li>• DPE (TNPA)</li><li>• SAASR</li><li>• SA Boat Builders Export Council (SABBEX)</li><li>• the dtic</li></ul>
Adopt a new operational model for the National Ports Authority by: <ul style="list-style-type: none"><li>• Commercialising the NPA in terms of the Ports Act, restoration of requisite resourcing, expertise and capabilities of the authority</li><li>• Establishing a Maritime Sector Industry Advisory Board to support policy decision-making, coordinate government departments and monitor effective implementation of decisions</li></ul>	X	X	X	<ul style="list-style-type: none"><li>• National Ports Authority functioning as a standalone entity</li><li>• Marine Sector Industry Advisory Board established and operational</li><li>• Capacitation of the corporatised Authority</li></ul>	<ul style="list-style-type: none"><li>• DPE (TNPA)</li><li>• DoT</li><li>• Ports Regulator</li><li>• NPCC</li><li>• Industry associations</li></ul>
Market awareness and investment attraction through: <ul style="list-style-type: none"><li>• Developing a strategic marketing campaign and value proposition for target markets</li><li>• Conducting outbound mission to SADC and rest of Africa, with significant industry participation, to support marketing of local component manufacturing and repair services and products</li><li>• Investigating and reducing market restrictions for South Africa manufacturing and repairs services globally and regionally</li><li>• Expanding and growing the existing marketing platform at local and international boat shows and conferences for manufacturing and repairs services targeting inbound and outbound missions.</li><li>• Launching awareness campaign for maritime manufacturing and repairs sector</li></ul>	X	X	X	<ul style="list-style-type: none"><li>• Increased investment and trade within the manufacturing and repair industry</li></ul>	<ul style="list-style-type: none"><li>• the dtic</li><li>• DIRCO</li><li>• industry</li><li>• the dtic (Investment South Africa, TISA, IDC)</li><li>• National Treasury (DBSA)</li><li>• Industry bodies and Associations</li><li>• Local Government</li><li>• DIRCO</li></ul>
Increase local component manufacturing through: <ul style="list-style-type: none"><li>• Component localisation informed by integrated research into local and international demand</li><li>• Accreditation and certification of local components and technologies enhancement</li></ul>	X	X	X	<ul style="list-style-type: none"><li>• Local designs standards accredited</li><li>• Increased number of firms accredited in terms of new design standards</li><li>• Increased participation of maritime industry in the localisation program.</li></ul>	<ul style="list-style-type: none"><li>• the dtic: Industrial Competitiveness and Growth (Industrial Policy and CSIR/AISI)</li><li>• Manufacturing and repair industry</li></ul>
Certification of local component manufacturing products by: <ul style="list-style-type: none"><li>• Ensuring local content and certification requirement for public procurement</li><li>• Ensuring standard accreditation and certification of local component manufacturing</li><li>• Marketing SA components in SADC and African markets</li><li>• Unblocking market restrictions on locally manufactured products</li></ul>		X		<ul style="list-style-type: none"><li>• Increased SADC market share of South African Products</li><li>• Increased volumes of accredited components produced</li><li>• Increased local content of certified components</li></ul>	<ul style="list-style-type: none"><li>• the dtic (SABS)</li><li>• Classification societies tertiary institutions</li><li>• Science Councils (CSIR)</li></ul>



Intervention	Implementation Time Frame			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
Fast-track implementation of African Continental Free Trade Area by: <ul style="list-style-type: none"><li>Reviewing policy and tariff review</li><li>Mobilising AU partners to support initiative</li><li>Mobilising African regional trade blocks</li><li>Harmonising customs and border control systems</li></ul>		X	X	<ul style="list-style-type: none"><li>Increased intra-continental trade with African trading partners</li></ul>	<ul style="list-style-type: none"><li>the dtic</li><li>DIRCO</li><li>SARS</li><li>DHA</li><li>DFFE</li><li>DALRRD</li><li>TNPA</li><li>SAPS</li><li>SANDF</li><li>SAMSA</li></ul>
Increased attractiveness of rig and vessel repair facilities by: <ul style="list-style-type: none"><li>Improving visa and work permit regime for international operators in South African Waters and Ports</li><li>Introducing competitive costing of berthing, rental of quays and equipment</li><li>Optimising scheduling to access berthing, mooring and launch facilities and integrated with transport value chain</li><li>Developing an awareness campaign</li></ul>	X	X	X	<ul style="list-style-type: none"><li>Increased utilisation and efficiency of repair facilities</li><li>Increased throughput levels of repair facilities</li></ul>	<ul style="list-style-type: none"><li>the dtic</li><li>DHA</li><li>DHET</li><li>Industry</li><li>Ports Regulator</li><li>DPE (TNPA)</li></ul>
ACCELERATED TRANSFORMATION					
Develop B-BBEE codes for the sector by: <ul style="list-style-type: none"><li>Securing industry alignment to the codes</li><li>Monitoring and enforcement of codes</li><li>Developing incubation programme that would provide non-financial and financial support to SMMEs in the sector</li><li>Introducing targeted initiatives to promote the meaningful participation of women and people with disabilities in the sector</li></ul>		X		<ul style="list-style-type: none"><li>Sector B-BBEE charter adopted</li><li>Sector B-BEE targets achieved</li><li>Quantified increase in impact on women, youth and people living with disabilities</li><li>Increased meaningful participation of SMMEs in the value chain</li></ul>	<ul style="list-style-type: none"><li>the dtic (BBBEE Commission)</li><li>DoT</li><li>Local and Provincial Government</li><li>SOEs</li><li>National Treasury</li><li>DSBD</li><li>SAIMI</li><li>DHET (SAIMI)</li><li>DWYPD</li><li>Industry</li></ul>
ENVIRONMENTAL SUSTAINABILITY					
Climate Change Mitigation Interventions through: <ul style="list-style-type: none"><li>Developing vessels with low carbon emissions</li><li>Ensuring industry compliance with IMO low sulphur emission requirements</li><li>Development of green energy, hydrogen, and biogas products</li></ul>		X		<ul style="list-style-type: none"><li>Compliance with IMO low sulphur requirements</li></ul>	<ul style="list-style-type: none"><li>the dtic</li><li>DPE (TNPA)</li><li>DMRE</li><li>DoT</li><li>Industry</li><li>DFFE</li><li>IMO</li><li>Universities</li></ul>

Intervention	Implementation Time Frame			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
RESEARCH AND INNOVATION					
Accelerate commercialisation of technologies emanating from research and innovation programmes developed by industry and research institutions for industry use by: <ul style="list-style-type: none"><li>Creating an interdepartmental Oceans Economy Research and Development Board</li><li>Creating a Research Development and Innovation Knowledge Pool database</li><li>Establishing local testing and accreditation facilities</li><li>Establishing technology demonstration facilities</li><li>Establishing commercialisation offices at local universities for the sector</li><li>Developing a SMME Research and Development Programme</li><li>Continuing process to map SA ocean bed</li></ul>			X	<ul style="list-style-type: none"><li>Increased production of South African innovations in the sector</li><li>Increased commercialisation of innovations and prototypes</li><li>Increased number of operational research and testing facilities</li></ul>	<ul style="list-style-type: none"><li>DSI (TIA, CSIR, SEON)</li><li>the dtic</li><li>DoT (SACAA, SAMSA)</li><li>DMRE (Council for Geo-Sciences)</li><li>institutions</li><li>SAIMI</li><li>AISI</li><li>SAAMA</li><li>SAIMENA</li><li>Universities (Stellenbosch and Cape Town, NMU, CPUT, DUT)</li></ul>



SUB-SECTOR PLAN

# MARINE TRANSPORT

06





## 06. Marine Transport Sub-Sector Plan

Marine transport can be defined as “an integrated system that involves the design, construction, operation, management, servicing and maintenance of merchant, leisure and other ships in the service of seaborne trade, conducting offshore operations and transporting people and cargo by sea and inland waterway”.<sup>1</sup>

This section of South Africa’s Oceans Economy Master Plan presents a sub-sector plan for the marine transport industry. The plan covers the following areas:

- A review of the global industry;
- A review of the national industry;
- Current interventions;
- Challenges;
- Opportunities;
- Skills and transformation;
- Research, development and technology;
- Environmental sustainability;
- Policy considerations;
- Targets and interventions through to 2035.



1. Gross tonnage (GT) is a function of the volume of all of a ship’s enclosed spaces, from keel to funnel.

### 6.1 GLOBAL SUB-SECTOR REVIEW

The value of the world’s commercial fleet is estimated to be just under USD1 trillion (approximately ZAR15.1 trillion). At the beginning of 2020, the global marine transport fleet totalled just under 100 000 ships of 100 gross tons (GT)<sup>2</sup> and above. Bulk carriers account for over 19% of the fleet, followed by oil tankers (17%) and offshore vessels (17%). Since the early 2000s, more of the world’s cargo has been carried in so-called ‘mega-container ships’ i.e. those with a container capacity greater than 10 000 twenty-foot equivalent units (TEU),<sup>3</sup> and between 2011 and 2021 their proportion of carrying capacity rose from 6 to almost 40%. According to the United Nations Conference on Trade and Development (UNCTAD), “these larger ships have been part of broader corporate strategies to pursue economies of scale”, although at the same time, “this has resulted in excess supply - ‘over-tonnaging’ - in the world’s major liner routes, with greater pressure on infrastructure and on logistics at ports”.<sup>4</sup>

As of 2021, the top three ship-owning countries, in terms of both dead-weight tons and the commercial value of their fleets, were Greece, China, and Japan, accounting for around 40% of the world fleet’s tonnage and 30% of the value of the global fleet. In 2020, the greatest increases in shares of carrying capacity were in the United Arab Emirates (from 1.01 to 1.18%) and Vietnam (from 0.52 to 0.59%). In terms of value, the highest increases in shares of the world merchant fleet value were in Taiwan (from 1.49 to 1.86%), and the Republic of Korea (from 2.77 to 3.08%). In terms of ship registration, developing economies remain the main providers, which tend to offer attractive business incentives. Panama has the world’s largest ship’s registry, followed by the Marshall Islands and Liberia.<sup>5</sup> In 2020, the biggest increases in registration numbers were in Vietnam (12.1%) and the Russian Federation (10.4%) In terms of value, the greatest increase was in Nigeria whose share of the world merchant fleet value increased from 0.50 to a 0.78%.<sup>6</sup>

Developing countries, including Asia, account for around two-thirds of global trade, representing 60% of global goods loaded (exports) and 70% of goods discharged (imports).<sup>7</sup> Africa, however, accounts for just 2% of global trade, while only 17% of African exports are intra-continental, compared with 59% for Asia and 68% for Europe.<sup>8</sup> In terms of global maritime trade volumes, Asia retains the biggest share (41%), followed by the Americas (23%), Europe (15%), Oceania (14%), and Africa (7%). With nearly two-thirds of world container port throughput, Asia is also recognised as the global hub for container port traffic, followed by Europe (14%), North America (7.5%), Latin America and the Caribbean (7.2%), Africa (4%), and Oceania (1.6%).<sup>9</sup>

Pre-pandemic forecasts made by UNCTAD predicted an annual average growth rate of 3.5% for international seaborne trade between 2019 and 2024. UNCTAD’s latest report on international shipping, the Review of Maritime Transport 2021, shows that maritime trade volumes grew from 10.7 billion tons in 2017 to 11.1 billion tons in 2019, but then dropped by 422 million (or 3.8%) to 10.7 billion tons in 2020, undercutting manufacturing activity and consumption - with impacts on supply, demand and logistics.<sup>10</sup> Predictably, worldwide lockdowns, travel restrictions and production cuts impacted on global Gross Domestic Product (GDP), which fell by 3.5% in 2020. This compressed the demand for world merchandise trade, which also fell by 5.4%, and for oil - with shipments of crude oil, refined petroleum products and gas together dropping by 7.7%. However, there was less impact on total dry bulk trade (down by 1.5%), supported by strong demand from China for iron ore and grain.<sup>11</sup>

World container port traffic appears to have mostly resisted the pandemic, falling by only 1.2%, from 825 to 815 million TEUs. However, at the outbreak of COVID-19, port operations were severely disrupted by strict travel bans and lockdowns, with ports worldwide

2. Twenty-foot Equivalent Unit (TEU or teu) is the conventional measurement used in the maritime transport industry to determine cargo capacity for container ships and terminals, based on the length of a standard 6.1m intermodal container.  
3. UNCTAD, 2021. Review of Maritime Transport 2021, United Nations Conference on Trade and Development, United Nations Publications: New York.  
4. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.  
5. UNCTAD, 2021. Review of Maritime Transport 2021.  
6. UNCTAD, 2021. Review of Maritime Transport 2021, United Nations Conference on Trade and Development, United Nations Publications: New York.  
7. Caroline Kende-Robb, 2021. 6 reasons why Africa’s new free trade area is a global game changer, World Economic Forum (WEF), 9 February 2021.  
8. UNCTAD, 2021. Review of Maritime Transport 2021, United Nations Conference on Trade and Development, United Nations Publications: New York.  
9. UNCTAD, 2021. Advancing the Potential of Sustainable Ocean-Based Economies.  
10. UNCTAD, 2021. Review of Maritime Transport 2021.  
11. UNCTAD, 2021. Advancing the Potential of Sustainable Ocean-Based Economies.

operating well below their normal capacity and with fewer staff, as well as being hindered by supply-chain bottlenecks - including shortages in equipment and containers and longer delays and dwell times. The shortage of available containers, in turn, resulted in higher prices for container leasing, which, conversely, drove up freight rates, surcharges and fees, bolstering profitability for shipping by mid-2020.<sup>12</sup> Meanwhile, delivery of ships declined by 12% in 2020, partly due to lockdown-induced labour shortages that disrupted marine-industrial activity, while orders for new ships declined by 16%, continuing a downward trend observed by UNCTAD since 2011.<sup>13</sup> At the same time, the International Maritime Organization (IMO) explains that, by mid-2021, an estimated 250 000 seafarers were stranded on ships beyond the end of their original contracts and unable to be repatriated, due to COVID-related travel restrictions, while a similar number were stuck at home, unable to join ships and provide for their families.<sup>14</sup>

Although the pandemic fallout on maritime transport and trade was initially significant, with all economic indicators pointing downward, UNCTAD reports that the impact of COVID-19 has not been as dramatic as initially feared. Indeed, by the third quarter of half of 2021, trade volumes had recovered for both containerized trade and dry bulk commodities, with only tanker shipping experiencing less comparative growth. The rebound in trade flows was mainly the result of large stimulus packages (concentrated mainly in the United States (US), Europe and Japan), increased consumer spending on goods, with a growth in e-commerce (especially in the US), as well as global restocking and inventory-building. Furthermore, in the first months of 2021, merchandise exports increased by 14.3% and imports by 13.3% in the corresponding period in the previous year. Likewise, shipping orders surged with a raft of new orders, especially for container ships (for which orders were the highest for the last two decades) and LNG carriers.<sup>15</sup>

Against the backdrop of the global economic revival, UNCTAD expected world maritime trade to recover by 4.3% by the end of 2021, with growth projected to expand at an annual rate of 2.4% between 2022 and 2026. However, the longer-term prospects of the industry, according to UNCTAD, will hinge on "the path of the pandemic and the associated lockdowns and restriction [and] keeping trade flowing, by creating

supportive macroeconomic and fiscal conditions while minimizing trade protectionism".<sup>16</sup> The future of industry also faces uncertainty stemming from the ongoing trade war (and increasing military tensions) between the US and China, renewed tensions between Russia and Europe, policy uncertainty relating to BREXIT, and low oil and gas demand growth.<sup>17</sup> At the same time, UNCTAD notes that disruptions caused by the COVID-19 pandemic will have a lasting impact on global shipping and containerized trade, including:

- potential shifts in globalization patterns;
- supply-chain design;
- consumer spending habits;<sup>18</sup>
- digitalization and the growth of e-commerce; and
- the global energy transition and the imperative of environmental sustainability.<sup>19</sup>

Africa's response to rising global protectionism, where free trade and economic integration are increasingly questioned, has been to turn towards continental leadership and collective action in the form of the African Continental Free Trade Area (AfCFTA). The pact, launched in January 2021 and implemented in three phases,<sup>20</sup> will create the largest free trade area in the world (in terms of the number of countries participating), connecting over 1.3 billion people across 55 countries with a combined GDP valued at around ZAR51 trillion. Its primary purpose is cutting red tape, by eliminating 90% of tariffs, focusing on outstanding non-tariff barriers, and creating a single market with free movement of goods and services.<sup>21</sup> AfCFTA is poised to play a significant role for marine transport industries across the Continent, given that Africa relies heavily on ships and ports to service its inter-continental trade.

With regards to the multilateral instruments that govern the global marine transport space, some of the key international regimes include the: United Nations Convention on the Law of the Sea (UNCLOS); the International Convention for the Safety of Life at Sea (SOLAS); the Marine Environment Protection Convention (MARPOL); and several regulatory legal instruments of the International Maritime Organisation (IMO). Between these and other institutions, there have emerged a number of conventions and protocols dealing with compliance to measures introduced to deal with, amongst other things, pollution prevention, security, and safety of navigation, and surveillance.<sup>22</sup>

## 6.2 SOUTH AFRICAN SUB-SECTOR REVIEW

South Africa's marine transport industry includes freight and cargo handling across the value chain, including in South African ports (dealt with elsewhere), and ocean transportation (the movement of goods by ships, particularly where this is conducted on ships that are registered in South Africa, that operate in South African waters and/or are owned or operated by South Africans).

Over the years, South Africa has generated an average of just below 300 million tons of global seaborne trade activity. This constitutes just over 1% of the total global seaborne trade.<sup>23</sup> In 2020, South African commercial ports recorded 9 012 vessel arrivals (compared to 9 882 in 2019). Oceangoing ships accounted for 7 654 of port calls with the balance comprising coastwise vessels (138), foreign fishing vessels (297), South African fishing trawlers (385), and miscellaneous vessels, such as tugs, search and rescue boats, naval vessels, barges and yachts (538). In the same year, the South African port system handled over 222 million tons of dry bulk, liquid bulk and breakbulk cargo (down from 232 million tons in 2019) and 496 768 vehicles (down from 774 028 in 2019).

The 1996 Maritime Transport Policy proposed the implementation of a globally competitive tonnage tax regime in order to attract ships onto the national register, and the 2003 Maritime BEE charter contemplated a thriving international shipping industry, anchored on the movement of South African freight on locally-registered ships, operated largely by South African seafarers. The 2014 Operation Phakisa-Oceans Economy initiative, and the 2017 Comprehensive Maritime Transport Policy (CMTP17) then sought to reverse the decline in South African ship operations and proposed a tax regime that was globally competitive and consistent with international practice,<sup>24</sup> with the competitive tonnage tax regime implemented from 2014. The SAMSA Strategic Plan 2020-2025 further articulates the need to develop the national ship register and to ensure that South African seafarers are competitive, promote maritime safety, and mitigate marine pollution.

For most South African maritime trade, the choice of carrier lies with the foreign counterpart. Most bulk

commodity exports are shipped free on board (FOB) while imports are exclusively cost, insurance and freight (CIF) or similar terms.<sup>25</sup> The bulk of exports - around 95% - are in fact outsourced to foreign-flagged merchant ships and the estimate cost to the country is believed to be in excess of ZAR45 billion per year.<sup>26</sup> Even coastal trade is moved on foreign vessels. This limits South African influence in the international trade value chains. Where the choice of carrier resides onshore, for various reasons (principally related to competitiveness and fleet availability). South African exporters and importers, as well as those involved in coastal shipping, have effectively insourced the services of foreign owners operating foreign-registered ships, which are crewed by foreign seafarers. In short, the small size of its cargo-carrying vessels means that South Africa does not have adequate capacity to carry its own trade to market, move its own trade around the coast, or support its own offshore strategic energy production installations.<sup>27</sup> This creates an economic imbalance, which if not addressed, will continue to facilitate the loss of much needed revenue, economic opportunities and related jobs for the South African marine transport industry and beyond.<sup>28</sup>

Even shipping companies with roots in South Africa, including Safmarine and Grindrod Shipping, have preferred foreign registers and have externalised their shipping operations - and have since 2003 become largely or wholly foreign owned. Prior to the registration of the Cape Orchid bulk carrier in 2015, South Africa's previous merchant vessel registration was in 1989, and the last locally flagged merchant vessel was deregistered in 2009. South Africa has since 2015 attracted six (6) merchant vessels to the register<sup>29</sup> - four of which are internationally trading bulk carriers and the others operating in and around the ports. This somewhat insignificant tonnage on the national ship registry limits seafarer job creation and training prospects and also undermines South Africa's global maritime influence<sup>30</sup> and its aspirations to be a ship owning and ship operating nation. This runs contrary to Government's stated objective of South Africa being a major maritime centre by 2030.<sup>31</sup>

With regards to port operations, international trade is one of the vital facets of the South African economy, with exports contributing approximately 30% to GDP in 2020.<sup>32</sup> Ports play a crucial role in South Africa's transport system and its economic development,

12. UNCTAD, 2021. Review of Maritime Transport 2021.

13. IMO, 2021 Supporting seafarers on the frontline of COVID-19, International Maritime Organization (IMO), accessed at: <<https://www.imo.org/en/MediaCentre/HotTopics/Pages/Support-for-seafarers-during-COVID-19.aspx>>

14. UNCTAD, 2021. Review of Maritime Transport 2021.

15. UNCTAD, 2021. Review of Maritime Transport 2021.

16. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.

17. UNCTAD, 2021. Advancing the Potential of Sustainable Ocean-Based Economies. UNCTAD, 2021. Review of Maritime Transport 2021

18. With recent geo-political tensions between Russia and Ukraine, major economies in the EU are reconsidering their energy dependence on Russia and energy power mix, due to gas supply constraints. Potential sanctions against Russia are likely to negatively impact on commodity value chains and prices

19. The AfCFTA will be implemented in three phases: Phase 1 covers the trading of goods and services; Phase 2 addresses investment, competition policy, and intellectual property rights; and Phase 3 negotiations will focus on e-commerce after a year of capacity-building.

20. Caroline Kende-Robb, 2021. 6 reasons why Africa's new free trade area is a global game changer.

21. DoT, 2017. Comprehensive Maritime Transport Policy (CMTP) for South Africa, Department of Transport.

22. DoT, 2017. Comprehensive Maritime Transport Policy (CMTP) for South Africa.

23. Operation Phakisa documents, explanatory memorandum for the amendments to the Income Tax Act preceding the introduction of section 12Q.

24. FOB is where a foreign buyer selects the carrier, while CIF is where a foreign seller selects the carrier.

25. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.

26. DFFE, 2020. Towards a South African Oceans Economy Master Plan.

27. DoT, 2017. Comprehensive Maritime Transport Policy (CMTP) for South Africa, Department of Transport, Pretoria.

28. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.

29. IMO influence is largely a factor of tonnage on the register and active seafarer base

30. At present, the majority of South African-flagged vessels are fishing vessels, followed by yachts under 100 gross tons used for sport and recreation.

31. Of the nine ports managed by the National Ports Authority, eight are considered commercial ports. Port Nolloth is the ninth port and is not part of the commercial ports system. See: NPA, 2021. Ports Sector Review: A five-year regulatory review of the South African port system developed by the Ports Regulator of South Africa 2020/21, National Ports Regulator.

32. DoT, 2011. National Transport Master Plan (NATNAP) 2050, the Department of Transport, Pretoria.



given that the bulk of trade is seaborne, which moves through a system of nine (9) commercial ports spread along the country’s coastline. Each port has a natural hinterland with a defined market that partly drives the nature of services, facilities, types of cargo handled at each port, including complementarity with inland ports, such as City Deep in Gauteng.

The relative geographic locations, capacities, and specialisations of the ports are zoned into the following three regions:

- Western region: Port Nolloth, Saldanha, Cape Town and Mossel Bay;
- Central region: Port Elizabeth, Ngqura (Coega), and East London; and
- Eastern region: Durban and Richards Bay.<sup>33</sup>

These commercial ports are operated on a system-wide basis and are not inter-competitive. Rather, they are complementary in nature with each port serving a different purpose to both the immediate hinterland, as well as the economy as a whole.<sup>34</sup> Together, they handle around 190 million tons of dry bulk cargo, 55 billion litres of liquid bulk, and over a million cars every year.<sup>35</sup> They also make up around 76% of all containerised traffic in southern Africa.<sup>36</sup> Durban is Africa’s busiest port, handling over 87 million tons of cargo per year.<sup>37</sup>

The Port of Ngqura, located near Gqeberha, is South Africa’s newest deepwater container port (commencing operations in 2009) and has been earmarked as a future trans-shipment hub, due to its strategic location and depth of its container port, which is the deepest in the country. Boegoebaai, near the Northern Cape town of Alexander Bay, has also been identified as a potential site for the development of a new commercial port.

In addition to South Africa’s commercial ports, there are also a number of small harbours dispersed along the coast, the majority of which serve as proclaimed small fishing harbours. In terms of the value chain, port operations support economic activity in almost all sectors of the industry.

- Players in the international shipping value chain, over and above those that operate as part of the ports value chain, include:
- Exporters and importers;
  - Bunkering services (shore-to-ship and ship-to ship);
  - Shipping lines/carriers;

- Outside port limits (OPL) services;
- Shipping charterers and agents;
- Crewing agents; and
- Port terminal operators.<sup>38</sup>

Bunkering services bring about much needed ship transport business to South Africa, with a total of five (5) bunker operators in the country, mainly concentrated on the coastline around Algoa Bay nearby the ports of Port Elizabeth and Ngqura.<sup>39</sup> Bunkering operations in the Eastern Cape have recorded significant growth and value add to the industry, with around a hundred ships being serviced a month since 2017.<sup>40</sup> However, there is a general lack of adequate infrastructure and services to capitalise on the potential for growth in this segment, which is often constrained by irregular and unreliable refinery supply. This means that much of the country’s bunker products are imported.<sup>41</sup> Bunkering in South Africa has also been the subject of much environmental resistance, due to the real risk of oil spillage and potential to inflict serious damage to marine ecosystems. To mitigate these risks, as well as to promote the employment of South African seafarers and developing the South African ship register, the South African Maritime Safety Authority (SAMSA) published new bunkering and ship-to-ship transfer codes of practice in October 2021, which is currently open for public comments.

South Africa’s commercial seaports are managed and controlled by the Transnet National Ports Authority (TNPA). Terminal operators and other maritime players are excluded from this mandate. The majority of terminals are instead operated on a common user basis by Transnet Port Terminals (TPT), a business division of Transnet, which is the main terminal operator within the ports sector.<sup>42</sup> The TNPA provides a variety of maritime services, including the implementation of safety and security measures, dredging, aids to navigation, vessel traffic services and the provision of tugs, pilot boats, helicopters and other services and facilities for the navigation and berthing of vessels in South African ports.

Because most of South African exports are transported by foreign-flagged vessels, it is difficult to measure the exact contribution of seaborne transport to the economy in value terms. At the same time, there is a lack of accurate statistics to measure the economic contribution of cargo and maritime-related services, due to the lack of maritime culture in both business and government.<sup>43</sup> Nevertheless, recent figures from the Port Regulator

indicate that South Africa’s commercial ports generated a total of ZAR11.9 billion in revenue in 2020, up from ZAR8.6 billion in 2011. In this period, the TNPA generated around 52% of its revenue from the Port of Durban, followed by Cape Town (14%), Richards Bay (13%), Saldanha (8%), Port of Port Elizabeth and Ngqura (5% each), East London (2%) and Mossel Bay (1%). Cargo dues accounted for approximately 60% of all revenue. The port of Durban received 39% of vessel arrivals and its container terminal handled around 40% of all container calls. Over the same review period, capital expenditure (CAPEX) steadily declined, peaking between 2014 and 2016, while operational expenditure (OPEX) remained stable, with 39% of all OPEX being incurred at the Port of Durban. Depreciation, amortization and personnel costs accounted for the majority of all OPEX within the system, whilst electricity expenditure increased significantly over the 10-year period.<sup>44</sup>

Whilst South African commercial ports generally outperform against ports in emerging markets in Africa and elsewhere, their performance ranks far below the main ports in the world. For example, the World Bank’s inaugural edition of the Container Port Performance Index 2020 ranks all of the country’s main ports at the lower end of the index, including Cape Town at a position of 347 out of 351.<sup>45</sup> Reasons for port inefficiencies in South African ports and their lack of competitiveness include:

- minimal use of rail infrastructure;
- bottlenecks in the road and rail interface;
- constraints on land for container stacking,
- above average anchoring times for containers;
- congestions at port entrances and terminals; and
- inefficiencies which increase waiting time.<sup>46</sup>

The latest available data from the TNPA confirms that port traffic has decreased in the last five-years, with container cargo volumes dropping from 290 million tons in 2017 to 278 million tons in 2021 (see Table 8 below).

*Cargo handled by (million) tons* TABLE 8

Source: TNPA, 2021

PORT	2017 (mt)	2018 (mt)	2019 (mt)	2020 (mt)	2021 (mt)
Richards Bay	99	103	98	95	84
Durban	78	83	81	73	79
Saldanha Bay	69	63	71	67	66
Cape Town	15	15	15	15	17
Port Elizabeth	11	13	13	11	12
Ngqura	11	11	12	11	15
Mossel Bay	1.8	1.7	1.5	1	0.9
East London	2	2	1.9	1.4	1.6
Total all ports	290	294	296	277	278

At first glance, the COVID-19 pandemic appears to have played some role in disrupting South Africa’s cargo and passenger segments, with the number of arrivals declining in 2020 from 9 012 to 9 882 in 2019. Although cargo volumes appear to have strengthened since the initial months of lockdown, a similar decline in port calls was recorded between 2017 and 2018 (from 9 821 to 9 202 respectively),<sup>47</sup> calling into question the actual impact of the pandemic on the industry.

33. National Ports Regulator, 2021. Ports Sector Review.  
34. Invest SA, 2016. South Africa’s Oceans Economy.  
35. Francois Botes, 2018. Strengthening Africa’s gateways to trade: An analysis of port development in sub-Saharan Africa, Price Waterhouse Coopers (PwC), April 2018.  
36. Walker, 2018. ‘Securing a sustainable oceans economy South Africa’s approach’.  
37. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.  
38. SAMSA, 2021. South Africa’s new bunkering and ship-to-ship transfer codes of practice out for public comment, South African Maritime Safety Authority (SAMSA), 8 November 2021.  
39. Mia Breytenbach, 2017. ‘Eastern Cape sets sights on becoming Africa’s leading fuel bunkering centre’, Engineering News, 12 May 2017.  
40. George Collard, 2021. ‘South Africa disorder to shift bunker demand’, The Argus, 14 July 2021.  
41. National Ports Regulator, 2021. Ports Sector Review.  
42. PMG, 2020. SAMSA on Maritime Sector Transformation, presentation to Select Committee on Transport, Public Service and Administration, Public Works and Infrastructure, Parliamentary Monitoring Group (PMG), 14 October 2020.  
43. National Ports Regulator, 2021. Ports Sector Review.

44. World Bank and IHS Market, 2021. Container Port Performance Index 2020: A comparable assessment of container port performance.  
45. National Ports Regulator, 2021. Ports Sector Review.  
46. TNPA, 2021. Ports Statistics, Transnet National Ports Authority (TNPA).  
47. Francois Botes, 2018. Strengthening Africa’s gateways to trade: An analysis of port development in sub-Saharan Africa, Price Waterhouse Coopers (PwC), April 2018.

### 6.3 CURRENT INTERVENTIONS

The Operation Phakisa-Oceans Economy programme is currently the most active intervention in the industry, with key interventions including increasing and promoting the use of South African-flagged ships for the export of commodities. Other high-level infrastructure projects through Phakisa have also been identified to improve passenger and cargo handling capacity in South Africa. This includes Transnet's almost ZAR1 billion investment in the maintenance and acquisition of cranes, tippers and dredgers in South African ports in 2017, as well as optimisation of latent capacity for container handling and enhancements to the tank farm terminal at the Port of Durban, which handles petroleum and diesel products for transportation through the new multi-product pipeline to Gauteng. Additional planned investments as part of Transnet's strategy to accommodate larger vessel sizes, include:

- wall strengthening and container terminal berth deepening at Durban's Maydon Wharf precinct;<sup>48</sup>
- the deepening of three berths at the Durban Container Terminal;<sup>49</sup>
- the deepening and lengthening of the north quay at Durban, which is set to boost the port's annual container handling capacity;
- the construction of a floating dock and two new break bulk berths at Richards Bay by 2032;
- Deepening and widening of Port of East London to accommodate larger vessels;
- construction of manganese terminals at Ngqura and Saldanha Bay; and
- construction of a tank farm berth at Ngqura.<sup>50</sup>

Similar to the experience of the ship building and repair industry, many of the laid down objectives of Operation Phakisa-Oceans Economy for marine transport have been delayed and not always materialised, in part due to bureaucratic red tape and procurement bottlenecks, as well as a less than anticipated uptake by private investors. The latter is by no means a reflection of the private sector's unwillingness to invest in public facilities, but rather due to subdued demand from the global economic downturn in the last decade and a lack of a proper Private Sector Participation (PSP)

framework capable of merging private investments into state developed infrastructure programmes, including those meant for the country's container ports, as highlighted in a recent report by SA-TIED. In sum, the lack of an appropriate institutional model to attract and retain private sector investment in the industry has consequently delayed the take-off of some Phakisa projects, resulting in projects being delayed or re-advertised.<sup>51</sup>

### 6.4 CHALLENGES

The marine transport industry faces a number of national and global challenges impacting performance and growth across the value chain. With regards to port operations, several reports and studies, such as the National Transport Master Plan (NATMAP) 2050, have concluded similarly that a key challenge constraining the growth of the industry is the inefficiency of South Africa's commercial port system.<sup>52</sup> According to a 2018 study by Price Waterhouse Coopers (PwC) on African port operations, South African ports' installed capacity is typically 60% of their design capacity, owing principally to regular cargo-handling delays, supply chain disruptions, and staff shortages.<sup>53</sup> Other identified challenges include:

- Port costs and hinterland transport costs that hinder the operating of emerging manufacturers and other companies in the country;
- Capacity constraints and port congestion at various port terminals;
- The impact of port freight handling and storage on the congestion and expansion of city centres;
- Under-investment in port infrastructure;
- Bunker supply impacted by limited port operations, constrained strategic fuel supply and refinery closures;
- A lack of equipment and skills;
- High berth occupancy rates;
- Limited land areas especially for container facilities;
- The need for the TNPA and TPT to operate in a competitive environment to increase the utilisation of available capacity, improve efficiencies and ensure greater accountability.

Port operations are also impacted by the local influence of foreign carriers on container trade. That is, South Africa relies on its access to the global intermodal networks and availability of large, foreign-owned liner vessels that call at South African ports as part of the larger east-west trade routes. Similarly, for vehicle transport, South Africa plugs into the shipping networks that support a global supply chain. For the container trade and fruit exports trade, South Africa's participation ceased when Safmarine was sold to a major European carrier in 1999. This raises the need to increase the level of South African involvement in these liner trades and maintain close scrutiny of operating practices, to increase the competitiveness of the sector and its contribution to the broader South African economy.

Although South Africa intends to acquire more vessels, there are challenges, firstly, around tax uncertainty for international shipping, which are largely interpretative and reach to the heart of the national registry's competitiveness. These relate to:

- The circumstances where tax exemptions provided for in the Income Tax Act for international shipping may apply to revenues that are earned from vessels that are not flagged in South Africa;
- interpretations around the import status of a ship involved in international shipping that is brought onto the national register; and
- avoidance of a situation where local tax interpretations or enforcement practices favour foreign ships above those that are registered in South Africa and/or local carriers.

While the legal position of these issues may be relatively straight forward for international shipping, local and coastal operators have suggested that legislation should be amended so that they can also benefit from these dispensations, and their seafarers should be exempt from Pay-As-You-Earn (PAYE) in the same way as seafarers on international ships.

Secondly, as with many developing economies that lack scale in their trade flows and/or a national merchant fleet, for the majority of South Africa's maritime trade, the selection of carrier lies with the foreign counterparty. This arrangement limits

the country's ability to influence the cost, reliability or quality of its value chain. Similarly, the ability of the country to use those trade flows to facilitate local industry development or societal impact (e.g. transformation) is negligible. Thirdly, there also challenges around funding. South African funds are often not competitive when financing ship acquisition and ship building programmes. Funders typically expect long term contracts to underpin the debt service cash flows. However, freight owners may only offer shorter term contracts. Fourthly, delays in the operationalisation of the New Customs Act currently creates legislative uncertainty and the finalisation thereof requires priority attention. Furthermore, the recent enactment of the Border Management Authority Act negatively impacts on trade facilitation. A final challenge concerning shipping relates to the poor state of communication between the international shipping industry and Government - and within Government itself - regarding maritime policy, interventions and related legislation. This has manifested itself in inter alia inconsistencies in policy interpretations and in non-aligned prioritisation of policy objectives

South Africa's global maritime influence, which is currently diminished, is another significant challenge for the whole industry. The country does not rank amongst the major maritime nations in terms of maritime economy, vessel ownership, or vessel registration.<sup>54</sup> It also has limited scope to subsidise its flag other than operational conveniences in local ports and port cost discounts. A central feature of a flag's attractiveness is its ability to defend and advance the country's national interests, and those of members of its international trade value chain, in international maritime decision-making forums. This is particularly relevant at the current time as decisions are made about, for instance, on decarbonisation (alternative fuels, carbon taxes and related matters). The two major international bodies involved in international shipping are the International Maritime Organisation (IMO) and the International Chamber of Shipping (ICS). South Africa is currently represented at neither - the country was recently voted off the IMO's Council and its ICS representation dissolved in the wake of Safmarine and Grindrod Shipping winding down their local interests.<sup>55</sup>

48. This project was not originally part of the projects identified under Phakisa but was subsequently added after 2014.

49. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.

50. Khalid Bichou, 2021. Development of a strategic plan for port performance improvement in South African container terminals, SA-TIED, October 2021.

51. See, for example: DoT, 2011. NATMAP 2050; Francois Botes, 2018. Strengthening Africa's gateways to trade; Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa

52. Francois Botes, 2018. Strengthening Africa's gateways to trade.

53. UNCTAD, 2021. Review of Maritime Transport 2021.

54. It is important to note that representation in these bodies tends to work on a rotational basis. These positions are therefore not permanent and countries are not necessarily removed from them but rather based on candidatures. For the most part, countries choose to serve on those bodies informed by their own national interests.

55. DoT, 2017. Comprehensive Maritime Transport Policy (CMTP) for South Africa.



Apart from the abovementioned domestic challenges, South Africa's marine transport industry faces several global challenges which are affecting all areas of the value chain. Key among these include:

- the cost of ocean transport, given that developing countries typically pay 40-70% more for ocean transport than developed countries;
- insufficient competition, particularly in liner shipping, giving rise to unnecessary costs and levies (e.g. piracy levy, COVID-19 levy on containers);
- port delays and demurrage;
- changes in global trade patterns that may reduce maritime traffic around the Cape (caused by, for example, the widening of the Suez Canal and growth of e-commerce);
- limited control of channels to employment by nationally-aligned international crewing agencies; and
- net-negative carbon taxes and levies (South-to-North transfers, without credit for decarbonisation projects in the local value chain).

## 6.5 OPPORTUNITIES

The following opportunities have been identified by Government to promote the growth of the marine transport industry:

- South Africa's geographic position straddling a strategic sea route should seek to grow its ability to handle larger trade volumes and tonnage;
- Potential for transformation of intra-continental trade across Africa following the launch of the African Continental Free Trade Area (AfCFTA) in 2020;
- Declining commercial case for flags of convenience and rise of national flags;
- Attractiveness of a registry espousing ethical maritime values, particularly for carriers and value chain participants that share these values and/or subscribe to environmental company reporting;
- Growing shortage of suitable seafarers for international shipping, creating an opportunity for South African seafarers;
- Global re-fleeting to satisfy decarbonisation targets, requiring shipping companies to have a competitive registry and that support decarbonisation programmes;
- Import substitution, including scope for local manufactures of pollution-compliant marine fuels (LNG, ammonia, hydrogen) for local demand and passing traffic;

- Industry to look for ways from the country to benefit from the opportunities in the global sector;
- Encourage partnership between foreign shipping companies and local companies in order to increase meaningful participation of local companies throughout the value chain of the marine transport sub-sector;
- Address misalignment in policy interventions and legislation through regular round table discussions between Government and industry, establishing an inter-departmental maritime industry development forum within Government as anticipated in the CMTP17, as well as secure agreement between Government and industry on common targets in terms of ship registration and seafarer employment creation; and
- Carefully consider the impact of trade facilitation in the recently enacted Border Management Authority Act.

## 6.6 SKILLS AND TRANSFORMATION

As outlined in recent policy documents, South Africa's marine transport sector has the potential to become a major industry that can contribute towards job creation and increased trade. Both these goals will require competent people both in shipping at sea and in the associated enterprises and industries<sup>56</sup> ashore. To date, there has been insufficient exploration and innovation in developing and implementing strategies to meet the needs of local enterprises linked to shipping. This sentiment was previously expressed in the DoT's Maritime Transport and Services Sub-Sector Broad-Based Black Economic Empowerment Charter, published in 2009, which noted the concerns of local maritime institutions "with marine and maritime education, training and resources".<sup>57</sup> This means that Government and industry need to urgently embark on a programme of technical, specialised, business and entrepreneurial skills development to accelerate meaningful transformation.

With regards to individual skills development, the demand and supply of skills in the marine transport sector is broadly considered in terms of three occupational categories, namely:

- Seafarers, technically skilled occupations (artisans, engineers and technicians);
- Management and technical professionals; and
- Occupations within the operational support services (including stevedoring, forwarding and clearing, port operations, ship brokerage and chartering, and ship chandelling).

In line with the CMTP17, which calls for industry to prioritise investing in strategic skills, as well as the findings of a 2018 study by the South African International Maritime Institute (SAIMI), the supply of skills may be adequate in numbers, but there is an apparent disconnect between the type of skills being produced and those required by the oceans economy sector. Critical skills that were identified as constraining marine transportation include: vessel traffic managers, oceanographers, navigation officers, hydrographers, Geographic Information System (GIS) specialists, as well as sea watch and rescue operators.<sup>58</sup>

Clearly, the shortage of critical skills and experience deficit is a hindrance to effective education and employability in the industry, particularly amongst young South Africans. In this regard, the 2018 SAIMI report is intended to dovetail into a national maritime skills development strategy and implementation plan, as tasked by the Department of Higher Education and Training (DHET),<sup>59</sup> and in cooperation with the DFFE Oceans Economy Working Groups.

Skills development within the broader maritime sector is coordinated by SAIMI with the South African Maritime Safety Authority (SAMSA) playing a key role in the certification and accreditation of seafarers. The sector is spread across 14 different Sector Education and Training Authorities (SETAs), with the Transport Education and Training Authority (TETA) being the central SETA through providing support for a large part of the maritime sub-sectors.

SAMSA is also involved in providing training for prospective mariners and other related occupations of marine transport. Other specialised training and education is also supplied through various universities and academic institutions, technical vocational education and training (TVET) colleges, and private providers spread across the country.

One important challenge involving these different training providers is that they offer different learning approaches for developing South African seafarers. As such, there is a potential gap between training outcomes, on one hand, and the standards and criteria prescribed by the international shipping market, on the other. This gap needs to be closed if South Africa is serious about improving the employability of seafarers, domestically and abroad.

There is a general lack of data on transformation in the marine transport industry and Government has expressed its frustration over the slow pace of

transformation in the oceans economy sector as a whole.<sup>60</sup> According to one study, the industry remains male-dominated and women (especially black women) continue to be underrepresented, despite recent regulatory initiatives.<sup>61</sup> This includes TNPA's mandate to submit broad-based black economic empowerment (B-BBEE) reports to the regulator annually and ensuring all new projects, contracts and leases are subject to strict transformation criteria. Industry has indicated that strong growth is possible in maritime job creation, the development of new (black-owned) Small Medium and Micro Enterprises (SMMEs), as well as the size of the locally registered merchant fleet.<sup>62</sup> This is consistent with the transformation objectives of the CMTP17.

## 6.7 RESEARCH, DEVELOPMENT AND TECHNOLOGY

In 2020, the Council for Scientific and Industrial Research (CSIR) was commissioned by the departments of Higher Education and Training (DHET) and Science and Innovation (DSI), as well as the South African International Maritime Institute (SAIMI) and the South African Maritime Safety Authority (SAMSA) to develop the Research, Innovation and Knowledge Management Road Map for the South African Maritime Sector, formulated as a roadmap for research, innovation and technology development to support the Operation Phakisa-Oceans Economy programme and the broader oceans economy. SAIMI has also conducted various research and skills audits and facilitated the establishment of a community of practice (COP) on Oil and Gas in collaboration with the National Research Foundation (NRF). More recently, it has further collaborated with the Nelson Mandela University (NMU), University of Cape Town (UCT) and Cape Peninsular University of Technology (CPUT) to establish the Maritime Robotics Centre at NMU to provide new knowledge, expertise and support in the areas of robotics, artificial intelligence, modelling, and underwater systems and oceanography. Additional research studies conducted by these academic institutions include those on long wave and wind studies to find more effective ways to predict storm surges (as well as improve the stability of vessels during storm surges), container design and the development of green energy technologies.<sup>63</sup> The latter research is viewed as particularly important, as marine transport is facing growing pressure to cut its carbon and environmental footprint by, for instance, using alternative fuels and adopting new technology and ship designs - including testing automated crewless vessels with environmentally sustainable designs.<sup>64</sup>

56. DoT, 2009. Integrated and Sub-Sector B-BBEE Charters of Transport, Department of Transport (DoT), Pretoria, 25 August 2009.

57. SAIMI, 2018. Oceans Economy Skills Development Assessment, South African International Maritime Institute (SAIMI).

58. SAIMI, 2019. Strategic Plan 2019 - 2023, The South African International Marine Institute (SAIMI).

59. SA News, 2017. Minister calls for speedy transformation of maritime sector, 6 October 2017.

60. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.

61. PMG, 2020. SAMSA on Maritime Sector Transformation, virtual presentation made to the NCOP Transport, Public Service and Administration, Public Works and Infrastructure on 14 October 2020, Parliamentary Monitoring Group (PMG).

62. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.

63. UNCTAD, 2021. Review of Maritime Transport 2021.

64. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.



In terms of international law, South Africa is required to monitor ships passing within 1 000 nautical miles of its coastline. The current e-navigation system - which digitally integrates the presentation exchange and analysis of maritime information on board ships and ashore - provides an effective way for South African ports to track and monitor vessels at sea. The e-navigation will eventually evolve into the National Oceans and Coastal Information Management System (OCIMS) for South Africa, a satellite-based, global vessel traffic management and monitoring system, initiated originally under Operation Phakisa-Oceans Economy, which is now the norm in the global shipping industry. Although not yet fully operational, OCIMS has already contributed positively to, amongst others, compliance and enforcement interventions. A key milestone of the project was reached in January 2022, when three (3) nano-satellites made by CPUT, collectively known as MDASat-1, were launched into space to facilitate South Africa in monitoring its EEZ using automatic identification system (AIS) data, thereby achieving greater ocean sovereignty - a central focus of Phakisa since 2014. Until now, South Africa has depended on third-party foreign AIS data providers.

With regards to port operations, the TNPA has replaced manual port processes with an integrated, web-based port management system benchmarked against Malaysian and Singaporean ports, which are among the world's most efficient. This includes mobile X-ray customs cargo inspection scanners, which can differentiate between 40 types of materials. The Port of Ngqura in particular has been refitted with advanced systems that are able to accommodate the latest generation of container ships, including an automated gate system with pre-booking or pre-advice functionality, as well as a port planning centre with a three-dimensional view of the terminal for real-time performance monitoring and security surveillance.<sup>65</sup>

## 6.8 ENVIRONMENTAL SUSTAINABILITY

Ships are responsible for an estimated 2.7% of total man-made emissions and pollution from oil spills, offshore refuelling (bunkering) and the disposal of waste and effluent at sea. There are several international treaties covering the prevention of pollution by vessels, key among these the International Convention for the Prevention of Pollution from Ships (MARPOL). Recent amendments to MARPOL have made energy efficiency standards mandatory, making it the first international climate change treaty to be formally adopted since the Kyoto Protocol in 1997,

and the first globally-binding instrument introducing energy efficiency regulations for any international industry sector.<sup>66</sup>

Despite South Africa's recent commitment to reach net zero emissions by 2050 and decarbonising its transport sector (both on land and sea),<sup>67</sup> vessels carrying heavy fuels with a sulphur content exceeding the current international limit of 0.5% are permitted to enter South African waters - provided they are installed with exhaust gas cleaning systems (EGSCs), commonly referred to as 'scrubbers'. This limit was made compulsory in January 2020 following an amendment to MARPOL Annex VI, which specifically deals with sulphur content of marine fuels. Although scrubbers have been regarded as an appropriate means to meet the cap on emissions of sulphur oxides, care needs to be taken that South African national interests and environmental priorities are observed in terms of discharges from vessels operating in South African waters and ports. As a party to the IMO, South Africa needs to abide by its regulations, and therefore cannot avoid the increasing international demand for zero carbon shipping fuels to meet decarbonisation targets. For a start, this would require amending existing or creating new legislation. However, at present there is a backlog relating to domestication of MARPOL Annex VI to enable the country to enforce the new regulation.<sup>68</sup>

Recognising the dangers caused by pollution in their facilities, a common African Green Ports Initiative was launched in December 2020 by several African countries, spearheaded by the Port Management Association of Eastern and Southern Africa (PMAESA), which comprises 20 ports on the continent. To achieve 'green port' status, ports must invest in their marine environment in cooperation with surrounding communities. Currently, the TNPA port of Ngqura in Gqeberha is the only port with green status in South Africa and maintains this status through a number of measures that its promote sustainable development, including biodiversity conservation programmes.<sup>69</sup> According to TNPA researchers, environmentally sustainable port development has the potential to enhance South Africa's global competitiveness and facilitate growth in the economy. As such, it strongly advocates that environmental considerations are included early on during port planning and throughout the port development cycle.<sup>70</sup> This line of thinking is further supported by a CSIR study, which suggests that environmental considerations should be considered an essential underpinning of port construction and development

65. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.

66. See, for example: Department of Transport, 2018. Green Transport Strategy for South Africa: (2018-2050).

67. SAMSA, 2019. South African national workshop on implementation of MARPOL Annex VI on 0.50% sulphur limit regulation, report by the South African Maritime Safety Authority (SAMSA).

68. Marleny Arnoldi, 2019. 'Port of Ngqura maintains only "green port" status in South Africa', Engineering News, 26 March 2019.

69. Kana Mutombo, 2019. Could a deep Offshore port be a plausible futuristic green development solution for South Africa?, presentation made at 'African Ports and Rail Evolution 2019', Durban ICC, 15-16 October 2019.

70. Funke et al, 2014. Reflections on the State of Research and Technology in South Africa's Marine and Maritime Sector.



in South Africa’s maritime industry, in part because costs are typically higher when changes are made to existing infrastructure to counteract climate change variables (such as sea level, the water table, temperature, rainfall/runoff, waves, wind, salinity and humidity) compared to adaptation strategies done before or during port construction.<sup>71</sup>

South African waters, along with its ports and harbours, are highly exposed to oil spills and bunkering pollution from offshore refuelling. In 2018, the DoT established the Interim Incident Management Organisation (IMOrg) to formulate a standardised national approach to managing oil spills in South African waters. This enables South Africa to maintain a national system for preparedness and response to major marine pollution incidents and allows stakeholders to assess the country’s level of preparedness and response. The organisation comprises representatives from the South African Maritime Safety Authority (SAMSA), the National Disaster Management Centre, Provincial Disaster Management Agencies and Departments, Petroleum South Africa (PetroSA), the Petroleum Agency of South Africa (PASA), the departments of Forestry, Fisheries and the Environment (DFFE) and Mineral Resources and Energy (DMRE), Southern African Foundation for the Conservation of Coastal Birds (SANCCOB), and other industries in the oil response supply value chain. Furthermore, as mentioned earlier, SAMSA has released new bunkering and ship-to-ship transfer codes of practice for public comment in order to augment the IMOrg’s ability to prevent and mitigate the environmental risks associated with shore-to-ship and ship-to-ship bunkering in South African waters.

6.9 POLICY CONSIDERATIONS

The White Paper on National Transport Policy of 1996 laid the foundation for an integrated and systematic way of developing all modes of transport, including marine transport in South Africa. It also paved the way for the adoption by Government of several significant pieces of policies and legislation in marine transport, namely the South African Maritime Safety Authority Act 5 of 1998, the National Commercial Ports Policy of 2002 and the National Ports Act 12 of 2005. These pieces of legislation formed the foundational basis for establishing the South African Maritime Safety Authority (SAMSA) in 1998, which is the custodian

and steward of all maritime policy in South Africa, and the Ports Regulator in 2005.

As discussed above, South Africa’s potential to become a major regional maritime nation is limited by the size of its merchant fleet. Enabling legislation therefore came into effect in 2014 in the form of the Taxation Laws Amendment Act 31 of 2013, and thereafter the introduction of section 12Q of the Income Tax (as subsequently amended), which introduced a package of tax incentives designed to attract vessels to the South African ship’s register. Although tax reforms and tariff incentives have been widely welcomed by industry stakeholders, additional incentives are required to accelerate the growth of the domestic ship ownership market.<sup>72</sup>

In order to increase the significance of South Africa’s trade performance and global competitiveness, coupled with the advent of the National Development Plan (NDP) in 2011, which identified transport as a critical driver of socio-economic growth and job creation, the Department of Transport (DoT) approved the aforementioned CMTP17 in 2017. The development of the CMTP17 is in part an elaboration of the 1996 White Paper on National Transport Policy, by a myriad of supportive programmes, policies and regulations governing marine transport practices and activities in South Africa, and also by Revised African Maritime Transport Charter of the African Union (AU), adopted by Government in October 2009.<sup>73</sup>

Broadly speaking, the CMTP17 is all-inclusive policy which aims to guide the governance, regulation, international competitiveness, and development of South Africa’s ocean economy, and in particular marine transportation. In this regard, the CMTP17 seeks to create an enabling policy environment that unlocks the full potential of the marine transport industry, with a view to grow the registry, create jobs, stimulate trade, and support South Africa’s broader economic objectives. The CMTP17 saw the establishment of the Maritime Transport Sector Development Council (MTSDC) and a Maritime Broad Based Black Economic Empowerment Charter Council (MBBBEECC) in June 2019, which are both intended to promote the development and transformation of the sub-sector. Although the intentions and objectives of the CMTP17 Policy are broadly agreed between industry and Government, particularly in terms of fleet growth, global competitiveness and job creation,

there has been an apparent lack of consensus about the implementation path that offers the most credible and achievable way to realise those objectives. This has translated into some policy uncertainty about Government’s ambitions to participate in the value chain and related legislative priorities.<sup>74</sup>

The tabling by DoT in March 2020 of the Merchant Shipping Draft Bill of 2020, which will repeal the ageing Merchant Shipping Act 57 of 1951 and several other related marine laws, is expected to remove some policy uncertainty. The draft Bill aims to create a new regime to South Africa’s shipping industry by addressing key issues facing the industry and enhancing its contribution to the growth and transformation of the South African economy. This includes aligning South Africa’s shipping legislation with the rest of the maritime world - particularly the country’s major trading partners. This is especially the case with coastal traffic regulations, ports and logistics, seafarer employment and safety, new technology for shipping lines, and environmental or ‘green’ legislation, including the transition to low sulphur fuels.

6.10 TARGETS AND INTERVENTIONS THROUGH TO 2035

While South Africa is ideally positioned to serve East-West cargo container traffic, the global market for shipping freight and cargo is dominated by a limited number of established players, making it difficult to get breakthrough growth in this sub-sector. Cargo growth is projected to continue to drive economic growth in South Africa,<sup>75</sup> but the potential to become a major maritime player is limited by the size of its merchant fleet, which in turn obstructs its potential to support seaborne jobs. In this regard, through globally competitive tax regime and other incentives,<sup>76</sup> Government aims to attract more cargo-carrying ships to the national ship registry, as a catalyst for job creation, enterprise development and global maritime influence. Economic forecasts estimate that cargo handling could contribute between ZAR16 - ZAR19 billion to GDP and create 14 000 direct jobs

by 2033, whilst sea and coastal water transport could contribute around ZAR2 billion to GDP and create 3 000 direct jobs, with supporting transport activities contributing between ZAR2 and ZAR4 billion and creating 1 000 direct jobs.<sup>77</sup> A review of the successful Philippines seafarer employment model reveals that over time, each seafarer job can result in 0.8 to 1.0 jobs created onshore, while hospitality jobs in the cruise industry can match or exceed jobs created in the merchant marine. Also, seafarers should be trained to global standards to ensure employability on foreign owned and non-SA flagged vessels (to avoid a situation where jobs growth is limited to the rate of fleet growth). Government has suggested that South Africa’s international trade volumes and seafarer population could offer significant support for the country’s maritime aspirations, for instance if up to 40% of trade volumes could be transported by South African-flagged ships by 2030.<sup>78</sup>

Tabled below is the sub-sector plan relating to the Marine transport sub-sector of South Africa’s Oceans Economy. The table outlines various high-level interventions which aim to stabilise, revitalise and grow this specific sub-sector through to 2035. The plan initially aims to address declining growth and bring about economic stability to marine transportation by implementing a range of short-term (0-2 years) stabilising interventions that focus on building new port facilities and upgrading existing ones, in conjunction with a concerted effort to increase the number of South African flagged vessels. The combination of these two interventions is expected to increase market growth and drive port and cargo handling efficiency in the medium term (2-5 years), which, in turn, will be supported by longer-term interventions (5 plus years), which will aim to mitigate the possible risk of staff shortages and supply chain disruptions.

The inventions to stabilize, revive and grow the sub-sector to 2035 are detailed below.

71. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.  
 72. See: African Union, 2010. Revised African Union Maritime Charter, adopted by the 15th Ordinary Session of the Assembly, Kampala (Uganda), 26 July 2010. The document was first adopted at the 2nd African Union Conference of Ministers Responsible for Maritime Transport, under the theme "Creation of a safe, secure and clean maritime transport industry," held in Durban, Republic of South Africa from 15 to 16 October 2009.  
 73. In this regard, international precedents and several academic studies offer valuable insight into historical successes and failures of efforts by developing nations to grow their maritime economies, as well as inter alia related costs and operational inefficiencies can impact the entire export value chain See, for example: Okechukwu C. Iheduru, 1996. The Political Economy of International Shipping in Developing Countries (Associate University Press, London)

74. DFFE, 2020. Towards a South African Oceans Economy Master Plan.  
 75. Enabling legislation came into effect in 2014 in the form of the Taxation Laws Amendment Act, 2013, which introduced a package of tax incentives designed to attract vessels to the South African ship’s register.  
 76. DFFE 2020. Towards a South African Oceans Economy Master Plan.  
 77. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.  
 78. "Display" has not been included as suggested, as it does not relate to farming, which is the focus of the definition. The definition does not limit the uses to which aquaculture products will/can be put.

TABLE 9

Intervention	Implementation Time Frame through to 2035 (3 Strategic Thrusts)			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
INFRASTRUCTURE AND EQUIPMENT					
Maintain and refurbish existing facilities including:  • Building and upgrading floating dock, ship lifts and repair berths • Replacing and upgrading cranes (incl. wharf, floating and rubber-tyred gantry and gantry cranes, and straddle carriers) • Establishing workshops in port precincts and providing access to existing and new players at competitive rates • Improving TNPA and terminal operators’ facilities, and maintenance and repair programmes • Upgrading rail infrastructure to ports and optimising integration with ports • Replacing and upgrading dysfunctional equipment at various ports and corridors • Reducing red tape and fast-tracking CAPEX and OPEX on maintenance and roll-out of new facilities	X	X	X	<ul style="list-style-type: none"><li>Increased throughput of existing infrastructure</li><li>Increased numbers of concessions</li><li>Underspending of CAPEX and OPEX eliminated</li><li>Streamlined business processes</li><li>Increased efficiency of supply-chain processes</li><li>Increased port efficiencies (&gt; 60%)</li></ul>	<ul style="list-style-type: none"><li>DPE (TNPA, TPT, TFR)</li><li>Private operators</li><li>National Treasury</li><li>the dtic</li><li>Industry</li></ul>
Unlock investment in new and existing port infrastructure and equipment by:  • Creating a more efficient process, mechanism and vehicle to enable public and private investment • Considering issuing TNPA concessions and leases to operate and maintain ship repair facilities in a transparent process	X	X	X	<ul style="list-style-type: none"><li>Increased numbers of operational facilities</li><li>Increased new entrants</li></ul>	<ul style="list-style-type: none"><li>DPE (TNPA, TPT, TFR)</li><li>Private operators</li><li>DPWI (Infrastructure SA)</li><li>Local DFIs (all spheres)</li><li>Economic development, Transport and public works departments (all spheres)</li></ul>
Institutionalise collaboration between public and private entities involved in infrastructure provision and development for financing of port, rail, pipelines and other infrastructure by:  • Identifying major ports to be prioritised for refurbishments (in addition to those already identified under Operation Phakisa Infrastructure projects sitting with TNPA) • Reviewing freight rail investment plans to incorporate new railway links to the port system • TNPA to continue engaging with SEZs to solicit and facilitate funding from private investors for various infrastructure projects, including: - The floating dock in the Port of Richards Bay - The floating dock in the Port of Saldanha - The new graving dock and a large vessel ship lift in the Port of Durban • Enhancing existing capacity to accommodate ship recycling and associated marine activities at the port of East London and marine manufacturing at the port of Saldanha • Developing an information system for Transnet that integrates the supply chain with data input interface from various port users, that integrates all systems/modules that facilitate trade • Developing a robust system architecture that integrates rail, ports and other port users to ensure adequate planning to optimise efficiencies and turnaround times	X	X	X	<ul style="list-style-type: none"><li>Infrastructure refurbishment, replenishment of equipment, and development of new facilities completed</li><li>Enhanced and integrated information system with interface between Transnet and port users across trade value chain</li><li>Improved turnaround times and costs</li></ul>	<ul style="list-style-type: none"><li>DPE (TNPA, TPT, TFR, TPL, TE)</li><li>National Treasury (DBSA, PIC)</li><li>DoT</li><li>DPWI (Infrastructure SA)</li><li>SEZs</li><li>Industry (Private entities and Associations)</li><li>DFIs (AfDB, NDB)</li><li>the dtic (IDC)</li></ul>
Establish purpose-built oil and gas and marine services port infrastructure at Saldanha Bay by ensuring industry engagement and consensus on required infrastructure	X	X	X	<ul style="list-style-type: none"><li>Industry consensus reached on required infrastructure</li><li>Established and operational port infrastructure</li></ul>	<ul style="list-style-type: none"><li>DPE (TNPA, TPT, TFR)</li><li>National Treasury</li></ul>

Intervention	Implementation Time Frame through to 2035 (3 Strategic Thrusts)			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
Implement a Strategic Prioritised Projects in Richard's Bay (marine services, including floating dock and repair to the existing quay) by creating new port infrastructure and water side access availability to support the marine industries in Richards Bay	X	X	X	<ul style="list-style-type: none"><li>Developed and operational port infrastructure</li><li>Increased number of concessions concluded.</li><li>Established marine services infrastructure in Richards Bay</li><li>Port infrastructure and waterside access created</li></ul>	<ul style="list-style-type: none"><li>DPE (TNPA, TPT, TFR)</li><li>National Treasury</li></ul>
Implement a Strategic Prioritised Project in East London by: <ul style="list-style-type: none"><li>Facilitating marine industry operations</li><li>Deepening and widening the port to accommodate larger vessels</li></ul>	X	X	X	<ul style="list-style-type: none"><li>Established and operational port infrastructure</li></ul>	<ul style="list-style-type: none"><li>DPE (TNPA, TPT)</li><li>National Treasury</li></ul>
<b>MARKET GROWTH</b>					
Alignment of government support and actions for the competitiveness and growth of the South African ship register. This includes: <ul style="list-style-type: none"><li>Introducing competitive tax regime for SA-registered and/or owned ships</li><li>Improving SA's global reach and influence (e.g. IMO Council and ICS membership)</li><li>Ensuring that ships serve as a catalyst for jobs, skills and capacity building</li><li>Introducing flag incentives</li><li>Developing and adopting ethical flag values and differentiators</li></ul>	X	X		<ul style="list-style-type: none"><li>Increased listings of local registry of vessels</li><li>Increased competitive flag and influence in global industry</li><li>SA seat on IMO Council and ICS membership restored</li></ul>	<ul style="list-style-type: none"><li>DoT (SAMSA)</li><li>National Treasury (SARS)</li><li>the dtic</li><li>Industry (entire value chain)</li></ul>
Promote establishment of local carriers that engage in international shipping with SA flag ships by: <ul style="list-style-type: none"><li>Establishing policy and tax certainty (including interpretation and applicability of exemptions to local seafarers and vessels)</li><li>Promoting the creation of shipping enterprises through enhanced access to capital, skills and partnerships with crewing manning agents, foreign freight networks, and global cargo owners</li></ul>	X	X	X	<ul style="list-style-type: none"><li>Increased number of 10 local carriers by 2025</li><li>Increased number of SA flagged ships to at least 50 ships in 2025 and 75 or more in 2035</li><li>Increased number of SA seafarers (up to 10 000 within 5-years)</li><li>Increased enterprise development in the value chain</li></ul>	<ul style="list-style-type: none"><li>DoT (SAMSA)</li><li>National Treasury (SARS)</li><li>the dtic</li><li>DEL</li><li>Industry players</li></ul>
<ul style="list-style-type: none"><li>Investigate the potential for cabotage rules to help expand the SA ship register and number of jobs to increase competitiveness of local players to provide service (including understanding the impact on trans-shipment, particularly containers)</li></ul>	X	X		<ul style="list-style-type: none"><li>Coherent legislative provisions on coastal shipping and tax amendments to level playing field between local and international operators</li></ul>	<ul style="list-style-type: none"><li>DoT (SAMSA)</li><li>National Treasury (SARS)</li><li>DPE (TNPA, TPT, TFR)</li><li>the dtic</li></ul>
Broaden access to existing and new maritime and associated services at South African ports	X	X	X	<ul style="list-style-type: none"><li>Increased number of authorised economic operators</li></ul>	<ul style="list-style-type: none"><li>DPE (TNPA)</li><li>the dtic</li><li>National Treasury</li></ul>
Increase cargo handling by South African companies through: <ul style="list-style-type: none"><li>Creating incentives to allow more cargo to be moved by South African companies</li><li>Reviewing tax regime to create competitive SA ship register</li><li>Enforcing locally flagged requirements for vessels (which will be guided by developing SA's flag values)</li></ul>	X	X	X	<ul style="list-style-type: none"><li>Increased handing of cargo by SA companies</li><li>SA flag values developed</li><li>Incentives for SA flagged/owned vessels implemented</li></ul>	<ul style="list-style-type: none"><li>the dtic</li><li>DoT (SAMSA)</li><li>DPE (TNPA, TPT, TFR)</li><li>Industry (Including Associations)</li><li>Shipping lines</li><li>National Treasury (SARS)</li></ul>



Intervention	Implementation Time Frame through to 2035 (3 Strategic Thrusts)			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
<b>PORT EFFICIENCY</b>					
Increase freight and cargo handling efficiencies by: <ul style="list-style-type: none"> <li>Increasing efficiency of port handling operators (WEGO, KPIs)</li> <li>Increasing efficiency of cargo handling by other operators (including outside ports)</li> <li>Reducing freight and logistics costs</li> <li>Training 'young' port leaders and terminal operators, artisans, engineers and other specialised skills to improve turnaround times</li> <li>Leveraging opportunities presented by the Fourth Industrial Revolution (4IR) to enhance ports efficiencies and competitiveness</li> <li>Upgrading truck booking systems</li> <li>Reducing rental cost of warehousing</li> <li>Activating and expanding rail linkages</li> <li>Integrating and coordinating safety and security in ports</li> </ul>	X	X	X	<ul style="list-style-type: none"> <li>Increased trade volumes across all ports</li> <li>Increased regional trade flows through SA ports</li> <li>Increased World Bank rating</li> </ul>	<ul style="list-style-type: none"> <li>DPE (TNPA, TPT, TFR)</li> <li>Private terminal operators</li> <li>Other operators (outside port)</li> </ul>
Mitigate supply chain disruptions and mitigate staff shortages by: <ul style="list-style-type: none"> <li>Conducting a supply chain review</li> <li>Upgrading of supply chain and improving operations and systems</li> <li>Increasing pool of 'young' forwarding/clearing agents and retaining expertise</li> <li>Increasing skills and pool of port services personnel</li> <li>Supporting the marine skills academy and 4IR upskilling to enable optimal management of technology-enhanced port system</li> </ul>	X	X	X	<ul style="list-style-type: none"> <li>Reduced port congestions and costs</li> <li>Increased numbers of trainees completed and employed in the industry.</li> </ul>	<ul style="list-style-type: none"> <li>DPE (TNPA, TPT, TFR)</li> <li>Private terminal operators</li> <li>Other operators (outside port)</li> <li>Labour bargaining council</li> <li>Industry associations (SAAFF)</li> </ul>
Coordination of all government agencies' interventions to develop an aligned and integrated risk approach and systems across all government cross-border agencies	X			<ul style="list-style-type: none"> <li>A risk approach developed and systems across all agencies aligned and integrated</li> </ul>	<ul style="list-style-type: none"> <li>National Treasury (SARS)</li> <li>DHA (BMA)</li> </ul>
<b>ACCELERATE TRANSFORMATION</b>					
Develop a B-BBEE strategy for accelerated transformation across the value chain	X			<ul style="list-style-type: none"> <li>Cabinet-approved strategy within a year</li> </ul>	<ul style="list-style-type: none"> <li>the dtic</li> <li>DoT</li> <li>DPE (TNPA, Transnet)</li> </ul>
Opening up existing infrastructure to new entrants	X	X	X	<ul style="list-style-type: none"> <li>New leases and renewals concluded as and when expirations come up</li> </ul>	<ul style="list-style-type: none"> <li>DPE (TNPA, TFR, TPT, TPL, Transnet)</li> </ul>
Eliminate market concentration by: <ul style="list-style-type: none"> <li>Engaging with global players (including carriers)</li> <li>Eradicating negative effect of market concentration</li> <li>Conducting audit of fees levied by global carriers</li> </ul>	X	X	X	<ul style="list-style-type: none"> <li>Increased numbers of local enterprises in value chain</li> <li>Increased percentage of shipping and cargo handled by SA companies</li> </ul>	<ul style="list-style-type: none"> <li>the dtic (Competition Commission)</li> <li>Industry Associations</li> <li>National Treasury (SARS)</li> <li>DoT</li> </ul>
Develop tool to track implementation and measure impact of transformation against set of developmental objectives	X	X	X	<ul style="list-style-type: none"> <li>Transformation tool developed within a year</li> <li>Improved tracking of trends</li> <li>Transformed value chain</li> <li>Developmental KPIs tracked for SOEs and private operators</li> </ul>	<ul style="list-style-type: none"> <li>the dtic</li> <li>DoT</li> <li>DPE</li> <li>Industry (including associations)</li> </ul>

Intervention	Implementation Time Frame through to 2035 (3 Strategic Thrusts)			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
Allocate market percentages for local players involved in port operations (i.e. excluding international shipping) by: <ul style="list-style-type: none"> <li>Encouraging targeted growth in the percentage share of the volume/business of trade managed by local carriers and other operators in the value chain in partnership with the global players and freight carriers</li> <li>Rethinking and reengineering the value chain to improve meaningful participation of local operators in the trade related value chain in partnership and collaboration with the major international players</li> <li>Crafting a reachable and implementable target within 6 months</li> <li>Investigating how SA can offer a competitive marketing service to benefit from global growth</li> <li>Facilitating cooperation and capacity building for local carriers to meet the required standard of service in the freight value chain to increase percentage of cargo that is moved with meaningful participation of SA companies</li> </ul>	X	X	X	<ul style="list-style-type: none"> <li>Up to 60% of freight and cargo transported by local companies</li> <li>Targets agreed within 6 months</li> </ul>	<ul style="list-style-type: none"> <li>Industry (marine transport and associated value chains including Associations)</li> <li>the dtic</li> <li>DPE (TNPA, TFR, TPT, TPL, Transnet)</li> <li>DoT</li> <li>National Treasury (SARS)</li> </ul>
Encourage global shipping lines to employ SA seafarers			X	<ul style="list-style-type: none"> <li>Up to 75% employment of local workers (employing at least 10 000 seafarers by 2025)</li> </ul>	<ul style="list-style-type: none"> <li>the dtic</li> <li>DPE (TNPA, TFR, TPT, TPL, Transnet)</li> <li>Industry (marine transport and associated value chains)</li> </ul>
Increase number of locally-owned enterprises offering offshore and onshore bunkering services by: <ul style="list-style-type: none"> <li>Streamlining the issuing of licenses and authorisations (stipulated for offshore and onshore storage facilities) at specified SA ports</li> <li>Issuing more licenses and authorisations, and prioritising local companies</li> <li>Ensuring the enforcement of license-to-operate conditions</li> </ul>	X	X	X	<ul style="list-style-type: none"> <li>Increased number of licensed bunkering operations, particularly to local companies.</li> <li>Increased number of locally-owned bunkering companies</li> </ul>	<ul style="list-style-type: none"> <li>DPE (TNPA)</li> <li>DoT (SAMSA)</li> <li>SARS</li> <li>the dtic</li> <li>DEL</li> </ul>
Earmarking for designated groups	X	X	X	<ul style="list-style-type: none"> <li>Increased number of locally-owned operators and absorption of local workers throughout the value chain</li> <li>Strengthened enforcement of localisation requirements (local companies and HDIs)</li> </ul>	<ul style="list-style-type: none"> <li>DPE (TNPA)</li> <li>DoT (SAMSA)</li> <li>Industry</li> <li>National Treasury (SARS)</li> <li>the dtic</li> <li>DWYPDDEL</li> </ul>
<b>SKILLS AND CAPACITY</b>					
Accelerate skills and capacity building by: <ul style="list-style-type: none"> <li>Ensuring a sizable SA-flagged fleet that can offer training berths</li> <li>Ensuring that global standard curricula is based on demand-side employability criteria</li> <li>Developing a globally compliant and accepted standard curriculum for seafarers</li> <li>Embarking on a programme of technical, business and entrepreneurial skills development ('train the trainer')</li> <li>Involving officers in training when at sea or ashore</li> <li>Establishing facilities (e.g. inkling mock-ups, simulators)</li> </ul>	X	X	X	<ul style="list-style-type: none"> <li>Full suite of curricula and affordable programmes for jobs required for ships (officers, cadets, ratings)</li> <li>Established training berth availability and funding for trainees entering the national cadetship programme</li> </ul>	<ul style="list-style-type: none"> <li>DHET (SAIMI)</li> <li>DBE</li> <li>Tertiary institutions (Universities, TVET, and private institutions)</li> <li>DoT (SAMSA)</li> </ul>

Intervention	Implementation Time Frame through to 2035 (3 Strategic Thrusts)			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
Enhance SARS clients' knowledge and participation, as well as information dissemination by: <ul style="list-style-type: none"><li>Harnessing international cooperation with other international organisations and integrating their knowledge resources (such as WCO Academy training content onto SARS TV) as one of the effective platforms created for clients' participation</li><li>Encouraging more use of such platforms for capacity building</li></ul>	X			<ul style="list-style-type: none"><li>More informed clients on trade value chain</li><li>Stronger partnership with international organisations (incl. WCO academy) and content sharing</li></ul>	<ul style="list-style-type: none"><li>National Treasury (SARS)</li><li>Industry</li></ul>
<b>JOB CREATION</b>					
Create an enabling environment for job creation by: <ul style="list-style-type: none"><li>Placing job creation as the main objective of flag development (ship registry)</li><li>Stimulating shore-based jobs (including in peripheral industries)</li><li>Resolving tax interpretation issues (0-6 months)</li><li>Forging global partnerships to create broader channels to market, including for non-SA flagged ships</li><li>Introducing 24-hour operations across the marine transport value chain including operations of tenants within the port system in order to create more jobs</li></ul>	X	X	X	<ul style="list-style-type: none"><li>Up to 10 000 offshore jobs</li><li>Increased number of onshore jobs</li><li>Stakeholder buy-in secured (including organised labour)</li><li>Agreement reached on tax interpretation issues</li></ul>	<ul style="list-style-type: none"><li>the dtic</li><li>DHET (SAIMI)</li><li>DHET</li><li>DEL</li><li>Organised labour</li><li>National Treasury (SARS)</li><li>SETAs</li><li>Industry (carriers)</li><li>Tertiary institutions (Universities, TVET, and private institutions)</li></ul>
<b>HEALTH AND SAFETY</b>					
Alleviate safety risk and mental health issues when introducing the proposed 24-hour operations and declare all workers working or interacting with the ships (local or international) as priority workers	X	X		<ul style="list-style-type: none"><li>Health and Safety standards agreed upon and conditions enforced</li><li>Priority status of workers confirmed</li></ul>	<ul style="list-style-type: none"><li>DEL (OHS officers in all ports)</li><li>DoH</li><li>Organised labour</li><li>DPE (TNPA, TFR, TPT, Transnet)</li><li>DoT (SAMSA)</li><li>Industry (Including associations)</li><li>ILO, ITF affiliates</li></ul>
Enforce health and safety measures for all operations in the ports (safety measures, Covid-19 protocol, etc.) and ensure health and safety in the entire value chain.	X	X	X	<ul style="list-style-type: none"><li>Health and Safety standards and conditions monitored, controlled and enforced</li></ul>	<ul style="list-style-type: none"><li>DEL (OHS officers in all ports)</li><li>DoH</li><li>Organised labour</li><li>Industry (private operators, including associations)</li><li>DPE (TNPA, TFR, TPT, Transnet)</li><li>DoT (SAMSA)</li><li>ILO, ITF affiliates</li></ul>
<b>CLIMATE CHANGE AND THE ENVIRONMENT</b>					
Develop strategies to promote decarbonisation and related innovations	X	X	X	<ul style="list-style-type: none"><li>Meaningful participation in global decarbonisation efforts by SA</li><li>SA national interest defined and defended for marine industries</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>the dtic</li><li>Industry</li><li>SAMSA</li><li>DoT</li></ul>
Research viability of the manufacturing (0-2 years), and production supply of low carbon fuel in ports (5+ years)	X		X	<ul style="list-style-type: none"><li>Full/majority local production to meet local demand for non-carbon marine fuels</li></ul>	<ul style="list-style-type: none"><li>DMRE</li><li>DPE (Eskom, TNPA)</li><li>the dtic</li><li>DoT</li><li>DFFE</li></ul>

Intervention	Implementation Time Frame through to 2035 (3 Strategic Thrusts)			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
Ban the use of sulphur dumping and the reduce emissions from use of scrubbing technology, as well as encourage use of storage containers on board vessels for contaminated water (where scrubbing unavoidable)	X	X	X	<ul style="list-style-type: none"><li>Zero sulphur emission from scrubbers into SA ports</li><li>Increased number green ships entering SA ports</li></ul>	<ul style="list-style-type: none"><li>DoT (SAMSA)</li><li>DPE (TNPA)</li><li>DFFE</li></ul>
Upskill SA seafarers (officers, engineers) to serve on low or zero carbon fuel vessels	X	X		<ul style="list-style-type: none"><li>Targeted placement of senior officers and possibly cadets on vessels with non-carbon fuels (including ammonia, hydrogen, LNG)</li><li>Increased competence of SA seafarers on required safe handling of green ship technologies</li></ul>	<ul style="list-style-type: none"><li>Industry</li><li>DHET (SAIMI)</li><li>DoT (SAMSA)</li></ul>
<b>FUNDING AND RESOURCES</b>					
Deal with exchange controls to allow access to innovative and green funding initiatives by: <ul style="list-style-type: none"><li>Clearly defining interventions that will form part of the stabilisation phase (0-6 months)</li><li>Ensuring the provision of US dollar-based funding by commercial banks and DFIs during the revival phase</li></ul>	X	X		<ul style="list-style-type: none"><li>SA companies to be allowed to borrow in dollars from DBSA and IDC, as well as locally based DFIs and commercial banks (where feasible)</li></ul>	SARB (exchange rate control) National Treasury (DBSA, FIC) the dtic (IDC)
Enable access to ship financing mechanisms for South African Ship owners by: <ul style="list-style-type: none"><li>Developing a mechanism enabling US dollar-based lending to SA shipping companies by local DFIs, commercial banks and non-bank financial intermediaries.</li><li>Ensuring that government, through credit management, facilitates provision of liquidity by foreign banks as required to raise capital for ship ownership by local companies</li></ul>	X	X		<ul style="list-style-type: none"><li>Improved access to ship financing by local companies</li><li>Increased number of local ship owners, including new entrants.</li></ul>	<ul style="list-style-type: none"><li>SARB (exchange rate control)</li><li>National Treasury (DBSA, FIC)</li><li>the dtic (IDC)</li><li>Financial Services Sector</li></ul>
Government co-financing and partnering with foreign banks	X	X		<ul style="list-style-type: none"><li>Financing structure to help previously disadvantaged entrepreneurs to access finance developed</li></ul>	<ul style="list-style-type: none"><li>National Treasury (DBSA)</li><li>SARB</li><li>the dtic (IDC)</li><li>Financial Services Industry</li><li>Industry (international shipping, bunkering)</li></ul>
Establish foreign currency based financing facility for marine industry (including bunkering and international shipping operators) by: <ul style="list-style-type: none"><li>Reviewing and potentially introducing new monetary policy instruments to accommodate foreign currency lending by SA and locally-based international banks (including shipping finance houses) for financing marine-related industries</li></ul>	X	X		<ul style="list-style-type: none"><li>Approved monetary policy environment to enable provision of USD based financing facility for marine industry in SA</li><li>Foreign-currency based financing facility for marine industry established</li><li>Increased local ship ownership</li></ul>	<ul style="list-style-type: none"><li>Banking sector (commercial and DFIs)</li><li>Ship financing houses</li><li>SARB</li><li>National Treasury</li><li>Industry (international shipping, bunkering)</li></ul>
<b>LEGISLATION AND POLICIES</b>					
Align labour laws per the Merchant Shipping Act, for maritime jobs at high-sea, with International Transport Workers' Federation (ITF) practices	X	X	X	<ul style="list-style-type: none"><li>Aligned SA Maritime Labour laws with the policies and standards of the IMO and consistent with ITF practices</li></ul>	<ul style="list-style-type: none"><li>DoT</li><li>DEL</li><li>Organised Labour</li><li>DFFE</li><li>DTIC</li><li>DPE</li></ul>
Accelerate the enactment of the new Customs Act	X			<ul style="list-style-type: none"><li>New Customs Act enacted</li></ul>	<ul style="list-style-type: none"><li>National Treasury (SARS)</li></ul>
Clarify the trade facilitation aspects in the BMA Act	X			<ul style="list-style-type: none"><li>Trade facilitation aspects clarified in the BMA Act</li></ul>	<ul style="list-style-type: none"><li>DHA</li><li>the dtic</li><li>National Treasury (SARS)</li></ul>



Intervention	Implementation Time Frame through to 2035 (3 Strategic Thrusts)			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
TARIFFS AND FEES					
Establish a competitive tax regime for international and local shipping	X	X		<ul style="list-style-type: none"><li>Competitive Tax Regime that promotes local shipping industry</li><li>More levelled playing field between local and international shipping operators (tax interpretation)</li></ul>	<ul style="list-style-type: none"><li>National Treasury (SARS)</li><li>DoT (SAMSA)</li></ul>
Exempt domestic seafarers from PAYE	X	X		<ul style="list-style-type: none"><li>Exempted domestic seafarers from PAYE and an established international tax policy instrument that will subject them to account for their incomes at SARS</li></ul>	<ul style="list-style-type: none"><li>National Treasury (SARS)</li><li>DoT (SAMSA)</li></ul>
INSTITUTIONAL DEVELOPMENT					
Establish SA shipping fleet by: <ul style="list-style-type: none"><li>Deliberating on facilitation of SA ship ownership</li><li>Deliberating on aligning employment conditions for SA seafarers with ITF standards and global best practice</li><li>Determining the feasibility of establishing a state owned shipping company</li><li>Setting target on the percentage of SA freight that is moved, as well as numbers of ships utilised</li><li>Encouraging targeted growth in the percentage share of the volume/ business of trade managed by local carriers and other operators in the value chain in partnership with the global players and freight carriers</li><li>Rethinking and reengineering the value chain to improve meaningful participation of local operators in the trade-related value chain in partnership with major international players.</li><li>Crafting a reachable and implementable target (0-6 months)</li></ul>	X	X	X	<ul style="list-style-type: none"><li>Recommendations regarding the establishment of a state-owned shipping company based on findings of the feasibility study</li><li>Increased local ship ownership</li><li>Employment conditions of SA seafarers agreed upon</li><li>Increased percentage of SA freight moved with SA ships</li><li>Increased number of SA seafarers crewing the foreign vessels that move the cargo into and out of SA</li><li>A proposed percentage cargo from the baseline of current cargo moved in SA ships agreed to</li><li>More favourable environment to increased SA ships moving the cargo into and out of SA</li><li>Agreement with industry on percentage target for cargo, based on an empirical evidence</li></ul>	<ul style="list-style-type: none"><li>DoT (SAMSA)</li><li>National Treasury</li><li>the dtic</li><li>DEL</li><li>Organised Labour</li><li>The shipping industry</li></ul>
Secure SA seat on the IMO Council	X	X		<ul style="list-style-type: none"><li>SA seat on IMO Council restored</li></ul>	<ul style="list-style-type: none"><li>DoT (SAMSA)</li><li>DIRCO</li><li>the dtic</li><li>Industry</li></ul>

Intervention	Implementation Time Frame through to 2035 (3 Strategic Thrusts)			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
COMMUNICATION AND CONSISTENCY					
Improve communication and consistency by: <ul style="list-style-type: none"><li>Conducting regular round table discussions between Government and industry, focused on policy objectives and interventions required to achieve industry growth rates</li><li>Creating an inter-departmental maritime industry development forum within Government, with an independent chair (acceptable to all parties) that is appointed by the Executive Authority</li><li>Creating a national international shipping industry representative body, comprised of key representative of the maritime value chain by industry</li><li>Agreeing between Government and industry on common targets and measurement criteria in terms of ship registration and seafarer employment creation</li><li>Co-creating a Government and industry defined national interest for international shipping, and advancing these interests in international organisations, including the IMO and ICS</li></ul>	X	X	X	<ul style="list-style-type: none"><li>Consistent and regular communication between government and industry</li><li>Inter-departmental maritime industry development forum formed within 6 months.</li><li>Formally established industry structure with clear TORs and constitution agreed to, and application for observer status in ICS secured</li><li>Agreement reached between Government and industry on common targets and measurement criteria in terms of ship registration and seafarer employment creation.</li><li>Common targets and measurement criteria in terms of ship registration and seafarer employment creation agreed upon by government and industry within 6 months</li><li>Targeted national interest for the international shipping sector defined and advanced by government (IMO) in collaboration with industry (ICS)</li></ul>	<ul style="list-style-type: none"><li>DOT (SAMSA)</li><li>DMRE</li><li>National Treasury (SARS)</li><li>the dtic</li><li>DFFE</li><li>DPE (Transnet, TNPA)</li><li>DIRCO</li><li>DEL</li><li>DHET (SAIMI)</li></ul>
MARITIME SECURITY					
Reduce illicit practices in SA waters	X	X	X	<ul style="list-style-type: none"><li>Effective coastal patrol</li><li>Improved marine surveillance (augmented efficiencies of nano-satellite system)</li></ul>	<ul style="list-style-type: none"><li>DoT(SAMSA)</li><li>DPE (TNPA)</li><li>DSI (CSIR, SANSA)</li><li>DHET(CPUT)</li><li>DFFE (OCIMS - vessel tracking)</li><li>SANDF</li></ul>
Develop maritime security policy and legislation			X	<ul style="list-style-type: none"><li>Consolidated maritime security policies and legislation</li></ul>	<ul style="list-style-type: none"><li>DoT (SAMSA)</li><li>Marine Protection Services and Ocean Governance</li><li>(MPG - including Intergovernmental Authorizations Committee)</li></ul>
EMERGENCY RESPONSE					
Accelerated early warning and rapid emergency response by: <ul style="list-style-type: none"><li>Aligning national response with (Fast Lane) port operational adjustments to be devised especially for essential services, medical supplies and food supplies</li><li>Ensuring Business Rescue Capability for SMMEs</li><li>Developing contingency plans, including freight and logistics in DSBD sector classification</li><li>Exploring drone monitoring and emergency support intervention</li></ul>		X		<ul style="list-style-type: none"><li>Early-warning system operational</li><li>Rapid response capacity deployed and operational</li><li>Increased number of small businesses rescued</li><li>Freight and logistics included in DSBD sector classification</li></ul>	<ul style="list-style-type: none"><li>DoT (SAMSA)</li><li>DPE (TNPA)</li><li>DSBD (SEDA, SEFA, NEF)</li><li>Industry</li><li>GCIS</li><li>the dtic (IDC)</li><li>DSI (CSIR, SANSA, TIA)</li><li>DHET (Universities)</li></ul>





SUB-SECTOR PLAN

# AQUACULTURE

07







## 07. Aquaculture Sub-Sector Plan

Aquaculture is defined as the farming of aquatic organisms, including crocodiles, in controlled or selected aquatic environments (marine, brackish or freshwater), involving: a degree of human intervention in the rearing process to enhance production, which may include propagation, breeding, regular stocking, feeding or protection from predators<sup>1</sup>; and also individual or corporate ownership of the stock being farmed, and includes and ranching.<sup>2</sup>

This section of South Africa's Oceans Economy Master Plan presents a sub-sector plan for the aquaculture industry. The plan covers the following areas:

- A review of the global industry;
- A review of the national industry;
- Current interventions;
- Challenges;
- Opportunities;
- Skills and transformation;
- Research, development and technology;
- Environmental sustainability;
- Policy considerations;
- Targets and interventions through to 2035.

### 7.1 GLOBAL SUB-SECTOR REVIEW

Globally, aquaculture is an important source of food security and is the fastest growing food production sector. In recent years, the production of aquaculture products has overtaken the level of production in the wild capture fishing sector. A report by the Food and Agriculture Organisation (FAO), entitled The State of World Fisheries and Aquaculture 2020 (SOFIA), states that the contribution of world aquaculture to world fish production has constantly increased, reaching 46% between 2016 and 2018 (up from 25% in 2000), with aquaculture also accounting for 52% of fish for human consumption in 2018.<sup>3</sup> One of the reasons cited for aquaculture's growing contribution to total fishery production is a shift in focus by countries toward sustainable fish farming in an attempt to mitigate the environmental risks associated with large-scale fishing and the increased demand for protein products across the globe.<sup>4</sup> SOFIA anticipates that global aquaculture will continue to drive the growth in global fish production, with production levels expected to increase by 32% in 2030. Critically, the biggest regional expansion, up to 48%, is expected in Africa.<sup>5</sup> This suggests that aquaculture growth has the potential to meet the growing need for aquatic foods and to contribute to food security, poverty reduction and, more broadly, to achieving sustainable development and the Millennium Development Goals (MDGs).

In terms of global volume, aquaculture fish production reached 82 million tons, 32 million tons of aquatic algae and 26 000 tons of ornamental seashells and pearls - bringing the total to an all-time high of 114 million tons in 2018. Aquaculture fish production was dominated by finfish (54 million tons, with 47 million tons coming from inland aquaculture), molluscs (18 million tons), and crustaceans (9 million tons).<sup>6</sup> Aquaculture fish farming is dominated by Asia, which has produced 89% of the global total in volume terms in the last 20-years. Over the same period, the shares of Africa and the Americas have steadily increased, while those of Europe and Oceania have decreased slightly. China is the largest national producer of world aquaculture products, accounting for around 58% of total world

volume (corresponding to 48 million tons), followed by the rest of Asia, the Americas, Europe, Africa and lastly Oceania.<sup>7</sup> Regionally, the top aquaculture producers in Africa are Egypt, Nigeria, Uganda, Ghana, Tunisia, Kenya, Zambia, Madagascar, Malawi and South Africa, with production on the continent growing from around 20,000 tons in 1998 to 291 000 tons in 2018.<sup>8</sup> While South Africa is among the top seven producers of aquaculture products in sub-Saharan Africa (SSA), it only accounts for approximately 4% of the overall production in the SSA.<sup>9</sup>

The FAO estimates that, in 2018, just over 20 million people were engaged in aquaculture (on a full-time, part-time, or occasional basis). Women accounted for 19% percent of the global production force, and of all those engaged in primary production, most were in developing countries, and most are small-scale, informal aquaculture workers. The highest numbers of workers (both in fisheries and aquaculture) are in Asia (85%), followed by Africa (9%), the Americas (4%), and Europe and Oceania (1% each).<sup>10</sup>

### 7.2 SOUTH AFRICAN SUB-SECTOR REVIEW

There is huge potential for the aquaculture industry in South Africa. Government has identified aquaculture as a sub-sector in South Africa's broader oceans economy that presents a good opportunity to diversify fish production to:

- Satisfy local demand;
- Future export potential;
- Contribute to food and nutritional security;
- Create sustainable job opportunities;
- Foster economic development;
- Capitalise on export opportunities;
- Stimulate rural development and livelihoods;
- Attract foreign direct investment;
- Safeguard sustainable environmental integrity; and
- Create Small Medium and Micro Enterprises (SMMEs) and wealth-generating opportunities through aquaculture.<sup>11</sup>

1. This definition of aquaculture does not specify the purpose for which the aquaculture is being undertaken. Therefore, regulation of aquaculture in the Bill encompasses the farming of aquatic organisms for consumption, as well as for ornamental and therapeutic use. See: Department of Agriculture, Forestry and Fisheries (DAFF), 2018. Aquaculture Development Bill, published in Government Gazette No. 41632 of 18 May 2018. Note: this definition of aquaculture does not specify the purpose for which the aquaculture is being undertaken. Therefore, regulation of aquaculture in the Bill encompasses the farming of aquatic organisms for consumption, as well as for ornamental, display and therapeutic use.

2. FAO, 2020. The State of World Fisheries and Aquaculture 2020: Sustainability in Action, Rome, March 2020, accessed 24 November 2021, available at: <https://doi.org/10.4060/ca9229en>

3. Department of Forestry, Fisheries and the Environment (DFFE), 2020. Towards a South African Oceans Economy Master Plan.

4. FAO, 2020. The State of World Fisheries and Aquaculture 2020.

5. FAO, 2020. The State of World Fisheries and Aquaculture 2020.

6. FAO, 2020. The State of World Fisheries and Aquaculture 2020.

7. DFFE, 2020. Aquaculture Yearbook 2020.

8. FAO, 2017. Regional Review on Status and Trends in Aquaculture Development in Sub-Saharan Africa, Rome: Food and Agriculture Organization (FAO).

9. FAO, 2020. The State of World Fisheries and Aquaculture 2020.

10. AgriSETA, 2020. Aquaculture Sub-Sector Skills Plan 2020-2021: Enabling a Skilled and Prosperous Agricultural Sector.

11. DFFE, 2019. Aquaculture Yearbook 2019.

South Africa has a well-established aquaculture industry. It is diverse in both the farming methods used and species farmed and can be divided into two broad categories:

**Freshwater aquaculture,** which consists mainly of freshwater species such as Rainbow trout (*Onchorynchus mykiss*), Brown trout (*Salmo trutta*), Common carp (*Cyprinus carpio*), African catfish (*Clarias gariepinus*), Mozambique tilapia (*Oreochromis mossambicus*), Nile tilapia (*Oreochromis niloticus*), Redbreast tilapia (*Tilapia rendalli*), Marron crayfish (*Cherax tenuimanus*), Nile crocodile (*Crocodylus niloticus*) and a number of ornamental species (e.g. Koi carp); and

**Marine aquaculture,** which consists of Abalone (*Haliotis midae*), Pacific oysters (*Crassostrea gigas*), seaweeds (*Ulva* spp and *Gracilaria* spp), Mussels (*Mytilus galloprovincialis* and *Choromytilus meridionalis*), Dusky Kob (*Argyrosomus japonicus*), Yellow Tail (*Seriola lalandi*), Rainbow trout (sea run *Onchorynchus mykiss*), Atlantic salmon (*Salmo salar*), Scallop (*Pecten sulcicostatus*), South coast sea urchin (*Tripneustes gratilla*) and a number of ornamental species.

Although South Africa is a small player in the global and regional market for aquaculture products, the industry has expanded substantially in recent years, with production levels increasing from 4 777 tons in 2013 to just under 6 500 tons in 2018 (36% increase), and value levels demonstrating an average percentage increase of 4.13% between 2016 and 2019 (see Figure 7 below). The industry experienced significant growth from 2017 to 2018, from 5 588 to 6 365 tons (14% increase),<sup>12</sup> and again from 2018 and 2019, from 6 365 to 7 085 tons (11.3% increase), valued at over ZAR1,2 billion (compared to ZAR1.1 billion in 2018), excluding additional value generated through leisure and tourism (e.g. trout farming).<sup>13</sup>

South Africa’s Aquaculture Value Trends

Source: DFFE, Aquaculture Yearbook 2020

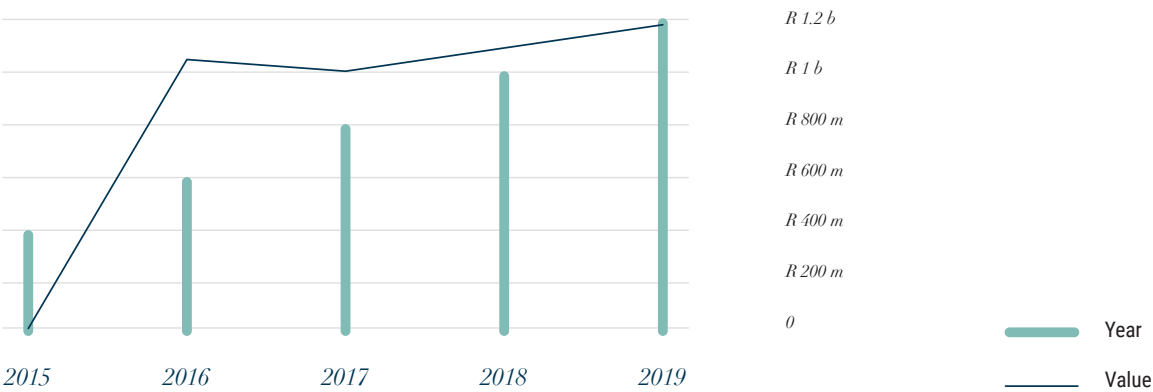


FIGURE 7

The clear driver of the domestic aquaculture sector is the marine aquaculture sector. In 2019, it contributed 5 112 tons (72.1%) to total production valued at just over ZAR1 billion. As shown in Figure 8 below, mussels were the leading commodity with 3 053 tons, followed by abalone (1 656 tons) and oysters (382 tons), with finfish contributing the least towards total production

(20 tons). Freshwater aquaculture, in the other hand, contributed 1 972 tons (27.8%) to total production valued at around ZAR155 million. Trout contributed most of the production with 1 583 tons, followed by tilapia (303 tons), catfish (60 tons), ornamentals (16 tons), common carp (6 tons), and lastly marron crayfish (4 tons).<sup>14</sup>

Production of marine aquaculture species for 2018 and 2019

DFFE, Aquaculture Yearbook 2020

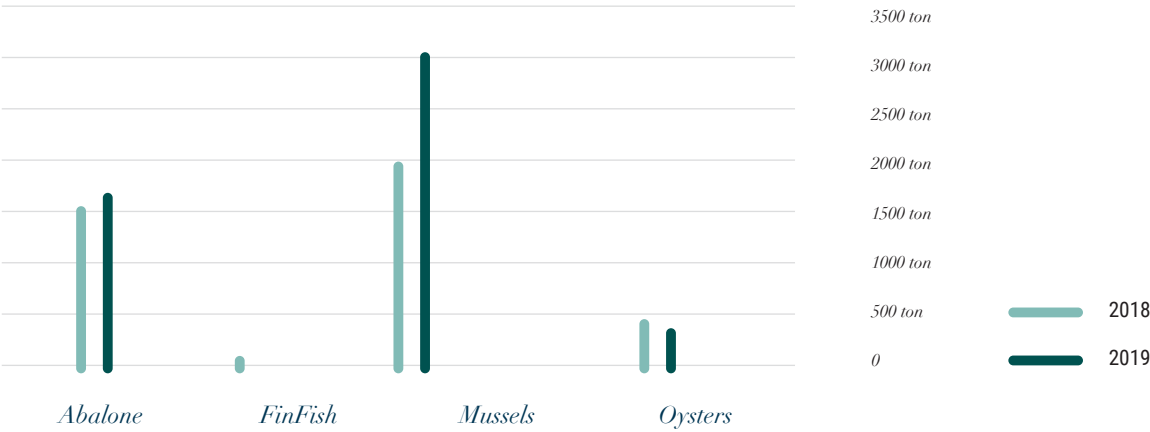


FIGURE 8

12. DFFE, 2020. Aquaculture Yearbook 2020.  
13. DFFE, 2020. Aquaculture Yearbook 2020.

14. DAFF, 2017. A profile of the South African aquaculture market value chain, Pretoria: Department of Agriculture, Forestry and Fisheries (DAFF).

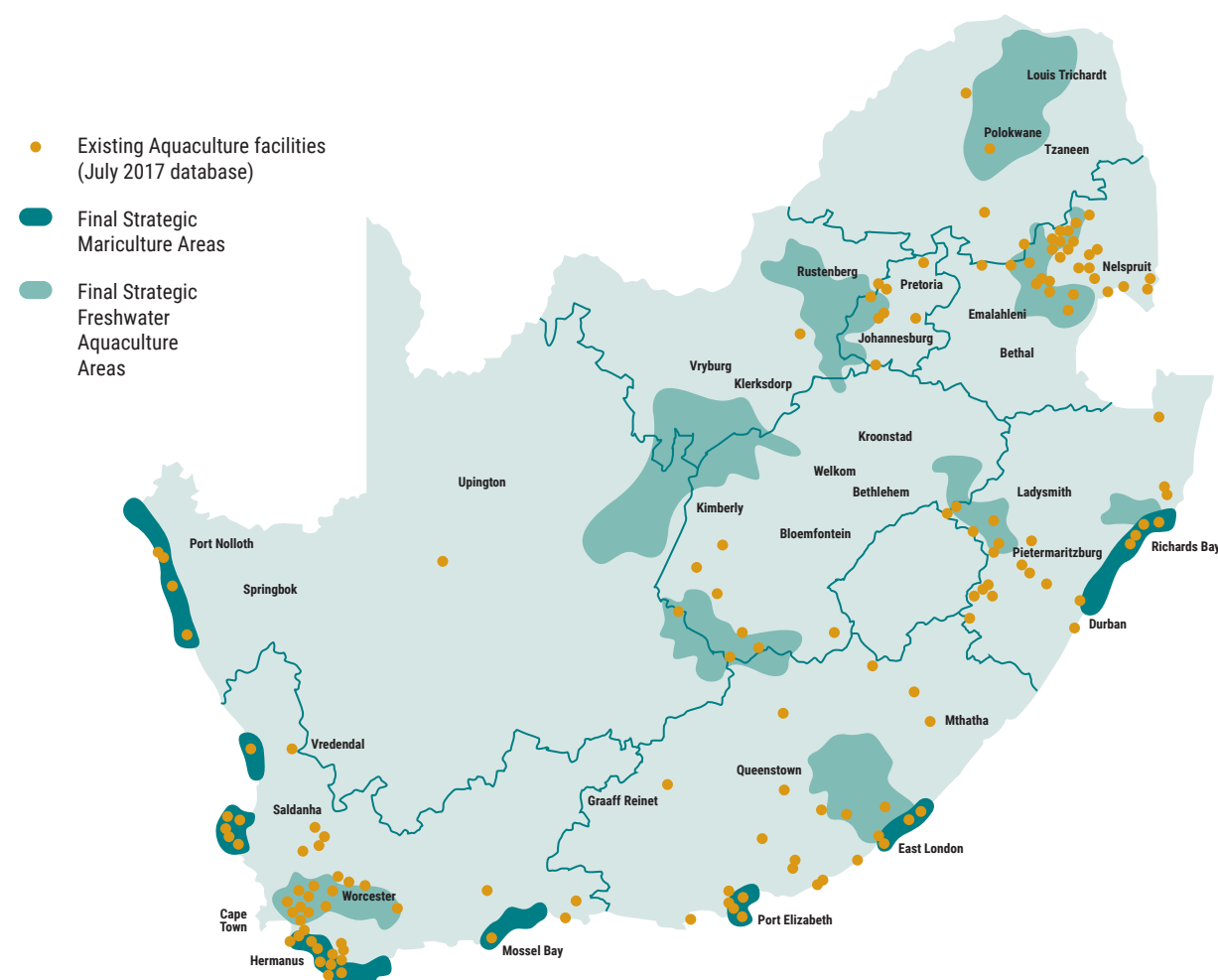


South Africa's diverse climatic conditions allow for aquaculture production of different species to occur in several regions of the country depending on multiple factors, such as weather conditions, temperatures, and water quality (see Figure 9 below). The most significant regions for freshwater aquaculture production - other than the coastal provinces such as the Western Cape, Eastern Cape and KwaZulu-Natal (KZN) - are Mpumalanga and Limpopo. Marine aquaculture, as the term suggests, occurs along South Africa's coastal regions in the Northern Cape, the Western Cape, the Eastern Cape and in KZN.<sup>15</sup> Out of the total aquaculture production in 2019 (7,085 tons), the Western Cape province was the major contributor with 5 668 tons (80%) from 61 farms, followed by KwaZulu-Natal with 430 tons (6%)

from 20 farms, the Eastern Cape with 337 tons (4.7%) from 14 farms, Mpumalanga with 298 tons (4.2%) from 28 farms, Gauteng with 156 tons (2.2%) from 37 farms, the North West with 92 tons (1.3%) from 24 farms, Limpopo with 81 tons (1.1%) from 27 farms, the Northern Cape with 19 tons (0.3%) from 24 farms, and lastly the Free State contributing two tons (0.03%) from 8 farms.<sup>16</sup>

### Strategic Environmental Zones for Aquaculture in South Africa

Source: DFFE (2020) Towards a South African Oceans Economy Master Plan



15. DFFE, 2020. Aquaculture Yearbook 2020.  
16. DFFE, 2020. Aquaculture Year Book 2020.

In 2019, the Aquaculture industry employed around 3 873 direct workers (up from 3 486 workers in 2018 or 9.9%). The estimated total employment in the value chain of the industry is around 7 750. Figure 10 below illustrates the trends of number of aquaculture jobs between 2015 and 2019, which increased on average by 1.4% per year over this period. The increase is mainly attributed to the significant increase in number of farms over the last 5-years. Critically, most of the employment is in rural to semi-rural areas where economic opportunities are usually limited or seasonal in South Africa. Over 90% of employees across the aquaculture industry are historically disadvantaged individuals (HDI), leading to a direct employment of around 3 000 HDI. Around 80% employed in the industry are unskilled or semi-skilled, one third are

women, and around 45% are youth (18 -35 years). The estimated total employment in the value chain of the industry is around 7 750. Between 2015 and 2019, the number of aquaculture jobs increased on average by 1.4% per year over this period - the increase is mainly attributed to the significant number of new farms and production sites over the last 5-years.<sup>17</sup> Critically, most of the employment is in rural to semi-rural areas where economic opportunities are usually limited or seasonal in South Africa. Over 90% of employees across the aquaculture industry are historically disadvantaged individuals (HDI), leading to a direct employment of around 3 000 HDI. Around 80% employed in the industry are unskilled or semi-skilled, one third are women, and around 45% are youth (18 -35 years).<sup>18</sup>

As Figure 10 below shows, with 43%, followed by mussels (40%), trout (10%), oysters (5%) and tilapia (2%). Catfish, finfish, crayfish, common carp, marron and ornamentals contributed less than 1% employment.<sup>19</sup>

### Percentage employment contributed by commodity, 2019

Source, DFFE (2020), Aquaculture Yearbook 2020

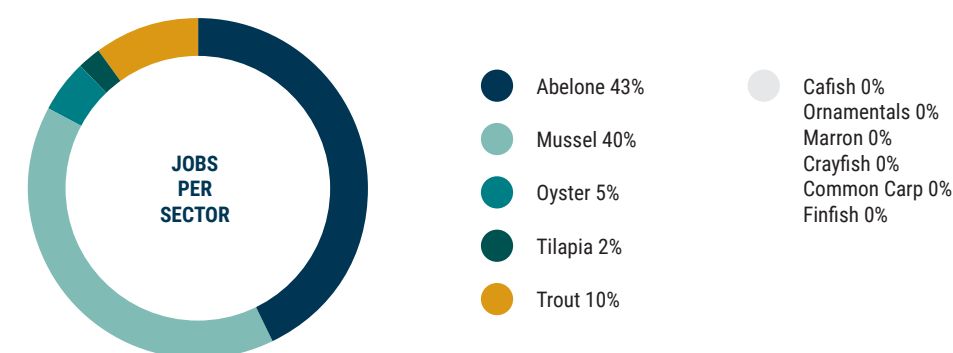


FIGURE 10

17. For a more detailed discussion on skills in the aquaculture industry see: SAIMI, 2018. Aquaculture Skills Inventory & Needs Analysis 2017: Operation Phakisa Aquaculture Skills Working Group Report, the South African International Maritime Institute (SAIMI), January 2018; and: AgriSETA, 2020. Aquaculture Sub-Sector Skills Plan 2020-2021.  
18. DFFE, 2020. Aquaculture Year Book 2020.  
19. Note: A percentage of the exports reported here (as well as other species) were not farmed locally. Some products were exported from Fish Producing Establishments (FPEs) that imported products, including Pacific salmon, Atlantic salmon and scallops.

South Africa’s total aquaculture exports by volume for 2019 were 2 366 tons (down from 3 190 tons in 2018, representing a 26% decrease). However, in value terms, exports increased by 188% from ZAR199 million in 2018 to ZAR575 million in 2019. As shown in Figure 11 below, the major exported species in 2019 were abalone with 748 tons (significantly up from 279 tons in 2018), followed by tilapia (701 tons), Pacific salmon (237 tons), Atlantic salmon (177 tons), trout

(176 tons), oysters (131 tons), mussels (124 tons), catfish (36 tons), ornamentals (29 tons), scallops (3 tons), carp (300kg), and finally sea urchin (200kg).<sup>20</sup> In terms of value, the top five importing markets for South African aquaculture products were Hong Kong with ZAR363 million, followed by Taiwan (ZAR74 million), China (ZAR29 million), Namibia (ZAR24 million), and Singapore (ZAR18 million).<sup>21</sup>

Aquaculture exports volume per commodity (2019)

Source, DFFE (2020), Aquaculture Yearbook 2020

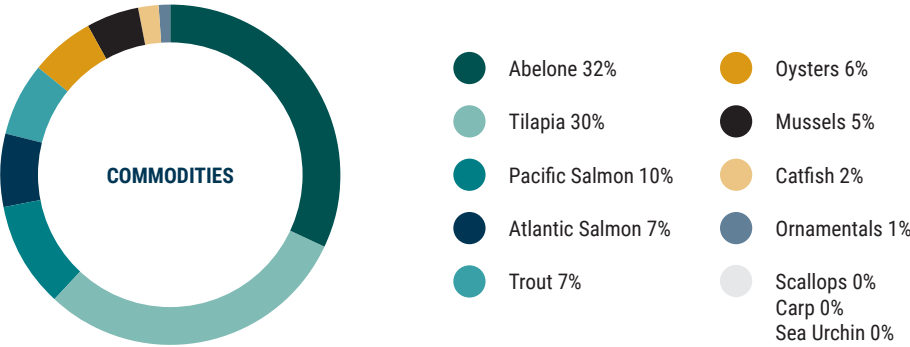


FIGURE 11

7.3 CURRENT INTERVENTIONS

The DFFE has led the Oceans Economy Aquaculture focus area since the launch of Operation Phakisa in 2014. At the time, the Aquaculture Lab under the Phakisa initiative concluded that South Africa’s aquaculture industry had a high growth potential, due to an increasing demand of fish products to meet increasing global population levels. The Aquaculture Lab comprised of stakeholders from industry, government and academia who identified nine (9) key initiatives, as shown in Table 10 below.

Aquaculture priority initiatives: Operation Phakisa, 2014

TABLE 10

Initiative	High-level progress
Selection and Implementation of Catalyst Projects	<ul style="list-style-type: none"><li>Set criteria to register projects, Detailed planning and monitoring</li><li>Issue resolution</li><li>Monitor outcomes (jobs, production, investment)</li></ul>
Legislative reform	<ul style="list-style-type: none"><li>Dedicated legislation for aquaculture</li><li>Streamlining and strategic planning</li></ul>
Inter-Departmental Authorisations Committee	<ul style="list-style-type: none"><li>“One-stop-shop”</li><li>Streamlining authorisations</li></ul>
Globally recognised monitoring and certification system	<ul style="list-style-type: none"><li>Diversify markets</li><li>Ensure competitiveness</li></ul>
Aquaculture Development Fund	<ul style="list-style-type: none"><li>Co-ordinate funding and investment promotions</li><li>End to end funding interventions to increase participants</li></ul>
Capacity building and skills development	<ul style="list-style-type: none"><li>Address skills needs of the sector</li><li>Develop local capacity in terms of specialised occupations (aquatic vet)</li></ul>
Coordinated industry-wide marketing efforts	<ul style="list-style-type: none"><li>Market local and international products (increase local consumption)</li><li>Enable third-party certification (auditors)</li></ul>
Government Preferential Procurement	<ul style="list-style-type: none"><li>Promote procurement of locally farmed products by prisons, hospitals and schools</li></ul>
Aquaculture Development Zone	<ul style="list-style-type: none"><li>Facility access to land and water</li><li>Create enabling environment for new entrants/investment</li></ul>

One initiative addresses the selection and implementation of catalyst projects, improving both the number and productivity of the new farms. Three other initiatives relate to the creation of an enabling regulatory environment, while others focus on funding support, increasing the skills pool and awareness, and improving access to markets. Initiative 9, entitled Develop and Implement Aquaculture Development Zones (ADZ’s), seeks to promote investment into the industry and create an enabling environment to promote growth and jobs The Lab’s targets over five-years (from 2014 to 2019) were to:

- increase revenue of the sub-sector from R670 million to ZAR3 billion;
- increase production by 20 000 tons;
- increase the number jobs from 2 227 to 15 000; and
- to ensure participation of HDIs to support transformation in the industry.

Since 2014, 48 new catalyst projects have been assessed and incorporated as part of Operation Phakisa-Oceans Economy. By end of 2018, total actual investment committed to these projects was over ZAR1.8 billion, of which over ZAR280 million was from Government (representing 93.7% of the projected additional investment of ZAR1.9 billion target for 2018/2019). Furthermore, the total estimated turnover (based on tonnage) across 36 projects (this has increased to 48 projects in 2020) amounted to over ZAR584 million per annum, and the total number of jobs contributed by Phakisa projects was 2 367 (58% males and 42% females).<sup>22</sup>

20. DFFE, 2020. Aquaculture Year Book 2020.  
21. DFFE, 2019. Operation Phakisa: Unlocking the Oceans Economy through Aquaculture.

22. For example, South Africa is not authorised to export certain species to the EU, including bivalve fresh molluscs.



Table 11 below summarises key milestones achieved by Operation Phakisa from 2015 to 2019:

Key milestones of Operation Phakisa

TABLE 11

Source: DFFE, 2019. Operation Phakisa: Aquaculture Workstream Year Five Review

2015	2016	2017	2018	2019
<ul style="list-style-type: none"><li>• Eight new land leases approved by Department of Public Works and Infrastructure.</li><li>• Leases for 85 hectares of water space were granted or extended in line with the 15-year Marine Right by TNPA</li><li>• NRCS and DFFE signed MOU for NRCS to undertake independent sampling</li><li>• Inaugural Interdepartmental Authorisation Committee (IAC) meeting held</li><li>• 140 hectares of water space approved for ten projects in Saldanha Bay for 15 years by TNPA</li><li>• Aquaculture Development Fund working group established</li><li>• Taiwan market opened for oysters</li><li>• Skills Working Group established for aquaculture</li><li>• Aquatic animal health and welfare implementation plan developed and approved</li></ul>	<ul style="list-style-type: none"><li>• Alien and Invasive Species (AIS) regulations amended for marine species (oyster and mussels).</li><li>• Applicable to farms with a Marine Right and in existing areas, it did not require a risk assessment</li><li>• Aquaculture Development Bill introduced to NEDLAC</li><li>• CSIR started the Strategic Environment Assessment</li><li>• EU conducts fact finding mission on abalone</li><li>• DFFE procures additional microscopes for shellfish monitoring programme</li></ul>	<ul style="list-style-type: none"><li>• National feasibility studies for marine finfish, oysters and mussels completed</li><li>• EU Residues and Public Health team visit South Africa to audit the agricultural and aquaculture sectors</li><li>• National Residue Programme developed and implemented</li><li>• Aquaculture Development Bill signed off by NEDLAC</li><li>• First World Aquaculture Society Conference held in Africa, South Africa</li><li>• DFFE signs MOU with Stirling University, first five local vets sent for Master's degree in Aquatic Medicine</li><li>• Aquaculture Development Fund model and mechanism were completed</li><li>• Aquaculture Skills Inventory and Skills Analysis completed</li><li>• All remaining permits and Power of Attorney received for Qolora ADZ</li><li>• Compulsory specification for live and chilled bivalve molluscs gazetted</li><li>• The Gariep Dam Aquaculture Training Centre officially handed over to South Africa</li><li>• Value - stream mapping undertaken with recommendations to improve streamlining of authorization</li><li>• DFFE scoops award for best exhibition in China International Fishery &amp; Seafood Expo (FISHEX) in Guangzhou, China.</li></ul>	<ul style="list-style-type: none"><li>• Saldanha Bay ADZ authorisation received and Minister of Environment upheld the decision</li><li>• Aquaculture Farmer and Aquaculture Farm Assistant have been completed, approved by the QCTO and SAQA</li><li>• Aquaculture Development Bill was approved by Cabinet</li><li>• Aquaculture Development Bill introduced to Parliament</li><li>• COEGA Aquaculture Development Zone EIA granted</li><li>• National feasibility studies for trout, abalone, catfish, freshwater, ornamentals, marron crayfish and aquaponics systems completed to inform new entrants, funding agencies, policy and investors</li><li>• Two DFFE members complete three months training and three vets complete one year of training at Stirling University</li><li>• Establishment of the African Chapter of the World Aquaculture Society</li><li>• Aquaculture Development Zones added as the ninth Operation Phakisa aquaculture initiative</li></ul>	<ul style="list-style-type: none"><li>• First Aquaculture Finance and Investment Seminar held in Durban</li><li>• A National Residue Programme developed and implemented for abalone, finfish and bivalve as per the EU findings</li><li>• DFFE commissions the development of a transformation strategy and a small-scale aquaculture policy</li><li>• Feasibility studies for hatcheries (research and demonstration) in the Northern Cape and Eastern Cape completed</li><li>• Coastal Waters Discharge Permit Regulation (CWDPR) 2019 published for implementation</li><li>• Algoa Bay ADZ: Pre-public consultation for the new Basic Assessment completed</li><li>• DFFE completes a certification framework for aquaculture products in South Africa</li><li>• Sea urchin export: risk assessment completed on cultured sea urchins for export purposes</li><li>• Public Awareness and Marketing Strategy for aquaculture products and the sector in South Africa completed</li><li>• New Aquaculture Development and Enhancement Programme (ADEP) guidelines published by the dtic.</li><li>• Videography campaign launched showcasing local aquaculture species content on local airline</li></ul>

Notwithstanding these noteworthy milestones, there have been delays and challenges experienced by some aquaculture projects under Phakisa. In hindsight, the initial 5-year targets set in by the initiative were perhaps over-ambitious, and many targets have not been achieved, in part due to a different (i.e. more positive) economic climate, and also due to high expectations around the production of finfish. Other key challenges are discussed in the following section.

7.4 CHALLENGES

South Africa's aquaculture industry is relatively small and faces several key challenges for growth in the industry. These challenges include:

- production focused on a few high value species (such as abalone, oysters, mussels, finfish and trout) driven mainly by the high cost of production;
- regulatory barriers and difficulty in accessing funding;
- access to domestic and international markets;
- limited pool of skills and inclusivity in the industry;
- fragmented research and development (R&D);
- limited and poor infrastructure (including facilities and roads) in rural areas;
- access to land and water space, as well as to seed and feed;
- scarcity of good quality freshwater and a harsh marine environment;
- unpredictability associated with climate change;
- vast difference between winter and summer temperatures;
- perceived competition with the tourism and conservation sectors;
- water and land lease disputes; and
- time-intensive authorisations, including delays around the issuance of leases and environmental impact assessments (EIAs)

Other challenges identified by the DFFE include:

- scarcity of good quality freshwater and a harsh marine environment,
- difficulty in accessing project funding;
- unpredictability associated with climate change;
- vast difference between winter and summer temperatures;
- perceived competition with the tourism and conservation sectors;

- technical barriers to trade and export challenges, which impede on market access;<sup>23</sup> and
- Organised crime and poaching.

A 2020 report by the Agricultural Sector Education Training Authority (SETA), or AgriSETA, highlights several other supply-side and demand-side issues that still impact the growth of South Africa's aquaculture industry (including identifying several cross-cutting issues that impact the sub-sector as a whole). These are:

- Unsupportive legislative and regulatory environment - compliance burden serves as a barrier to the sub-sector;
- Limited access to land and sea space - aquaculture industry is often excluded from spatial planning;
- Small pool of skills and knowledge - there is limited extension support (specialised state extension officers, veterinarians and veterinary support services, and researchers).
- Little awareness of aquaculture farming as a career and education option;
- Access to finance - the aquaculture sub-sector faces difficulty in accessing finance as it is not well understood by financial institutions and deemed to be a high-risk sector;
- Limited accessibility of markets - undeveloped value chains and limited market intelligence has led to fragmented marketing efforts; and
- Cheap fish imports into the country that lead consumers not to purchase local fish.<sup>24</sup>

7.5 OPPORTUNITIES

The aquaculture industry was one of the priority growth areas in Operation Phakisa-Oceans Economy, highlighting its importance in the future growth of South Africa's oceans economy. Despite the abovementioned challenges, aquaculture offers material opportunity for further investment, jobs and socio-economic value creation. Listed below are key opportunities identified for the industry:

- Effective dialogue between market participants and providers of key inputs will lower the cost of business and relieve significant pressure on the sector, leading to increased expansion opportunities and investment;

23. DFFE, 2021. Internal Draft Report, November 2021. (Oceans Economy Master Plan Elements for The Aquaculture Sub Sector)  
24. DFFE, 2020. Aquaculture Year Book 2020.

- Stability of the industry and policy certainty will also facilitate growth in aquaculture through increased GDP;
- Poached abalone equates to three times the current production of farmed abalone. If initiatives linked to resource security are successful, there is potential to increase the sales value of abalone by approximately ZAR2 billion per annum. Access to poached volumes will also have the knock-on effect of increasing employment;
- Increased presence in high-value export markets (particularly in the EU and US) leading to increased value of the sector. This will stimulate growth of the industry and increase the effectiveness of local producers;
- Access to additional markets will stimulate further job opportunities in the medium to long-term.
- The increased access will decrease risks currently associated with operating in a single market;
- Effective dialogue between market participants and providers of key inputs will lower the cost of business and relieve significant pressure on the sector, leading to increased growth opportunities and investment;
- Lower operating costs will reduce the entry barriers of the sector and allow for increased inclusivity and transformation;
- Should the economic climate and market stabilise, the industry has the option to expand existing species in current areas that are authorised, leased, suitable and available, particularly for abalone, bivalve, marine finfish, catfish, seaweed, trout, and tilapia farming. This expansion, in turn, could potentially increase annual production to approximately 68 650 tons and create up to 10 000 direct jobs in 10-years.

## 7.6 SKILLS AND TRANSFORMATION

Despite the small size of the aquaculture sub-sector, it contributes significantly in terms of employee training and development. Currently, the abalone industry alone spends more than R9.5 million per annum on the training of its staff.<sup>25</sup> A significant milestone for capacity building and skills development was achieved in 2018 with the approval by the Quality Council for Trades and Occupations (QCTO) of two aquaculture qualifications, namely 'Aquaculture Farmer' and 'Aquaculture Farm Assistant'. The qualifications are currently with South African Qualifications Authority (SAQA) for approval. The Government also provides various training opportunities at various skill levels in South Africa's aquaculture industry, including:

- Supporting the China-South Africa Aquaculture Technology Demonstration Centre (ATDC) located near Gariep Dam in the Free State, which offers different aquaculture training and capacity building programmes;
- Partnering with local and international higher learning institutions that offer aquaculture qualifications, including with the University of Stirling based in Scotland for training of aquatic veterinarians and aquaculture specialists to address the scarce aquatic veterinarian skills and services currently available in South Africa; and
- Increasing the number of internships, bursaries and experiential training.<sup>26</sup>

While these initiatives are critical, more interventions for training in both technical (breeding, animal husbandry, nutrition, and water quality), financial (to be able to source funding and investors), marketing, and management skills (manage aquaculture farm, and supervisory skills) are required to grow the sub-sector. Aquaculture is a highly technical industry. While South Africa has several large enterprises with the requisite technical expertise, there is currently limited information on how to operate and succeed with a small-scale aquaculture enterprise, particularly on matters such as logistics, marketing, packaging, and distribution.<sup>27</sup>

Apart from key skills issues and gaps, the aquaculture industry also faces transformation challenges. The meaningful participation of Historically Disadvantaged Individuals (HDIs) and other previously marginalised groups (which includes black Africans, women, youth and disabled individuals) in the South African aquaculture sector is still limited. This was convincingly confirmed in The South African Aquaculture Transformation Strategy, a report commissioned by the then Department of Agriculture, Forestry and Fisheries (DAFF) in 2019 to promote the involvement and contribution of HDIs to aquaculture, address the challenges that hinder their participation, support small-scale operations and ensure efficient transformation of the industry - while at the same time unlocking the growth potential of the sub-sector.

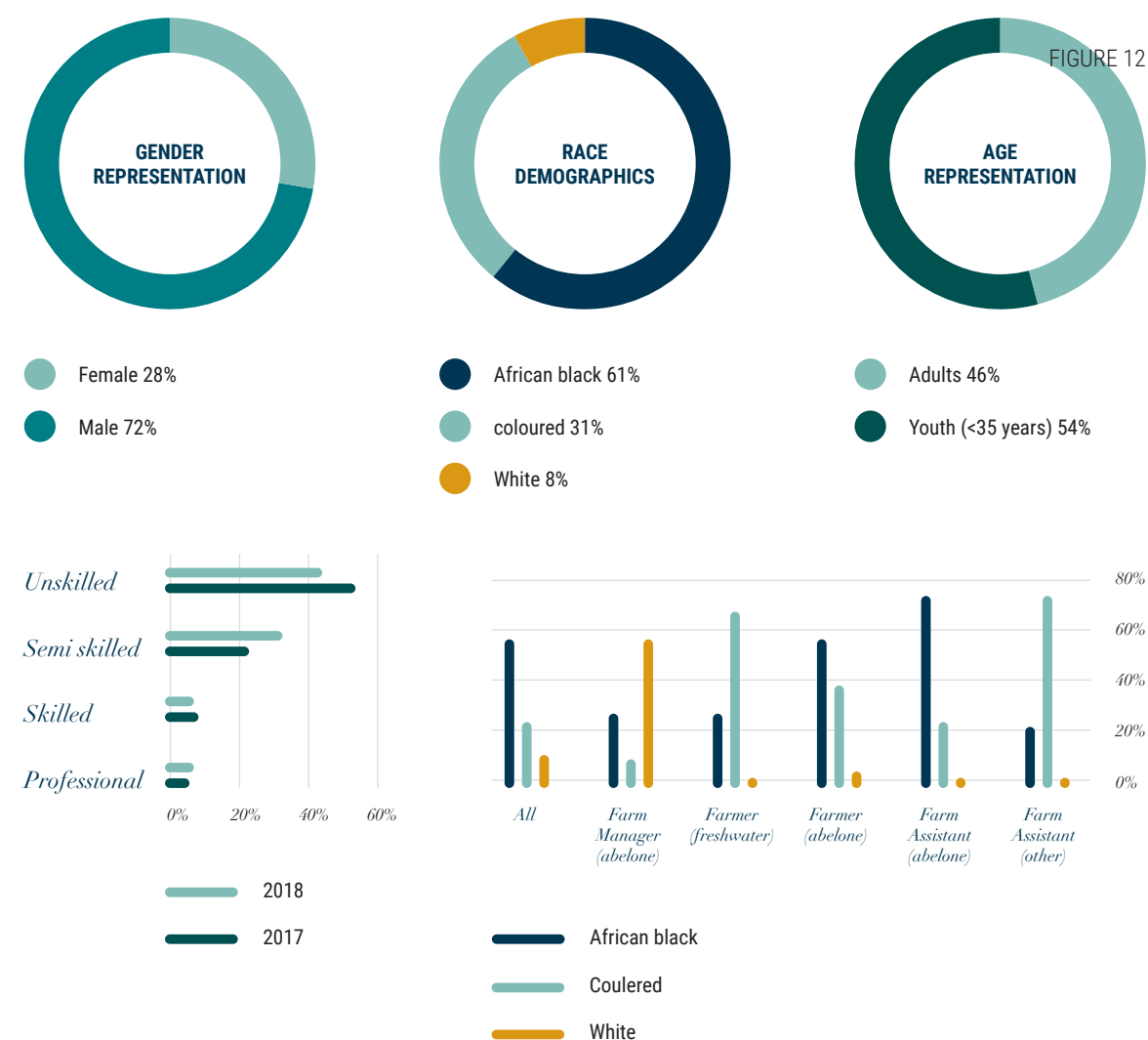
As Figure 12 below illustrates, South Africa's aquaculture industry demonstrates reasonable transformation in the workforce. The majority of employees are black Africans (61%), followed by Coloured (31%) and White (8%). However, the Aquaculture Transformation Strategy report found that around 80% of aquaculture farms are managed by Whites, while HDIs manage only 20%, of which 15% and 5% are Coloured and black African managers,

respectively. The report also uncovered that most aquaculture farm-managers run these farms by virtue of being the owners, which implies that around 80% of all aquaculture farms in South Africa are owned by Whites. In sum, the Aquaculture Transformation

Strategy concluded that the meaningful participation of HDIs as owners and managers of aquaculture farms is limited, and thus the aquaculture industry lacks meaningful transformation.<sup>28</sup>

## Aquaculture demographics profile

Source: DFFE (2021), Internal draft report



25. AgriSETA, 2020. Aquaculture Sub-Sector Skills Plan 2020-2021.

26. DAFF, 2020. The South African Aquaculture Transformation Strategy, report commissioned by the (former) Department of Agriculture, Forestry and Fisheries (DAFF), Pretoria, August 2020.

27. AgriSETA, 2020. Aquaculture Sub-Sector Skills Plan 2020-2021.

28. DAFF, 2012. Aquaculture Research and Technology Development Programme for South Africa, Directorate: Fisheries: Cape Town, July 2012. Page 94



Critically, the Aquaculture Transformation Strategy also identifies six strategic interventions (or pillars) to help guide the transformation of aquaculture industry based on the key challenges identified in the report. These are:

- Pillar 1: Sustainable aquaculture production;
- Pillar 2: Ownership and management;
- Pillar 3: Skills development;
- Pillar 4: Socio-economic empowerment and rural development;
- Pillar 5: Funding; and
- Pillar 6: Sector management and regulatory environment.<sup>29</sup>

7.7 RESEARCH, DEVELOPMENT, AND TECHNOLOGY

As aquaculture is a technology-driven industry that relies on research, the DFFE established the Aquaculture Research and Technology Development Programme (ARTDP) in 2012 to help position South Africa as a leader in aquaculture development through investments in science, research and development. The aim of the ARTDP is to provide an over-arching strategic framework for aquaculture research and technology development to ensure (i) diversification and competitiveness, and (ii) sustainable production. The purpose of the programme is to guide other government departments, academia, funding agencies and private sector on aquaculture research focus areas.<sup>30</sup> Critical research is being undertaken at various universities and research institutions, including the Agricultural Research Council (ARC). A key institutional expression for this imperative is the China-South Africa Aquaculture Technology Demonstration Centre (ATDC) in Gariep in the Free State province. Although initially co-established with China in 2006 as a fish hatchery, the facility was upgraded in 2013 to serve as a research, training and demonstration centre on different freshwater

fish species. Today, the ATDC continues to serve the freshwater aquaculture sector through training and promotion, demonstration of breeding and culture techniques as well as research activities. In terms of marine aquaculture research, the DFFE conducts key research in the field (coastal) or at the Marine Research Facility in Sea Point, Western Cape.<sup>31</sup> The DFFE itself is involved in conducting aquaculture research projects, ranging from product safety risks associated with fish production to developing innovative food sources. Other departmental research projects have focused on reducing costs of production and feed, as well as technology development of new indigenous species. Big strides furthermore have been made in terms of culture technology of sea urchins, with pilot trials currently being conducted on commercial farms. In terms of environmental sustainability, research has been conducted on food safety, aquatic animal health and impact of the environment on aquaculture (e.g. Harmful Algal Blooms), as well as the overall impact of aquaculture on the environment.<sup>32</sup>

7.8 ENVIRONMENTAL AND SOCIAL SUSTAINABILITY

Aquaculture relies on good quality environment for its sustainability, growth and competitiveness. An increased understanding and monitoring of the interactions between aquaculture and the environment are therefore required for effective management. The DFFE Directorate: Aquaculture Research has a dedicated environmental unit which focuses on (i) addressing the suitability and assimilative capacity of different environments to various aquaculture practices, and (ii) addressing the impacts of aquaculture practices on the environment. Sustainable aquaculture development implies optimizing the social and economic benefits arising from the use of natural resources, while protecting the biological diversity and maintaining the ecosystem function.

Over the years, the aquaculture industry in South Africa has developed “best management practices” to minimize potential biological impacts and environmental degradation from aquaculture farming. This includes:

- Evaluating and mitigating impacts in terms of an environmental assessment (i.e. Environmental Impact Assessments or EIAs);
- Understanding the impacts of climate change;
- Conducting a country-wide Strategic Environmental Assessment (SEA) to identify suitable areas where environmentally sustainable aquaculture development can be prioritised and incentivised; and
- Identifying land and sea-based sites earmarked specifically for aquaculture activities known as Aquaculture Development Zones (ADZs).

A SEA is currently being conducted at a national scale and includes all nine provinces. The SEA will assess the identified environmental attributes, specific siting criteria and key impacts associated with both marine and freshwater related activities of aquaculture planning, development and operations. The assessment will consider natural (offshore, inshore and inland) and land-based systems operating in cold/temperate and warm waters. Candidate species that will be considered during the assessment include: abalone, mussels, oysters, prawns, seaweed, tilapia, trout, and marine finfish (e.g. Kob and salmon). The SEA process will also review existing legislation, including licensing/permitting and authorisational procedures currently governing marine and freshwater aquaculture on a national and provincial scale.<sup>33</sup>

The primary purpose of ADZs is to create an enabling environment for aquaculture to develop and expand in a sustainable manner. The key benefits of ADZs are to:

- encourage investor confidence;
- create incentives for industry development;
- provide aquaculture services;
- manage the risks associated with aquaculture;
- job creation;
- skills development;
- empowerment of rural communities; and
- benefit from Special Economic Zones (SEZs) incentives.

Government’s main role in ensuring the development of ADZs is to:

- negotiate and obtain consent from the landowners;
- undertake EIA processes;
- develop sites with appropriate basic infrastructure (such as roads, electricity, security fences, reservoirs, and water pumps); and
- establish support facilities (including processing establishment and laboratories).

At present, the Eastern Cape has the highest number of identified ADZs in the country (4), followed by KZN (2) and the Northern Cape and Western Cape (1 each). Some zones, such as the Saldanha Bay ADZ, are fully operational, have suitable infrastructure, and employ a significant number of workers, while others still require feasibility studies and Environmental Authorisations (EA) before implementation.

29. DFFE, 2020. Aquaculture Yearbook 2020.  
 30. DAFF, 2012. Aquaculture Research and Technology Development Programme for South Africa, Directorate: Fisheries: Cape Town, July 2012.  
 31. DFFE, 2020. Aquaculture Yearbook 2020.  
 32. DFFE, 2020. Aquaculture Yearbook 2020.

33. UNCTAD, 2021. Advancing the Potential of Sustainable Ocean-Based Economies.

A more detailed breakdown of ADZs in South Africa is provided in Table 12 below:

ADZs in South Africa

TABLE 12

Source: DFFE, 2021. Aquaculture Yearbook 2020

Aquaculture Development Zone	Description
<b>Richards Bay ADZ</b> (KwaZulu-Natal) DFFE project	<b>Area:</b> undefined <b>Targeted species:</b> Marine finfish <b>Current status:</b> No farming is currently taking place as the Basic Assessment process is to be undertaken. <b>Potential production:</b> Approximately 3000 tons per annum
<b>Coega Industrial ADZ</b> (Eastern Cape) Provincial project	<b>Area:</b> 440 ha (land-based zone) <b>Targeted species:</b> Marine and freshwater finfish, abalone <b>Current status:</b> No farming is taking place <b>Potential production:</b> Approximately 40 000 tons per annum  Coastal and Environment have been appointed to do the EIA for the Marine Pipeline which will supply the ADZ with sea water and help with discharge. Detailed design for bulk services for the ADZ being finalised and the Geotechnical investigations completed for bulk service installation planned for 2020.
<b>East London Industrial development Zone</b> (Eastern Cape) Provincial project	<b>Area:</b> 32 ha (land-based zone) <b>Targeted species:</b> Marine and freshwater finfish, abalone and seaweed <b>Current status:</b> One facility is currently operating as a hatchery and recently started production of dusky kob. The facility will expand to produce yellowtail and oysters in the future. The facility is expected to produce 100 tons by the end of year two and 300 tons per annum at full production. <b>Potential production:</b> Approximately 10 000 tons per annum
<b>Qolora ADZ</b> (Eastern Cape) DFFE project	<b>Area:</b> 26.4 ha (land-based zone) <b>Targeted species:</b> Marine finfish, abalone and seaweed <b>Current status:</b> No farming is taking place. The Department is currently seeking funding to support the development of basic infrastructure. <b>Potential production:</b> Possibility of developing two 300-ton abalone/seaweed farms and a combination of fish farms.  Total production capacity expected is as follows: 600 tons of abalone production capacity (integrated abalone/seaweed farming) at 11 to 12 m above sea level. 5 500 tons of finish at 15 to 25 m above sea level
<b>Algoa Bay ADZ</b> (Eastern Cape) DFFE project	<b>Area:</b> 1 146 ha (sea-based zone) <b>Targeted species:</b> Marine finfish, oysters and mussels <b>Current status:</b> One farm is operational in the Port Elizabeth Harbour (Algoa 6). The Final Basic Assessment report and application was submitted to the Competent Authority for consideration in October 2019. <b>Potential production:</b> Algoa 1: 218 ha of mussel production (approximately 6 mussel farms) and 94 ha of oyster production. A viable mussel operation requires an annual production volume of +/- 500 tons and approximately 38 ha of space Algoa 6: 479 ha = approximately 16 oyster farms Algoa 7: 355 ha - Three finfish operators produced 1 000 tons in the first year of the pilot study and up to 9 000 tons by year three.
<b>Vanderkloof Trout ADZ</b> (Northern Cape) DFFE project	<b>Area:</b> 2nd largest dam in SA <b>Targeted species:</b> Freshwater finfish (trout) <b>Current status:</b> No farming is taking place. <b>Potential production:</b> Approximately 11 518 tons per annum

Aquaculture Development Zone	Description
<b>Saldanha Bay ADZ</b> (Western Cape) DFFE project	<b>Area:</b> 464 ha of currently allocated area exist in the ADZ, of which 151 ha were operational in 2018. With a further 420-ha area for new production. <b>Targeted species:</b> The following species are considered for farming in the ADZ: Currently cultivated bivalve species: Pacific oyster Mediterranean and Black mussel New indigenous shellfish species: Abalone South African scallop New indigenous finfish species: White Stumpnose Kabeljou Yellowtail Alien finfish species: Atlantic salmon Coho salmon King/Chinook salmon Rainbow and Brown trout Seaweed  <b>Current status:</b> 13 aquaculture farmers produce approximately 2300 tons of mussels and oysters in the bay. One farm is producing under 50 tons of trout under a pilot phase. 500 jobs have been created in the bay. The Environmental Authorisation was granted in January 2018 however appeals process was entered and concluded in 2019. The Year 1 of implementation was undertaken from February 2019 -January 2020. <b>Future growth:</b> Environmental authorisation to increase production to 15 000 tons Increase in the number of direct jobs to +/- 2500 (5-fold increase) 255 ha of new water space has been issued to 4 existing projects and 14 new entrants (primarily PDI's and SMME's) <b>Production limits</b> Limited to 10 000 tons per annum of shellfish (can increase after two years of monitoring) Finfish production limited to 1000 tons per annum Finfish production can achieve up to 5000 tons per annum over five years





### 7.9 POLICY CONSIDERATIONS

The DFFE is the lead department in the development and management of the aquaculture industry. However, as discussed below, the current legislative framework governing aquaculture activities in South Africa is fragmented and regulated by various departments for both marine and freshwater sectors. In 2012, recognising both the potential for aquaculture to benefit South Africans and the need to create a more enabling regulatory environment, the then Department of Agriculture Forestry and Fisheries (DAFF) drafted the National Aquaculture Strategic Framework (NASF), which provided a road map to help government facilitate the development of the industry. The National Aquaculture Policy Framework (NAPF) was subsequently developed in response to the NASF to, inter alia, encourage an integrated and more holistic approach to aquaculture development, which promotes greater participation, inter-governmental coordination and partnerships. In 2014, Initiative 2 of the Phakisa Aquaculture Lab, which focused on 'Legislative Reform' in the industry, aimed to amend legislation to streamline the assortment of existing regulations and create an enabling environment to promote aquaculture sector growth.

A more recent legislative review from the DFFE established there are over 30 pieces of legislation that are applicable to aquaculture. The review also underlined that aquaculture is currently positioned alongside fishing under the Marine Living Resources Act 18 of 1998 (MLRA), and operators thus require a 'right' in order to farm - this is viewed as a potential barrier for entry for new small-scale farmers. Therefore, the recommendation from the legal review was to have one piece of dedicated legislation for aquaculture to streamline all authorisations, thereby reducing administrative burden on the industry. Hence, the Aquaculture Development Bill ('The Bill') was introduced in Parliament in June 2018 to enable the aquaculture industry to be regulated more effectively. This eventually resulted in the introduction of the Aquaculture Development Bill (the 'Bill') in 2018, which specifically aims to streamline aquaculture authorisations and institutional arrangements. The Bill is expected to be tabled in Parliament within the next year.

### 7.10 TARGETS AND INTERVENTIONS THROUGH TO 2035

The aquaculture sub-sector of South Africa's oceans economy has the potential to make a

significant contribution to economic development, enterprise development, job creation, empowerment, environmentally sustainable fish production and food security in the country. In this regard, growth projections estimate that total revenue contribution of aquaculture to South Africa's oceans economy could increase to almost R4 billion in 2035 and contribute between 10 000 and 15 000 direct jobs (excluding value chain employment).

Tabled below is the Aquaculture Sub-Sector Plan relating to South Africa's Oceans Economy. The scope of the plan spans three strategic thrusts through to 2035 that collectively aim to realise the abovementioned economic growth targets.

The first strategic thrust (0-2 years) will aim to bring about short-term stability to the sub-sector following the negative impacts of the COVID-19 pandemic, which include escalating costs. The interventions planned for this initial period will aim at increasing local demand and supply through increasing effectiveness and efficiency. Once the industry has stabilised, it can be revived through various interventions implemented in the next strategic thrust (2-5 years) that will aim to advance the industry's transformation agenda, increase beneficiation levels, and improve resource governance. These interventions will include:

- introducing enabling legislation and policy;
- activating a centralised online permitting system;
- increasing the effectiveness and efficiency of value-chains;
- increasing investment to aid ailing infrastructure (including the power grid, road, and transport infrastructure);
- increasing research and development capacity; and
- ensuing responsive funding instruments.

Once the industry has been stabilised and revived, the third and final strategic thrust (5 plus years) will focus on increasing the size of the industry in a manner which balances economic and environmental sustainability, whilst at the same time also mitigating the impact of climate change. Growth in the sub-sector and increasing production capacity is expected to be advanced by:

- bringing new repurposed aquaculture sites online;
- expanding offshore production capacities; and
- developing a network of new research and demonstration centres and incubators.

The interventions to stabilise, revive and grow the sub-sector to 2035 are detailed below.



2035 GDP Contribution Macro-target: ZAR 4.8 Billion\*  
2035 Employment Macro-target: 58 000\*

TABLE 13

[\*In conjunction with Fisheries]

Intervention	Implementation Time Frame 3 Strategic Thrusts			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
ACCESS TO LAND AND WATER SITES					
Establish new commercial sites for aquaculture and ensure access to existing sites and infrastructure by:  <ul style="list-style-type: none"><li>Developing resource management plans for prioritised dams to cater for aquaculture</li><li>Increasing access to dams, sea space outside ports, ranching sites, new ranching sites, TNPA sea space, and land (new sites)</li><li>DPWI issuing leases to existing prioritised sites (month-to-month leases and 15-year leases)</li><li>Increasing access to Aquaculture Development Zones (ADZs)</li><li>Implementing Phase 3 of SEA</li></ul>	X	X	X	<ul style="list-style-type: none"><li>10 000 direct jobs created (within 10-years)</li><li>Increased annual production to just under 70 000 tons (within 10-years)</li></ul>	<ul style="list-style-type: none"><li>DWS</li><li>DPWI</li><li>DMRE</li><li>DALRRD</li><li>TNPA</li><li>DFFE</li><li>Provincial Departments</li><li>Industry and associations</li></ul>
RESEARCH TO GUIDE DIVERSIFICATION OF COMMERCIALLY VIABLE SPECIES TO IMPROVE COMPETITIVENESS AND INCREASE DIVERSIFICATION OF THE SECTOR					
Identify and develop new species and technology to diversify the existing portfolio by:  <ul style="list-style-type: none"><li>Developing three (3) new species and piloting in collaboration with the aquaculture sector and associations, (e.g. sea urchins, mullet, clams and kelp)</li></ul>	X	X		<ul style="list-style-type: none"><li>Three (3) new species developed piloted in collaboration with the industry and associations</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>DSI</li><li>TIA</li><li>Industry and associations</li></ul>
Research into reducing costs and improving efficiency of aquaculture operations by conducting:  <ul style="list-style-type: none"><li>Research into cost effective feed</li><li>Research on alternative energy solutions</li><li>Industry energy audit for energy systems</li><li>Research into efficient system design</li></ul>	X	X		<ul style="list-style-type: none"><li>Reduction in feed costs</li><li>Improved efficiency in aquaculture sector</li><li>Increased efficiency and effectiveness of operations where new systems have been implemented</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>DSI</li><li>TIA</li><li>ARC</li><li>Industry and associations</li><li>Universities</li></ul>
Research into sterile, same sex offspring (tilapia/catfish/trout) to enable access to new sites	X	X		<ul style="list-style-type: none"><li>Three (3) species researched on with regards to sterile, same sex offspring</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>DSI</li><li>TIA</li><li>ARC</li><li>Industry and associations</li><li>Universities</li></ul>
Research into new production technology by conducting research on:  <ul style="list-style-type: none"><li>Offshore species (seaweed and finfish)</li><li>Cage culture technology for abalone</li><li>Integrated Multi-Trophic Aquaculture (IMTA)</li></ul>			X	<ul style="list-style-type: none"><li>Feasibility and opportunities for offshore and abalone cage culture technologies assessed</li><li>Three (3) IMTA projects piloted</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>DSI</li><li>TIA</li><li>ARC</li><li>Industry and associations</li><li>Universities</li></ul>
ENSURE ENVIRONMENTAL AND ECONOMIC SUSTAINABILITY					
Enhance climate change mitigation and adaption by:  <ul style="list-style-type: none"><li>Refining climate change mitigation and adaption plan (including interventions)</li><li>Implementing climate change mitigation and adaption plan</li></ul>	X	X		<ul style="list-style-type: none"><li>Climate change mitigation and adaptation plan refined and implemented</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Industry and associations</li><li>Provincial Departments</li></ul>
Develop collaborative model to address stock security for abalone ranching	X			<ul style="list-style-type: none"><li>Reduced poaching of ranched abalone</li></ul>	<ul style="list-style-type: none"><li>DFFE: FM</li><li>Industry and associations</li><li>Provincial Departments</li></ul>
Implement coastal water quality monitoring to provide early warning system and manage food safety of products by:  <ul style="list-style-type: none"><li>Developing a coastal water quality monitoring early warning system</li><li>Developing an Early warning system for Harmful Alga Blooms (HABs)</li></ul>	X			<ul style="list-style-type: none"><li>Existing markets sustained</li><li>Two international markets opened (EU, Russia, China)</li><li>Increased industry exports</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>NRCS</li><li>Industry and associations</li><li>Provincial Departments</li><li>Municipalities</li></ul>

Intervention	Implementation Time Frame 3 Strategic Thrusts			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
STABILISE AND EXPAND LOCAL AND INTERNATIONAL MARKETS					
Implement marketing and awareness by:  • Developing and implementing aquaculture marketing and awareness campaigns and supporting material • Developing a strategy to increase informal market • Opening access to Department of Correctional Services (DCS) and Department of Health (DoH) • Opening access to the South African National Defence Force (SANDF)	X	X		<ul style="list-style-type: none"><li>Increased market shares for aquaculture products</li><li>New international markets destinations</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Provincial Departments</li><li>the dtic</li><li>DIRCO</li><li>Industry and associations</li><li>DCS</li><li>DoH</li><li>SANDF</li><li>DSBD</li></ul>
Increase effectiveness and efficiency of value chains by focusing on market research and product development	X	X		<ul style="list-style-type: none"><li>Three (3) new products developed</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Industry and associations</li><li>Hospitality and retail sector</li><li>DSDB</li><li>the dtic</li><li>Provincial Departments</li></ul>
Review and explore favourable aquaculture tariff system by:  • Reviewing tariff structure affected by certain imports • Identifying need for tariffs on imported products	X	X		<ul style="list-style-type: none"><li>Increased local market share</li><li>Aquaculture tariff structure affected by certain imports reviewed</li><li>Need for tariffs on imported products identified</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Industry and associations</li><li>the dtic</li><li>ITAC</li></ul>
SKILLS AND CAPACITY DEVELOPMENT					
Establish research and demonstration (R&D) centres and industry incubators by:  • Conducting feasibility studies for potential research and demonstration centres, and incubators • Securing partnership secured with aquaculture sector • Establishing incubators	X	X	X	<ul style="list-style-type: none"><li>Two (2) industry incubators developed (Saldanha Bay, Northern Cape and/or Eastern Cape)</li><li>Extension services in all nine (9) provinces offered</li><li>Veterinary services in all nine (9) provinces offered</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Industry and associations</li><li>DSBD (SEFA, SEDA)</li><li>the dtic</li><li>Provincial Departments</li></ul>
Establish and operationalise small-scale aquaculture clusters		X		<ul style="list-style-type: none"><li>Increased number of operational small-scale aquaculture clusters</li><li>Increased number of jobs created and sustained in clusters</li><li>Increased production output by aquaculture clusters</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Provincial Departments</li><li>Municipalities</li><li>Industry and associations</li></ul>
Establish state-owned hatcheries	X	X		<ul style="list-style-type: none"><li>Two (2) operational state-owned hatcheries established</li><li>Increased number of small-scale aquaculture farmers</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Provincial Departments</li><li>Industry and associations</li><li>Municipalities</li></ul>
Increase fish feed production by:  • Developing traceability procedure for feed • Identifying processing equipment for freshwater feed		X		<ul style="list-style-type: none"><li>Volume of local fish feed produced and registered</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>DALRRD</li><li>Universities and colleges</li><li>ARC</li><li>Industry and associations</li></ul>



Intervention	Implementation Time Frame 3 Strategic Thrusts			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
Implement rapid aquaculture upskilling	X	X		<ul style="list-style-type: none"> <li>Rapid skills programme implemented</li> </ul>	<ul style="list-style-type: none"> <li>DFFE</li> <li>DALRRD</li> <li>Industry and associations</li> <li>SAIMI</li> <li>Universities</li> <li>DHET</li> <li>SETAs</li> </ul>
Increase research and development capacity initiative by: <ul style="list-style-type: none"> <li>Assessing current aquaculture industry research facilities nationally</li> <li>Sourcing funding to revitalise infrastructure</li> <li>Developing collaboration between universities</li> </ul>	X	X		<ul style="list-style-type: none"> <li>Increased access to existing research and training infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>DFFE</li> <li>Industry and associations</li> <li>SAIMI</li> <li>Universities</li> <li>DHET</li> </ul>
Accelerate aquaculture industry transformation		X		<ul style="list-style-type: none"> <li>B-BEE sector targets developed and achieved</li> </ul>	<ul style="list-style-type: none"> <li>DFFE</li> <li>Industry and associations</li> <li>the dtic</li> <li>DoT</li> <li>DPWI</li> <li>DWS</li> <li>TNPA</li> <li>DALRRD</li> <li>Provincial Departments</li> <li>DSBD (SEDA, SEFA)</li> </ul>
Advance aquaculture beneficiation through product diversification and value addition			X	<ul style="list-style-type: none"> <li>Beneficiation initiative completed and implemented</li> </ul>	<ul style="list-style-type: none"> <li>DFFE</li> <li>Industry and associations</li> <li>DSBD (SEDA, SEFA)</li> <li>Tertiary institutions</li> <li>DHET</li> <li>SAIMI</li> <li>DSBD</li> <li>DALRRD</li> </ul>
Advance aquaculture sustainable skills system by: <ul style="list-style-type: none"> <li>Ensuring all commercial aquaculture enterprises provide SETA-accredited training.</li> <li>Introducing academic programmes to at least four (4) more universities that are related to the aquaculture value chain</li> <li>Developing a bursary programme, complemented by an internship/work placement or in-service programme</li> </ul>			X	<ul style="list-style-type: none"> <li>All training provided accredited by SETA</li> <li>Aquaculture industry bursary developed</li> </ul>	<ul style="list-style-type: none"> <li>DFFE</li> <li>Industry and associations</li> <li>DSBD (SEDA, SEFA)</li> <li>Tertiary institutions (universities and colleges)</li> <li>DHET</li> <li>SAIMI</li> <li>DSBD</li> <li>DALRRD</li> </ul>

#### FUNDING AND ENTERPRISE DEVELOPMENT

Secure funding for ADZs by:	X	X		<ul style="list-style-type: none"> <li>Funding sourced and secured for at least one (1) ADZ (Coega ADZ/ East London ADZ)</li> </ul>	<ul style="list-style-type: none"> <li>DFFE</li> <li>Industry and associations</li> <li>the dtic</li> </ul>
Review and improve funding in aquaculture industry by: <ul style="list-style-type: none"> <li>Reviewing financial instruments and criteria</li> <li>Developing funding instruments for small-scale aquaculture</li> <li>Introducing packaged investment opportunities</li> <li>Reviewing Aquaculture Development Fund (ADF) model</li> </ul>	X			<ul style="list-style-type: none"> <li>Investment and funding into the sector (Private and government)</li> <li>Small-scale funding instruments developed with DFIs</li> </ul>	<ul style="list-style-type: none"> <li>DFFE</li> <li>Industry and associations</li> <li>the dtic</li> <li>DALRRD</li> <li>DSBD (SEFA, SEDA)</li> <li>DFIs</li> <li>Provincial Departments</li> </ul>

Intervention	Implementation Time Frame 3 Strategic Thrusts			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
STREAMLINE AUTHORISATION AND ADMINISTRATIVE REQUIREMENTS AND PROCESSES					
Activate centralised online permitting system by:  • Developing online system • Developing website portal for information sharing and access		X		<ul style="list-style-type: none"><li>• Online system developed and operational</li><li>• Website portal developed and activated</li></ul>	<ul style="list-style-type: none"><li>• DFFE</li><li>• Provincial Departments</li><li>• SITA</li><li>• Industry and associations</li><li>• DALRRD</li><li>• DWS</li><li>• TNPA</li></ul>
Introduce enabling legislation, policy and regulations by:  • Promulgating Aquaculture Development Act • Reviewing and publishing NEMA thresholds (if applicable) • Ensuring legal recognition for small-scale aquaculture	X	X		<ul style="list-style-type: none"><li>• Aquaculture Development Act promulgated</li><li>• New NEMA thresholds published, and regulations issued</li><li>• Small-scale aquaculture legally recognised</li></ul>	<ul style="list-style-type: none"><li>• DFFE</li><li>• Industry and associations</li></ul>
Develop provincial best management practices guidelines by:  • Identifying best practices • Develop best practices guidelines • Promulgating guidelines • Monitoring of compliance			X	<ul style="list-style-type: none"><li>• Provincial Best Management Practices promulgated in all provinces</li><li>• Compliance with best management practices audited and reported on an annual basis</li></ul>	<ul style="list-style-type: none"><li>• DFFE</li><li>• Provincial Departments</li><li>• Industry and associations</li></ul>
SMALL-SCALE SUPPORT PROGRAMME					
Ensure support to small-scale aquaculture by:  • Conducting study to identify small-scale aquaculture baseline data • Ensuring the provision of advisory services to small-scale famers and producers • Ensuring the provision of market related information for small-scale aquaculture industry	X	X		<ul style="list-style-type: none"><li>• Small-scale aquaculture reports and baseline information developed</li><li>• Increased number of small-scale farmers and producers supported</li><li>• Increased success rate of small-scale farmers and producers supported</li></ul>	<ul style="list-style-type: none"><li>• DFFE</li><li>• Provincial Departments</li><li>• the dtic</li><li>• ARC</li><li>• Universities and colleges</li><li>• Municipalities</li><li>• DSBD (SEFA, SEDA)</li></ul>



SUB-SECTOR PLAN

# FISHERIES

08







## 08. Fisheries Sub-Sector Plan

The Food and Agriculture Organisation (FAO) of the United Nations (UN) broadly defines fishing as “any activity, other than scientific research conducted by a scientific research vessel, that involves the catching, taking, or harvesting of fish” in marine, coastal and inland areas.<sup>1</sup> Fishery can be industrial, commercial, subsistence, recreational or artisanal - and can be annual or seasonal.

This section of South Africa’s Oceans Economy Master Plan presents a sub-sector plan for Fisheries. The sub-sector plan deals with the following:

- A global review of the industry;
- A review of the national industry;
- Current interventions;
- Challenges;
- Opportunities;
- Skills and transformation;
- Research, development and technology;
- Environmental sustainability;
- Policy consideration; and
- Targets and interventions through to 2035.

### 8.1 GLOBAL SUB-SECTOR REVIEW

Globally, wild capture production of fish has been relatively static since 1980s, with most growth in the supply of fish for human consumption stemming from the aquaculture sector. According to the FAO, global fish production is estimated to have reached about 179 million tons in 2018, with a total first sale value estimated at USD401 billion (ZAR5,8 trillion), of which just under half (82 million tons, valued at USD250 billion or ZAR3.6 trillion), came from aquaculture production alone. Finfish represented 85% of total production and around 70% of total exports, estimated to be USD75 billion (over ZAR1 trillion).<sup>2</sup> Global catches in inland waters account for around 12% of total capture fisheries production, reaching a record 96 million tons in 2018. Of the overall total, 156 million tons were used for human consumption (equivalent to an estimated annual supply of 20,5 kg per capita), while the remaining 22 million tons were destined for non-food uses, mainly to produce fishmeal and fish oil.<sup>3</sup>

The Asian market is the largest global market for fish production, contributing just over 55% of total production across the fishing sector. China remains by far the largest fish-producing country. In 2018, its production reached 62 million tons, with 15 million tons from capture fisheries, corresponding to a share of 15% and 35% of total fish production.<sup>4</sup>

Global food fish consumption increased at an average annual rate of 3% from 1961 to 2017, a rate almost twice that of annual world population growth (1.6%) for the same period - and higher than that of all other animal protein foods (including meat, dairy, and milk). From 2007 to 2017, fish consumption has gradually decreased in developed countries (from 26kg per capita to 24kg), while in developing countries fish consumption has significantly increased from 5kg in 1961 to 19kg in 2017, with an average annual rate of around 2,4%.<sup>5</sup>

The total number of fishing vessels in 2018, from small undecked and non-motorized boats to large industrial vessels, was estimated at 4,6 million (a 3% decrease from 2016). Despite a decline in numbers of vessels, Asia still had the largest fishing fleet, estimated at 3.1 million vessels (or 68% of the total) in 2018. Africa’s vessels represented 20% of the global fleet, while those of the Americas had a 10% share. In Europe and

Oceania, the fleet size represented over 2% and less than 1% of the global fleet, respectively.<sup>6</sup>

### 8.2 SOUTH AFRICAN SUB-SECTOR REVIEW

Fisheries is an extremely strategic sector for food security in South Africa, which contributes roughly 0.7% of the global fishing volume and consumes roughly 312 million kilograms of seafood annually.<sup>7</sup> As a self-renewable resource, fish production is practically unlimited, provided it is sustainably managed.

The South African fishing sector is well-established, ranging from a commercial (and capital-intensive) fishing segment, with highly industrialised fishing fleets and fish processing plants, to small-scale and recreational fisheries. These three groups - i.e. commercial, small-scale and recreational fishers - typically operate in the same space and harvest similar resources, with the latter two, together with subsistence/artisanal fishers, making up a significant proportion of the total number of people dependent on the industry.<sup>8</sup>

The industry is extremely complex, and there is a great diversity in catching techniques, processing, marketing, capital investment, equipment and infrastructure.<sup>9</sup> The commercial fishing segment consists of 22 different sectors (or fisheries) with more than 2 900 right-holders that harvest a variety of species, from white mussels to deep-sea species like sardines and hake. Annual production is in the region of 600 000 tons and generates total sales in excess of ZAR10 billion, representing around 1% of the national Gross Domestic Product (GDP),<sup>10</sup> with hake sales contributing just under half with ZAR4.5 billion per year.<sup>11</sup> Although estimates vary, it is believed that the commercial segment directly employs around 28 000 people, with around 30 000 more depending on fisheries resources to meet basic needs in the small-scale and recreational sectors.<sup>12</sup> A 2021 National Data and Information Report for Marine Spatial Planning estimates that the fishing industry creates an additional 81 000 jobs indirectly, the majority of which are located in the Western Cape.<sup>13</sup> Thus, while the industry as whole makes a relatively small contribution to the national economy, the coastal regions and many coastal communities outside the

1. FAO, 2020. The State of World Fisheries and Aquaculture 2020: Sustainability in action.

2. FAO, 2020. The State of World Fisheries and Aquaculture 2020: Sustainability in action.

3. FAO, 2020. The State of World Fisheries and Aquaculture 2020: Sustainability in action.

4. FAO, 2020. The State of World Fisheries and Aquaculture 2020: Sustainability in action.

5. Kevern L. Cochrane et al, 2015. Informing effective policies for responsible marine fisheries in South Africa, report prepared for WWF: South Africa and the Responsible Fisheries Alliance.

6. Bob Koigi, 2020. 'Operation Phakisa programme bolsters fish farming, job creation', Africa Business Communities, 13 March 2020.

7. Bob Koigi, 2020. 'Operation Phakisa programme bolsters fish farming, job creation', Africa Business Communities, 13 March 2020.

8. Kevern L. Cochrane et al, 2015. Informing effective policies for responsible marine fisheries in South Africa, report prepared for WWF: South Africa and the Responsible Fisheries Alliance.

9. Richard Martin and Jesper Raakjær Nielsen, 1996. Creation of a new fisheries policy in South Africa: The development process and achievements

10. BBQ, Deep Waters. Black Business Quarterly (BBQ) Online.

11. Anthony Felet et al, 2020. Economic Study of the Hake Deep-Sea Trawl Fishery and the Implications for Future Fishing Rights Allocation Policy, Genesis Analytics, 23 November 2020.

12. South African Government, 2021. Minister of Forestry, Fisheries and the Environment, Ms Barbara Creecy, Budget Speech to National Assembly, 14 May 2021; and South African Government, 2021. Marine Living Resources Act (18/1998): Fishing Rights Allocation Process Fees 2021 - Invitation Notice and Finalised Policies, Government Gazette No. 45504/Vol 667, 19 November 2021.

13. DFFE, 2021. National Data and Information Report for Marine Spatial Planning: Knowledge Baseline for Marine Spatial Planning in South Africa, Department of Forestry, Fisheries and the Environment (DFFE), Cape Town: South Africa.

main urban areas are very dependent on fisheries for their livelihoods.<sup>14</sup>

Small-scale fishers are a relatively newly recognised group of fishers who fish for a living using basic equipment and sometimes small boats. Local communities that host these fishers have been harvesting fish resources from South Africa's coasts and oceans for many decades, and fishing is part of their culture, identity and heritage. Small-scale fishers are allocated fishing rights through their co-operatives, and around 95% of their catch is destined for local consumption. This catch includes mussels, finfish, octopus, rock lobster, sand and mud prawns, limpets, crabs, oysters, seaweed, and abalone.<sup>15</sup> Prior to lockdown in March 2020, a total of 110 small-scale fishing cooperatives were allocated 15-year fishing rights in the Northern Cape, Eastern Cape and KwaZulu-Natal. However, due to the COVID-19

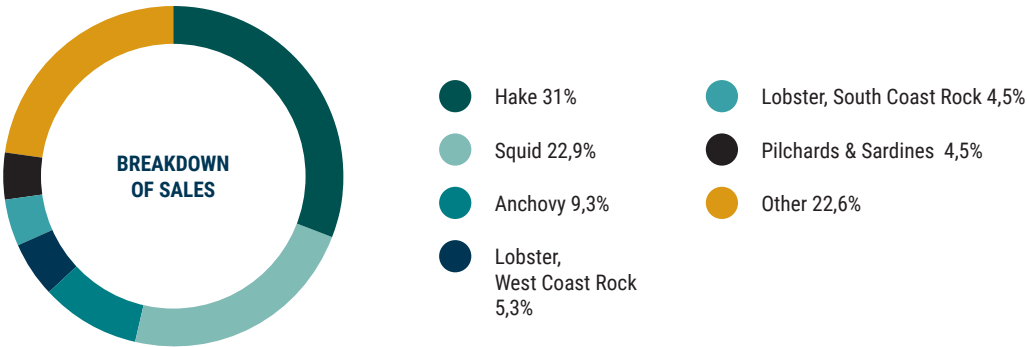
pandemic restrictions, the support process to these co-operatives has been uneven.<sup>16</sup>

South Africa's commercial fishing fleet and processing facilities are valued at approximately ZAR13.5 billion. In 2020, the deep sea trawler fleet consisted of 51 vessels,<sup>17</sup> employing around 7 500 people at sites in Saldanha, Cape Town, Gansbaai, Mossel Bay and Port Elizabeth.<sup>18</sup> The hake deep-sea trawl segment, by far the largest in the industry, employs around 6 600 people directly and owns approximately ZAR3.6 billion in vessel assets and about ZAR4 billion in processing assets - and since 2005 it has invested more than R3.8 billion in upgrading these assets.<sup>19</sup> According to Statistics South Africa (StatsSA), total fishing revenues of ZAR6.6 billion were recorded in 2019 and a breakdown of the biggest catch reveals that hake generated the highest value of sales, followed by squid and anchovies, as seen in Figure 13 below.<sup>20</sup>

*Sales of caught fish and other products, 2019*

Source: StatsSA, 2019: Ocean (marine) fisheries and related services industry

FIGURE 13



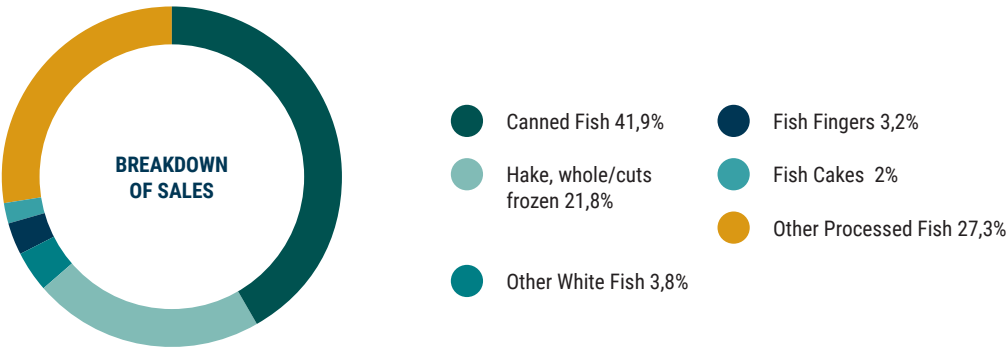
14. Cochrane et al, 2015. Informing effective policies for responsible marine fisheries in South Africa.  
15. Musa Ndlangamandla, 2020. 'Small-scale fishing key to economic growth and transformation', TimesLIVE, 18 March 2020.  
16. South African Government, 2021. Minister of Forestry, Fisheries and the Environment, Ms Barbara Creecy, Budget Speech to National Assembly, 14 May 2021.  
17. Department of Statistics, 2019. Ocean (marine) fisheries and related services industry, 2019, 18 May 2019.  
18. Marillier, 2017. Presentation by the Executive Director of FishSA.  
19. Felet et al, 2020. Economic Study of the Hake Deep-Sea Trawl Fishery and the Implications for Future Fishing Rights Allocation Policy.  
20. Department of Statistics, 2019. Ocean (marine) fisheries and related services industry, 2019.

As shown in Figure 14 below, in the same year the industry generated ZAR9.4 billion from processed products, with canned fish being the most popular, followed by hake and white fish.<sup>21</sup>

*Sales of processed fish and other products, 2019*

Source: StatsSA, 2019: Ocean (marine) fisheries and related services industry

FIGURE 14



8.3 CURRENT INTERVENTIONS

Interventions in South Africa's fishing industry have focused primarily on supporting small medium and micro enterprises (SMMEs), preparing for the long-term fishing rights allocation process in 2020/2021, and under Operation Phakisa, implementing a marine protection services and governance framework, which includes: (i) developing Marine Protected Areas (MPAs) where biodiversity can flourish and fish stocks can replenish themselves; and (ii) adopting a Marine Spatial Planning (MSP) framework, which analyses the spatial and temporal distribution of human activities in the country's marine areas.

The fishing industry is currently regulated by Government using a co-management approach with industry and other stakeholders. This means that all stakeholders, including coastal communities, are empowered to participate with Government in

developing, implementing and evaluating fishery policies and management plans for South Africa. Because small-scale fisheries are composed mainly of previously disadvantaged individuals, with little or no capital to establish sustainable business operations, they tend to depend on Government support for business start-up. In this regard, the Department of Fisheries, Forestry and the Environment (DFFE), has over the years been engaged with all spheres of government to ensure that there is sustained support to these emerging enterprises, resulting in the establishment and funding of approximately 2 000 SMMEs across the various sectors to the value of around ZAR1 billion per annum,<sup>22</sup> as well as the formal recognition of small-scale fisheries in 2014.

Co-created initiatives to support new types of markets and SMMEs include the establishment of a South Africa-based non-profit global enterprise called ABALOB ('small-scale fisher' in isiXhosa).

21. Department of Statistics, 2019. Ocean (marine) fisheries and related services industry.  
22. South African Government, 2021. Minister of Forestry, Fisheries and the Environment, Ms Barbara Creecy, Budget Speech to National Assembly, 14 May 2021.



Launched in 2015 with the support of the DFFE, ABALOBi aims to empower small-scale fishing communities to use information and communication technologies (ICTs) to promote seafood traceability and fair and transparent supply chains through a suite of mobile apps, including the Fisher-To-Marketplace and Monitor.<sup>23</sup> The concept of ABALOBi was born out of discussions among University of Cape Town researchers, the DFFE and several small-scale fisher community representatives, at the back of the Small-Scale Fisheries Implementation Plan (SSFIP) published in 2013.<sup>24</sup>

South African fisheries are managed according to two strategies: total allowable catch (TAC) and total allowable effort (TAE). The first strategy refers to the total amount of catch that may be removed from the sea in one season, while the second restricts the amount of effort used to catch fish (such as restricting the number boats and number of fishers per boat to catch a particular species). Both TAC and TAE values are crucial to ensure sustainable harvesting of fisheries resources. Each year, fisheries right-holders are permitted to fish and catch within individually prescribed TAC/TAE. These values are determined by fisheries scientists working with the Department of Fisheries, Forestry and the Environment (DFFE), and based on their recommendations, as well as the economic and social considerations of that particular time, the Minister ultimately makes the final decision on the TAC and TAE values for the new fishing season.<sup>25</sup>

To ensure compliance with fishing regulations in South Africa’s Exclusive Economic Zone (EEZ), both commercial and small-scale fishers are subjected to monitoring, control and surveillance by the DFFE. This is usually an expensive undertaking, as it involves both land and sea based resources (including three fishing patrol vessels), often in difficult weather conditions. Where possible, non-compliant users are apprehended, charged, prosecuted and penalised.

8.4 CHALLENGES

While the fishing industry plays an important role in South Africa’s food security, it is not without its challenges. These include:

- The over-exploitation of some marine resources;
- Climate change variability;
- Fishing industry perceived as a mature sunset

- industry compared to new growth sectors, such as marine tourism, and offshore oil and gas;
- Illegal activity and the poaching of endangered species by organized transnational networks;
- Lack of a business-enabling environment;
- Continued fragmentation of industry impacting on job retention; and
- Tense community dynamics in some regions (small-scale fishing vs. commercial fishing, small-scale fishing vs. urban development in metro fishing harbours).

Furthermore, whilst Government has invested time and funds to establish an organised small-scale fisheries segment, including forming small-scale fisheries cooperatives and granting of fishing rights to such entities, these communities still face a number of limiting factors, including:

- Lack of access to resources, including vessels and fishing equipment, forcing fishers to get into third-party fish catching agreements;
- Lack of fishing skills and access to technology, contributing to the failure of utilising fishing rights
- Unviability of the allocated basket of species to be caught;
- Unavailability of storage and processing facilities for storage and processing of fish and fish products;
- Poor road infrastructure and costly access fees in some closed or protected areas which limit operations;
- Inability to directly access markets and determine fish prices, compounded by the lack of process and storage facilities;
- Monopoly and abuse of established commercial enterprises, forcing fishers to get into catching agreements and joint ventures with these enterprises, thereby limiting financial returns;
- Lack of knowledge and training on general business skills among local communities and businesses;
- Impact of offshore oil and gas operations and related activities, including underwater pipelines, that potentially threaten resource availability and increase environmental risks (such as oil spillage);
- Delays in Government interventions and proposed support programmes, including the Small-Scale Fisheries Implementation Plan; and
- Marine Spatial Planning that often excludes and undermines fisher communities.

8.5 OPPORTUNITIES

Although the industry faces several key challenges, particularly for small-scale fishers, the following opportunities have been identified that should be appropriately addressed:

- Joint venture partnerships;
- Recapitalisation of South Africa’s fishing fleet;
- Direct equity investment or buy-out options with identified partners; and
- Using Cape Town as gateway for expansion into African fish markets.

8.6 SKILLS AND TRANSFORMATION

The South African fishing industry has undergone massive structural change since 1994 and is considerably ahead of other sub-sectors of the oceans economy, especially in terms of participation by historically disadvantaged individuals (HDIs). In 2004, the DFFE estimated that at least 60% of commercial fishing rights were allocated to HDIs or majority HDI-owned companies. An independent study conducted in 2016 revealed that the deep-sea trawling industry (by far the country’s most valuable fishery segment) is 62.36% black owned and was a level three contributor to broad-based black economic empowerment (B-BBEE).<sup>26</sup> Currently, the fishing industry transformation profile entails approximately 75% black-ownership (up from 35% in 2004). In the deep sea hake segment, HDIs hold around 67% of the shares in firms which harvest 92% of the hake deep-sea trawl catch.<sup>27</sup>

8.7 RESEARCH, DEVELOPMENT AND TECHNOLOGY

Since 1998, South Africa has had an established scientific observer programme dedicated to pelagic fish that are found near the ocean surface or in middle depths, such as sea turtles, swordfish and sharks. The observer programme collects data to inform management strategies in South African waters, including to mitigate and manage bycatch of fish and other animals, especially dolphins, sharks, turtles and seabirds.<sup>28</sup>

Likewise, a dedicated scientific observer programme has been active in the hake fisheries segment since 2002. The programme, conducted in partnership with the DFFE and the South African Deep Sea Trawler

Industry Association (SADSTIA), enables fisheries scientists to collect accurate information about fishing activity and the status of offshore fish stocks, particularly hake. Information gathered by the scientific observer programme is used to guide scientific and management decision-making, including determining TAC and TAE values, as discussed above.<sup>29</sup>

South Africa also hosts a range of non-governmental organisations (NGOs) that conduct research on several ocean species, including the Mammal Research Institute (MRI) Whale Unit, established in 1985 to study the ecology, population dynamics and behaviour of diverse cetaceans populations (i.e. whales, dolphins and porpoises) in southern African waters, with the principal objective of promoting marine conservation in South Africa and beyond.<sup>30</sup>

To ensure informed decision-making, Government has also focused on increasing research outputs and access to various technologies relating to transformation, skills development, and capacity building within the fisheries industry. This has resulted in the DFFE being able to develop scientifically-based methodologies aimed at restructuring the industry in a meaningful and efficient manner. This has helped to change the industry within a relatively short time, from one dominated by a handful of white-owned conglomerates in the early 1990s to one 75% black-owned and a level three contributor to B-BBEE from around 2016.

8.8 ENVIRONMENTAL SUSTAINABILITY

There are various threats to fish populations that potentially make harvesting them from the ocean unsustainable, including overfishing (i.e. the removal of fish species at a rate greater than that it can replenish itself naturally) and bycatch (i.e. discarding unwanted fish from either trawling, line or net fishing). The management agency responsible for overseeing South Africa’s fisheries and optimal utilisation of fisheries resources is the Fisheries Management Branch within the DFFE. The Branch has various sub-programmes, among these:

- Fisheries Research and Development, which ensures the promotion of the sustainable development of fisheries resources and ecosystems by conducting and supporting appropriate research;
- Marine Resource Management, which oversees the sustainable utilisation and equitable and

23. For more information on ABALOBi, please visit the official website at: <<http://abalobi.org>>  
24. South African Government, 2017. Agriculture and Fisheries congratulates Abalobi NPO on winning 2017 SAB Foundation Social Innovation and Disability Empowerment Award, 24 October 2017.  
25. SADSTIA, 2019. Management, South African Deep Sea Trawler Industry Association (SADSTIA), available at: <https://www.sadstia.co.za/fishery/management>  
26. The study was conducted by Empowerdex, one of South Africa’s leading BEE rating and research agencies. See: BBQ, 2017. Deep Waters.  
27. Felet et al, 2020. Economic Study of the Hake Deep-Sea Trawl Fishery and the Implications for Future Fishing Rights Allocation Policy.  
28. WWF, 2011. Fisheries: Facts and Trends South Africa, the World Wildlife Fund (WWF).  
29. SADSTIA, 2019. Management.  
30. For more on the Mammal Research Institute (MRI) Whale Unit, please visit the official website at: < <https://www.mammalresearchinstitute.science/whale-unit>>

orderly access to marine living resources through improved management and regulation;

- Monitoring, Control and Surveillance, which overlooks the protection and promotion of sustainable use of marine living resources by intensifying enforcement and compliance; and
- Fisheries Operations Support, which provides support services in order to ensure the effective and efficient management and administration of inter alia the Marine Living Resources Fund (MLRF).

By and large, South Africa has managed to deliver sustained benefits throughout the fishing industry supply chain, benefiting coastal communities and contributing to food security and socio-economic development and, at the same time, maintain a healthy fish stock. That said, catches in several South African fisheries, including abalone, yellowfin tuna, West Coast rock lobster, have reportedly exceeded sustainable yields and in 2016, a total of 48% of stocks were of concern.<sup>31</sup> On a more positive note, the South African hake trawl fishery was the first hake fishery in the world to be certified by the Marine Stewardship Council (MSC), an international non-profit organisation which sets a standard for sustainable fishing. This certification has been retained since 2004, placing the South African hake trawl fishery amongst the best managed fisheries in the world, while also delivering tangible socio-economic benefits to the people of South Africa.<sup>32</sup>

Even so, a number of challenge exist and impede South Africa's ability to oversee the protection of its ocean habitats. A recent study found that, while significant progress has been made towards sustainable fishing, the DFFE's Fisheries Management Branch has struggled to carry out its mandate, primarily due to limited capacity and skills in the climate change field, ineffective implementation of various policies dealing with the environment and climate change, and an implementation gap between science and management. The study further proposes that more attention has been paid to other sectors of the South African economy, particularly energy, with limited reference to climate change in Fisheries Management documents and equally limited reference to fisheries in national policies and legislation on climate change, such as the 2019 National Climate Change Adaptation Strategy (NCCAS) and the 2022 Climate Change Bill. The implication of this, according to the study, is that insufficient priority has been given for climate changes adaptation measures in the industry, with potential impacts to local fishing communities most vulnerable to the current and future impacts of climate change.<sup>33</sup>

## 8.9 POLICY CONSIDERATIONS

The South African fishing industry is an established sector with a long history of differing access user rights (fishing rights, exemptions, permits and licensing). Historically, access to fishing resources favoured white-owned commercial enterprises. After 1994, Government made significant strides in addressing inequality in user access rights by passing of the Marine Living Resources Act 18 of 1998 (the MLRA), which is still the primary legislation addressing South Africa's fishing industry. The MLRA includes provisions that regulate the use and management of marine living resources and ecosystems to achieve economic growth, human resource development, capacity building and transformation within fisheries. Fishing rights are allocated in terms of section 18 of the MLRA.

An important topic of debate in the allocation of long-term commercial fishing rights under the MLRA and fully transforming the industry has centred on concerns around the exclusion of some fishing communities from previous allocations in favour of commercial and recreational fishers. In its original iteration, the MLRA effectively excluded many small-scale fishers from access to resources, particularly artisanal/subsistence fishers who catch and sell in order to sustain their livelihoods. This omission led to the development of the Small Scale Fisheries Policy (SSFP) in June 2012, which was intended to fundamentally change Government's approach to small-scale fisheries by giving small-scale fisheries the opportunity to have equal access to the country's marine resources as commercial fishing companies. Previously, only a co-operative was deemed to be a suitable legal entity for the allocation of small-scale fishing rights. The SSFP was soon followed by the Small-Scale Fisheries Implementation Plan (SSFIP) in 2013, which provided a high-level view of the process together with a 5-year timeframe for the implementation of the SSFP - the latter taking into account the complexity of the process, costs, and capacity of Government to implement. Then, in May 2014, the Marine Living Resources Amendment Act, Act no. 5 of 2014, was passed, which included changes to some definitions in the MLRA, as well as expansion of the objectives and principles to incorporate the objectives of the SSFP.

While the amended MLRA recognised the rights of small-scale fishing, the revised definitions did not formally recognise artisanal/subsistence fishers under this group, with potential unintended

consequences for these communities, including fishing with recreational permits or fishing illegally (for food), and also being unable to sell catch for income. There have also been implications for workers who are directly involved in pre- and post-harvesting and those, particularly women, who are not directly involved in harvesting, but may be involved in bait preparation, cleaning, processing and marketing of the catch.<sup>34</sup> Furthermore, unlike commercial and recreational fishers, permit conditions under the amended MLRA exclude small-scale fishers from participating in the harvesting of line fish over weekends and public holidays.

In order to address these and other regulatory issues and assist rural fishing communities, the DFFE intends to develop more inclusive policies aimed at redefining access rights and empowering rural communities to participate more equitably and sustainably in South Africa's fishing industry. In this regard, comprehensive legislative reform is expected to be introduced in the near future by DFFE with the intention to the amend the MLRA in its entirety. Once passed, the Department will be better positioned to review the Act's definitions, including re-defining small-scale fishers to include subsistence-based fishers, and establish a new fishing governance framework that will increase the number of rights holders in the industry and focus on attracting additional investment in a segment that has been traditionally characterized by low production, inadequate investment, and socio-economic marginalisation.

For the time being, nine (9) commercial fishing sectors that were previously allocated long-term commercial fishing rights in 2005 and 2013 are due for reallocation as part of the 2020/2021 Fishing Rights Allocation Process ('FRAP2021'), in terms of section 18 of the MLRA. Government views the allocation of longer-term fishing rights through the FRAP2021 as a constitutional and legislative imperative that seeks to stabilise and transform the industry and attract more investment. In this regard, the DFFE recently reviewed all its various policies<sup>35</sup> and fees for applications, licences and permits and subsequently embarked on an extensive public consultation process on the proposed policies and amended fees for FRAP2021. The purpose of the consultations was to allow debate and discussion on the more controversial aspects of a rights allocation process, including the criteria used to determine transformation targets, fronting, and determination of economically viable allocations. For the first time in an allocation process, the DFFE also conducted Socio-Economic Impact Assessments (SEIAS) to promote profitability, whilst optimising

transformation and job creation.<sup>36</sup> In February 2022, the DFFE announced that it had concluded the rights allocation process and published the General Publish Reasons (GPRs) on the allocations, noting that it had received a total of 2 473 applications.<sup>37</sup>

## 8.10 TARGETS AND INTERVENTIONS THROUGH TO 2035

Tabled below is the Fisheries Sub-Sector Plan relating to South Africa's Oceans Economy. The scope of the plan spans three strategic thrusts through to 2035 that collectively aim to realise the abovementioned economic growth targets. The first thrust (0-2 years) will arrest declining growth and bring about short-term stability to the sub-sector by creating a stable enabling legislative and regulatory environment, which will be supported by accessible, effective, and efficient administrative and authorisation processes. To guide future growth and development of the sub-sector, a research and monitoring base will be established, which will support decision-making, planning, implementation, compliance, surveillance, and enforcement interventions. The research and monitoring baseline will inform the drafting of a sector-specific Transformation Charter, which will be customised to reflect the unique operational and transformation challenges and requirements within the industry. The Transformation Charter, in turn, will be closely aligned to a range of initiatives that will aim at increasing skills and capacity within the fishing industry, with a specific focus on historically disadvantaged individuals and marginalised groups, small-scale subsistence-based fisheries, and production facilities.

With the sub-sector stabilised, the second strategic thrust (2-5 years) will focus on reviving the industry through the introduction of accelerated SMME development interventions, supported by the allocation and authorisation of alternative resources uses, to diversify the product offering of the sector.

The inventions to stabilise, revive and grow the fisheries sub-sector to 2035 are detailed below.

31. DFFE, 2021. National Data and Information Report for Marine Spatial Planning.

32. MSC, 2021. South African hake trawl fishery celebrates fourth certification to MSC Standard for seafood sustainability, Marine Stewardship Council (MSC), 15 February 2021.

33. Kelly Ortega-Cisneros et al, 2021. Assessing South Africa's Potential to Address Climate Change Impacts and Adaptation in the Fisheries Sector, Frontiers in Marine Science, Vol. 8, 10 June 2021.

34. DAFF, 2013. Implementation Plan for The Small-Scale Fisheries Policy, (former) Department of Agriculture, Forestry and Fisheries, Pretoria.

35. These include the: General Policy on the Allocation of Commercial Fishing rights; the 12 sector-specific policies; the Policy on the Transfer of Commercial Fishing Rights, and the Policy on Fish Processing Establishments (FPEs).

36. South African Government, 2021. Minister of Forestry, Fisheries and the Environment, Ms Barbara Creecy, Budget Speech to National Assembly, 14 May 2021.

37. South African Government, 2022. Forestry, Fisheries and Environment concludes 2021/2022 Fishing Rights Allocation Process, 28 February 2022.



2035 GDP Contribution Macro-target: ZAR 4.8 Billion\*

2035 Employment Macro-target: 58 000\*

TABLE 14

[\*In conjunction with Aquaculture]

Intervention	Implementation Time Frame			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
LEGISLATION, POLICY AND FISHING RIGHTS					
Creating enabling legislation and regulations	X			<ul style="list-style-type: none"><li>Increased GDP contribution by the sector</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>DHSWS</li></ul>
ADMINISTRATION AND AUTHORISATIONS					
Accessible administrative and authorisation processes	X			<ul style="list-style-type: none"><li>Operational administrative and authorisation system</li><li>Operational online permitting and licencing system</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Industry</li><li>Communities including Independent advisors</li></ul>
RESOURCE MANAGEMENT					
Research and monitoring baseline	X	X		<ul style="list-style-type: none"><li>Fishing research and monitoring baseline established</li><li>Five-year baseline review</li><li>Increased allocation of research funding</li><li>Increased research outputs pertaining to the fisheries sector</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Industry</li><li>Communities including Independent advisors</li></ul>
Compliance, surveillance, and enforcement	X	X	X	<ul style="list-style-type: none"><li>Increased surveillance and monitoring operations of foreign and local vessels</li><li>Increased successful convictions</li><li>Increased joint international and regional law enforcement operations</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Industry</li><li>Communities including Independent advisors</li></ul>
Allocation and Authorisation of alternative resource uses	X	X		<ul style="list-style-type: none"><li>Increased investment levels for marginalised groups</li><li>Increased production outputs</li><li>Increased operational experimental fisheries entering mainstream markets</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Industry</li><li>Communities</li><li>Independent advisors</li></ul>
INFRASTRUCTURE, ASSETS, FUNDING AND MARKETS					
SMME development	X	X		<ul style="list-style-type: none"><li>Increased market shares of SMMEs</li><li>Increased financial sustainability and viability of SMME</li><li>Increased access and use of infrastructure by SMME's</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Industry</li><li>DSBD</li><li>the dtic</li><li>TNPA</li></ul>
Small-scale fisheries and Production Development	X			<ul style="list-style-type: none"><li>Increased market share of small-scale fisheries and production</li><li>Increased output of small-scale fisheries</li></ul>	<ul style="list-style-type: none"><li>DFFE</li></ul>
ACCESS TO FISHERIES RESOURCES					
Provide support in respect of vessel access and fishing equipment	X	X		<ul style="list-style-type: none"><li>Guaranteed resource access with sustainable user access tools</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Fisheries cooperatives.</li></ul>
STORAGE AND PROCESSING FACILITIES					
Establish storage facilities and processing infrastructure that responds to value adding and secure maximum market product value	X	X		<ul style="list-style-type: none"><li>Established storage facilities and fish processing infrastructure</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Fisheries cooperatives</li></ul>

Intervention	Implementation Time Frame			Target(s)	Responsible Entity
	Stabilisation (0-2 years)	Revival (2-5 years)	Growth (5+ years)		
ROAD INFRASTRUCTURE AND ACCESS FEES					
Invest in road infrastructure from operation areas to markets and negotiate access fees in controlled areas	X	X		<ul style="list-style-type: none"><li>Established and upgraded roads</li><li>Increased ease of access to fishing grounds and markets</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Fisheries cooperatives</li></ul>
DIRECT MARKET ACCESS					
Secure sustainable market avenues and product supply, including access and supply to schools, correctional centres and health care establishments	X	X		<ul style="list-style-type: none"><li>Eliminated third-party interventions</li><li>Increased numbers of fishers with direct access to markets and retail centres</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Fisheries cooperatives</li></ul>
FISHING INDUSTRY MONOPOLY					
Ensure an independent and self-sustained small-scale fisheries operations, which eliminate third-party interference.	X	X		<ul style="list-style-type: none"><li>Self-sustained and self-controlled small scale operations</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Fisheries cooperatives</li></ul>
CONFLICTS WITH OTHER SUB-SECTORS OF OCEAN ECONOMY					
Drive a platform for negotiations, integration and understanding of different values, and coexistence of different sub-sectors operating in the ocean space	X			<ul style="list-style-type: none"><li>Ocean space users operating in harmony in the same ocean space</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Fisheries cooperatives</li></ul>
GOVERNMENT INTERVENTION PROGRAMMES					
Harmonised government programmes which limits user confusion and ensuring maximum economic returns from the ocean space, these include:  <ul style="list-style-type: none"><li>Small-scale Fisheries</li><li>Implementation plan</li><li>Oceans Economy Master Plan</li><li>Marine Spatial Planning</li></ul>	X	X		<ul style="list-style-type: none"><li>Ocean space users operating in harmony in the same ocean space</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Fisheries cooperatives</li></ul>
TRANSFORMATION, SKILLS DEVELOPMENT AND CAPACITY BUILDING					
Skills Development and capacity enhancement	X	X		<ul style="list-style-type: none"><li>Increased employment levels</li><li>Increased number of training initiatives provided</li><li>Increased number of people and/or entities trained</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Industry</li><li>SAIMI</li></ul>
Transformation Charter	X			<ul style="list-style-type: none"><li>Achievement of transformation targets</li></ul>	<ul style="list-style-type: none"><li>DFFE</li><li>Industry</li></ul>



SUB-SECTOR PLAN

# OFFSHORE OIL AND GAS

09





## 09. Offshore Oil & Gas Sub-Sector Plan

Offshore oil and gas production refers to the exploration and extraction of crude oil and natural gas undertaken under the seabed. This section of South Africa's Oceans Economy Master Plan presents a sub-sector plan for the offshore oil and gas industry. The plan deals with the following:

- A global review of the industry;
- A review of the domestic industry;
- Current interventions;
- Challenges;
- Opportunities;
- Skills and transformation;
- Research, development and technology;
- Energy security and environmental sustainability;
- Policy considerations; and
- Targets and interventions through to 2035.



### 9.1 GLOBAL SUB-SECTOR REVIEW

Exploration of oil and gas deposits in the deep ocean is now an established global industrial activity. As easily accessible oil and gas resources have become steadily depleted on land, and with technology improved, the offshore oil and gas sector has expanded into deeper waters in recent decades. Currently, drilling for oil and gas is routine in all offshore environments, with major deep-water (below 200m) production in areas such as the Arctic, northern North Atlantic Ocean (UK and Norwegian waters), East and West Africa, Gulf of Mexico, South America, India, Southeast Asia, and Australia. Production in more remote and deeper offshore areas (below 1 000m) is likely to increase in the coming years as the industry moves into new areas to find growth, with the most active development in the Gulf of Mexico, where major reserves are being accessed in waters as deep as 3000m.<sup>1</sup>

Crude oil is a significant ingredient of the world energy supply, despite growing international demand for cleaner energy and net-zero economies. According to the International Energy Agency (IEA), natural gas has accounted for almost one-third of overall energy-demand growth over the past decade, more than any other fuel, and supplies roughly 23% of the world's primary energy demand.<sup>2</sup> The United States of America (US) and the Russian Federation are the world's top producers of oil and gas (offshore and onshore), with the US overtaking Saudi Arabia in 2017 to claim the top spot in oil production. The most prominent energy companies include: BP, ExxonMobil, Chevron, Rosneft, Royal Dutch Shell, TotalEnergies, Saudi Aramco, ConocoPhillips, Eni, Petrobras, Statoil, and the China National Offshore Oil Corporation (CNOOC). In recent years, Asia has led the world's offshore exploration activities, with China one of the most active areas for offshore exploration, ranking fourth in newly launched offshore oil and gas production projects in 2021.<sup>3</sup> In mid-2019, the number of active international offshore rigs was 240 (up 198 from the previous year), with the Asia-Pacific region having the highest number of offshore rigs (90), followed by the Middle East (54), Europe (44), Latin America (30), North America (24) and Africa (22).<sup>4</sup> While China is expected to become an important energy growth driver for offshore oil and gas in the years to come, both the Middle East

and Africa are also expected to be prominent market players for the industry in the next decade and beyond.<sup>5</sup>

The International Energy Agency (IEA) flagship report Global Energy Review 2021 indicates that total global energy demand underwent an historic 4% drop in 2020, primarily due to the COVID-19 pandemic and subsequent economic crisis.<sup>6</sup> Despite a 9.7% global growth in renewable energy and a 1% growth in hydro energy in the same year, fossil fuels continue to dominate the global energy mix, accounting for 83% of the total mix (31.2% oil, 24.7% natural gas, and 27.1% coal).<sup>7</sup> Global oil production reached an all-time high of just under 95 million barrels a day (b/d) in 2019, dropping to 91 million b/d in 2020, and projected to increase to 96.5 million barrels per day in 2021.<sup>8</sup> The share of offshore production in total output is around 30%, equating to roughly 28 million b/d.<sup>9</sup>

According to the latest available data, and as economies reopen following pandemic closures, global demand for both oil and gas have in fact rebounded to near 2019 levels and is set to keep rising for several years, particularly in developing countries.<sup>10</sup> In terms of oil, the growth rate of daily demand in 2021 increased by 5.5 million b/d, equating to 200,000 b/d more than the IEA's earlier forecast. Production increased more slowly than demand, driving higher prices in the latter part of 2021, with Brent crude oil increasing by around 41% in 2021, peaking at USD86 a barrel towards the end of the year, and then surging drastically to USD140 in March 2022, following the Russian invasion of Ukraine a few weeks earlier. The price of natural gas also increased by more than 40% in late 2021, with the sector also struggling to meet resurgent demand, reflecting the record downturn experienced in 2020.

The IEA's second leading publication, World Energy Outlook 2021, forecasts that the global demand for oil and gas will steadily grow to 2030 and then fall slightly by 2050, with oil and gas demand peaking around 2029 and 2037 respectively.<sup>11</sup> The hydrocarbon dominance in Africa's current energy demand mix is expected to remain largely unchanged until 2050, with around 40% of the sub-Saharan African hydrocarbon production expected to be dominated by gas by the year 2030, as it is considered an important energy transition fuel.<sup>12</sup>

1. Cordes, E. et al, 2016. 'Environmental Impacts of the Deep-Water Oil and Gas Industry: A Review to Guide Management Strategies,' Frontiers in Environmental Science, 16 September 2016, accessed on 24 November 2021, available at: <<https://www.frontiersin.org/articles/10.3389/fenvs.2016.00058>>  
2. IEA, 2017. World Energy Outlook 2017: a World In Transition, International Energy Agency, November 2017.  
3. Zheng Xin, 2022. 'CNOOC: Offshore to drive growth of oil and gas', China Daily, 15 January 2022.  
4. Offshore Energy Today, 2019. Worldwide offshore rig count in May up by 43 rigs year-over-year, 7 June 2019  
5. US Energy Media, 2020. 'Future Growth of Offshore Oil and Gas Industry in Global Regions', Oilman Magazine, 19 February 2020.  
6. IEA, 2021. Global Energy Review 2021.  
7. Standard Bank, 2021. OPASA - General O&G Financing Perspective: Discussion Presentation, 9 March 2021.  
8. N. Sönnichsen, 2021. Oil production worldwide from 1998 to 202 - with a forecast until 2026, Statista, 14 December 2021.  
9. EIA, 2016. Offshore production nearly 30% of global crude oil output in 2015, US Energy Information Administration (EIA), 25 October 2016.  
10. International Energy Forum and IHS Markit, 2021. Oil and Gas Investment Outlook.  
11. McKinsey, 2021. Global Energy Perspective 2021, January 2021.  
12. Standard Bank, 2021. OPASA - General O&G Financing Perspective.



At the same time, the IEA predicts that in the next 20-years almost all of the net growth in global energy demand is expected to come from low emissions sources, such as wind, nuclear, tidal, hydropower, geothermal, solar, and wave energy sources. This is mainly driven by significant changes in the transport sector, particularly increased electrification. In this regard, global investment in power generation and infrastructure is expected to be six-times higher than in oil and gas supply by 2030.<sup>13</sup> However, despite the push for clean energy and transition towards low-carbon energy systems, most new supply is expected to come from offshore and shale resources at least until 2040.<sup>14</sup> To meet this expected demand, the offshore oil sector will still require new production of around 23 million b/d.<sup>15</sup>

### 9.2 SOUTH AFRICAN SUB-SECTOR REVIEW

South Africa's energy supply is dominated by coal, which constitutes around 70% of the primary energy supply, followed by crude oil with 14% and renewables with 11%. Both nuclear and natural gas contribute around 3% to the total primary supply.<sup>16</sup> According to the Department of Mineral Resources and Energy (DMRE), South Africa imports over 90% of its crude oil requirements from Saudi Arabia, Iran, Nigeria and Angola.<sup>17</sup> With total consumption at about 24.5 billion litres of fuel annually - mainly petrol and kerosene - South Africa has a 7% shortfall of 1.5 billion litres of fuel per year, accounting for its need to import refined products. This is further compounded by the fact that domestic production of crude oil has been declining over time - translating into an ever-increasing dependence on imported oil to meet domestic consumption.<sup>18</sup> Being a net crude oil importer leaves South Africa vulnerable to price fluctuations and volatility on global oil markets. Therefore, the development of the offshore oil and gas industry has the potential to reduce South Africa's dependence on imports, help build its upstream, midstream, and downstream<sup>19</sup> industries, and also create large value to the economy in the longer term. This view was echoed in the 2022 State of the Nation Address (SoNA), when President Cyril Ramaphosa

stated that South Africa “will continue to support the development of the upstream gas industry, as it holds huge potential for job creation and broader economic development”.<sup>20</sup>

That said, developing an upstream capacity to extract offshore petroleum can take decades. It is also extremely capital intensive, requiring expensive equipment and highly skilled workers. For example, Nigeria, which is Africa's current main oil producer and eleventh largest oil producer worldwide, took around 20-years before it was able to commence production, after discovering oil in 1956. Today, it operates eighteen pipelines, with an average daily production of some 1.8 million barrels.<sup>21</sup>

South Africa's offshore oil and gas industry is still in a nascent stage of development with considerable uncertainty with regard to the size and commercial recoverability of its onshore and offshore reserves. While South Africa's offshore basins have shown the presence of both gas and oil during past exploration activities, it is largely an unproven hydrocarbon territory, and competes in a global arena with countries that have proven hydrocarbon resources and financially strong oil and gas sectors, supported by low development and operating costs.<sup>22</sup>

The history of oil and gas exploration drilling in South Africa actually dates back to the 1960s, although significant exploration activities only began two decades later. As shown in Figure 15 below, there are four major basins in the country: one onshore (Great Karoo Basin) and three offshore (the Orange Basin off the west coast; the Outeniqua Basin off the south coast, and the east coast Durban and Zululand Basins). In 1992, domestic natural gas production started offshore in Mossel Bay, located roughly 175 kilometres from Outeniqua Basin, and operated by the Petroleum Oil and Gas Corporation of South Africa (PetroSA).<sup>23</sup> The refinery is the world's fifth largest commercial gas to liquids (GTL) plant. At its full capacity, it was able to meet 3% of South Africa's liquid-fuel needs in respect of Petrol (Mossgas), Diesel and Illuminating Paraffin (Kerosene). However, there is insufficient natural gas to meet the current demand,



which is set to worsen as output from the Pande-Temane gas fields located in southern Mozambique starts to decline from around 2025. Longer-term offshore gas supply options from 2030 and beyond are available to South Africa, including from the Brulpadda and Luiperd local reserves, but both face significant technical challenges to be overcome linked to development and possible exploration, such as deep water and rough seas. Regional options, such as the massive Rovuma LNG project in northern Mozambique, are also a long-term option, but building a pipeline to South Africa from these reserves will be highly complex and costly.<sup>24</sup>

Around the time of the 2014 Operation Phakisa oceans economy workshops, 36 hydrocarbon discoveries had already been made, of which 15 were producing, one was at pre-production stage, three had ceased production and 17 were considered too small to

develop.<sup>25</sup> The workshops nevertheless estimated that South Africa has possible resources of 9 billion barrels of oil (equivalent to 40 years of oil consumption) and 60 trillion cubic feet (TCF) of gas (equivalent to 11 billion barrels of oil and 375 years of gas consumption). New data, further geological and geophysical investigation, as well as recent exploration success in deep water in the intervening years, has resulted in an increase of the estimate of potential oil resources to 26.5 billion barrels, while the estimate for offshore gas remains about the same. The point is, increasing South Africa's upstream capacity could provide an alternative to the current coal dominated energy sector, where energy demand in the country has been growing at a faster rate than can be supplied. Due to the country's aging power stations, poor maintenance, policy missteps and the ruinous effects of state capture, the shortfall is estimated at around 4000 mega-watts (MW) of electricity.<sup>26</sup>

13. IEA, 2021. World Energy Outlook 2021, October 2021.

14. Mckinsey, 2021. 'Global oil supply-and-demand outlook to 2040', McKinsey & Company, 15 February 2021, accessed 28 November 2021, available at: < https://www.mckinsey.com/industries/oil-and-gas/our-insights/global-oil-supply-and-demand-outlook-to-2040>

15. Mckinsey, 2021. Global oil outlook to 2040: Summary Report, February 2021.

16. DMRE, 2019. The South African Energy Sector Report 2019, Department of Mineral Resources and Energy (DMRE).

17. DMRE, 2019. The South African Energy Sector Report 2019.

18. National Treasury, 2021. What is the most appropriate tax regime for the oil and gas industry: Tax Policy Discussion Document for Public Comment, December 2021.

19. In the energy sector, 'upstream' refers to anything having to do with the exploration and production of oil and natural gas, 'midstream' refers to anything required to transport and store crude oil and natural gas before they are refined and processed into fuels, and 'downstream' includes everything involved in turning crude oil and natural gas into thousands of finished products

20. South African Government, 2022. State of the Nation Address (SoNA) by President Cyril Ramaphosa, Cape Town City Hall, Thursday, 10 February 2022

21. Emmanuel Addeh, 2021. 'Africa: Underinvestment - Africa's 125.8 billion Crude Oil Reserves Slump by 500 Million Barrels in 2021', This Day, 9 November 2021.

22. DTC, 2016. Report on Oil and Gas for the Minister of Finance, The Davis Tax Committee, September 2016.

23. Department of National Treasury, 2021. What is the most appropriate tax regime for the oil and gas industry.

24. NBI, 2021. 'The role of gas in South Africa's path to net-zero', chapter in: Just transition and climate pathways study for South Africa, report published by the National Business Initiative (NBI).

25. Department of National Treasury, 2021. What is the most appropriate tax regime for the oil and gas industry.

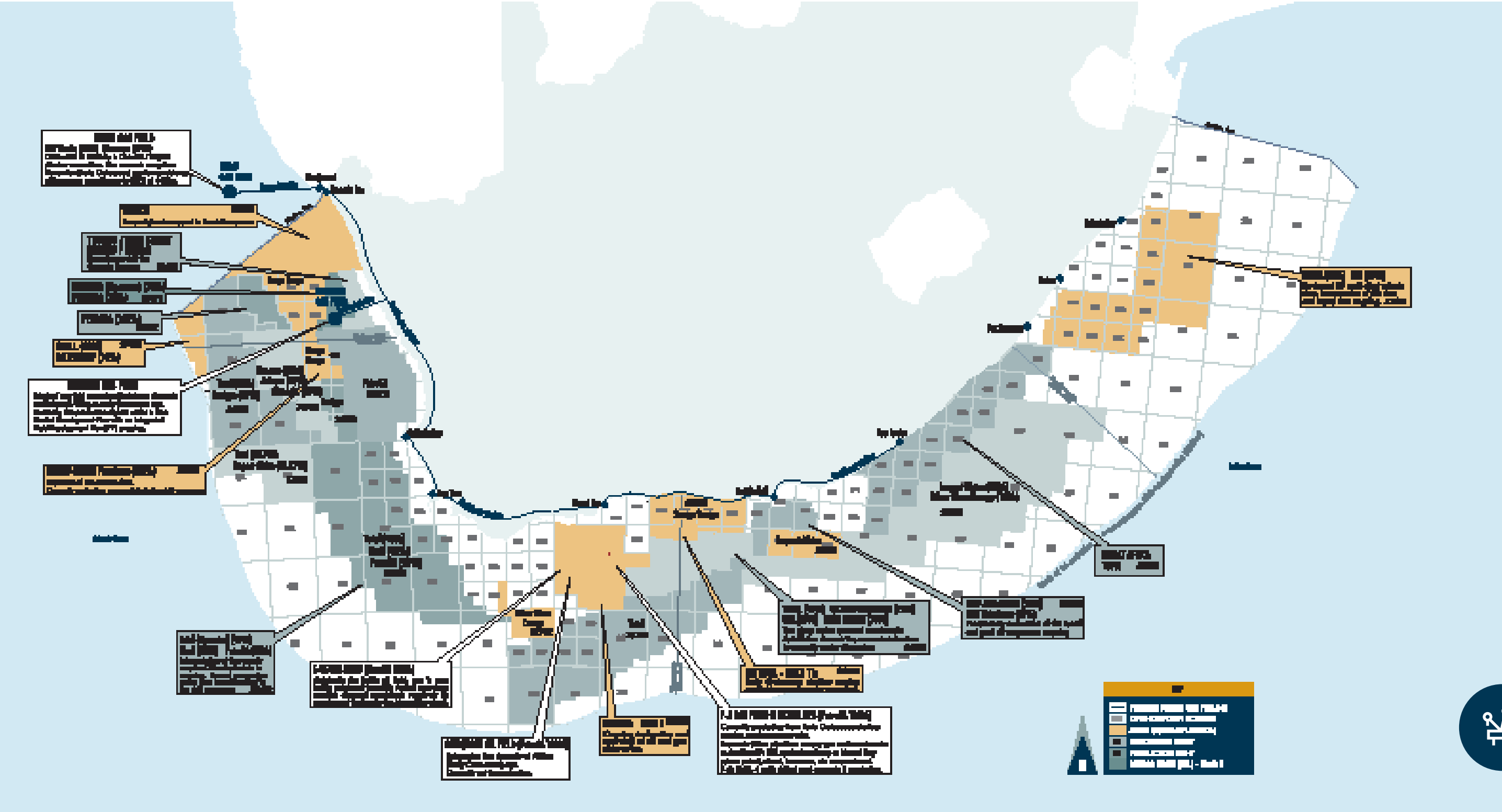
26. South African Government, 2022. State of the Nation Address (SoNA) by President Cyril Ramaphosa.



FIGURE 15

*Oil Exploration and Production Activities in South Africa*

Source: Petroleum Agency South Africa<sup>27</sup>



27. A better quality map can be accessed at: <https://www.petroleumagencycsa.com/index.php/maps>

There have been three recent developments which have created renewed interest in deep-water exploration in South Africa. The first of these was the discovery in 2010 of massive natural gas fields off the coast of Mozambique and Tanzania, considered to be one of the largest global gas discoveries in recent times. The second development is the discovery of new gas condensates in the Outeniqua Basin, estimated at around 1 billion barrels (in terms of oil equivalent) of total resources of gas. The third development is the discovery of significant offshore oil and gas reserves in the Orange Basin off the southern coast of Namibia in January 2022, estimated to be worth between 500 million and 1 billion barrels (in terms of oil equivalent) valued at USD2.8 billion (ZAR 42.6 billion).<sup>28</sup>

While these recent discoveries may have piqued Government's interest to exploring South Africa's offshore continental shelf and developing upstream petroleum capabilities, they come with three particular sets of challenges. The first relates to balancing the need for South Africa to attract investment and generate revenue with its commitments in respect of climate change and reducing carbon emissions. The second challenge is the significant investment and risk involved in offshore exploration, particularly in South Africa's deep-water environment, where the costs incurred on a typical oil and gas block in the exploration stage can cost an estimated R2 billion.<sup>29</sup> Given that exploration success rates are generally below 15-20%, together with the environmental issues associated with exploration and production, potential investors see these opportunities as potentially risky. The third challenge concerns the technical challenges posed by deep-water exploration and production, which requires more advanced - and more capital-intensive - recovery techniques than conventional operations closer to the ocean surface where ocean currents are typically less strong. This issue was recently highlighted when the Italian oil and gas multinational Eni SpA announced in October 2021 its intention to pull out of plans to explore for oil in a large block off South Africa's southeast coast, due to concerns over the technical challenges of drilling in deep waters.<sup>30</sup>

While South Africa's offshore oil and gas capacity is still very limited, its onshore midstream and

downstream activity is well-established, particularly in the refining and processing of oil, coal and gas. South Africa has the second largest refining capacity in Africa (after Egypt), amounting to 718 000 barrels per day or 250 million barrels per year. Until recently, South Africa had a total of six (6) operational refineries. Four (4) of these are located on the coast - two (2) of which are synthetic fuels production facilities that produce liquid fuels from coal and gas, owned by Sasol and PetroSA respectively.<sup>31</sup> Of the six refineries, two - Caltex in Cape Town and Engen in Durban - have closed and two others - SAPREF in Durban and PetroSA in Mossel Bay - have suspended their refinery operations for an indefinite period.<sup>32</sup> These refinery closures will invariably have ramifications for the industry and the rest of the economy. Among other challenges, new refineries to replace ageing plants will take years to plan and construct, leaving a significant gap in South Africa's ability to produce fuel for the local market.<sup>33</sup> South Africa is also a key location for many local, regional and multinational oil and gas companies active in the value chain. Particular expertise has been reached in several areas of the overall upstream and midstream value chains, including: Fabrication and Construction, Ship/Rig Repair and Maintenance, Distribution and Logistics, and Exploration and Production Services.<sup>34</sup>

In this regard, an energy and marine services supply hub, which includes an offshore supply base (OSSB) and fabrication facilities including rig repair facilities, has been under development at the Port of Saldanha for several years. The hub aims to service the burgeoning oil and gas industry in West Africa, by providing marine services and supplies to offshore oil and gas companies operating in the Orange Basin and off the coast of Namibia and Angola, along with passing vessels and rigs that may require servicing and logistics services. In 2006, Transnet signed an agreement with the German industrial group MAN Ferrostaal to recondition the old Moss gas Fabrication facility at the port. Ferrostaal, which at the time had offset obligations to South Africa, spent ZAR147 million in modernising the facility with permanent buildings and equipment.<sup>35</sup> The facility, which measures 220 000m<sup>2</sup>, was ready to accept contracts from February 2008. However, apart from minor activities on this site, it has stood empty for many years and is currently under liquidation order.<sup>36</sup>

Then in 2017, Transnet's National Ports Authority (TNPA) awarded a privately owned South African company, Saldehco, the right to operate the OSSB facility. A year later, the TNPA signed a lease agreement with operators of the Saldanha Bay Industrial Development Zone (SBIDZ). The SBIDZ is South Africa's only portside special economic zone catering specifically for the offshore oil and gas sector, marine fabrication, logistics and related support services.<sup>37</sup> The SBIDZ is designated as a Customs Controlled Area (CCA) and Freeport, which allows for duty and VAT-free entry of any foreign goods intended for re-export. Port-related projects in the first phase of the development are valued at ZAR3.5 billion and will include a marine services jetty, floating dock and ship-lift, precinct pier and jetty, mobile hoist, 220m ship-lift and a lay-by jetty. To date, the SBIDZ has attracted more than ZAR21 billion worth of private investments into the zone, with a total of 2,900 jobs created since 2016.<sup>38</sup>

While there is currently a lack of accurate data to measure the direct economic contribution of the offshore petroleum industry in South Africa, a report prepared for the Minister of Finance by the Davis Tax Committee in 2016 found that the contribution of the upstream oil and gas industry to economic growth and job creation was still insignificant compared with the mining industry, with only one large scale producer of offshore gas in South Africa - i.e. PetroSA - that secured just under 1,500 direct jobs,<sup>39</sup> and an estimated 4,569 indirect jobs and 9,138 induced jobs.<sup>40</sup> Two recent reports provide more current data on both the offshore and onshore value chains of oil and gas. Firstly, a report by South African Petroleum Industry Association (SAPIA) suggests that the oil sector accounts for around 3.2% of GDP (ZAR163 billion), creating just under 250,000 (direct and indirect) jobs, and representing 1.5% of total employment in the country.<sup>41</sup> Secondly, a study by the National Business initiative (NBI)<sup>42</sup> estimates that up to 56,000 jobs are created along the gas value chain, contributing between ZAR150 to ZAR215 billion in revenue and between 1-2% of GDP.<sup>43</sup>

9.3 CURRENT INTERVENTIONS

Contained within Operation Phakisa's focus on South Africa's ocean economy is a focus on the promotion of the exploration and production of offshore oil and gas. With the launch of Phakisa in 2014, an aspirational target of 30 exploration wells and related investments in the range of ZAR46 to ZAR77 billion through to 2024 was proposed. These investments were expected to potentially lead to the production of 370 000 barrels of oil equivalent of oil and gas per day by 2033, representing 80% of current oil and gas imports, and creating up to 130 000 jobs, with annual uplift to GDP estimated at just over ZAR34 billion. Based on these future targets, eleven initiatives were initially identified by Operation Phakisa-Oceans Economy, including one in infrastructure, namely the development of a phased gas pipeline network for South Africa, which is currently at the environmental assessment stage.

Since the adoption of Operation Phakisa-Oceans Economy, offshore exploration has continued, despite the July 2018 moratorium on new offshore exploration rights. There are currently 16 active exploration rights in force, involving 21 oil and gas companies ranging from giant international companies, such as Total Energies and Shell, to local South African owned companies. As is the case for all countries that have not nationalized exploration efforts, South Africa's offshore licensing situation is constantly changing. Oil and gas companies that take up acreage may opt to spread their risk by diluting their holdings through partnerships with new entrants. In other cases, they may sell off their rights to other companies or relinquish their interests altogether. These decisions are influenced by multiple factors including the companies' changing strategies, internal policies and risk appetite. This results in constant change with regard to the offshore licensing situation. There are currently 6 production licenses in place - one held by the private sector and five by PetroSA. In terms of investment, approximately ZAR7,6 billion has been invested by the private sector and approximately ZAR10,8 billion has been invested by Government.<sup>44</sup>

28. Wood Mackenzie, 2022. Shell makes huge oil discovery offshore Namibia, February 2022.  
29. DTC, 2016. Report on Oil and Gas for the Minister of Finance.  
30. Antony Sguazzin and Alberto Brambilla, 2021. 'Eni to Exit South Africa Offshore Oil Block Amid Tech Challenges', Bloomberg, 13 October 2021.  
31. DMRE, 2019. The South African Energy Sector Report 2019.  
32. SAPREF: a joint venture between Shell Refining SA and BP Southern Africa, is the largest crude oil refinery in the country with 35% of South Africa's refining capacity.  
33. Brian Ingpen, 2021. 'Despite president's speech, boost to ailing maritime sector needed', Metro, 16 February 2021.  
34. SAOGA, 2021. Established Upstream and Midstream Activity, South African Oil and Gas Alliance (SAOGA), accessed on 21 February 2022, available at: <https://www.saoga.org.za/web/oil-and-gas-overview/established-upstream-and-midstream-activity>  
35. This included a quay with access to the sea, a newly constructed high bay workshop with overhead cranes, a blast and paint shop, and fitted out compressor station.  
36. A key reason why the site has laid dormant until now is that Ferrostaal's tenant in the intervening years relied on the overflow of its fabrication facilities in Nigeria and Angola. Due these countries having their own local requirements, the tenant was not permitted to fabricate overflow work to South Africa. The tenant gave notice to Ferrostaal to end its lease in 2012 and moved from the fabrication site.

37. Veitch, 2021. Maritime Transport and Marine Manufacturing in South Africa.  
38. Cape Business News, 2021. R21bn investment progress for Saldanha Bay IDZ, 11 April 2021.  
39. PetroSA, 2020. Integrated Annual Report 2020.  
40. DTC, 2016. Report on Oil and Gas for the Minister of Finance, Davis Tax Committee (DTC).  
41. South African Petroleum Industry Association (SAPIA), 2019. The economic contribution of the downstream oil industry to South Africa in 2019.  
42. The NBI, formed in 1995, is an independent business organisation and voluntary coalition of around 80 of South Africa's largest companies and multinational companies which are involved in addressing issues of Economic Transition and Social Transformation in South Africa.  
43. NBI, 2021. 'The role of gas in South Africa's path to net-zero'.  
44. Province of the Eastern Cape, 2020. Oceans Economy in the Eastern Cape and South Africa.



## 9.4 CHALLENGES

Due to various forces at play in the global economy, investment appetite has reduced in the past few years, more particularly in the exploration space, even though South Africa has seen some activities offshore. Several factors that have contributed to a lower investment appetite include:

- significant low oil prices from 2014, with a recent recovery;
- pressures from the Green Revolution and international regulation to lower carbon emissions;
- opposition to oil and gas indigenous development by local non-governmental organisations (NGOs) and community-based organisations (CBOs);
- risk of litigation, even after international and national oil companies are awarded grants for exploration;
- financial losses incurred by PetroSA and a downward revision of offshore gas reserves;
- abandonment costs with respect to legacy wells, which can become a hindrance to subsequent operators;
- legal and fiscal uncertainly due to the lack of an enabling regulatory environment;<sup>45</sup>
- insufficient number of industrial hubs, power generating facilities and transport infrastructure (including pipelines and tank wagons) available at coastal locations to transport oil and gas to inland markets;
- lack of geoscience data and instruments to conduct research (such as multi-purpose research sea vessels);
- lack of access to funding and cumbersome approval processes (that often work against the industry);
- SEZs unable to support transformation objectives, due to:
  - a disjuncture between market stimulation processes and funding;<sup>46</sup>
  - the lack of a regulatory environment and Environmental Impact Assessments (EIAs) to attract potential investors;
- SEZs land parcels too big for some of the emerging players in the value chain, with limitations imposed based criteria such as:
  - low investment value;
  - low number of permanent jobs;
  - Prohibited businesses in terms of the SEZ Act that implies exclusion of illegal/unregistered businesses,
  - businesses not benefiting from applicable tax incentives; and

- lack of overarching transformation objectives to promote broad-based black economic empowerment (B-BBEE) throughout the industry.

Although these limiting factors will influence investment decisions in the offshore oil and gas sector through to 2035 and beyond, South Africa has an opportunity to alleviate the current shortfall in electricity generation and boot economic growth through the exploration of offshore petroleum. A key challenge for Government and industry is how to achieve this objective without compromising on South Africa's recent net-zero emissions commitments.

## 9.5 OPPORTUNITIES

The following opportunities have been identified by Government to promote the growth of the offshore oil and gas industry:

- Industrialising offshore resources in the form of offshore oil and gas, particularly gas which is regarded as a cleaner and transitional resource;
- Urgent new investments and improvements in oil and gas infrastructure (including tank wagons, pipelines, storage facilities and other related transport infrastructure) to supply offshore oil and gas to domestic and regional markets will assist to counteract costs associated with abandoned and orphaned wells and supply gas to refineries and improve capacity;
- Enhancement of indigenous "grey" and "blue" hydrogen production, which is a by-product of gas production, to help the greening of South Africa's energy mix;
- Declining coal resources and the relative cost of coal-produced electricity and petroleum in financial and environmental terms will see South Africa diversify its energy mix, a process that is already under way;
- The development of the offshore oil and gas industry could contribute to increasing the tax base (which is currently declining in the country's traditional mineral sectors, such as gold, coal and diamonds), and also improve balance of payments;
- The use of existing offshore supply and land-based fabrication facilities in the port of Saldanha Bay (including oil and gas supply, storage, renewables) to service Africa's growing oil and gas industry;
- The use of the North-South Rail Corridor, which increases intra-African trade in the region;
- Latent gas market demand expected to recover

to pre-pandemic levels, as recently suggested by the Industrial Gas Users Association-Southern Africa (IGUA-SA) report;

- Emerging gas-to-power opportunities, as articulated in the Integrated Resource Plan (IRP2019);
- Increased thresholds in embedded energy generation; and
- Current development of the South African Gas Master Plan by the Department of Mineral Resources and Energy (DMRE).

## 9.6 SKILLS AND TRANSFORMATION

Over the past decade, many of the world's significant oil and gas discoveries have been on the African continent. This puts emphasis on the debate to accelerate skills development and transformation within the industry, as well as benefit from new developments related to recent offshore discoveries. As mentioned above, offshore oil and gas exploration is relatively new to South Africa, adding to the complexities of achieving localisation, skills planning (up-skilling and re-skilling), and funding. Regardless, South Africa does not necessarily start from zero. The industry can build on the skills and knowledge base of traditional economic sectors, particularly mining and manufacturing. That said, the transition to more sustainable sources has to be factored into a strategy to address skills development and transformation. This raises the importance of having an informed and phased approach to energy transition, underpinned by appropriate policies and regulations that take into account the South African context.

Generally, significant job creation only comes into effect in the oil and gas industry when the production phases of drilling projects commence. However, because technical and engineering skills related to offshore exploration can take years to develop, skills development, capacity building and transformation cannot be ignored or delayed in an industry that is still in its early stages of development. Several local studies have indicated a shortage of engineering and technical skills across various sectors, which implies that the requisite human resources do not currently exist in South Africa to the extent required for the foreseen expansion in the energy sector and have to be developed from a relatively low base. For example, a 2015 study by the South African International Maritime Institute (SAIMI) found that the skill gap in the oil and gas industry was particularly pronounced. Skills in short supply included: Geologists and Geo-

physicists, Engineers (Chemical, Geotechnical), Drilling, Structural, Marine, Mechanical, Deck Officers, and Artisans.<sup>47</sup> This is a serious shortcoming, because skills development is critical to help drive localisation, which in turn, is important for establishing globally competitive supplier-firms and other Small, Medium and Micro Enterprises (SMMEs) that can generate much needed employment.

## 9.7 RESEARCH, DEVELOPMENT AND TECHNOLOGY

South Africa is a recognised pioneer in petrochemical research and development, and its talent for innovation remains one of the industry's defining strengths. For instance, PetroSA's Mossel Bay refinery was the first refinery in the world to use gas-to-liquids (GTL) technology on a commercial scale, which converts natural gas or other gaseous hydrocarbons into gasoline or diesel fuel. Today, the refinery continues to pioneer new ways of producing cleaner, cheaper and more sustainable petrochemical products for domestic and international markets, including conducting research on conversion of olefins to distillate (COD) technology, recognized throughout the world for producing some of the cleanest fuels, through an environmentally friendly process.<sup>48</sup> This work is becoming increasingly important, as both South Africa's coal reserves and the world's crude oil reserves steadily deplete and the search for alternative and cleaner energy resources intensifies.

Likewise, local petrochemical company SASOL has for years advanced several catalytic research projects to develop both local and export opportunities in the region. The company is considered a global leader in producing gas-to-liquid (GTL) fuels with Fischer-Tropsch (FT) technology, a process which converts 'grey' hydrogen (a mixture of carbon monoxide and hydrogen) into liquid hydrocarbons (i.e. petrol, diesel and other chemicals). SASOL's longstanding application of the FT technology places South Africa in an ideal position to produce cleaner and high-quality transportation fuels, including 'green' hydrogen (i.e. hydrogen produced by splitting water into hydrogen and oxygen using renewable electricity). SASOL is also currently engaged with the Infrastructure and Investment Office (IIO) of the Presidency to assist with the development of a hydrogen economy in South Africa. This has resulted in the signing of Memorandum of Agreement (MoA) with the Northern Cape Development Agency (NCEDA) to lead a feasibility study to explore the potential of the Port of

45. This includes the Upstream Petroleum Development Bill. See: DFFE, 2019. Oceans Economy Summary Report and DFFE, 2020. Ocean Phakisa Progress: DFFE briefing; with Deputy Minister.

46. For example, while the National Integrated Resource Plan (NIRP) aims to stimulate investment appetite for different technologies on energy supply, there is currently no funding mechanisms in place to support the initiative.

47. SAIMI, 2015. Operation Phakisa skills development roadmap for the Offshore Oil and Gas industry in South Africa: Offshore Oil and Gas Skills Working Group, December 2015.

48. In 2010, PetroSA invested ZAR36 million in the establishment of a synthetic fuels research facility at the then University of the Western Cape (UWC). The funds were used to build a laboratory to house a pilot plant sized reactor for the study of the COD technology. The research programme was stopped in 2015.

Boegoebaai as an export hub for green hydrogen and ammonia. The project is one of a number of other green energy projects currently being explored by the company.

To exploit research opportunities in, and promote dialogue on, offshore oil and gas exploration in South Africa, the former Minister of Science and Technology, Naledi Pandor, launched the South African Marine Research and Exploration Forum (SAMREF) in 2016, a joint initiative of the Department of Science and Innovation and the Offshore Petroleum Association of South Africa (OPASA). SAMREF is a product of Operation Phakisa's oceans economy programme and the Forum's purpose is two-fold:

- Identify and take advantage of opportunities provided by offshore oil and gas exploration activities and platforms and to gather important marine ecosystem data which would otherwise be difficult and expensive to obtain; and
- Facilitate new collaborative offshore studies that would increase South Africa's state of knowledge of the offshore marine environment, related to renewable energy potential, marine biodiversity and ecology, climate change and ecosystem functioning.

SAMREF encompasses members of Government and State-owned entities, research agencies, the oil and gas industry and other representatives of the private sector and was anticipated to improve voluntary cooperation and data exchange between all members. Operational support is provided by a Secretariat based at the South African Environmental Observation Network (SAEON) Egagasini Node in Cape Town, a business unit of the National Research Foundation (NRF). Although recent stakeholder engagement has been limited due to the national lockdown and international disruptions caused by the COVID-19 pandemic, SAMREF has to date successfully brokered the exchange of seismic and other data between industry players and South African researchers, and plans are underway to pursue further brokerage engagements and data opportunities within the industry.<sup>49</sup>

## 9.8 ENERGY SECURITY AND ENVIRONMENTAL SUSTAINABILITY

Global commitments to accelerate efforts to transition the energy sector to net zero emissions by 2050 were recently reaffirmed at the 26th Meeting of the Conference of Parties (COP26) in 2021. As the world's 12th biggest source of greenhouse gases,<sup>50</sup> and its per person emissions standing well above the global average, South Africa has also made commitments under the 2015 Paris Climate Agreement to further reduce the country's greenhouse gas emissions and to contribute to global efforts to achieve the 1,5°C temperature goal. These commitments require a peaking of South Africa's greenhouse gas emissions by 2025, followed by a sharp decline in emissions from 2026 onwards. This will invariably require a rapid and significant decline in greenhouse gas emissions from the energy sector, in particular from electricity generation and liquid fuels, and also cleaner energy solutions, including wind, solar and hydro power.<sup>51</sup>

Given South Africa's high rate of inequality, poverty and unemployment, its high dependence on fossil fuels, and its vulnerability to the physical impacts of climate change, the transition to greener energy must take place in a way that is just, that leaves no-one behind, and that sets the country onto a new, more equitable and sustainable development path - one which builds new local industries and impacts the value chain.<sup>52</sup> This 'Just Transition',<sup>53</sup> furthermore, should not come at the expense of sacrificing South Africa's energy security.

To meet net-zero goals by 2050 and mitigate the negative impacts of climate change, the South African economy will eventually be built on a very different energy mix than that of today, with a different suite of energy related commodities and technologies. The scale and depth of the transition envisaged will require substantial investments and international support over an extended period of time. Significant financial, technological, and capacity support will be required to support the decarbonisation of South Africa's

entrenched energy sectors. Early interventions in these sectors will be critical. At the same time, South Africa will be vulnerable to a range of transition risks posed by the global economic trend toward a low-carbon future, including facing mounting trade pressure from its key trading partners - including the EU, China, the US, the United Kingdom, Japan, and South Korea - as they implement their low-carbon commitments.<sup>54</sup>

Government's position to facilitate a Just Transition is that the combination of renewable energy technologies, together with gas - as a transition fuel - represents the least cost energy mix and possibly the fastest route to decarbonise South Africa. While gas is a fossil fuel, its CO<sub>2</sub> emissions are around 50% less than coal and therefore it could act as an important transition fuel as the economy transforms and shifts to lower-carbon, renewable and energy efficient technologies. This approach would help to facilitate a transition to a lower-carbon economy and ensure energy security of supply and affordable energy that is accessible by all.<sup>55</sup> This view is supported by the abovementioned NBI report which concluded that gas can, if affordably supplied, play a key role as a transition fuel for South Africa to replace coal, and provide flexible capacity to enable a rapid scale-up of renewables, until alternative energy storage solutions and greener fuels become affordable for the country.<sup>56</sup>

As a start, this will require a legislative initiative in Parliament that aims to balance the transition to a low-carbon economy with the growth, development and transformation of the offshore oil and gas industry - and the oceans economy as a whole. It may also necessitate investigating how other jurisdictions conduct carbon offsetting to achieve carbon neutrality through, for example, the granting of production rights linked to renewal projects elsewhere in the country. Yet another strategy could be to increase public awareness of the potential role of and economic opportunities provided by offshore petroleum exploration, while simultaneously enabling South Africa to achieve its international commitments in respect of climate change and decarbonisation.

## 9.9 POLICY CONSIDERATIONS

An uncertain legislative environment, together with dropping oil prices between 2014 and the end of 2020, has played a role in retarding the uptake and

implementation of several Operation Phakisa-Oceans Economy drilling objectives.<sup>57</sup> The primary legislation governing the upstream sector, which also covers the mining sector, is the Mineral and Petroleum Resources Development Act 28 of 2002) ('the MPRDA'). The MPRDA governs the acquisition, use and disposal of mineral rights in the country and was enacted to facilitate equitable access to and the sustainable development of the nation's mineral and petroleum resources. Under the MPRDA, the Minister of Mineral Resources is empowered to authorise companies to explore for, and produce, oil and gas. Since 2013, significant amendments to the MPRDA have been proposed via various iterations of the Mineral and Petroleum Resources Development Amendment Bill 15 of 2013.

An identified obstacle in the stimulation of the offshore oil and gas industry in South Africa, apart from the dramatic drop of crude oil in the last 5-years, has been ongoing legislative uncertainty related to the MPRDA, particularly for international investors. In an effort to bring much needed regulatory certainty and encourage further uptake of oil and gas rights in South Africa, without making unnecessary fiscal concessions that will substantially impair long-term revenue prospects, the Upstream Petroleum Resource Development (UPRD) Bill was published in December 2019. The Bill intends to replace the relevant sections (Chapter 6) pertaining to upstream petroleum activities in the MPRDA with a new separate oil and gas legislation for the upstream oil and gas sector.

Following a stakeholder consultation process, the Minister of Mineral Resources and Energy tabled an updated version of the Bill in Parliament in July 2021. A key update is that all fiscal provisions have been removed from the Bill, retaining only those already included in the Income Tax Act and the Mineral and Petroleum Resources Royalty Act of 2008. This occurrence is not unusual, since the Constitution prescribes that fiscal matters fall under the responsibility and domain of National Treasury. In this regard, a report discussing the fiscal elements of South Africa's oil and gas regime, with a focus on tax policy, was published by National Treasury for public review and comments in December 2021. The State's free-carry in a petroleum right - a critical consideration for international investors - remains at 20%, as provided for in the original draft of the Bill (at present, state participation is capped at 10%).

49. SAMREF, 2020. Secretariat Feedback: South African Environmental Observation Network Egagasini Node: February - October 2020.

50. It is difficult to get accurate figures for different countries' greenhouse house gas emissions and different agencies calculate countries' greenhouse gas emissions in different ways. Nevertheless, South Africa ranks in the top-20 most carbon-intensive global economies on an emission per GDP basis, and in the top-five amongst countries with GDP in excess of ZAR1.5 trillion per annum. It should be borne in mind, however, that South Africa's actual percentage of global emissions (1%) is minuscule compared to the biggest emitter, which is China (36%).

51. National Treasury, 2021. What is the most appropriate tax regime for the oil and gas industry.

52. NBI, 2021. 'The role of gas in South Africa's path to net-zero'.

53. Although there is no standard definition of the term, the International Labour Organisations (ILO) defines the concept as a "systemic and whole of economy approach to sustainability...[it] includes both measures to reduce the impact of job losses and industry phase-out on workers and communities, and measures to produce new, green and decent jobs, sectors and healthy communities".

54. NBI, 2021. 'The role of gas in South Africa's path to net-zero'.

55. National Treasury, 2021. What is the most appropriate tax regime for the oil and gas industry.

56. NBI, 2021. 'The role of gas in South Africa's path to net-zero'.

57. SAIMI, 2015. Operation Phakisa skills development roadmap for the Offshore Oil and Gas industry in South Africa, the South African International Maritime Institute (SAIMI).



9.10 TARGETS AND INTERVENTIONS THROUGH TO 2035

South Africa's offshore oil and gas industry may hold the key to the country's energy security challenges, with expectation of possible of hydrocarbon finds in deep-water offshore of South Africa, as well significant potential resources in relation to shale gas in the Karoo. According to the Davis Tax Commission, these significant finds could contribute between 3.3% and 9.6% of South Africa's GDP (at 2010 levels), or between 1.1% and 2.8% of projected 2035 GDP levels, representing between 0.98% and 2.4% of total employment (given sustained 4.5% annual growth in GDP to 2035).<sup>58</sup>

Tabled below is the sub-sector plan relating to the Offshore Oil and Gas sub-sector of South Africa's Oceans Economy. The table details the various high-level interventions which aim to stabilise, revive and grow this specific sector. The first thrust (0-2 years) aims to arrest declining growth and bring about short-term stability to the sub-sector by creating a more certain and enabling legislative and regulatory environment. Following this, a range of interventions will focus on localisation, supplier development, skills development, increased institutional capacity and industry transformation. Together, these interventions will drive and support further interventions which will aim at increasing market expansion, whilst ensuring environmental sustainability,

Once the sector has stabilised the next thrust (2-5 years) will focus on leveraging new innovations, new technologies, enabling infrastructure and increase investment to increase production.

A key driver of long-term growth in this sub-sector (5 plus years) will be the ability to balance effective and efficient exploration with sustainable extraction of offshore reserves, without causing irreversible damage to the environment, thereby disadvantaging future generations.

The inventions to stabilize, revive and grow the sub-sector to 2035 are detailed below.

Intervention	Implementation Timeframe			Target	Responsible entity
	Stabilisation (Years 0-2)	Revival (Years 2-5)	Growth (Years 5+)		
LEGISLATION AND POLICY					
Create an enabling legislation, policy and regulatory environment by:  • Finalising the UPRD Bill • Reducing red tape and regulatory costs • Increasing gas generation targets in the overall NDP • Ensuring compliance with international treaties and protocols do not come at the expense of individual industry sectors • Updating the NIRP • Creating decommissioning guidelines in the regulatory framework	X			• Enabling legislation and regulations promulgated	DMRE National Treasury
Consider amending tax legislation on preferential income tax rates for businesses operating within SEZs by:  • Replacing Section 12R(4) of the income Tax Act, which currently disqualifies entities receiving SEZ incentives of more than 20% of their business with associated entities, with the general clause contained in the Act to prevent abuse of transfer pricing	X	X		• Amended statutory requirement enabling more SEZs' tenants benefiting • Increased qualification threshold to more than 20%	National Treasury (SARS)
ACCELERATED TRANSFORMATION					
Ensure industry transformation by:  • Confirming B-BBEE status of exploration blocks • Developing an industry B-BBEE Charter • Developing an Industry Transformation Charter • Implementing B-BBEE policies • Development of Charter Codes and Score cards • Development and strengthening of industry bodies • Prioritising historically disadvantaged South Africans (HDSAs) in the short term to broaden the reach, inclusivity and accessibility of maritime and oil and gas offerings	X	X		• Transformation aligned with expansion of the industry • Achievement of targets contained in the B-BBEE Charter	DMRE the dtic
INSTITUTIONAL ARRANGEMENTS					
Increase institutional capacity to regulate the industry by enhancing environmental governance capacity of industry regulator	X			• Mandate of oil and gas regulator and state-owned oil company confirmed and strengthened via UPRD Bill	DMRE DFFE
EXPLORATION AND APPRAISAL					
Expanding exploration activities		X	X	• Expanded investment in domestic exploration • More interventions to increase the rate of exploration	DMRE (PASA)

58. DTC, 2016. Report on Oil and Gas for the Minister of Finance.

Intervention	Implementation Timeframe			Target	Responsible entity
	Stabilisation (Years 0-2)	Revival (Years 2-5)	Growth (Years 5+)		
<b>INDUSTRY DEVELOPMENT</b>					
Market expansion by:	X	X	X	<ul style="list-style-type: none"> <li>Increased SA share of the global market</li> <li>Increased exploration and production</li> <li>Maximization of oil and gas resource utilisation within SA and SADC region</li> <li>Better informed international investor community on SA oil and gas industry</li> </ul>	DMRE (PASA) the dtic DIRCO TPL Industry associations
<ul style="list-style-type: none"> <li>Improving functionality and effectiveness of One-Stop-Shop and information platform</li> <li>Promoting awareness of oil and gas industry</li> <li>Conducting a market analysis to identify potential markets and expand geographical market</li> <li>Optimising the role of gas in terms of its role towards the baseload and mid-merit requirements of the country</li> <li>Strengthening trade relations with other oil and gas producing countries in the region, on the continent, and internationally to optimise market access</li> <li>Digital marketing for oil and gas companies to increase localisation and skills and capacity development</li> <li>Industry to leverage partnerships with regional (SADC) and international partners to enable new entrants into the oil and gas value chains</li> </ul>					
Localisation and supplier development by:	X	X	X	<ul style="list-style-type: none"> <li>Increased local content across value chains</li> <li>Increased number of SMME suppliers entering the value chain</li> </ul>	<ul style="list-style-type: none"> <li>the dtic</li> <li>DMRE</li> <li>DPE (TPL, TFR, TNPA, TE)</li> </ul>
<ul style="list-style-type: none"> <li>Developing a strategy that will guide a phased implementation and enforcement of the current localisation policy in the value chain</li> <li>Developing a supplier portal</li> <li>Developing and implementing a local content roadmap</li> </ul>					
Increase production by:	X	X	X	<ul style="list-style-type: none"> <li>Increased production</li> <li>Regulatory certainty</li> </ul>	<ul style="list-style-type: none"> <li>National Treasury</li> <li>DMRE (iGas)</li> <li>DFFE</li> <li>DPE (TPL, TFR, TNPA)</li> </ul>
<ul style="list-style-type: none"> <li>Creating certainty on the fiscal regime</li> <li>Developing and implementing Health and Safety Protocols for industry</li> <li>Including business-related concessions in regulatory framework for businesses that utilise natural gas or renewable energies to encourage use of these energy sources</li> <li>Developing gas transportation infrastructure from the coast into all major industrial hubs</li> </ul>					
<b>ENVIRONMENT AND JUST TRANSITION</b>					
Ensure environmental sustainability and protection by:	X	X	X	<ul style="list-style-type: none"> <li>Increased ability to detect and respond to environmental threats</li> <li>Increased utilisation of green technologies in industry</li> <li>Reduction in carbon emissions</li> <li>Increased local content and reliance on locally-produced components and technologies</li> </ul>	<ul style="list-style-type: none"> <li>DMRE</li> <li>the dtic</li> <li>DFFE</li> <li>National Treasury</li> <li>DoT (SAMSA)</li> <li>Industry (IOCs, NOCs)</li> </ul>
<ul style="list-style-type: none"> <li>Launching an Interim Incident Management Organisation (IMOrg)</li> <li>Developing a legal and policy framework to reduce carbon emissions and ensuring the domestication of MARPOL protocols relating to decarbonisation</li> <li>Inserting requirement for green technologies to be integrated into projects to support sustainable development</li> <li>Promoting regional climate change responses, including using oil and gas as transitional fuels (i.e. power generation) to a lower-carbon economy</li> <li>Exploring underground coal gasification and developing appropriate infrastructure to supply gas to local communities</li> <li>Leveraging existing local production of emission scrubber technology and components to enhance local content and localisation performance of SA marine industries on SA produced vessels, as well as oil and gas related infrastructure and components</li> </ul>					

Intervention	Implementation Timeframe			Target	Responsible entity
	Stabilisation (Years 0-2)	Revival (Years 2-5)	Growth (Years 5+)		
<b>SKILLS AND CAPACITY BUILDING</b>					
Enhance skills and capacity building by:	X	X		<ul style="list-style-type: none"> <li>Increased numbers of trainees</li> <li>Increased numbers of professionals and artisans in the sector</li> <li>Increased numbers of training opportunities for the sector</li> <li>Increased numbers of training facilities and providers</li> </ul>	<ul style="list-style-type: none"> <li>SAIMI</li> <li>DHET (SETAs, NSF)</li> <li>Education and Training institutions</li> <li>Industry Bodies (incl. SAOGA, UTT)</li> <li>DBE</li> <li>DPE (TE, Transnet Academy)</li> </ul>
<ul style="list-style-type: none"> <li>Creating incubator and mentorship programmes, as well as Upskilling for effective participation in the value chain</li> <li>Building local capacity to offer OPITO and IMO related qualifications for oil and gas.</li> <li>Developing academic institutions (including MOGA) to serve the oil and gas and energy industries</li> <li>Conducting a study to quantify skills gaps in the value chain</li> <li>Updating and implementing skills strategy roadmap</li> <li>Developing capability for sub-surface research data gathering</li> <li>Ensuring co-ordination of the development of professionals for the upstream sector</li> <li>Promoting maritime studies at basic education level, targeting STEM schools and gender-inclusive programs.</li> <li>Developing curricula for upskilling, skilling and reskilling short courses and qualifications, where required (including artisans)</li> <li>Implementing partnership agreements with industry, Government and institutions of higher learning on provision of infrastructure, including simulators</li> <li>Building local capacity to offer OPITO and IMO related qualifications for oil and gas</li> <li>Promoting career awareness in oil and gas</li> </ul>					
<b>INFRASTRUCTURE, TRANSPORT, AND SEZS</b>					
Develop enabling infrastructure by:		X	X	<ul style="list-style-type: none"> <li>Increased coverage and distribution of oil and gas infrastructure</li> <li>Increased investment in infrastructure</li> <li>Increased access to gas infrastructure and services</li> <li>Increased numbers of infrastructure projects completed and commissioned</li> </ul>	<ul style="list-style-type: none"> <li>DMRE (iGas, PetroSA, CEF, NERSA)</li> <li>DPE (TPL, TFR, TNPA)</li> <li>the dtic (IDC)</li> <li>Industry (NOCs, IOCs)</li> <li>National Treasury (DBSA, PIC)</li> <li>DFFE</li> <li>DSI</li> <li>SOEs</li> <li>DoT (PRSA)</li> </ul>
<ul style="list-style-type: none"> <li>Developing a gas distribution infrastructure that can be rolled out in tandem with projected growth in the oil and gas sector</li> <li>Developing SEZs for hydrogen production and other clean energy technologies</li> <li>Incentivising R&amp;D in the field of infrastructure for the sector</li> <li>Leveraging “grey” hydrogen and developing “green” hydrogen</li> <li>Commercialising technologies, where appropriate and feasible.</li> <li>Developing carbon value chain (capture, infrastructure, storage, utilisation)</li> <li>Leveraging indigenous gas for continued operation of existing operations/facilities (PetroSA/Sasol).</li> <li>Integrating Oil Fuel Replacement Plan within existing National</li> <li>Integrated Resource Plan, and ensuring appropriate infrastructure for transportation, supply and storage</li> <li>Configuring gas to generate baseload and power on demand as coal is phased out and cleaner energy sources are phased in</li> <li>Utilising existing infrastructure for fabrication for oil and gas structures</li> </ul>					



Intervention	Implementation Timeframe			Target	Responsible entity
	Stabilisation (Years 0-2)	Revival (Years 2-5)	Growth (Years 5+)		
Develop infrastructure to connect major demand hubs (OCGTs, industrial, commercial and residential off takers as applicable) to supply centres (indigenous and imports) by: <ul style="list-style-type: none"><li>Identifying demand centres to be prioritised for pipelines connections and other transportation infrastructure to link those to supply sources (while also considering proximity to existing gas processing facilities and potential gas anchor tenants)</li><li>Ensuring a competitive gas price to safeguard the commercial viability of any new infrastructure projects</li><li>Aligning plans for conversion of OCGTs with construction of connecting pipelines to earmarked gas supply sources in order to balance opportunities for importation and indigenous gas</li><li>Increasing rail tanker capacity to enable transportation to demand hubs, while pipeline connections are underway and for future requirements</li><li>Prioritising funding allocations for investments in the required pipeline, rail and other infrastructure to convert latent demand to active gas demand</li><li>Prioritising decision making regarding operation and ownership arrangements</li><li>Finalising financing arrangements where upfront investments for new pipeline construction is required, and who shoulders the payment responsibility</li><li>Prioritising decisions regarding land requirements within and outside ports to enable links to existing infrastructure (incl. pipelines, rail links, gas processing facilities, as required)</li><li>Identifying gas beneficiation opportunities and prioritise providing incentives, where required</li><li>Updating the gas conversion strategy to support conversion of OCGTs (peaking plants) to CCGTs (possibly mid-merit) and other required conversions (e.g. SASOL) in the value chain</li><li>Identifying and conducting priority SEAs as applicable to optimise environmental authorisation timeframes for existing and future projects</li></ul>	X	X	X	<ul style="list-style-type: none"><li>Maximised utilisation of discovered offshore gas resources in SA</li><li>Infrastructure for growth and expansion created</li><li>SEA for current and future infrastructure projects finalised</li></ul>	<ul style="list-style-type: none"><li>DMRE (iGas, PetroSA, CEF)</li><li>DPE (TPL, TFR, TNPA, TE)</li><li>the dtic</li><li>Industry (NOCs, IOCs)</li><li>National Treasury</li><li>DFFE</li><li>DSI</li><li>SOEs</li></ul>
Establish standardised criteria across the SEZs and minimise limitations to investment	X	X		<ul style="list-style-type: none"><li>Criteria amended in SEZs legislation and associated regulations</li></ul>	<ul style="list-style-type: none"><li>the dtic (SEZs)</li><li>DPE (Transnet)</li><li>National Treasury (SARS)</li></ul>
Consider availing smaller land parcels to accommodate SMMEs and other smaller industry players within the SEZs and to support their inclusion by: <ul style="list-style-type: none"><li>Ensuring that SEZs source additional funding from available funding streams (incl. SEZs fund, DFI funding, equity options from the development) in order to develop ready-made structures to accommodate emerging SMMEs that lack capital and capacity to erect structures within the SEZs for their operations</li><li>Reviewing qualifying criteria, including consideration for developing top structures for common use by smaller players with high impact businesses in the manufacturing value chain within the SEZs</li><li>Considering extension of SEZ incentive benefits to qualifying business via management contracts with SEZs, while located outside the SEZs</li></ul>	X	X			

Intervention	Implementation Timeframe			Target	Responsible entity
	Stabilisation (Years 0-2)	Revival (Years 2-5)	Growth (Years 5+)		
Develop a coordinated focus amongst relevant stakeholders to form common objectives as authorities (SEZs, TNPA, TPT, CEF)	X			<ul style="list-style-type: none"><li>Coordination structure between the authorities, SEZs and port users established</li></ul>	<ul style="list-style-type: none"><li>DMRE (CGS, CSIR, PASA, NERSA)</li><li>Industry</li><li>DALRRD</li><li>COGTA</li><li>Traditional Authorities (CONTRALESA, Ingonyama Trust)</li><li>Local Government (Municipalities, SALGA)</li><li>Provincial Government.</li></ul>
Ensuring adequate readiness for gas processing facilities by: <ul style="list-style-type: none"><li>Performing a scenario plan to develop options for gas processing plants and other facilities linked to the development and distribution of gas in local and regional markets</li><li>Identifying possible land parcels and commence compliance processes required to establish availability of land for new SEZs, including conducting strategic environmental assessment approvals and securing consent from land owners</li></ul>	X	X		<ul style="list-style-type: none"><li>Scenario plan for gas processing plants concluded</li><li>Location of gas processing plants identified</li><li>Strategic environmental assessment completed with generic environmental management plan (EMP)</li></ul>	<ul style="list-style-type: none"><li>DMRE (CEF, NERSA)</li><li>DFFE</li><li>DPE (TNPA, TPL)</li><li>DALRRD</li><li>COGTA</li><li>Traditional Authorities (CONTRALESA, Ingonyama Trust)</li><li>Local Government (Municipalities, SALGA)</li><li>Provincial Government</li><li>Industry</li><li>the dtic</li></ul>
RESEARCH AND DEVELOPMENT					
Develop and apply innovative technologies to ensure: <ul style="list-style-type: none"><li>Emerging alternative energy technologies (e.g. fuel cells storage, incubators, hydrogen generation)</li><li>Funding instruments for research in the oil and gas exploration sectors</li><li>Rolling out of innovation/technology demonstration centres and ensuring technology transfer occurs to industry and communities</li><li>Assessing feasibility and development of technology for less-intrusive seismic surveying methods to ensure a faster maturity of the industry</li></ul>	X	X	X	<ul style="list-style-type: none"><li>Increased numbers of new technologies applied</li><li>Increased numbers of innovations and/or newly developed technologies being commercialised and transferred to industry and communities</li></ul>	<ul style="list-style-type: none"><li>SAIMI</li><li>Universities</li><li>DSI (TIA, CSIR)</li><li>DMRE</li></ul>
RE sourcing AND INVESTMENT					
Increase resource and investment through: <ul style="list-style-type: none"><li>Developing a regulatory framework that encourages investment in the industry to alleviate the lack of access to reliable energy supply</li><li>Enhancing tax incentives throughout value chain</li><li>Launching loan facility to increase access to international markets for local industry</li><li>Launching sovereign guarantee facility for offshore oil and gas exploration</li><li>Establishing a sovereign wealth fund for the offshore oil and gas industry</li><li>Incentivising development of gas-powered vehicles</li><li>Developing national funding capacity to fully develop both oil and gas projects throughout the value chain</li><li>Completion of the UPRD Bill and all the associated supporting legislation to facilitate investment in SA's hydrocarbons sector.</li></ul>	X	X	X	<ul style="list-style-type: none"><li>Increased investment into the sector</li><li>Increased growth in the sector</li></ul>	<ul style="list-style-type: none"><li>DMRE (CEF)</li><li>DFFE</li><li>the dtic</li><li>Local and international</li><li>DFIs</li><li>National Treasury</li></ul>

Intervention	Implementation Timeframe			Target	Responsible entity
	Stabilisation (Years 0-2)	Revival (Years 2-5)	Growth (Years 5+)		
PUBLIC SECTOR AWARENESS					
Create community awareness programmes of the oil and gas industry to ensure risk mitigation against delays in investment programmes, exploration and production by:  • Hosting the National Energy Dialogue to derive a common approach towards the “Just Energy Transition” and associated plans to achieve energy sustainability. • Hosting the Industry and Stakeholders Colloquium to facilitate multi-stakeholder alignment on environmental best practice standards and guidelines for meaningful stakeholder consultations. • Undertaking engagements with stakeholders, communities, interest groups, and traditional authorities to rally South Africans towards a common goal in enabling investment opportunities in the upstream oil and gas industry	X	X	X	<ul style="list-style-type: none"><li>• Better informed public on the sector</li><li>• Increased public acceptance of the entry of oil and gas projects in SA</li><li>• Increased investor confidence</li><li>• More reliance on locally-produced oil and gas products</li></ul>	<ul style="list-style-type: none"><li>• DMRE (PASA)</li><li>• GCIS</li><li>• DFFE</li></ul>



## 10. *Conclusion*

---

The South African ocean economy is directly tied to South Africa's national economy. Factors affecting the growth and stability of the larger economy will directly impact this sector and its outlook, while at the same time, a sustainable and prosperous oceans economy has the potential to help the country overcome the triple challenge of poverty, unemployment and inequality. The purpose of this South African Oceans Economy Master Plan is to assist Government and its partners to stabilise and revive the oceans economy, to improve economic growth and to optimise the value of South Africa's natural resources. The Master Plan is fundamentally an agreed Plan of Action. It is thus a first step towards continued co-creation from across all stakeholders, which will culminate in the development of Detailed Implementation Plans and identification of policy measures and mechanisms aimed at realising the short, medium and long term interventions proposed by the Master Plan for key sub-sectors of South Africa's oceans economy through to 2035.

THE SOUTH AFRICAN

# OCEANS ECONOMY

Master Plan to 2035

---

