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Potentiality of a shipbuilding industry in South Africa: Regulation or no regulation

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POTENTIALITY OF A SHIPBUILDING INDUSTRY IN SOUTH AFICA: REGULATION OR NO REGULATION

By

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DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

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Abstract

Title of the Dissertation: **Potentiality of a Shipbuilding Industry in South Africa: Regulation or No Regulation**

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The shipbuilding industry is undoubtedly critical for the economic growth with the offshore market still proving to be the increasingly important market segment of the industry. The industry is labour and capital intensive. The shipbuilding's ability to contribute towards economic growth enables developing nations to create new job opportunities for local citizens, and as a result reducing poverty. South Africa is a developing nation that is faced with a high unemployment rate of 25%, and has identified the ocean economy as a potential driver to stimulate and sustain economic growth through the marine transport manufacturing industry.

However, recent figures in the shipbuilding market have shown that the market is experiencing significant pressure as there have been high drops in fresh orders for new vessels to be built. The newbuilding prices have also dropped to a low that is a huge concern for shipbuilding companies.

Thus, this study undertakes a cost-benefit analysis to analyse, investigate and discuss all potentialities and constraints in making South Africa a ship building nation through suitable laws and regulations. This should by no means be a drive to keep the domestic shipbuilding companies busy, but it should be a way that the South African government ensures that the platform for an opportunity for the industry to grow is made available. Furthermore, it is through the proposed regulation that the investment made will follow specific targets, which will have to be met by companies who will have been awarded a government contract. Furthermore, fierce competition should be encouraged amongst the domestic shipbuilding companies at all times.

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List of Abbreviations

CAGR	Compound Annual Growth Rate
CGT	Compensated Gross Tonnage
COSATU	Congress of South African Trade Unions
DoEDT	Department of Environmental Development and Tourism
DoT	Department of Transport
DSCT	Damen Shipyards Cape Town
DSME	Daewoo Shipbuilding and Marine Engineering
DTI	Department of Trade and Industry
DWT	Deadweight Tonnage
ESKOM	Electricity Supply Commission
FEDUSA	Federation of Unions of South Africa
IDZ	Industrial Development Zone
IPAP	Industrial Policy Action Plan
NDP	National Development Plan
OACL	Ocean Africa Container Lines
OECD	Organization for Economic Cooperation and Development
SAASR	South African Association of Shipbuilders and Repairers
SADC	Southern African Development Community
SAMSA	South African Maritime Safety Authority
SAS	Southern African Shipyards
SWOT	Strengths Weaknesses Opportunities Threats
TEU	Twenty-Foot Equivalent Unit
TNPA	Transnet National Port Authority
VLOC	Very Large Ore Carriers
WTO	World Trade organization

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CHAPTER ONE

1.1 Background

The Republic of South Africa celebrates just over two decades since the end of the apartheid era. Redressing the inequities and inequality of the apartheid era has never been easy; however, vast improvements have been widely acknowledged. Like any developing country in a quest to achieve major economic development for the country, the Republic of South Africa has identified strategic pillars to achieve developmental targets.

In light of the improvements made, South Africa is still burdened by the triple constraints to its development, namely poverty, unemployment, and inequality. Over the past two decades, the main influencers of these constraints have been mainly the policies established, the state of the economy, and the social welfare state of the citizens. Several approaches focusing on key priority areas such as poverty, crime, and unemployment have been introduced by the South African the government to achieve significant economic transformation within a very short space of time.

In 2014, President Jacob Zuma launched Operation Phakisa (Make Fast), an initiative by the South African the government. It is an initiative designed to fast track the implementation of solutions on critical developmental issues such as poverty and unemployment. Operation Phakisa is a results-driven approach, involving setting clear plans and targets, on-going monitoring of progress and making these results public. Amongst many other issues Operation Phakisa is aimed at growing the ocean economy and other sectors within the maritime industry in South Africa. To achieve the sought growth four focus areas were identified as new growth areas in the ocean economy, with the objective of growing them and deriving value for the country (South Africa, 2015).

These areas are:

- Marine transport and manufacturing activities, such as coastal shipping, trans-shipment, boat building, repair and refurbishment;
- Offshore oil and gas exploration;
- Aquaculture and
- Marine protection services and ocean governance.

In 2010 the ocean contributed approximately R54 billion (~US$3, 5 bn) to South Africa's GDP and accounted for approximately 316,000 jobs. The ocean has the potential to

contribute up to R177 billion (~US$12bn) to GDP and between 800 and 1 million direct jobs. These growth levers reflect at least 4 per cent annual growth in both GDP contribution and job creation (Operation Phakisa, 2015).

1.2 Introduction

There are thousands of vessels that sail all around the world as a result of the shipbuilding industry. The shipbuilding industry is responsible for the construction and the modification of vessels. The construction and modification of the vessels is carried out in focused facilities known as shipyards, where quality and safety should not be compromised in respect to both the construction of vessels and the operation of critical equipment being used.

With over two thousand five hundred shipyards in the world, competition in the shipbuilding industry is very prevalent. The Asian region has enjoyed the greater part of the shipbuilding industry with most production carried out in China, South Korea, and Japan. However, there are other large shipyards in other parts of the world. The shipbuilding industry includes privately owned businesses such as family firms, and multinational corporations, with the production of the vessel types being as diverse. Table 1 reflects the dominant firms in the industry which include: Hyundai Heavy Industries, Samsung Heavy Industries, and Daewoo Shipbuilding and Marine Engineering (DSME) (Business Wire, 2016).

Table 1: Largest Shipbuilders in the World

Rank	Commercial Shipbuilding Only		Offshore Builders Only		Overall Ranking incl. Offshore	
	Shipbuilder Name	Market Share (in CGT of merchant orderbook)	Shipbuilder Name	Market Share (in USD value of orderbook)	Shipbuilder Name	Market Share (in USD value of orderbook)
1	Hyundai Heavy, HHI	8.18%	Samsung Heavy	22.91%	Samsung Heavy	10.31%
2	Samsung Heavy	6.85%	Daewoo, DSME	12.85%	Hyundai Heavy, HHI	8.83%
3	Daewoo, DSME	5.93%	Hyundai Heavy, HHI	11.90%	Daewoo, DSME	6.82%
4	Imabari Shipbuilding	4.52%	Keppel FELS	10.61%	STX Offshore & Shipbuilding	2.91%
5	STX Offshore & Shipbuilding	3.65%	Sembcorp - Singapore	7.03%	Keppel FELS	2.03%
6	Hyundai Mipo, HMD	2.66%	Cosco Shipyard	4.90%	Hyundayi Mipo, HMD	1.95%
7	Jinhai Heavy Industry	2.29%	CIMC Raffles Offshore	2.50%	Jiangsu Rongsheng	1.62%
8	Jiangsu Rongsheng	2.07%	STX Norway	2.42%	Cosco Shipyard	1.57%
9	Yangzijiang Shipbuilding	1.99%	ABG Shipyard	1.88%	Dalian Shipbuilding, DSIC	1.52%
10	Dalian Shipbuilding, DSIC	1.94%	Keppel FELS Brasil	1.61%	Jinhai Heavy Industry	1.37%

Source: Worldyards Statistics June 2011

For most countries such South Africa, a country that is looking into developing the industrial infrastructure, they have found the shipbuilding industry as a solution to their long term strategy with strong linkages for economic growth and employment multipliers (Defence Web, 2014). The shipbuilding industry is seen as one critical driver to a nation's economy as

it contributes towards increased new jobs and revenue generated by the shipyards. The shipbuilding industry is ultimately a critical factor to the global economy as the vessels built are used to move traded goods in and around the world.

According to Business Wire (2016, P 1), “the key factors driving market growth are global seaborne-trade, improved economic growth, rising urbanization and increase in global steel production. Noteworthy trends and developments of this industry are green shipbuilding technology, LNG fuelled engines and solar and wind powered ships.”

The shipbuilding industry is recognized amongst the most open and competitive global markets, having survived peaks and crisis of the economy. However, in 2014 the global demand for shipbuilding declined primarily due to slow economic growth and imbalance in supply and demand of ship. The weaker demand was also due to increase in shipbuilding price and demand in 2013 along with freight rate declines in containership and bulk carrier that collectively contributed to the decline of demand when compared to 2013 (Research and Markets, 2015). Thus, given the intensity in capital within the industry, political stability and strong the government support are critical to preserve the industry (Business Wire, 2016).

1.3 Shipbuilding History in South Africa

Shipbuilding in South Africa has been ongoing for some 35 years albeit in a start-stop operation (Southern African Shipyards, 2015). There are currently six companies involved in construction and/ or repairing of vessels, and they include: Damen Shipyards Cape Town (DSCT), Dormac Marine and Engineering, DCD Marine Ship and Rig Repair Services, SNN Ship Co. (Pty) Ltd, and Southern African Shipyards (Pty) Ltd. Over the years the demand from the South African market for the new buildings has been infrequent, and that has not been enough to enable any stability in the South African shipbuilding industry.

The dominance of the Asian and Eastern European shipyards in the shipbuilding industry as a result of large subsidies provided by their governments has lead to the downside of the South African shipbuilding industry. Most successful shipbuilding nations have had their industry supported by their the government through subsidies, strong by-local policies, creation of an enabling policy environment, guarantees provided by the government, and soft funding, as opposed to the little support provided by the South African the government (DoEDT, 2013).

There are other major factors that have borne deficiencies towards the South African shipbuilding industry. The combination of high costs of steel and the productivity of labour are the major containing factors (DoEDT, 2013). The shipbuilding industry is a labour intensive industry with shipyards working twenty four hours, and this involves labour legislations which have costly demands for workers. The monopolies in industries such as the steel industry that directly contribute to the shipbuilding industry have made it difficult to source steel locally, instead importing steel has in some cases become a more viable option.

The loss of business by local companies to foreign companies has also been another downside to the South African shipbuilding industry. With the South African the government and local shipping lines failing to guarantee the local companies sustainable orders for new vessels not only do companies lose business opportunities, but there is loss of job opportunities, and divest of new skills that the country could benefit from.

Nevertheless, amidst the challenges that exist, there are opportunities for economic growth and new jobs through the shipbuilding and repair industry in South Africa. The labour intensity that comes with the strong demand by the industry could create new opportunities for skills development and strong backwards linkages to industries such as steel manufacturing (DoEDT, 2013). South African shipyards have manufactured mega yacht vessels ranging from 23 metres and 95 mitres, and tugs and workboats built with a 70 bollard pull, RoRos, RoPax, offshore vessels, naval vessels, high speed craft, and fishing vessels (Southern African Shipyard, 2015).

1.4 Forces/Drivers for Regulation Formulation

Regulation is a particular kind of incentive mechanism, namely that set of incentives based on mandated actions and the explicit threat of punishment for non-compliance and as a specific kind of relationship between the government and its citizens (OECD, 1992). The purpose of regulation is to allow or prohibit activities in the economy through the legal system, for example, setting tariffs, granting licences or permits, and regulating the labour market (Hughes, 2003).

Regulation further has an obligation to ensure that fair competition amongst businesses is enforced in all trade practices, and control on the both competition and consumer protection is implemented to restrain any propensity of collusion and monopoly by businesses. Thus, in any port, the Port Authority through its regulations has a responsibility to promote economic growth not overlooking the enforcement of a competition culture amongst all stakeholders of

the port, which may include but not limited to, the government, the business enterprises, policy and legislative makers, the consumers of goods and services, and lastly the decision makers.

The maritime industry has large firms pushing each other for survival in a very cyclical and volatile market as a result of increasing operational costs deriving from the technological advancements that are ever changing due to the market and environmental demands. These demands could lead to collusions and natural monopoly by large businesses. The monopoly will come into being when an industry has companies enjoying large economies of scale, thereby operating at lower average cost than any new entrants to the market, making it difficult for new entrants to break into the market. In this case the large companies already have large transporting networks in place and they can provide their service at a fairly low cost. This makes it very hard for new entrants to come in as they will have smaller sized transporting networks, which will find it difficult to compete effectively.

Alternatively, in a case where a new big company enters into the market to compete with other big companies, it may result in a ruinous competition. If this occurs, large firms already with high fixed costs to provide they transport network may charge low prices and as a result run each other to losses which could yield to bankruptcy, or they could merge and that resulting into monopoly.

Thus, regulation for the business sector is widespread and it can either be economic or social policies. From the economic form there may be financial policies that oversee the foreign investment as well as broader corporate regulation, exchange and interest rates, and the rules for company registration. There is often price regulation, quantity regulation, quality regulation and various product or packing standards (Hughes, 2003). The social policies ensure the protection of the interests of the consumers of goods or services, and the citizens in accordance to the guidelines relating to the quality standards of the goods or services, their safety and pollution control.

Some literature, however, raises the controversy around the significance of regulation in the economy. The general consensus amongst the private sector companies is that there is an influx of regulation which has now become too intrusive, thus, stifling business and indirectly affecting competitiveness (Hughes, 2013).

1.5 Problem Statement

The government of the Republic of South Africa has identified the investment of developing a shipbuilding industry in South Africa as a mechanism to fight the triple constraints, namely poverty, unemployment and inequality. There have been regulations put in place to attract foreign investment to invest in South Africa. Industrial development zones have been built to accommodate them. However, not much foreign investment has been acquired. Local shipbuilding companies feel that the regulations put in place are very high and they are affecting their competitiveness with the other international shipyards.

1.6 Aims and Objectives

In light of the Operation Phakisa development, a master thesis is hereby proposed to analyse, investigate and discuss all potentialities and constraints in making South Africa a ship building nation. In order to achieve this aim, the following objectives have been set based on the three identified pillars (Policy, Social, and Economy):

1. Analyse and discuss existing policy in relation to the attractiveness of South Africa as a ship building investment destination.
2. Social assessment: Assess South Africa's capacity building state in light of the maritime skills, influence of culture given that South Africa is rainbow nation.
3. Economic assessment: Assess the impacts of the stability of the South African economy, the global maritime market, impact of current electricity & water crisis in South Africa, the labour costs, and the influence of monopoly in the South African ports by the Transnet National Port Authority.

1.7 Research Questions

1. How can the South African legislative framework influence the shipbuilding industry in South Africa?
2. What potential influence can the social welfare state have on realizing the intended objective of growing the shipbuilding industry?
3. Which economical activities can influence the shipbuilding industry in South Africa?
4. Are existing maritime skills adequate to attract and maintain ship building in South Africa?

5. Do social realities such as crime, inequality, labour unrest, and the different cultures from different ethnic groups have any influence in the shipbuilding industry in South Africa?

6. How is the current outcry by a South African opposition party and various labour unions for nationalization of industries influencing investment attraction in ship building within South Africa?

7. South Africa is seen to be remotely located from developed countries in the north. Could the geographical position of the country, being away from major shipping route, have an influence?

8. How does the current state of the infrastructure in South Africa influence the shipbuilding industry?

1.8 Scope and Justification for the Thesis

The government of the Republic of South Africa in its agenda to improve the development of the shipbuilding industry employs two instruments, namely subsidy and regulation in its bid to achieve desired outcome. With the subsidies the government has invested in industrial development zones (IDZ) in several ports where these zones are to attract foreign investment for the shipbuilding industry. Furthermore, regulations have been put in place to probe any activities that will pose threats to the desired outcome by the national the government.

The private sector; however, has raised concerns over the role of the government that tends to stifle the efficiency and effectiveness of competition in the shipbuilding industry as a result of a bureaucratic system put in place. Thus, the scope of the thesis looks into the regulations put in place, and the extent to which they may yield to potentialities or constraints for the development of the shipbuilding industry in South Africa.

1.9 Methodology

1.9.1 Research Design

According to Edward Gramlich (1981, p8), Cost Benefit Analysis is “nothing more than a logical attempt to weigh the pros and cons of a decision. And ultimately, something like it must necessarily be employed in any rational decision.” Cost-benefit is rational and logical and, therefore, it fits within the rational comprehensive planning. Cost-benefit as a model is

systematic. One of the attributes of using cost-benefit as a model is that it is replicable, meaning it can be tested and reviewed.

Robinson, and Hammitt, (2011, p10) mention that “typically, costs are defined as the opportunity costs of the real resources expended to develop, implement, and operate a program or to comply with regulatory or other requirements, including any market impacts.” The accrued benefits cover a wide spectrum of aspects which have a monetary value of the outcomes sought by the objective of the policy. In addition, for the South African shipbuilding industry they may include: poverty reduction, improved safety, greater employment, improved skills and knowhow, and better infrastructure development. Policymakers always look for additional insightful information that cannot be simply seized in an economic analysis.

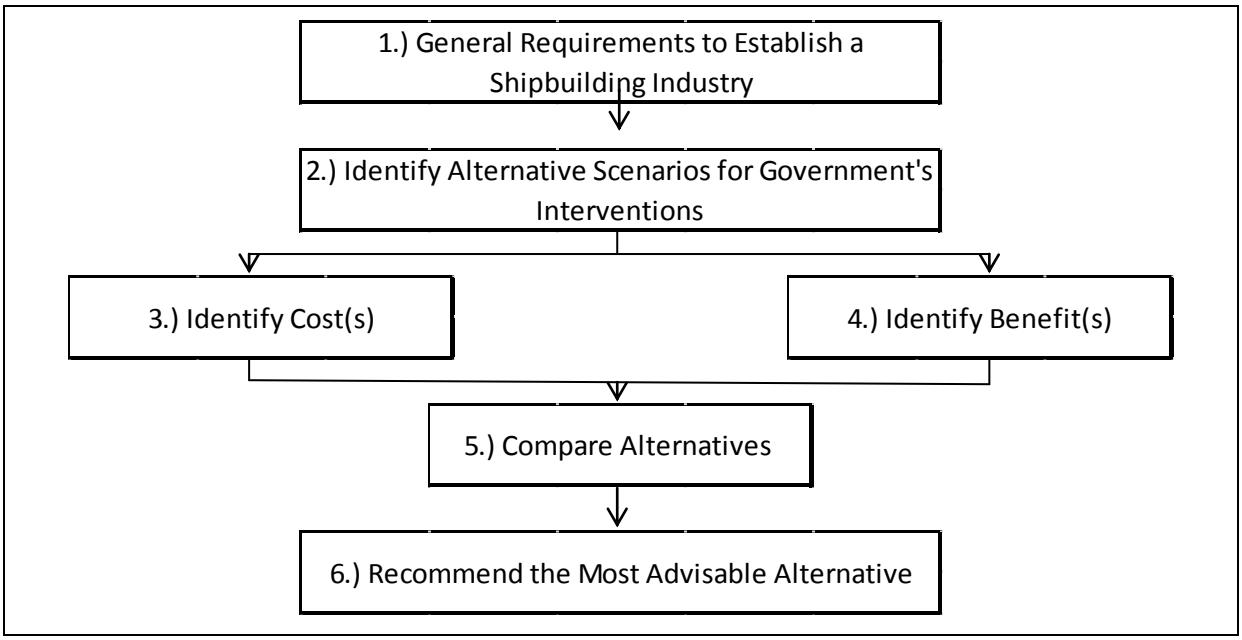

Figure 1: Cost-Benefit Analysis Framework

Figure 1 is the cost-benefit analysis framework that is followed for this paper. The data analysis will follow the same framework.

1.9.2 Data Sources

This study is carried out using the cost-benefit analysis methodology and it makes provisions of the potential development of principles and standards for cost benefit analysis with regards to potential investments towards the South African shipbuilding industry. The study focuses on the implications of the regulations that could potentially be put in place. The

study reviews secondary literature and traditional practices, discusses findings from selected cases, derives alternative solutions and recommends ways in which these alternatives might be cohered into a cost benefit analysis.

The secondary data that will be analysed is sourced from existing publications pertaining to the South African shipbuilding industry and the global shipbuilding market. The data is sourced from various institutions including all stakeholders of the South African maritime industry discussed in the previous chapter. The study draws on historical cases within the South African shipbuilding industry.

This paper is focused on a case study quoted in the previous chapter that involves a local shipbuilding company (Dorbyl) losing a tender to a foreign shipbuilding company to manufacture vessels which were funded by state funds. The case reflects lack of financial capacity from the shipbuilding companies in South Africa, no legislation that is binding any manufacturing of a vessel funded by the state funds to be built within the South African shores, and a private sector that feels unprotected by the government, thus appealing for some level of intervention from the government. Some appeals were for tax incentives and/ or subsidies.

In his article, Nxumalo (2014, p2) quotes an executive member of TNPA, Morwe, who also lamented the lack of investment by South Africa to the South African shipbuilding industry saying “as a country we are afraid to invest. The tenders should be to build competency of the South African shipbuilding companies and build on it… We should not be building ships outside the country; we should be building competencies in it.”

1.10 Structure of the Thesis

The thesis consists of six chapters. The background of the study, the introduction, aims and objectives, research questions, scope and justification for the thesis, and the methodology are presented in the first chapter. Chapter two entails a discussion on the theoretical and applied methods to port regulations is conducted by providing an in- depth analysis on already existing literature on the subject. Chapter 3 presents the cost-benefit analysis of the alternative solutions. Chapter 4 presents the chosen solution and the implementation of the chosen solution. Chapter 5 provides a conclusion and recommendations for the thesis.

CHAPTER TWO: PROBLEM EXPLOITAION

2.1 Introduction

More often than not, the arising need for regulation to any industry derives from shortcomings as a result of natural monopolies and economies of scale in production (Brousseau & Glachant, 2002). Each state puts in place regulations by which it governs the way industries are run in the country. These regulations may not be perceived to be as important to the ordinary observer, yet they have such significant implications that may affect the country in the long run. These effects could either strengthen or weaken the country's economic health, the stability of the economy, and performance growth.

There is always a danger of leaving industries to run on themselves without any regulation. According to the World Bank Group (2015, p7) "markets left to themselves to produce will result in poor deliverables, however, a well-designed regulation has the potential to ensure

outcomes that are socially optimal and likely to leave everyone better off." Additionally, regulations provide a platform for fair competition to be achieved amongst competitors in the industry by rectifying imbalances of power amongst different stakeholders in the industry.

The shipbuilding industry is a labour and capital intensive industry that requires regulation to provide balance between employers and employees. A well-balanced regulatory system has the ability to provide elasticity for employers while simultaneously protecting the employees. The responsibility of a regulation should be to enhance the opportunities for fair competition to be achieved, enabling increased production, distribution, and the promotion of economic processes within an industry.

Brousseau and Glachant, (2002, p27) stated that "the economic welfare has traditionally been divided into efficiency and equity concerns, where economists argue that equity is best addressed by instruments specifically developed for purposes such as income taxes and benefit transfers, while efficiency should be separately analysed." Important to note however, is the complexity that emanates from the political influence to industries such as the shipbuilding industry, which could pose a challenge towards the practicality to implement and maintain such a separation.

This chapter critically exploits the problem within the South African shipbuilding industry with respect to the regulatory framework that is currently in place. A further analysis is made on the vision of the South African the government with respect to the shipbuilding industry, and a closer look into the global shipbuilding market will be quoted as well. This chapter does also touch on the roles of all stakeholders that influence the shipbuilding industry in South Africa and their potential influence to the industry. The chapter concludes by looking at the SWOT analysis of the South African shipbuilding industry.

2.2 South African Maritime Legislative Framework

The South African Maritime industry has several legislations put in place that sought to promote the Republic's maritime interests. South Africa's maritime interests are centred on strategies, the economy, environmental awareness and the political influences. There are respective stakeholders who are true custodians of these legislations, namely Transnet National Port Authority, Industrial Development Zone, the Department of Environmental Affairs, Local Municipalities, Trade Unions, and Electricity Supply Commission; their roles will be discussed further in this chapter.

The South African borderline is divided into three areas, namely the air borderline, land borderline and the sea borderline. South Africa has an extensive land borderline, which it shares with six other countries – Botswana, Lesotho, Mozambique, Namibia, Swaziland and Zimbabwe. The total length of South Africa's land borders is approximately 4,750km, whereas its sea border covers approximately 2,800km. Currently, land transport enjoys higher status and coverage largely due to its visibility and low transportation costs, whilst coastal shipping remains ignored and less visible.

This state of affairs therefore warrants a relook and coastal shipping deserves a profile upgrade, as if managed effectively, it can present the country with immense benefits. The benefits will be mainly through efficiency, reduction of damage to the road and congestion, economies of scale: transporting large volumes of cargo in a relatively short space of time, environmentally friendly, governed by stringent international safety laws, and can have a huge and cost effective contribution to the general multimodal transport system.

South Africa's internal waters and the territorial sea are nearest to the coast and stretch up to 12 nautical miles from the baselines. Those waters are part of the South African territory and therefore the whole corpus of South African law applies.

Through the legislative framework of the South African maritime industry the national the government intends to unlock the potentialities of the South African maritime economy. The existing legislations which could also be referred to as the government policies are focused on redressing the current national triple-constraints, namely unemployment, poverty, and inequality. Therefore, the government has identified the industrial perspective of the South African maritime economy with an attempt to bolster the national GDP and job growth through the shipbuilding industry.

This chapter will make reference to three legislations that govern and regulate the South African maritime industry. These policies include the National Development Plan (NDP) 2030, the Industrial Policy Action Plan (IPAP), and the Labour Relations Laws.

2.2.1 National Development Plan 2030

The National Development Plan (NDP) 2030 is a policy document that outlines the Republic's long term plan in its quest to eliminate poverty and redress inequality by year 2030. According to the National Planning Commission (2012, p8) "South Africa can realise these goals by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnerships

throughout society." Furthermore, the NDP follows the New Growth Path policy which was established to provide the framework for national economic policy and the driver of South Africa's job strategy.

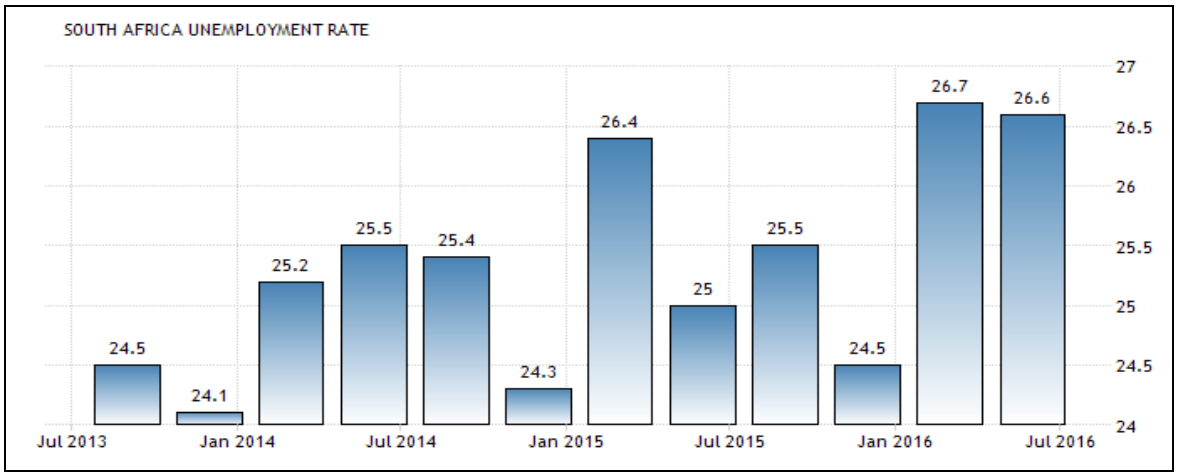

Figure 2: South Africa's Unemployment Rate
Source: Statistics South Africa

The danger with any lack of competition in any industry is that the existing players continue to score high profit margins with a potential of little investment made. This conduct makes it very difficult for new entrants to enter into the market and thus unemployment remains at a high. Hence, the ripple-effect which results in the country being deprived of skills and as a result the reliance on foreign expertise dominates. In addition, this foreign knowledge and skills come at very high costs further increasing the gap between the different classes in the labour sector.

In its quest to redress the aforementioned challenges, "the NDP makes several proposals in the areas of regulatory reform, infrastructure investment, competition law and the quality of public services to address these structural features, thereby contributing to lower costs for businesses" (National Planning Commission, 2012, p15).

Amongst some of the propositions of the NDP is the issue of enhancing the competitiveness through local production that will be able to compete and increase the demand of the local production such as the marine transport manufacturing. The demand for production should be from both domestic and foreign maritime markets.

Through the foreign investment towards the South African shipbuilding industry, the Republic intends to increase the income that will come from the orders of new buildings. Ultimately, this will result in reduction of unemployment, and an increase in domestic production that will yield a potential positive reputation for the industry and the country at large.

The National Planning Commission (2012) does, however, argue that in light of the capabilities that South Africa possess to compete in the global markets, evidence has reflected that the country can only compete in labour-intensive activities based on niche products, processes, and know-how. Though the shipbuilding industry proves to be labour and capital intensive and the question that may remain is whether South Africa has a fully-fledged capacity to manage the processes and whether the knowledge capacity can compete with the global competitiveness.

One other critical factor that is highlighted in the NDP is the high electricity consumption that is required by manufacturing industries such as the shipbuilding industry. Although it cannot be deemed as a permanent crisis, however South Africa has been back-locked by numerous load-shedding incidences since the year 2008. The years 2010 and 2015 have been recorded as the worst yet. Such incidences bring concerns for the shipbuilding industry which requires production to run twenty four hours a day, seven days a week until the project is complete.

The infrastructure regulatory system of all industries has a review division for daily monitoring and evaluation which gives clear distinct roles of every stakeholder, and updates legislation and regulations to ensure that accountability is enforced and strengthened. The monitoring and evaluation unit reports directly to the Ministry in the Presidency, where periodic regulatory reviews are undertaken to provide support, guidance and advice to regulatory authorities in all industries (National Planning Commission, 2012).

2.2.2 Industrial Policy Action Plan

The Industrial Policy Action Plan (IPAP) is defined as “a product of the Employment and Economic Sectors Cluster of The government with many of the programmes and action plans it sets out requiring coordination, and often a lead by other departments and agencies” (Department of Trade and Industry, 2010, p88).

According to the Director General of the Department of Trade and Industry in South Africa, Mr. Lionel October, “The National Industrial Policy Framework and successive iterations of IPAP provide a policy and programme fulcrum for the work of the Department of Trade and Industry as a whole, enabling alignment and integration of its work within the strategic vision of a more equitable society provided by the National Development Plan and the programmatic perspectives set out in the New Growth Plan” (Department of Trade and Industry, 2010, p5).

The Department of Trade and Industry in South Africa does however characterise the shipbuilding industry as one that lacks skilled labour with a shortage of specialists in respective skills required for the industry. Other shortcomings include poor technological knowhow and effective project management knowhow. The urgency of acquiring skilled labour for the industry remains crucial to redress the situation of the shortage of specialized skills for the industry to grow. Additionally, the industry's global competitiveness requires individuals who can apply their innovative ideas that will produces vessels of the required quality standards whilst also being able to meet the quantity demanded for the ordered new buildings.

2.2.3 Labour Relations Laws

With the aforementioned intensity of the shipbuilding industry the labour force has to work within prescribed legislations. The regulations that govern the shipbuilding industry in South Africa include the Labour Relations Act No. 66 of 1995 and the Basic Conditions for Employment Act No. 75 of 1997. These legislations are enforceable to employers, employees and trade unions including the employers' organizations.

The labour legislation laws are directed by section 27 of the Constitution of the Republic of South Africa, which gives directive of the workers' rights. The objectives of these labour laws are to enable the labour force to enhance the economic development, adhering to social justice, and spearheading labour peace and democracy in all working environments.

From the industrial action point of view, the Department of Labour (1995, P 4) states that "The labour laws regulate the organisational rights of trade unions deals with strikes and lockouts, workplace forums and other ways of resolving disputes. It provides a framework for the resolution of labour disputes through the Commission for Conciliation, Mediation and Arbitration (CCMA), Labour Court and Labour Appeal Court."

2.3 Global Shipbuilding Market Analysis

The ship and boat building industry generated $175bn in revenue in the year 2015, with an annual growth of -5.6% (IBISWorld, 2016). This industry involves the newbuilding of commercial specialized ships, boats, repairs of ships and boats, and vessels for the governmental services. The ship/boatbuilding industry profited prior to the recession due to the healthy economic growth. However, when the world economy fermented there was a decline in new order for new vessels to be built. According to IBISWorld (2016) latest report,

the steady recovery of the economy has reignited the increase in the international trade volumes which have developed a demand for new vessels to be built and has contributed to the industry's overall revenue.

According to the National Defense University (2005) the global shipbuilding industry is projected to be $274.5bn in revenues by the year 2019. Offshore is and still remains the major driver to the economy. The interpretation of these figures justifies a possible demand for shipyards including the South African shipbuilding industry.

The Asian region has dominated the shipbuilding industry with most production carried out in China, South Korea, and Japan. In 2015 China was ranked as the largest shipbuilding nation having completed vessels with a total of 25,160,000 gross tonnages as shown in Figure 3 (Statista, 2016). South Africa is ranked number 53 in global ranks and number 1 in the African continent ranks having completed a total of 8 574 dwt (Seaweb, 2016).

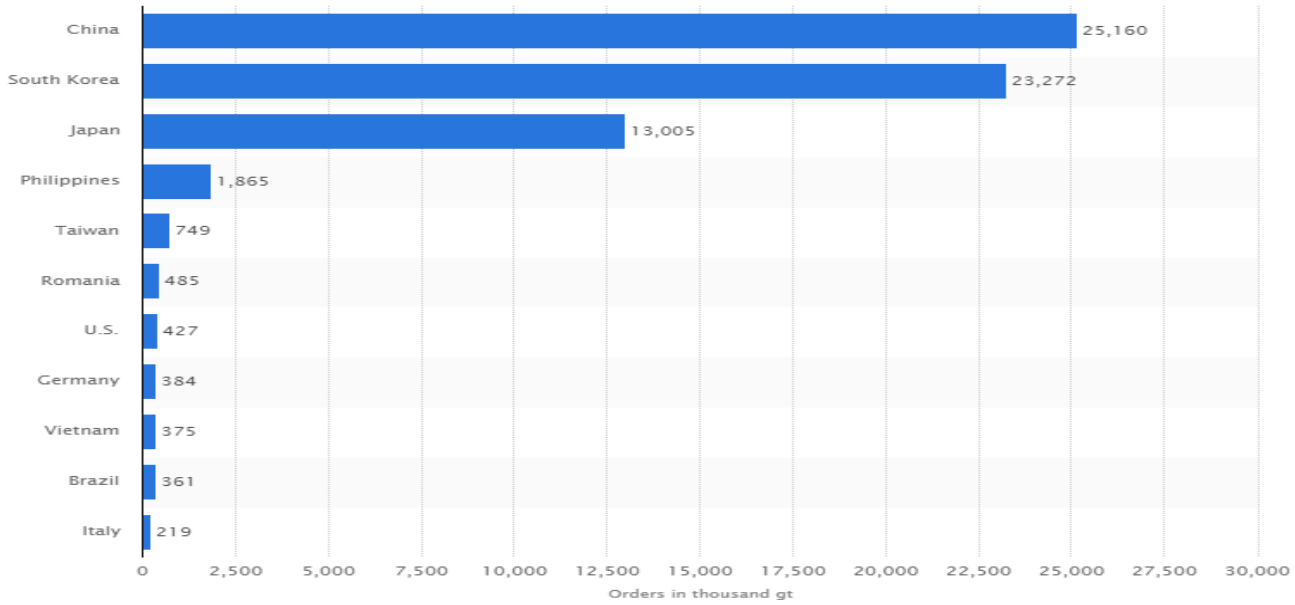

Figure 3: Leading Shipbuilding Nations (2015)
Source: Statista 2016

The year 2015 had the commercial shipbuilding under pressure due to the market suffering from continued drought of fresh orders. This saw a decline of 48,81% in a number of active shipyards worldwide where only 288 shipyards were active compared to the 590 shipyards which were active in 2008 (ISL, 2015). In May 2016 the world's largest shipbuilding company, Hyundai Heavy Industries Co. announced that they would stop operations of their underutilized dry docks due to a drought in new orders (Pulse, 2016). The announcement followed after South Korean shipbuilders witnessed their orders collapse by a staggering 94.1% in the first quarter of the year 2016. The orders dropped 170,000 compensated gross

tons (CGT), compared to the year 2015 orders. In terms of dollars, orders collapsed 94% from $6.5 billion in Q1 2015 to just $390 million (Ritcher, 2016).

The beginning of the year 2016 recorded the lowest ordering with only a total of 4 new orders recorded for dry bulk contracts in the first 3 months of the year. The new contracts were of a total of 267,000 DWT which was less than a tenth of the total of 2.8 million DWT recorded by the end of the year 2015 (BIMCO, 2016). Figure 4 presents the decline in new contracts for dry bulk.

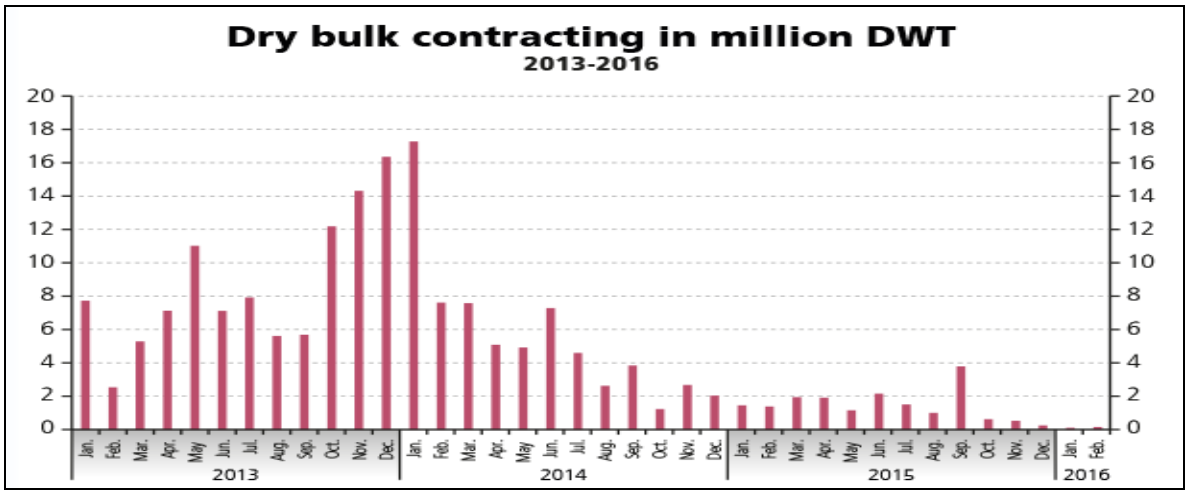

Figure 4: Dry Bulk Contracting in Million Deadweght Tonnage (2013 - 2016)
Source: BIMCO, Clarksons

According to BIMCO (2016) the only noticeable outlier that took place in September 2015 was the result of the new large order placed by Nippon Steel & Sumitomo Metal Corporation for nine new Very Large Ore Carriers (VLOCs) as they were renewing their capesized fleet.

In addition to the latest decrease in new contract orders being placed for dry bulk the demolition increased by 42% with a total 111 ships totalling 9.3 million DWT which were scrapped within the first two months of 2016 compared to recorded 6.6 million DWT scrapped during the same period in 2015 (BIMCO, 2016). Furthermore, a record high of scrapping was recorded in April 2015 as shown in Figure 5. However, although there has been a drop in deliveries of newbuildings, Figure 5 reflects that there was an improvement in deliveries during February 2016 compared to February 2015.

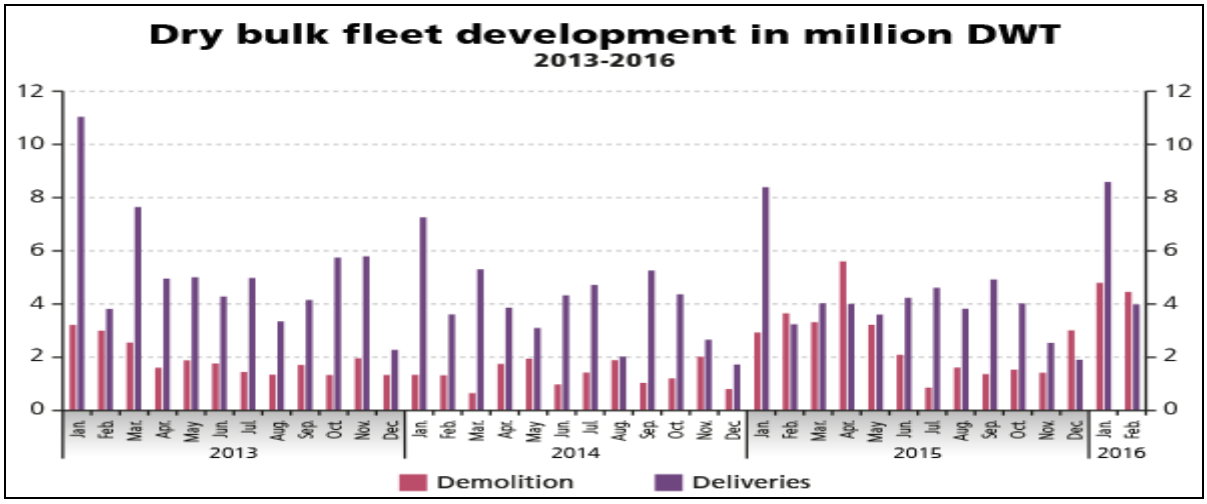

Figure 5: Comparison Between Dry Bulk Demolition and Deliveries (2013 - 2016)
Source: BIMCO, Clarksons

The shipbuilding industry is recognized amongst the most open and competitive global markets, having survived peaks and crisis of the economy. The increase in newbuilding prices along with the decline in the freight rates in 2013 for respective sectors such as containerships and bulk carriers together yielded to a decline towards the demand for newbuildings (Research and Markets, 2015). The recorded newbuilding price in July 2016 was US$125 million, dropping by 6.02% from US$133 million, which was recorded in July 2015.

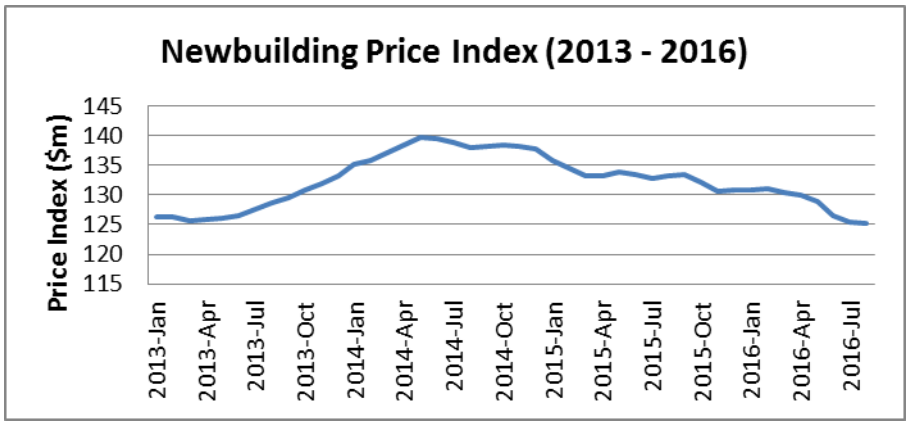

Figure 6: Newbuilding Price Index in Million US Dollars (2013 - 2016)
Source: Clarksons

One of the main reasons why shipbuilding is so vital is as a result of the high demand for the global trade of commodities across nations. Branch (1998, P 61) mentions that “the basis for determining the need for a new ship to be constructed is dependent on factors that affect the conditions of supply and demand from world fleet which include: seaborne trade forecasts, world fleet forecasts, the supply/ demand balance of the world fleet, the age of the world fleet, deliveries of new buildings and tonnage on order.”

The basis for a shipbuilding industry to be established requires for the tonnage balance of the world supply and demand for commodities to exist. This creates a gap for shipping capacity which needs to be filled through new buildings. However, when there is a surplus of shipping capacity, the existing ship-owners are usually reluctant to replace the existing ships.

2.4 The South African Shipbuilding Market Analysis

The shipbuilding and repair industry is nothing new in South Africa though a significant decline was experienced by the industry following the decision by the government to stop subsidizing the industry in the early 1990s. The shipbuilding industry in South Africa is segregated into seven different categories, namely Multihulls (35%), Monohulls (22%), Inflatables (18%), Motorboats (10%), Commercial boats (8%), Activity boats (5%), and Speciality craft (2%) (Department of Trade and Industry, 2010). Figure 7 presents the structure of the industry which includes nine steps starting from the designing of the vessel which is followed by the procurement processes. Once the tender has been procured the company follows the steps until the delivery stage.

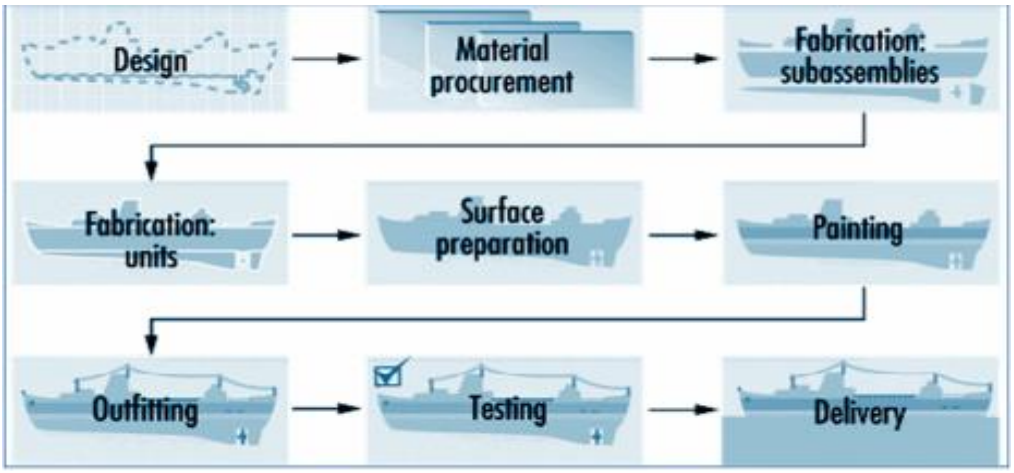

Figure 7: Vessel Construction Value Chain
Source: SAMSA

The shipbuilding industry in South Africa over the years has managed to gain competitive advantage when it comes to competitive labour costs in comparison to developed countries specializing in the same categories that include: deep-sea patrol vessels, fishing, offshore supply, harbour and maintenance vessels for niche and export markets (SAMSA, 2015). This could also be attributed to the increased trading in the globalization of production where

local shipbuilding companies would partner with international companies in assembling some parts of the new vessels, thereby becoming part of the production chain.

Consequently, the South African shipbuilders source their business primarily from local and regional markets through the government contracts for the South African Navy, fisheries and environmental patrol vessels, harbour services, law enforcement and the offshore natural gas and diamond mining industries (Department of Trade and Industry, 2011). The domestic shipbuilders, however, still have to compete for business amongst each other and also against the foreign shipbuilders as there is no regulation that protects domestic builders when it comes to the government contracts.

South Africa's shipbuilding industry is largely dominated by five companies as follows:

1. South African Shipyards: Specializing in tugs, deep-sea patrol vessels and repairs
2. Damen: specializing in tugs, patrol vessels, research vessels, barges and pontoons,
3. DCD-DCD-Dorbyl: Specializing in turnkey ship repair solutions to the marine and oil & gas sectors
4. Dormac: specializing in double hulled bunker barges, harbour, pusher tugs and dumb barges construction, and ship repair, and
5. Elgin Brown and Hamer: specializing in ship repair

Transnet National Port Authority owns and manages all shipbuilding facilities in the country with an exception of the smaller slipways in the fishing harbours which are under the control of the national the government's Department of Environmental Affairs.

The national the government has identified the shipbuilding and repair industry as a strategic sector to improve the country's economic growth. The industry enables the government to realize its objective of redressing the triple constraints given the industry's employment multiplier effect. Research indicates that for one direct job created, between four (4) and seven (7) jobs are indirectly created (Department of Trade and Industry, 2010).

SAMSA (2015) mentions that the nature of the industry makes it almost impossible to have a fixed number of employees; nonetheless, the total South African shipbuilding and support industry employs approximately 23,750 people and produces goods and service valued at R5.1 billion (~US$352m). According to SAASR (2015) the industry's workforce is segmented as follows:

- Approximately 2% vessel design,

- Over 80% vessel construction,
- Over 8% repairs, and
- 5% components manufacturers.

Table 2: South Africa's Shipbuilding Industry Employment and Turnover (R billions)

	Employment	Turnover (R billions)
Boatbuilding and repairs	4,500	1.2
Shipbuilding and repairs	4,250	1.8
Components manufacturers	15,000	2.1
TOTAL	**23 750**	**5.1**

Source: South African Association of Shipbuilders and Repairers

In the year 2011 a total number of 28 vessels were built in South Africa which mostly included harbour crafts such as the tugs and deep –sea patrol vessels as shown in Table 3. According to the Department of Trade and Industry (2011) the project for the sea patrol vessels was worth a total of R513, 7 million (~US$35, 4 million).

Table 3: The Number of Vessels Built in South Africa in 2011

Vessel type	No.
Tugs	13
Fishing vessels	2
Patrol vessels and other security vessels	9
Barges and others	4
TOTAL	**28**

Source: South African Association of Shipbuilders and Repairers

In light of the positives achieved some local companies argue that they have experienced some inroads within the industry in the country. Currently in South Africa there is no regulation that supreme the geographic boundaries of manufacturing the government owned vessels (Campbell, 2002). In fact, the government policy – State tender policy- stipulates that “the most cost-effective solution should be employed for manufacturing a new vessel” (Campbell, 2002, P 3). This then means that no company is compelled to build any the government owned vessel within the South African boundaries. This threatens opportunities for new employment in the country.

DCD-Dorbyl, one of the oldest shipbuilding companies in South Africa argued against some of the regulations put in place highlighting that in every nation where shipbuilding is central to the economic growth plan, the government provides some form of support towards the industry through subsidies or tax breaks or incentives. DCD-Dorbyl argued that in 2002 they lost a tender to build 3 coastal vessels and one offshore fisheries and environmental patrol vessel to Damen, a foreign Dutch yard simply because their competitors are able to bid at lower prices as a result of their the government support (Campbell, 2002).

The above mentioned project was worth R415 million (~US$28, 7m) and Dorbly had made a commitment to have 59% (R265, 5 million / ~ US$17, 22m) of that total amount to be of local content (Campbell, 2002). Eventually none of the R415 million was invested back in local content as the entire project was constructed in the Netherlands.

From a bid put forward by a local shipbuilder with fully compliant design that could have contributed 59% to local business and would have created a total of 200 new jobs in the shipyard alone and a $4 million voluntary offset programme, the the government contract still got awarded to a foreign shipbuilder. This deprived local business new opportunities and the labour sector lost at least 200 new potential jobs opportunities.

In a different case in 2014 another local shipbuilder, Southern African Shipyards (SAS), was awarded a tender worth R1.4 billion (~US$96, 7m) by Transnet National Port Authority to build nine new tugs which are 31 metres long and with 70 ton bollard pull (SAMSA, 2015). SAS has been given a period of 42 months that runs until the first quarter of 2018 to complete the construction of the 9 tugs, and they further committed to a 60% of local content towards the entire projects. This has currently created 250 new jobs at the Durban shipyard alone (SAMSA, 2015). There is still no regulation, however, that obligates any the government contract to be constructed within the South African boundaries.

Some of the challenges that are faced by the South African shipbuilding industry include the lack of technical companies and individuals with reputable experience. SAS had to source that service from foreign companies to get the best available technical partners, a project engineer, a project manager, and a quality control manager (SAMSA, 2015).

The other challenge is the labour costs. Labour in South is not cheap in comparison to other shipbuilding nations. According to Mywage (2016) the minimum for artisans in South Africa is US$404 per month compared to that of Vietnam US$107 per month, and Malaysia US$245 per month. This does become a challenge when it comes to the commercial sector

of the South African shipbuilding industry as it becomes difficult to compete with such nations that have such a huge difference in minimum wage.

2.4 Role of the South African Shipbuilding Industry Stakeholders

Every industry has its own players that influence the way the industry is run. As highlighted above there are legislations that govern the South African shipbuilding industry, and these legislations require custodians to spearhead them so as to ensure their effective implementation. The following discussion takes a closer look at the most prominent stakeholders in the South African shipbuilding industry is conducted, given their significant influence towards the industry.

2.4.1 Transnet National Port Authority (TNPA)

The production of new buildings and repairs is conducted in dry-docks. These dry-docks are under the management of Transnet National Port Authority (TNPA) as they are the landlord port authority for all commercial ports in South Africa. South Africa has a total of eight (8) commercial ports in operation and they include: Port of Durban, Port of Cape Town, Port of Saldanha Bay, Port of Ngqura, Port of East London, Port of Mossel Bay, Port of Richards Bay, and Port of Port Elizabeth.

Although TNPA is a state-owned enterprise it survives on its own financial gains and receives no financial support from the government of the country. The role of TNPA is to provide efficient service in the form of infrastructure for the port and operational services. It is the responsibility of TNPA to ensure that all revenues generated are properly used to maintain the best possible standard of the services they provide. This revenue is generated through the leasing of port land to terminal operators and also generated from the provision of the following services: Wet infrastructure, dry infrastructure, shipbuilding and repair services, and marine services.

a) **Wet infrastructure:** Lighthouse services infrastructure (lighthouses, buoys, beacons and electronic / radio navigation equipment) , port control and safety, entrance channels, breakwaters, turning basins, aids to navigation within port limits, vessel traffic services, maintenance dredging within ports.

b) **Dry infrastructure:** Quay walls, roads, rail lines, buildings, fencing, port security, lighting (outside terminals).
c) **Shipbuilding and repair service:** Provide and maintain facilities as well as the equipment utilised in such facilities.
d) **Marine services:** Pilotage, tug assistance, berthing, running of lines, floating cranes

2.4.2 Industrial Development Zones (IDZs)

The Industrial Development Zones (IDZs) were established by the South African the government with an attempt to attract increased foreign direct investment to the country's economy. According to SARS (2002, P 1) "An IDZ is a purpose built industrial estate linked to an international air or sea port, which might contain one or multiple Customs Controlled Areas (CCA) tailored for manufacturing and storage of goods to boost beneficiation, investment, economic growth and, most importantly, the development of skills and employment in these regions."

South Africa has established three (3) Industrial Development Zones which are State-owned enterprises. Their establishment was part of the national's Special Economic Zones programme with all three establishments being adjacent the following ports: Port of Saldanha bay, Port of Ngqura, and Port of Richards Bay. The IDZs aim at serving enterprises with high dependence on seaborne imports and exports and industries that process imports for export (Department of Transport, 2011).

The IDZs are state-owned and funded by their respective provincial Departments of Economic Development Environmental Affairs and Tourism, and there is additional funding by their respective provincial Departments of Trade and Industry. To date the programme has not been a success, with a total of 40 investors attracted into the three IDZs with more than R11.8 billion (~US$814m) investments generated and more than 33,000 new jobs created (SAMSA, 2016).

The issue that remains a challenge to the shipbuilding industry is that the designated IDZs for shipbuilding, which are adjacent to the Port of Ngqura and the Port of Richards Bay, are not equipped to handle containerized cargo given that there are no container terminals in these respective ports. Currently, the automotive manufacturing companies based in the IDZ

in the Port of Ngqura have to rely on coastal services from the Port of Port Elizabeth for their containerized imports and exports, while the IDZ at the Port of Richards Bay remains underdeveloped. For any containerized imports and exports by the manufacturing industries in the IDZ, they have to rely on the services from the Port of Durban, then use land transportation to feed to and from their IDZ.

2.4.3 Department of Environmental Affairs

The Department of Environmental Affairs serves the nations with various services which involve “the facilitation of cooperative governance in all spheres of the government and provide geographically referenced environmental information for decision-making” (Department of Environmental Affairs, n.d.). Amongst other important tasks which are central to the department is to spearhead the development and the effective enactment of the National Greening Programme throughout all spheres of the government.

Before any development in a port is carried out the Department of Environmental Affairs has to be involved throughout the evaluation process as the main custodian of the environmental awareness in the country. The department always provides well researched and coherent information for effective policy and decision making. The department always serves the interest of the public and communities by ensuring an environment that is safe and protected. Furthermore, the department serves the nation by managing regulatory systems and services for marine, coastal and terrestrial resources advocating for pollution reduction and waste, and improve air and atmospheric quality (Department of Environmental Affairs, n.d.).

2.4.4 Local Municipality

Ports form part of a certain geographical jurisdiction of a respective local municipality. However, both the ports and their local municipalities have different set objectives. Ports have an obligation to generate maximum revenue through increasing freight volumes at the lowest costs. The local municipality on the other hand aims to improve economic development which will translate to benefits for the communities at large including surrounding industries. Yet, there is always the concern for traffic congestions that may be as result of increased business from a port. Therefore, managing transport flow is important for any local municipality to ensure easy flow of traffic.

The local municipality has to work hand in hand with the port authorities in every planning process to ensure that there is synergy between operations from the port and the city. The port authorities have to involve the city council when they plan to develop something as the local department of environmental affairs has to be involved. They cannot ignore the impacts outside their boundaries. The local municipality has to also provide some services to the port, which include but not limited to providing electricity, water, sewage, roads, and railways to complement the effectiveness of the operations within a respective port.

2.4.5 Trade union

Within the African continent South Africa has the largest trade union movement. It includes three (3) major federations, namely the Congress of South African Trade Unions (COSATU), the Federation of Unions of South Africa (FEDUSA), and the National Council of Trade Unions. The trade unions have a significant influence in the shaping of industrial policies in the country and also determining the nature of the labour market.

The Constitution of the Republic of South Africa 1996 recognises the trade unions in the country with further endorsements in favour of the rights for workers to affiliate themselves with any trade union of their choice, and for the trade unions to also appeal for collective bargaining and mass demonstrations.

The national the government acknowledges that part of the country's strong democratic attributes involve strong trade unions that are able to steer the labour sector towards effective collective bargaining which is central for effective industrial relations regulation. Through effective collective bargaining agreements can be reached on issues involving workers' wages, working conditions, restructuring and retrenchments, and conditions of services.

2.4.6 Electricity Supply Commission (Eskom)

The Electricity Supply Commission commonly known as "Eskom" is the sole provider of electricity throughout the whole of South Africa. Eskom is a self-funded state-owned enterprise. According to Eskom (n.d.) they "generate approximately 95% of the electricity used in South Africa and approximately 45% of the electricity used in Africa. Further to that Eskom generates, transmits, and distributes electricity to industrial, mining, commercial, agricultural and residential customers and redistributors."

2.5 Challenges of Sovereign Wealth Funds: South African Shipbuilding Industry

Sovereign funds are sourced from different originations as they differ with nations, but they include natural resources in a country such as oil, minerals, and other commodities. Most the governments who are venture capitalists face a challenge with sovereign wealth funds (Lerner, 2009). In such instances the states provides financial assistance to newly developing institutes or industries which are deemed to have a high potential to contribute towards the economic growth sought by the government. Lerner (2009) mentions that additional shortcomings that come with public efforts to bolster entrepreneurship include the daunting complexity of sovereign wealth funds together with their size and demands for visibility.

The significance of this discussion emanates from the aforementioned plea by one of South Africa's shipbuilding companies for the government to provide some level of incentives for them to be able to compete against other international shipbuilding companies.

According to Learner (2009) sovereign wealth funds play three distinct roles as follows:

a) They serve as a capital investment for future generations to never rely on commodities for stable stream of revenue.
b) They can be used for smoothing revenues by nations whose majority of their exports depends on commodities whose prices can be shifted.
c) Funds are also capable to serve as holding companies where the government can place its strategic investments.

The government can identify an industry that has potential for economic growth such as the shipbuilding industry and invest in it through sovereign wealth funds as a way to hold and manage them. The benefit associated with the government involvement in an industry is that it becomes a watch eye and makes sure that the investments do produce acceptable results.

However, being a watch eye can come with a lot of restrictions which may hamper a smooth flow of operations due to bureaucracy. Some final decisions cannot be allowed to go ahead without the acknowledgement let alone the approval of the government. Lerner (2009) does also mentions that more often than not these initiatives may be designed to ensure the private sector does well, and doing well meaning there are returns on the investment, whilst the broader objectives that may have motivated the government to invest in the initiative may be neglected in the process. Therefore, it is important for the government to be able manage

its involvement in the operations to ensure smooth operations, and also evaluate the developments of the performances against the set objectives.

2.6 Strategic Economic Pricing

These days the government involvement in matters relating to ports and their funding, port infrastructure development, port authorities, and port pricing is common. The government together with the port authority usually declare the potential incentives for intervention through ports.

Meersman, Van de Voorde, and Vanelslander, T. (2004, pp 7-8) found that “relevant consequences from a pricing point of view are market imperfections such as asymmetry in information, asymmetry in contestability, scale effects in upstream port oriented industries, regional economic considerations, national economic efficiency, and environmental issues such as oil spills”. Arguably, there will always be debates on overt or covert subsidies appealed for by shipbuilding companies leasing the port’s wet and/or dry infrastructure using the argument of competition to appeal their cases.

The port should apply its pricing of tariffs on the short-run marginal cost basis. Port pricing should serve the purposes of meeting the strategic objectives of the port and as enshrined in port regulations. A strategic pricing model takes into account investments made in infrastructure and the planned improvements for the efficiency of the port services, yet still being able to compete within the market orientation of pricing.

2.7 Strengths, Weaknesses, Opportunities, Threats (SWOT) Analysis of South African shipbuilding Industry

The South African shipbuilding industry has potential though there are constraints that can possibly impede on the potential growth of the industry. The challenges range from finances, research and innovation, skilled personnel, port dues and charges, infrastructure, and the government support. Table 4 presents the strengths, weaknesses, threats, and opportunities facing the South African shipbuilding industry.

Table 4: SWOT Analysis for the South African Shipbuilding Industry

	SWOT ANLYSIS
STRENGTHS	1. Has the largest R&D facility amongst shipbuilders in Africa 2. It has expertise in military and civil ships, marine engineering and marine equipment 3. Good reputation for labour intensive labour in comparison to other shipbuilding industries in other developed countries
WEAKNESSES	1. Lack of available berths and inadequate mooring infrastructure. 2. Less than optimal price competitiveness, given the fact that the industry is still dependent on imports for a high proportion of core components. 3. Many companies are undercapitalised, leading to difficulties in investing in product development. 4. Given that ship repair is largely US dollar-based, the volatility of the Rand has caused budget-planning difficulties for the local industry. 5. Lack of transformation - mainly because of high production costs and the high threshold cost of starting a business in this industry. 6. A shortage of skilled labour: in particular, the scarcity of highly specialised marine engineering skills 7. Lack of a clear roadmap for future ports expansions.
OPPORTUNITIES	1. Substantial growth opportunities in the commercial boat market, particularly including sub-Saharan Africa, with an emphasis on offshore speed craft, ferries, water ambulances and working boats. 2. Opportunities to increase innovation through collaboration between industry and research organisations to improve the competitiveness of the industry in terms of international

	standards. 3. The development of sector-specific training and skills improvement programmes 4. Opportunities to develop training, repair and maintenance operations in sub-Saharan Africa.
THREATS	1. Electricity: the security of electricity supply and interruptions 2. Port tariffs: High port charges are a significant barrier

Source: Industrial Policy Action Plan (South Africa)

2.8 Conclusion

The shipbuilding industry is a modern comprehensive industry that inclusively provides technology and equipment for water transport, marine development and national defense construction. The industry's intensity includes labour, capital and technology which are an important part of advanced equipment manufacturing industries. The shipbuilding industry is undoubtedly critical for the economic growth with the offshore still proving to be the increasingly important market segment of the industry.

The capital and labour intensity of the industry requires shipbuilding nations to invest in the development of human capital through education, skills, training and research to ensure that labour competitiveness is achieved. Shipbuilding companies should also ensure that they create quality employment, and also adhere to reducing negative impacts to the environment in their operations with an intention to advance the interests of society as a whole.

Recent figures in the shipbuilding market have shown that the market is experiencing significant pressure as there have been high drops in fresh orders for new vessels to be built. The newbuilding prices have also dropped to a low that is a huge concern for shipbuilding companies. This makes it difficult for infant industries trying to break through into the market, and it should be a concern for small shipbuilding nations like South Africa who have the desire to invest in the industry as the timing for investing in such a capital intensive industry remains very crucial.

South Africa needs to also promote equity within the shipbuilding industry through a comprehensive industrial policy that will provide a platform for local shipbuilders to share the costs and benefits of change. The industrial policy regulation should also look into laying the platform for fair competition amongst the domestic shipbuilders, yet give the local shipbuilders some protection over foreign shipbuilders for the government contracts to assist the industry to grow in various aspects which have proven to fall short in the country.

CHAPTER THREE: COST-BENEFIT ANALYSIS OF THE ALTERNATIVE SOLUTIONS

3.1 Introduction

Policymakers have a challenging responsibility to make meaningful and effective decisions relating to the allocation of scarce resources with the aim to get the optimal desired goods and services. Through the aid of the cost benefit analysis, the information gathered can help the policymakers to make informed decisions. The primary aim of a cost benefit analysis is to evaluate whether the benefits of the intended investment outweighs the costs. The usual concerns are what could be benefitted from the costs that are to be incurred, and whether there is an opportunity cost which could have yielded other potential results. This is simply because the intended objective is to maximize what is benefited relatively to the money that is going to be spent. This could be simplified as a process of weighing all trade-offs.

There is a level of complexity when it comes to the government policies. Unlike the market where the notions of profit and loss send signals to producers about what to produce and what not to produce, the government is more concerned about other social implications which could emanate from decisions taken. The governments are concerned with other factors which include fair competition in the market, the public safety issues, and all manner of things that may not be traded in the market.

There are also limits to the amount of money the governments can use, and tremendous competition for the uses of that money. Therefore, the conditions of the kind of goods or services that the government provides always entails trade-offs. Different sectors look to the government for different things. Furthermore, what makes it difficult is that each and every sector deems their requirements to be more important than the others. Hence, the tough responsibility the policymakers are faced with through making sensible trade-offs for all competing choices.

Policymakers representing different industries receive guidance from the central the government for different intended objectives that are sought to be achieved through the intended policy initiative. There are always two options available for consideration in establishing a government policy that speaks to a respective industry such as the shipbuilding industry. The options involve the idea that the less the government involvement in the industry the better while the other option may involve the idea that the the government

should be involved given that the things that the government does are beneficial and uplifting.

Thus, taking into consideration that the process of establishing a policy should take into account the costs and benefits coupled with an active and involved role of the government versus a laissez-faire that allows the market to solve its own problem and involve the government whenever it is absolutely necessary, this study suggests two alternative solutions that will require the government involvement.

3.2 Alternative Solutions

South Africa is well known for being driven by a market economy system, spearheaded by the private sector. However, the government has the responsibility to put a set of rules and regulations in place to ensure that there is fair competition in the market. In addition to that, the government does also have an obligation to ensure that efficiency is enhanced in the South African maritime economy. Thus, there should be regulations put in place to protect the efficiency of all industries within the maritime sector including the shipbuilding and repairing industry.

As a member state of the World Trade Organization (WTO) amongst other responsibilities, South Africa has an obligation to adhere to the “Principles of the Trading System” under the WTO agreements. This means that the South African the government should ensure that within the establishment of the shipbuilding industry there is “No discrimination between its trading partners and it should not discriminate between its own and foreign products, services or nationals” (WTO, n.d).

The South African the government has identified the shipbuilding industry as a sector that can drive the economy. The government believes that the industry can enable the country to achieve its set goals of redressing the triple-constraints: poverty, unemployment, and inequality. The process of establishing or identifying possible alternative solutions has been directly dependant on the set objectives. In addition, the choices made on the alternative policies are based on numerous decisions made based on the indefinite past to the uncertain future.

Johnson (1992, 139) mentions that “each policy relates in countless ways to other things that the governments and private organizations do, and their success and failure are intertwined.” Therefore, it is also imperative for policymakers to foresee the impact of all possible mutual

effects. This study identifies two possible alternatives that the South African the government could consider for the development of the South African shipbuilding industry, namely

1. Establish a policy that supports and protects the local shipbuilding companies through the government contracts - With Conditions
2. Establish a cabotage policy for coastal, regional (SADC), and continental waters

3.2.1 Establish a Policy that Supports and Protects the Local Shipbuilding Companies Through The government Contracts - With Conditions

As an infant industry the South African shipbuilding industry has the support from the WTO to get more time to adjust to the development of a shipbuilding industry (WTO, n.d.). This means that the national the government can put regulations in place to protect to some extent the business operations for the benefit of ensuring that the South African shipbuilding industry is developed and sustained. The measures should involve support and protection for domestic shipbuilders with a clear outline of the conditions through which this protection can be benefitted from.

Currently, in South Africa there is no regulation that obligates any the government contract to be awarded to a domestic company, neither any policy that obligates the construction of any the government contracted vessels to be conducted within the South African shipyards. Thus, in response to the government's quest to develop a well renowned industry with a formidable reputation, this study provides a possible alternative solution through the establishment of a policy that will support and protect domestic shipbuilders through the government contracts.

Table 5 gives a comparative summary from the two cases that involved the government contracts, which were briefly analysed in chapter 2. From case 1 it can be learned that the contract was worth R415 million. In this case the contract was awarded to a foreign shipbuilding company which resulted in no investment achieved by the South African shipbuilding industry.

As previously mentioned in chapter 2, it can be argued that at least 200 new job opportunities within one of the local shipyards would have been created had the tender been awarded to DCD-Dorbyl, who had made a bid for the tender. In addition to what the South African shipbuilding industry was deprived of was the loss of a potential R265, 5 million (59%) of the R415 million which DCD-Dorbyl had committed to invest on local content.

On the other hand, from case 2 it can be learned that the most recent the government contract which was awarded to a South African shipbuilding company, Southern African Shipyards, was of a total of R1, 4 billion. From the contract it is evident that a total R840 million (60%) is invested on local content. There is 40% of the total contract which is sourced from foreign shipbuilding companies as a result of the shortage of the respective specialized skills within the country.

Table 5: Comparison of Two Cases of Government Contracts

Description	Contract Price (Rand)	Investment towards South African Shipbuilding Industry (Rand / %)	Investment Lost to a Foreign Shipbuilding Industry (Rand/ %)	Number of Jobs Created at the South African Shipyard	Number of Jobs Lost to Foreign Shipbuilders (%)
Case 1: The government Contract awarded to a Foreign shipbuilding company	R 415 m	R 0 / 0%	R 415 m / 100%	0	100%
Case 2: The government Contract awarded to a Domestic shipbuilding company	R 1,4 bn	R 840 m / 60%	R 560 m / 40%	250	40%

Source: SAMSA

In contrast to the scenario of case 1, through awarding the South African shipbuilding company the contract 250 new jobs have been created in the Durban shipyard as opposed to no jobs created for local shipyards as a result of awarding the contract to a foreign company in case 1. It is with acknowledgement that procedures followed for the awarding of the contract to a foreign shipbuilder were legal due to no obligatory requirement for any construction to be conducted in South Africa neither by a South African shipbuilding company.

From case 1 there are several issues the South African shipbuilding industry misses out on, namely financial investment of R415 million, 200 new potential jobs and other indirect jobs which local companies could have benefited from the 59% commitment of local content, skills and knowledge from the experience which could be benefited from, and possible new technology and infrastructure development that would have been required to carry out the project.

With the current South African registered fishing fleet being averaging at 25, 2 years old, from the total of 1 747 vessels, as seen in Table 6, the general rule is that the South African the government should look into replacing them (SAMSA, 2015). This is an opportunity for

the South African shipbuilding industry to benefit from. Thus, the new policy will protect the shipbuilding industry by ensuring that the government contract is awarded to a domestic shipbuilding company or companies that prove to be competitive in the market. From Table 6 it can be seen that 28% of the fleet has exceeded the 30 years, with 8% of the fleet aging between 25 years and 30 years, and 69% of the fleet aging between 15 years and 20 years. Currently, there are only 2 vessels from the fleet that are averaging 10 years.

Table 6: Total Age Profile of South African Fishing Vessels

Sector	No vessels	Average Age
WCRL (offshore)	108	51
SCRL	11	40
KZN prawn trawl	9	38
Hake longline	81	33
Large pelagic	16	31
Tuna pole	128	31
Hake inshore trawl	34	31
Horse mackerel	6	30
Small pelagic	52	29
Hake deepsea trawl	75	28
Dermesal shark	4	20
Abalone	86	18
Squid	124	17
WCRL (nearshore)	517	16
Hake handline	74	15
Linefish	326	15
Net fisheries	73	15
KZN sardine beach seine	21	13
Patagonian toothfish	2	7
Total/Average	**1747**	**25.2**

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Source: SAMSA

However, it will be very important to ensure that all the support and protection granted by the government through the policy should be coupled with conditions that will have set targets and time-frames for domestic shipbuilders to achieve. There should be clear systems in place to periodically monitor and evaluate the effect of the explicit financial incentives and the protections through regulations. This will enable the government to ensure that such introductions to the industry are not counterproductive. This is a tool that will enable the government to measure the progress being made, and to be able to identify the shortcomings.

Apart from the expected quality standard of service which will be expected by the government from the domestic shipbuilders, the regulation should give the domestic companies a maximum of three years to develop the already acknowledged shortage of skills in the country. The reason for the SAS to invest 40% of the current contract they have with TNPA is as a result of the shortage of technical companies, a project engineer, a project manager, and a quality control manager (SAMSA, 2015). Between the first 3 years the policy should be liberal and allow for a maximum of 25% foreign content on any the government

contract. The target should be that in 5 years, the South African shipbuilding industry should be able to produce a total of 100% on local content for all the government contracts.

The government should also provide domestic shipbuilding companies with the government loans, which will have a low interest rate on the repayment under the Income Tax Act No. 58 of 1962. Section 12i of the Income Tax Act No. 58 of 1962 makes provision for tax allowance incentives which are designed to support Greenfield (new projects) and Brownfield (expansions & upgrades) investments (Department of Trade and Industry, 2015).

Section 12i Tax Allowance Incentive states that “Greenfield industrial projects are eligible to get investment allowance of 55% of qualifying assets or a maximum of R900 million investment allowance in the for the preferred case of 100% of its content will be located in a Special Economic Zone, and 55% of qualifying assets or a maximum of R550 million investment allowance in the case of any Brownfield project with a preferred status of 100% located in a Special Economic Zone” (Department of Trade and Industry, 2015, p1).

The government through this initiative can provide tax credits, rebates, and several incentives to enhance the efficiency of the shipbuilding industry in the country and there may be further enhancement towards the establishment of a well renowned industry with a formidable reputation.

3.2.2 Establish a Cabotage Policy for Coastal, Regional (SADC), and Continental Waters

The Cabotage Policy for Coastal, Regional (SADC), and Continental Waters is the law restricting the Coastal and Inland waters trade in a country to vessels flying its national flag. In general, there are two types of cabotage law or policy being applied globally, namely the strict and the relaxed or liberalised law (Duhaime, n.d.). The nation’s decision to choose one and not the other is largely influenced by the country’s domestic situation, national interests and strategic objectives. Principally, the strict application of cabotage means that shipping activities are reserved for ships built, owned, crewed and operated by citizens of a sovereign country, whilst a liberalised cabotage regime allows for approved levels of foreign participation in ship building, ownership, crewing and related ship operations (Duhaime, n.d.).

Currently, South Africa does not have the capacity to satisfy the requirements of the strict application of the cabotage regime. In this instance, the country could, therefore, pursue the relaxed or hybrid version of cabotage law. Following a strict process, discretionary

exceptions or waivers may be granted by the Minister of Transport or the CEO of SAMSA, thereby allowing foreign players to participate in the South African cabotage trade. These cabotage related shortfalls manifest in various forms, such as shortage of locally owned vessels and ship building of a particular type or size for which Handysize would be recommended.

Although it is generally accepted that the exceptions system is on the basis of non-availability or incapacity, other acceptable systems are frequently used on the international stage, including non-availability of vessels for a particular service (e.g. Portugal, Spain and Sweden), reciprocity in terms of countries allowing each other to partake in their cabotage trade (e.g. Canada, Germany and Greece) or based on bilateral agreements (e.g. Finland, Norway and Sweden) (Ports Regulator of South Africa, 2015). Furthermore, depending on a country's intentions, the duration of the exceptions system may be determined upfront, mainly to allow for a smooth transition from a liberalised to a strict regime once capacity has been brought to the competitive levels.

It should also be noted that a unique feature of the proposed South African cabotage regulation is that it extends beyond the South African waters to include regional and continental waters as contemplated in Article 15 of the African Maritime Transport Charter, Trans-African Cabotage. This stance is aimed at promoting Intra-African trade and facilitating the economic and socio-economic integration of the continent and it can contribute greatly towards stimulating the entire marine transport industry, create job opportunities for South Africans, retain significant revenue within South Africa rather than have it deported to foreign players such as ship-owners, operators, and brokers (Organization of African Unity, 1994).

In South Africa coastal shipping operates in an extremely competitive environment where it competes fiercely with the rail and road transportation, but remains the most key provider of domestic inter-port transport services as well as regional facilitator of international trade. Regular port to port coastal transportation in South Africa is provided by Ocean Africa Container Lines (OACL), a shipping company co-owned by Maersk Line and Grindrod Ltd. The company also provides feeder services for the transportation of containers transhipped from deepsea liners destined for South African ports and regional services, as well as feeder services between ports on the Southern African coast as shown in Table 7.

Table 7: Schedules of Services Operated From South African Ports

Operated By	Route	Schedule	No of Ships on Route	Type of Cargo & Cargo Owners
OACL	SA Ports to SA Ports and Mozambique and Namibia	Fortnightly	4	General Cargo and Containers
UNICAL	DBN-EL-PE	Monthly	2	Bulk Petroleum
	MB-PE-EL	Monthly	2	Bulk Petroleum
	CT-PE-EL	Monthly	2	Bulk Petroleum
	DBN-RB	Monthly	2	Bulk Petroleum

Source: Ports Regulator of South Africa

The combined number of containers carried on domestic, feeder and regional services between 2010 and 2014 are shown in Figure 8, depicting a slight decline in 2011 and 2012, with 2013 and 2014 reflecting a gradual upward trend.

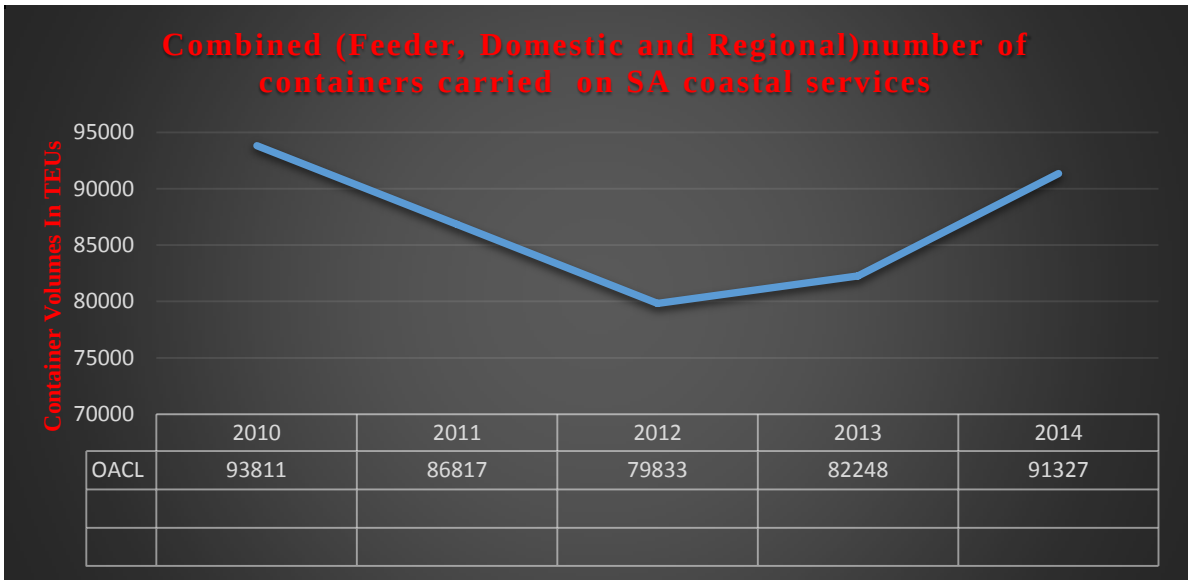

Figure 8: Number of Containers Carried on South African Coastal Services
Source: Compiled using statistics from Ports Regulator of South Africa, May 2015

Table 8: Compound Annual Growth Rate for Container Traffic per Port (2001/02 - 2013/14)

PORT	2001/ 2002 TEUs	2013/ 2014 TEUs	CAGR
Durban	1 228 493	2 660 146	6.65%
Port Elizabeth	261 957	291 233	0.89%
Ngqura	34 533	713 306	113.19%

East London	68 674	41 080	-4.19%
Cape Town	496 036	907 796	5.17%
Total	**2 089 693**	**4 613 561**	**6.97%**

Source: Ports Regulator of South Africa of South Africa

According to the Ports Regulator of South Africa (2015) the overall growth that is presented in both Figure 8 and Table 8 has been driven by the Port of Durban and the Port of Cape Town with both ports ranked second (2nd) and fourth (4th) respectably as the busiest ports in Africa. In addition, the current projections for the container volumes, as shown in Figure 9, are expecting growth from the current four (4) million TEUs per annum to about seventeen (17) million TEUs by 2042 based on a projection of 4.8% annual growth rate (Ports Regulator of South Africa, 2015). These are some of the volumes that warrant for a consideration of the establishment of a cabotage policy in South Africa, which will result in new demands for new vessels.

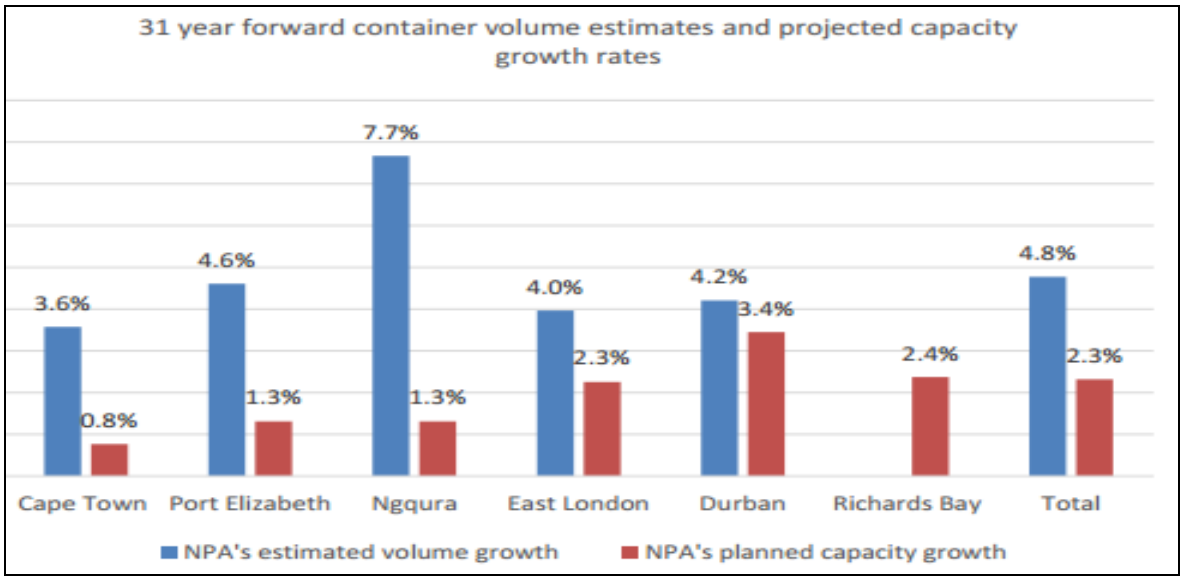

Figure 9: Compound Container Growth Rates and Planned Capacity to Meet Growth
Source: Ports Regulator of South Africa, 2015

As illustrated in Figure 10, the domestic bulk petroleum volumes have been declining steadily between 2012 and 2014.

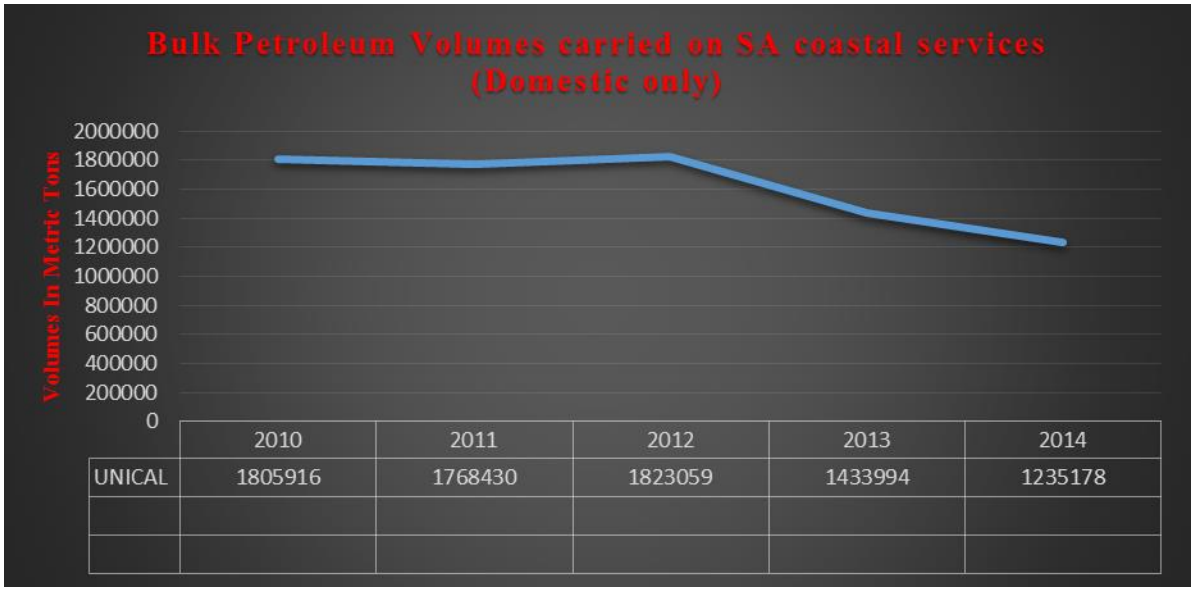

Figure 10: Bulk Petroleum Volumes Carried on South African Domestic Coastal Services
Source: Compiled using statistics from Ports Regulator of South Africa, May 2015

OACL operates four container vessels, 1 multipurpose container and 3 standard container vessel of various sizes, ranging from 618 TEU to 1338 TEU with all four (4) vessels foreign owned and flying four different foreign flags, whilst on the other hand UNICAL operates three tanker vessels ranging from 13 200 to 16200 Dwt (Ports Regulator of South Africa, 2015).

3.2.2.1 South African Corridors

South Africa has seven (7) primary corridors, namely Gauteng, Beitbridge, Maputo, Durban, East London, Port Elizabeth, Cape Town and Walvis Bay. This illustrates not only the extent of economic growth, but also the improved confidence on trade domestically and internationally, and as an integral element of changes in the national economy. Of the above seven corridors, two national corridors: Gauteng – Durban and Gauteng – Cape Town, warrant a closer look in that they both carry significant cargo volumes compared to others, and as such are critical to the national economy.

The Gauteng – Durban corridor accounts for about 36million tons of cargo annually, of which 70% is transported by road, and projections suggests that this corridor would reach 57 million tons in 2020 (Ports Regulator of South Africa, 2015). The Gauteng – Cape Town corridor annually accounts for about 19 million tons with road freight accounting for 85% and the remaining 15% transported via rail (Ports Regulator of South Africa, 2015).

Generally, competitive cabotage would need the collection and warehousing of cargo at the ports of loading to ensure that cabotage ships are utilised at their maximum capacity. The warehousing facilities and port efficiency should also be able to adapt to the frequent and

large volumes associated with coastal shipping, whilst also be able to accommodate small but urgent deliveries to ensure service delivery is not interrupted.

It is evident that road transportation has a huge share of cargo movement along the South African coast, and that the road infrastructure is overburdened, giving more reasons for investment in coastal shipping, which will enable the growth in the domestic shipbuilding industry.

3.2.2.2 Examples of International Trends in Selected Cabotage Regimes and Their Fiscal Treatment

- New Zealand

New Zealand on the other hand followed the coastwise trade liberalisation as early as 1995 as a tiny step towards a broad reform package that encompassed trade, industrial, transport, and fiscal policies. Five (5) years later, 21 vessels were operating in the New Zealand coastwise trade, with nineteen (19) of these flying foreign flags. The government did implement a review of New Zealand's participation in shipping in 2000 (Cavana, 2000). The total estimated increase in domestic and international freight costs to New Zealand trading interests would be in the order of NZ$13.1 million, and the findings from the review team was "unanimous that a financial, fiscal and regulatory regime involving a second register and/or tonnage tax is justified to provide an equitable trading environment for New Zealand in both coastal and trans-Tasman trades" (Cavana, 2000, p37).

Cavana's evaluation also indicates two additional components of successful liberalization: (1) the ability of the carrier to improve capacity utilization through open access, and (2) the freedom of cargo interests to choose operators. Both these findings imply a critical minimum volume of trade is needed to ensure that a liberalized environment can deliver the benefits of liberalization to both parties.

- Nigeria

Nigeria's Cabotage Law 2003, fashioned after the Jones Act of the United States of America was passed to encourage the participation of indigenous companies in shipping, increase capacity building and create employment opportunities for Nigerian seafarers (Nigeria Maritime Administration and Safety Authority, n.d.). The oil and gas sector makes up about 95% of coastal and inland shipping trade, with fishing trawlers and break-bulk carriers accounting for the remaining 5% (Nigeria Maritime Administration and Safety Authority, n.d.)

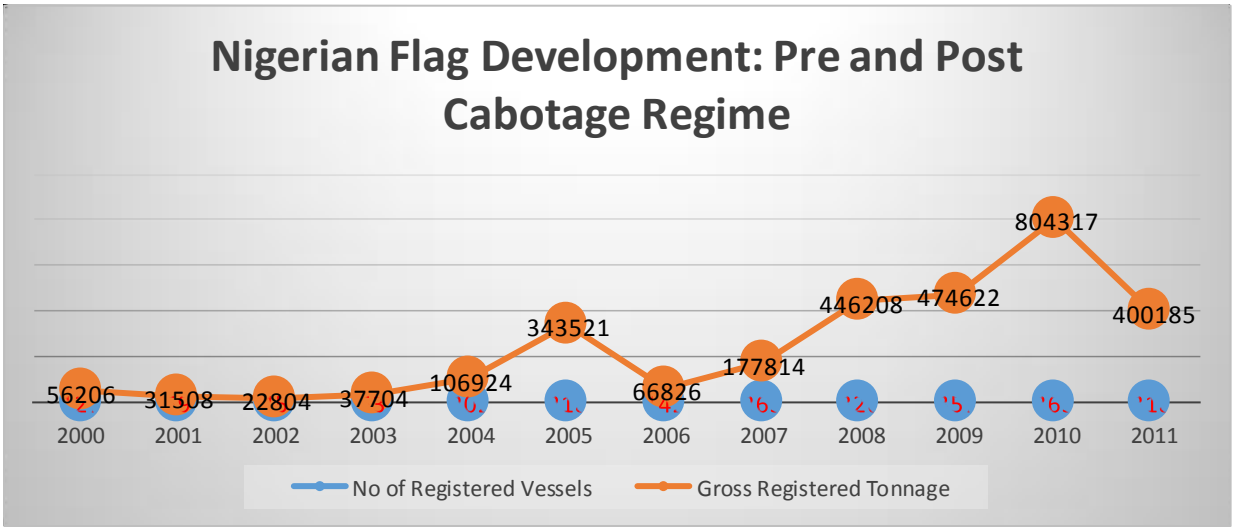

Figure 11: Nigerian Flag Development Pre-Cabotage (2000 - 2004) vs Post Cabotage Implementation (2005 - 2011)

Source: Compiled Using Statistics Presented at the SAMIC Conference, 2012

Figure 11 depicts the comparison of two regimes, pre-cabotage (2000 – 2004) and post-cabotage regime (2005 – 2011). The advent results of the cabotage regime show that the Nigerian industry was boosted a lot as a result of the introduction of the cabotage law; however, what is noticeable is the decline from the year 2010. According to the SAMIC (2012) amongst other noticeable challenges which were experienced were the high port tariffs, whilst the services provided were sub-standard, and standard safety and security measures.

3.3 Conclusion

Evidently the South African the government can have a significant role to play in developing the South African shipbuilding industry to be competitive globally. Quite central to the shipbuilding industry's success or failure are the government policies and arrangements, the contracts, and incentives. Without the government giving the mentioned aspects significant attention, the South African shipbuilding industry can only hope for the best as it attempts to remain competitive.

With the shipbuilding market currently not the favourable the government's role can prove to be very significant through providing support and protection on contracts they have control of. Importantly, all levels of support and protection should not be in violation of any international neither domestic laws.

The favourable projections made for the expected volumes in the South African ports at an annual growth of 4.8% warrant for consideration of an establishment of the cabotage law which will aid the government to preserve its national roads whilst enhancing the development of the local shipbuilding industry with a specialization in Handysize vessels. Furthermore, benchmarking can be used on several failures and successes which were referenced from international examples.

The government contracts are critical in the development of a shipbuilding industry as they enable the industry growth through stimulating the entire marine transport industry, creating job opportunities for South Africans, and retaining significant revenue within South Africa rather than have it deported to foreign players. This study acknowledges that both the proposed alternative solutions could equally be considered as rightful solutions to help the South African the government to enhance the development of the South African shipbuilding industry.

The most important issue is to apply terms and conditions for benefitting from the government support and protection. The conditions should have set targets and time-frames. In addition the protection should only be against foreign shipbuilders; however, competition amongst local shipbuilders should remain fierce and must be encouraged at all times.

CHAPTER FOUR: SELECTION AND IMPLENTATION OF THE CHOSEN SOLUTION

4.1 Introduction

Ultimately, the South African the government has to choose one policy that will be used as the regulation for the shipbuilding industry in South Africa. This regulation should govern on the procedures that need to be followed for all operations that are in respect of the newbuildings funded by the state resources. In chapter three there are two alternatives solutions, which are discussed for consideration. The truth is there is never a perfect solution; however, it is important to identify and select the best possible solution available that will provide the sought results by the government. Compromises should be made where necessary once all costs and benefits have been analysed as at times all partners may have to agree on a possible hybrid solution.

Choosing the best possible solution requires for all parties concerned to be in consensus with all the rules which are to be put in place. Any ambiguity should be eliminated and it must be presented in the simplest language that can be understood by all role players. Having every stakeholder being entirely happy with the rules and procedures proposed is never an easy task, but the important thing is to find an amicable solution that will see every stakeholder satisfied with the resolutions being made.

People and business are usually resistant to change. The introduction of a new policy may face difficulty with the implementation process as a result of all relevant stakeholders still adapting to the new regulations. A new regulation tends to modify the existing policies, although its main intention may be to supplement them. Thus, it is important for policymakers to ensure that there is synergy between the new and the existing policies where the implementation of the new regulation will be fitted into the existing context with complete avoidance of any conflicts among them.

4.2 Selection of the Chosen Solution

The study believes that the selection of the chosen solution should not be a mechanism used to keep the domestic shipbuilders busy irrespective of the costs and other force structure consequences that may be involved in doing so. The best possible solution should be the one that serves the best interest of what the government intends to achieve through developing the shipbuilding industry, and it must be within the feasible means. Thus, the benefits need to outweigh the costs from the monetary and social point of view.

The chosen alternative solution to address the current urgent need of developing the shipbuilding industry in South Africa is the proposal to establish a policy that supports and

protects domestic shipbuilders through the government contracts, with conditions. The chosen alternative solution was selected following the consideration of all the costs and benefits analysed in chapter three (3) by evaluating all advantages and constraints of all developed alternatives. The study took into cognisance the costs and benefits trade-offs, and payback period of the investments. The study paid careful attention to the feasibility of implementing the chosen solution with considerations of the technical aspect, the financial feasibility, and whether the benefits overweigh the costs.

The government contracts provide the state with the ability to manage how the state's resources should be utilized to produce the optimum results. The chosen solution involves fewer stakeholders to be consulted for the adoption of the policy given that all stakeholders will be local players in the industry while with the cabotage law on the other hand, it will have to involve even foreign stakeholders, a process which might take long and might face some resistance from other neighbouring countries. The bureaucracy may become so costly to the South African shipbuilding industry that it needs urgent support and growth.

From the technical aspect the decision was made looking into the already existing policies to ensure that this policy will be institutionalized and it will not be counterproductive. The other issue which was consulted for the technical analysis was the status of the infrastructure required to implement the chosen solution. The study finds that the chosen solution will supplement the policies which are already in existence as discussed in chapter two to ensure economic growth in South Africa through the shipbuilding industry. This takes into consideration that the compliance of 75% of local content requirement will enable not just only the shipbuilders in the country, but also indirectly it will provide opportunities for other local businesses, which are directly and indirectly connected to the shipbuilding industry.

With the South African fishing fleet presented in Table 6 depicting 28% of the fleet exceeding 30 years, and 8% of the fleet aging between 25 years and 30 years the need for the replacement of these vessels is imminent. Furthermore, although the South African navy's expects its survey ship which is 45 years old to continue service for another 4 to 5 years, the government agency, Armscor, has expressed the need for a new hydrographic survey vessel (SAMSA, 2015). In addition, these are all new opportunities for the South African shipbuilding industry to benefit from, and for the government to invest in a local industry through as guided by the chosen solution.

4.3 The Implementation of the Chosen Solution

The implementation plan of the chosen solution is segmented into different phases as discussed:

- Phase 1: Establish an Agency to Monitor and Evaluate the Operations

Upon the pronouncement of the domestic shipbuilding industry support and protection law the Minister of Transport would designate an agency to implement the regulation. The agency will then establish a fully resourced tendering centre to oversee and coordinate the activities and programmes in implementing the law. It is further proposed that the Centre be headed by an Executive who will be assisted by the Unit Heads of the Policy Enforcement and Development and Co-ordinators from all coastal regions as shown in Figure 12.

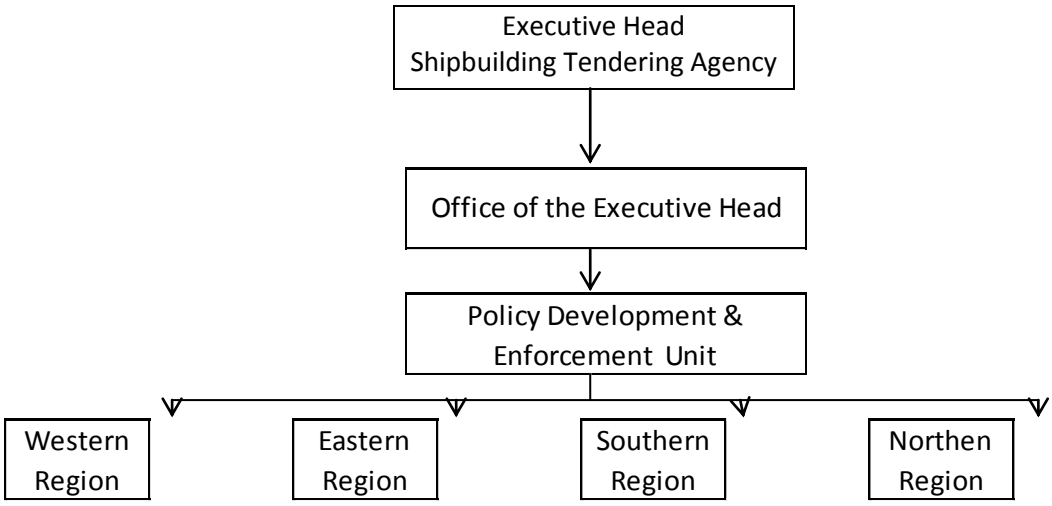

Figure 12: Hierarchy of the Policy Enforcement Centre

The Executive Head will serve as the strategic Director and will be tasked with the governance and accountability of the agency for all the activities and responsibilities of the agency. The executive should be allocated support staff which will handle the administration of the agency, which in turn will be overlooking the tendering procedures and enforcing compliance from all stakeholders of the shipbuilding industry in South Africa and communicate all relevant information from the Executive to the Enforcement Unit.

The Policy Enforcement Unit of the agency will have a central office that manages all operations of the agency. This is the office that will conduct tender briefings and ensure that correct information is advertised for new tenders. In addition, it should further enforce compliance from all respective companies involved in any awarded the government contract. Other duties are listed in Table 9. Each region will have a co-ordinator who will report directly to the office of the Policy Enforcement Unit.

Table 9: Tasks of the Policy Enforcement Unit

No.	Tasks of the Enforcement Unit
1	Develop operational guidelines for the unit and enter into MOUs with external partners individually e.g. SA Navy, Customs, SAPS Water Wing, Transnet
2	Ensure infrastructure development through the development and the expansion of shipbuilding and maintenance facilities, and develop new shipyards
3	Regulate the safety of the ships in terms of the shipbuilding and navigation standards
4	Administer and regulate qualifications, certification, employment and welfare of domestic maritime labour
5	Administer the registration of all new vessels
6	Establish and administer a ship acquisition and ship building fund which will serve as a soft funding vehicle to help facilitate and support acquisition of trading assets and infrastructure operations
7	Ensure fair competition within the shipbuilding industry
8	Safeguard against all corruption

- Phase 2: Establish Infrastructure Suitable for Conducting Intended Projects

The South African the government has already committed R 9 billion to create new port facilities and to maintain and refurbish the existing ones, with R7 billion directed to new facilities and R2 billion towards the refurbishment and maintenance (SAMSA, 2015). Through this investment on infrastructure the facilities for the manufacturing of marine transport is made possible. The agency will monitor the progress being made on the infrastructure development.

- Phase 3: Enforce Compliance of the Law

Once all systems have been put in place the law will have to be implemented. For the first three years, the agency will have to ensure that all contracts awarded will present a minimum of 75% local content that clearly outlines what the content will entail. There should also be supporting reasons for any services to be sourced from foreign partners. This will enable the agency to identify any shortfalls in the industry and assist the development and enforcement unit to develop mechanisms to support those aspects with the aim to ensure

that the industry is capable to handle any the government contract with 100% local content in year 5.

Although there are some skills shortages, this policy will provide an opportunity for the development of the shortage of skills. The policy will require compliance of 5% of the tender awarded to be devoted to specialized skills development amongst others, which were highlighted in Chapter three as a shortage in the South African shipbuilding industry.

For example, if the current R1. 4 billion tender awarded to SAS is used as an example to explain how this compliance requirement would work, a minimum of R70 million would be required to be invested in special skills development. SAS would have to present a detailed plan on how they will invest R70 million towards ensuring that if they were to get another tender of the nature they would not face the same challenges. SAS could amongst other commitments, should be committed to training 6 new marine engineers over the course of 3 years.

The compliance requirements will not only address the shortage of the skills, but it will increase the number of people with the specialized skills in the country and ultimately there will be competition for those services which will control the pricing of the services in the long term.

The Development and Enforcement Unit will also have to encourage local shipbuilders to comply through implementing a point's rewards system which will add to the allowance incentives for the project as shown in Table 10. These points will be taken into consideration for any future the government contracts, which will go out on tender, and they will work in favour of the bidders who complied with the extra commitments.

Table 10: Point System for the Shipbuilding Industry

Points System Awarded for Any Services Beyond the Minimum Compliance Requirements of the Shipbuilding Industry		
Criteria	**Description**	**Maximum Points**
Located in the Special Economic Zone (SEZ)	New building with 75 - 79% local content compliance	1
Located in the Special Economic Zone (SEZ)	New building with 80 - 84% local content compliance	2
Located in the Special Economic Zone (SEZ)	New building with 85=< % local content compliance	3

Small Medium & Micro-sized Enterprise Procurement (SMME)	Acquire 10 - 14% raw materials, intermediate products, and services from SMMEs	1
Small Medium & Micro-sized Enterprise Procurement (SMME)	Acquire 15 - 19% raw materials, intermediate products, and services from SMMEs	2
Small Medium & Micro-sized Enterprise Procurement (SMME)	Acquire 20=<% raw materials, intermediate products, and services from SMMEs	3
Skills Development	Designate 5 - 9% for Skills development	1
Skills Development	Designate 10 - 14% for Skills development	2
Skills Development	Designate 15=<% for Skills development	3

- Phase 4: Monitoring & Evaluation of Process

It will be important for the agency to continuously review the implementation and operationalization of Phase 3 and introduce the necessary improvements where necessary to ensure maximum efficiency. There should be quarterly conducted reviews by the Executive to monitor the progress being made in accordance with the compliance of the law and the impact it has towards the shipbuilding industry.

At the end of every year the Executive will be tasked with producing an annual report on all activities and review all the costs and benefits of the investments made. The report should also highlight the progress or shortfalls experiences with respect to the policy.

Continuous communication should be upheld and exercised as frequently as possible throughout the industry to ensure that everyone is kept abreast on the developments or challenges the industry may be facing or may possibly encounter in the near future.

- Phase 5: Implementation of the Full Scale Policy (100% local content)

At the end of year 4, a special review should be made on the targets which were initially set. This will be in line with evaluating the SWOT analysis of the current state of affairs within the industry. The SWOT analysis will enable the agency to decide on whether their project is still on track with the intended objectives of implementing new clauses at the beginning of year

5. Necessary adjustments should be consolidated on if need be to ensure that the planned targets can still be achieved.

Upon all revised targets and progress being made, and with an industry that has developed over the course of 4 years through developing infrastructure, specialized skills, and the introduction of new technology, the law will be implemented at full scale.

4.4 Conclusion

This study acknowledges the importance of ensuring that the chosen solution is the one that provides the best possible solution to the sought objectives set by the South African the government. Finding a perfect solution can never be achieved; however, through proper analysis of the statistics provided this study concludes that the best possible solution to meet the required objectives set by the government is the establishment of a support and protection policy for domestic shipbuilders through the government contracts. The proposed regulation should be presented in the simplest language that can be understood by all role players, and should eliminate any ambiguity.

The best possible solution should serve the best interest of what the South African the government intends to achieve through developing the shipbuilding industry and it must be within the feasible means. Thus, the benefits need to outweigh the costs from the monetary and social point of view. Furthermore, through the establishment of an agency a fully resourced tendering centre should be formulated to oversee and coordinate the activities and programmes in implementing the law.

All the phases in the implementation process should be thoroughly acknowledged for the regulation to produce positive results. The one important factor of acknowledging all phases is that it will allow for the agency to monitor and evaluate all operations and conclude through analysing the progress the strengths, weaknesses, potential threats and opportunities the industry may be faced with. Given the targets put in place, through the SWOT analysis the agency will be able to keep track of all operations with respects to the set objectives put in place for achieving phase 5 where the implementation of the regulation can be conducted at full scale.

CHAPTER FIVE: RECOMMENDATIONS AND CONCLUSION

The purpose of this study was to analyse, investigate and discuss all potentialities and constraints in making South Africa a ship building nation through suitable laws and regulations. This chapter will provide recommendations and the conclusion based on the analysis that was conducted.

5.1 Recommendations

Following the analysis of the current status of the South African shipbuilding industry and the global shipbuilding market as a whole, this study looked at the potential alternatives which can be adopted to address the current challenges, and this study recommends that the

enforcement of a new regulation that supports and protects domestic shipbuilders in South Africa be established. The new regulations will only be limited to applications on the government contracts only.

South Africa needs to also promote equity within the shipbuilding industry through a comprehensive industrial policy that will provide a platform for local shipbuilders to share the costs and benefits of change. The industrial policy regulation should also look into laying the platform for fair competition amongst the domestic shipbuilders, yet give the local shipbuilders some protection over foreign shipbuilders for the government contracts to assist the industry to grow in various aspects, which have proven to fall short in the country.

The study also encourages strong and fierce competition with the South African shipbuilders and strongly recommends that the the national government should ensure that fair competition is enforced and encouraged at all times. Lack of fair competition will limit the productivity from the shipbuilders and there could possibly be a danger of one or some shipbuilding companies monopolizing the industry. This would be a counterproductive phenomenon to the industry that the national the government intends to develop.

The shipbuilding industry is a capital and labour intensive industry which requires South Africa to invest in the development of human capital through education, skills, training and research to ensure that labour competitiveness is achieved. Shipbuilding companies should also ensure that they create quality employment, and also adhere to reducing negative impacts to the environment in their operations to ensure that they advance the interests of the society as a whole.

The study recommends that a competitive agency should be established by the national the government to manage the operations of the implementation of the proposed regulation. This agency should have its own code of conduct to ensure that everyone involved clearly understands the expected output standard. Continuous accurate communication should be carried intra-agency offices and also with all relevant stakeholders about developments within the industry. The agency will also be tasked with not just only monitoring and evaluating the operations, but also encourages all stakeholders involved to adhere to the regulation.

5.2 Conclusion

Economic growth is central for developing countries. It enables a country to reduce poverty and create opportunities for new employment, thereby raising people’s incomes. South

Africa is a developing nation that is faced with a high unemployment rate and has identified the ocean economy as a potential driver to stimulate and sustain economic growth through the marine transport manufacturing industry.

The shipbuilding industry is undoubtedly critical for the economic growth with the offshore market still proving to be the increasingly important market segment of the industry. The marine transport manufacturing industry has proven to be a modern comprehensive industry that provides technology and equipment for water transport which is important for the global trade activities.

Recent figures in the shipbuilding market have shown that the market is experiencing significant pressure as there have been high drops in fresh orders for new vessels to be built. The newbuilding prices have also dropped to a low that is a huge concern for shipbuilding companies. Thus, it is imperative that South Africa should make well-informed decisions about investing in the industry given that timing for investing into the industry is very crucial for achieving sought results. The current unfavourable newbuilding prices make it difficult for small shipbuilding nations like South Africa with an infant industry to break through into the global shipbuilding market to achieve significant results from their investment made towards the industry.

However, with several state agencies' vessels being old and will soon be due for replacement, this serves as an opportunity for the national government to invest towards the South African shipbuilding industry. This should by no means be a drive to keep the domestic shipbuilding companies busy, but it should be seen as an opportunity for the industry to grow. Furthermore, it is through the proposed regulation that the investment made will follow specific targets, which will have to be met by companies who will have been awarded a government contract.

Central to the shipbuilding industry's success or failure are the government policies and arrangements, the contracts, and incentives. Without the government giving the mentioned aspects signification attention, the South African shipbuilding industry can only hope for the best as it attempts to remain competitive. Therefore, the proposed regulation should be viewed in light of developing an industry that will be able to be competitive in a global shipbuilding market through various developments which will include new technology, specialized technical skills and any other skills that seem to be a current shortfall in the South African shipbuilding industry.

The regulation will provide for new job opportunities for South Africans and business opportunities for local businesses as it will impose a minimum requirement of 75% of the government contracts to be of local content. With the shipbuilding market currently not the favourable the government's role can prove to be so significant through providing support and protection on contracts they have control of. All level of support and protection should not violate any international neither domestic law.

As stated by the South African President, Jacob G. Zuma, at the launch of Operation Phakisa in Durban, the programme was not decided upon in a vacuum, but rather because it is in line with the government goals as outlined in the National Development Plan. The key aim of the programme is to promote economic growth and create the much needed employment opportunities, and this bodes well with the announced growth target of 5% by 2019.

The government contracts are critical in the development of a shipbuilding industry as they will enable the industry to grow through stimulating the entire marine transport industry, creating job opportunities for South Africans, and retaining significant revenue within South Africa rather than have it deported to foreign players.

The recommendation of the establishment of Development and Policy Enforcement agency will enable the national the government to enforce the terms and conditions for benefitting from the government support and protection through the government contracts. The conditions should have set targets and time-frames. The protection should only be against foreign shipbuilders with fierce competition amongst local shipbuilders encouraged at all times. This way productivity and good service delivery from all domestic companies will not be threatened. With the application of the point system for the domestic shipbuilding industry, local players can be encouraged to give more than the minimum required standards of services.

This study concludes that the South African shipbuilding industry has a potential of developing to a competitive industry. This study does also acknowledge that the process will take time; however, the enforcement of the proposed solution will enable the national the government to assist the industry to grow at a faster pace as required by Operation Phakisa.

REFERENCES

BIMCO. (2016). Dry Bulk Contracting Comes to a Halt While Demolition Is On a Rise. Retrieved August, 2016, from www.bimco.org/Reports/Market_Analysis/2016/0322_Bulk_Demo_Story.aspx

Branch, A. E. (1998). *Maritime economics: Management and marketing* (Third ed.). Cheltenham: S. Thornes.

Brousseau, E., & Glachant, J. (2002). *The economics of contracts: Theories and applications*. Cambridge: Cambridge University Press.

Business Wire. (2016). Global Shipbuilding Market Report: 2016 Edition - Major Players are Hyundai Heavy Industries, Samsung Heavy Industries, DSME and Mitsubishi Heavy Industries - Research and Markets. Retrieved June 18, 2016, from http://www.businesswire.com/news/home/20160518005672/en/Global-Shipbuilding-Market-Report-2016-Edition--

Campbell, K. (2002). Could South Africa relaunch its shipbuilding industry? Retrieved May 18, 2016, from http://www.engineeringnews.co.za/article/could-south-africa-relaunch-its-shipbuilding-industry-2002-06-17/rep_id:4136

Cavana, R. Y. (2004). A Qualitative Analysis of Reintroducing Cabotage onto New Zealand's Coasts. *Maritime Policy & Management, 31*(3), 179-198. doi:10.1080/0308883042000209544

Clarksons Platou. (2016, June). Shipping Intelligence Network. Retrieved June 18, 2016, from https://sin.clarksons.net/MarketsAtAGlance#/Newbuilding

Defence web. (2014, August 20). South African shipbuilding now a strategic industry. Retrieved June 18, 2016, from http://www.defenceweb.co.za/index.php?option=com_content&task=view&id=35925&catid=51&Itemid=106

Department of Economic Development and Tourism KZN (Ed.). (2013). The Development of an Integrated Maritime Industry Strategy for KwaZulu Natal. *Situational Analysis, Strategy, and Implementation Plan. Draft Report for Comment*. doi:http://saaff.org.za/wp-content/uploads/2013/05/KZN-Integrated-Maritime-Strategy-Part-1.pdf

Department of Enviromental Affairs. (n.d.). Services to All Government Spheres. Retrieved August 01, 2016, from https://www.environment.gov.za/services/government_spheres

Department of Labour. (1995). Amended Labour Relations Act. Retrieved July 15, 2016, from http://www.labour.gov.za/DOL/legislation/acts/labour-relations/read-online/amended-labour-relations-act

Department of Labour. (1995). Summary of the Labour Relations Act, no. 66 of 1995 (With Amendments). Retrieved July 27, 2016, from http://www.ossafrica.com/esst/index.php?title=Summary_of_the_Labour_Relations_Act%2C_no._66_of_1995_%28With_Amendments%29

Department of Trade and Industry. (2010). South Africa: The 2010/11 to 2012/13 Industrial Policy Action Plan (IPAP). *Africa Research Bulletin: Economic, Financial and Technical Series, 47*(2). doi:10.1111/j.1467-6346.2010.03169.x

Department of Trade and Industry. (2015). *Section 12I Tax Allowance Incentive (12I TAI)*. Retrieved September, 2016, from https://www.thedti.gov.za/financial_assistance/docs/12I_TAI_Information.pdf

Department of Transport. (2011). *Part 1: Growth of a South African Maritime Transport Industry*. Retrieved June 02, 2016, from http://www.transport.gov.za/Portals/0/Maritime/Part%201_Final_270711yfx.pdf

Duhaime. (n.d.). Cabotage Definition:. Retrieved August, 2016, from http://www.duhaime.org/LegalDictionary/C/Cabotage.aspx

Eskom. (n.d.). Company Information Overview. Retrieved May 26, 2016, from http://www.eskom.co.za/OurCompany/CompanyInformation/Pages/Company_Information.aspx

Gramlich, E. M. (1981). *Benefit-cost analysis of government programs*. Englewood Cliffs, NJ: Prentice-Hall.

IBISWorld. (2016, April). Global Ship & Boat Building: Market Research Report. Retrieved August, 2016, from http://www.ibisworld.com/industry/global/global-ship-boat-building.html

Investopia. (2012). Public-Private Partnerships Definition | Investopedia. Retrieved August, 2016, from http://www.investopedia.com/terms/p/public-private-partnerships.asp?ad=dirN&qo=investopediaSiteSearch&qsrc=0&o=40186

ISL. (2015). *Shipping Statistics Year Book 2015*. Rotenburg: Druck & Medien Kontor.

Johnson, W. C. (1992). *Public administration: Policy, politics, and practice* (2nd ed.). Guilford, CT: Dushkin Pub. Group.

Lerner, J. (2009). *Boulevard of broken dreams: Why public efforts to boost entrepreneurship and venture capital have failed and what to do about it*. Princeton: Princeton University Press.

Meersman, H., Van de Voorde, E., & Vanelslander, T. (2004). *Port Pricing. Considerations on Economic Principles and Marginal Costs*. Retrieved July 28, 2016, from http://www.ejtir.tudelft.nl/issues/2003_04/pdf/2003_04_03.pdf

Mywage. (2016). Minimum Wages in South Africa. Retrieved August, 2016, from http://www.mywage.co.za/main/salary/minimum-wages
National Defense University. (2005). American Assembly Final Report. *International Journal*, *60*(2), 516-530. Retrieved August, 2016, from http://es.ndu.edu/Portals/75/Documents/industry-study/reports/2015/es-is-report-shipbuilding-2015.pdf
National Planning Commission. (2012). National Development Plan Vision 2030. *Our Future - Make It Work*. Retrieved August 01, 2016, from https://nationalplanningcommission.files.wordpress.com/2015/02/ndp-2030-our-future-make-it-work_0.pdf
Nigeria Maritme Administration and Safety Authority. (n.d.). The Underlying Facts On Nigeria's Cabotage Services. Retrieved September, 2016, from http://www.nimasa.gov.ng/press-center/category/voyage-magazine
Nxumalo, M. (2014, August). Durban gets R1.4bn ship building deal | IOL. Retrieved August 10, 2016, from http://www.iol.co.za/dailynews/news/durban-gets-r14bn-ship-building-deal-1739361
Organization of African Unity. (1994). *African Maritime Transport Charter*. Retrieved September, 2016, from http://www.peaceau.org/uploads/african-maritime-transport-en.pdf
Ports Regulator. (2005). The National Ports Act No. 12 of 2005. doi:10.1002/(sici)1097-0142(19961215)78:123.0.co;2-x
Ports Regulator. (2015). *SOUTH AFRICAN PORT CAPACITY AND UTILISATION REPORT 2015/16*. Retrieved July, 2016, from http://www.portsregulator.org/images/documents/Port-Capacity-and-Utilisation-Report-2015-16.pdf
Pulse. (2016, May 10). Hyundai Heavy Industries to Halt Dry Dock Operations. Retrieved July, 2016, from http://pulsenews.co.kr/view.php?year=2016&no=334951
Research and Markets. (2015, June). Global Shipbuilding Market Report: 2015 Edition. Retrieved June 17, 2016, from http://www.researchandmarkets.com/reports/3287716/global-shipbuilding-market-report-2015-edition#description
Ritcher, W. (2016, May 29). Shipbuilding Industry Collapses, Hits China and South Korea. Retrieved August, 2016, from http://wolfstreet.com/2016/05/20/shipbuilding-industry-collapses-in-china-and-south-korea/
Robinson, L. A., & Hammitt, J. K. (2011). Behavioral Economics and the Conduct of Benefit-Cost Analysis: Towards Principles and Standards. *Journal of Benefit-Cost Analysis*, *2*(2). doi:10.2202/2152-2812.1059
SAASR. (2015). About the SAASR. Retrieved August, 2016, from http://www.saasr.co.za/about-sassr.html
SAMIC. (2012). *South African Maritime Industry Conference Report*. Retrieved August, 2016, from http://samic.samsa.org.za/sites/samic.samsa.org.za/files/samic_report_final.pdf
SAMSA. (2015). *Vessel Construction and Repair Industry* (South Africa, South African Maritime Safety Authority). Retrieved May, 2016, from file:///C:/Users/Khetha%20Ngubane/Downloads/Vessel%20Construction%20%20Repairs_Industry%20Profile.pdf
SARS. (2002). Industrial Development Zone (IDZ). Retrieved July 30, 2016, from http://www.sars.gov.za/ClientSegments/Customs-Excise/AboutCustoms/Pages/Industrial-Development-Zone-IDZ.aspx
Seaweb. (2016). Builders by Country. Retrieved August, 2016, from http://maritime.ihs.com/Areas/Seaweb/authenticated/authenticated_handler.aspx?control=list&SearchString=DWT%2B%3E%3D%2B100%2BAND%2BSTATUS%2BIn%2B%28%27Converting%2FRebuilding%

South Africa, Operation Phakisa, Department: Planning, Monitoring and Evaluation. (2015, November 30). *Opeartion Phakisa*. Retrieved February 16, 2016, from http://www.operationphakisa.gov.za/operations/oel/pages/default.aspx

South Africa, The Presidency. (2015, February 12). Retrieved February 15, 2016, from http://www.gov.za/state-nation-address-2015

Southern African Shipbuilding Industry. (2015, August 26). Retrieved February 17, 2016, from http://www.sa-shipyards.co.za/about.html

Statista. (2016). Largest Shipbuilding Nations Based on Gross Tonnage 2015 | Ranking. Retrieved July, 2016, from http://www.statista.com/statistics/263895/shipbuilding-nations-worldwide-by-cgt/

Transet National Port Authority. (2014). Domestic demand forecast. *Domestic Demand Forecast*. doi:10.1787/cf2732d3-en

World Bank Group. (2015). Doing Business 2016. *Measuring Regulatory Quality and Effeciency, 13th Edition*.

World Steel. (2016, January). World Crude Steel Output Decreases by -2.8% in 2015. Retrieved July/August, 2016, from https://www.worldsteel.org/media-centre/press-releases/2016/--World-crude-steel-output-decreases-by--2.8--in-2015.html

WTO. (n.d.). WORLD TRADE ORGANIZATION. Retrieved July, 2016, from https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm