

UNIVERSITY OF KWAZULU-NATAL

**ASSESSING MEASURES TO IMPROVE SOUTH AFRICA'S PORT
DOCTRINE: PRICING AND GOVERNANCE REFORM**

Ayanda Meyiwa

207500950

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Supervisor: Dr MG Chasomeris

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Declaration

I, Ayanda Meyiwa, declare that

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Acknowledgements and Dedications

I dedicate this work to the Lord God, Creator of heaven and earth, my heavenly Father through the Lord Jesus Christ for sustaining me, keeping me and upholding my right hand throughout this whole year. He is my Saviour and sovereign King, my Champion and first love. I am alive and carrying on because of His faithfulness.

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.....

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Acronyms

ATC	Average Total Costs
BPP	Beneficiation Promotion Programme
BUSA	Business Unity of South Africa
CAPM	Capital Asset Pricing Model
CCC	Cape Chamber of Commerce
CPI	Consumer Price Index
CSIR	Council for Scientific Industrial Research
DCT	Durban Container Terminals
DMS	Dimson Marsh and Staunton
DORC	Depreciated Optimised Replacement Cost
DoT	Department of Transport
DPE	Department of Public Enterprise
DTI	Department of Trade and Industry
EBITDA	Earnings Before Interests, Taxation, Depreciation and Amortisation
ETIMC	Excessive Tariff Increase Margin Credit
EVG	Expected Volume Growth
FSA	Forestry South Africa
FPEF	Fresh Produce Exporters Forum
FRIDGE	Fund for Research into Industrial Development, Growth and Equity
Fruits SA	Fruits South Africa
IPAP	Industrial Policy Action Plan
KPI	Key Performance Indicators
MC	Marginal Cost
MDS	Market Demand Strategy
MR	Marginal Revenue
MRP	Market Risk Premium
MSCP	Marginal Social Cost Pricing
MYPD3	Multi Year Price Determination 3

NERSA	National Energy Regulator of South Africa
NICs	Newly Industrialized Countries
NAAMSA	National Association of Automobile Manufactures of South Africa
NPA	National Ports Authority
NPCC	National Ports Consultative Committee
OECD	Organisation for Economic Cooperation and Development
PoR	Port of Rotterdam
PPP	Public-Private Partnership
RAB	Regulatory Assets Base
RBCT	Richards Bay Coal Terminal
RoRo	Roll-on Roll-off cargo especially automobiles
ROD	Record of Decision
RR	Required Revenue
RSA	Republic of South Africa
SAAFF	South African Association of Freight Forwarders
SAASOA	South African Association of Ship Operators and Agents
SADC	Southern African Development Community
SAPIA	South African Petroleum Industry Association
SAPO	South African Ports Operations
SAR&H	South African Railway and Harbours
SASC	South African Shippers Council
SATS	South African Transport Services
SOC	State-Owned Company
SOE	State-Owned Entity
SRAC	Short-Run Average Cost
SRMC	Short-Run Marginal Cost
TEUs	Twenty-Foot Equivalent Units
TFR	Transnet Freight Rail
TIPS	Trade and Industrial Policy Strategists
TNPA	Transnet National Ports Authority

TOPS	Terminal Operating Performance Standards
TPL	Transnet Pipe Lines
TPT	Transnet Port Terminals
TY	Tariff Year
UKZN	University of KwaZulu-Natal
WACC	Weighted Average Cost of Capital
Xstrata	Xstrata Investments (Pty) Limited
ZAR	South African Rand

Abstract

South Africa's ports sector does not have a clearly defined port doctrine and has some elements resembling the Anglo-Saxon doctrine, other elements the Continental doctrine and others still the Asian port doctrine. This leads to South Africa battling with conflicting objectives for its ports and it has, for decades, run a complementary system of ports where costs incurred were not reflected by the prices charged for different services and the revenues and costs allocated to various commodity types have remained largely unjustified. All of this is against the backdrop of intra-port, inter-port and multimodal cross subsidization which found justification in developmental objectives of the country during its tenure but has lately been viewed as unjustifiable with regard to the prevailing macroeconomic objectives and policies; giving rise to many dissatisfactions submitted by various port stakeholders regarding Transnet and TNPA's practices that have not been adequately addressed.

This study assesses measures to improve South Africa's port doctrine, governance and pricing reforms. Content analysis was used to assess 18 various stakeholders' submissions regarding the 2013-2014 TNPA tariff increase application, 15 stakeholders' submissions regarding the multi-year tariff application for the tariff years 2013/14-2014/15 and 16 further submissions regarding the 2014-2015 tariff increase application were analysed. The Required Revenue (RR) methodology was recalculated using the recommendations from stakeholder submissions. Recommendations regarding the tariff methodology, tariff structure and port governance for the improvement of South Africa's port doctrine were made. After recalculating the RR model it was found that an MRP of 4.9, inclusion of a debt beta and a gearing of 36% may contribute to reasonable tariff increase at 3.96% for 2014-2015. Also the allocation of more costs to shipping lines and less to cargo owners is achievable without compromising the profitability of TNPA. Regarding port governance, the Asian port doctrine aligns well with the country's developmental objectives which means adherence to it would be beneficial and it should be granted until all South Africa's ports reach a level where they can stand as good competitors in the global environment with regard to pricing and tariff structure. TNPA is in need of reform according to Section 27 of the National Ports Act which puts forward that TNPA should be corporatized. Corporatization is recommended as the next step after the Asian port doctrine phase has run its course and fulfilled government's developmental objectives with respect to ports.

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Chapter 1

1. Introduction

1.1. Background and Context

It is generally accepted that about 90% of the total global trade is seaborne (IMO, 2012) and of that total global seaborne trade South Africa's share is 3.5% while of the very country's trade composition, 98% of its goods by volume are moved by sea (SAMSA, 2012). This makes South Africa a major maritime nation with a natural strategic geographic positioning in the Southern hemisphere as a midpoint between the West and the Far East (Cohen, 1957) that is also seen as a gateway to the rest of the African economy (Scholvin & Draper, 2012). It is also relatively sheltered from the fierce ports competition that comes with being in close proximity to other established maritime nations as we see in the Far East and in the West (Yeo, 2010). Furthermore, the country has a potential of benefiting much from transshipment because of its geographic position (DTI, 2012).

South Africa has eight commercial ports managed and run by one port authority called Transnet National Ports Authority which is a division of Transnet. Transnet is a South African transport conglomerate which is a state-owned enterprise (SOE) with the state having a 100% shareholding in it via the Department of Public Enterprises (DPE) (Klopper, 2010) and its divisions are Transnet Pipelines (formerly known as Petronet) which operates pipelines, Transnet Freight Rail (formerly known as Spoornet) which operates freight rail and Transnet Engineering which is an operating division of Transnet SOC Ltd and serves as a backbone of the railway industry. Transnet Engineering is dedicated to in-service maintenance, repair, upgrade, conversion and manufacture of freight wagons, mainline and suburban coaches, diesel and electric locomotives as well as wheels, rotating machines, rolling stock equipment, castings auxiliary equipment and services. Then there is Transnet National Ports Authority (TNPA), which was formerly part of Portnet and is the Ports' Landlord which deals with the facilitation of sea trade on SA's local ports.

Considering the extensive role played by sea trade in the global economy, seaports are a critical supply chain link between the local economy and the rest of the world. Maero (2014) explains

that the proper development and maintenance of seaports helps promote the flow of commerce and contributes to economic development. Also the administration of the port, its form and structure are an obvious key to most problems in the ports organisation (Maero, 2014).

Various regions of the world have different views of ports, their management, operation and relevance for the hinterland. Haralambides (2008), having observed a weak link between production and trade, states that trade depends less on output and more on trade facilitation. Trade grows twice as fast as output. This means that tools for trade facilitation such as transport and logistics and communication technology are key enablers (Haralambides, 2008). Stopford demonstrates that the demand for sea transport is derived demand (Stopford, 2009). This means that the traffic at seaports and the level of activity depends on the extent to which there is demand for various products. The growth in country's export-oriented output without growth in its seaports capacity causes bottlenecks in the global supply chains through congestions, leading to the mismatch between the country's output and actual trade as shown by Figure 1.1 below.

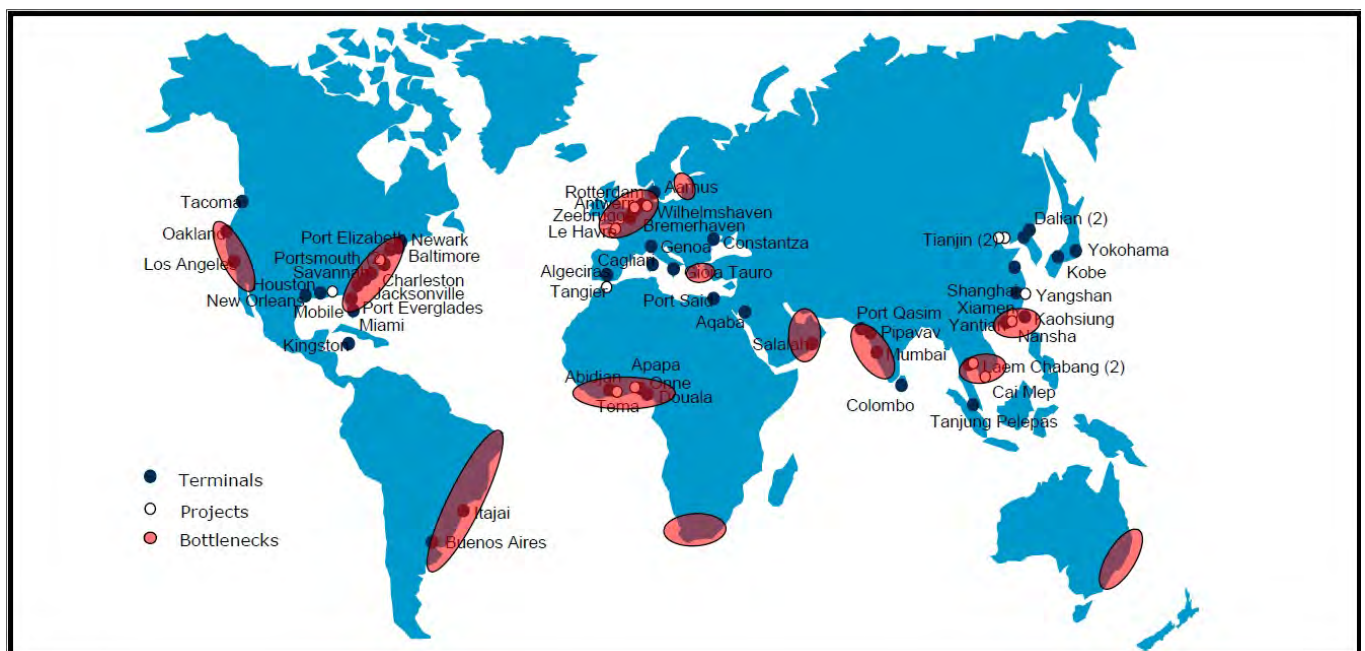


Figure 1.1 Bottlenecks in some global ports

Source: Adapted from Haralambides (2008: 10)

As can be seen, South Africa is among those regions and countries in the world that are experiencing bottlenecks in their global supply chains. Other factors that may contribute to bottlenecks in ports are their pricing regime, port governance and even a clash between its

macroeconomic objectives and the ports model. Most ports around the world are governed according to the landlord model of ports. Landlord ports as a model arise because of the largely inclusive nature of the ports infrastructure such as fairways, port approaches, breakwaters, ship channels and the degree to which value may be captured. These are all classic public good cases and they have overwhelming natural monopoly features with their high sunk costs. However, because of their low or even zero marginal costs and the challenges involved in determining the efficient pricing of them, the private sector tends to shy away from providing them as economic benefits therefrom are realized after/over very long periods of time and they are too low while in their consumption they have no rivalry (Baird, 2002). So it is often the state that sets ports infrastructure in place using public funds and owns these ports while the private sector may be allowed to handle cargo, own or rent the port's superstructure which is exclusive in consumption. Other port management models are public service ports, tool ports and private service ports. Their characteristics are summarized in the Table 1.1 below

Table 1.1 Port Management Models

Type	Infrastructure	Superstructure	Stevedoring Labour	Other functions
Public Service Port	Public	Public	Public	Mainly Public
Tool Port	Public	Public	Private	Mainly Public
Landlord Ports	Public	Private	Private	Mainly Private
Private Service Ports	Private	Private	Private	Mainly Private

Source: Juhel (2010: 8)

South Africa has run ports under the Public Service Port model since before the time of the Union of South Africa (FRIDGE, 2008). This remained for many decades and only recently did the country consider moving to a landlord model in its glacial pace at port governance reform. More on the evolution of South African ports is discussed in chapter 2.

Also important is the pricing of the services rendered by these various ports. Typically expected of any port authority is that they will price their products or services to reflect the nature and the extent of costs they incur in running those ports. This is, however, not the case in South Africa. The port tariffs that are much higher than the global average combined with inefficiency are threatening the competitiveness of South African ports. Total port costs account for only thirteen percent of the total costs associated with the logistics chain in South Africa (Goode, 2007). Overall demand for port services is inelastic, even though competition between goods handlers, port authorities and regions or countries is quite fierce in the rest of the world. The

possibilities, however, of substituting one port for another are so great that demand elasticity for a specific port may be high after all (Suykens & Van de Voorde, 1998). The latter is not true for South Africa with its complementary system of commercial ports, run by a single port authority that charges uniform tariffs despite their fundamental differences in structure and in the markets they serve, which follows that they face different commercial costs.

Table 1.2 below shows the various ports all along the South African shores, their features and the major products they handle which should indicate the markets they serve.

Table 1.2 South Africa’s Port Terminals and Major Products Handled

Port	Port Terminal	Major Products Handled
Port Elizabeth	Container terminal Containers	Container terminal Containers
	Multi-purpose terminal	Multi-purpose terminal
	Steel, fruit, timber and bagged cargo, including mini-bulk such as grain and feedstock	Steel, fruit, timber and bagged cargo, including mini-bulk such as grain and feedstock
	General terminal	General terminal
East London	Dry-bulk terminal Grain and other dry bulk	Dry-bulk terminal Grain and other dry bulk
	Tanker terminal Liquid bulk (refined fuels)	Tanker terminal Liquid bulk (refined fuels)
	Container terminal Container and break-bulk	Container terminal Container and break-bulk
	Car terminal Vehicles	Car terminal Vehicles
Durban	Soda ash terminal Soda ash	Soda ash terminal Soda ash
	Dry-bulk terminal Coal, coke, minerals and fertiliser	Dry-bulk terminal Coal, coke, minerals and fertiliser
	Fresh produce terminal Fresh produce (citrus) for export	Fresh produce terminal Fresh produce (citrus) for export
	Bulk-sugar terminal Sugar for export	Bulk-sugar terminal Sugar for export
	Durban shipping terminal Dry bulk, grain and vegetable oils	Durban shipping terminal Dry bulk, grain and vegetable oils
	Durban coal terminal Minerals, sulphur, fertiliser, coal and coke	Durban coal terminal Minerals, sulphur, fertiliser, coal and coke
	Grain elevator Grain	Grain elevator Grain
	Liquid bulk (bulk molasses) Liquid bulk molasses	Liquid bulk (bulk molasses) Liquid bulk molasses
	Liquid bulk terminal	Liquid bulk terminal
	Lubrication oils, glycols, alcohol, chemicals, solvents and vegetable oils	Lubrication oils, glycols, alcohol, chemicals, solvents and vegetable oils

	Island View storage	Island View storage	
	Chemicals, molasses, petroleum products and vegetable oils	Chemicals, molasses, petroleum products and vegetable oils	
	General cargo/break-bulk point terminal	General cargo/break-bulk point terminal	
	Granite, steel, timber, general and unitised cargo	Granite, steel, timber, general and unitised cargo	
	Car Terminal	Vehicles	
	Richards Bay	Dry-bulk terminal	Dry-bulk terminal
		Imports: andalusite, chrome ore, fertiliser, rock phosphate, rutile, titanium slag, vanadium slag, vermiculite, woodchips and zircon	Imports: andalusite, chrome ore, fertiliser, rock phosphate, rutile, titanium slag, vanadium slag, vermiculite, woodchips and zircon
Exports: alumina, coking coal, fertiliser, petcoke, potash, rock phosphate, salt, sulphur, urea and		Exports: alumina, coking coal, fertiliser, petcoke, potash, rock phosphate, salt, sulphur, urea and	
Mossel Bay		Single point Mooring	
		Oil Industry terminal	Exports Mossgas Products
		Submarine Pipeline	Exports Mossgas Products
Cape Town	Dry-bulk terminal Maize, soya and barley	Dry-bulk terminal Maize, soya and barley	
	Cape Chemicals Chemicals	Cape Chemicals Chemicals	
	Cape tank terminal Molasses, vegetable and fish oils	Cape tank terminal Molasses, vegetable and fish oils	
	Oil terminal Petroleum products	Oil terminal Petroleum products	
	Cape Town bulk storage Chemicals and bunker fuel	Cape Town bulk storage Chemicals and bunker fuel	
	Container terminal Containers (including reefers)	Container terminal Containers (including reefers)	
	Dry-bulk terminal Maize, soya and barley	Dry-bulk terminal Maize, soya and barley	
	Cape Chemicals Chemicals	Cape Chemicals Chemicals	
Saldanha Bay	Oil terminal Oil and petroleum products	Oil terminal Oil and petroleum products	
	Iron ore jetty Iron ore	Iron ore jetty Iron ore	
	Multi-purpose terminal	Multi-purpose terminal	

Source: Ittman (2008: 30-32)

The foregoing table showing 7 of South Africa's 8 commercial ports has four of them (Durban, Cape Town, Port Elizabeth and East London) operating as multipurpose ports, two of them facilitate predominantly bulk products (Saldanha Bay and Richards Bay) and Mossel Bay is

predominantly a fishery that also supplies offshore oil and gas industry (Ittman, 2008). The Ngqura port is not included as it is predominantly a transshipment port.

From the charging of uniform tariffs by one overarching port authority, (TNPA), it also follows that inter-port competition is not known and that South Africa's ports have a heritage of distorted prices, lack of competition, and massive cross subsidization (McPherson, 2003). Reasons for this are mainly found in the player-referee dilemma that was faced by Transnet with respect to ports which often had to wear two hats of regulator and operator of ports and perform a balancing act between the two roles. Organisations like the World Bank (2007) recognising the difficult position of such SOEs as Transnet around the world recommended the restructuring of ports which was a call for an independent regulator.

Port restructuring is also in line with the interest of the industrial development and economic growth policies of the country and this is echoed in the government's transport vision in the Transport White Paper as follows:

Provide safe, reliable, effective, efficient and fully integrated transport operations and infrastructure which will best meet the needs of freight and passenger customers at improving levels of service and cost in a fashion which supports government strategies for economic and social development whilst being environmentally and economically sustainable (DoT, 2001)

As a result of this White Paper on Transport Portnet was to be structured to facilitate the restructuring process of port operations, and this was seen as a precursor to the eventual privatization of TPT. Such privatization, to this day, has not happened.

1.2. Need for the Study and Research Objectives

There are not many published theorists on port pricing within the South African maritime sector, and the country has no clearly defined port doctrine. As such, practices, policies and paradigms from other countries might have to be imitated and then South Africa decide from the foregoing what best suits the local economy. Above all this, TNPA has instituted some changes in the tariff structure and revenue requirement allocation to various commodities served by South African ports because of the export beneficiation promotion programme which they insist is in line with the country's macroeconomic objectives. However, the programme begs more questions about the equity and efficiency of pricing. Moreover, because of its market

demand strategy, revenue requirement allocation has caused many stakeholders to question whether such investment is necessary and also its effect on the prevailing and future port prices. With respect to governance there remains a lot of questions because of the incongruity between TNPA's practices and its vision to be a perfect landlord model. What gives rise to the following study is the multiplicity of such questions which, it seems, TNPA has not answered or the National Ports Regulator has not addressed adequately in line with the National Ports Act (Act 12 of 2005) and the National Ports Policy.

Haralambides et al. (2001), Bennathan and Walters (1979), Meersman et al. (2003), Swahn (2002), and other numerous authors all hold that when determining administered port prices the port authorities should not deviate from the fundamental marginal cost pricing approach. However, for the Asian ports and for South Africa this practice is not scarcely neared in the determination of port prices. Notwithstanding the unconventional approach to port management, structure and pricing, the Chinese and other Asian ports, through their treatment of a container port as fundamental development infrastructure, have successfully developed top ranking container ports in Asia during the past four decades (Lee & Flynn, 2011), while South Africa has had persisting challenges of a lack of cost-based pricing principles; not having a justifiable pricing methodology; congestion, low productivity and inefficiency; inconsistent and unreasonable pricing of products; poor service delivery and poor port security among others (Gumede and Chasomeris, 2013).

Objectives of the study

- To review the lessons and literature from the Anglo-Saxon, European and Asian Port Doctrines.
- To examine South Africa's current port doctrine and recommend improvements
- To determine what governance reforms are necessary to improve South Africa's port pricing and port governance.
- To determine what pricing reforms are necessary to improve port tariff methodology and tariff structure.

1.3. Research approach/methods

The research objectives will be addressed by approaching the information already published in the Ports Regulator of South Africa's website. This is a secondary source with various

stakeholders' submissions on their views about TNPA's port pricing practices and recommendations regarding tariff methodology and tariff structure. These submissions date as far back as 3 review periods and there are 49 recently submitted stakeholders' views with 16 of those regarding the current review period which is 2014/15.

Content analysis will be employed in this dissertation with the aim of interrogating the stated recommendations on improving the port doctrine, port pricing and port governance in South Africa's ports. "Content analysis is qualitative analysis concerned mostly with the general import or message of the existing documentary materials which are either verbal or written" (Kothari, 2004: 110). Clarke (2005) refers to content analysis as a positivistic attempt to identify subjective meaning in the cultural domain.

The Required Revenue methodology has also been recalculated and reviewed under various scenarios indicating changes in the TNPA's requested tariff increase. This constructive critique is based on stakeholders' recommendations regarding the magnitudes of some variables and the effect of altering them in some way which gives rise to the scenarios that have been explored.

1.4. Structure of this Dissertation

The chapters of this study will progress according to the following outline:

Chapter 1 gives background and context within which the study is conducted, outlining the need for the study and objectives that are its guiding framework while giving the reader an idea of the content and the outline of the following chapters

Chapter 2 reviews the literature concerning the study. What is looked at are theoretical foundations of what underpins the whole research with a view to finding any agreements or inconsistencies with theory and determine the ideal port practices concerning governance and pricing in South African ports.

Chapter 3 is the research methodology employed in this study. Here the author justifies the use of Content Analysis, its advantages and suitability to the research that has been conducted. The required revenue methodology is also included and constructively critiqued.

Chapter 4 presents the findings from the research, provides a critical analysis of them while comparing them with the findings from the literature reviewed and gives informed insight

regarding the findings while objectively discussing the implications of the results regarding the issues or problems being researched about.

Chapter 5 summarises the whole study, draws conclusions and makes recommendations based upon the findings and lastly highlights the limitations of the study and areas of future research.

It is not the purpose of this study to provide a comprehensive analysis of stakeholders' perspectives on South African port pricing. This has already been dealt with in detail by Gumede (2013). However, stakeholders' perspectives will be briefly explored with the intention to present the context within which South African ports are currently operated.

Chapter 2:

2. Literature Review

2.1 Introduction

It is common conviction among many port economists that the pricing for port services should be based on a marginal cost approach or its varieties such as marginal social costs, short run marginal cost or the long run marginal costs depending on policy and each port's cost structure. Haralambides et al. (2001), Bennathan & Walters (1979), Meersman et al. (2003), Swahn (2002), and other numerous authors all hold that when determining administered port prices marginal cost pricing is the principle worth adhering to. It is also noted that among the most successful ports of the world the landlord model is followed where the port authority is the owner of the infrastructure and the superstructure is predominantly owned and maintained by the private sector (Suykens and Van De Voorde, 1998). However, for the Asian ports and for South Africa this practice is not neared in the determination of port prices and in many Far Eastern ports the government is a player of multiple roles, readily redefining what many port economists may call the conventional. Notwithstanding the unconventional approach to port management, structure and pricing, the Chinese and other Asian ports, through their treatment of a container port as fundamental development infrastructure, have successfully developed top ranking container ports in Asia during the past four decades (Lee & Flynn, 2011) which prior to that were unheard of in much of Asia.

This chapter provides the theoretical foundations for port pricing and governance while reviewing three dominant frameworks of thought. These are the Anglo-Saxon Doctrine, the European (Continental) Doctrine and the more recent Asian Port Doctrine, reviewing the latter more in-depth. The literature gathered is on port pricing and styles of port governance.

Section 2.2 will review the theoretical foundations of a monopoly. What will, therefore, be looked at briefly is how South African ports are a monopoly and the realistic consequences of this view. Section 2.3 will turn the attention to theoretical port pricing and its limitations. From there, exposition of the South African context and developmental objectives, including the history of the evolution of our port pricing practices with a detailed discussion of ad valorem

tariffs versus unit box pricing, will be made. Having explored theoretical port pricing limitations, section 2.4 will explore TNPA's current practices with regard to tariff methodology, tariff structure and port governance. Section 2.5 will compare the three dominant port doctrines, although briefly, detailing the outworking of the Asian port pricing and governance practices. Section 2.6 will conclude the chapter.

2.2. Theoretical Review of a Monopoly

For a firm to be classified as a monopoly it has to be the only one operating in that industry to provide a product or render a service to many buyers. The two known types of monopolies are natural monopoly and statutory or legal monopoly. According to Parkin, Powell and Mathews (2008), The Natural monopoly is that distinct type of monopoly that may arise when there are very high costs of distribution such as exist when large capital outlays are required in order to set it up or to ensure supply, thereby discouraging new entrants in the industry (Parkin, et al., 2008). Further characteristics that make this monopoly natural are that it can provide that product much cheaply over time because it is experiencing falling long-run average costs and its marginal costs are consistently below its average total costs.

The legal or statutory monopoly, is a company that is operating as a monopoly under a government mandate and offers a specific product or service at a regulated price and can either be independently run and government regulated, or government run and regulated.

Both types of monopolies face the costs and revenue structures of a similar nature in that the demand curve they face is downward-sloping and half-way from the origin and below demand curve is the marginal revenue (MR) curve. Reading the graph from left to right one sees a downward-sloping average costs (ATC) curve and directly below that a marginal cost (MC) curve following the same trend. Without going into too much theoretical detail it must be mentioned that the figure below (figure 2.1) is a theoretical illustration and the graph is not drawn to scale.

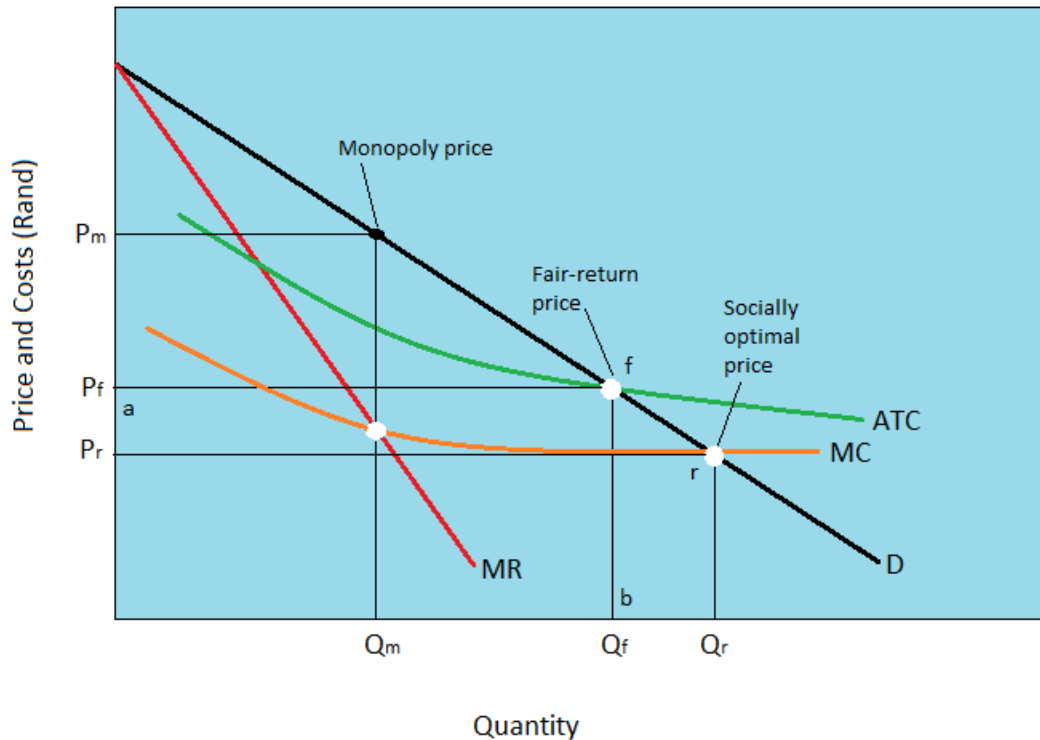


Figure 2.1. Regulated Monopolies

Source: Adapted from (van Rensburg, et al., 2011)

According to van Rensburg, et al. (2011), natural monopolies, because of their entry barriers, their price-setting ability and considering that they have more than enough potential to abuse their monopolist powers, have been subject to price regulation. Some examples are Eskom, Telkom and SABC which all were state-established as monopolies and remain largely uncontested in the South African economy but the prices that Eskom, for example, charges are subject to regulation by the National Energy Regulator of South Africa (NERSA).

Figure 2.1 illustrates a regulated monopoly with a downward-sloping curve which indicates consumers' willingness to buy. Halfway from the origin and following the same fashion as the demand curve is the marginal revenue (MR) curve and it is intercepted by the downward-sloping marginal cost (MC) curve directly above which is the average total cost (ATC) curve.

Now because of the extensive scale economies the average total costs are constantly declining while the marginal costs are also declining being much lower than the average total costs and the profit-maximizing point is the equality of marginal revenue with marginal costs. It is at this point where any firm would prefer to remain because profits are highest. Likewise the monopolist chooses such a point where its output is Q_m and the price it charges is directly above the $MR=MC$ point at P_m and the profits made are economic profits (van Rensburg, et al., 2011).

Looking at the graph, however, it is evident that the monopolist may still charge a lower price, produce more output which is of benefit to the market it serves but foregoing some of its profits without making a loss because average revenue (Price) remains above ATC. This means the monopolist can still increase its output and suffer no losses through price decrease until it reaches point f in the graph where its output is Q_f and it makes neither economic profits nor a loss, that is, it breaks-even at a fair-return price, P_f .

If the monopolist were in a more competitive market and its price-setting powers were somewhat reduced it would be compelled to price its output at a lower price and mitigate its costs by opting for alternative ways to achieve efficiency. If the monopolist were in a perfectly competitive market and had no influence over the market price then its cost structure would be very different and it would have to price its products or services at the equality of marginal cost and average revenue, charging a socially optimal price of P_r and producing the largest output at Q_r .

Because of large scale economies, however, marginal costs are always lower than average total costs in a monopoly. This means that a socially optimal price is not an option as it would always result in a loss and to keep the monopoly afloat subsidies would be necessarily required from the government, which is unsustainable in a long run. Notwithstanding, left to its own devices the monopolist would produce minimal output, maximize its profits and charge the monopoly price at P_m – a socially inefficient result as it results in welfare losses. This is what necessitates government intervention through price regulatory policies

That Transnet is a monopoly transport provider in South Africa is unassailable. Bhuckory, (2013) quoted a Transnet senior official saying that Transnet is a monopoly and a monopoly is best left on State's hands. The National Department of Transport supports that Transnet is a natural monopoly (DoT, 2001), but whether ports within the Transnet conglomerate are a "natural" monopoly may somehow be challenged in principle by some assertion that South African ports are a monopoly simply because they are managed by one port authority, but considering their nature and the markets they serve they might as well be a different market structure. This is because according to the Standard Bank Group (SBK) partnerships can be fruitful and private sector participation can be complementary to Transnet's internal program in terms of sharing investments and risks (Bhuckory, 2013). Furthermore, in a brief study of African ports by Ocean Shipping Consultants (2009) it was seen that lower costs in ports can still be achieved with an improvement in our ports product (Ocean Shipping Consultants, 2009)

and there has been willingness to invest in running ports by the private sector companies such as Bollare – even in the continent of Africa. Moreover, the Richards Bay Coal Terminal has largely been invested on privately by terminal operators with little or no contribution coming from TNPA (RBCT, 2013) and there has been a demand that it should be treated differently as a private terminal and the costs of running it uniquely catered for.

While the South African practice of running ports which are distinct in the products they offer, the cost structures they face and the market they serve as a complementary system (Kaselimi, 2012) does not make commercial accounting sense, there are a number of other factors contributing to this. Such a practice is not uniquely South African but it is found in some other countries as well and this is worth exploring to some depth.

As explained earlier, a natural monopoly is associated with falling long run average costs which, in turn, is related to economies of scale. This assertion of a natural monopoly of ports by Transnet requires urgent insight into real the cost structure of a port call and transshipment, because if there really is evidence of economies of scale and it applies both to port infrastructure and cargo-handling then marginal cost pricing will inevitably lead to port subsidizing. This is particularly true because in a falling cost industry the marginal cost is always lower than average costs which means that marginal cost pricing will result in a loss, which necessitates subsidizing that loss, and this being unsustainable over the long run will inevitably lead to price-setting interventions by government which, as evident in South African ports is always a recipe for stifling of intra and inter-port competition; and poorly executed cross-subsidization. In the event that ports do not exhibit traits of a natural monopoly, ideal port pricing (marginal cost pricing) would be neared by greater participation of the private sector or the full privatization of the ports concerned – a high improbability in developing economies.

All South African ports currently operate on the common user basis. Common user ports, on the balance of available evidence, exhibit economies of scale (Bennathan & Walters, 1979) which is evident in declining long-run average costs. The condition for declining costs is the minimization of the joint costs of ports and ship which are not controlled by the same agents; thus their separated actions may defeat the foregoing case. But if minimum costs are to be achieved the markets for ports and ships need to be competitive. With inter-port competition or multi-modal competition the demand for port services is elastic and rising ship waiting times will choke off demand. The model doesn't follow if competition is absent and the demand for port services is low. Then rising ship costs will be passed on to the shippers but will not be

seen as a threat to the port. Thus, competition tends to produce ports of an efficient, large size to exploit economies of scale. These scale economies confer some monopoly power on the ports which governments will want to control. In the absence of competition ports will not be built to the right scale so that the economic cost of transport will be higher than it need be; which then motivates the government to step in either to induce the private ports to expand to the optimum size or to run it as a public enterprise (Bennathan & Walters, 1979).

2.3. Theoretical Port Pricing and its Limitations

In South Africa total port costs account for only thirteen percent of the total costs associated with the logistics chain (Goode, 2007), in 2009 they constituted 14.3% (CSIR, 2010). Overall demand for port services is inelastic, even though competition between some goods handlers, port authorities and regions or countries is quite fierce. However, the possibilities of substituting one port for another are so great that demand elasticity for a specific port may be high after all (Suykens and Voorde, 1998). Because of the latter reason, significant potential expenditure losses from failure to attract additional traffic or loss of traffic can be and are made by reason of poor or arbitrary port pricing.

The convictions by port economists are that pricing by and within ports should reflect the costs generated by the ship in question. The right way of pricing is that which enables the port to cover its operational costs plus a certain profit mark-up, albeit for service ports the profit-maximizing aim should not be the principal goal in its operations. According to Meersman et al (2003), in the case of a port call, there are three cost items to take into account: cargo handling, the time in port, port dues and charges. The time spent in port is an opportunity cost that is a function of the time-related operational cost (wages, repairs, etc.), plus a profit margin. Port dues are levied by the port authority in exchange for, among other things, use of a berth. The most substantial cost, however, is that of goods handling. Cargo handling rouses much interest because, as it shall be seen, the South African ports charge substantially reduced prices for handling cargo while it is from this very category of prices that ports usually generate much revenue. Cargo handling is usually many times higher than the port dues.

From a theoretical perspective, the tariffs applied by and within the ports should principally be based on short-run marginal costs without deviation. Bennathan & Walters (1979) qualify this assertion to a certain extent, saying that strictly setting price equal to marginal cost is best only

in a perfectly competitive free economy or in an efficient socialist economy. In practice, the port is confronted with organised and largely foreign-owned shipping cartels. Still other authors hold that the more appropriate basis for port pricing is the long-run marginal cost and others go on to say that irrespective of the cost basis chosen, the principle that prices should accurately reflect (not recover) social opportunity cost is crucial.

Up until now at the conceptual level short run marginal cost pricing proponents have had the upper hand. The argument in favour of the short run marginal cost pricing is that the whole point of pricing is to confront the user with the additional cost that he causes. Only the short run marginal cost indicates precisely the difference in costs between acceptance and refusal of an additional user (Meersman et. al, 2003)

Meersman et al. (2003) mention that it would also make sense to charge prices equal to long-run marginal costs as SMC may vary significantly over time which is desirable economically but may be repudiated for political and organisational reasons. It may be necessary to impose prices that remain constant. This gives insight to the fact that the prices are uniform across South African ports for, perhaps, stability reasons desired by political players. Notteboom (2009) studies ports understanding that they serve very similar functions globally and therefore in their perception by many users they are nearly homogeneous. In that sense seaport terminals are perceived as perfect substitutes by users with location to be the only point of differentiation. Notwithstanding their homogenous nature of service, the ports appear heterogeneous in nature because of different players with differing, and often conflicting, objectives for the ports.

In a port there are government interests often trying to achieve efficient management of assets because the fact of the matter is that due to its large capital outlays and lack of excludability in utilization of some of its infrastructure the private sector has no interest in investing therein – also because the returns to that investment can only be realized over/after many decades. Government, therefore, often seeks to ensure that those returns are realized and they rightfully accrue to the relevant participant. The superstructure, like cranes, gantries, etc. is also durable and expensive, requiring large capital outlays. However, in proportion with capital investment in superstructure the returns are large, almost immediate and incumbent upon the operation of that superstructure for cargo-handling purposes and vessel services. In its consumption there is excludability and, therefore, the ability for the private sector to exploit economic benefits that stem therefrom. This is the fundamental organisation of ports that gives rise to the landlord model as an ideal. Governments often furthermore want to ensure economic benefits to the

hinterlands from ports as engines that drive those economies' growth (Bennathan & Wishart, 1983) and consequently they often seek to achieve this purpose even at the compromise of what economists would call efficient pricing. This is particularly true in developing economies in which the port authority is also synonymous with government and hence heavily influenced in its decision making by political interests.

Next there are economists seeking to minimize the welfare losses and have the social opportunity cost of ports accurately reflected in port pricing. In their advocating of efficient pricing there is a general consensus that marginal cost pricing is the principle, notwithstanding the fact that it may be clashing with government policies for the ports.

And then you have Port Authorities whose general objectives are to maximize throughput, maximize value added and maximize employment. The latter objective is more pronounced in developing economies and has always been one of the paramount aims of Transnet in South Africa. The former two are, in essence, among the reasons for this study because in order to maximize throughput the appropriate price – as far as the definition of appropriate goes in port management – has to be charged. And the right price is one that takes into account the costs faced by each individual port. With regard to the objective of maximizing value added; ports are evidently becoming more than just points of transshipment and interface between the hinterland and the seaport activity as industrial development zones (IDZ) are encouraged and built closer to ports to accommodate the import-export activities by local manufacturing and to further beneficiate (add value to) their exports. As a matter of fact, the Durban port is held in high regard as one of a few ports where the Central Business District is closest to the port (Kaselimi, 2012). And in line with the goal of maximizing employment it performs a critical role within the city of Durban as an employer of people.

Lastly, but most importantly, you have users. These are shippers and ship owners who depend on ports for the movement of their cargo, advancement of their businesses and their sustenance. All that these players seek is transparency in port user charges – that fairness of not getting any less than what they are paying for – and the prices that remain an encouragement to, in line with the objective of the port authority, add further value to their products which actually creates, brings in and retains more wealth in their hands than just transporting unprocessed products cheaply.

Of course, in all this the conflicting objectives lead to distortion of port prices, stifling of intra and inter-port competition; and massive cross-subsidization. What literature tells us about port

pricing is addressed by the ATENCO project in the following words: “the main conclusion of a comprehensive academic literature review on port pricing was that pricing in ports can and should be based on costs. The determination of which costs should be reflected in prices largely depends on the type of port organisation. Prices in service or comprehensive ports reflect a multitude of different costs - many of them joint costs, difficult to allocate in a way that is not largely arbitrary – compared to prices in landlord ports where more clear lines of responsibility and accountability exist” (Haralambides, et al. 2001: p.939).

Marginal cost pricing is ideal in theory and would obviously work in perfectly competitive markets as a reflection and an encouragement of efficiency. However, it is seldom practiced in reality because of its own challenges and the fact that it is fraught with problems. Among these problems a few are worth mention as also acknowledged by Gumede and Chasomeris (2012).

- Paramount uncertainty exists of the exact levels of costs for different elements which constitute the marginal cost
- Cost of charging systems and enforcement will be too high or even impossible to devise
- Conflicts with existing international or national legal frameworks
- The effectiveness to divert traffic between modes is questioned
- Low political acceptability
- The effectiveness to reduce pollution is questioned
- It would be unethical to rely on economic instruments to control levels of pollution.
- International competition would be distorted both in product markets and in transport service markets

Henrik Swahn (2002), however, when discussing marginal cost pricing in the maritime sector using Sweden as his case study, advocates for a more comprehensive approach to marginal cost pricing and includes such terms as Marginal Social Cost pricing which is inclusive of environmental costs, noise, pollution, accidents and congestion. His conclusions are that marginal cost pricing scheme should include the calculation of environmental external costs with reasonable precision. Such a marginal cost scheme, with investment/ maintenance cost recovery considered, includes safety and political concerns within itself and it therefore gains more acceptance – even as wide an acceptance as the average cost pricing regime.

Like Swahn (2002), Abbes (2007) explores the possibility of a marginal cost pricing approach that accounts for externalities such as environmental costs and congestion. He (Abbes, 2007)

justifies the charging of costs for the externalities when fixing prices citing, among other reasons, the imminent possibilities of accidents and the environmental degradation caused by the patronage of ports by ships and the cargo handling and cargo storage functions of the warehouses within or close to the port.

Bennathan & Walters (1979) maintain that under the perfectly competitive regime there are economies of scale both in the superstructure and port infrastructure so that short-run marginal cost pricing leads to a budget deficit; necessitating subsidization of port activities. Of course, in reality these perfect conditions are hardly ever achieved and the port often faces quay and hangar congestion, leading to the need for charging congestion pricing.

Goss and Stevens (2001) support Bennathan & Walters (1979) with respect to marginal cost pricing when they maintain that firstly all costs must be accounted for including those that do not appear in the accounting (congestion, pollution, noise etc.) (Goss & Stevens, 2001). The second condition is to use the definition of marginal costing adapted to accounting. Lastly all prices in the economy must be set to a marginal level. But the latter borders the impossible to achieve.

Further difficulties with implementing marginal cost pricing are that some ports are not able to estimate the MC of their own operations. It is also difficult to estimate external costs. Also, charging MSCP only in ports will make port services unilaterally more expensive, penalizing the efforts to check road transport and SA's efforts to encourage the local maritime industry

South African Ports show more characteristics of being public ports. Dowd and Flemming (1994) think that it is more difficult to allocate costs in Public Ports in a way that is arbitrary compared to costs in Landlord Ports where more clear lines of responsibility and accountability exist (Dowd & Flemming, 1994).

Button (1979) suggests an alternative is a two-part tariff where, without diverging from the marginal cost pricing, the first component of the tariff incorporates marginal social costs and the second one is where the user pays for the right to use the facilities. Two-part tariffs have the advantages (in terms of costs) and not the disadvantages (budget deficits and subsidies) of marginal cost pricing (Button, 1979).

Jansson and Ryden (1979) developed a theoretical two-part pricing model with similar features related to the Value of Service Principle (VSP) developed by Ramsey in 1927, or the Ramsey Pricing. In this regime different users are charged according to cargo handled and the price is

reflective of the demand elasticity of that good (which is the first component) and also the opportunity cost of using that facility in handling goods (which is the second component) (Jansson & Ryden, 1979).

Lee & Flynn (2011) also advance more arguments against marginal cost pricing, stating the difficulties in applying it and in applying the alternative methods suggested by the foregoing marginal cost pricing proponents such as:

- Measurement is complex;
- Equity is ignored;
- Dynamic effects, including investment decisions and technology choices, are not considered;
- Financing and institutional issues are disregarded;
- Port distortions elsewhere in the economy are not reflected and
- Implementing marginal social cost pricing might involve substantial administrative costs, which may not always be justified by the benefits it brings.

All of these arguments against marginal costs bring about some degree of compulsion to consider other alternatives, as do Lee & Flynn (2011) when they explore the port pricing system under the Asian (Port) Doctrine.

2.3.1. South African History of Port Pricing and Governance Reform

In the interest of maximising port throughput and increasing the benefits of ports to the hinterlands, the South African government has, in times past, attempted to regulate the local ports partly through price manipulations (Van Niekerk, 2007) but of late through ports restructuring. The latter requires the separation of port operations from port authority functions in line with the landlord model. The principal requirement is the commercialization of ports in which there will be an increase in private participation for port terminal operators, adding to healthy competition in port operations that leads to increased efficiency. But the problem of inefficiency and excessive prices runs deeper historically and economically than meets the eye.

From 1833 to 1908 inter-port competition was fierce because harbours were financially autonomous and tariffs were determined at each harbour. Since the time of the Union (1910), the ports and railways in South Africa were placed under the control of the national government in the fear that the Maritime Provinces would use their ports to exploit the inland provinces. South African Railways and Harbours (SAR&H Administration), Transnet's predecessor, viewed ports not just as acting as a gateway through which goods and passengers are transferred between ships and the shore and benefiting those whose trade passes through them, i.e. through providing increments to consumers' and producers' surpluses (Meersman et al, 2003), but as a channel through which the economy of the whole country can benefit as Maritime Provinces use port revenues to enrich inland provinces (Van Niekerk, 2007). This could have been a resemblance of RSA's port doctrine to the European Doctrine. However, as SAR&H took over nationwide administration it would introduce uniform tariffs which brought to an end the prior inter-port competition. Under this administration the ports were supposed to run according to sound business principles, generating enough revenue to sustain themselves, while providing preferentially cheap services to the agricultural and industrial sectors (Van Niekerk, 2007).

The combination of harbour and railway finances, as a result of being under the same administration, blurred the interface between railway profits and harbour profits and, over the years that would follow, some of the revenue generated from port operations would accrue to the loss-making railway sector such that wharfage charges were allocated two thirds to the harbour and one third to railways (Van Niekerk, 2007).

In 1981 SAR&H became South African Transport Services (SATS) which, by the Act of Parliament, became a business enterprise belonging to the state, and this brought about a shift in the emphasis of pricing policy. The Act required that the whole country's interests be taken into account and not just those of the industrial and agricultural sectors, meaning that SATS would have to operate ports according to strict business principles. But with a uniform tariff in place the latter would not be achieved as this did not account for commercial cost differences between SA ports, resulting in massive port cross subsidization.

By 1989 Transnet as a 100% state owned public company was established from SATS and remains the country's transport conglomerate to this day. RSA has eight distinct and unique commercial ports that not only differ in their structure and size but also differ in the markets they serve. It follows that the costs they face and revenue generated significantly differs. As a result the uniform tariff applied to all ports and the markets they serve does not serve well each

port's accounting costs. The cry, therefore, is that prices should be tailor-made to reflect costs and enhance competitive advantages, enabling each individual port to fulfill its specific function in a wider national sense. This is more so the ideal since under Transnet the ports are required to be self-supporting, providing cheap, effective transport to the economy, which can only be assessed by the examination of costs involved.

Under Transnet, Portnet was the comprehensive owner, operator and regulator of South African ports and the most profitable part of the conglomerate. Tariff reform process was very slow in RSA because of fiscal constraints and the magnitude of Portnet's role in RSA ports. On fiscal constraints, Transnet is heavily indebted and Portnet was its biggest profit contributor. In May 2001 Portnet was split into the National Port Authority (the TNPA) and South African Port Operations (SAPO), the latter has since been called Transnet Port Terminals (TPT). The motivation was to ring-fence business units and to prepare port operations for concessioning, and for the port authority to enforce regulation on port operations. The split was essential since previously Portnet was both player and referee in the South African ports. But the problem persists because while Portnet was split into TPT and the TNPA, they both remain a division of Transnet. Calls were, therefore, made for a stand-alone regulator independent of political intervention, even by the World Bank (WorldBank, 2007). Hence the birth of the Ports Regulator of South Africa.

The Ports Regulator of South Africa "was established in terms of the National Ports Act, act number 12 of 2005. The Regulator is a key component of the ports regulatory architecture envisaged in the National Commercial Ports Policy. The Regulator's key function is economic regulation of the ports system in South Africa, in line with the strategic development context of the state. In accordance with this mandate, the Regulator performs certain functions and activities in the industry that relate mainly to regulation of pricing and other aspects of economic regulation, promotion of equity of access to ports facilities and services, monitoring the industry's compliance with the regulatory framework and also hearing any complaints and appeals lodged with it." (Ports Regulator of South Africa, 2014)

2.3.2. Tariff Reform from Ad Valorem to Per Box Tariff

With restructuring in port governance over the years it was also necessary to see reforms in the port pricing policies. As has been discussed in the preceding section, when market structure allows for sufficient competition in the supply of port services and facilities then pricing should follow business principles.

By international standards South African ports are the most expensive and the largest contributor to their expensiveness has primarily been wharfage charges. Wharfage, now known as cargo dues, was charged in some ports around the world. For example in all ports of Australia it is currently levied on container ships. It is included in container handling charges for Port Klang, Singapore, Philadelphia and Tilbury. However, what made wharfage unique in South Africa is that wharfage functioned as the key revenue contributor for the state rail and port system – the early practices of cross subsidization under SAR&H. Having been introduced in 1925, this port tariffing method has had a profound influence on the country's transport system and it is a legacy that has been carried through into the current era of port pricing via cargo dues (FRIDGE, 2008).

Wharfage charges were intended to finance the cargo-working infrastructure of the port and they were levied on all goods passing over the wharves. Wharfage was levied on an ad valorem basis, which had its justification and some advantages. According to McPherson (2003) the authority believed at that time that basing tariffs according to the value of the cargo being moved would keep pace with price changes and exchange rate fluctuations thus avoiding any unnecessary tariff adjustments and it would, furthermore, maintain the competitiveness of low value exports while considering cargo owners' ability to pay. The port thus saw ad valorem wharfage as a fair and acceptable method of recovering the relevant infrastructural costs. Prior to the tariff change wharfage charges were as follows:

Imports: All Cargo per R100.00 ad valorem pro rata:	R1.70
Exports: All Cargo per R100.00 ad valorem pro rata:	R0.85

Exports were favoured in line with government policy and imports were charged at double the tariff charged to exports. The major criticism against ad valorem wharfage was that it favoured low value cargo and thus prejudiced exporters and importers of high value cargo. For example, one exporting a container full of t-shirts would pay far less than another exporting a container

full of computers even though they use the same kind of facilities, require the same amount of energy and it costs the port the same amount to move the container.

“South African shippers objected to the ad valorem wharfage, arguing that it was a tax on trade in view of the shipping and cargo handling charges that were applied. They were, however, unsuccessful in legal challenges against the port authorities. Without alternatives, with inter-port competition prohibited, shippers were compelled to pay wharfage which authorities justified as being used to finance rail access and general cargo infrastructure” (FRIDGE, 2008: 25)

When change to a more cost-based tariff was suggested the recommendations were rejected on the grounds that such a move would put at a disadvantage low-value cargo and undermine its competitiveness in the export market (McPherson, 2003). However, using the same logic one can easily argue in favour of the high value cargo. Charging ad valorem tariffs puts sea transport at a disadvantage compared to other modes of transport where prices are not based on cargo value. Ad valorem tariffs also reduced the country’s comparative advantage in foreign markets, reinforced the effect of high tariff trade barriers and discouraged the import of high value cargo. What should be of more concern to the port authority is the fact that ad valorem wharfage has been discontinued in many ports around the world (McPherson, 2003).

Although ad valorem tariffs were a principal source of revenue for the NPA (then Portnet) and a major profit source, the funds generated therefrom were not used to reinvest in port infrastructure but instead they were used to fund other less profitable divisions of Transnet – especially the loss-making rail transport division (DoT, 1998).

Historically, cross-subsidization has been substantial not only across Transnet divisions but also within the ports. This is called intra-port cross subsidization and this practice saw profits made from the wharfage being so supernormal that they allowed the port authority to keep prices of other services at artificially low levels. Prices for basic marine infrastructure were generally set below full cost recovery levels and cost-price skewness was as follows:

Marine infrastructure charges	: $P \ll AC$
Marine Services	: $P < AC$
Cargo Infrastructure Charges	: $P \gg AC$
Cargo Services	: $P \sim AC$

The Table below shows this more succinctly

Table 2.1. Price Distortions in Port Tariff Categories Prior to 2001

Function	Tariff	Price/Cost Skewness	% of Total Revenue
Marine Infrastructure	Port, berth dues	Prices well above average costs	3
Marine Services	User charges	Priced below average costs	6
Cargo Working Infrastructure	Ad valorem wharfage	Price substantially exceeds average costs	55
Cargo Services	User charges	Price equals average cost	30
Miscellaneous (lights, etc)			6

Source: Adapted from FRIDGE (2008: 26)

It is an expectation that a port authority should want to price in exactly the opposite direction, making marine infrastructure charges expensive and making it cheap for cargo owners because ports earn more income from cargo functions than marine functions (McPherson, 2003).

Over time an attempt was made to minimize cross-subsidization and to lessen cost-price irregularities across marine and cargo functions. In 2002 Wharfage charges were replaced with a set of cargo dues, the latter being levied on a unit basis for containers and a tonnage basis for other forms of cargo (FRIDGE, 2008). This is far more cost-related than the ad valorem wharfage. Table 2.2 below is the table of various cargo dues as they stood in the year 2014 from the TNPA Tariff Book:

Table 2.2. Cargo Dues on Imports, Exports, Transhipment and Coastwise Cargo

Cargo Dues on Imports, Exports, Transhipment and Coastwise		
All Bulk commodities measured per unit of tonnage (1000 KG)	Imports (Rands)	Exports (Rands)
Bulk (Dry and Liquid)	62,32	46,72
Breakbulk	132,41	109,05
Breakbulk (Empty Returns)	3,89	3,89
Motor Vehicles on Wheels	218,09	86,04
Containers		
6m/20' Containers	1976,34	650,6
12m/40' & 13,7m/45' Containers	3952,64	1301,19
Empties - all sizes	76,35	76,35

Source: TNPA Tariff Book (2014:40-45)

As can be seen, exports are still favoured more than imports in line with government policy as the charges for imports are more than thrice the tariffs charged for exports. This is also in line with TNPA's attempts to align itself with national economic policies through a programme called Beneficiation Promotion Programme (BPP). The BPP is a pricing tool used to discourage export of unprocessed products and encourage, instead, the value-adding activities to take place in the local firms and export more finished products that will have had a greater multiplier effect on the economy through job creation and development of local industry. However, it discourages imports and gives a protectionist impression to foreign traders and the extent to which this will have great economic benefits for local manufacturing is still largely contested by many stakeholders like dry-bulk cargo shippers as they carry low-value cargo, especially those who have little or no chance at beneficiating their exports. More of this will be discussed in chapters 4 and 5 of this dissertation.

2.4. The Prevailing South African Macroeconomic Context

Coming from decades of racial segregation and social exclusion of the masses of people groups, South Africa is a young democracy that has had to deal with reconciling the injustices of the past with its developmental and growth plans. The inclusion of the previously excluded groups of people in the country's macroeconomic indicators like the rate of unemployment jolted the country to the harsh realities of massive unemployment, high inequality and widespread poverty previously unknown to the world during the apartheid past. Furthermore the fruits of Bantu education would surface as many people that were flooding the job market in 1994 lacked skills demanded by a new inclusive economy that had also opened up to the world from its protectionist policies. The textile industry, previously responsible for employing many low-skilled and unskilled workers, mostly women, was hard hit by the cheaper and more competitive imports from countries like China and many lost their jobs (Wolmarans, 2011). Entrepreneurship remains one of the most lacking aspects of our economy as, in the past during the process of industrialization which was spurred by the discovery of minerals in the latter half of the 19th century, the state would assume the role of entrepreneur in order to meet the demands to industrialize by establishing SOEs like Iscor for steel production, Eskom for electricity generation and Telkom for telecommunications among others (Tshitereke, 2006).

As it stands, the structural constraints of lack of entrepreneurship, unemployment, poverty and inequality still plague the economy. Although in other areas the economy has come a long way since 1994, Borat, van der Westhuizen and Jacobs (2009) show that from 1995 to 2005, the real per capita income of white and coloured South Africans rose by 41% and 35% respectively, whereas the real income of black South Africans declined by around 2% over the same period (Bhorat & Van der Westhuizen, 2009). The gap between the rich and the poor has subsequently increased over the year 2000 to 2006. The Gini coefficient, when computed based on total household income per capita before deductions, was 0.7 in 2000 and 0.73 in 2006 and when based on expenditure it was 0.65 in 2000 and 0.67 in 2006. By both measures income distribution deteriorated in the reference period.

The National Treasury predicted a 2.1% growth in real GDP for 2013 and a 3.5% growth by 2016 (BUSA, 2013). The National Development Plan (NDP, 2012) explains that GDP should grow in excess of 5% per year in order to promote job creation and reduce unemployment. In order to achieve a 5% growth rate and alleviate unemployment in South Africa the proposed strategic measures are to focus on those areas where RSA already has a comparative advantage. These are predominantly agriculture, mining, construction and agro-processing among others including higher education (National Planning Commission, 2012). This point is an echo of the 16th recommendation made by the International Panel on ASGI-SA (Hausmann, 2008) when they said, in line with the structural constraints and skills shortage the country is facing, South Africa should base its growth Strategy on the people that it has – not on the people it wished it had. Hausmann (2008) encourages the country to look at what it has a comparative advantage in and focus on growth in and through that. South Africa has comparative advantage in minerals and agricultural production. This means that the port tariffs should favour the exports of these products and support the growth of such sectors.

In encouraging export-led economic growth, a number of challenges were observed such as inadequate supply of electricity, high port charges for exported containers and port infrastructural constraints. These are mentioned in the Industrial Policy Action Plan (2013-2016) – or IPAP – and in the National Development Plan 2030 (NDP), the latter being the vision of the country for 2030.

From these two strategic documents, recommendations are made to adjust the country's ports tariff structure as one of the ways to overcome the aforementioned challenges. However, too little is said in these documents about the inefficiencies plaguing RSA's ports with respect to

pricing and governance. The adjustment of the tariff structure is not without its own complications which would, necessarily, require a radical shift in RSA's port doctrine.

The policy context of IPAP is that in which exports and value-adding/beneficiation are principal for our manufacturing sector. "The National Industrial Policy Framework (NIPF) and successive IPAPs have consistently made the point that manufacturing has a vital role to play in employment and growth in the economy. It has also been stressed that industrial policy should be framed and driven by a particular focus on value-adding sectors that embody a combination of relatively high employment and growth multipliers" (DTI, 2012, p. 12). In 2012 the government identified some potential for economic growth and development with respect to the resources South Africa has which were articulated in the IPAP and among them is the upstream oil and gas sector that may have positive spin-offs for the whole economy and help facilitate industrial development, sustainable employment and social upliftment.

Having surveyed the country's natural and infrastructural resources and those of the Sub-Saharan African region, it was established that the oil and gas sector has the potential to support and generate the economic activities within sub-sectors of the economy such as repair and upgrade of drilling rigs and other industry-related vessels; construction and fabrication related to upstream field development and oil and gas logistics and distribution. While "the DTI, together with the DPE, TNPA and other strategic players, is committed to establishing oil and gas logistics supply, maintenance and manufacturing hubs at South African ports, including at the port of Saldanha Bay, with all the potential for associated industry expansion that could follow from such developments;" (DTI, 2012: 129) government acknowledges the challenges such as regulatory and cost constraints, including high port charges, and technical constraints which relate to the state of port infrastructure.

In response to these constraints some key action programmes were formulated which include the maritime and industrial ports offering in which the close relationship with the DTI, TNPA and NDE will be exploited "to position South Africa's ports in a manner that facilitates industrial development in general and the development of an upstream oil and gas servicing hub in particular" (DTI, 2012: 130). The rationale behind this is that TNPA uses ports as a complementary system already and, therefore, there are plans to upgrade port and back-of-port infrastructure as part of Government's overall plans to significantly upscale investment in infrastructure.

With regard to high port charges, IPAP acknowledged that because of high port charges for the export of value-added goods, compounded by serious inefficiencies in rail and port freight logistics, the cost of export of value-added tradable goods had for some time been higher than both the cost of exports of primary commodities and the import of tradable goods.

2.4.1. TNPA's Present Port Practices

In 2012 the Ports Regulator of South Africa performed a benchmarking exercise of South Africa's ports, with Durban being the main port observed, against other global ports and South African ports were found wanting on terminal handling charges, port productivity in relation to terminal handling charges, revenue structure and cargo dues. Of the findings from the benchmarking was that South African port tariffs to shipping lines are high but not significantly higher when compared to other ports. Terminal Handling Charges (THCs) are in line with those of the European ports, which face higher labour costs, but are more than double those of lower labour cost countries of the Middle East and Asia.

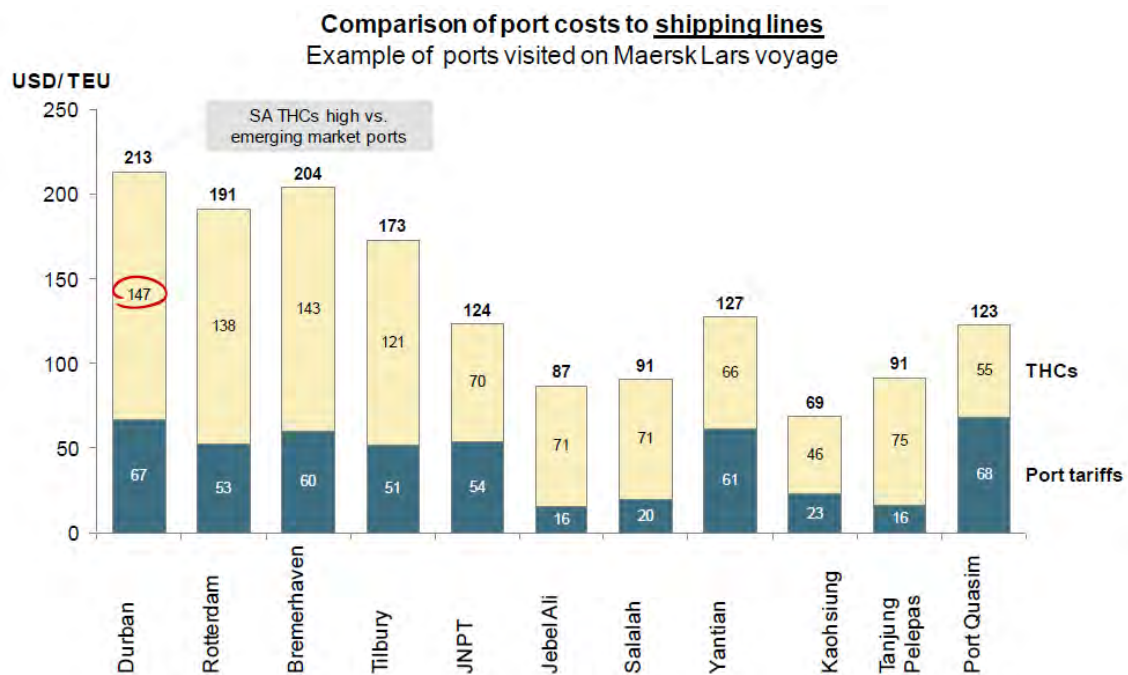


Figure 2.2. Comparison of Port Costs to Shipping Lines

Source: (TNPA, 2012)

Common complaints from shipping lines are that South African port costs are high when considering service provision. Figure 2.3 below shows that highly productive ports tend to have lower THCs and the opposite is true as Durban has higher THCs more than double those of Kaohsiung and it's productivity is also about half that of Kaohsiung's in terms of TEU containers handled per hour.

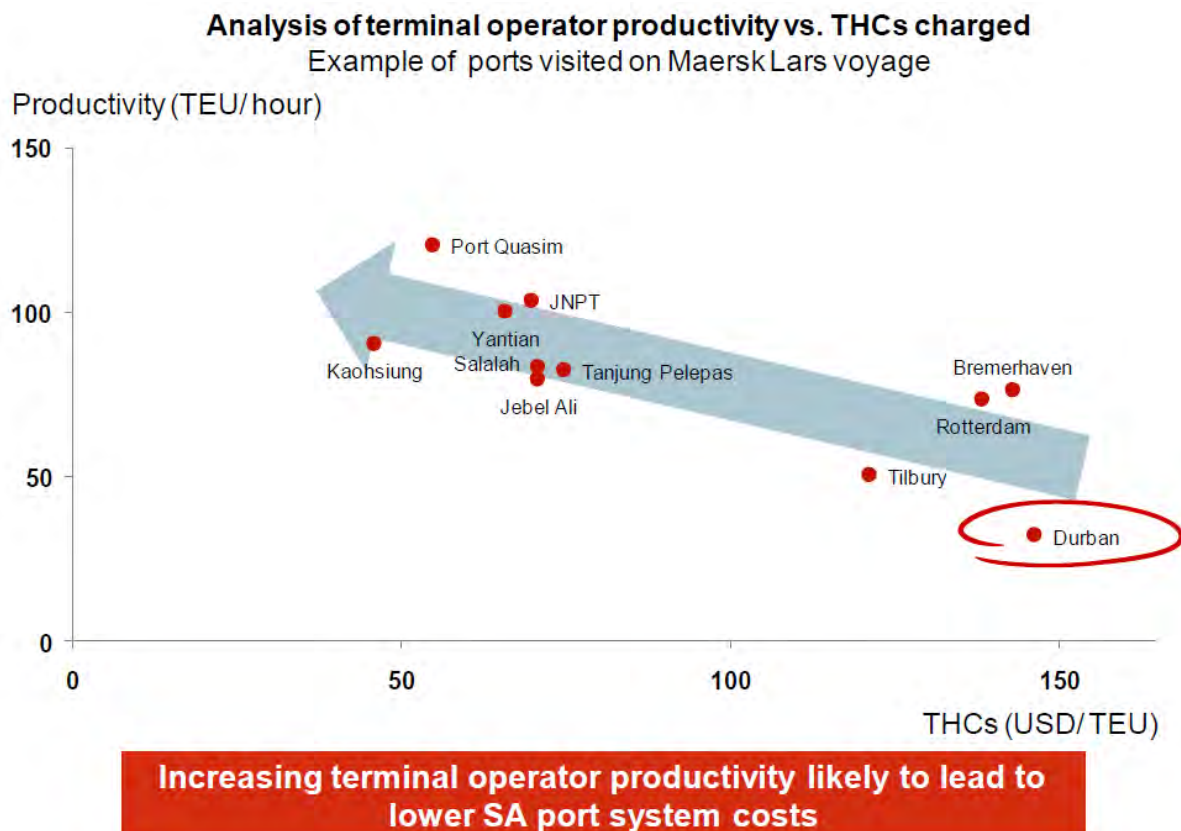
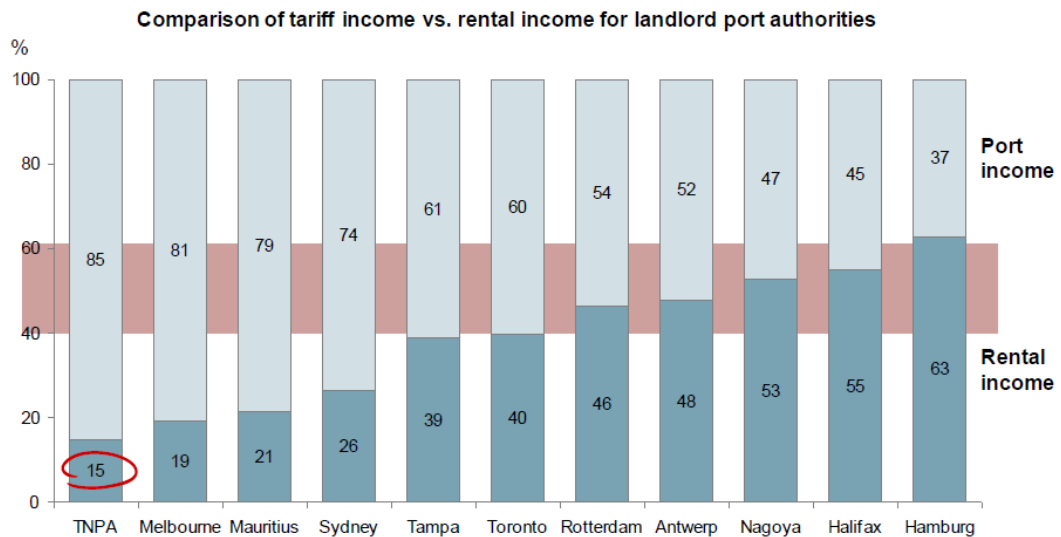


Figure 2.3. Analysis of Terminal operator Productivity vs THCs Charged

Source: (TNPA, 2012)

Cargo dues levied on containers by TNPA are much higher than those in the benchmarked ports, and TNPA has the biggest variation between cargo dues imposed on imports versus exports and this differentiation is also uncommon among benchmarked ports. Also worthy of note is that most landlord ports make a large portion of their revenue through rental incomes (Figure 2.4). TNPA's rent contribution to its revenues is lowest at 15 percent while for most other landlord ports it is 40 to 60 percent.



Opportunity for TNPA to re-structure relationship with Terminal operators to increase rental revenue and influence productivity

Figure 2.4. Comparison of Tariff Income vs. Rental Income for Landlord Port Authorities

Source: (TNPA, 2012)

It is against such a tariff structure and practices which are contrary to the global norm that below we look in some detail at the required revenue approach and the tariff structure.

2.4.2. The Required Revenue Methodology

The current port pricing practices by TNPA have led some various port stakeholders to express strong disapproval for TNPA which they say are “abusing its monopoly power, hindering global competitiveness; not taking into cognisance the state of the country’s economy; charging prices which are higher than inflation; creating an environment which does not support job creation; being inconsistent and non-compliant with the national policies; not applying cost based pricing principles; not having a justifiable pricing methodology; low productivity and inefficiency; inconsistent and unreasonable pricing of products; poor service delivery and port security (Gumede & Chasomeris, 2013). There have since been more suchlike concerns and complaints and they will be explored in detail in chapter 4 of this dissertation.

TNPA has a tariff methodology called the Required Revenue approach or RR which it uses to calculate its proposed tariffs for every financial year. This methodology, however, was determined as inappropriate by the Ports Regulator but it did not reject it since it was proportional with the one that is used by the National Energy Regulator of South Africa (Ports

Regulator, 2011) and in the absence of a more superior tariff methodology the Ports Regulator allows the RR approach despite the submissions that it does not give TNPA incentives to become more efficient but it guarantees TNPA profits notwithstanding inefficiency. The Directives in terms of section 30(3) of the National Ports Act, 2005 (Act No. 12 of 2005) (the Act) require that the Regulator, when considering the proposed tariffs for TNPA, the Regulator needs to approve the reasonable tariffs to ensure that such tariffs allow the TNPA to:

- *Recover its investment in owning, managing, controlling and administering ports and its investment in ports services and port facilities;*
- *Recover its costs in maintaining, operating, managing, controlling and administering ports and its costs in providing port services and port facilities; and*
- *Make a profit commensurate with the risk of owning, managing, controlling and administering ports and of providing port services and port facilities (TNPA, 2012)*

It must be conceived that, after the three rounds of submissions of stakeholders' perspectives on maritime port pricing in South African ports and the global port competitiveness comparator study performed by the Regulator in 2012, TNPA only slightly revised its tariff structure taking cognisance of the submissions but in the end it did not alter its tariff methodology. As such, in September 2013 it submitted to the Ports Regulator a new tariff application for financial year 2014-15 proposing an increase of 14.39 %, well above the expected inflation rate of 5.9 %. In view of all the submissions made by various stakeholders and the proclivity of TNPA not to honour some of the directives given by the NDE and the provisions of the National Ports Act (Act 12 of 2005), the Regulator only granted an increase of 5.9 % on certain products – which is not greater than the country's prevailing inflation rate – and 8.15% on other products (PRSA, 2014).

In line with the Directives, the revenue generated from TNPA's services are used, among other things, to:

- Maintain basic Port infrastructure
- Provide Current and future port infrastructure
- Maintain and provide the current marine fleet
- Maintain and provide current and future ship repair facilities

The above puts TNPA in a position where it has to fund all port capital costs across the entire ports system as opposed to common practices globally where some capital costs are financed by central government or municipal government (Lee & Flynn, 2011). First TNPA determines how much revenue is needed in the coming financial year in order to fulfil the aforementioned functions and set aside some funds for future investment into the infrastructure. This is the tariff methodology. The next step is the apportionment of the revenue to the various individual tariffs for specific services and facilities – the tariff structure – briefly discussed in the following subsection.

2.4.3. The Tariff Structure

The approach decided upon for the financial year 2014/15 is based on the revenue required methodology. Its formula is as follows:

$$\begin{aligned} \text{Revenue requirement} &= (\text{“RAB*WACC”}) \\ &+ \text{Operating costs} \\ &+ \text{Depreciation} \\ &+ \text{Taxation expense} \\ &- (+) \text{Claw back} \\ &- (+) \text{ETIMC (Excessive Tariff Increase Margin Credit)} \\ &+ \text{F-Factor} \end{aligned}$$

The above components of the revenue requirement approach are apportioned using a structure which, TNPA maintains, has considered most of the concerns expressed against it in the previous stakeholders’ submissions. They hold that the new proposed tariff structure is “based on sound design principles, a more balanced and equitable distribution of charges to various port user groups, the need to support government policies through the tariff structure, as well as being strongly aligned with international norms and standards” (TNPA, 2012:8). The four core design principles in implementing the tariff structure are summarised below:

- Cost Based – each tariff should cover the costs of providing the related infrastructure and services
- User Pays – every port user should contribute for the right and access to port facilities that they use

- Required Revenue – the tariff methodology outlined above can be disaggregated and applied to each individual tariff to cover operating costs, depreciation, taxation and a fair return on TNPA’s assets
- Competitiveness – TNPA says that market expectation and common or best practices have been considered

Under this Required Revenue Model real estate business has been included and the asset allocation, TNPA maintains, is well motivated, resulting in the following proposed contributions: terminal operators contributing 33%, cargo owners 46% and shipping lines 21% (TNPA, 2012). Below is Figure 2.5 which shows the current tariff structure versus the new tariff structure.

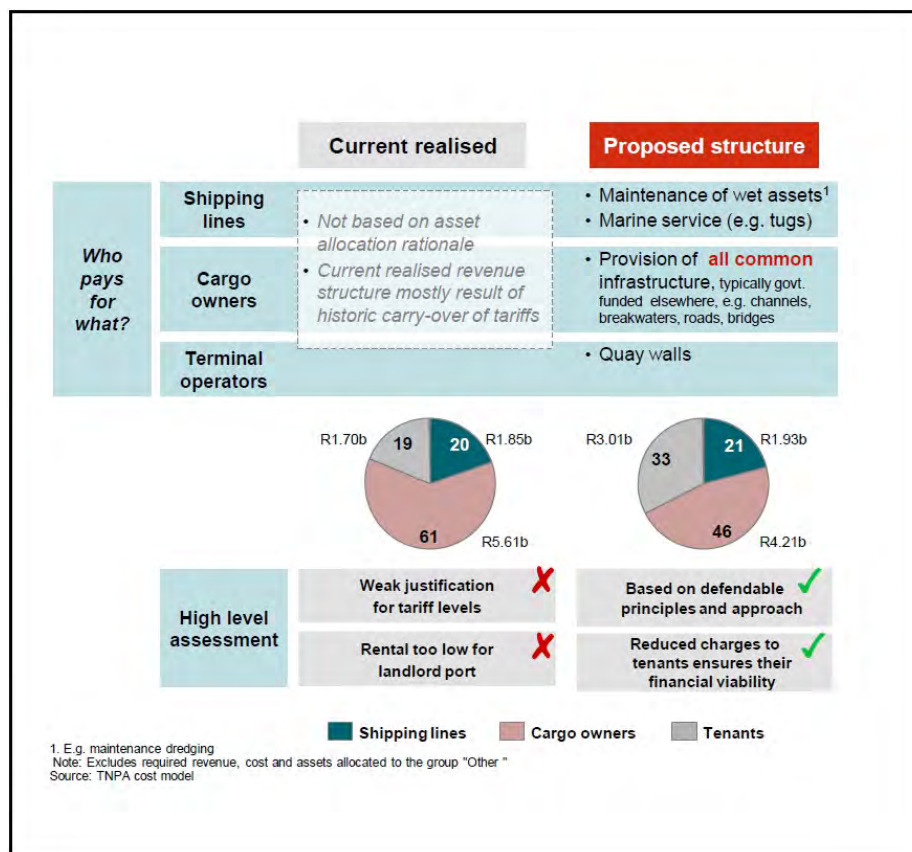


Figure 2.5: Proposed Structure of Required Revenue

Source: (TNPA, 2012)

TNPA holds that having compiled a provisional asset allocation exercise under the current tariff structure, and if user-pays principle were implemented, the shipping lines would have to pay well in excess of 50% of the required revenue (58% specifically) as they would pay for the bulk of the wet and some dry infrastructure, which would seriously jeopardise the

competitiveness of South African ports. As it stands, it is common conviction among shipping lines that the South African port charges are too high at just an allocation of 20% of the revenue required. This is because already the biggest source of infrastructure funding for TNPA is wet infrastructure. At more than R43 billion it contributes about 67% of TNPA's total revenue. Similarly the quay walls and jetties would be allocated to cargo owners when terminal operators derive the most value from them and they yet would have the lowest allocation of 12% as only some land and buildings would be allocated to them.

With the proposed tariff structure the shipping lines will experience a slight increase of only 4% of the revenue requirement, while for cargo owners it will be a decrease of 25% and an increase by 77% for the terminal operators. The latter will require a transition to a "true landlord model" (TNPA, 2012: 26)

2.4.4. TNPA's Vision

According to TNPA the new proposed tariff structure "represents a step forward towards the promotion of efficient and effective management and operation of ports, which will ultimately result in a reduction of the cost of doing business in South Africa thereby supporting the country's economic growth. In addition, the proposed beneficiation promotion programme for export of beneficiated goods strongly improves the alignment of the tariff structure with government priorities through direct support to the key objectives of industrialisation and job creation." (TNPA, 2012: 7)

For its ports, TNPA does envision a future where there are more port terminals concessions as it has moved from a place where it was a 100% state owned undertaking to more of a landlord system of ports (TNPA, 2012).

	Mode of ownership	Land area	Terminal Infrastructure (i.e. quay wall)	Terminal Superstructure (e.g., cranes, yard equipment, paving)	Quayside Operations	Landside Operations	Examples
TNPA 20 years ago	100% state owned & operated	State owned	Owned & constructed by port authority	State owned	Port authority	Port authority	Haifa (Israel)
	"Suitcase" stevedores	State owned	Owned & constructed by port authority	State owned	Private stevedores (common berths)	Port authority	Shuwaikh (Kuwait)
TNPA now	Leased terminal	State owned	Owned & constructed by port authority	Rented from port authority or owned by TO	Terminal operator	Terminal operator	Oakland Container Terminal (USA), ECT (Rotterdam)
Where TNPA should be	Concession agreement	State owned	Owned & constructed by port authority	Owned by Terminal operator	Terminal operator	Terminal operator	Port 2000, Le Havre (France), Santos (Brazil)
	BOT concession (Build Operate Transfer)	State owned	Construction privately funded	Owned by Terminal operator	Terminal operator	Terminal operator	Laem Chabang Int. Terminal (Thailand), JNPT (India)
	100% privately owned	Privately owned	Privately owned	Privately owned	Terminal operator	Terminal operator	Teesport (UK), Liverpool (UK)

Figure 2.6: Ownership and operating structures in the international port industry

Source: (TNPA, 2012)

The authority holds that terminal superstructure should be fully owned by the terminal operators as is the case in Le Havre Port in France and Santos in Brazil where the Terminal operators own the superstructure and they are also responsible for the quayside and landside operations; the quay wall is owned and constructed by the Authority and the land may remain state owned (TNPA, 2012). This is shown by the figure 2.6 above.

2.4.5. The Market Demand Strategy (MDS)

There is an anticipated R307.5 billion capital expenditure that will span over 7 years, whose aim is to enable growth in key commodities and to position South Africa globally as a key thermal coal exporter, leading manganese exporter globally and the leading logistics hub for Sub-Saharan Africa. Of this R307.5 billion, R87.5 billion will be raised through a loan without government assistance, the authority itself has planned an investment programme that will

contribute R57.6 billion to the MDS Capex programme. The programme is illustrated in figure 2.7 below.

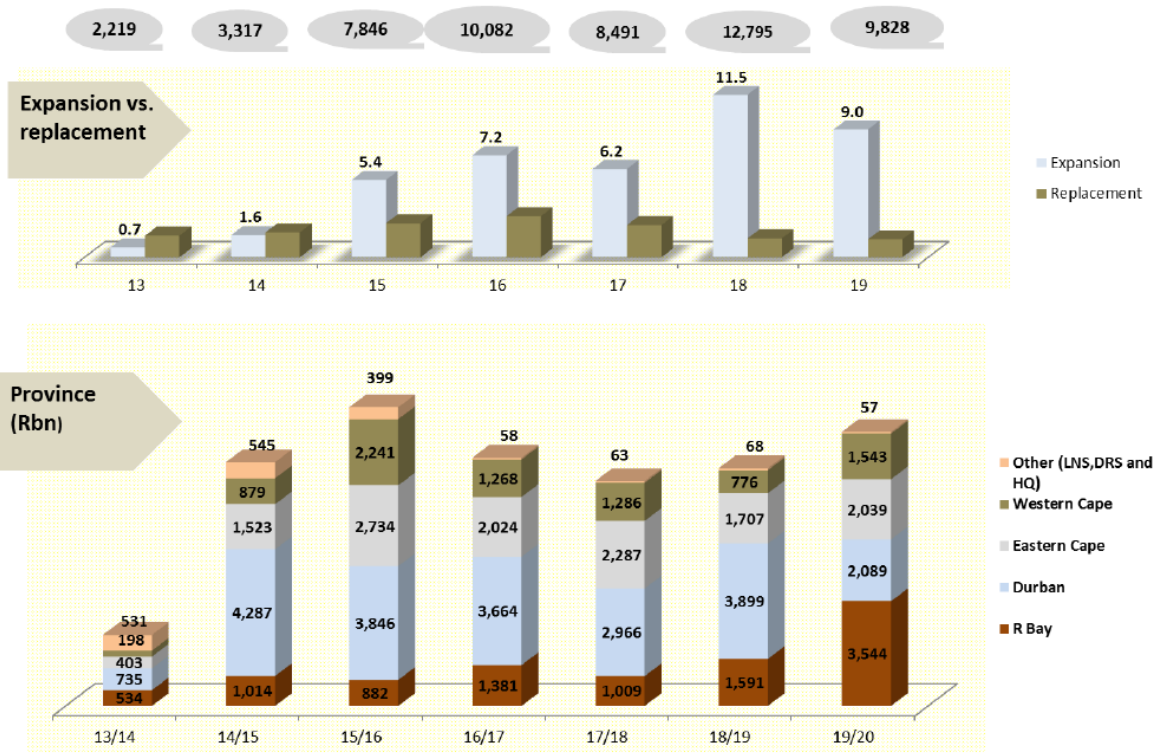


Figure 2.7 TNPA's Planned Expenditure over the next 7 Years

Source: (TNPA, 2012)

The current Regulatory Asset Base is about R65 billion. That is the current value of TNPA's assets, yet it plans to raise loan capital for its CAPEX programme that is significantly above its asset base without government expenditure and to contribute a further R57 billion in an economy where port prices are already too high and many stakeholders are calling for a decrease in tariffs. It is worth asking where these funds will come from and, post the planned investment, how all of this capital will be recovered without straining port users financially and risking a loss of faith in the country's trade system. This will be revisited in chapter 4 as various stakeholders express their take on the MDS and the tariffs allocated to them as a result.

2.4.6. TNPA's Beneficiation Promotion Programme

TNPA has decided to incorporate some national policy objectives in determining its tariff structure. As government aims to enhance the competitiveness of the country's goods and services, it has called for the reduction in the cost of doing business and some SOEs such as Transnet have a vital role to play. Thus TNPA has restructured its tariff determination, it maintains, to introduce an export Beneficiation Promotion Programme (BPP) to encourage job creation, poverty alleviation, and make South Africa an attractive foreign investment destination in Africa.

To make this a success and also to apply a cost recovery and user-pays principle, thereby enabling a basis for port charges that can be clearly explained, TNPA has structured its tariffs such that Required Revenue can be calculated for each service category. Revenues for cargo dues overall were planned to decrease by 25 % with the proposed asset allocation of common wet and dry infrastructure recovery of associated returns. RR for container dues will decrease from 64 % to 39 % of the total cargo dues, leading to an overall per unit decline of 55 %, as shown by the figure below

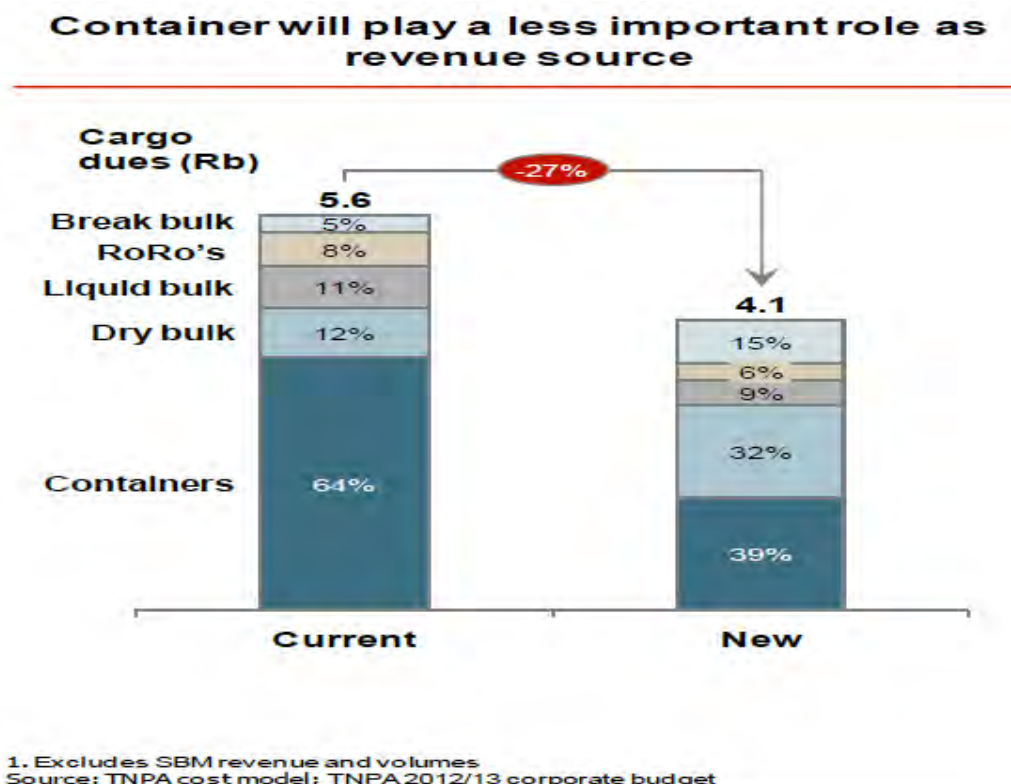


Figure 2.8: Impact of Proposed Cargo Dues on Tariff Structure

Source: (TNPA, 2012)

RR for containers, liquid bulk and RoRos is expected to decrease substantially. As a result, future base rates for cargo dues for containers and RoRos will, preliminarily, decrease by 62% and 49% respectively while for break-bulk and dry bulk they will considerably increase while liquid bulk base rates remain relatively unchanged.

Using an illustration from the DTI's Metal Sector Strategy, TNPA shows that local beneficiation of mineral resources and raw materials creates increasingly greater employment per 1000 tonnes of steel in each successive stage of beneficiation. It is also said that this process can be easily applied in other sectors as shown in the figure below.

Stage of beneficiation	Nature of Product	Selling price per ton of steel (US\$)	Employment per 1000 ton of steel	Investment per job (R m)
1	Iron ore	30	0.12	n/a
2	Iron	120	0.6	R2m
3	Hot rolled steel	300	1.1	R6m
3	Cot rolled steel	500	1.6	R8.5m
3	Pipe and tube	650	7	R1.5m
4	Structural steel	1,000	75	R0.1m
4	White goods	5,000	100	R0.4m
4	Mining equipment	13,000	150	R0.1m

- Higher potential for creation and retention of jobs at higher stages of beneficiation
- Improved potential for import replacement
- Greater economic growth from higher revenue generated from highly beneficiated products

Stage 4 manufacturing creates 10 to 20 x greater employment than stage 3; Stage 3 between 2 and 10 times greater employment than Stage 2

Figure 2.9 Benefits of beneficiation – value added and employment in carbon steel

Source: (TNPA, 2012)

The export beneficiation programme is structured such that beneficiated products have cargo dues reduced by up to 80%, depending on the level of value added, while most bulk and break-bulk charges are significantly increased except for wet bulk charges. It is also added that the general import rate across all types of goods handled will be double the general export rates. TNPA justifies this as a way to ensure a financially viable BPP in order to offset revenue losses from the rates reductions in beneficiated products. Concerning this there are some

disagreements found between TNPA and some stakeholders and they will be further explored in chapter 4.

2.5. Reviewing Dominant Port Doctrines

Although there is no known strict definition of the term, Port Doctrine, certain political objectives, modes of operation and economic practices throughout the history of sea trade by dominant maritime nations have given rise to two most dominant views of ports: The Anglo-Saxon Doctrine and the European (Continental) Doctrine. During the 1970s trade growth switched to Asian economies (Stopford, 2009) and they would develop container hub ports to support their rapid growth. This was under a unique paradigm previously not practiced by the Western maritime nations and it would be dubbed The Asian Port Doctrine by Lee & Flynn (2011).

South Africa has no clearly defined port doctrine and tends to borrow tentatively from each of the aforementioned doctrines but yet remains with conflicting objectives. It is for this reason that the following subsections will review the Anglo-Saxon and European port doctrines and unpack in detail the Asian Port doctrine. Below the doctrines are reviewed in turn.

2.5.1. Anglo-Saxon Doctrine

The main objective of ports under this view is that they make a profit. The tariffs charged are often reflective of the costs incurred and are set such that returns may be made on the private investments that went into their construction and development. Bennathan & Walters (1979) mention that the Anglo-Saxon view is that the ports should earn a reasonable profit or at least not make a loss, that they should be self-sustaining independent of government intervention as investment is made on and tariffs are charged on the premise that ports make a profit (Lee & Flynn, 2011). Zinan Liu (1995) said, regarding UK ports, that the liberal nature of the British Government towards ports does not give ports in the UK any obligation to consider ports as part of the social infrastructure. As such, the underlying Anglo-Saxon doctrine entirely rejects macroeconomic objectives such as pursued by the ports sector in many other continental

European countries like employment creation, improvement in the tax base and general economic development of the hinterland (Liu, 1995).

Under Anglo-Saxon doctrine ports are certainly expected to charge reasonably for their services to all users, however, public ports are not expected to be profit-seeking (De Langen & HEij, 2013). That is, they are non-profit organisations - yet they receive no subsidies from the government and are still required to generate revenues adequate to cover operating costs and to finance investment expenditure (Liu, 1995). Another tenet of public ports under the Anglo-Saxon doctrine is that they are free from government interference and they enjoy much the same managerial freedom as their private counterparts in all aspects except limited access to sources of capital (Liu, 1995).

Insofar as most ports in the UK are privately owned and tariffs are charged on commercial cost basis, they lean more towards the five pricing guidelines suggested by Meyric (1989) when he said the following:

- The full cost of providing port services should be recovered from users;
- Ports arising from services provided for an identifiable user or group of users should be recovered from that user or group of users;
- Costs which cannot be attributable to any specific users should be allocated according to the following principles: (a) all port users should make some contribution to common costs and (b) the contribution that any group of users makes should not exceed the cost that they would incur if they were the sole users of the port and (c) within these limits cost allocation should reflect the benefit that a user derives from the service provision;
- The structure of port charges should, as far as possible, reflect the structure of costs;
- The cost of capital should reflect the opportunity cost of the original investment in the case of assets for which there is no ready market. For other assets, it should reflect the opportunity costs of holding the asset in its current use. (Meyric, 1989)

These five points are more in line with what Meersman et al. (2003) said when he mentioned that the aim of port pricing is to confront the user with the additional cost that he causes. Interestingly, however, this argument was in favour of short-run marginal cost pricing while Meyric (1989) is advancing much the same reasoning for average cost pricing.

2.5.2. European (Continental) Doctrine

Slightly more lenient to government's national economic objectives and with a wider view of ports' roles in the economy is the Continental Doctrine. In charting the new paradigm for container hub port development policy, Lee & Flynn said, "The European doctrine views the port as part of the social infrastructure of a whole region. The value of a port should be assessed not in the accounts of the facilities but in terms of the progress of industry and trade in the hinterland. Thus, the European doctrine holds that it is certainly necessary that the port break even, or perhaps earn a profit, either on existing or proposed investment; justification is pursued and usually found well outside the perimeter of the port." (Lee & Flynn, 2011: 4-5).

Under the European doctrine, while not strictly adhering to the user-pays principle, ports are also encouraged to set themselves the pricing structure and level of port charges. At times, however, introducing the principle of cost-relatedness does not seem to be the right approach as port pricing is part of a commercial, environmental and political strategy according to the European Federation of Inland Ports, (EFIP) 2013.

2.5.3. Chinese Macroeconomic Practices: An Asian Doctrine

The Chinese government instituted economic reforms from 1949 under a socialist pattern and the planning system was very central with national prices being administratively determined rather than left to the market mechanism. All sectors were state-owned and the system generally worked well. During the years 1960-1978 the real GDP nearly doubled, per capita GDP grew seven-fold, according to the World Bank Database (WorldBank, 2007), and inflation rate averaged 3 percent annually. Notwithstanding the relatively impressive growth and good economic conditions, the Chinese government felt the need to reform as their general perception was that the economy is not doing well compared to the growth achieved by its neighbouring countries like Japan, South Korea and Singapore. Thus the general political inclination was that of favouring a less administered economic system. However, the Communist Party of China made it clear that reforms would be pursued but within the principal objectives of creating a socialist state (Basu, 2007).

The reform process since 1979 in China was that which followed the three-stage progression recognisable across the known history of the industrialization process. The reforms were first made in agriculture, then in manufacturing and eventually in the service and financial sector. Basu (2007) explains the three-stage process of reforms until 2004, mentioning that during the first 5 years emphasis was put on agrarian reform. During 1979-1984 highly successful attempts were made to restore material incentives and private initiatives which saw China achieving allocative efficiency. The second five years were that of urban and industrial reform. By attempting the introduction of the market mechanism the dual pricing system was also introduced. Naughton (1995) tells of how the government allowed more private participation in industrial production and thereby encouraged more profit-seeking firms to enter, including cooperatives, private firms and foreign firms and firms sponsored by local governments. Even state-owned enterprises (SOEs) were allowed to sell excess production in the free market at market prices (Naughton, 1995).

Of course, it was not long before the inefficiencies of the SOEs were exposed because of the presence of the free market and this resulted in lay-offs, social unrest and stagnation of the SOEs and the increase in unemployment of rural workers. Basu (2007) says that to remedy this situation the early 1990s saw efforts by the state to reform the banking and financial sector – including foreign trade and investment. During the period 1978-2004 China experienced periods of recognisable economic growth including an average annual growth rate of 9.4 percent, per capita GDP growth by up to 5.5 times foreign trade growth; averaging more than 16 percent annually and growth was also seen in foreign direct investment; making China the most attractive FDI destination after the USA. The Chinese net exports during the period 1978-2004 grew significantly; with imports averaging 15.7 percent and export 16.4 percent growth annually. With a relatively low trade volume with other countries, manufactured goods were only 46.5 percent of total exports in 1978 but by 2003 they had grown to be 92.1 percent of total exports (Basu, 2007)

From the foregoing it is fairly clear that the industrialization and financial reform of China and its achievement of export-led growth and eventually opening up to freer trade from its primarily socialist state was a result of central planning and systematic reform of agriculture, industry and the banking and financial sector. It was also the investment in human capital, importation of scarce skills and any lacking industry expertise through allowing up to reportedly 300 000 foreign financed enterprises which employed people in excess of 17 million by 1998 and these

companies accounted for 44.1 percent of China's exports and 54.7 percent of its imports (Basu, 2007).

2.5.3.1. The Doctrine

Lee & Flynn (2011), in their discussion of the Asian (Port) Doctrine, mention the direct involvement of central government in the Far Eastern ports as port designer, developer, operator, port pricing maker, mediator and investor; showing the intricate system of central coordination which is prevalent in some Far Eastern economic systems as evidenced by the Chinese style of Governance (Lee & Flynn, 2011). This highlights the importance of ports as part of the entire hinterland economic reform which would not flourish without being knitted into the overall government developmental strategies. Indeed this kind of developmental planning is no strange phenomenon to economies such as Korea, Singapore and Taiwan which are seen as adherents to the Asian (Port) Doctrine where central government plays a role of infrastructure construction, terminal pricing maker and facilitator.

Table 2.3. Institutional Responsibility for Port Investment Items and Government's Role

Investment C/Sub-items	Institutional Responsibility for Port Investment Items and Government's Role									
	South Korea		Singapore			China			Hong-Kong	Antwerp
	Busan	Singapore Port	Taipei	Waigaoqiao	Shanghai	Yangshan	Hong-Kong Port	Antwerp Port		
Marine Access Channel	CG	CG	PA	CG	CG	CG	LG	CG		
Breakwaters, etc.	CG	CG	PA	CG	CG	CG	LG	CG		
Navigation Aids	CG	CG	CG	CG	CG	CG	LG	CG		
Port Land	PA	PA	PA	TO	TO	LG	TO	PA		
Infrastructure Berths	PA	PA	PA	TO	TO	LG	TO	PA		
Dredging										
Berthside	TO	TO	TO	TO	TO	TO	LG	PA		
Turning Basin	CG	CG	PA	PA	PA	PA	LG	CG		
Channel	CG	CG	PA	PA	PA	PA	LG	CG		
Port Superstruck Paving	PA	TO	TO	TO	TO	TO	TO	TO		
Cranes	PA	TO	TO	TO	TO	TO	TO	TO		
Terminals	PA	TO	TO	TO	TO	TO	TO	TO		
Sheds (CFS)	TO	TO	TO	TO	TO	TO	LG	TO		
Land Access If Road links	CG	CG	CG	LG	LG	LG	LG	CG		
Railway links	CG	CG	CG	LG/CG	LG/CG	LG/CG	Others	CG		
Inland Waterways (if any)	CG	N/A	CG	LG/CG	LG/CG	LG/CG	N/A	CG		
Special economic zones or logistics region adjacent to container port	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes		
Cross-subsidization in port construction/development	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes		
Government intervention in terminal operation	M	Yes	M	Yes	Yes	Yes	No	M		

Notes: CG, central government; LG, local government (4municipal government); PA, port authority; TO, terminal operator; M, partly middle position

Source: Lee & Flynn, 2011: 9

With respect to investment in ports, maritime access infrastructure is handled by central government in ports such as Korea's Busan and Gwangyang; Singapore; Malaysia's Tanjung Pelepas; China's Shanghai, Waigaoqiao and Yangshan. However, in Hong Kong's Port which is now part of mainland China maritime access infrastructure is handled by local government (Lee & Flynn, 2011). The reason for this is that Hong Kong is seen as a special administrative region (SAR) which means that it is treated as a separate country from an immigration standpoint and continues to circulate its own currency, the Hong Kong dollar. Hong Kong also retains an independent legal and judicial system inherited from the previous British rulers. Therefore what would have been the central government is now seen as local government (Mayer, 2012). Hong Kong, therefore, remains a free market economy with container terminals owned and operated by private enterprises. Cargo handling and terminal charges are set by operators and shipping lines themselves and, according to the port benchmarking study conducted by the Marine Department's Planning, Development and Port Security Branch (Planning, 2006), empirical evidence shows that these charges have been declining over the years. Furthermore, Hong Kong remains among one of the lowest cost ports in the world, is also very efficient in its goods handling capacity – achieving 36 moves per hour (MPH) with a peak rate of 40 MPH while most globally competitive ports are only able to achieve 30 MPH at best (Planning, 2006). Noteworthy is also the knowledge that Hong Kong, while being part of mainland China and being in the Far East, part of its port infrastructure is invested in by terminal operators – as is all of its port superstructure – with land access infrastructure being provided by local governments and others (Lee & Flynn, 2011). Hong Kong port also has no central government intervention to cross-subsidize port development and construction, it has no special economic zones (SEZs) close by and government has no intervention in terminal operations (Lee & Flynn, 2011).

Terminal operators and port authorities share in the investment of the port infrastructure in the aforementioned ports although for Malaysian, Korean and Singaporean ports the central government is more involved with respect to turning basins and channel maintenance. In investment in port superstructure such as paving, cranes, terminal and sheds; the terminal operators are fully involved right across the board with the exception of Korean ports where the port authority makes this investment. With land access infrastructure the central government is again fully involved across all ports except Hong Kong. In Chinese ports this investment is shared between local government and central government (Lee & Flynn, 2011). There are special economic zones across all these ports and, for all ports, cross-subsidization

In the arrangement we see above, notwithstanding the multidimensional role of government in most ports, that the landlord model as highly proposed by the World Bank's toolkit (2001) is still primarily implemented with the government and the port authority investing mostly in port infrastructure and maritime access infrastructure, while terminal operators are private companies which mostly invest in port superstructure.

Lee & Flynn (2011) argue that they are not prescribing a government founded and government-owned approach to port policy making as a pillar, but that it should be used until the port is strong enough to stand on its own as a global competitor. The dilemma is encountered when a decision has to be made on the introduction of private capital into the ports in order to maximize its economic efficiency and productivity. This shows that heavy government involvement is mainly a strategic tool to create hub ports and give them a strong foundation upon which they can self-sustain in a global competitive environment. One of the ways to encourage an environment conducive to creation of hub ports is through strategic port pricing which includes administered pricing. Administered prices were not only a phenomenon unique to ports but they were also prevalent in the entire Chinese economy – as earlier mentioned. Let us look at the core elements of the Asian Port Pricing Framework compiled by Lee & Flynn (2011)

2.5.3.2. Administered Prices

As has been mentioned that administered prices were prevalent in China's economy. One of the ways to stabilise and control the national price levels was through China's central bank anchoring its currency and keeping it at a fixed 8.28 Yuan to the US Dollar from 1994 to 2005 and it was a remarkable success. Port planners at central government level control the national price index and determine the port sector's trade competitiveness through pricing used at the port authority level (McKinnon, 2006).

2.5.3.3. Cross-Subsidization

Pricing tools are also employed in the expansion and/or development of new ports which would otherwise have to charge high tariffs reflective of their high costs of construction. These ports are given an opportunity to price their services and products at competitive levels and avoid full transfer of standard construction costs to the users. The cross-subsidy mechanism in Asian

ports creates opportunities for the expansion of capacity that would otherwise not be possible, giving rise to construction of more container hub ports. This is even more so a possibility for Far Eastern ports than it is for ports outside the framework of the Asian Doctrine. It is important to note that cross-subsidization differs from subsidy in that a cross-subsidy can be regarded as financial resources generated within an industry or entity having monopoly power that is transferred with the aim to achieve a certain outcome, which is improving social welfare.

2.5.3.4. Enterprise Approach

The enterprise approach argues for the port to be recognised for its welfare contribution to the local and national economy when setting the pricing regime; and then the port authority sets prices in an administered fashion. Put another way, Asian port pricing does not solely depend on full cost recovery as is the case in the Anglo-Saxon Doctrine. In considering the socioeconomic impacts of the port, the total construction costs are partly discounted and allocated to social overhead capital.

In summing up the characteristics unique only to the Asian Port Doctrine, Lee & Flynn (2011) list the following:

- The central government at the initial stage acts as a multi-dimensional player, such as investor, port designer, port manager and policy maker.
- Central government finances port infrastructure, as per the typical landlord model.
- Port authority, under the control of the central government at the initial stage, governs and controls the port's pricing although as the system matures there is often a tendency to give such a responsibility to local government.
- Landside connectivity is part of the integrated planning under the central government, though in some cases there is an involvement of regional or local authorities.
- While customs administration is controlled by a different part of the government and can be fragmented geographically, as is the case in China with Hong Kong being a Special Administrative Region, an improved cargo clearance process is mostly facilitated by the central government.

- Special economic zones, as is the case in South Africa, are generally established near the ports to generate container cargoes, with several incentive policies based on regulation and/or special law. Central government provides for their development
- New private terminal operators are generally not provided with monopoly positions in the port.
- Infant industry arguments are commonly applied to ports, but port capacity is expanded to avoid monopolistic pricing of port services and is done well in advance to meet demand for port services.
- There is a process of allocating financing to national economic goals, and the port infrastructure is seen as social overhead capital by the central government. This offsets the insufficient capital accumulation by the private sector and local government.
- Overall port pricing is governed by the port authority under the control of the central government to keep control of national price levels for the population and stable economic growth.
- There is cross-subsidization for additional new port development and/or expansion.

Of all the tenets of the Asian Port Doctrine there are some similarities with South Africa's port policies in a sense that SEZs are increasing, tariff determination is heavily controlled albeit by TNPA and no private terminal operators have monopoly power in the markets they may serve in South Africa, although TPT has a significant market share and is the most dominant terminal operator, being under Transnet. Of course, the latter has reasons that are not similar to those found in the Far Eastern ports development. The main difference, and by far the biggest cited by TNPA is that in other ports central government is responsible for investing in marine infrastructure. Another difference is that ports in the Asian Port Doctrine are competitive, management thereof is also coordinated with hinterland economic policies, and the user-pays principle is relaxed on account of welfare benefits of the port.

2.6. Conclusion

Reviewing the lessons from port governance practices it becomes clear that TNPA has a long-standing heritage of price manipulation and is not known for efficiency. Having looked at the different types of port doctrines the democratic developmental state that South Africa aims to establish seems to be favoured more by the Asian (Port) Doctrine above all those analysed in this chapter. The Anglo-Saxon doctrine, with its uncompromising adherence to the user-pays principle, is least compatible with the country's policy objectives, despite TNPA's tariff structure design principles, for two principal reasons. Firstly, the user-pays principle is more compatible with competitive regimes where costs are not arbitrarily determined and in perfect landlord models where more clear lines of responsibilities exist. South Africa is not compatible in this regard and shall never be as long as the Required Revenue strategy remains as it thwarts competition.

Another reason is that the South African port system is complementary rather than competitive and therefore it is, by definition, characterised by central coordination which inadvertently may include price manipulation with the aim to achieve national policy objectives. This is more so because ports are seen as a growth engine in the country rather than independent profit-making enterprises that must "stand on their own bottom" (Bennathan & Walters, 1979). This same view is also held by the European (Continental) Doctrine which does not strictly set port tariffs on the cost basis but constructs ports using public funds with the objective of helping to improve job creation and national or regional economic growth. Ports governed under this doctrine are likely to be more competitively priced and conducive to the development of hub ports as they are midway between the Anglo-Saxon and Asian (Port) doctrines in a scale measuring the degree of government intervention from least to greatest. This implies the unlikelihood of establishing more container hub ports in South Africa especially in view of the user-pays principle that TNPA wants to enforce. The view of this study is that not even the European doctrine is adequate for a developmental state to achieve its objectives. This is seen by the ports under this type of governance not doing as well or better than the Far Eastern ports which are governed and operated differently.

The Asian (Port) Doctrine, as analysed above in Section 2.5, shows multidimensional roles of central governments' involvement in ports as designer, developer, operator, investor and port pricing maker. Moreover this extent of state intervention is not only unique to ports but it is

analysed in a national context in this study. Central planning and coordination is in line with the Chinese national developmental plans that have been executed in diverse sectors of the economy with consistency and remarkable success for decades. This is also true for other Asian economies known as the NICs.

With the country's national economic policy objectives considered which directly oppose the principles underpinning the Anglo-Saxon Doctrine, South Africa's inequitable tariffing strategy, and the success of the Far Eastern container hub ports, there is so far a strong case for the adoption of more Asian approaches to port governance and pricing if South Africa envisions sustainable long-term economic development.

Chapter 3

3. Research Methodology

3.1. Introduction

Research is a systematic enquiry into the available knowledge sources with the posture to verify or falsify a certain hypothesis. It is a systematic and organised form of continuous attention applied to a field of knowledge, undertaken to establish facts, relations, principles and theories. Clarke (2005) says research is going beyond one's thoughts and opinions and feelings about a phenomenon; looking to other sources of information with the aim to explore an idea, probe an issue and solve a problem. Research is both an art and a scientific investigation according to Kothari (2004) and a movement from the known to the unknown and, therefore, a voyage of discovery (Kothari, 2004). Slesinger and Stephenson (1930, 1) coin research as a "manipulation of things, concepts or symbols for the purposes of generalising to extend, correct or verify knowledge, thus giving another aspect to research as a tool that aids as a contributor to existing knowledge" while Collis and Hussey (2003) add a critical qualifier when they say that research is not only systematic and methodical but it is also ethical (Collis & Hussey, 2003). A comprehensive definition by Kothari (2004: 1-2) is that research is a "systematic method consisting of enunciating the problem, formulating a hypothesis, collecting the facts or data, analysing the facts and reaching certain conclusions either in the form of solution(s) towards the concerned problem or in certain generalisations for some theoretical formulation."

Discussed in this chapter are the research techniques and methods that were used to conduct this research. In Section 3.2 we will discuss the need for the study, aim and research objectives. Section 3.3 discusses two main approaches under which research may be typically undertaken. These are quantitative and qualitative research methods. Section 3.4 discusses the research method used in this dissertation and looks into the Revenue Required Methodology in some detail. Section 3.5 concludes the chapter.

3.2. Need for the Study, Research Aim and Research Objectives

3.2.1. Need for the Study

There are not many published theorists on port pricing within the South African maritime sector, and the country has no clearly defined port doctrine. As such, practices, policies and paradigms from other countries might have to be imitated and for South Africa to decide from the foregoing what best suits the local economy.

There seems to be a disconnection between the practices of TNPA with respect to port pricing and the national government's objectives concerning ports. According to Haralambides et al. (2001), Bennathan & Walters (1979), Meersman et al. (2004), Swahn (2002), and other numerous authors, when determining administered port prices the port authorities should not deviate from the fundamental marginal cost pricing approach. However, for the Asian ports and for South Africa this practice is not scarcely neared in the determination of port prices. Notwithstanding the unconventional approach to port management, structure and pricing, the Chinese and other Asian ports, through their treatment of a container port as fundamental development infrastructure, have successfully developed top ranking container ports in Asia during the past four decades (Lee & Flynn, 2011), while South Africa has had persisting challenges of a lack of cost-based pricing principles; not having a justifiable pricing methodology; congestion, low productivity and inefficiency; inconsistent and unreasonable pricing of products; poor service delivery and poor port security among others (Gumede and Chasomeris, 2013: 1-2).

3.2.2. Aim of the Study

The overall purpose of this study is to examine measures to improve port pricing and governance in South Africa. Therefore this study looks into the historical development of some of the Far Eastern Ports. The aim is to propose an improvement in the tariff methodology employed in South African ports as we know them. This is done on the premise that very little has changed materially and too little is changing in the practices of TNPA despite the submissions of the various stakeholders over the years. TNPA's Revenue Requirement

approach still favours them and the object of this study is to figure out an improvement to the system in South Africa.

3.2.3. Research Objectives

The following objectives are the guiding framework within which this research is conducted and while they may not all be answered within the scope of the author's research the following chapters of this dissertation will be largely guided by them up to the recommendations and conclusions of the study. Having determined that South Africa has some conflicting objectives within its own port policies because of a lack of a clearly defined port doctrine, a tariff methodology and tariff structure largely disapproved of by stakeholders and lack of coordination between national economic policy direction and TNPA's current practices, the following objectives are outlined:

- To review the lessons and literature from the Anglo-Saxon, European and Asian Port Doctrines.
- To examine South Africa's current port doctrine and recommend improvements
- To determine what governance reforms are necessary to improve South Africa's port pricing and port governance.
- To determine what pricing reforms are necessary to improve port tariff methodology and tariff structure.

3.3. Qualitative and Quantitative Research Methodologies

The choice of a research method depends on a number of factors such as worldviews or assumptions of each paradigm, the sample with which the researcher seeks an audience, the researcher's training and experience, the nature of the problem and the researcher's psychological attributes (Creswell, 2003). A study is best suited to quantitative research if it demands answers that may be measured and for which change may be quantified by numbers. That is, the comparison of change over time or different variables at any given time frame with the aim to make objective scientific observations and extrapolate conclusions absolutely. Another activity for which quantitative research is suited is the testing of hypotheses. Creswell

(2014) says that qualitative research is an approach for testing objective theories by examining the relationships among variables and “these variables can be measured... so that numbered data can be analysed using statistical procedures.” (Creswell, 2014: 4)

More appropriate for a qualitative approach is a study in which data may be collected from various sources and through a number of instruments like observations, interviews, audio-visual materials and documents (Cresswell, 2014). This is so because Kothari (2004) says qualitative research is concerned with a subjective assessment of attitudes, opinions and behaviour. These are referred to as subjective because they cannot be measured, quantified and subjected to rigorous analysis in a formal and rigid fashion as is the case with quantitative data.

In mentioning the significance of research, Kothari (2004) says that research is equally important for social scientists who make enquiry into social relationships and seek answers to various problems. Qualitative research is most often used in this context because while seeking to establish principles to make possible the understanding and prediction of the whole range of human interactions as a science, it is also looked upon for guidance in solving immediate problems in social interactions because of its social orientation (Jahoda, et al., 1959). With all that considered, qualitative research explores the meaning people ascribe to social problems where data is collected in the research sample’s setting. “Qualitative research uses a naturalistic approach that seeks to understand phenomena in context-specific settings” (Golafshani, 2003, p. 4). The nature of the questions is likely to be more open-ended because the qualitative approach is good for answering the question “Why?” It is also used where specific variables cannot be identified and it focuses on a single phenomenon.

Table 3.1 in the next page shows the key differences between quantitative and qualitative research approaches.

Table 3.1 Differences between Quantitative and Qualitative Research Methods

Quantitative Methods	Qualitative Methods
Based on the measurement of quantity or amount and applicable to phenomena that can be expressed in terms of quantity	Concerned with qualitative phenomenon, that is, phenomenon relating to quality or kind like an investigation of reasons for particular behaviour
Reality is objective and singular, apart from the researcher	Reality is subjective and multiple, as seen by participants in a study
The researcher is independent from that being researched	Researcher interacts with that being researched
What is being investigated is causality	What is being determined is meaning
The language of the research is formal and based on set definitions, impersonal voice and uses accepted quantitative words	Language here is informal, evolving decisions, using personal voice and accepted qualitative words
The process of research is a deductive one. Cause and effect relationships are analysed and the static research design is used, with categories being isolated before the study. It is context-free and generalizations lead to predictions, explanations and understanding. The process is accurate and reliable through its testability.	The research process is inductive. There is a mutual simultaneous shaping of factors and emerging design categories are identified during the research process. It is context-bound, patterns and theories are developed for understanding. The process is accurate and reliable through verifying.

Source: Author compiled using data from Creswell, 2014:205-211; Clarke, 2005: 1-65

The research methodologies tabulated above differ in all consideration of worldview, epistemology, rhetoric, methodology and axiology. The choice between them is determined by the nature of the study, the sample and the available sources of information. If the sources of information and the available sample are impersonal and objective then quantitative methods are more likely to be suited to the study, otherwise the qualitative approach is more appropriate. Many researchers opt for a mixture of the two approaches and there are many cases where these work together to optimise the research results and the knowledge generation. In a mixed method approach the two foregoing methods can be of equal status or one dominate over the

other, but they are generally used where the research design is determined by what we want to find out rather than a predetermined epistemological position, mixed methods are used when we want to look at both causality and meaning.

3.4. Research Method Employed in this Study

Due to the exploratory nature of this study, the author has leaned more towards the qualitative method of researching. The objectives of the study are to determine the reforms necessary to improve South Africa's port governance and port pricing. The variables involved in assessing current governance include the philosophy that underpins the prevailing port doctrine, government objectives and economic policies; none of which can be quantified with any objective measures. Pricing in ports around the world is not a pure science as it is also often unique and bending to the will of the port authorities and the arms of government involved in its determination. Therefore there seems to be a limited scope for quantitative enquiry.

In achieving the objectives of this study, a method selected will have to take into consideration the unique South African context within which the objectives are articulated and the expertise of the sample selected. Therefore a qualitative technique called Content Analysis has been used in order to get the results we are aiming to achieve.

Content Analysis is a qualitative data analysis tool that involves dissecting the content of an interview, magazine, book or a document with the aim of identifying themes that emerge from responses given by respondents. "Content analysis is qualitative analysis concerned mostly with the general import or message of the existing documentary materials which are either verbal or written" (Kothari, 2004: 110). Clarke (2005) refers to content analysis as a positivistic attempt to identify subjective meaning in the cultural domain. The steps involved in this process are identifying the main themes, assigning codes to the main themes, classifying those responses under the main themes and finally integrating those themes into the text of one's report or study. As a qualitative tool used to determine the general import or message of existing documents, the difference is somehow like that between a casual and an in-depth interview (Good & Douglas, 1954) as the most dominant themes are likely to come into sharper focus as this tool is being applied.

3.4.1. Data Selection and Reliability

For the updated stakeholders' perspectives the data was received from the public domain, mainly from the Ports Regulator of South Africa, Statistics South Africa and TNPA. Content analysis was used to assess 18 various stakeholders' submissions regarding the 2013-2014 TNPA tariff increase application, 15 stakeholders' submissions regarding the multi-year tariff application for the tariff years 2013/14-2014/15 and 16 further submissions regarding the 2014-2015 tariff increase application were analysed. In seeking to establish the reliability of the data collected from various stakeholders' submissions the researcher is aware that the findings should be independent of chance and circumstances of the research as per the definition of reliability given by (Kirk & Miller, 1986); and that instances assigned to the same categories by different observers or those assigned by the same observers across different time frames should be consistent (Hammersley, 1992)

Insofar as validity and reliability may reveal different strands which are accuracy and replicability respectively in quantitative inquiry, they are viewed differently by qualitative researchers who may find them inadequate for the purposes of a qualitative paradigm (Golafshani, 2003). Reliability in quantitative enquiry "refers to whether scores to items on an instrument are internally consistent, stable over time and whether there was consistency in test administration and scoring" (Creswell, 2014: 247) so it is a concept that evaluates a study's quality in explanation of reality; while in the quality concept in a qualitative study has the purpose to generate understanding of the reality. The differences in the purposes of evaluating the quality of studies in these two paradigms is the reason the concept of reliability is irrelevant in qualitative research according to Stenbacka (2001) who asserts that if the concept of reliability is discussed as a criterion in a qualitative study, in the same reference as in the a quantitative study, the consequence is that the qualitative study is no good (Stenbacka, 2001).

Rather the congruence between the two concepts of reliability and validity is agreed upon by Patton who says that reliability is a consequence of validity (Patton, 2002) and Lincoln and Guba (1985) when they state: "Since there can be no validity without reliability, a demonstration of the former is sufficient to establish the latter." (Lincoln & Guba, 1985, p. 316) With that being said, the author will not discourse further on the validity of the data collected in this study as the validity thereof is incumbent upon the perspectives of all the members involved in the stakeholders' submissions, which have been published at least since

2009 in a trusted public domain. It is therefore expected that, based on the consistency of their professional perspectives on the issues of pricing and governance in South African ports, the data collected through their submissions corroborates itself with what they have published in the Ports Regulator's website in the past years. The validity of the data will establish also its reliability.

Beyond the validity of the data collected and its reliability lies a question of how well the data collected in this study represents the population of all stakeholders within the South African Ports system. The submissions capture well the types of stakeholders represented in the ports as these fall into three major categories namely: the cargo owners, shipping agents and shipping lines; and tenants. Below the three groups of participants are explained in detail.

Cargo Owners

Cargo owners are typically represented by group submissions such as SASC, Fruit SA, Forestry SA, FPEF and NAAMSA. "The South African Shippers Council (SASC) serves as a representative body of cargo owners and service providers in Southern Africa. SASC's objective is to represent the interests of its members throughout the supply chain" (SASC, 2012: 1). SASC is in a transformation phase as it is changing its name to Southern Africa Shippers Transport and Logistics Council (SASTALC). The members in good standing as at 31 December 2014, numbers 14 cargo owners and 13 logistics service providers, 27 in total (SASTALC, 2015).

Fruit SA is "a non-profit organization formed by the Citrus Growers' Association of Southern Africa (CGA); HORTGRO (representing pome and stone fruit); South African Table Grape Industry (SATI); SUBTROP (representing the avocado, litchi, mango and macadamia industries) and the Fresh Produce Exporters' Forum (FPEF) to address common issues in relation to all aspects of the fruit industry of South Africa" (Fruit SA, 2015). Within Fruit SA is also the FPEF, which is also a non-profit organisation with more than 120 members, accounting for about 90% of fresh fruit exported from South Africa (FPEF, 2015).

Forestry South Africa (FSA) is South Africa's premier and largest forestry organisation representing growers of timber in South Africa. The Association's membership includes all 11 corporate forestry companies active in the Industry, approximately 1 300 commercial timber farmers and some 20 000 emergent small scale growers who between them own or control no less than 93% of the total plantation area in the country. Given these credentials FSA is

regarded by Government and the private sector alike as being the Industry's "representative body" (Forestry SA, 2015).

NAAMSA - The National Association of Automobile Manufacturers of South Africa - is an important source of information about the motor industry in sub-Saharan Africa. After 50 years of being the official body representing new vehicle manufacturers, it is now going through major changes in line with the transformation of the industry. The NAAMSA membership base now includes major importers and distributors of new vehicles as well as local manufacturers and assemblers, making it the pre-eminent organisation for all franchise holders marketing vehicles in South Africa (NAAMSA, 2015)

Anglo American is one of the world's largest mining companies, with operations in five continents mining iron ore and manganese; metallurgical coal and thermal coal; base metals and minerals – being copper, nickel, niobium and phosphates; and precious metals and minerals – in which Anglo American is a global leader in both platinum and diamonds. In South Africa Anglo American mine, process and market four of these commodities, namely platinum, thermal coal, diamonds, and iron ore. It does this through four businesses in South Africa, which are Platinum, Coal, De Beers, and Kumba Iron Ore (Anglo American, 2015).

Freight Forwarders, Ship Operators and Ship Agents

The South African Association of Freight Forwarders (SAAFF) was formed in 1921 and is a national association with members throughout the Republic of South Africa. SAAFF liaises closely with many government departments and parastatal institutions, dealing with matters such as customs, port health, trade permits, border controls, export control of perishable products, cargo handling and security at harbour terminals and airports, plant quality, railway services and road freight legislation. In view of the international character of the freight forwarder, a close relationship with other freight forwarding associations is considered of vital importance, especially in a Southern African context. The 443 members make a major contribution to facilitating trade within South Africa. Member companies manage over 80% of South Africa's international trade. The association is accepted by the authorities as the industry voice and is consulted by them on matters influencing freight management. (SAAFF, 2015)

The South African Association of Ship Operators and Agents ("SAASOA") is a section 21 company which represents Ship Operators and Vessel Agents. Its members are also members of various international shipping and ship's agency organizations. SAASOA was formed in

2007 as a merger between the Association of Ship Agents and brokers of Southern Africa (ASABOSA), the Association of Shipping Lines (ASL) and the Container Liner Operators Forum (CLOF). SAASOA has 106 members across all of South Africa's ports – virtually all of the shipping lines and shipping agents that patronise or have their operations on South African shores including Maersk Lines, K Line MSC, Hamburg Sud and Hapag-Lloyd Africa (SAASOA, 2015).

From the preceding description of group submissions comprising of cargo owners, freight forwarders, shipping lines and shipping agents it becomes apparent that the population of SA ports stakeholders is presented.

3.4.2. Data Analysis

One of the roles of the Ports Regulator of South Africa is to welcome comments from various shipowners, shippers and terminal operators who are also tenants of TNPA concerning the tariff increase requested by the port authority and it publishes these comments in its website. Because the study uses data from the stakeholders' perspectives found in the Ports Regulator's website, themes gathered will be viewed with the objective to find the recommendations made by the stakeholders from their complaints and concerns regarding tariff structure, methodology and port governance. The three broad themes within which the various port stakeholders have expressed their concerns in the past are those of port pricing, port governance and the national government's objectives with respect to the ports and TNPA's objectives. The TNPA's port governance model and its governance objectives will be referred to as the doctrine, specifically Port Doctrine. Under each of the foregoing themes there are sub-themes which are expected to arise because of the myriad of concerns and complaints by various port stakeholders submitted in the past. For example, for the year 2009 to 2012, 17 themes were extracted from 48 stakeholders' submissions by Gumede (2013) and there have been further themes that arise because of the newly proposed multi-year tariff structure. All themes will be articulated in chapter 4. The themes that arise because of the newly proposed multi-year tariff structure are also included as part of the data presentation and analysis which follow in the next chapters.

In conducting content analysis on the various submissions by stakeholders, themes were extracted and classified in a tabular format and the various stakeholders who raised such themes were tabulated according to the various tariff years in which they raised those themes. A salient

observation is that while from year to year there would be variations in submissions that were made by the same stakeholders, that theme which did not appear to be adequately addressed in the previous tariff year would be reiterated the following year with various magnitudes of vehemence. Appendix 1 on page 148 presents the table of themes under content analysis.

That being stated, the objective of the current study is not just to assess stakeholders' perspectives. Rather, it is to determine measures to improve South Africa's port doctrine, port pricing and port governance from these stakeholders' perspectives. To achieve this, the Required Revenue Approach employed by TNPA is reviewed and some quantitative, but limited, aspects of it are offered.

The Required Revenue Approach

As mentioned in section 2.3, the revenue requirement has the following mathematical notation:

$$\text{Allowed Revenues}_y = RAB_y * WACC_y + E_y + D_y + T_y - (+) C_y + (-) ETIMC - F_{y-1} * (WACC_{y-1}) + F_y$$

Where:

***RAB_y** (the Regulatory Asset Base) represents the value of assets that the Authority is allowed to earn a return on for the current period (period y).*

***WACC_y** and **WACC_{y-1}** are the vanilla weighted average cost of capital for the current and previous periods respectively, given that the RAB is indexed for inflation.*

***E_y** is the operating expenses over the review period y. TNPA is required to provide a detailed and complete motivation for each of the expenses applied for.*

***D_y** is the allowance for a depreciation expense in the review period y to cover the consumption of assets. The depreciation of assets in the RAB is calculated as a straight line 40 year on the opening balance of the RAB.*

***T_y** is the expected corporation tax expense related to the review period, y. The pass-through tax approach is used where the vanilla WACC is applied to the average RAB for the period under consideration, less the interest cost of debt and the corporate tax rate to determine the tax liability to be treated as an expense in the RR calculation.*

***C_y** is the claw-back in period y in respect of the deviation between revenues allowed by the Regulator in respect of y-2, and those revenues that ought to have been allowed in*

the same year given the benefit of hindsight. The Regulator will spread the impact of over/under-recovery of revenue over a period of two tariff determinations.

ETIMC (Excessive Tariff Increase Margin Credit) – provides the flexibility to smooth tariff increases over time, avoiding spikes in tariff adjustments. The Regulator considers it prudent to do this so it retains and increases TNPA's ETIMC.

F_{y-1} is any allowance for financing requirements given in review period $y-1$; and

F_y is an allowance in review period y that is sufficient for any ongoing constraints imposed by financing relating to the period y .

All the above are key principles included in the Regulatory Manual (TNPA, 2013, p. 7) and in TNPA's Proposed Tariff Methodology (TNPA, 2012:11).

There are no few challenges and concerns regarding each of the foregoing items of the revenue requirement approach; the greatest of these being the components of the WACC, the market risk premium, the depreciation method employed and the taxation. These will, in the next chapter, be analysed in order to address them.

3.4.3. Ethical Considerations

All ethical issues were considered in this study. The study proposal was submitted and presented to the Graduate School of Business and Leadership, University of KwaZulu-Natal and The University of KwaZulu-Natal approved the study and granted an ethical clearance certificate (see Appendix 2)

3.5. Conclusion

The aim of this chapter has been to explore the various qualitative tools available for the gathering and processing of data in this study. We have looked at the strengths and advantages of qualitative data analysis tools and provided justifications for electing Content Analysis in order to explore various authors' perspectives on the selected tools. The variables like pricing policies, style of governance and overall port doctrine are not suitable for subjection to a strictly

quantitative analysis. Mixed methods may work well in some areas but we determined that the thematic approach and content analysis of data from the public domain are best suited for this study. In the next chapter we will present the research findings and make a thematic presentation thereof.

Chapter 4

4. Assessment and Discussion of Measures to Improve South Africa's Port Doctrine

4.1. Introduction

The stakeholders' concerns, views and recommendations are presented within this chapter with respect to tariff methodology, tariff structure and port governance. Themes are extracted from annual submissions by various stakeholders to the Ports Regulator of South Africa in line with the South African port policies, legislation and regulatory requirements. It is TNPA's legal requirement to submit a proposal to the Ports Regulator before making any major adjustments to the port tariff structure and methodology and it is also an annual practice to apply to the same body when an increase in port tariffs is requested. The Ports Regulator then invites various stakeholders to comment on the tariff increase applied for or the tariff adjustment and a period of review is given so that an informed decision may be made in accordance to the National Commercial Ports Policy, the National Ports Act (Act 12 of 2005) and the regulatory directives. This chapter will compare and contrast various stakeholder's perspectives and recommendations they have made to improve South Africa's port doctrine.

Section 4.2 outlines the findings from the data gathered, summarising briefly the seventeen themes found during the review periods 2009-2011 from stakeholders' perspectives on South African port pricing as assessed by Gumede (2013). These themes are outlined in three broad categories namely: Tariff Methodology, Tariff Structure and matters of Port Governance. Section 4.3 continues by focusing on the new themes that have arisen from the review periods 2012/2013 until 2014/2015 in addition to the seventeen formerly discussed themes, which we will henceforth refer to as Recurring themes. Section 4.4 will compare TNPA's current practices with its long term vision, touching on its current policy trajectory with respect to governance, with the aim of determining the extent of coherence between TNPA's practices and the country's macroeconomic objectives. Section 4.5 will, in view of all the discussions from the previous sections, touch on key recommendations as it closes the chapter.

4.2. On Stakeholders' Perspectives on SA's Port Pricing in South Africa, 2009-2011

As mentioned earlier in this dissertation, South African commercial ports are run as a complementary system of ports under the same port authority rather than individual ports competing against one another. In view of the history of South African port governance touched on in chapter 2 this system has served some national objectives, done some disservice to others and this common practice of price-setting interventions by government in South African ports has broadly stifled intra and inter-port competition; and led to massive cross-subsidization – to mention but a few problems from which stems a myriad of others broadly categorized as challenges with the methodology employed, the tariff structure and port governance practices.

The frequencies with which the various concerns were raised are indicated in parentheses. Looking into Gumede's (2013) findings from the 48 stakeholders who submitted across those three years it was found that the most frequent cries with respect to TNPA's tariff methodology were that the methodology is not justifiable (18); it does not provide incentives for TNPA to be efficient or reduce its costs; it is not cost-based (18); and the tariff increase applied for is persistently higher than the inflation rate (15).

Concerning governance it is that there are unresolved matters that should be addressed with some stakeholders concerned before adjusting tariffs (5); TNPA is abusing its monopoly power (8), lacks transparency in their reporting and provide insufficient information for justification of their tariffs (10); does not account for the state of the economy (24), creates an environment that does not support job creation (8); is inconsistent and non-compliant with the national policies (13); ports remain inefficient with low productivity (13); service delivery is poor (4); and port security is weak (1).

Finally, the tariff structure hinders exporters and the economy from being globally competitive (30); the pricing of products is unreasonable and inconsistent (8); the profitability of stakeholders' businesses in ports is adversely affected (8); there are misalignments with international tariff standards (3).

From 2009-2011 TNPA had applied for annual port tariff increases of up to 18.06% but the Ports Regulator had repeatedly rejected these, granting increases of 4.49% or less. According to Trade and Industrial Policy Strategists (TIPS, 2014), "In 2010 the tariff applied for was 10.6% but the Ports Regulator approved tariff increase was 4.42 %, slightly above the country's

inflation rate of 4.30%. In 2011, TNPA applied for an 11.91% tariff increase, the Regulator approved 4.49%, also slightly below the country's inflation rate of 5.0%. In 2012, TNPA applied for an increase of 18.06%, which was above the country's inflation rate of 5.50% and the Regulator approved an increase of only 2.76%" (TIPS, 2014: 10). In all these very low increases approved by the Regulator the message that was being communicated was that TNPA's tariffs are already too high and need not increase by more than the upper inflation target limit, if it be permissible to increase them at all. What was seen, however, was that TNPA went on requesting above-inflation increases despite the numerous recurring complaints from various stakeholders and the inadequacy of justification for such increases on TNPA's part.

4.3. On Stakeholders' Perspectives on Port Pricing, Tariff Structure and Port Governance, 2012 to 2015

In view of the TNPA tariff application over the years, and analysing the port directives which were approved and gazetted in 2009 and amended in 2010 that when the Authority proposes tariffs the Regulator should ensure that such tariffs allow the Authority to:

- *Recover its investment in owning, managing, controlling and administering ports and its investment in ports services and port facilities;*
- *Recover its costs in maintaining, operating, managing, controlling and administering ports and its costs in providing port services and port facilities; and*
- *Make a profit commensurate with the risk of owning, managing, controlling and administering ports and of providing port services and port facilities* (TNPA, 2012: 8-9)

There has been some agreement with the first two points in providing rationale for their tariff increase applications annually, but not necessarily with the third one. The reasons cited are that the ports are a strategic national asset used to facilitate South African trade and improve its competitiveness, therefore the prices charged for providing the services by TNPA should enable the economy to achieve these; and the financial structure of ports as national strategic assets should be structured to enhance competitiveness; not against recovery of opportunity costs of capital employed. Therefore the third directive should be reviewed (Fruit_SA, 2013).

Table 4.1. Themes on Tariff methodology

	Themes on Tariff Methodology				
	Submissions on the following Review Periods				
Requested Tariff Increase		18.06%	13.2%	14.39%	Σ
Theme	09/10-11/12	2012/13	13/14	14/15	
Revenue Requirement Model is unjustifiable and arbitrary	36	4	5	8	53
Above-inflation increases requested annually	15	7	1	3	26
Regulatory Asset Base is not cleaned up and it is overvalued	-	-	3	6	9
Depreciation methods used remain questionable	-	-	1	1	2
Some products are still tried on a value basis	1	-	-	-	1
WACC, MRP and betas used to assess risk are all inaccurate	-	4	10	11	25
Cargo dues are a uniquely South African Practice	1	5	1	1	8
TNPA's Return on Capital is not justified	-	1	-	-	1
Estimated volume Projections too conservative	2	1	1	3	7
Multi-year tariff approach is above inflation and questionable	-	-	4	-	4
The inclusion of taxation in the RR method is not lawful	-	-	2	-	2
The inclusion of CAPEX into the RR method inflates port costs	-	-	1	3	4
TNPA has increased its OPEX costs to its customers unjustifiably	-	-	-	1	1

Source: Author compiled and analysed using data from Gumede (2013) and Stakeholders' Submissions from the Ports Regulator (2014)

As already mentioned that Transnet is a monopoly and therefore profits are not commensurate to the service deliverables, the Regulator should reconsider this principle in its record of decisions (Fruit SA, 2014). Even more new complaints emerge as some of the stakeholders' concerns are either seemingly ignored by TNPA or poorly addressed and these will be explored in this section. Tabulated below are the Recurring themes according to the following categories of tariff methodology, tariff structure and port governance. Then new themes from the tariff

review periods of 2012/13 to 2014/15 are added with the aim of assessing stakeholders' recommendations concerning them in the next section and in chapter 5.

Table 4.2 Themes on Tariff Structure

Requested Tariff Increase	Themes on Tariff Structure				
	Submissions on the following Review Periods				
Theme	09/10-11/12	18.06% 2012/13	13.2% 13/14	14.39% 14/15	Σ
Current structure inhibits global competitiveness of ports	30	7	3	7	47
High port tariffs hinder the profitability of stakeholders	8	-	-	3	11
There are misalignments with international tariff standards	3	7	2	3	15
Unreasonable and inconsistent pricing of some port commodities	8	1	3	3	15
Cross subsidization of some port costs across all ports	-	1	-	-	1
Cross subsidization of port profits to other Transnet divisions	-	1	-	-	1
Port dues as a tax system are inefficient and blunt instrument for profiteering	-	-	1	-	1
Inappropriate use of income from berth dues and cargo dues	-	-	-	1	1
Incongruity between CAPEX spend on some products and tariff increases	-	-	2	2	4
The Beneficiation Promotion Programme is difficult to understand or execute	-	-	2	2	4
Increases in tariffs resulting from Market Demand Strategy will be inevitable	-	-	1	2	3
New tariff allocation will almost wholly prejudice the cargo owners	-	-	4	1	5
Bunker Levy is prohibitively high	-	-	4		4
User-pays principle is preached but not practiced	-	-	1	2	3

Source: Author compiled and analysed using data from Gumede (2013) and Stakeholders' Submissions from the Ports Regulator (2014)

Table 4.3 Themes on Port Governance

	Themes on Port Governance				
	Submissions on the following Review Periods				
Requested Tariff Increase	Frequencies	18.06%	13.2%	14.39%	Σ
Theme	09/10-11/12	2012/13	13/14	14/15	
Unresolved matters	5	-	-	-	5
Abuse of monopoly power	8	-	-	1	9
Lack of transparency in reporting or justifying tariffs	10	1	2	5	18
No accounting for prevailing economic conditions	24	3	2	1	30
TNPA practices do not support job creation	9	5	1	2	17
Non-compliance with national policies and inconsistency	13	3	1	3	20
Inefficiency and low productivity of ports	13	13	4	1	31
Poor service delivery	4	-	-	1	5
Weak Security	1	-	-	-	1
Lack of consultation with industry prior to altering tariffs	-	2	1	-	3
Projects from previous financial year are seldom complete	-	3	1	-	4
Lack of locally owned vessels is costly to local cargo owners	-	2	1	-	3
Wasteful expenditure and corruption within Transnet	-	-	1	-	1
Transition from TNPA to NPA (Pty) Ltd is still pending	-	-	2	1	3
Ports as national asset are used for profiting, not national economic objectives	-	-	2	2	4
Poor port infrastructure still not addressed for some stakeholders	-	-	-	1	1

Source: Author compiled and analysed using data from Gumede (2013) and Stakeholders' Submissions from the Ports Regulator (2014)

Below is a discussion of various stakeholders' concerns raised within the three broad categories tabulated above.

4.3.1. Analysis of the Required Revenue Methodology and TNPA's Practices

The RR methodology is expressed by the following equation

$$\text{Required Revenue} = \text{RAB} * \text{WACC} + \text{D} + \text{E} + \text{T} +/- \text{C} +/- \text{ETIMC}$$

Where:

RAB	= Regulated Asset Base
WACC	= $k_d * g + k_e (1-g)$
D	= depreciation accounted for in the period of the tariff
E	= operating expenses
T	= taxation expense
C	= Claw-back
ETIMC	= Excessive Tariff Margin Credit

The components of the WACC equation are explained on page 85 in section 4.3.1.3 where the WACC and risk are interrogated in depth.

4.3.1.1. The RR Methodology

By far the greatest and most frequently repeated complaints from stakeholders are that the Required Revenue Methodology is unjustifiable and appears arbitrary. Since 2009, it has been complained fifty three times that the Required Revenue model appears not to incentivise the organisation to critically look at how it could improve its operational performance and thus reduce the need to apply for such large tariff adjustments annually.

In view of the TNPA tariff application for the year 2014/15, and analysing the 3 port directives which were approved and gazetted in 2009 and amended in 2010, concerning the third one which we have already mentioned that there is much disagreement; Fruit SA (2013) further argue that TNPA has failed on the foregoing directives in that Transnet is a monopoly and therefore profits are NOT commensurate to the service deliverables and the Regulator must reconsider this principle in the 2014/15 ROD.

Maersk Line (2013) propose a downward adjustment to the tariffs instead of an increase, necessarily a 1% decrease rather than an 8.15% increase as eventually recommended by the Ports Regulator for some commodities, citing the reasons that they believe the current tariff levels more than adequately cover the required revenue for the FY 2014/15 and using an estimated 3.5% volume increase the Authority should appreciate an over-recovery of R971 million. Taking an example of an 8.15% tariff increase they make a further over-recovery of

R1 797 million. The reasons for the proposed reduction of 1% in tariffs is because of the low-risk environment in which TNPA operates (with a beta of 0.5) and a decent return made on current tariff levels (Maersk, 2013).

Forestry South Africa (2013) says that the monopoly position of TNPA, like that of Eskom, implies operating in an environment that is not characterised by normal commercial business principles in a competitive environment. Particularly concerning is the required revenue approach with, among other things, its list of CAPEX projects, provision for tax, profits and predetermined return on investment (ROI). This, FSA (2013) holds, does not give incentive to TNPA to improve its operational performance. The RR approach only adds to the expensiveness of RSA ports and contributes to their continued lack of competitiveness and the payment by users for TNPA's capital expenditure is wholly inappropriate. Other ports around the world are actually cheaper because the port authorities do not include in their pricing model the costs of capital expenditure; rather their capital expenditure is provided for in the balance sheet and through small government loans, subsidies or a combination of the two. In the case of subsidies this happens when the government recognises ports as key national assets and, as such, part or full capital cost of funding them is part of the fiscus. Forestry SA, therefore, recommends a review and a revision of the RR method currently being employed by TNPA, the rejection of any tariff increase, and that any increases in the TNPA tariffs be in line with the CPI or PPI. (ForestrySA, 2013).

The National Ports Consultative Committee (2013) says that the methodology used is complicated and based on various assumptions and estimations which make it unpredictable and unfair. It provides no transparency and no real way of determining if the calculations are accurate (NPCC, 2013).

When addressing the RR approach, South African Shippers' Council (SASC, 2013) mentions that TNPA did not initially pay for the infrastructure and they were only given the mandate to own, manage and administer the assets so as to ensure their efficiency and effectiveness. Therefore the ports are regarded as national assets to serve the welfare of the economy that should not be used to generate huge profits out of port operations.

The next most frequently cited concern at 26 complaints since 2009 regarding the tariff methodology is the fact that the tariffs applied for are consistently above the inflation rate and BUSA have inveighed this as irresponsible of TNPA and unacceptable (BUSA, 2012). Anglo

American agreed with BUSA on this (Anglo_American, 2012) when it said Administered price inflation is consistently higher than the prevailing inflation rate. Fruit SA (2013) is also convinced that these above-inflation administered price increases have an adverse effect on the cost of doing business and consequently on competitiveness. It is preferable that any tariff increase be in line with inflation indicators like the CPI and PPI (SASOL, 2012).

4.3.1.2. On the Regulated Asset Base and Capex

The required revenue for the year 2014/15 is R10 947 million. This figure includes real estate business of R2 113 million, which previously was not included by TNPA, and the marine business required revenue of R8 843 million, the latter figure derived from the expected growth in volumes for FY 2014/15 of 3.5% when compared with the previous year's expected revenue of R7 462 million. All of this, according to TNPA, translates into an average tariff adjustment of 14.39%. However, being mindful of Transnet's commitment to reduce the cost of doing business in the country, TNPA proposed that the Regulator release R454 million of the ETIMC provision previously created, thus resulting in a decrease in the requested tariff increase to 8.5% from 14.39%. (TNPA, 2013).

Considering that one of the components of the revenue requirement formula is $WACC * RAB$, there are frequent complaints – 9 from the tariff review periods 2012/13-2014/15 – that the RAB was not cleaned up and is therefore overvalued. RAB was calculated at R12bn in 2011 but now it stands at R66bn which means that the RAB was never really cleaned and there are still CAPEX plans to replace sleepers and rails in Durban Bay Head shunting yard which is operated by Transnet's Freight Rail (TFR) (SASC, 2012). The fact that the asset base has not been cleaned up, with assets belonging to TFR and TPT still included despite some of TNPA's assets migrating to TPT in April 2012, leads to further increases in the already inflated RAB. That the assets have not been cleaned up is also believed by the National Port Consultative Committee. RAB, the NPCC holds, is artificially inflated to benefit Transnet and its shareholders to the detriment of the entire economy as the cost of doing business is increased. NPCC (2013) says it is extremely difficult to establish what the real RAB is since there is no reliable valuation of assets currently.

With respect to the manner in which the RAB is determined, the South African Shippers' Council (SASC, 2013) mentions that the DORC method is used and the asset base has not been

cleaned out since 2009 and this is seen in an over-inflated value of regulatory assets. This is also the reason the Regulator has expressed low levels of confidence in the valuation of these assets. The National Association of Automobiles Manufacturers of South Africa (NAAMSA, 2013) questions the valuation of the property deemed as investment property by Transnet, saying that there was no market valuation done by an external valuation company; rather by Transnet's internal department so that it would benefit from an undue high valuation, even the DORC method used to revalue assets in 2008 was used with the similar intent.

SAASOA (2013) says that the value of the RAB is inflated in order to finance TNPA's future expansions whose benefits only accrue to future users and less so to the ones currently being charged (SAASOA, 2013). In agreement with this, SASOL (2013) submits that there is a practice of continually appreciating the land/property value annually with the inflation of the Net Book Value which likely overstates the required revenue, and that it is common practice for TNPA to spend considerably less than it requests for capital expenditure in the upcoming year, yet the infrastructure investment and maintenance remains poor for the last 5 years. This costs SASOL well over R9 million annually in terms of lost business. The aggressive Capex, continues SASOL, should result in a growth in revenue through volumes, not through price increases and so the tariff increase in line with the country's CPI is in the best interest of the economy. SASOL states that capital expenditure is normally spent on port facilities which take more than a year to come into use, this implies that each year the Authority charges port users for facilities that are not yet accessible to them. The inclusion of Depreciation seems to over-inflate the required revenue of the Authority (SASOL, 2013).

It is SAASOA's suggestion (2013) that the RAB inclusion should not be based on the weighted average but rather be calculated based on the expected dates in which the assets would be commissioned as this would lower the RAB Requirement. Only capital Work In Progress that should be operational in the review period should be included in the RAB. Also a project finance funding model should be considered and looked into when expansion programmes are considered. This will encourage funding from external investors, leading to the minimization of wasteful expenditure.

NAAMSA's further complaints (2013) regarding the very nature of the tariff methodology are that some sectors are ignored or not sufficiently provided for when TNPA considers capital investments but they still face the same uniform tariffs. This is also the fault with the current tariff structure as will be discussed in the next subsection. NAAMSA (2013) cannot determine

the Regulatory Asset Base for the automotive sector and there is no capital investment earmarked for the automotive sector for the year 2012/13. Therefore any part of the 18.6% that is relative to the change in the RAB from 2010 cannot be applied to the automotive sector from a RORO perspective.

NAAMSA believes that the RR methodology does not promote competitiveness of the industry. “Once TNPA decides its revenue requirement, it merely recovers this from port users via volume throughput. In the event the volume projections don’t materialise, the NPA merely restates the recovery for the following year i.e. increased rates” (NAAMSA, 2013: 12).

The RR methodology does not start at what the customer is willing to pay when determining the prices, rather in what the authority wants to make as a profit – this is not the way to price in competitive markets where NAAMSA members are operating. This is also believed by the National Ports Consultative Committee when they say that the RR approach is used to guarantee profitability for TNPA and even for the entire conglomerate, Transnet. This they say is because of the lack of transparency that enables assessors to determine the facts with any degree of precision. They also say the RR presents a temptation for TNPA to continuously upwardly evaluate its RAB to increase its revenue requirement. They also mention that the current CAPM brings no incentives to improve ports efficiency, any increases in operation costs, required return on assets, actual asset valuation and depreciation is simply passed on to port users as the market forces do not really apply in a monopolised market (NAAMSA, 2013).

The Capex projections have not been accompanied by detailed information supporting the market demand case made on their behalf – whether such investments are really necessary or not. The infrastructure investment, SASC (2013) maintains, should not be undertaken in isolation, rather in line with the hinterland development also to ensure that there is proper integration of the flow of goods and services (SASC, 2013).

4.3.1.3. On the WACC and Risk

South Africa's Port system is not a free market situation. Risks associated with investment in national ports infrastructure are fundamentally different to those companies in other regulated or free market economies. The returns on the Required Revenue remain debatable as TNPA is not exposed to as high a risk as private companies in a competitive environment (Bidvest Freight, 2013). SASC (2012) states that TNPA uses the JSE top 40 companies as a "good proxy" for their beta determination while they are not even exposed to the same risk as those companies at all.

In their report on the TNPA requested tariff increase for FY2014/15, BUSA (2013) mentions that TNPA has requested a tariff increase of 14.39%, but of this figure 0.1% is due to rounding off errors (See Table 4.4). As a result of these rounding off errors, TNPA have also calculated a WACC of 5.83%, whereas it should be 5.82%. These errors have had a ripple effect of overestimating the revenue requirement and the calculated return on capital. Table 4.4 shows that the asset beta (β_a) is a very sensitive variable to the whole calculation of port tariffs when the sensitivity analysis is performed in a tabular representation stating various magnitudes of Asset Beta from 0.5 to 0. This is done against the background assumption of a 0 debt beta, that is, a risk-free debt. Also within that 0.5-0 asset beta range is the assumption of a 50:50 debt-equity ratio. The equity beta is also consistently declining from 0.86 all the way to 0 with each downward adjustment of the Asset Beta, the WACC also declines and therefore the RR despite the fact that the weighted average cost of debt (WACD) is constant at 9.34%. The results are that the tariff increase goes from 14.29% to -11.28% when debt beta is 0, gearing is 0.5 and MRP is steady at 7.1%. Subtracting the ETIMC means that the tariff declines by 17.16%. (BUSA, 2013).

Table 4.4: Recalculating the TNPA Tariff Application for 2014/15: Six Scenarios

	Scenario A	Scenario B	Scenario C	Scenario D	Scenario E	Scenario F
	Recalculation of Application	Only change: β_a to 0.4	Only change: β_a to 0.3	Only change: β_a to 0.2	Only change: β_a to 0.1	Only change: β_a to 0
	Rm	Rm	Rm	Rm	Rm	Rm
Asset Beta (β_a)	0.5	0.4	0.3	0.2	0.1	0
Debt Beta (β_d)	0	0	0	0	0	0
Equity Beta (β_e) (using Hamada)	0.86	0.69	0.52	0.34	0.17	0.00
Risk-free Rate (Nominal) (NRf)	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%
Real Risk free rate (RRf)	2.29%	2.29%	2.29%	2.29%	2.29%	2.29%
Gearing (g)	0.5	0.5	0.5	0.5	0.5	0.5
Debt/ Equity ratio (D/E)	1	1	1	1	1	1
Inflation	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%
Market Risk Premium (MRP)	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%
Corporate tax (t)	0.28	0.28	0.28	0.28	0.28	0.28
Cost of Equity (real)	8.39%	7.17%	5.95%	4.73%	3.51%	2.29%
Weighted Average Cost of Debt (nominal) NKd	9.34%	9.34%	9.34%	9.34%	9.34%	9.34%
Weighted Average Cost of Debt (real, pre-tax) RKd	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%
WACC	5.82%	5.21%	4.60%	3.99%	3.38%	2.77%
RAB	64694	64694	64694	64694	64694	64694
Real Post WACC	5.82%	5.48%	5.45%	5.11%	4.57%	4.30%
Return on Capital (ROC)	3765.04	3542.49	3527.48	3304.93	2954.42	2779.16
Plus: Depreciation	1671	1671	1671	1671	1671	1671
Plus: Operating Expense	4329	4329	4329	4329	4329	4329
Plus: Taxation Expense	1057	1057	1057	1057	1057	1057
Plus: Claw Back	118	118	118	118	118	118
Revenue Requirement (RR)	10940.04	10717.49	10702.48	10479.93	10129.42	9954.16
Less: Real Estate	2113	2113	2113	2113	2113	2113
Marine Revenue	8827.04	8604.49	8589.48	8366.93	8016.42	7841.16
LER for FY 2013/14	7462	7462	7462	7462	7462	7462
EVG for FY 2014/15	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
(LER) for FY 2013/14 x (EVG) for FY 2014/15	7723.17	7723.17	7723.17	7723.17	7723.17	7723.17
FY 2014/15 Revenue Requirement (RR)	8827.04	8432.01	8036.99	7641.97	7246.95	6851.93
Tariff Increase	14.29%	9.18%	4.06%	-1.05%	-6.17%	-11.28%
Less ETIMC	454	454	454	454	454	454
Marine Revenue: Less ETIMC	8373.04	7978.01	7582.99	7187.97	6792.95	6397.93
Tariff Increase: Less ETIMC	8.41%	3.30%	-1.82%	-6.93%	-12.04%	-17.16%

Source: BUSA, 2013: 15.

The assumption of a declining, and perhaps zero, asset beta is crucial because of the nature of the environment within which TNPA operates. As a SOC and monopoly it faces very low risk as other stakeholders will concur (Maersk Line, 2013 and SAASOA, 2013). This will be unpacked in some depth by way of exposing what other stakeholders have said regarding gearing, equity beta, debt beta, and the MRP.

With respect to the return on assets (ROA) the NPCC (2013) holds that the TNPA should lower its gearing because of a strong cash flow and the fact that it is established. The gearing preference is 50% and NPCC holds that it should be lowered because TNPA has an earnings before interest and tax (EBIT) of 60% - even a gearing of 36% is considered excessive. This implies that if its debt finance is reduced then the debt beta will be relatively insignificant, increasing the cost of equity but having a positive impact on the WACC and ROC in that these will be reduced thereby reducing the overall revenue requirement. The NPCC further noted that the gearing ratio should be a constant and not be manipulated every year. Also, TNPA cannot assess and compare itself to competitive businesses as it remains a monopoly. It was found that the asset beta was in excess of 0.8 while the one determined in the ROD 2013/14 is 0.5. SAASOA (2013) says that the asset beta for TNPA may even have to be a zero beta because they are in an effectively risk-free environment.

The recommendation that is echoed by many stakeholders who have anything to say on the riskiness of TNPA's environment, even by BUSA (2013), is that the debt beta should be included in the determination of the revenue requirement methodology and the MRP should actually be 6.3% or less instead of the 7.1% that is used by TNPA in the 2013/2014 tariff increase application. This is a measure additional to correcting for the rounding-off errors, correction of which alone can be responsible for the decrease in the RR from 14.39% to 14.29%. The inclusion of a debt beta alone ($\beta_d = 0.14$) would lead to a WACC of only 5.45% instead of 5.83 and an increase in tariffs by only 11.22%. Table 4.5 shows the various possibilities with the implementation of some changes in the components of the WACC, the MRP and the inclusion of the debt beta.

Table 4.5: Sensitivity Analysis on the Asset Beta: Scenario A to Scenario F

	Scenario A	Scenario B	Scenario C	Scenario D	Scenario E	Scenario F
	Recalculation of Application	Change: MRP to 6.3	If β_d is considered	If MRP = 6.3 and β_d is considered	If $\beta_a = 0.4$, MRP = 6.3 and β_d is considered	If $\beta_a = 0.35$, MRP = 6.3 and β_d is considered
	Rm	Rm	Rm	Rm	Rm	Rm
Asset Beta (β_a)	0.5	0.5	0.5	0.5	0.4	0.35
Debt Beta (β_d)	0	0	0.14	0.16	0.16	0.16
Equity Beta (β_e) (using Hamada)	0.86	0.86	0.76	0.74	0.57	0.49
Risk-free Rate (Nominal) (NRf)	8.32%	8.32%	8.32%	8.32%	8.32%	8.32%
Real Risk free rate (RRf)	2.29%	2.29%	2.29%	2.29%	2.29%	2.29%
Gearing (g)	0.5	0.5	0.5	0.5	0.5	0.5
Debt/ Equity ratio (D/E)	1	1	1	1	1	1
Inflation	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%
Market Risk Premium (MRP)	7.1%	6.3%	7.1%	6.3%	6.3%	6.3%
Corporate tax (t)	0.28	0.28	0.28	0.28	0.28	0.28
Cost of Equity (real)	8.39%	7.70%	7.66%	6.97%	5.89%	5.34%
Weighted Average Cost of Debt (nominal) NKd	9.34%	9.34%	9.34%	9.34%	9.34%	9.34%
Weighted Average Cost of Debt (real, pre-tax) RKd	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%
WACC	5.82%	5.48%	5.45%	5.11%	4.57%	4.30%
RAB	64 694	64 694	64 694	64 694	64 694	64 694
Real Post WACC	5.82%	5.48%	5.45%	5.11%	4.57%	4.30%
Return on Capital (ROC)	3 765.04	3 542.49	3 527.48	3 304.93	2 954.42	2 779.16
Plus: Depreciation	1671	1671	1671	1671	1671	1671
Plus: Operating Expense	4329	4329	4329	4329	4329	4329
Plus: Taxation Expense	1057	1057	1057	1057	1057	1057
Plus: Claw Back	118	118	118	118	118	118
Revenue Requirement (RR)	10 940.04	10 717.49	10 702.48	10 479.93	10 129.42	9 954.16
Less: Real Estate	2113	2113	2113	2113	2113	2113
Marine Revenue	8 827.04	8 604.49	8 589.48	8 366.93	8 016.42	7 841.16
LER for FY 2013/14	7462	7462	7462	7462	7462	7462

EVG for FY 2014/15	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
(LER) for FY 2013/14 x (EVG) for FY 2014/15	7 723.17	7 723.17	7 723.17	7 723.17	7 723.17	7 723.17
FY 2014/15 Revenue Requirement (RR)	8 827.04	8 604.49	8 589.48	8 366.93	8 016.42	7 841.16
Tariff Increase	14.29%	11.41%	11.22%	8.34%	3.80%	1.53%
Less ETIMC	454	454	454	454	454	454
Marine Revenue: Less ETIMC	8373.04	8150.49	8135.48	7912.93	7562.42	7387.16
Tariff Increase: Less ETIMC	8.41%	5.53%	5.34%	2.46%	-2.08%	-4.35%

Source: BUSA, 2013:18

The inclusion of the debt beta and the reduced MRP and the further justification of the debt beta may see the equity beta being reduced even to 0.49 instead of the currently proposed 0.86. All of this might end up making the tariff increase only 1.53% instead of the currently proposed 14.39%. In addition, although not advised, should the ETIMC be subtracted; this would necessarily mean that the port tariffs actually decrease by 4.35% on merely these adjustments alone (BUSA, 2013).

It is noteworthy that the choice of an MRP based on the geometric mean, instead of an arithmetic mean, significantly reduces the cost of equity and the WACC. The reason for this is that when calculating the returns to an asset invested over a number of periods, the arithmetic mean tends to overstate the asset's multi-period change in wealth. SAASOA (2013:6) states: "The geometric mean return identifies the rate of return that has to be earned in each period during a particular time interval, given a starting value of an asset, to achieve the asset's future value. In a sense the geometric mean captures the long-run average rate of return." It is a market risk premium (MRP) of 5.3% that is more appropriate instead of 7.1% as the former is used in the NERSA's record of decision for the MYPD3 tariff determination. The MRP of 5.3% is the geometric mean market risk premium for South Africa for the period 1900-2011. According to Credit Suisse Global Investment Returns Yearbook 2013 (CS International 2013) the geometric mean MRP for period 1900-2012 is 5.4% and SAASOA (2013) says there is no valid reason for the Regulator to follow a different approach with respect to TNPA. The submission, therefore, according to SAASOA (2013: 7) is that "the real question faced by the Regulator is what tariff is consistent with TNPA earning an acceptable long-run tariff return

on capital invested, geometric means are a more appropriate method for determining mean returns.”

TNPA (2013) is of the position that their debt is risky. This means the debt beta is greater than zero. SAASOA (2013) even goes on discoursing on the more recent research on the MRP, spearheaded by Dimson, Marsh and Staunton – DMS (2008; 2011) – and they use this research to derive the adjusted estimate of the MRP of 4.9%. If the latter MRP is used then the WACC decreases to 4.87%. Introducing the debt beta of 0.196 decreases the equity beta from 0.86 to 0.72 which serves to decrease the WACC to only 5.32% (SAASOA, 2013:7-10). Coupling this with the consideration that for a company the size of TNPA a 50-50 gearing ratio is excessive and that 36% or below is its gearing, the increase in the debt beta is outweighed by a decrease in both the gearing and the equity beta. Table 4.6 below, compiled by the author based on the foregoing stakeholders’ recommendations shows the possible outcomes if the Regulator were to consider them.

Table 4.6 Recalculating the TNPA Tariff Application: SAASOA’s Recommendations

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
	Recalcul ation of Applicati on	Only change: Gearing to 0.36	Only change: MRP to 5.3	Only change: MRP to 5.4	Only change: MRP to 4.9	Change: βd to 0,196; gearing to 0,36%; and MRP to 4,9%
	Rm	Rm	Rm	Rm	Rm	Rm
Asset Beta (βa)	0,5	0,5	0,5	0,5	0,5	0,50
Debt Beta (βd)	0	0	0	0	0	0,196
Equity Beta (βe) (using Hamada)	0.86	0,70	0,86	0,86	0,86	0,623
Risk-free Rate (Nominal) (NRf)	8,32%	8,32	8,32	8,32	8,32	8,320
Real Risk free rate (RRf) (%)	2,29%	2,29	2,29	2,29	2,29	2,285
Gearing (g)	0,5	0,36	0,5	0,5	0,5	0,360
Debt/ Equity ratio (D/E)	1	0,5625	1	1	1	0,563
Inflation	5,9%	5,9	5,9	5,9	5,9	5,900
Market Risk Premium (MRP)	7,1%	7,1	5,3	5,4	4,9	4,900
Corporate tax rate (t)	0.28	0,28	0,28	0,28	0,28	0,280
Cost of Equity (real)	8,39%	6,76	6,84	6,93	6,50	5,338
WACD (nominal) NKd	9,34%	9,34	9,34	9,34	9,34	9,340
WACD (real, pre-tax) RKd	3,25%	3,25	3,25	3,25	3,25	3,248

WACC	5,82%	5,82	5,05	5,09	4,87	4,586
RAB	64694	64694	64694	64694	64694	64694,000
Real Post WACC (%)	5,82%	5,82	5,05	5,09	4,87	4,586
Return on Capital (ROC)	3764,66	3767,83	3264,30	3292,12	3153,03	2966,881
Plus: Depreciation	1671	1671	1671	1671	1671	1671,000
Plus: Operating Expense	4329	4329	4329	4329	4329	4329,000
Plus: Taxation Expense	1057	1057	1057	1057	1057	1057,000
Plus: Claw Back	118	118	118	118	118	118,000
Revenue Requirement (RR)	10939,66	10942,83	10439,30	10467,12	10328,03	10141,881
Less: Real Estate	-2113	-2113	2113	2113	2113	2113,000
Marine Revenue	8826,66	8829,83	8326,30	8354,12	8215,03	8028,881
LER for FY 2013/14	7462	7462	7462	7462	7462	7462
EVG for FY 2014/15	3.50%	3,50%	3.50%	3,5	3,5	3.50%
(LER) for FY 2013/14 x (EVG) for FY 2014/15	7723,17	7723,17	7723,17	7723,17	7723,17	7723.17
FY 2014/15 RR	8826,66	8829,83	8326,30	8354,12	8215,03	8028,881
Tariff Increase (%)	14,29	14,33	7,81	8,17	6,37	3,958
Less ETIMC	-454	-454	-454	-454	-454	-454
Marine Revenue: Less ETIMC	8372,66	8375,83	7872,30	7900,12	7761,03	7574,881
Tariff Increase: Less ETIMC (%)	8,41	8,45	1,93	2,29	0,49	-1,920

Source: Author compiled and calculated using data from TNPA Application Financial Year 2014/15 (2013) and Ports Regulator of South Africa (2014)

The overall recommendation regarding the WACC stemming from this analysis, therefore, is that the gearing ratio should be less than 50-50, MRP be 5.3% and the debt beta be included since it plays a vital role in the assessment of TNPA's risks. The adjustments in MRP made above also point to the importance of correctly estimating it. From scenario 2 we see that changing the gearing alone to 36% would not change the WACC but would lead to an increase in the tariffs required for 2014/2015 to 14.33%. Decreasing only the MRP to 5.3% results in a WACC of 5.05% and a requested increase of 7.81% and decreasing MRP to 5.4% results in an 8.17% required increase – that is Scenario 3 and Scenario 4 respectively. Adjusting the MRP to 4.9% in accordance with the Credit Suisse research findings the tariff increase comes to 6.37%. In Scenario 6, which is a combination of all SAASOA's recommendations of a gearing of 36%, MRP of 4.9% and an addition of a debt beta of 0.196 thereby making the equity beta substantially lower; change tariff increase to 3.96% increase. Indeed, Scenario 6 is closest to reality without subtracting the ETIMC because in the past the Regulator has approved of increases in ports tariffs of less than 4% for the past tariff increase applications by TNPA.

The Ports Regulator, in its 2014/2015 Record of Decision, having accounted for all the stakeholders' submissions regarding the requested tariff increase of 14.39% and also based on its own research; made some adjustments to the TNPA's application which resulted in Table 4.7.

Table 4.7. Ports Regulator's Adjustment of the RR Methodology

Transaction Type	R million
Return on Capital	3528
Depreciation	1709
Operating Expenses	4329
Tax Expense	1005
Claw-back	-103
NPA Required Revenue 2014/15	10674
Real Estate Business Income	2113
Marine Business Income	8032
Total Forecast Revenue	10144
Revenue Shortfall/Surplus	530
On the Value of the RAB	
Opening Net Book Value	62888
Indexing	3808
Inflated Asset Base	66696
Less: Depreciation	-1706
Add: CAPEX	3317
Closing Net Book Value	68304
Average opening and closing	65596
Less: Working Capital	-1111
Final RAB Value	64485
Market Risk Premium	6.3%
Post-tax Cost of Equity	7.7%
Nominal Risk-free Rate	8.31
Estimated Volume Growth	5.5%

Source: Author calculated and compiled from Record of Decision 2014/2015: 8 and 13

The assumptions underlying the above adjustments are that the nominal risk-free rate is 8.31% instead of the 8.32% shown in TNPA's tariff increase application, the market risk premium (MRP) is 6.3% instead of 7.1%, the gearing ratio and the Beta Coefficient remain at 0.5 each and the inflation rate is 5.9%. The estimated volume increase, which stakeholders were convinced is too conservative at 3.5% and results in the overestimation of the required revenue, the Ports Regulator increased to 5.5%; resulting in the required revenue for the year 2014/2015 of only R8 032 million. The WACC is determined by the equation:

WACC = $k_d * g + k_e (1-g)$, where:

K_d = pre-tax cost of debt,

K_e = post tax cost of equity, and

g = gearing, which is the debt to equity ratio.

The Regulator determined that the real post tax cost of equity was 7.7% instead of TNPA's 8.4% as requested in its application. This is because the cost of equity is determined using the following equation:

$K_e = R_f + \beta(MR - R_f)$ where:

K_e = cost of equity

R_f = risk-free rate

MR = Market Return

$(MR - R_f)$ = Market Return Premium calculated over a long term, and

β = Beta coefficient

The Regulator holds that the risk free rate is measured by a 20 year government bond that adequately reflects the market's sovereign risk and inflation. With the average risk-free rate calculated over 5 years the risk-free rate used in the application is thus 8.31%. The real cost of debt was considered to be 3.24%. With all these adjustments in the cost of debt, the cost of

equity and a gearing of 0.5 the resulting WACC was 5.47% instead of the 5.83% requested by TNPA, resulting in the Return on Capital of R3 528 million (PRSA, 2014).

The asset beta set out in the Regulatory Manual, the Regulator says, equates to an equity beta of 0.86. Lastly, the Regulator being mindful of the ongoing concerns regarding the appropriateness of the market risk premium definition, approves of the 6.3% MRP as approved in the 2013/2014 ROD. Other factors remaining unchanged, all of the above adjustments could have amounted to an increase in tariff of only 9.29%.

Having revised the RAB and corrected the methodology, the Regulator adjusted the depreciation from R1 671 million to R1 709 million. The depreciation in the RAB, according to the Regulatory Manual, is calculated on a 40 year straight line method. This the Regulator determined was not an appropriate way as it does not satisfy the principle of financial capital maintenance or take into account inflation (Record of Decision, 2014). The tax allowance, the inclusion of which is still being frowned upon, was also adjusted accordingly and resulted in a total taxation expense of R1 005 million.

Moreover, the Claw-back, which is used to spread the impact of over/under-recovery of revenue over a period of two tariff determinations given the benefit of hindsight, has been calculated to be -R103 million in the 2014/15 tariff year. At the end of all these adjustments by the Ports Regulator, according to the author's recalculations of the model, the tariff increase would have been 6.16% or 0.39% post the ETIMC.

After considering all the relevant information at its disposal, however, the Regulator deemed a 5.9% increase in all cargo dues appropriate; except an 8.15% tariff increase in all cargo dues increases for dry bulk handled at local ports and an 8.15% increase in all Marine services and related tariffs for the year 2014/2015.

4.3.2. Analysis of the Tariff Structure

4.3.2.1. On the Tariff Structure and Required Revenue Allocation

Other contributing factors to the above-inflation tariff requests are the distorted cost allocations because of the overinflated regulatory asset base. The fact that there are still CAPEX plans to replace sleepers and rails in Durban Bay Head shunting yard (SASC, 2012) reveals the persistent phenomenon of overpricing port services in order to subsidize other divisions of Transnet or spend on non-port related activities. Figure 4.1 below illustrates this.

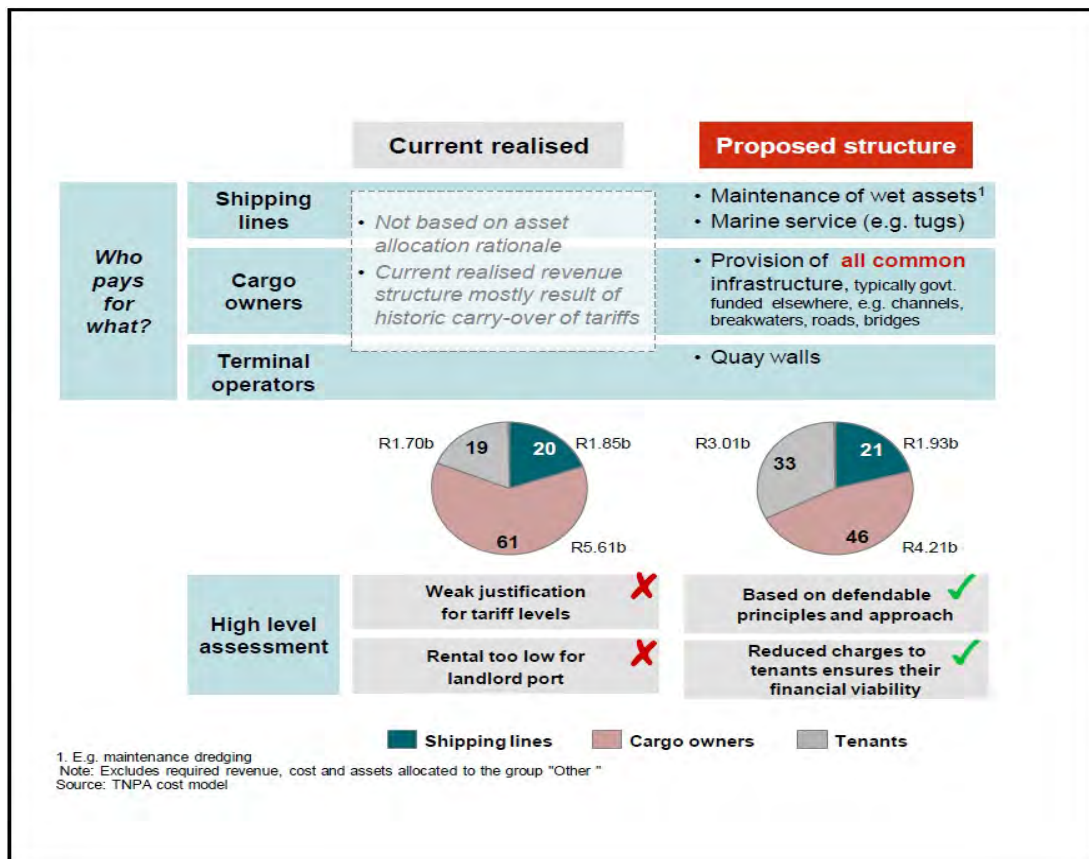


Figure 4.1. Proposed Structure of Required Revenue

Source: TNPA (2012)

TNPA holds that an allocation of above 50% of revenue requirement to shipping lines would be problematic for the competitiveness of the local ports. BUSA (2013) differs in this stance, offering evidence from the Regulator’s global port pricing comparator study of 2012 that for South African ports, shipping lines are charged well below the global average; that is, 26% below the global norm for containers, 37% below for coal, 47% below for automotive and 57% below for iron ore vessels. BUSA (2013) maintains that the further increase in the costs allocated to shipping lines would encourage innovation as carrying lines would use bigger

vessels which lower costs through economies of scale. Furthermore, the allocation of only 33% of the revenue requirement to terminal operators may still not be fully accepted considering that the well performing ports around the world derive about 40%-60% of their revenues from rental income. Therefore if TNPA has considered the globally acceptable norms and standards, as it says, it is only logical that it follows the same trend much to the relief and benefit of cargo owners because there is still potential for terminal operators and shipping lines to shift some of the increases in costs to cargo owners.

Moreover, the cost-price skewness explored in section 2.3 of this study persists and is shown better by the updated global port pricing comparator study of 2013 which shows the changes from the year 2012 to 2013 (Ports Regulator of South Africa, 2014). Grey bars indicate the year 2012 while the blue bars indicate 2013. The salient findings are that while port costs and various commodities have faced a relative decrease in costs in South African ports compared to other ports within the study, Containers still appear to subsidize the dry bulk commodities, dry bulk commodities total port costs are still at a discount compared to the global benchmarked ports, transshipment costs still remain below the global benchmarked average, making it likely that foreign transshipment is subsidized by local cargo owners. Also shipping lines are still facing lower port costs than in most ports. All of this brings into question the appropriateness of the new tariff structure as proposed by TNPA. Some of the findings of the Ports Regulator are explored below.

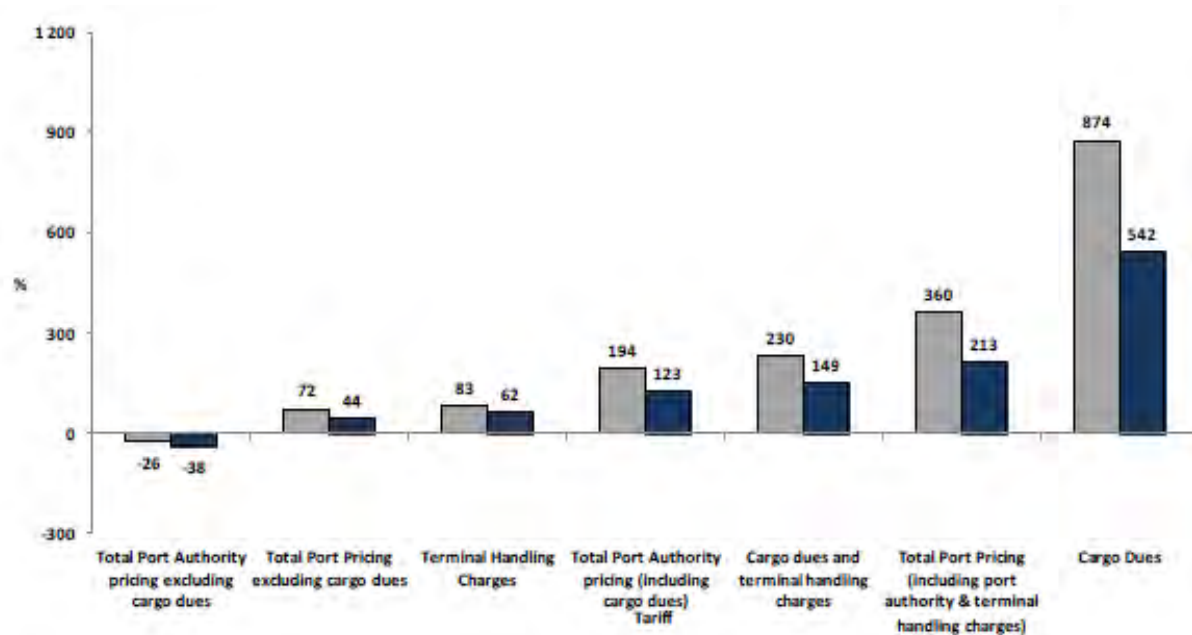


Figure 4.2. Container Costs including Terminal Handling Charges

Source: Ports Regulator of South Africa (2014: 4)

Accounting for terminal handling charges, total port costs decreased from 360% to 213% above the global benchmarked average, with cargo dues being the bulk of the total costs. When it comes to terminal handling charges it was also found that of the 14 ports studied, our container ports Durban and, to a lesser extent, Cape Town ranked in the top 3 for container handling charges at an excess of US\$227 000 per unitary vessel compared with a global average of US\$140 707.02 per unitary vessel (Ports Regulator of South Africa, 2014).

On the other hand, the coal cargo dues and total port authority charges are consistently at a discount with cargo dues being 50.03% and 57.76% below the global benchmarked average for 2012 and 2013 respectively. Of the 22 coal terminals benchmarked, Richards Bay was the 6th cheapest when it comes to coal cargo dues levied per tonne. Total port authority charges are at 42.84% and 53.11% below average for 2012 and 2013 respectively.

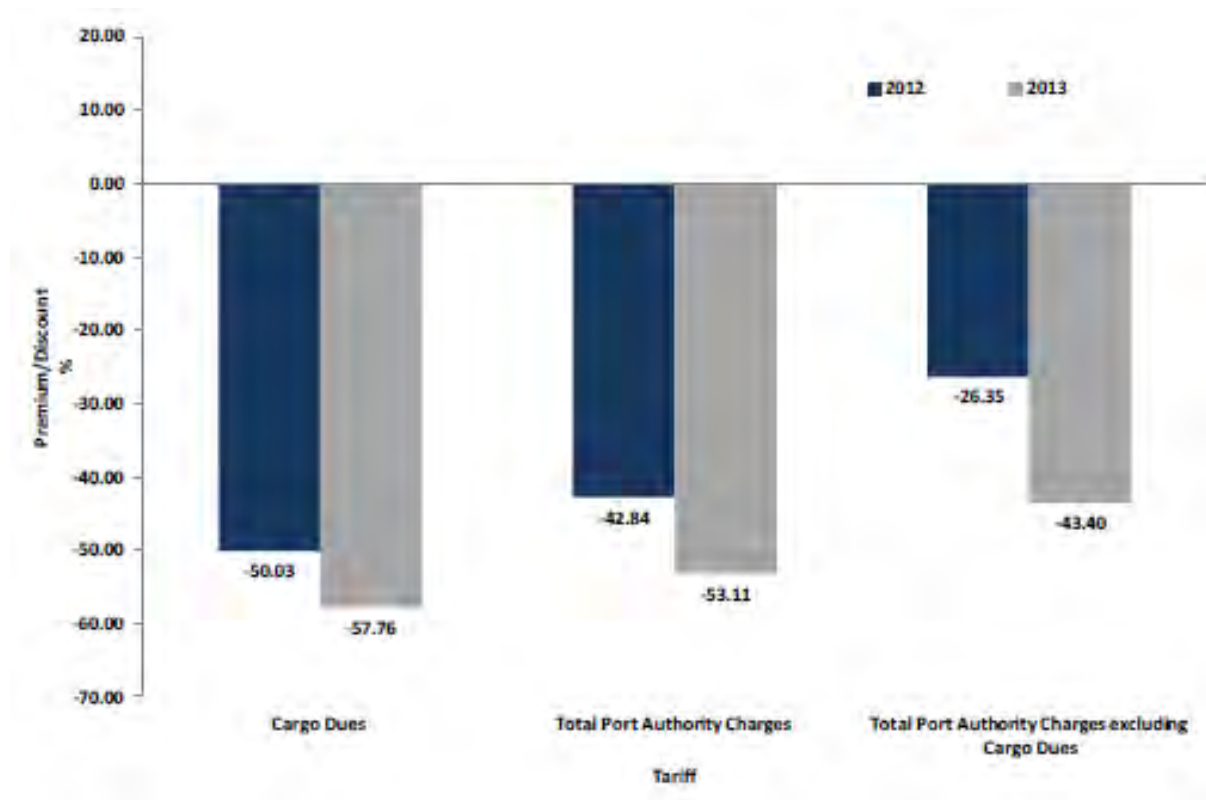


Figure 4.3. Coal Total Port Costs

Source: Ports Regulator of South Africa (2014: 5)

A similar pattern is found when looking at iron ore with Saldanha Bay being the 4th cheapest port of the eleven iron ore handling terminals in the benchmark; with its port authority charges

at a discount of 71.57% and 74.17% for 2012 and 2013 respectively and its cargo dues also being below the global average for both years.

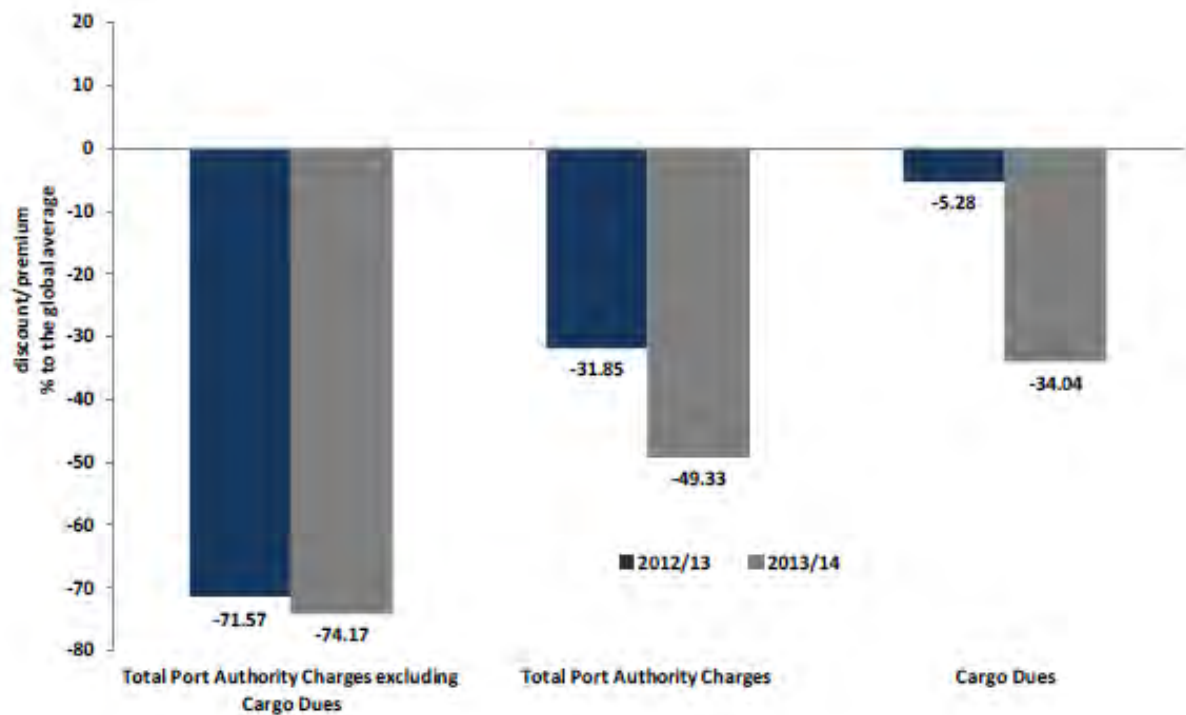


Figure 4.4. Iron Ore Total Port Costs

Source: Ports Regulator of South Africa (2014: 8)

Looking into cargo transhipped through South African ports it becomes evident that the cargo dues for the transhipment of a full TEU container is well below the global average of US\$14.31 per full TEU container. All bulk and transhipment sectors considered with the costs facing cargo owners, the whole container trade in South Africa and the automotive sector with respect to cargo owner costs, only confirm that more than anything containers and automotives are still subsidizing the bulk exports (Ports Regulator of South Africa, 2014).

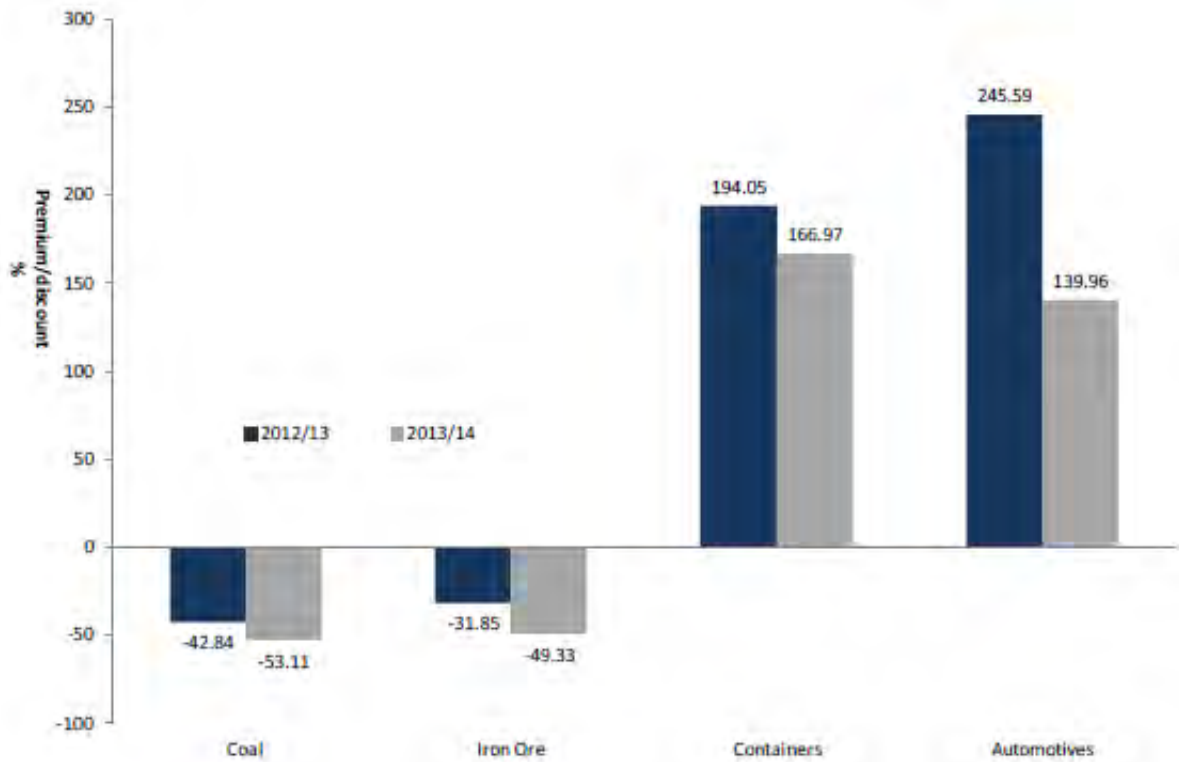


Figure 4.5. Cargo Owner Costs Across all four Commodities

Source: Ports Regulator of South Africa (2014: 9)

Another noteworthy factor with regard to the proposed tariff structure is the consideration that shipping lines are charged also well below the global market average in South African ports. With 46% of total costs allocated to cargo owners and only 21% to shipping lines, TNPA has stated that an alternative allocation would be unworkable as shipping lines are complaining that local ports are already too pricy. Notwithstanding, the local cargo owners are still subsidizing foreign-owned vessels in either tariff structure as virtually none of the vessels calling at South African ports is locally owned. Figure 4.6 below illustrates vessel costs.

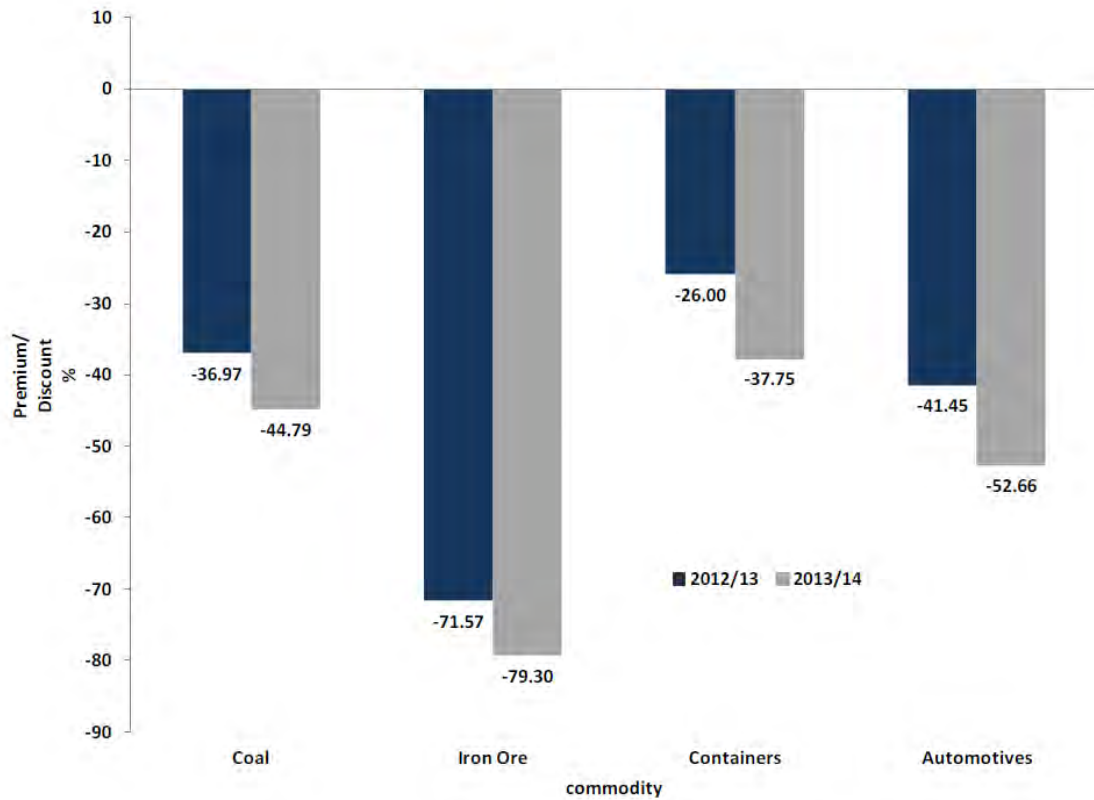


Figure 4.6. Vessel Costs

Source: Ports Regulator of South Africa (2014: 15)

The impression given by Figure 4.6 above is even more pronounced when considering that cargo dues for automotive cargo owners are at a premium of 743.7% and 588.79% for 2012 and 2013 respectively while the port dues, towage and pilotage; that is, services and costs accruing directly to shipping lines; are well below the global average as shown by figure 4.7 below.

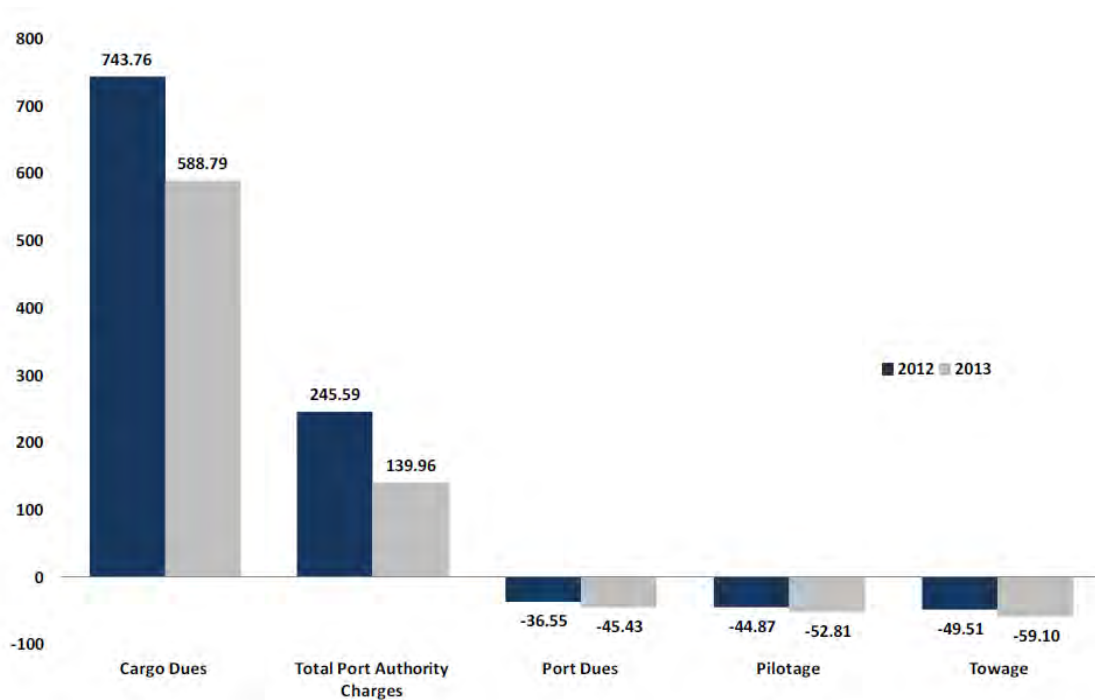


Figure 4.7. Automotive Costs

Source: Ports Regulator of South Africa (2014: 15)

With the recent study confirming that for the year 2013 port dues, pilotage and towage were discounted at 45.43%, 52.81% and 59.10% respectively; the above figure 4.7 implies that TNPA can still allocate more costs to be borne by shipping lines without losing significant traffic visiting South African ports. It is recommended, therefore, that TNPA revise its proposed tariff structure.

On Transnet's Market Demand Strategy and Capex

As a result of Transnet's planned capital expenditure undertaking of R307.5 billion over the next 7 years, some of this expenditure should be recovered from the tariffs charged by the port authority. Transnet has planned this capital investment programme with the aim of expanding rail, port and pipeline infrastructure in order to increase the conglomerate's capacity to meet demand. They are hoping to improve both productivity and operational efficiency and reduce the carbon footprint by switching to more railway line usage from road transport. As a result, we can see that the largest portion of this R300 billion expenditure goes into Transnet Freight Rail infrastructure investment at R201 billion (Transnet, 2012).



Figure 4.8. MDS Commodity Splits

Source: Transnet Market Demand Strategy (2012: 7)

Looking at the divisional split one can tell that TNPA and TPT as divisions of Transnet will have the second and third largest share in the planned expenditure at R47 billion and R33 billion respectively. Also noticeable is that some commodity sectors like iron ore, bulk and break-bulk have been allotted the least amounts for investment (Transnet, 2012). While this allotment is no less than investment allotted to containers, it must be remembered that for bulk commodities, under the proposed new tariff structure, the port tariffs have been increased by double digits. That is, dry bulk at 63% and Break-bulk at 85%. Regarding the latter Transnet presents a rather striking contrast between its investment allocation and the objectives of MDS saying that the MDS will enable growth in key commodities and will position South Africa as:

- A key thermal coal exporter
- An increasingly important 4th largest supplier of iron ore to China
- The leading manganese exporter globally
- The leading logistics hub for Sub-Saharan Africa
- A globally recognised benchmark for container and heavy haul operators

A series of questions may be asked, which may demand clarification from Transnet and also from TNPA regarding the current investment in infrastructure and whether or not it shall be recovered from current users instead of future users or both. This R300 billion, as said in the preceding paragraphs, will have to be recovered and coal terminals seem to express more sensitivity toward the tariff increase already. Coal terminals are facing a 103.6% increase in tariffs yet no provision towards the maintenance of the port infrastructure is made and no investment is allotted to them with respect to the MDS while other coal exporters say they have experienced a rise of 104.8% in tariffs (Anglo American, 2012). How is the MDS going to position South Africa as a key thermal coal exporter if it can just double the price for its exportation, and with an increase in the cargo dues for all dry bulk commodities, how will it become a leading manganese exporter globally or an increasingly important supplier of iron ore to China?

This is asked in consideration that in 2013, with above 70 percent of China's domestic coal producers operating on a loss, the world's largest consumer of thermal coal sought to impose a coal import duty of some 3% and 6% to protect its struggling domestic sector (Faku, 2013). This on its own already has an adverse effect beyond South African coal producers' control of reducing its exports to China before having to deal with domestic increases in the cost of exporting their products. The negative impact could be forever considering that China is planning to move away from the use of coal for its power requirements in favour of cleaner air. Indeed, China considers increasing the cost of imported coal to narrow the price gap with domestic coal, meaning that South Africa's important coal customer is slowly starting to look into itself for coal supply and a cleaner environment (Faku, 2013).

Fruit SA utilizes 90% of containerized sea transport to export fruits to the global market (Fruit SA, 2013). This implies that the fruit exporters are the biggest customers of containerised capacity yet the planned expenditure on containers is only 8% while 53.4% is on non-containerised business of the two ports Saldanha Bay and Richard's Bay. That being said, CAPEX is primarily directed at non-containerised business, while 60% of cargo dues revenue will be the income derived from container cargo dues in the financial year 2013/14, implying that Fruit SA is also financing capital expenditure made on other sectors in which it is not necessarily involved. Further to this, of the total forecast revenue for the year 2014/15, 36 per cent of it is income from container cargo dues. With all of this observed, Fruit SA has recommended that the cargo dues levied on containerised business should not be subject to a

base tariff increase, cargo dues increases should be marginalised only to commodities with a higher capex allocation and TNPA's capex allocation to specific commodities should derive a proportional tariff increase relative to that Capex allocated to that commodity (Fruit SA, 2013). In addition, there is no Capex earmarked for RoRos in the 7 year MDS and therefore there should be no increases whatsoever in the tariffs for automobiles (NAAMSA, 2013). This implies that NAAMSA, like Fruit SA (2013) and all other private port users, want TNPA to actually apply with transparency the user-pays principle and not to overcharge some products with the intention of cross-subsidizing.

Considering that of the over R300 billion planned CAPEX, TNPA and TPT combined are allotted R80 billion despite the fact that TNPA's RAB is about R64 billion, increases in tariffs resulting from this MDS are inevitable. A recommendation is made in light of this that revenue required to support assets already included in the RAB should not be included. Furthermore the request is made that the Regulator supports the call to Ring-Fence expenditure for future specialised infrastructure so it is paid for by the port users deriving a direct benefit. Costs relating to future common infrastructure (breakwaters, seawalls, channels, fairway basins etc.) should be shared between port users (Atlas_Holdings, 2013).

4.3.2.2. TNPA's Operating Expenses

On the Increases in Opex, TNPA's Opex for the FY 2014/15 is R4 329 million which is an increase of almost 45% from the Opex of the FY 2012/2013 and the amount allowed in the 2012/13 ROD was R2 981 million. The TNPA's Opex estimation for the current financial year represents a year-on-year increase of 11.7% over the allowed Opex per 2013/14 ROD. SAASOA (2013) says that no business operating in a competitive environment has the option to push the cost of its operations on to its customers, but instead they look at alternative ways of reducing costs or suffer a loss of profits. They also go on to say that this 5.9% for inflation + 3% for increased activity (the requested increase for 2013/14) must not be applied in the 2014/15 tariff application as this would defeat the regulatory function of the Regulator (SAASOA, 2013).

The TNPA's proposed 39.2 % increase in its operating costs budget in a matter of two financial years is uncalled for and Fruit SA urges the regulator to only consider the increase of 15.8 % to its previous operating costs in the FY 2012/13 because in a depressed economy it makes no sense to increase operating costs but it is expected that they should be decreased (Fruit SA,

2013). Therefore they have proposed a more realistic operating cost estimation and included also the adjusted taxation base which brings the tariff increase to a 2.91% increase and a further increase of -2.97% after the ETIMC. So Fruit SA is of the opinion that the RR be revised with the recalculated operating costs. They conclude that the requested increase of tariffs by 14.39% before the use of ETIMC and by 8.5% post its use is unmerited and there should be no upward adjustments to the present tariffs. (Fruit SA, 2013).

Of the many dissatisfactions concerning the tariff structure by TNPA, the most disconcerting by far, at 47 complaints since 2009, is the one on South Africa's export competitiveness getting undermined in the international markets. The current tariff structure inhibits global competitiveness of ports as it thwarts RSA companies' global competitiveness. Anglo American (2012) warns that South Africa is more at risk of becoming an uncompetitive alternative for many countries due to illogical or unsubstantiated commodity tariff increases.

4.3.2.3. The Proposed Multi-year Tariff Structure

With the MDS capital expenditure explained above, TNPA has accordingly proposed a "smoothed tariff increase" for the next review periods up to 2018/19 of 9.4%. The proposed 2013/14 multi-year tariff structure will most likely wholly prejudice cargo owners. The poor track record of TNPA to predict its future revenues since the start of the current process makes for much scepticism in the whole industry concerning the Authority's ability to get it right over a number of years ahead. SASC (2012) has the same concerns. First of all the multi-year tariff increase remains above the country's inflation rate. This is inevitable as the planned Capex will increase by 49% for the current review period of 2014/15 from R2 219 million to R3 317 million. "This is forecast to increase by a further 136.5% to R7 846 million for 2015/16 and a further 28.5% increase to R10 082 million for 2016/17" (BUSA, 2013: 13). TNPA should change the methodology and then demonstrate the need for such an above-inflation tariff increase over the next four years. NAAMSA (2013) recommends that this smoothed tariff has to promote global competitiveness (i.e. not SA's CPI + 3%). Nevertheless there can be merit in the multi-year tariff application approach with respect to the release of resources currently employed in the annual tariff application process. SASC (2012) say that if the multi-year tariff should be considered there must be an upper and lower threshold specified in the application process to accommodate unforeseeable adverse trading conditions.

4.3.3. Analysis of Port Governance

Many of the foregoing issues, complaints and concerns are mainly rooted in the manner in which the ports are governed. For example, port stakeholders express dissatisfaction with the methodology. All stakeholders have something against the tariff structure and the manner in which port costs are recovered from them. In all ports around the world the extent of government involvement in the ports with regard to port tariff determination, investment, policy making, regulation, macroeconomic objectives regarding the ports, the general view of ports and their roles in the hinterland – the port doctrine – all of these determine the tariffing methodologies applied and, certainly, the cost structure and the subsequent performance of ports.

South Africa's practice of running a complementary ports system has led to "one size fits all" type of pricing that has made port tariffs rather arbitrary and conducive to inter-port and intermodal cross subsidization. Competition has been stifled and stakeholders' competitiveness in the export markets have been undermined and their profitability threatened while there has been reports of lost traffic, diverted from South African ports to others in the Sub-Saharan African Region (City_of_Cape_Town, 2013).

At thirty one (31) complaints, it is most frequently pointed out that South African ports are among the most inefficient and least productive in the world. They are also among the most expensive ports in the world yet they are often on par with the third world in terms of performance and, at that the worst performing. In a port benchmarking study conducted by Maersk Lines and Safmarine it was shown that the three South African ports (Durban, Cape Town and Port Elizabeth) while being among the least productive, were the top three most expensive ports in the study (Maersk Lines, 2012).

Another complaint, not too unrelated to the preceding one, is that TNPA takes no cognisance of the prevailing local and global economic conditions in applying for tariff increases. The proposed increases are said to hamper economic growth and development and BUSA (2012) therefore opposes them. SASC (2012) states that TNPA is being short-sighted by not taking into consideration supply chain partners when contemplating rate increases. NAAMSA (2012) and RBCT (2013) are of the same voice when they say the National Ports Act recognises a tariff system that is affordable and efficient, that stimulates competition, equitable access and international trade with the fundamental goal of striving towards economic growth and

development of South Africa. The prevailing port governance leads to some form of cross subsidization that may result in the collapse of certain sectors at the expense of others. TNPA does not consider the port-specific phenomena that demands each port to be priced differently from the others. From history “the administrative advantages of revenue raising through ad valorem wharfage was irresistible and it made up the main source of port revenue with a gross margin of 300% to 400%” (Zulu, 2014: 63-64).

Confirming the non-compliance of TNPA to the Regulator’s directives is the Fresh Produce Exporters’ Forum (FPEF, 2011) when it mentions that some of the published directives have been amended and others deleted in favour of the TNPA. The Regulator is no longer required to determine whether the achievement of TNPA's economic objectives is desirable, notwithstanding this the factors listed in directive 23 are still not reflected and balanced by the proposed tariff increase (FPEF, 2011).

On the very nature of TNPA as an enterprise, the port authority should facilitate the development of trade and commerce for the national economy's benefit. It is, furthermore, an entity that did not acquire its current infrastructure via a commercial sale that justifies such a revenue approach and cross subsidization. SASC (2012) states that most complaints revolve around TNPA still operating above commercial laws and compliance of accountability - this is where almost all the problems and subsequent complaints by various stakeholders emanate. It is no surprise that the least visited fact regarding the regulation of Transnet and, indeed, TNPA, is that the National Ports Act makes a provision that TNPA should be corporatized. Transnet has not, to date, started transitioning the TNPA to the National Ports Authority (Pty) Ltd as stated in section 27 of the National Ports Act 12 of 2005 (National Ports Act 2005. s.27(1)(a)). It is recommended by SASC (2012) that this provision by the Act be quickly enforced so as to make TNPA more accountable in the future and also the TNPA be put on a level playing field with other players such as cargo owners and service providers. This SASC calls corporatization of TNPA. The possibilities of corporatization and other forms of port governance are evaluated in detail in subsection 4.4.1.1

4.3.3.1. Evaluating the Beneficiation Promotion Programme

The South African Embassy in the Netherlands (2013) reports that South Africa holds the world's largest reserves of gold, platinum-group metals and manganese ore. It is also one of the world's largest producers of base metals and coal, with considerable potential for the discovery of other minerals in areas yet to be explored, except oil (SA_Embassy, 2013). The DTI says that the aim is to present and increase opportunities for the beneficiation of these minerals. One of the constraints, according to the Competition Commission, is the disincentivising exercise of market power by a few dominant firms. Further, when it comes to exportation of these there are complaints about high port tariffs (DTI, 2012).

The country is planning to beneficiate minerals, clothing, textiles, leather and footwear; plastics, pharmaceuticals, chemicals and cosmetics; and agricultural products. This is with the aim to increase the share of value-added exports. High port tariffs have been argued to be constraints to beneficiation initiatives or export-driven manufacturing growth. These constraints have further been cited for different products and sectors including metal fabrication, capital and rail transport equipment; and development of the upstream oil and gas sector.

The move towards beneficiation has not been received well by many stakeholders as will be discussed below, and it is particularly unappealing that dry bulk products are planned to face tariff increases by double or triple digits. This dissatisfaction remains despite the justification that TNPA is in a relatively unique position of funding all port infrastructure whereas in other countries central government is responsible for funding most port assets. If government were to fund port infrastructure, 67% of all total assets would be covered (TNPA, 2012) – and such a fact is so poignant it warrants an address in detail in the subsection on port governance.

In essence, the Beneficiation Promotion Programme (BPP) is a plan TNPA has to boost local industry and encourage local manufacturers to export ever more beneficiated products so that more value may be created in the local economy through increased employment, poverty alleviation and subsequent economic growth. Notwithstanding all of this there is a sense that the BPP is like an ad valorem wharfage strategy turned on its head.

Some of the tenets of ad valorem wharfage, as seen from FRIDGE (2008: 25), were the following:

- Wharfage was applied on an ad valorem basis levied at a fixed rate (later the cargo value was capped) on the value of the cargo as declared by the manifest;
- Ad valorem wharfage made revenue subject to exchange rate fluctuations and price changes yet the overall price trend (and currency movement) served to raise revenue to the ports without requiring ports authorities to increase the wharfage rate;
- Ad valorem wharfage collection raised more revenue from high value cargo proportionally to low value cargo regardless of their use of infrastructure and port services;
- Ad valorem wharfage supported import substitution policies by charging a higher rate for imports and lower rates for exports of identical cargo.

It must also be recalled that the ad valorem wharfage was repudiated by many ports around the world and only in South Africa, it seems, did this practice remain. So wharfage being based on cargo value meant that the tariffs had no bearing on the operational costs of handling the goods and therefore tariffs did not account for the port superstructure for which they should be charged to maintain (Zulu, 2014). Indeed, wharfage had no relation to the operational activities that took place prior to cargo shipment, nor did it have any relationship with any costs borne by the port with respect to its landing and wharfage (Chasomeris, 2006). Another characteristic of ad valorem wharfage was that it favoured low value cargo over high value cargo despite the fact that both these types of commodities used the same port infrastructure and services; with exports charged twice the amount of the tariffs charged to imports.

In 2001 “when TNPA embarked on a tariff reform the aim was to introduce a more competitive and fair tariff system in line with international practice” (Zulu, 2014: 67). This was so that the value-added goods handling costs would decrease in line with the industrial policy of 1996 since the new cargo dues system would be based on infrastructure costs instead of value (Zulu, 2014). Nevertheless, according to Chasomeris (2006), some commodities were still tried on value-basis.

The charging of wharfage to some products over others in the era of TNPA points to the arbitrary nature of its tariff methodology and the inconsistency of its tariff structure. Convinced that cargo dues are still wharfage, BUSA (2011) says: "Moving away from wharfage to cargo dues and TNPA becoming a landlord: the intention was for cargo dues to be reduced over time. This is not currently the case." (BUSA, 2011, p. 18)

This concept of encouraging beneficiation of locally produced content for export purposes through manipulation of export tariffs is thus astonishing to many stakeholders because it has a striking resemblance to ad valorem wharfage. Table 4.8 below compares between BPP and ad valorem wharfage and it is followed by an account of what the various stakeholders have said concerning it.

Table 4.8. A Comparison between Ad Valorem Wharfage and a Tariff Structure with BPP

Ad Valorem Wharfage	Tariff Structure with the BPP
Discriminates against cargo based on value	Discriminates against cargo based on level of beneficiation, i.e. value
Has no relation to the ports' operational costs	Disregards the port's cost structure in order to encourage exports
Favours exports over import and reinforces trade barriers	favours exports over imports and weakens the global competitiveness of low value cargo
Rejected by port users as a tax on trade	Rejected by port users as a regression to a tax on trade

Source: Author compiled using data from Stakeholders' submissions and TIPS, 2014

Ad valorem wharfage was rejected by many as a tax on trade considering the tariffs that were applied during its regime. Interestingly other stakeholders today hold that the two regimes of ad valorem wharfage and cargo dues, the latter ideally supposed to be more cost-based, are actually synonymous.

In speaking against the TNPA's return on capital and the depreciation method applied, the Cape Chamber of Commerce (2012) (CCC) says that Return on Capital and depreciation are used to justify the retention of some cargo dues which are an import tax (Cape_Chamber_of_Commerce, 2012).

Cargo dues directly result in port costs in South Africa exceeding those of many of our global competitors. Should the Authority be allowed consistent increases in these dues over the coming years then South African products and exports will be priced out of both local and international markets. Moreover, the charging of cargo dues, an equivalent of taxes, is a practice unique only to South Africa, pushing up the port costs all the more (BUSA, 2011; CCC, 2012).

As the BPP enjoys the full support of the DTI, cross subsidisation by un-beneficiated exports appears to be the best way forward to encourage beneficiation and job creation. SAAFF (2013) believes that the intention of the BPP is the subsidization of exports at the cost of imports even

if some of these imports are vital for the production of beneficiated exports which defeats the purpose of BPP. This further appears as a placing of the burden of improving the country's exports on the shoulders of importers and consumers of imported goods - a narrow group of people (SAAFF, 2013). Furthermore XStrata (2013) holds that the BPP will discriminate against them as ferrochrome producers in a manner that will erode their competitiveness as they do not have the capacity to beneficiate within RSA since Eskom tariffs are prohibitively high. This is all against the consideration that their product is not much demanded in South Africa also so the beneficiation thereof will not really contribute much to the development of the South African economy against the cheaper supply of Ferrochrome from China (XStrata, 2013).

Considering that the bulk of products mentioned in the stages 3 and 4 of the BPP require substantial local manufacture, and they are carried in containers, it is reasonable to expect them to be charged a uniform cargo handling tariff (that is similar box rates tariffs) instead of an ad-valorem wharfage. Another problem is related to the administration of the BPP as it will add another administrative burden in an already overloaded system.

SASC (2013) says that the beneficiation discrimination that is being practiced should be explained to individual sectors and industries so to be understood more clearly and the import of commodities that are not available locally or which are available in limited quantities must be exempted from the “penalty” – charging an import tariff that is double the export tariff – imposed on imported goods. The 2014/15 tariff book shows that the import tariffs are actually more than thrice the export tariffs (TNPA Tariff Book, 2014).

In line with the proposed tariff structure, the products that have very little or no opportunity for beneficiation will be “penalized” in order to promote beneficiation which, according to the DTI, is still in its planning stages to determine the economy’s ability to beneficiate such products – a premature application of a tariff structure. The proposed tariff increase by the TNPA will undermine the NDP 2030 and make it more costly to export minerals and agricultural products (BUSA, 2013) in which South Africa has a comparative advantage producing.

Seeing that the overall impact of the BPP is a further move from cost-based pricing principles and that at the compromise of South Africa’s current comparative advantage, it is worth asking why the government does not subsidize directly the beneficiation of some of the country’s

manufactured goods, as is a typical role of government in developing countries, and let TNPA's bulk cargo handling costs remain unchanged. This is because South Africa's current skills capacity is in serious lack and the national energy supply is constrained severely such that mineral beneficiation has a potential to divert productive resources away from other sectors (National Planning Committee, 2012). This need not be so, however, because mineral beneficiation is not a panacea. So long as electricity remains scarce, there will always be a trade-off between beneficiation and other more labour-absorbing activities. Rather, South Africa can target mineral beneficiation in other areas that have a potential to lead to further downstream beneficiation – that is, beneficiation that targets identified opportunities (National Planning Committee, 2012).

There certainly are other alternatives available to South Africa, even as a developmental state, to promote the beneficiation programme. For example, state control of finance in Japan, the combination of incentives and command structures, and the existence of the zaibatsu or the Korean chaebol, or Chinese business groups (Charlotte, 2008). In Japan and South Korea, the state controlled interest rates and bank loans were the primary sources of industrial finance as opposed to equity capital and the Japanese state helped to provide capital in the case of missing capital markets, simultaneously helping to induce transformative investment decisions (Charlotte, 2008). Also as Charlotte (2008) discoursed on developmental states and how the Japanese, but more so the Korean economy excessively depended on exports, she mentions that this makes these economies very vulnerable to exogenous shocks.

It must be understood that the above cases and practices mentioned are not prescriptive but there are other policies that the state can pursue with the aim of economic development. This out of the ordinary approach to encouraging economic growth is summed up by Charlotte (2008) when she says “A comparative analysis of the Newly Industrialized Countries (NICs) allows variations of the developmental state to emerge from the background of the astonishing economic growth in East Asia” (Charlotte, 2008: 1). Charlotte mentions other practices which were opposite to some of those from other developmental states – all to point out that a developmental state is really a state where government pursues a policy within that country's unique context to develop it. The developmental state is characterized by an environment where the state establishes incentives and disincentives to direct private investment; the success of enterprise in turn reinforces state legitimacy.

In their examination assessment of two of the most successful cases in the history of Economic Development, Todaro and Smith (2012) mention that South Korea and Taiwan have had a very big role for government intervention in their attempts at economic development; and they conclude that the state has had a broader role in the most successful development experiences in many countries (Todaro & Smith, 2012). Therefore much more than just an adjustment of tariffs needs to be done nationally through other means of state involvement to improve export competitiveness. TNPA's contribution through a beneficiation promotion programme is likely to prove insignificant at a national level and, in some cases, even detrimental to the competitiveness of locally manufactured products. It is on account of the success stories of South Korea and Taiwan among others, that a critical evaluation of TNPA's vision of a truly landlord port and the application of the user-pays principle in South Africa is made.

4.4. Comparing Current Practices with TNPA's Vision

On one of the four core design principles for the newly proposed tariff structure – competitiveness – TNPA says that “consideration has been given to the best or common practice and market expectation” (TNPA, 2013: 8). This statement is ambiguous. Understanding that it is in TNPA's interest and certainly the national vision that RSA ports be globally competitive, one has to ask what common practice and market expectation is being referred to in this statement; whether it is common practice in the South African context and market expectation because of local stakeholders' historical experiences or is TNPA referring to the global market and international practices of ports? This is because competition, as defined and practiced globally in ports, is mainly inter-port and intra-port competition – unlike South Africa which runs a complementary system of ports with uniform tariffs despite the fundamental differences in their structure, accounting costs and markets they serve (Kaselimi, 2012).

The unique nature of South Africa's port cost structures is also shown by the plight of the port of Ngqura. The NPCC holds that pricing should take into account the efficiencies and volume increases in each port, thereby implying that the ports should be given a choice to price their own services individually. Furthermore, to increase traffic and attract vessels at the Port of Ngqura the marine charges have to be reduced as, according to South African Forwarding and Clearing Industry (SAAFF, 2013), the South African importers and exporters are the ones actually paying for the infrastructure at the transshipment Port of Ngqura. This is an overt recommendation to actually cease the practice of charging uniform tariffs. Transshipment tariffs

and actual port call tariffs should be different both in methodology and structure. The Mining, Oil and Gas Group says that their vessels should be discounted by up to 70% compared to those levied on vessels making a full cargo handling port call (MOG, 2013).

The NPCC (2013) also supports the differential pricing strategy – that the Port of Ngqura should be priced differently to other ports – and maintains the port is continually touted as a transshipment port but nothing has been done with respect to pricing strategy in order to reflect this. As it stands there is still some over-recovery in some items and under-recovery in others while cargo dues, which are a concept non-existent in other jurisdictions, are militating against the so-called activity based costing which is being applied by TNPA. TNPA does not necessarily engage in the physical activity of handling cargo – rather the very terminal operators from whom rent to the Authority is due – the cargo dues are therefore an impost rather than payment for a service rendered and there is a recommendation that cargo dues must be done away speedily (Cape Chamber of Commerce, 2011).

The Cape Chamber of Commerce (2013) (CCC) and the City of Cape Town (2013) submit that because of the high tariffs charged by TNPA some traffic is lost to neighbouring ports and more traffic stands to be diverted from South African ports – and that without remedy – unless the tariffs necessarily decrease. It would be justified if the high port tariffs were followed by an improvement in South African port productivity to meet challenges of the future, but that is not happening and as it stands neighbouring ports like Maputo and Walvis Bay are more competitive and reasonably priced while traffic is continually lost by South Africa to these ports and subsequently economic activity and jobs as well. With this the CCC insists that port tariffs be reduced and that the requested 14.39 percent increase for 2014/15 be rejected by the Regulator (Cape Chamber of Commerce, 2013).

The City of Cape Town says the current model does not have the ability to capture or internalise the multiplier effects of a tariff increase. They contend that in the South African context, business largely depends on parastatals which have a monopoly position and determine costs of key inputs. It is only private sector that has the capacity to create sustainable jobs but government has to ensure an environment that is conducive to investment and job creation. Given its position, therefore, TNPA should be judged on whether it is helping local businesses to prosper and the increase in tariffs is directly in contradiction to that.

There is damage caused by the dramatic tariff hike of the Cape Town port being solidified as unreasonably expensive. They are losing traffic to Namibia and Mozambique in an industry

that is relatively inelastic. This means once traffic is lost, the port users will not be easily convinced to move back to Cape Town and TNPA cannot act as if it has a monopoly access to the African market considering more efficient and cost-effective ports like Walvis Bay. Costs levied are still not transparent and there is a proclivity to cross-subsidize other operations of Transnet. The City of Cape Town calls for a strategy that will better reflect the user-pays principle, intra-port competition and preferably independent port pricing or at least more transparency (City of Cape Town, 2013).

TNPA also maintains that one of the core design principles is user-pays, despite the fact that Fruit SA shows that most revenue to be realised from the MDS will be recovered from the container business while only 8% of the planned capital expenditure is allocated to them as opposed to the 53.4% given to non-containerized businesses in Saldanha Bay and Richards Bay (Fruit SA, 2013). With the history of inter-modal cross-subsidization practiced by Transnet it may be questioned how the user-pays principle will truly be applied in ports.

Further qualifying the assertion that the beneficiation promotion programme as initiated by TNPA may not be very successful is the consideration that one of the constraints the economy is facing is that of prohibitively high logistics costs. The City of Cape Town (2013) shows that when considering the logistics costs as a percentage of transportable GDP, the situation is dire, approaching 50% as they have been increasing since 2010, contrary to the trend line that has been downward sloping for 10 years prior to that.

The City of Cape Town show also that the value of a port in value addition is important and significant if well-implemented and logistics costs are reduced. The City of Cape Town (2013) believes also that the introduction of competition into the port system will serve this country well in terms of ensuring the efficiency in charges – even intra-port competition is vital for significant cost reductions within each subsector and the City of Cape Town argues that such a position is catered for in the National Ports Act but it needs commitment to implement.

The Organisation for Economic Cooperation and Development (OECD, 2013) report entitled *The Competitiveness of Global Port Cities: Synthesis Report* (2013: 8) found that “doubling port efficiency of two countries is found to increase bilateral trade volumes by 32%.” It is apparent that port performance is critical to the economic and job-creating capacity of the country or region. In section 2.2.2 it was shown that one of the ports TNPA aspires to be like is Le Havre in France. On value addition the OECD (2013) report also showed that Le Havre

represented more than 21% of regional GDP in 2007 through its value-adding activities – not necessarily tariff manipulation.

4.4.1. International Port Practices on Pricing, Investment and Governance

The City of Cape Town recognises the difficult situation in which the TNPA is placed by the financial model imposed upon them which is the funding of marine operations which, in other ports of the world, are generally funded by an arm of government. Lee & Flynn (2011) present the following table to show the central government’s active multi-role player involvement in the Asian and Far Eastern Ports, contributing to their remarkable success.

Table 4.9 Institutional Responsibility for Port Investment Items and Government’s Role

Institutional Responsibility for Port Investment Items and Government's Role									
Investment C: Sub-items	South Korea	Singapore			China		Hong-Kong	Antwerp	
	Busan	Singapore Port	Taipei	Waigaoqiao	Shanghai	Yangshan	Hong-Kong Port	Antwerp Port	
Marine Access Channel	CG	CG	PA	CG	CG	CG	LG	CG	
Breakwaters, etc.	CG	CG	PA	CG	CG	CG	LG	CG	
Navigation Aids	CG	CG	CG	CG	CG	CG	LG	CG	
Port Land	PA	PA	PA	TO	TO	LG	TO	PA	
Infrastructure Berths	PA	PA	PA	TO	TO	LG	TO	PA	
Dredging									
Berthside	TO	TO	TO	TO	TO	TO	LG	PA	
Turning Basin	CG	CG	PA	PA	PA	PA	LG	CG	
Channel	CG	CG	PA	PA	PA	PA	LG	CG	
Port Superstruc Paving	PA	TO	TO	TO	TO	TO	TO	TO	
Cranes	PA	TO	TO	TO	TO	TO	TO	TO	
Terminals	PA	TO	TO	TO	TO	TO	TO	TO	
Sheds (CFS)	TO	TO	TO	TO	TO	TO	LG	TO	
Land Access In Road links	CG	CG	CG	LG	LG	LG	LG	CG	
Railway links	CG	CG	CG	LG/CG	LG/CG	LG/CG	Others	CG	
Inland Waterways (if any)	CG	N/A	CG	LG/CG	LG/CG	LG/CG	N/A	CG	
Special economic zones or logistics region adjacent to container port	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	
Cross-subsidization in port construction/ development	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	
Government intervention in terminal operation	M	Yes	M	Yes	Yes	Yes	No	M	

Notes: CG, central government; LG, local government (¼municipal government); PA, port authority; TO-, terminal operator; M-, partly middle position

Source: Lee & Flynn, 2011: 9

Notwithstanding the heavy involvement of the central government (CG) and local government (LG) in various investment categories; The City of Cape Town holds that ports like Le Havre, Antwerp, Rotterdam, Hong Kong and Singapore – as all ports internationally – are more than just providers of services to local commerce but they are businesses in their own right, attracting businesses beyond their national borders and acting as hubs for transshipment, centres for ship and rig repair, cruise liner bases, victuallers as well as places where sports and recreational activities take place. The City of Cape Town says that with the building of cruise liner terminals in both Durban and Cape Town Southern Africa has a potential of becoming a destination base for the cruise liner industry. Yet to date, TNPA has not been actively

promoting this concept despite the fact that it stands to benefit from it (City of Cape Town, 2013). This is to say that there are many other alternatives for the South African ports to promote economic growth and development – even development of hinterland economic activities – without tampering with tariff increases or price manipulations which are already adversely affecting the economy’s competitiveness globally.

Hee-jung Yeo (2010) shows that competition among Asian ports is increasingly fierce, while 7 of the 10 biggest container terminals in the world are found in Asia. Previously ports have been viewed as monopolies because of their immovable nature and the concentration of cargoes in their locations. However, rapid development and adoption of container and other intermodal technology have altered this structure of markets to that in which fierce competition prevails across the world (Yeo, 2010). In his paper on Competition and Collaboration among Container Ports, Hoshino (2010) says, “Outside Asia, only Dubai and Rotterdam are ranked among the top 10 container ports in terms of container throughput. As well, six out of the 10 ports are in China, while Singapore, Hong Kong and Busan are ranked in the top 5” (Hoshino, 2010, p. 2). This confirms the well-known principle in economics that competition brings about efficiency and effectiveness. As a result of this it is known that the cheapest, yet most productive, ports are found in the Far East (Planning, 2006). Although this is generally believed in the case of private enterprise, what is seen in Far Eastern ports is that central government is heavily involved in multiple roles without running the ports as one body or system, thus still leaving much room for competition across ports (Lee & Flynn, 2011).

Bandara, Nguyen and Chen (2013) acknowledge that for most ports (Landlord ports) infrastructure is handled by the state sector and it is often regarded as public goods and therefore their charges necessarily take into account the social welfare effect (Bandara, et al., 2013). If TNPA is aspiring to be a landlord port then government must be willing, as part of its fiscus and the belief that ports are a strategic national asset, to finance some of its infrastructure – even as a way of ensuring increased competitiveness by way of decreased costs. This, as mentioned earlier, is in line with the “best or common” practices around the world. A slightly different view may be held, however, by reason of the provision to corporatize TNPA in the National Ports Act Section 27 as revealed by SASC (SASC, 2012).

Taking into cognisance the trajectory of South Africa’s economy to 2030 one gets an understanding that the plan is to achieve export-led growth and have the country’s manufacturing base widened, strengthened and made globally competitive (National Planning

Committee, 2012). No one type of governance or port doctrine is prescribed for all ports as such depends on the country's national development objectives with respect to the ports. However, not all port governance methods may be applicable in any one economy. Some are bound to be contrary to the country's plans and some may prove unworkable altogether for a number of factors, some of which will be explored in subsection 4.4.1.2. For example, privatization has not been seen under a favourable light in many developing maritime economies and therefore it has not been explored as part of this study.

4.4.1.1. Corporatization

Corporatization is a process of turning public enterprises into state-owned corporations that operate according to private sector principles with the aim of improving efficiency and competition (Pettitt, 2013). Considering this phenomenon of corporatization and having an understanding that a corporatized entity is intended to operate on exactly the same terms as private counterparts; therefore needing to be placed on a firm financial footing; able to purchase assets from the government at negotiated rates and make an appropriate return for their investment (Pettitt, 2013), one has to question how this would impact the country's national objectives with respect to ports contributing to economic development.

According to Trade and Industrial Policy Strategists (TIPS, 2014), Australia is one of the best comparators for South Africa. "It has a landlord port structure in which the majority of port infrastructure and services is still provided by public-sector port authorities. It has a small number of widely-spaced multi-purpose ports with a quasi-monopoly over local trade, and several large minerals ports for the export of iron ore and coal. And it has a transparent business environment in which port regulation has been the subject of fierce debate (TIPS, 2014: 106)." They also have independent regulatory bodies just as South Africa has the National Ports Regulator.

Australia corporatized its ports. Some Australian ports were completely sold to the private sector (privatised), but most remained government owned because they are too valuable and strategic national tools to be sold to the private sector (Pettitt, 2013). It is beyond the scope of this study to analyse the laws that guide corporatization of SOEs in Australia, but it must be conceived that corporatization is introduced in order to improve ports' efficiency and competitiveness while retaining them in government's hands; and it is an expectation that

corporatized ports perform better under this model than before they were corporatized. Most Australian ports have been seen to perform better post-corporatization, indeed.

It is important to know that there are a number of ways in which Australian Ports Regulatory framework differs from that of many other governments. The first one is that there is not just one Ports Regulator, but seven in the whole country according to the number of colonies, regulating at least one port. They are not run as a complementary system but competition is encouraged between ports, through a very complex legislative and regulatory framework. Despite this they do not appear to be over-regulated and regulation remains limited to price monitoring (Meehan, 2011). It must be acknowledged here that competition and cost-based pricing is promoted in these ports while they remain in the hands of government; dispelling any misconception that where government is involved price distortion and abuse of monopoly power is the order of business.

However, the question remains if corporatization may be considered appropriate for South Africa's ports as well. Firstly, South Africa is not encouraging competition among ports and prices, unlike in Australian ports, are not determined at an individual port level. While government intervention is not more detached than it is in the UK, the Australian port tariffs encouraged are also those which should be based on commercial cost differences and on making a reasonable profit (Meehan, 2011).

The Port of Rotterdam is another interesting case study when it comes to corporatization. De Langen and Heij (2013) discuss the effects of corporatization of the Rotterdam Port Authority (PoR) and measure its performance prior to corporatization and after corporatization. The conclusions are generally that corporatization has worked well for many landlord ports that have taken this avenue and that this is also the general inclination even for many ports in developing countries.

Noteworthy is that the PoR is a non-profit organisation. It is not profit-maximizing but it self-sustains and pays a dividend to its shareholders – it is a public company. Looking at the three fundamental objectives of the TNPA, two of them are about cost recovery and the third is actually about making enough “profit” commensurate with the risks they have borne commercially with respect to the running of the port system. This raises the question of the success of corporatization of the SOE where the port authority is actually profit-seeking.

Another observation from the PoR is that the executive and the board of directors comprise of people with a substantial private sector experience in managing (public) corporations, transport

and energy industries, and stakeholder management; yet the port authority remains a public company that is not profit-maximizing. Previously (before restructuring) the PoR had no CFO and now it does and this position was established by reason of the need to source capital directly from the capital markets instead of through the municipality of Rotterdam.

Hiring personnel with private sector experience even all the way to the general management level assisted the PoR in the following manner with respect to corporatization:

- Market share was on the decline for 7 years prior to the corporatization. We must take cognisance of the fact that corporatization was preceded by a EUR 700 million equity injection into the PoR. Seven years after corporatization the market share increased almost back to the original level.
- Rate of turnover of employees was relatively stable prior to corporatization but it has increased sharply afterwards.
- Operating and employment costs rose prior to corporatization but have declined considerably afterwards, partly due to outsourcing which has resulted in efficiency gains.
- Productivity per employee also improved substantially after corporatization.

Although PoR remains a non-profit organisation the approach has become increasingly commercial with respect to port development and therefore profitability has become an important performance indicator. Investments are another important indicator used here as they are important for port development. The discussion is concerned with the development of eight performance indicators (market share, turnover, turnover per employee, operating costs, EBITDA, net profit, profit per employee, and investments) over two seven-year periods: pre-corporatisation (1997-2003) and post-corporatisation (2005-2011).

- EBITDA declined and net profit remained stable, whereas after corporatization both these indicators improved substantially. From 2005 to 2011 employment declined hence profit per employee also rose. EBITDA increased by 50% and net profit by 140%
- Prior to corporatization, staff employment increased but investment actually declined over the same period and post-corporatization investment increased from about 150 million Euros to over 500 million Euros! De Langen and Heij note, however, that subsidy to PoR would have had the same outcome so this may not necessarily be the best performance indicator.

- The throughput growth rate did not catch up to that of the competitors prior to corporatization, but it outperformed them afterwards.
- Another observation is that of an increasing number of leased lands which points to the ongoing process of attracting new customers.
- Port dues and land rents as two principal revenue streams both increased considerably after corporatization.

Furthermore, the PoR has substantially lower operating costs than those of its close competitors (De Langen and Heij, 2013). This is despite the port being in a place where the Anglo-Saxon doctrine is most adhered to. This, of course, shows that this view of ports is good for the improvement of efficiency and promotion of competition. Competition, nonetheless, is also not the policy focus of the South African economy with respect to ports. Thus far we have looked at corporatization and seen that it flourishes where competition is encouraged and pricing is transparent and cost-based. This is less so in developing countries and, therefore, despite De Langen and Heij's assertion that corporatization is a general inclination across the world, it does not appear to be so in practice. What may be gaining more popularity in the developing world, however, are concession agreements.

4.4.1.2. Concession of Port Terminals

Typical of all concession expectations are that of increased investments, lowered tariffs, improved employment and economic growth. The OLP Container terminal of the Port of Piraeus was concessioned to Cosco Pacific in 2009 through approval by the Greek Parliament. This was not without strong opposition by the trade unions and the initial objectives of the concession which were to lower entry barriers, improve efficiency, promote intra-port competition and labour reform were never quite achieved; proving that what was required was a carefully thought out design and implementation strategy of the concession process if it should result in optimal results. Prior to 1999 all Greek ports were wholly public owned and public run with virtually no private sector involvement, save where the public sector fell short of capacity to provide some port services (Psaraftis & Pallis, 2012). This arrangement is similar to South African ports prior to 2002 which largely followed the public sector service port model (TIPS, 2014). Another commonality is the presence and strength of trade unions in South African labour affairs.

Concession in the South African maritime context has been considered in the past on the grounds of the player-referee dilemma that was faced by Transnet with respect to ports. This was ameliorated, somewhat, by the establishment of an independent regulatory body – the Ports Regulator of South Africa. The two distinct divisions of Transnet that exist in ports (TNPA and TPT) are dichotomies that are in line with international best practice. TNPA is the landlord and is also the supplier of marine services and marine safety. In turn it is lessor of cargo-working infrastructure to TPT, which handles all cargo-handling operations, thereby running all terminals that fall under the ownership and control of Transnet. There are few privately-owned terminals in local ports but the problem with this is that both TPT and TNPA remain under Transnet and are thus publicly owned. The problems faced by local ports because of the inadequacy of private participation and investment in some port services – especially in cargo handling – are typically faced by Nigerian ports which also have been the subject of research because of the Federal Government’s radical focus on concession since the 1980s (Akinwale & Aremo, 2010).

Inefficiency, corruption in government, indebtedness, mismanagement, redundancy of 24 of the 83 of the ports managers as well as the poor management structure are just a few of the problems that led the Nigerian government to embark on concession; and it has been renowned as one of the world’s largest concession programs (Akinwale & Aremo, 2010). Accordingly the Nigerian case is a mirror of the implementation of concessions of ports in Africa, and the success or failure of this programme will affect the perception of privatization in Africa.

In 2010 the results of concession in Nigerian ports had seen only the retrenchment of over 8000 workers and positive effects still remained to be seen. It is further believed that the transferring of monopoly enterprise to the private hands is likely to be successful in the presence of a proper legal and regulatory environment. This is also not the case in Nigeria which, more so than South Africa, is known for corruption (Akinwale & Aremo, 2010). These authors further mention the social unrests resulting from the lay-offs, which are part of the initial effects of concession agreements, citing different cases across the inhabited world to confirm that there is no concession or privatization policy that is without crisis. They conclude by saying that this is only an initial crisis that may be approached and solved in a variety of ways as seen in the success of Latin American countries and European nations that have benefited significantly from concession of their ports ahead of Nigeria. They further conclude that the concession of ports is in no way an abdication of responsibility by the Nigerian Federal Government. To make concession successful, the regulatory framework must be inclined to protect Nigerian

workers from the abuse of monopoly power by the concessionaires and it must be geared toward the continued provision of infrastructure. Also, as in South Africa, they encourage the export promotion industrialization strategy in which Nigerian ports will be made directly relevant to the national economy. Below is a summarized study of major ports in some developing economies adapted from Ocean Shipping Consultants (2009).

Reporting from the 2008 findings Ocean Shipping Consultants Ltd acknowledge that ports are modernizing across the world while the Sub-Saharan Ports are only starting to focus on the much more basic need of making some sort of service available day to day instead of meeting certain performance standards. For container and general cargo handling, it is relatively easier to measure performance because they have enough features in common, and there is an increasing trend towards containerization even in general cargo handling (Ocean_Shipping_Consultants, 2009).

Both quayside and landside performance are relevant measures when it comes to container-handling performance. Quayside performance is determined by examining the average number of crane moves per hour. Landside performance is measured using truck cycle times and dwell times. For major study ports, Ocean Shipping Consultants recorded the type of container-handling system used alongside the average quayside container moves per hour (see Table 4.8).

Specialized equipment improves container-handling. Thus, ports with crane equipment achieve 14 moves/hour, while only 8 moves/hour are achieved with ports that rely on ship's gear. The same is true between ports that have concession arrangements and those without it.

Table 4.10 Cargo Handling Systems at Major Ports of the Region

Port	Average Moves per hour*	Handling System Employed	Operation concessioned or not concessioned
Tasmania	22.4 moves for discharge, 12.78 moves for loading	Mobile cranes	Concessioned
Douala	20	Container gantries	Concessioned
Dar es Salaam	20+	Container gantries	Concessioned
Abidjan	20+	Container gantries	Concessioned
Djibouti	17	Container gantries	Concessioned
Durban	15	Container gantries	Not Concessioned
Tema	14	Container gantries	Concessioned
Elizabeth	13.3	Container gantries	Not Concessioned
Cape Town	12	Container gantries	Not Concessioned
Apapa	12	Container gantries	Recently Concessioned
Mombasa	10	Container gantries	Not Concessioned
Maputo	10	Container gantries	Concessioned
Dakar	10	Ship's Gear	Only Just Concessioned
Beira	9	Ship's Gear	Concessioned
Port Sudan	8	Ship's Gear	Not Concessioned
Walvis Bay	8	Ship's Gear	Not Concessioned
East London	8	Ship's Gear	Not Concessioned
Luanda	8	Ship's Gear/Mobile cranes	Only just Concessioned
Matadi	7	Ship's Gear	Not Concessioned
Pointe Noire	7	Ship's Gear	Not Concessioned
Onne	7	Ship's Gear	Recently Concessioned
Casablanca	14	Container gantries	Not Concessioned
Tangier Med	34	Container gantries	Concessioned
Algiers	14	Container gantries	Concessioned
Rades	8+	Ship's Gear	Not Concessioned
Damietta	18	Container gantries	Concessioned
Alexandria	20	Container gantries	Concessioned
East Port Said	40+	Container gantries	Concessioned
Sokhna	18	Container gantries	Concessioned

Source: AICD Ports Database 2008.

Note: *Handling rates reported are per hour, per item of equipment for container gantries and mobile cranes, and overall per hour for ships' cranes.

Source: Ocean Shipping Consultants, 2009: 32

As has been mentioned, concessioned ports seem to do better than many that are not yet concessioned, but the Durban port among those in the continent of Africa seems to be doing very well compared to other concessioned ports like Tema, Maputo and Beira. It is understandable, however, that there are more variables that determine good performance in cargo handling operations so comparison of Durban with smaller ports like Maputo may not be an exact like-with-like comparison despite the fact that the latter is concessioned. The relative size also may distort the picture somewhat but the relative excellence of East Port Said makes the idea of concessioning even more appealing to ports in Africa. Further to this the geographic location of the Port of Durban and the supporting infrastructure in the hinterland also contributes to port superstructure investment, giving rise to the need for its further development and relative excellence. It remains true, however, that the Durban port still has plenty of room for improvement – especially looking at the East Port Said. The Nigerian ports, Apapa and Onne, rate among the poorest performing ports in Africa although quite understandably because this data was made available only 3 years after Nigeria had concessioned its ports – too short a period to expect significant improvement in performance.

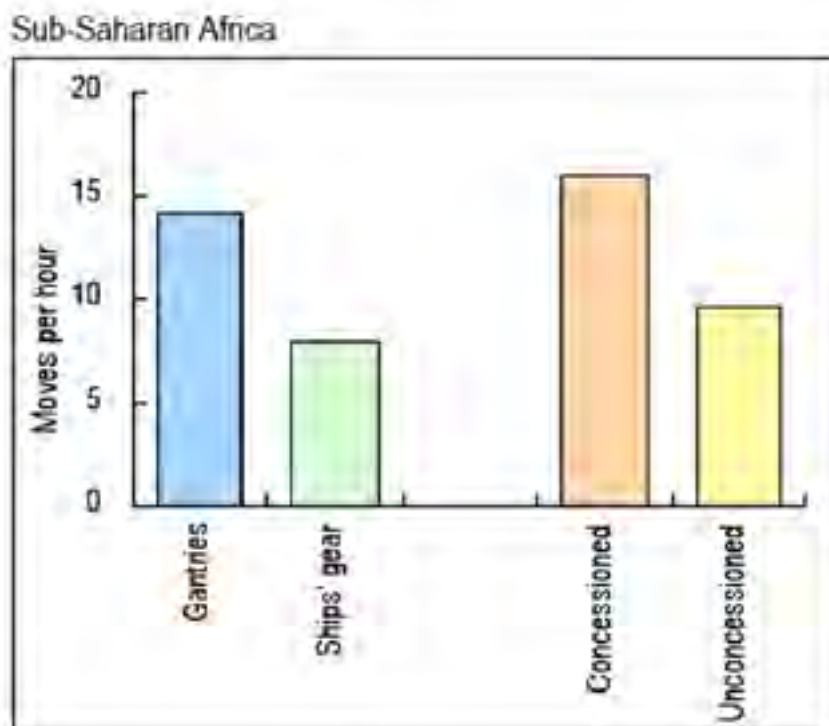


Figure 4.9. Cargo Handling Performance of Sub-Saharan African Ports

Source: Ocean Shipping Consultants, 2009.

Container-handling performance in highly developed container terminals utilizing mainly gantry cranes falls in the 20-30 moves per hour bracket. On the other hand, notwithstanding significant progress in recent years, the norm for ship-to-shore handling performance in Sub-Saharan Africa is below 20 moves/hour. Figure 4.9 confirms that ports that operate mainly crane gantries rather than ships' gear have generally more moves an hour and those concessioned also experience a greater number of crane moves per hour; highlighting that the ideal in the general cargo and container port terminals is a combination of improved superstructure and concessioning.

The study done by the OECD (2014) on the competitiveness of ports in emerging markets shows that since 2001 up to 2007 average ship waiting hours in Durban, now Africa's leading container port, increased from 26.14 to 55.14. This, one might add, is due to the increases in demand for its services without commensurate investments in its capacity which contributed to congestion – a problem that persists even today. As of 2012-13 the average turnaround time was 60.4 hours, with a median value around 56 hours (standard deviation of 30 hours) with many ships having a turnaround time above 70 hours. The average dwell time for all container flows is currently about 3.9 days and this is considered the most efficient in Sub-Saharan African ports where the average dwell time may easily be twice this figure (OECD, 2014).

The terminal operations' performance has shown Durban to be relatively constant at 20 moves per hour per crane in 2013. This is certainly an improvement for a container port that has remained unconcessioned from 15 moves per crane hour in 2008. Nevertheless, the target for 2014/2015 is 28 moves for DCT1 and 30 moves for DCT2 (OECD, 2014).

Seven years after the concession of Nigerian ports had taken place, Oghojafor et.al (2012) conducted a study that showed that when it comes to port operations and port governance, there is corruption, unjustifiable service charges, congestion, lack of accountability, generally poor performance of ports; all in the presence of concession agreements. Oghojafor et al. (2012: 1) states: "The findings of the study showed that the concession may for all its worth have been able to earn more income for the government but the Authority has failed to keep its part of the contract agreement especially as it concerns the provision of the enabling environment for port operations; infrastructures were still lacking, dwell time has not substantially reduced and corruption still soared high". From their investigations, the increase in cargo throughput, reduction in turnaround time, improvement in berth occupancy rate and the decrease in operating expenditure were all measures of productivity which were but short-lived as some

declined after 2007. One might have reason to believe that the decline was due to the global economic crisis, but it becomes apparent that on the national level some of the pre-concession challenges remained and some had worsened (Oghojafor, et al., 2012).

Bivbere (2011) quotes Francis Omotso of Association of Nigeria Licenced Customs Agents (ANLCA) when he says: “Shipping agents presently collect about seven illegal charges from port users, water front terminal operators collect about 11 charges on every container while their counterpart in the off dock operation (bonded terminals) collect about 20 different charges” (Bivbere, 2011). Such complaints are not uncommon in Nigeria as they are echoed even by high ranking officials.

A report by the Nigerian Voice (2011) an online media, reports a stakeholder saying that nothing has changed in the ports; that in 2007 access to the ports in Lagos was much easier but now (2011) after concession business is undermined by constant congestion and depreciating infrastructure while importers are extorted by demurrage. It is further reported that the monitoring role is not being exercised by the government (Nigerian_Voice, 2011).

The port industry anti-corruption standing committee in the same report said that government did not contribute to infrastructural development from the concession revenues collected. Corruption still undermines infrastructural developments. It is also reported that the port industry needs the proper intervention of the presidency, otherwise cargo will be lost to the neighboring countries, because 45 per cent of the port charges are imposed but they cannot be accounted for. Corruption in South Africa is also recognized as one of the nine challenges that the National Planning Committee recognized should be dealt with in their diagnostic report of 2011.

As mentioned in section 2.4.3, TNPA has a vision of itself operating as a perfect landlord port and eventually fully privatized system of ports (TNPA, 2012) as in the UK ports where government intervention is minimized. This may justify some of their design principles of user paying and cost recovery as discussed above, notwithstanding that it has not gotten it right thus far. But taking lessons from Nigeria it becomes clear that concession agreements is a system that must be approached with much caution and national regulatory framework. What should accompany concessions in order to make them sustainable and successful is an improvement in that nation’s regulatory system.

Considering that the sustainability of concession agreements and their success is a long term undertaking; what is required is an institutional overhaul in the legal and political system in developing countries to curb corruption. This normally takes years of deliberation and implementation; especially in the developing countries as the very culture of business and governance has to be transformed. It is normally more effective to work with the culture that is already incumbent in the country if any progress is to be made, like looking at the country's growth and development vision, but the macroeconomic strategies such as IPAP and NDP are also not saying much about the inefficiencies that bedevil South Africa with respect to its port pricing and port governance.

4.5. Conclusion

That South Africa still has a long way to go with regard to its port pricing and governance is beyond doubt. Since before the split of Portnet into TNPA and TPT, in line with the landlord model and international best practices, pricing was always a point of contention until ad valorem wharfage was done away with in 2002. But that alone was not sufficient as evidently the dispensation of cargo dues still had many vestiges of ad valorem tariffing despite being dubbed a more cost-based tariffing method. The Required Revenue method still being applied is found to be deplorable to many port users and they continually cry out for an alternative methodology and cost and pricing structure altogether.

Port governance, which has a direct bearing on the type and amount of tariffs charged per port service, is not without its flaws either. Although with the establishment of the independent Ports Regulator of South Africa in 2005 there has been regulation of tariff increases granted to TNPA annually, there has been no alternative pricing methodology and the Regulator has provisionally allowed the application of the Required Revenue Method. Further to this, according to Section 27 of the National Ports Act there is a provision for the corporatization of TNPA but the closest we have seen of this is only the documented – but never really acted on – plan to concede some port terminals which has only been best demonstrated by no overtly articulated objection to this type of arrangement; another matter on which Transnet has been silent. Indeed, the slow progress of port tariff reform may very well be a tacit repudiation of the idea of concession agreements in local ports. This is because with concession what must naturally follow is the permission for concessionaires to determine their own terminal operating prices according to the unique cost structures they face because of the markets they serve. This effectively means there is virtually no room for uniform tariffs and there are lower chances of cross subsidization. With the corporatization of TNPA and its subjection to normal private company environments when it comes to costs and price determination there would certainly be an end to the RR methodology and therefore less room for TNPA to make supernormal profits for Transnet.

The successful corporatization of the Port of Rotterdam in a region where the Anglo-Saxon doctrine has most adherence points to the fact that corporatization works best if the port authorities have a more transparent and cost-based method of pricing their services because the corporatized ports operate under the same commercial law that governs private companies and are made subject to similar conditions under which private firms operate, like competition in

the private capital markets, and the need for continuous improvement and innovation in order to lower costs.

Considering TNPA's vision of a 'true' landlord port (TNPA, 2012: 26) and eventual concession of entire terminals to the private operators, the beginning of such is the sincere application of the user-pays principle that should be reflected by the charges faced by the users and the prices indicative of the level of efficiency, not through the RR method per service category as they suggest. The implementation of this methodology, it must be stated categorically, is in direct contradiction to the user-pays principle with its inclusion of taxation, capex and a largely inappropriate capital cost and risk determination method.

Having viewed the Far Eastern ports performance in their context of heavy central government involvement in its multifarious role as port pricing maker, Ports Regulator, investor, designer and operator; all of this without a disconnection to the generally controlled pricing system in order to centrally coordinate the port industry affairs with those of the entire economy that slowly evolved into a dual pricing economy as the market system was allowed to absorb the excess production from SOEs; it must be repeated that a view of ports as an engine of economic growth and development needs to be embraced by all players in the economy and if ports are taken as strategic key national assets they may not be expected to fund themselves independently and still price their services to accommodate national developmental economic objectives – it is an impossibility.

The Chinese macroeconomic practices of central coordination of strategic industries, administered pricing regimes and subsequent hub ports development serves as a lesson for the whole world, especially the developing countries. Perhaps the most significant part of the lesson is a paradoxical outcome: that heightened government involvement and an increased role with the right policies and coordination measures can create competition, improve efficiency and minimize costs in the ports sector – even in the developing countries. This is the classical “infant industry argument” for development carried with impressive precision as to truly achieve what would have been ideally achieved under a free market system – competitiveness and efficiency. The Asian Port Doctrine, therefore, has set a precedence worth following. In light of all of the practices by the South African governance of ports, the pricing, the port doctrine and the international best practices explored within this study, chapter 5 proceeds to draw conclusions and make recommendations continuing from this research.

Chapter 5

5. Conclusions and Recommendations

5.1. Introduction

In line with the research conducted, the data gathered, processed and analysed in the preceding chapters, this chapter will draw conclusions and make recommendations, all based on the submissions by various stakeholders to the Ports Regulator regarding the annual tariff increases requested by TNPA, the practices of TNPA in view of their long term vision and the lessons learned from various ports around the world. Further to this the chapter will summarise all that has been covered in this dissertation, highlighting the applicability of the study and its limitations and also point to some areas for future research.

While South Africa has come a long way since 1994, it remains a developing country pursuing a vision of strengthening its position as a gateway to the African continent (Scholvin & Draper, 2012) and also be an economy whose growth is export-led through striving to boost our industrial output and promote the development of industry further (National Planning Commission, 2012). And in all this, SOEs like Transnet have an important role to play. Transnet, however, has been heavily indebted with TNPA being the most profitable division within it and the revenue from ports being used to subsidize other less profitable divisions of Transnet including the loss-making railway sector (Van Niekerk, 2007). This was achieved through an ad valorem tariff, operation of the South African ports by one authority (TNPA) as a complementary system rather than a competitive one, and by the discouragement of intra-port and inter-port competition through charging uniform tariffs even after the adoption of a supposedly more cost-based cargo dues which also are no longer a practice in many ports around the world. From the foregoing stems many concerns, complaints and grievances which have given rise to this and other similar-natured studies. Complaints as discussed in the preceding chapter with much detail in section 4.3 have hitherto not been addressed adequately by policy nor by the TNPA and therefore remain.

This chapter will provide the research aim and methodology used in achieving the objectives of this study in section 5.2. Section 5.3 discusses the findings on the research objectives of this dissertation and makes recommendations on the way forward. Section 5.4 makes detailed recommendations concerning the recurring themes since the tariff years 2009/10 and the

themes in the stakeholders' submissions to the Ports Regulator that have arisen since tariff years 2012/2013. Section 5.5 discusses the applicability and limitations of the study and recommends areas of research for the future.

5.2. Research Aim and Methodology Employed

The overall purpose of this study was to examine measures to improve port pricing and governance in South Africa. Therefore the historical development of some of the Far Eastern Ports was looked into, comparing their practices with those of South Africa and its historical pricing and governance reforms. What was considered are pricing strategies, their competitiveness, their level of efficiency and the extent to which they contribute to the socioeconomic objectives of the country. It must be admitted that South Africa was found wanting on the areas of port pricing methodology, pricing structure and port governance – the port doctrine.

The methodology used was content analysis in order to analyse stakeholders' perspectives on port pricing and governance and deduct recommendations, some of which have been made along the body of this dissertation and others yet follow. The RR methodology was also recalculated and constructively critiqued as the author experimented with each variable according to the recommendations made by stakeholders. The study furthermore compared and contrasted between South Africa and other maritime nations, especially the Far Eastern nations regarding the various modes of operation in their ports and the subsequent performance and it recommends a way forward.

5.3. Findings on the Research Objectives

Of the four researched objectives articulated in chapter 1 and chapter 3, the findings are detailed below

- To review the lessons and literature from the Anglo-Saxon, European and Asian Port Doctrines.
- To examine South Africa's current port doctrine and recommend improvements
- To determine what governance reforms are necessary to improve South Africa's port pricing and port governance.

- To determine what pricing reforms are necessary to improve port tariff methodology and tariff structure.

5.3.1. Reviewing lessons and literature from the Anglo-Saxon, European and Asian Port Doctrines

Having mentioned that there is no known strict definition of the term “Port Doctrine,” certain political objectives, modes of operation and economic practices throughout the history of sea trade by a particular maritime nation may allude to some philosophy concerning their port which may guide their pricing practices and style of governance, pointing to a certain type of doctrine. The most commonly known types of port doctrine are the Anglo-Saxon and the European (Continental) Port Doctrines and a recently emerged one called the Asian Port Doctrine. The latter has been gaining particular interest in view of the similarities that are shared by the Far Eastern maritime economies with South Africa. Seeing the impressive growth sustained over decades by a Republic such as China, success stories such as Taiwan and South Korea in their industrialization with the central government playing an integral part and seeing strong competitiveness and high efficiency in their ports; it may be justified to look at their view of ports and the actions they have taken toward achieving macroeconomic objectives without compromising on port competitiveness and efficiency in establishing South Africa’s port doctrine.

Among the first steps toward establishing South Africa’s own port doctrine would be performing a benchmarking study of all Far Eastern ports with a view to learning the best practices and maximising on the commonalities found between some Far Eastern economies and South Africa. Another step is the investigation into an alternative pricing methodology that is radically different from the RR method and is truly cost-based in order to confront each and every additional user with the costs that they cause; making way for the true application of a user-pays principle. Further to these measures, the government may consider playing more of a bigger role in South Africa’s ports system beyond regulation and, with the view of ports as key strategic national assets, use some public funds to make capital investments into ports infrastructure without raising the tariffs to extortionate proportions as in the case of annual tariff increases requested by TNPA (PRSA, 2012). The government, it may be believed, can achieve this through spreading the costs thinly across the rest of the economy through retrieving

them from a wider taxation pool than just port users – as such is the practice under the enterprise approach of the Asian Port Doctrine (Lee & Flynn, 2011).

5.3.2. Examining South Africa’s Current Port Doctrine and Recommending Improvements

As discussed and frequently pointed out by various stakeholders in the discussion chapter, it appears that there is no strict underlying doctrine adhered to by TNPA in its determination of the tariff methodology beyond the fact that it needs to make profits and enough returns that are commensurate with the risks of owning, managing, controlling and administering ports and of providing port services and port facilities (TNPA, 2012). Notwithstanding, it appears that the authority is only profit motivated because it includes a provision for taxation in its tariff methodology, annually artificially inflates its asset base, includes capital expenditure and does not minimise its operating costs during periods of recession in the business cycle (NAAMSA, 2013). Indeed the RR approach does not give TNPA incentives to become more efficient but it appears to guarantee TNPA profits in its inefficiency. Therefore the philosophy undergirding the tariff determination appears to be purely a profit motive.

South Africa’s ports, according to Gumede and Chasomeris (2013), exhibit various elements that are characteristic of a combination of all three port doctrines. For example, TNPA’s goal to implement user-pays principle is the Anglo-Saxon doctrine’s distinguishing feature while its desire to be aligned with the country’s macroeconomic objectives demonstrates more of the Continental doctrine trait. With respect to our developmental goals as a country and the involvement of government in ports as a regulator South African ports exhibit more of the Asian doctrine. Based on the success of the Far Eastern economies and considering that TNPA faces a unique situation of having to fund all of the ports’ infrastructure whereas government normally invests in infrastructure in countries where ports are seen as important key assets for economic development; it may be a better option to adhere more to the Asian Port doctrine.

5.3.3. Considering governance reforms that may be necessary to improve South Africa's port pricing and port governance.

The current tariff structure is that deemed suboptimal as it presented several issues in terms of transparency, compliance, fairness and overall acceptability by port users. This is because it is not based on asset allocation rationale and the currently recognised revenues because of this structure are mostly a result of historic carry-over of tariffs. The allocation of total costs is 19% for the tenants, 20% for shipping lines and 61% for cargo owners. This tariff structure has been rejected because there has not been a strong justification for prevailing tariff levels and the rent has been too low for a landlord port at just 15% of total revenue instead of the global range of 40% to 60% in other ports around the world. Indeed, without a proper and justifiable cost allocation to various commodities and port services the tariff structure does not find much justification either.

The TNPA, in light of all this, then presented the alternative or new tariff structure in which tenants or terminal operators pay 33% of the asset allocation as a means of getting closer to international best practices, shipping lines pay 21% as can be expected considering that shipping lines generally face much lower costs in South African ports despite the fact that they are direct users of wet infrastructure and also direct beneficiaries of investment thereto; and cargo owners are facing only 46% of total costs which is still a sizeable portion considering that cargo handling is the area in which ports often make more revenue and it makes sense to lower the tariffs related to it instead of strain the largest contributor to revenue. Notwithstanding that, the latter group is also the one often most adversely affected by cost increases for various other services of the ports like rent and port dues as terminal operators and shipping lines often find it easier to shift the costs to them. Nevertheless TNPA seems to say that what informs their new tariff structure are core design principles reiterated from section 2.4 which are: cost based, user pays, required revenue and competitiveness. Of course, these are then questioned in section 4.3 with regard to the MDS and the assertion of the competitiveness of the new tariff structure remains ambiguous as pointed out in section 4.4.

Further to this TNPA did propose a multi-year tariff application. It has largely been questioned what the motivation concerning it is because that tariff structure is persistently above the country's inflation rate. Moreover, the ability to accurately predict tariff increases and revenue

requirement over a period of four years is in doubt because of TNPA's poor track record when it comes to calculating annual tariff increases over a period of one year alone.

Finally, knowing that the choice of tariff structure and methodology hinges on the type of port governance and that concession of port terminals has been very slow in South Africa; the corporatization of TNPA seems to go well with the idea of user-pays principle which TNPA says it has incorporated into its proposed tariff structure. This is also in line with the fact that in the future TNPA sees itself modeling the Port of Le Havre. Considering, however, that South Africa remains a developing country it is equally important to look more into the model demonstrated by the Far Eastern economies, especially the People's Republic of China, in its intimate government involvement. This may, perhaps, be considered as a long term objective of our ports.

5.3.4. Determining pricing reforms that may be necessary to improve port tariff methodology and tariff structure.

This is yet another issue that raises questions about the connection of TNPA's vision and processes with national macroeconomic objectives. TNPA alludes to the alignment of its goals with those of the national government with respect to the entire economy to justify its initiation of the Beneficiation Promotion Programme. However, as discussed in section 4.3, this programme might appear to be a regression to the ad valorem wharfage as a now defunct tariffing method. In view of the foreseeable flaws and shortfalls of the BPP we have looked at alternative ways in which developing economies can be spurred into growth, citing success cases like China, Taiwan and South Korea. The point made here was that each and every country may have a different view of development and various options to get to the level of industrialization they seek. The manipulation of port prices is a very small part that may likely prove insignificant in altering the growth trajectory of an entire economy. At worst it may be a practice repudiated by those who have to bear the brunt of it as a very narrow populace of port users – especially as it may hinder the trade of non-beneficiated products. Furthermore, the use of the BPP may very well be an attack on the country's comparative advantage at exporting agricultural products and export of minerals as the new tariff structure proposes an increase in tariffs charged to dry bulk and break-bulk commodities and the import rate is at

least twice the export rate; with the products that stand too little chance at beneficiation not benefiting from such a programme through stage discounts proposed therein.

It was also shown that South Africa is in short supply of electricity and the proposed beneficiation of some of the products would be more capital and energy intensive such that it would draw resources away from other productive uses in the economy. What was proposed, therefore, is beneficiation that targets specific areas, not a blanket approach to all commodities.

5.4. Recommendations Regarding Tariff Methodology, Tariff Structure and Port Governance

Understanding that the process of pricing and governance reform may take a long time and results realised only at length, it is necessary to divide recommendations into short-term, medium-term and long-term reforms regarding the tariff methodology, tariff structure and governance of our ports. What the South African ports will look like in the future is undoubtedly determined by whatever doctrine they adhere to. Therefore, below we start with the short-term recommendations on the tariff methodology in view of stakeholders' submissions and what the author may deem plausible.

5.4.1. Recommendations Regarding Tariff Methodology

On the Short Term

- Considering the prevailing tariffs and the annual surpluses made, there is a general inclination with NAAMSA (2013) and XStrata (2013) to recommend a 0% increase in tariffs in the immediate term
- The Ports Regulator must, in the immediate term, reject the provision for taxation and discourage the inclusion of capex in the tariff methodology as this is not a proper accounting practice.
- In the determination of its tariffs, often TNPA has used very conservative volume growth estimates. With an estimated volume increase of 8% instead of 4.65%, the tariff adjustment can be down to -9.2% instead of the requested 18.06% (SAAFF, 2012).

Moreover SAAFF believes it is essential that a proper explanation of the expected volume increase and allied revenue calculation be transparent.

- The multi-year tariff application must be approved only subject to annual increases that are on par with the country's CPI not above it at CPI+3% because currently proposed increases are above the prevailing inflation rate and, having recalculated the model, the Regulator demonstrated that TNPA's tariff increase can be on par with the inflation rate and still make profits.
- Return on Capital and depreciation are used to justify the retention of some cargo dues, i.e. an import tax. "Claims for a ROC and depreciation would be justified for a company financed by investors and loan funds, but not for infrastructure financed by taxpayers over decades" (Cape Chamber of Commerce, 2011: 2). The Regulator should reject this claim for ROC and it should be removed as an item from the accounts
- The WACC must be revised and the debt beta included, the MRP based on the geometric mean return be used instead of an arithmetic mean.
- The use of the JSE Top 40 Companies index is also inappropriate in the risk assessment of Transnet and TNPA – the SOE is not in such a competitive environment and therefore it faces a much lower risk compared to such companies.

On the Medium-Term

- The authority must adjust its gearing ratio downward since for an enterprise in such a low risk industry the gearing ratio of 36% is considered excessive.
- With regard to the RAB, the valuation thereof must be performed by an external valuator and not Transnet's internal department which stands to benefit from the overvalued RAB.
- Atlas proposes the use of the Cost Method in terms of the IAS 40 to establish appropriate placement values for such assets as this would also lower the revenue requirement (Atlas Holdings, 2013)
- Because the TNPA has been non-compliant with the National Ports Act, the Regulator must set basic directions in the methodology which can clarify relationship between port facilities and users, determine a price mechanism that prevents congestion and simplify port tariffs.

In the Long Term

- Now because the current methodology lacks transparency, reliability and predictability as to how prices are determined, TNPA should employ activity based pricing which identifies an activity and assigns a cost to it and it provides grounds to justify costs transparently. It also presents the cargo owners the opportunity to estimate costs and costing projections become more predictable.
- TNPA must consider Global comparators and engage with industry to understand these fully. Therefore an independent study, endorsed by all stakeholders must be undertaken in conjunction with Terminal Operating Performance Standards (“TOPS”) which will result in the definition of best practices and relevant Targets & KPIs in the context of the SA Ports environment (Atlas Holdings, 2013). Moreover, BUSA (2012) say that the Ports Regulator should explore other business oriented models that promote efficiency
- With regard to incomplete projects from TNPA’s previous financial years, SASC is of the view that infrastructure development should take a holistic approach to ensure integrated supply chain development and balance demand and supply of infrastructure in South African ports. SASC (2012) continues, saying that port development cannot take place in isolation from landside development. Another recommendation is to be more consistent in the application of KPIs in order to improve truck turnaround times and, indeed, the entire supply chain; and minimize delays

5.4.2. Recommendations Regarding the Tariff Structure

The recommendations made with regard to the prevailing and proposed tariff structure, the two not being significantly different in the cost assumptions they have, may be too tricky to classify into various time frames and so they have been listed below in no particular order. Also important is the recognition that some changes in the tariff structure may not be realised until the style of port governance is changed, which may take a while since it requires the transformation in the country’s regulatory framework.

- In view of the differences in cost structures of the various South African ports, the uniform tariff must be done away with in favour of each port pricing according to its specific cost structure and the tariff for bulk export coal from Richards Bay should be

looked at as an individual operation because the port is operated differently to other coal export ports.

- There may be merit to the application of import duties to luxury cargo but less so to goods essential for manufacturing and job creation; the latter must be made free of cargo dues (Cape Chamber of Commerce, 2011)
- In the very short run, however, it is recommended that prior to expenditure being increased by inflation it should be reduced by wasteful and inefficient expenditure and TNPA should disclose full details of such expenditure when applying for its next tariff increase (SAASOA, 2013), this is in view of the wasteful expenditure within Transnet.
- Since there are incongruities between CAPEX spend on some commodities and the tariff increase proposed, the Richards Bay Coal Terminal is privately controlled in which Anglo American has supported through significant contributions including port development while enhancing the capital value of the TNPA asset register (RBCT, 2013). The RBCT should be looked at as an individual operation and not used to subsidize the service cost across various other commodities and ports.
- As rental increases which are deemed already too high at 77% because of current market circumstances may be shifted to cargo owners, it is important that there be a strict regulation to prevent terminal operators shifting costs to cargo owners through increased terminal handling charges. Rentals as a percentage of the tariff income should be compared with those rentals found in other Sub-Saharan African harbours or other comparable African ports; not with those ports in the developed world because the costs structure, government contribution to investment and its involvement significantly differ. TNPA made a sweeping statement in its proposal for rental increases (Bidvest Freight, 2013). It is further recommended that assets should be split according to different commodities and each user should pay a rental equivalent to the benefit that they obtain and it also should be port-specific.
- Cargo dues as an impost and a system of taxation must be done away with speedily.

5.4.3. Recommendations Regarding Port Governance

That the central government owns the infrastructure in many landlord ports around the world and the fact that if government financed some key assets like wet infrastructure within ports in South Africa then 67% of TNPA's costs would be taken care of must not be ignored. The

transition from a public service port model to a perfect landlord model has been slow and remains an optimistic vision for TNPA. What furthermore shapes the recommendations is the fact that TNPA did not acquire its infrastructure via a commercial sale but they got it for free and “were only mandated to manage, control and administer it” (SASC, 2013: 1).

- Therefore the ports infrastructure belongs to the nation and must be managed to serve the welfare of the nation without generating huge profit out of its operations.
- In line with the above recommendation, it must be considered that the Asian ports doctrine is more in line with South Africa’s developmental objectives. Adherence to the Asian ports doctrine would therefore be beneficial and it should be granted until all South Africa’s ports reach a level where they can stand as good competitors in the global environment with regard to pricing and tariff structure. TNPA is in need of reform according to Section 27 of the National Ports Act which puts forward that TNPA should be corporatised. Corporatisation is recommended as the next step after the Asian port doctrine phase has run its course and fulfilled government’s developmental objectives with respect to ports
- Alternatively if TNPA should continue operating as it does then it should get corporatised. That is, it should register as a (Pty) Ltd company and be subjected to normal commercial practices faced by private companies in line with its mandate to make a profit, recover investment and earn a return commensurate with whatever risk it faces in its industry; and the Ports Regulator needs to see to it that this process, as provided for in Section 27 of the National Ports Act resumes and is carried out with all convenient speed.
- In making TNPA’s practices more aligned with the macroeconomic goals, at least in the short term, TNPA and TPT Divisions must have a continuous improvement programme with specific targets to ensure they pass that advantage through to the shippers and customers. Furthermore, they must be held accountable to reach those targets (BUSA 2011). There is need for a phased reduction of the tariffs over time to bring them more on par with the international average ((Cape_Chamber_of_Commerce, 2012), 2011). SASC (2012) recommends the same and encourages the use of key performance indicators (KPIs) to measure the activities within the ports.

5.5. Limitations of This Dissertation and Opportunities for Future Research

The foregoing study has limited the discussion of measures to improve South Africa's port doctrine largely to the analysis of stakeholders' submissions to the Ports Regulator with a limited focus on what international benchmarks for port pricing and governance may be. The only cases analysed are the success cases with respect to industrialization, which is what South Africa is attempting, and port reform. What has been furthermore assessed is one case of the Port of Rotterdam with regard to best practices in corporatization and also the performance of some Nigerian ports pre and post concession. The reason for the latter is some similarities that may be identified between South Africa and Nigeria from which lessons may be extrapolated regarding concession. The assessment of the performance of African ports, both concessioned and those not concessioned, has been rather high level and therefore largely a generalization as the focus of this study has not been the analysis of other ports' performance but rather on the measures to improve South Africa's port doctrine with respect to pricing and governance reform.

Most of the data analysed is from the National Ports Regulator website and some of the submissions made by various stakeholders have been group submissions through associations like SASC, FPEF, NAAMSA and SAASOA. This means that there is a possibility, however slight, that each individual's unique views have been grouped with others and the nuanced responses have not been made articulate in the group submission or in this study.

One limitation and perhaps an area for future research, is the consideration that while some strong views and absolute positions have been assumed by the author concerning some components of the revenue required methodology and the tariff structure and the general style of port governance; the study has not been prescriptive or very detailed on the way forward for South African ports, TNPA or the Ports Regulator. That is, the study has not been prescriptive of either an increase or decrease in prevailing port prices, although it has strongly suggested that the prices must reflect costs and the level of efficiency.

Another limitation is that the study did not delve into the regulatory mechanics in the local context and the National Ports Act and National Ports Policy has not been explored in greater detail as to give insight to the regulatory aspects involved in port pricing and governance reform. Lastly a benchmarking activity on the best performing Far Eastern Ports is worth undertaking to assess the processes involved in the tariff determination and multifaceted ports

services and pricing employed by the Chinese government in ports – seeing as it has demonstrated well the results of adhering to the Asian port doctrine.

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Appendix 1: Themes on Stakeholders Submissions

No.	Theme	Staying Frequences	Themes on Tariff Methodology		
			Requested Tariff Increase	18.06%	13.2%
		2009/10-2011/12	2012-2013	2013-2014	2014-2015
1	Revenue Requirement Model is unjustifiable and arbitrary	Anglo 2011/12; Columbus Stainless 2011/12; CTC Timber 2011/12; Deneys Reitz 2011/12; Xpanse 2011/12; Forestry SA 2011/12; King & Sons 2011/12; Lanxess 2011/12; Masa 2011/12; Mondi 2011/12; SAASOA 2011/12; SAPIA 2011/12; Shell 2011/12	SASC; Cape Chamber of Commerce; BUSA, Fruit SA	SASOL SASC; NAAMSA; BUSA; Fruit SA	SASC; SAASOA; Forestry SA; RBCT; NAAMSA; BUSA; SASOL and Fruit SA
2	Above-inflation increases requested annually	Johan Venter 2010/11; SAASOA 2010/11; SAAFF 2010/11; Cape Chamber of Commerce 2011/12; CMA CCGM 2011/2012	Fruits SA; Anglo-American; Forestry South Africa; BUSA; NAAMSA; SASOL, SASC	SASOL	BUSA, SASC, Fruit SA
3	Regulatory Asset Base is not cleaned up and it is overvalued			SASC; SAASOA; BUSA	Fruit SA; SAASOA; BUSA; NAAMSA; SASC and RBCT
4	Depreciation methods used remain questionable			Cape Chamber of Commerce	SASOL
5	Some products are still tried on a value basis	BUSA 2011			
6	WACC, MRP and betas used to assess risk are all inaccurate	Ports Regulator of South Africa; SAASOA; SASC, Maersk Lines; SASOL; SAAFF; Safmarine;	SAASOA; SASC, Maersk Lines; SASOL; SAAFF; Safmarine;	SAASOA; SASC, Maersk Lines; SASOL; SAAFF; Safmarine;	SAASOA; SASC, Maersk Lines; SASOL; Cape Chamber of Commerce; SAAFF; Safmarine;
7	Cargo dues are a uniquely South African Practice	Cape Chamber of Commerce; 2010/2011	BUSA; Cape Chamber of Commerce; SAAFF	Cape Chamber of Commerce	Cape Chamber of Commerce
8	TNPA's Return on Capital is not justified		SASC		
9	Estimated volume Projections too conservative	SAAFF 2011/12	SAAFF	SAAFF	SAAFF; NAAMSA; Fruits SA
10	Multi-year tariff approach is above inflation and questionable			SASC	SASC; NAAMSA; BUSA
11	The inclusion of taxation in the RR method is not lawful			SAASOA; NAAMSA	
12	The inclusion of CAPEX into the RR method inflates port costs			SASC	Fruits SA; NAAMSA; RBCT
13	TNPA has pushed its OPEX costs to its customers unjustifiably				SAASOA

		Themes on Tariff Structure			
		Submissions on the following Review Periods			
Requested Tariff Increase		Staying Frequences	18.06%	13.2%	14.39%
No	Theme	2009/10-2011/12	2012-2013	2013-2014	2014-2015
1	Current structure inhibits global competitiveness of ports	Johan Venter 2010/11; SAAFF 2010/11; Cape CoC 2011/12; Columbus Stainless 2011/12; CTC Timber 2011/12; Johan Venter 2011/12; Xpanse 2011/12; Forestry SA; 2011/12; FPEF 2011/12; General Motors; 2011/12; Goedehoop 2011/12; Lanxess 2011/12; Masa 2011/12; Mondi 2011/12; NAAMSA 2011/12; SAAF 2011/12; SAASOA 2011/12	Anglo American; BUSA; Cape Chamber of Commerce; Driving School; Forestry SA; FPEF; Maersk; NAAMSA; SAASOA; SASC; Shell; Xpanse	Anglo American; Maersk Lines; NAAMSA	Forestry SA; Bidvest Freight; SASC; NAAMSA; Anglo American
2	High port tariffs hinder the profitability of stakeholders	Johan Venter 2010/11; Cape CoC, 2011/12; Columbus Stainless Steel 2011/12; FPEF 2011/12; SAAFF 2011/12	Diving School; FPEF		SAAF; Bidvest Freight
3	There are misalignments with international tariff standards	Mondi 2011/12; SAPPI 2011/12; Shell 2011/12	Ports Regulator of South Africa; Maersk Lines;	SASC; NAAMSA	SASC; Fruits SA; SAASOA
4	Unreasonable and Inconsistent pricing of some port commodities	SAASOA 2010/11; General Motors 2011/12; FPEP 2011/12; Xpanse 2011/12; Masa 2011/12; Mercedes 2011/12; Mondi 2011/12; Vopak 2011/12	BUSA; FPEF; SASC; Shell; Xpanse	BUSA; SASC	SASC; Xpanse; BUSA
5	Cross subsidization of some port costs across all ports		Anglo American		
6	Cross subsidization of port profits to other Transnet divisions		Anglo American; BUSA; RBCT		
7	Port dues as a tax system are inefficient and blunt instrument for profiteering			Cape Chamber of Commerce	
8	Inappropriate use of income from berth dues and cargo dues				SAASOA
9	Incongruity between CAPEX spend on some products and tariff increases			Fruits SA; SASC	Fruits SA; SASC; RBCT
10	The Beneficiation Promotion Programme is difficult to understand or execute			SAAFF; Xstrata	SAAF; Xstrata
11	Increases in tariffs resulting from Market Demand Strategy will be inevitable			Atlas Holdings	SASC; NAAMSA
12	New tariff allocation will almost wholly prejudice the cargo owners			SAASOA; Bidvest Freight; SAAFF	SAAFF
13	Bunker Levy is prohibitively high			Unical	

		Themes on Port Governance			
Requested Tariff Increase		Submissions on the following Review Periods			
No.	Theme	Staying Frequences	18.06%	13.2%	14.39%
		2009/10-2011/12	2012-2013	2013-2014	2014-2015
1	Unresolved matters	SAPIA 2011/12; NAAMSA 2011/12; Shell 2011/12	SAPIA		
2	Abuse of monopoly power	Johan Venter 2010/11; Cape Chamber of Commerce 2011/2012; Mercedes 2011/12; SAAFF 2011/12	Cape Chamber of Commerce; Forestry SA; SASC; JA Bremmer CC		JA Bremmer CC
3	Lack of transparency in reporting or justifying tariffs	SAASOA 2010/11; General Motors 2011/12; FPEF 2011/12; Xpanse 2011/12; Masa 2011/12; Mercedes 2011/12; Mondi 2011/12; Vopak 2011/12	BUSA; FPEF; SASC; Shell; Xpanse	SAAF; SASC	NAAMSA; SAASOA; SASC; SAAF; BUSA
4	No accounting for prevailing economic conditions	SAASOA 2010/11; General Motors 2011/12; CMA CGM 2011/12; Forestry SA 2011/12; Grape Co 2011/12; Xpanse 2011/12; Masa 2011/12; Mondi 2011/12; Vopak 2011/12	SASC; Shell; SAASOA	SASC; SASOA	SASC
5	TNPA practices do not support job creation	CTC Timber 2011/12; Columbus Stainless Steel 2011/12; FPEF 2011/12; Grape Co 2011/12	BUSA; Forestry SA; SASC; Cape Chamber of Commerce	SAAFF	Cape Chamber of Commerce; SAAFF
6	Non-compliance with national policies and inconsistency	SAASOA 2010/11; General Motors 2011/12; FPEF 2011/12; Xpanse 2011/12; Masa 2011/12; Mercedes 2011/12; Mondi 2011/12; Vopak 2011/12	BUSA; FPEF; SASC; Shell; Xpanse	SASC	Fruits SA; SASC; BUSA
7	Inefficiency and low productivity of ports	Johan Venter 2010/11; Goedehoop 2011/12; Mercedes 2011/12; SAAFF 2011/12; Vopak 2011/12; Masa 2011/12; General Motors 2011/12	BUSA; Cape Chamber of Commerce; SASC; JA Bremmer CC; Shell; Maersk	SAAFF; SASC; Cape Chamber of Commerce; City of Cape Town	SASC
8	Poor service delivery	Johan Venter 2011/2012; Goedehoop 2011/12	Shell		SASC
9	Weak Security	Columbus Stainless 2011/12			
10	Lack of consultation with industry prior to altering tariffs		BUSA	RBCT; SASC	
12	Projects from previous financial year are seldom complete		SAASOA; BUSA	BUSA; SAASOA	
13	Lack of locally owned vessels is costly to local cargo owners		SASC; Maersk Lines	SASC	
14	Wasteful expenditure and corruption within Transnet			SAASOA	
15	Transition from TNPA to NPA (Pty) Ltd is still pending			SASC	SASC
16	Ports as national asset are used for profiting, not national economic objectives			Fruit SA; SASC	Fruits SA; SASC
17	Poor port infrastructure still not addressed for some stakeholders				RBCT

Appendix 2: Ethical Clearance Certificate

28 August 2014

Mr Ayanda Meyiwa 207500950
Graduate School of Business and Leadership
Westville Campus

Dear Mr Meyiwa

Protocol reference number: HSS/1036/014M

Project title: Assessing measures to improve South Africa's Port Doctrine: Pricing and Governance Reform

Full Approval – No Risk

In response to your application dated 21 August 2014, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

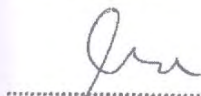
Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully



.....
Dr Shenuka Singh (Chair)
Humanities & Social Sciences Research Ethics Committee

/pm

Cc Supervisor: Dr Mihalis Chasomeris
Cc Academic Leader Research: Dr E Munapo
Cc School Administrator: Ms Zarina Bullyraj

Humanities & Social Sciences Research Ethics Committee

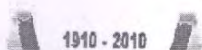
Dr Shenuka Singh (Chair)

Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X54001, Durban 4000

Telephone: +27 (0) 31 260 3587/8350/4557 Facsimile: +27 (0) 31 260 4609 Email: ximbap@ukzn.ac.za / snymam@ukzn.ac.za / mohunp@ukzn.ac.za

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Appendix 3: Turnitin Report

Turnitin Originality Report
LEAD8D1 by Ayanda Meyiwa
From LEAD8D1 - Part 1 (Moodle 27271724) (2014 LEAD8D1W2 Masters Thesis in Leadership
(Moodle 8265040))

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