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Development of a strategic plan for Port Authority of
Guayaquil - Case of Guayaquil

By

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Abstract

In this research we study the importance of good governance within a port, using the Port of Guayaquil as a case study. The Port of Guayaquil has historically been one of the most important ports in Ecuador. However, due to the new technological changes in the maritime sector, this port has been limited in its infrastructure (draught limitations – 9.75 meters), and dredge projects in this area are not possible due to the ground conditions. Therefore, the government together with the Port Authority of Guayaquil decided to build a new Deep Sea Port in order to satisfy the needs of the new market trends. The new port will have a natural draught of 16 meters and the capability to receive big vessels. This can lead to tight competition between the two ports since both are going to provide containerized services. This research aims to analyze what would be the best strategy to apply to the case of Guayaquil based on the study of the current structure of the Port Authority and its mission considering international practices in port governance. In conclusion, we find that the Port Authority of Guayaquil should consider the elaboration of formal policies in the areas of Development, Concession, and Tariffs in order to have a good relation with the private sector and to achieve its goals.

Table of Contents

Acknowledgements	i
Abstract	ii
Table of contents	iii
List of tables	iv
List of figures	v
Abbreviations	vi
1.- Introduction	1
1.1.- Background and the Problem	1
1.2.- Research and Methodology	4
1.3.- Thesis Structure.....	4
2.- Literature Review	5
2.1.- Ports and Infrastructure adaptations.....	5
2.2.- Port Management Structures	7
2.3.- Port Pricing	10
2.4.- Conclusion	14
3.- Methodology	16
3.1.- Data Gathering	16
3.2.- Conclusion	16
4.- The Maritime and Port System in Ecuador	18
4.1.- The Port System	18
4.2.- Port Authority of Guayaquil (PAG)	20
4.2.1.- Development and Investment Program of PAG.....	22
4.2.2.- Concession Structure of PAG	26
4.2.3.- Pricing Structure of PAG	29
4.3.- Maritime and Ports in Guayaquil.....	31
4.3.1.- Guayaquil's Draught	31
4.3.2.- Port of Guayaquil	32
4.3.3.- Port of Posorja	35
4.4.- Conclusions	36
5.- Port Authority of Guayaquil Strategies	38
6.- Conclusions	41
Bibliography and References	42
Annexes	48

List of Tables

Table no. 1: Container terminals parameters	5
Table no. 2: Average growth in container ships size between 2007 and 2014 - main maritime routes	5
Table no. 3: Development of maximum ship dimensions by trade lane 2015 and 2020 .	6
Table no. 4: Port management models	8
Table no. 5: What port pricing structure should use the port authorities (Part 1)	12
Table no. 6: What port pricing structure should use the port authorities (Part 2)	13
Table no. 7: What port pricing structure should use the port authorities (Part 3)	14
Table no. 8: Historical data of traffic cargo and vessels to the port system of Ecuador (2011 to 2014) (vessels in units and TEUS	20
Table no. 9: Goals and objectives of the port authority of Guayaquil per area	21
Table no. 10: Investment and development projects per area of PAG	23
Table. No. 11: Customer type and pricing structure of PAG considering only for private ports and POG	29
Table. No. 12: Revenue structure of PAG considering only the private ports and POG	30
Table. No. 13: Customer type and pricing structure of PAG considering all ports	30
Table. No. 14: Vessel traffic in port of Guayaquil by arrival and sailing draught (vessels in units) (2011 to 2015)	33
Table. No. 15: Cargo movement of port of Guayaquil – import and export (containerized cargo) (in TEUS) (2011 to 2015)	34
Table. No. 16: Main features of port of Guayaquil	34
Table. No. 17: Competitive advantages of POG and POP	37

List of Figures

Figure no. 1: ranking of the top 15 users by origin and destination of cargo (in long tons) of the panama canal authority (2015).....	2
Figure No. 2: Diversity of pricing structures and customers type of Port Authorities ...	11
Figure No. 3: Geographic area of the main ports in Ecuador	19
Figure No. 4: Quality of Trade and Transport-related Infrastructure of WCSA ports ...	22
Figure No. 5: New Access Channel of Ecuador	24
Figure No. 6: New external road from Posorja to General Villamil by DP-World	25
Figure. No. 7: Legal base of concession procedures in PAs of Ecuador	28
Figure No. 8: Inner Channel of Ecuador – Salty Estuary Deep without dredging	31
Figure No. 9: Inner Channel of Ecuador – Salty Estuary Deep after the dredged.	32
Figure No.10: Ecuador’s Hinterland	33

List of Abbreviations

PAG – Port Authority of Guayaquil

POG – Port of Guayaquil

POP – Port of Posorja

CAMAE – Maritime Chamber of Ecuador

PA – Port Authority

NCMMP – National Council of the Merchant Marine and Ports

SSPWT - Sub-Secretary of Ports and Waterborne Transport

Chapter 1 Introduction

1.1 Background and the Problem

The developments and trends of container carriers go together with the global economic and environmental situation. Many shipping lines have been working in order to be more sustainable, and more efficient and competitive in terms of costs. The economic crisis has initiated the collaboration between shipping lines creating alliances such as G6, 2M, Ocean Three, and CKYHE in order to reduce costs and share process/operations. All of this has brought the most powerful trends - "Ultra Large Container Vessels", "Slow Steaming", and "Economies of Scale".

Due to the new technological changes in the container sector many ports and canals around the globe are forced to improve their infrastructure and assets in order to be capable to handle this new market. Mega-ships have mega dimensions, therefore, canals, such as Panama Canal, had to expand their size to receive these new vessels.

In 2009, The Panama Canal, being one of the most important logistic centers for the maritime transport, decided to expand its infrastructure. The expansion plans include the construction of a new lock with a third lane for "Post-Panamax" vessels with dimensions of 427 meters long, 55 meters wide and 18.3 meters deep. According to Panama Canal Authority (2013), the expansion will allow the entrance of vessels up to 13,000/14,000 TEUs with cargo volume up to 170,000 DWT. The areas that have been dredged are the Pacific and Atlantic entrance as well as the Gatun and Culebra Cut, which are the paths where the vessels have to go through the canal. After this expansion, the Gatun Lake is expected to receive 1,100 more visits per year. Now that the project expansion has been finished, the main users of the canal will face challenges to adapt to the new port infrastructure.

According to the Statistics of Panama Canal Authority (2015), which lists the top 15 countries by origin and destination of cargo (see Figure 1), Ecuador is one of the main users of the Canal, which takes the ninth place among the busiest countries in terms of cargo movement through the Canal with a total of 14.1 Million Tons (MT). However, it is the least busy country in comparison with the other ports of the West Coast of South America (WCSA).

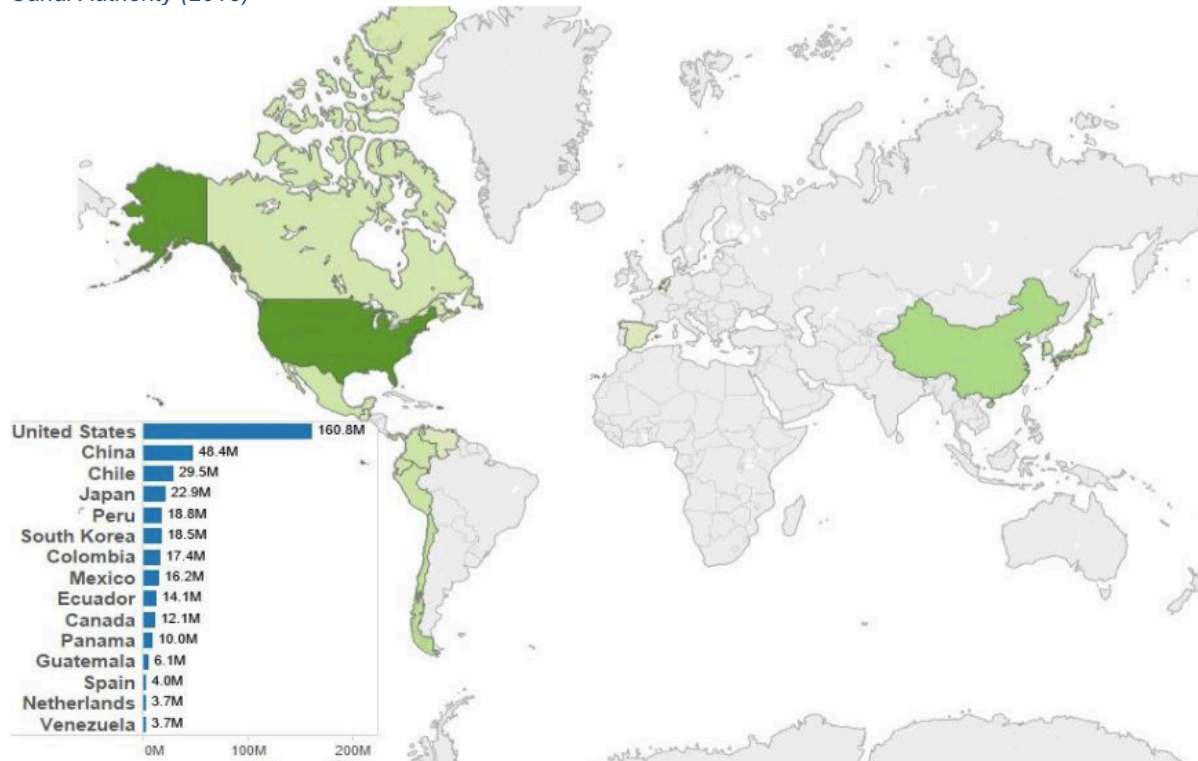
Ecuador has 4 main ports, which are Port of Esmeraldas, Port of Manta, Port of Guayaquil, and Port of Bolivar. All of them are supervised by their respective Port Authorities. Unfortunately, Ecuador is ranked last in the matters concerning the draught restriction in ports, since the average draught of the main ports of the region is 12.5 meters.

Port of Guayaquil (POG), being the most important port, concentrates 59% of the imports and 62% of the exports of the total foreign trade of the country. Also, it is important to note that containerized cargo is the major cargo movement in the country.

With respect to the infrastructure, POG has draught limitations of 9.75 meters. Also the

channel access and inner channel have draught restrictions due to the conditions of the ground. Therefore, the Government of Ecuador together with the Port Authorities of the country have been searching for the right place to build a new port. After careful examination, the best option was “Posorja” situated in Guayaquil Town, 120km from Port of Guayaquil. It is important to note that all the maritime activities performed in this zone are under the jurisdiction of Port Authority of Guayaquil (PAG).

Figure 1. 2015 Ranking of the Top 15 users by Origin and Destination of Cargo (In long tons) of the Panama Canal Authority (2015)



Source: Panama Canal Authority (2015)

The PAG has been doing business with a company named Dubai Ports World (DP-World) in order to build a Port called “Aguas Profundas, Puerto de Posorja” (Deep Sea Waters, Port of Posorja) which is planned to deal with the containerized cargo. One of the competitive advantages of the port is the natural draught of approx. 16 meters, as well as the modern terminal equipment to handle big vessels. The contract was signed in 2016 under the Private/Public Partnership agreement, the DP World agreed to build the infrastructure and superstructure of the new port, as well as the new access channel and a highway for cargo transportation. It is important to mention that the new port has not been built yet.

The competition between the Port of Guayaquil (POG) and the Port of Posorja (POP) is going to be really intense, since both are dedicated to the same port activity (containerized cargo). Also, we should keep in mind that the POG is limited in its infrastructural opportunities due to the natural condition of the access channel to the POG (i.e. dredging beyond a draught of 9.75 meters is not possible). At the moment the PAG has problems with the concessions of the POG since the concessionaries demand fair

competition between the two ports. So, given the importance of the Panama Canal expansion, the importance of the Containerized Cargo sector in Ecuador, and particularly the competition regulations between the ports and terminals in Ecuador, this study aims to explore the implications that the PAG will have to consider for the two ports in order to achieve its mission.

Therefore, the thesis will aim to answer the following main research question:

As the Port Authority of Guayaquil (PAG) oversees Port of Posorja and Port of Guayaquil, what would be the best strategy for the two ports to develop in order to achieve the PAG mission?

This question has 4 elements. First, we will focus on the Investment and Development Program of the PAG which is based on ports and infrastructure adaptations. Second, we will address the concession structure of the PAG which is based on the theory of Port Management Model. Third, we will study the Pricing Structure of the PAG which based on the theory of what port pricing structure should the Port Authorities use. Finally, we will analyse the Maritime and Port Sector in Guayaquil. In our analysis we will use the information received from the international experts in the governance of ports as well as the data from the interviews with the experts. To answer the main research question, the thesis will address the following sub-research questions:

1. *What is the current strategy used by the Port Authority of Guayaquil for the Case of Guayaquil?*
2. *What are the competitive advantages of Port of Posorja and Port of Guayaquil?*
3. *What is the current pricing structure of Port Authority of Guayaquil?*

The sub-research questions will help us answer the main research question defining the best strategy that can be applied in the case of Guayaquil in order to create fair competition between the ports and achieve the mission of the Port Authority of Guayaquil.

We will answer our 3 sub-research questions by analysing the current structures of the PAG (Pricing, Development and Investment, and Concession), by studying the features/limitations of each port in order to obtain the competitive advantages of the ports (Guayaquil and Posorja), and by examining the current pricing structure of the PAG. After the evaluation of our 3 sub-research questions we will be able to answer our main research question.

This study is relevant for the actors and stakeholders in the maritime industry of Ecuador, but especially for the Port Authority of Guayaquil. Also, the research will help identify the factors and elements that have to be applied in the port cluster of Ecuador in order to achieve efficient results based on the mission of the PAG and the well-being of the country.

1.2 Research Design and Methodology

The research design and methodology will analyse best international practices in port governance with respect to Ports and Infrastructure Adaptations, Port management Structures, and Port Pricing Structures. We will conduct interviews with the experts, applying relevant information they provide to the Case of Guayaquil. The focused market will be mostly containerized cargo since for Ecuador, the Panama Canal expansion and the major cargo movement in the country is located in this segment. Finally, after careful assessment of all the data, we will be able to give recommendations and propose strategies as solutions to the issues faced by the Port of Guayaquil.

1.3 Thesis structure

In Chapter 2 we briefly present the literature review about the theory proposed for the main research question: Ports and Infrastructure Adaptations, Port Management Structures, and Port Pricing Structure. This chapter is based on the theory from international expertise in port governance. In Chapter 3 we provide methodology of the study, mention the sources of the data, and describe why the Port of Guayaquil cannot be a Deep Sea Port. In Chapter 4 we address the maritime and port system in Ecuador which is the study of the current structure of the Port System, the Port Authority of Guayaquil and its programs. Additionally, in this Chapter we describe special characteristics of the ports in Guayaquil and analyse the competitive advantages of each port. In Chapter 5 we present and discuss the results of the study based on the Case of Guayaquil. Finally, in Chapter 6 we make conclusions and summarise the key findings. Next to that we also mention limitations of the study, and provide suggestions for further research.

Chapter 2 Literature Review

2.1 Ports and Infrastructure adaptations

As we mentioned before mega-ships need mega-dimensions which pose challenges to the ports and require certain adaptations. Container Shipping Lines require high productivity from container terminals in order to maintain their operational costs. Next to that, container terminals need to have special terminal equipment in order to handle big vessels. According to Eng. Bottema (2015), a senior Commercial Executive of ECT terminal in the Port of Rotterdam, the terminal parameters to handle big vessels are the following (Table 1):

Table 1: Container terminals parameters.

<i>Berth (Length)</i>	>350 meters
<i>Depth</i>	> 16 meters independent from tide
<i>Cranes size reach in # of rows</i>	18 \geq 20/22/24-25
<i>Clearance of the cranes</i>	36 m. \geq 45m. \geq 50 meters
<i>Number of cranes per berth</i>	5 to 6 or even 7
<i>Yard</i>	Increase stacking capacity - more containers to be handled
<i>Callsize</i>	Around 6,000 moves
<i>Dwell time</i>	> 4.5 days

Source: Terminal Equipment and Key figures, Eng. Bottema, Senior Commercial Executive of ECT terminal in Port of Rotterdam (2015)

As we know, not all ports in the world meet these parameters, and not all ports demand great quantities of cargo as the US, Asia or Europe. Only a few ports, such as the ports located in the North of Europe, Asia, and the US, are capable to handle the average size of big vessels and great demand quantities. Therefore, container shipping lines have been using specific maritime routes that allow them to operate without restrictions. According to the International Transport Forum (2015), between 2007 to 2014 the average container ship size increased very fast for the following main routes (Table 2):

Table 2. Average growth in container ship size between 2007 and 2014 - Main maritime routes

Main maritime routes	Average growth in container ship size. 2007 - 2014
Far East-North Europe	62%
Far East-Med	79%
Far East-Europe and West Coast of North America	54%
Far East-Europe and East Coast of North America	31%

Source: Own elaboration based on the data from International Transport Forum (2015)

The remaining routes, such as Transpacific (East Coast) and Transpacific (West Coast) of South and North America have been limited in the average growth of container ship size due to the constraints of the Panama Canal. In the period from 2007 to 2014 most of the ports of the Transpacific had not been challenged by the increasing size of the ships. Now that the Panama Canal has finished the expansion, it will allow the entrance of vessels of up to 13,000 to 14,000 TEUs which will force the ports in this sector to change their performance and terminal equipment.

On the other hand, if container fleet capacity grows at similar rates as over the last decade, it is reasonable to assume that by 2020 there will be vessels with a capacity larger than 18,000 TEU. The International Transport Forum (2015), based on three “what-if” scenarios, showed that the share of Post-Panamax vessels will double on the Transatlantic and Transpacific routes. Ships exceeding the “New Panamax” dimensions will be used on these routes except for the East Coast and Gulf Ports.

The three scenarios showed that all classes of vessels were affected through the cascade effect, but there is a lower impact on smaller size vessels. All the scenarios were elaborated for all maritime trade lanes. The study was based on the 3 following scenarios:

- Capacity growth in line with market demand in 2020,
- 50 container ships with 24,000 TEU capacity in 2020,
- 100 container ships with 24,000 TEU capacity in 2020.

As we can see from the results presented in Table 3, that the impact of the bigger ships for South-South trade route is not so significant as for the other trade routes. For instance, for Europe – North America route, the incremental change of TEUs between 2015 and 2020A is 4,200 TEU, while for South-South route it is only 800 TEUs.

Table 3. Development of maximum ship dimensions by trade lane 2015 and 2020

Trade Routes	Max Capacity (TEU)				Max Length (m)				Max Beam (m)			
	2015	2020A	2020B	2020C	2015	2020A	2020B	2020C	2015	2020A	2020B	2020C
Far East-North Europe	19200	21999	24000	24000	400	400	430	430	59	59	62	62
Far East-Mediterranean	14000	21999	24000	24000	370	400	430	430	52	59	62	62
Far East-North America	13400	19200	19200	19200	370	400	400	400	52	59	59	59
Europe - North America	8800	13000	13000	13400	340	370	370	370	44	49	49	52
Other East-West	13800	19200	19200	19200	370	400	400	400	52	59	59	59
North-South	10000	13500	13800	14000	350	370	370	370	49	52	52	52
South-South	4300	5100	5100	5100	260	300	300	300	35	38	38	38
Intra-Asia	14000	19200	24000	24000	370	400	400	400	52	59	62	62
Other regional	8400	10000	10000	11000	340	350	350	370	44	49	49	49

Source: International Transport Forum (2015) – Note: only if expected value of the number of ships exceeds one

On the other hand, if a port wants to offer a hub service, it has to take into account not only the average size of the ship, but also its maximum capacity (TEU), its maximum length (m), and its maximum beam (m). The results show that the container liners would like to have no vessel size restrictions in the ports. The ship length is expected to increase

from 20 to 40 meters except for the ships sailing in the Far East-North Europe where the ships cannot exceed the current 19,000 TEU limitation. The beam of the ship is going to increase as well; on the Transpacific trade route it is expected to grow from 52m to 59m. This means that in the past vessels had three container rows, but in the future there will be vessels with 23 rows of containers. The increase in beam will mostly affect the North American West Coast ports as their Asian counterparts already handle larger ships.

The study shows that there is a trend towards increased ship size (towards 24,000 TEU ships), but even if that trend does not continue, ports will still be impacted. Therefore, ports will have to adapt port equipment, hinterland, and infrastructure due to the dimensions of larger ships that will sail to all the regions. This implies that the incremental increase in port capacity or the implementation and/or creation of new port systems by port authorities has to be immediate.

2.2 Port Management Structures

Ports produce a combination of public and private goods. They generate direct (private goods) and indirect (public goods) economic benefits to a particular country. Ports represent a delicate link between public and private interests that determine the port structure and the port development policy. Through concession policies, PAs can to a certain degree control the organization and structure of the supply side of the port market. And PAs can encourage port service providers to optimize the use of scarce resources such as land. In general, concession/lease fees paid by the private terminal operators are used to expand and upgrade the facility. In some cases, PA leases the construction and operation of the whole port or part of it to a private company through a long-term concession, this is so called "Build-Lease-Operate (BLO). When such agreement is in place, the PA controls the rights throughout the concession period and receives a lease payment annually (Notteboom, 2007). As an example, we can say that the Port Authority of Guayaquil leases the construction and operation of the whole port to DP-world, and receives a lease payment every year.

Notteboom (2007) also discusses about other types of concession agreements that are used by the PAs, such as Build-Operate-Transfer (BOT) which grants a concession or a franchise to a private company to modernize a specific port facility; Rehabilitate-Operate-Transfer (ROT) which is aimed at rehabilitating a specific port facility, and concession agreements.

According to the World Bank (2012), the book of Port Reform Tool Kit, indicates that the public port authorities and the government should perform such important activities as the articulation of future scenarios, maintaining frequent communication with the private sector, creating public policies that are applied consistently, permitting the private sector to invest in confidence projects that support the stated public and seaport policy.

The port and the city are related in many dimensions (economic, social, environmental, and cultural). Every port reform should take into account the similarities between the city and the port objectives in order to facilitate cooperation and good environment between

them. An essential port function is the “Transport Integration”, i.e. the transfer of cargo and equipment from land to water-borne systems. A seaport node that is within a multimodal transport system is usually associated with the development of the city, generating substantial employment, industrial activities, and national and regional development. However, it’s not necessary that the port will have to be in the place where the city was originally founded (Hall & Jacobs, 2012).

For instance, Rotterdam and Antwerp are situated relatively close to the centre of the city, but the increase in ship sizes requires deeper draft, longer berths, increment in storage space, which makes the ports very space-intensive. Technological changes and the port re-location have left areas available for re-development for other purposes in the maritime sector. These areas are often located near the city centre, therefore, land value goes up. It is important to emphasize that Port Authorities and the city should use their influence to establish an intermodal infrastructure together. Also, these two parties should collaborate in terms of accommodation of the traffic flows and in terms of keeping the transport costs low (Including external costs).

The objectives of Port Authorities must have a narrowed focused on port finances and operations. It is widely accepted opinion among port specialists that the main objective of the Port Authorities is to secure full recovery of all port-related costs including capital costs plus an adequate return on capital.

World Bank (2012) summarizes the responsibilities of the ports in four basic port management models. As we can see there are ports that handle their activities in different ways (Table 4). Nowadays there are few ports that are fully privatized. The majority is considered as a landlord port which generates direct opportunities for the government and provides better information symmetry. Since the strategic use of port land is very important within a port, a key role for PAs is to be the landlord that has the responsibility to manage real estate within the port area. It is also important to add that the landlord should offer management services that include economic exploitation, long-term development of the land, and the maintenance of basic port infrastructure such as fairways, berths, access roads and tunnels.

Table 4. Port Management Models

Type	Infrastructure	Superstructure	Port labor	Other functions
<i>Public Service Port</i>	Public	Public	Public	Majority Public
<i>Tool Port</i>	Public	Public	Private	Public/Private
<i>Landlord Port</i>	Public	Private	Private	Public/Private
<i>Private Service Port</i>	Private	Private	Private	Majority Private

Source: World Bank, 2012

On the other hand, shipping lines, in order to be more efficient in the transport chain, have decided to invest in their own container terminals within a port area. This investments forces Port Authorities to manage intense competition among the terminals. The best solution for this scenario is not to make one consortium (monopoly) which is not a desirable development.

Competition within and between ports puts pressure on the port structure and the relations between the PAs and the terminal operators/cargo handling companies. Within the port we have the inter and intra-competition. Inter-competition is between different ports, while intra-competition is between different enterprises within one port complex. In order to avoid monopolistic situations, PAs should exert their influence in the intra-port competition, either at operational level or through rent/lease policies. Also, this problem can be addressed through more effective price control. (Haralambides, Verbeke and Musso, 2001).

One of the purposes of the Port Sector Regulator is to ensure fair competition among competing operators within the port, avoiding monopolies and mergers, and preventing anti-competitive practices. According to the Port Reform Toolkit by the World Bank (2012), the Port Regulator should be used only when there is a big threat to free competition within the port, its character should be more like an arbitrator and it should be accepted by the port community.

There is a number of key factors that make a port competitive among other ports (Inter-competition):

1. Geographic Location: a port that is well located in transport routes, a port that has natural deep water, good protection against waves and currents, large waterfront and land-side expansion possibilities, proximity to major production/ consumption areas, good hinterland.
2. Financial Resources: a port with sufficient capital able to invest and improve the capacity of the port.
3. Institutional Structure and Socio-Economic Climate: a port that has well-trained labour force and good relations between employees and employers. All of this has to be conducive to private investments.
4. Efficiency and Price: attractive port costs for port users.
5. Image of the Port: the mix of all of the above elements mentioned that create a good image of the port on the market.

In order to finalize this section, we address the role of the Ministry of Transport, which is typically performed by a variety of functions at a national level with respect to port issues and the coastline. The Ministry of Transport should focus on responsibilities and the main tasks in five areas. First, the "Policy Making" is generally focused on planning and development of the port such as the maritime infrastructure including coastline defences, port entrances, lighthouses and aids to navigation, navigable sea routes, canals, development in the hinterland connections, development of the location. Second, "Legislation" is focused on the creation of port laws, national regulations and decrees. Third, "International Relations" which are the responsibility of a special department that is in charge of the bilateral and multilateral port and shipping forums negotiating agreements with neighbouring countries on waterborne or intermodal transit privileges. Fourth, "Financial and Economic Affairs" is focused on planning and financial national projects, preparing studies on financial feasibility and socio-economic projects, and of course taking into account the context of national policies and priorities. Finally, "Auditing" is based on the performance of each line organization usually included in a staff office.

The auditors should report all the data to the minister.

2.3 Port Pricing

In order to evaluate this section, we have to take into account the studies carried out by Van Den Berg and De Langen (2016), that note that the “ship follows the cargo” which is when the shipping lines decide to call in one of various ports that serve a hinterland. In general, shipping lines only call at ports if there is an economically attractive stop, while shippers in most of the cases depend on the connections that shipping lines offer (connections to/from a port).

The new challenges that ports have is to attract cargo as well as services from the shipping lines. For instance, Port of Amsterdam failed to meet this challenge due to fierce competition between neighbouring ports such as Rotterdam and Antwerp. Also, because of the draft limitations and the need to pass a lock, they could not be an attractive place to stop for the shipping lines.

Shipping lines as part of the main costumers of the ports charge port users (importers and exporters) the costs that generally include port costs. Therefore, sometimes port users pay handling fees directly to the terminal operating companies, calling this cost “wharfage fees” (Van Den Berg, De Langen, 2016). It is important to note that this case is for bulk and transport of cars, and not for container industry. In the case of container industry, shipping line pays the terminal operator and charges the port users the so-called “terminal handling charges” cost which is stated in the document of carriage. Therefore, port users are charged directly by the Port Authority, but this doesn’t happen in all ports, in this case exporters pay directly to the shipping lines, and not to the port authority.

According to Haralambides, Verbeke and Musso (2001), the Commission’s Green Paper on Seaports and Maritime infrastructure has set the context that the Port authorities act as a “port community coordinator” focusing on the issue of state (as landlord) and infrastructure charging. Due to the globalization port authorities have to act as a co-operator or investor. They need to cooperate with the port authorities of the neighbouring ports and to invest in inland hub locations. This is because accessible hinterlands generate income for the PAs.

The European Commission addressed two recurring issues that ports should take into account. The first issue is the need for greater transparency in the efficient allocation processes of port land to service providers, ensuring equal opportunities for the different service providers, while at the same allowing the leases and concessions to reflect opportunity costs for port investments. The second issue is to no longer treat port infrastructure investments as “public investment” indiscriminately. This means that if the private sector wants to invest in the port infrastructure, it can, in the spirit of the Treaty, be considered as a “public investment”.

Furthermore, Haralambides, Verbeke and Musso (2001) point out that the port pricing should be focused on the recovery of costs. In general, the costs are focused on the type

of organization. In the case of Landlord Ports, the prices are more clearly connected with responsibility and accountability.

On the other hand, Van Den Berg, De Langen (2016) carry out the study of six different PAs underlining different activities, assets and accounting principles and find that in general Port Authorities have the same type of customer but they differ in the wording of their financial statements. As we can see from Figure 2, the diversity of how port authorities charge prices and the recovered costs of port infrastructure is huge.

Figure 2. Diversity of pricing structures and customers type of Port Authorities

Customer type	Used wording
Shipping lines	Port dues, Seaport dues, Channel fees, Harbour dues, Cruise, Berthage, Marine services and Shipping services.
Tenants	Lease revenues, Rent and ground leases, Rents, Leases, Quayage, Property rentals, Fixed rent, Variable rent and Rental income
Shippers	Cargo dues, Wharfage charges, Gateway improvement fee
Barge operators	Inland port dues, Inland port charges

Source: Peter De Langen, Van Den Berg and Van Zuijlen (2016)

Port Authorities can have various types of revenues coming from their customers. For example, in South Africa and Melbourne the incomes coming from the shippers is 61% and 70% respectively, while in Rotterdam and Amsterdam most of their income comes from inland transport operators such as the shipping lines, tenants, and barge operators. Port of Vancouver received 65% of the total income from the tenants only. There are many models of how the PAs charge their users, but it is important to mention that shipping lines and tenants are charged in all cases.

On the other hand, we find that sea ports cannot be treated as a platform because shipping lines, shippers, forwarders and hinterland transport companies do not need the port to communicate with each other. Furthermore, PAs can offer and can be seen as a multiproduct companies selling complementary products to vertically related supply chain members that make use of the port. It is important to mention that most of the ports in Europe seek full costs recovery either at the level of financial performance and specific profits niches, or through other pricing principles, such as pricing in view of competition, the willingness of the traffic, or as a function of capacity utilisation. The ports in Europe (North Sea Container Ports), for example, are focused on the recovery costs for the dredging maintenance.

Thus we can see that each port has its own and unique characteristics and they do not have to follow one standard format. Thus, in Tables No. 5, 6, and 7 we show what pricing structure should the PAs use in order to be efficient. The Tables considers examples of port pricing structures used by ports such as Rotterdam, Gdansk, Antwerp, Bremerhaven and others.

Table 5. What Port Pricing structure should use the Port Authorities

<p>Differentiate pricing to promote maritime and intermodal connectivity</p>	<p>For maritime connectivity:</p> <ul style="list-style-type: none"> • The reduction of port dues for feeder vessels or for mother vessels with a relatively high transshipment share. • For small and medium size ports: differentiated tariffs for deep sea services (cheaper than short sea services, or discounts for services with new destinations). <p>For intermodal connectivity:</p> <ul style="list-style-type: none"> • Specific charge for truckers that enter the port, without a similar charge for rail and barge operators or (temporary) incentives for shipping lines that develop new intermodal services.
<p>Broadly follow a direct user pays approach</p>	<ul style="list-style-type: none"> • The incorporation of vertical externalities in pricing decisions. • The charges to shippers are not effective: <ol style="list-style-type: none"> 1. Port Authority doesn't really provide a service for shippers, PA provide services to shipping lines, terminal operators and inland transport operators. 2. Shippers are not involved in transport operations • In case the PAs invest in the hinterland infrastructure, inland transport operators have to be charged directly (charging relatively modest prices for inland operators). • The charges that are paid directly to inland operators may give the advantage to the PAs to use price schemes in order to influence choices of inland transport operations.

Source: own compilation based on Peter De Langen, Van Den Berg and Van Zuijlen (2016)

Table 6. What Port Pricing structure should use the Port Authorities

<p>Incentives – <i>The alignment interest between terminal operators and shipping lines.</i></p>	<p>For shipping lines – Port dues:</p> <ul style="list-style-type: none"> - Yearly volume discount: rewards large and performing shipping lines. - Large call size: Contributes to efficient utilization of port assets - Call Frequency: Rewards high connectivity - On time performance: Reward reliability of service and contributes to efficient utilization of the terminal. <p>For Terminal Operating Company – Land Rents:</p> <ul style="list-style-type: none"> • Fast turnaround time: Contributes to efficient utilization of port assets.
<p>Capture value from “non-core” tenants</p>	<ul style="list-style-type: none"> • The application of “price differentiation” when the products and services are considered to be non-perfect complements. • Non-perfect complements are the warehousing companies, port related industries, and other port related service providers (maintenance, ship repair, and office buildings in the port) • Shipping lines and terminal operators perfectly complement each other : both require freight transport. Therefore, it is not effective in this case to use “price differentiation”. • In cases where intra-port competition is lacking, PAs may benefit charging higher prices to terminal operators and lower tariffs to shipping lines. <p>Explanation: it makes sense to charge relatively high prices to non-core tenants, as they do not create externalities but benefit from externalities created by others such as shipping lines creating maritime connectivity and hinterland operators creating hinterland connectivity.</p>

Source: own compilation based on Peter De Langen, Van Den Berg and Van Zuijlen (2016)

Table 7. What Port Pricing structure should use the Port Authorities

<p>Maximize revenue from long terms lease agreement</p>	<ul style="list-style-type: none"> • One of the aims of the PAs should be to maximize profits, while simultaneously securing environmental performance, which is the only valid approach for granting a concession. • In some cases, port authorities set port dues below the profit maximizing values, as lower port dues are passed on to port users which will create real economic benefits.
<p>Consider differentiation of charges based on environmental performance</p>	<ul style="list-style-type: none"> • PAs give discounts based on the Environmental Ship Index program as a part of the Worlds Port Climate Initiative • Port dues to hinterland transport companies for the use of green transport modes. • Inland port dues to vessels with an environmental friendlier engine.

Source: own compilation based on Peter De Langen, Van Den Berg and Van Zuijlen (2016)

2.4 Conclusions

In conclusion of Chapter 2 we summarize the following for each section:

Ports and Infrastructure Adaptions:

- The expansion of the Panama Canal, will allow a growth in the average container ship size for all routes passing through the Canal, including those that were not impacted before. On the other hand, Eng. Bottema, based on his experience, has shared the terminal parameters to consider for container terminals showing that not only is the infrastructure (or superstructure) most important in a port, but also that the productivity of the sea and land sides in and around the port, and frequent communication with clients are vital parameters.

Port Management Structures:

- The port structure and the port development policy are determined by the public and private interests.

- PAs should work on the articulation of future scenarios, maintaining a frequent communication with the private sector. Also, the creation of public policies that permits the private sector to invest in confidence projects.
- For a “Port Reform” it is necessary to know the links between the city and the port. “Transport Integration”, the connection of the land side and sea side, is very important.
- It is not necessary to have a port in the center of the city. Ports are space-intensive, and market is volatile, every time it is improving or changing.
- PAs and the city should work together in order to establish an intermodal infrastructure that will satisfy the interests of both parties.
- PAs should have more narrow focus such as in port finance and operations, also the full recovery of all port-related costs including capital cost and return on investment.
- The most important strategy of a Landlord Port is the strategic distribution of the real state within the port including reports on economic exploitation, a long term development of the land, and the basic port infrastructure.
- When there is high competition within or between the ports, it is recommend not to make one consortium. In order to avoid this, PAs should stimulate intra-port competition, and in case of small ports such the case of Ecuador, it is recommended to regulate port charges and tariffs.
- It is important that port authorities constantly work on policies that consider the improvement of the terminal assets and operations to increase competitive advantages in the ports.

Port Pricing:

- Ports need to be attractive to their customers which in most cases are the shipping lines.
- The globalization has forced the PAs to act as “cooperators” with neighboring PAs inside or outside the country, or as “investor” in inland hub locations in order to generate more income.
- The port doesn’t act as platform for the port users.
- Port Pricing Structures differs from port to port.
- Every PA should focus on their goals and objectives. Not just focusing on being the best port authority but should strive for integration of the private sector and the public sector
- In Table 5, we conclude what port pricing structure the PAs should use.

Chapter 3 Methodology

The primary objective of this study is to know what should strategy the Port Authority of Guayaquil use in case of Guayaquil in order to achieve its mission. To assess these implications, the study will focus on the current structures used by the PAG. The port system of Ecuador is comprised by 4 commercial ports, each of those ports is regulated by its respective Port Authority. In this research we are going to focus only on the Port Authority of Guayaquil (PAG) which is in charge of the Port of Posorja, Port of Guayaquil and the Private Ports. The structure of the analysis is the following:

- Investment and Development Program
- Concession Structure
- Pricing Structure

3.1 Data Collection

In Ecuador, the government body that is in charge of the maritime sector is the Ministry of Transport and Public Affairs. It acts through its Sub-Secretary of Ports and Waterborne Transport. The Sub-Secretary is in charge of each PA in four different ports, and it is the only institution which is allowed to publish official statistics on the maritime sector. In terms of regulation of Tariffs, the government body that is in charge is the National Council of the Merchant Marine and Ports (NCMMP) which is the only institution that can regulate the tariffs for the PA of the country.

The data used for this analysis is taken from the official statistics reports prepared by the Sub-Secretary of Ports and Waterborne Transport in the period of 2011 to 2015. Tariff Normative are taken from the resolutions issued by the National Council of the Merchant Marine and the Ports of Ecuador. Port Authority of Guayaquil publishes limited information, for this study the data of the PAG is only used to study the structure. Additional data was gathered from best international practices applicable to the case of Guayaquil, , and interviews with the experts.

The experts that were interviewed were from the Port Authority of Guayaquil, Universal Cargo - Freight Forwarder and Andipuerto S.A. - Bulk Terminal in the POG. The interviews were conducted in Spanish and consisted on 5 to 10 open questions related to the case of Guayaquil. The answers to the interviews were given via e-mail. It is important to note, that the interviewed person of the PAG mentioned that he wanted to stay anonymous. Therefore, it was agreed that his opinion will be cited as the opinion of the PAG. For more details, the complete original interviews as well as their English translations can be found in the Annex.

3.2 Conclusions

This study focuses only on the Port of Guayaquil and the Port of Posorja, and mostly on the container sector. On the other hand, Port Authority of Guayaquil know the importance

of the Port of Guayaquil for the country, but internal restrictions and current access channel are of concern for the evolution and development of the ports. The mission of the PAG is to be the most efficient entity in the region providing adequate services for the development of foreign trade. Therefore, the construction of the Port of Posorja will bring new opportunities to the country and new projects to the port.

Chapter 4 The Maritime and Port System in Ecuador

4.1 The Port System

The port system of Ecuador consists of four main ports Port of Guayaquil, Port of Manta, Port of Bolivar, and Port of Esmeraldas, each of them are supervised by their respective Port Authority. The Port of Posorja, as we mentioned before, will be supervised by the Port Authority of Guayaquil. In addition, Ecuador has private ports that are concentrated in Guayaquil. Currently there are 7 ports performing specific operations such as general cargo, bulk, fertilizers, and fish. In line with the theory of Port Management Structures, we define that Ecuador has four port structures in its port system:

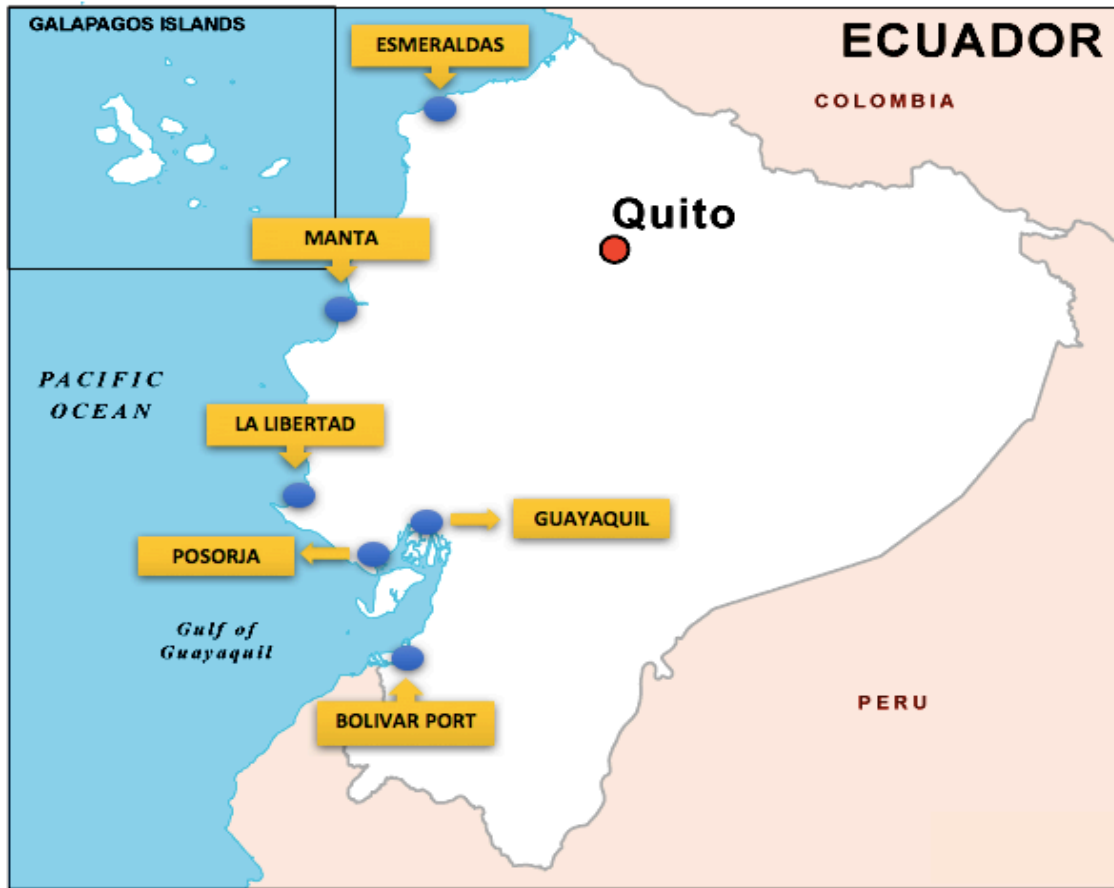
- Private Ports
- Landlord Ports
- Special Ports or Superintendence
- Public Ports

In Ecuador there three special ports: (1) the Superintendence of Balao Oil which is located in Esmeraldas, deals with the export of crude oil and the import of derivative products, (2) the Superintendence of La Libertad Oil Terminal, which is focused on the import of petroleum products, and (3) the Superintendence of El Salitral Oil Terminal which handles and stores LPG for the consumption in Guayaquil City. In this research we do not study special ports or other seven private ports situated in Ecuador.

National port system of Ecuador is represented by Port of Esmeralda, Port of Bolivar, and Port of Manta that fall under Public Ports. The Port of Guayaquil is the exception having two models of port structure, as a “Landlord Port” since it has concessionary contracts with private companies, and as a “Private Service Port” since all the operations within the port are performed by private companies. For instance, the handling services are regulated by the companies that manage its fleet of vessels, therefore, the only private companies that can perform these services are Dole and Chiquita. According to the interviews of the officials of the Port Authority of Guayaquil and CAMAE (2016), they indicate that the Port of Posorja will be a Public / Private Partnership which means that it will not be a concession.

If we look at the geographical location of the ports, Port of Esmeraldas is situated in the North of the country being the closest port to the Panama Canal, Port of Manta is situated in the North Central area, and Port of Bolivar - in the South area of the country. Port of Bolivar mainly handles the banana cargo, due to the fact that majority of banana industries are situated there. Port of Guayaquil is situated in the south part of the city of Guayaquil. Finally, the new Port of Posorja will be situated at the West Coast of the country, 120 km from Port of Guayaquil, within the area of Guayaquil (see Figure 3).

Figure 3. Geographic area of the main ports in Ecuador



Source: own elaboration

With respect to the relevance of the vessel traffic and the TEUs that arrived in the port system of Ecuador, we can see in Table 8 that in the period from 2011 to 2015 the number of TEUs had increased while the number of vessels (in units) had decreased. Therefore, we can assume that the Port System of Ecuador was affected by big vessels, judging from the arrivals that are greater in TEUs than in vessels. If we look at the behavior of the Port Authority of Guayaquil, we can also assume that the ports in Guayaquil have had an increase in the TEUs and a decrease in the arriving vessels. In addition, it is important to mention that the PAG has always been the most important port. Furthermore, in 2015 the POG received 26% of the vessels arrived in Ecuador, followed by the Private Ports with 24%; the maritime access channel is shared with the Private Ports. Therefore, we can consider Private Ports and Port of Guayaquil as one big port having a share of 49%. Because Port of Posorja is not built yet, we do not include it in the system.

Table 8. Historical data of traffic cargo and vessels to the Port System of Ecuador (2011 to 2015) (Vessels in units and TEUs)

Ports	2011		2012		2013		2014		2015		Share % 2015
	TEUs	Vessels	TEUs	Vessels	TEUs	Vessels	TEUs	Vessels	TEUs	Vessels	
Port Authority of Esmeraldas	66,764	287	86,687	312	77,621	294	66,193	256	59,413	227	6%
Port Authority of Manta	913	359	864	378	783	425	532	489	245	441	12%
Port Authority of Guayaquil	945,344	1,254	971,036	983	1,056,605	1,029	1,056,475	928	1,125,206	921	26%
Port Authority of Bolivar	53,943	479	54,814	381	46,022	355	49,080	348	60,207	376	11%
Private Ports	460,419	911	477,805	722	462,454	777	564,906	881	579,524	840	24%
Superintendence of Balao Oil	-	358	-	345	-	374	-	375	-	375	11%
Superintendence of La Libertad	-	237	-	266	-	226	-	291	-	321	9%
Superintendence of El Salitral	-	36	-	78	-	94	-	62	-	70	2%
Total	1,527,383	3,921	1,591,206	3,465	1,643,485	3,574	1,737,186	3,630	1,824,595	3,571	100%

Source: own compilation based on the data from the Sub-Secretary of Ports and Waterborne Transport of Ecuador, (2011 – 2015)

In order to be sure if the port system in Ecuador was affected by the “Economies of Scale” trend, it is important to keep track of the dimensions of the vessels that have arrived in the port system during the last years. Therefore, we cannot say with certainty that the Ports in Guayaquil were affected by the trend of big vessels. Later in this chapter we are going to analyze the evolution of the vessels in the PAG in order to know if there has been an impact in the port system.

According to the data provided by the Sub-Secretary of Ports and Waterborne Transport (2014), the most common type of cargo that arrived to the Port System of Ecuador is the containerized cargo having a total import of 5,217,394 (MT) and total export of 6,829,559 (MT) in 2014. In conclusion, container sector is very important for Ecuador. The fact that in 2015 the port handled 1'824,595 TEUs shows its importance as a container port in the country and in the region in general. Therefore, if there is an impact on the market, the Port Authorities should take necessary action to face the new changes in the maritime transport.

4.2 Port Authority of Guayaquil (PAG)

The Port Authority of Guayaquil is in charge of the ports that are under its jurisdiction. Therefore, every port that is situated in Guayaquil is supervised by the PAG. However, in order to answer our sub-research questions, we need to focus only on Port of Posorja and Port of Guayaquil.

The mission of Port Authority of Guayaquil is “to be the most efficient port entity in the region, ensuring that the port services are provided with the respective technology, safety and competitiveness for the benefit of the foreign trade.” (Port Authority of Guayaquil, 2009). Also, according to the interview with the representative of the PAG it is important to secure environmental performance in every port activity.

With respect to the role/responsibilities, the PAG is in charge of:

- issuing the policies for the institution development,
- evaluation of projects of the port activities,
- analysis and approval of the financial statements,
- regulation of competition,
- concessionaries,
- evaluation of statistics on the performance of the ports from the Sub-Secretary of Ports and Waterborne Transport of the Minister of Transports and Public Affairs,
- authorization to the private sector to offer private services within the port.

Objective and goals of the PAG per area can be found in Table 9.

Table 9. Goals and Objectives of the Port Authority of Guayaquil per area

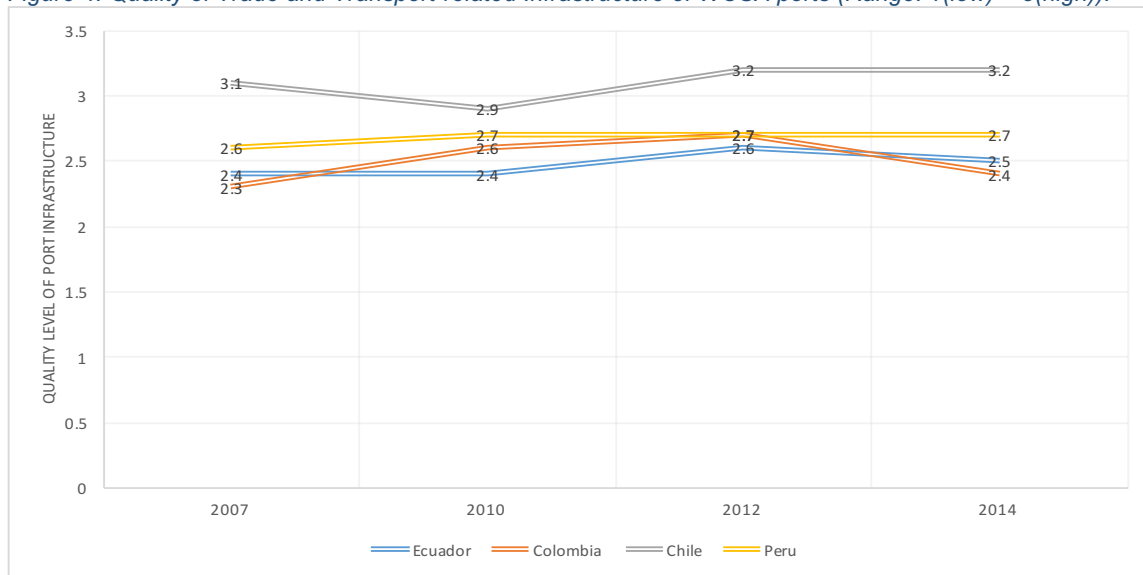
<i>Institutional management</i>	Address and manage the institution legally, economic, strategy, technical, administrative and planning.
<i>Concessionary Control</i>	The control of legal aspects under clauses of concessionary contracts, financial control plan, and technical control given by the concessionaries.
<i>Security</i>	Control of the maritime zone, sea and land side, access channels. Also, modernization, maintenance, and development plan of the navigable areas under its jurisdiction.
<i>Technical Management</i>	The execution and maintaining of the infrastructure and port premises. For instance, dredging, green areas, buildings, local maintenance, among others.
<i>Legal</i>	Act as legal advisor to local servidors of the port.
<i>Auditing</i>	Act as a technical advisor to local servidors of the port.
<i>Investment</i>	Approve proposals for port investments.
<i>Social Communication</i>	Show results of the ports via media. For instance, campaigns, press conferences, public relations, among others.
<i>Institutional Services</i>	Administer the resources of the Port.
<i>Labor</i>	Set common recruitment standards; power to approve common labor union procedures.
<i>Financial Policy</i>	Set common financial objectives for ports with a common policy indicating what infrastructure will be funded either centrally or locally.
<i>Tariff Policy</i>	Regulate rates and charges as required to protect the public interest

Source: own compilation based on the data from the Port Authority of Guayaquil, 2016

According to the World Development Indicators (2015) that rank countries in terms of Quality of Trade and Transport-related Infrastructure among the ports of the West Coast of South America, Ecuador has the second last position (2.5 based on the scale of 1 having the lowest quality level and 5 having the highest quality level). This means that

only 50% of its assets are in good quality to meet the requirements of the maritime transport infrastructure. This situation forces the PAs to develop new projects (see Figure 4).

Figure 4. Quality of Trade and Transport-related Infrastructure of WCSA ports (Range: 1(low) – 5(high)).



Source: World Development Indicators, 2016

4.2.1. Development and Investment Programs of PAG.

At the moment, the PAG doesn't have a Re-Development Policy because the ports in Guayaquil haven't moved from their places, neither did the stakeholders from their locations. It may be possible in the future that the Port of Guayaquil, due to its characteristics and limitations, will have to move to a different location, like in case of Port of Rotterdam and Port of Antwerp. In order to know if there is such a possibility, it is necessary to research it further. However, in this study we can give possible answers based on the current structures of the PAG and the statistics issued by the Sub-Secretary of Ports and Waterborne Transport.

For the analysis in this section, we look at the objectives mentioned in Table 9 as they are important for the efficiency of the port system. Therefore, in Table 10 we show the investments and developments projects that the PAG is focused on at the moment.

Table 10. Investment and Development projects per area of the PAG.

Area	Investment and Development Program
Security	<ul style="list-style-type: none"> Support Pilotage Activities, called "Maritime Traffic Service Control", are the services provided for the shipping lines: lodgment, use of fixed and floating docks, use of boat transportation to and from ships, the use of telecom of Data, Guayaquil and Puna.
Technical Management	<ul style="list-style-type: none"> The dredging of the maritime access channel to the POP and the POG to 9.60 meters which includes monitoring and environmental auditing. (*) Maintenance of the dredging of the navigation channel (Inner Channel). (**) <p>(*): The access channel cannot be dredged more than 9.60 meters due to rocky seabed so called "Los Goles" presented on buoys 8A to 80. However, the development is in process.</p> <p>(**): According to the M. Fun-sang and H. Tobar (2010) the inner channel leading to the POG cannot be dredged more than 9.60 meters due to the fact that it is composed of expanded clay.</p>
Concession	<ul style="list-style-type: none"> PAG plans to pay specific attention to the complementary activities for passenger services. <p><i>Remark: The PAG didn't detail what type of complementary activities will provide to these services.</i></p>
Institutional Management	<ul style="list-style-type: none"> Investment in the Technological Infrastructure of the PAG offices.
Labor	<ul style="list-style-type: none"> Training program for the employees approved by the Sub-Secretary of Ports and Waterborne Transport for PAG workers.

Source: own compilation based on the data from the Port Authority of Guayaquil (2015)

The navigable channel and the maritime access channel as we could see in the remarks to Table 10 are a constraint for big vessels. According to CAMAE (2016) the PAG contracted DP-World to build a new access channel which will be 16 meters deep and

will take into account the dimensions of vessels up to 15,000 TEUs. On Figure 5 we can see how the new access channel will look like.

Figure 5. New Access Channel of Ecuador.



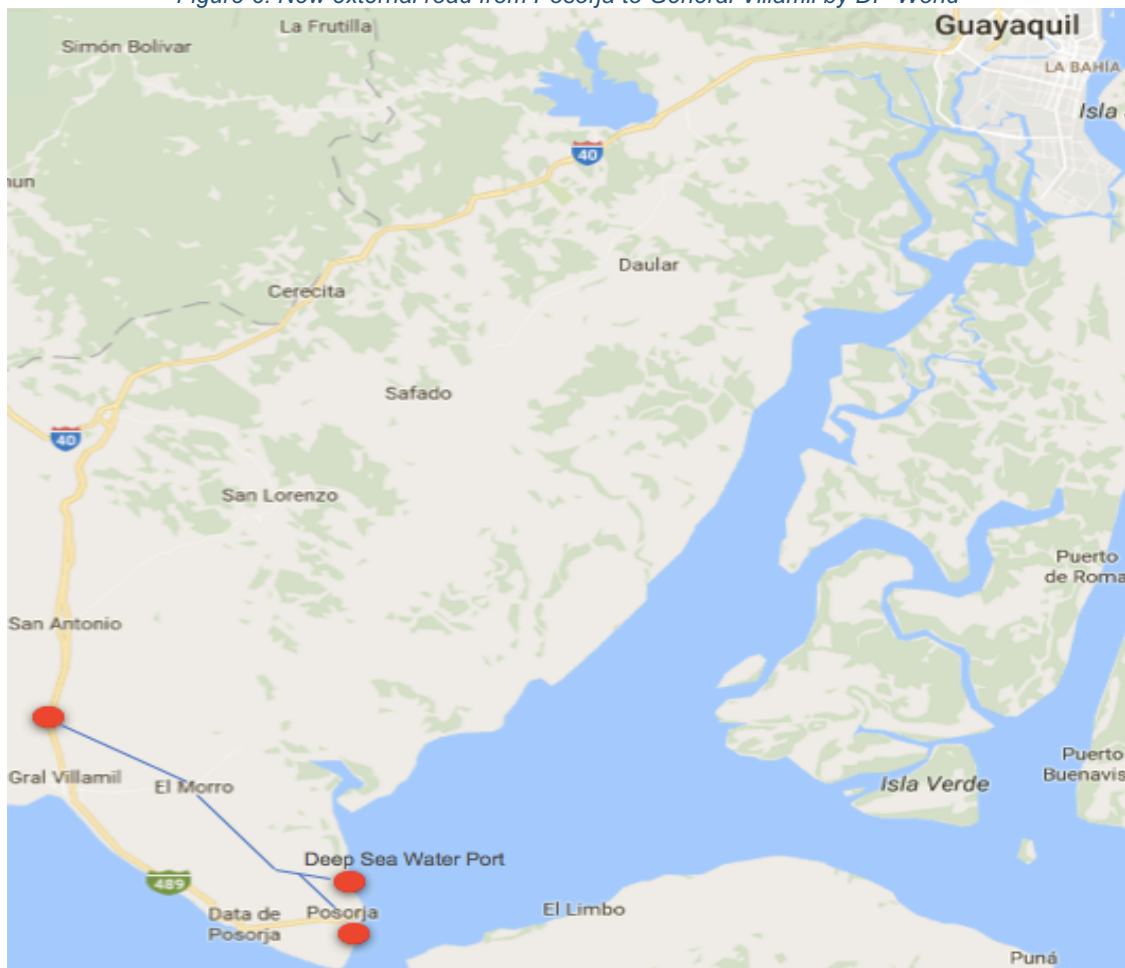
Source: DP World (2016)

The Ministry of Transport and Public Affairs together with the directorate that consists of the Sub-Secretary of Transport Infrastructure, Sub-Secretary of Civil Aeronautic, Sub-Secretary of Inland Transport and Rail, Sub-Secretary of Ports and Waterborne Transport, and Sub-Secretary of Delegations and Transport Concessions have the mission to formulate, implement and evaluate politics, regulations, plans, programs and projects that guarantee a confident and competitive web of transport, minimizing the environmental impact and contributing to the social and economic development of the country.

The objectives of the Ministry of Transport and Public Affairs is to increment the quality of the transport infrastructure, increment the quality of transport services, increment the broadcasting to the transport parties in duties and rights, increment the operational efficiency in the Ministry, increment the labor development in the Ministry, and increment efficient use of the budget of the Ministry (Ministerio de Transporte y Obras Publicas, 2016).

The Investment and Development Report of the Ministry of Transport shows the maintenance in the Inland Transport Infrastructure in the regions of Coast, Highlands, Amazon, and Insular. Also, it shows the PAG investments mentioned above in Table 10. At the moment the Ministry of Transport carries out maintenance works on the route that leads to Posorja, route Playas – Data – Posorja (Highway No. 489). The Highway No. 40 from Guayaquil City that connects to Highway No. 489 to Posorja, is going to be used by the population and for cargo transportation; the highway is constructed with 2 to 3 lanes in each direction (see Figure 6).

Figure 6. New external road from Posorja to General Villamil by DP-World



Source: own elaboration

The PAG also contracted DP-World for the construction of a 20 km highway from “Posorja” to “General Villamil” which is connected with Highway 489 (Figure 6). The purpose of this construction is to avoid congestion and collisions because at the moment the route of Posorja to General Villamil is very narrow. From Figure 6 we can see the hinterland connections that are maintained by the Ministry of Transport (yellow line) and connections that will be built by DP-World (blue line).

Finally, according to the Sub-Secretary of Ports and Waterborne Transport (2015) it is allowed to use the area of the beaches and bays to build buildings, shipyards, dikes, docks, grills and other establishments necessary for constructing and repairing of the ships. It is important to add that the permission is valid mostly for Guayaquil, Posorja, Ayora Port and Duran, and it is not aimed at only one place.

4.2.2 Concession Structure of the PAG

In 1993 the National Council of the Merchant Marine and Ports (NCMMP) approved the action plan for the modernization of the port system by the Resolution No. 012/93 determining the necessity to improve the port system to provide efficient and competitive services for the foreign trade. This action plan is considered to be the beginning of the concession procedures for the ports in Ecuador. As mentioned before, the PAG operates as a Landlord Port which was approved under the Resolution No. 021/95 by NCMMP. In this context, the PAG was delegated by the government with the modalities of Authorization, Allowance and Concession.

At the moment, the PAG handles 2 concessionaries that are situated in the Port of Guayaquil. In 1999, the PAG made a concession with the Bulk Terminal named Andipuerto Guayaquil S.A. and in 2007 with the Containerized and Multi-Purpose Terminal named Contecon Guayaquil S.A.; both terminals are considered to be the busiest terminals in the country. The PAG took into account the constraints of the Port of Guayaquil on the access channel and the inner channel, as well as technological changes in the maritime sector. In 2016, the PAG signed a contract under “Exceptionality decree - Public Private Partnership / Direct Delegation” with the new container terminal called Dubai Ports World (DP-World) which is under construction at the moment.

The bulk terminal (Andipuerto S.A.) signed the concession contract for 25 years, the container and multi-purpose terminal (Contecon S.A.) signed the concession contract for 20 years, and the new container terminal (DP-World) signed the contract for 50 years.

Concession Contract for the private company of the Container and Multipurpose Terminal (Contecon S.A.) is aimed at specialization of the container terminal and the competitive improvement of the foreign trade in Ecuador. Private companies signing such types of contracts need to adhere to the following responsibilities:

- manage and operate the concession;
- operate and develop the existing infrastructure;
- manager, maintain and guard the assets;
- follow the standards of quality, safety and environmental protection;
- provide maintenance of the docks;
- provide mandatory investment of 115 million during the first 5 years.

In the Direct Delegation – Public/Private Partnership Contract for the new Container Terminal (DP-World), the objectives are similar to Contecon S.A, with some additional responsibilities added to the contract:

- manage the maritime traffic;
- operate and develop the existing infrastructure;
- build and provide maintenance of the highway of 20km of Playas – El Morro – Posorja;
- build and provide maintenance of the navigable channel to Posorja;
- build and provide maintenance of the infrastructure;
- meet standards on quality, safety and environmental protection;
- provide mandatory investment of 486' million during the first 4 years;
- provide maintenance of the docks;
- Service Manual presentation 180 days before the starting operations.

The legal base for the Concession Procedure according to Eng. Marco Velarde, Jorge Lacera, Juan Ortega (2008) are shown in Figure 7. In order to execute an effective control over the concessionaries, the NCMMP established that PAs in Ecuador must meet the following requirements:

- The PAs should conform one management unit of the concessionaries;
- The personnel should have the adequate profile to operate in the unit;
- The mentioned personnel, should control investment operations of the concessionaries according to the Development Plan of the concession;
- The control should guarantee that the concessioner provides port services in an efficient, responsible, and secure way.

In general, control over the concessionary areas is aimed at:

- The control of income, tariffs, and prices.
- The control of investment and quality services.
- Other control related to: inflation, secure measures for the information, performance indicators, incentives, sanctions, renewable contracts, international conventions, control regulation, legal, etc.
- The implementation of a common policy, economic and financial, for all the concessionary ports.

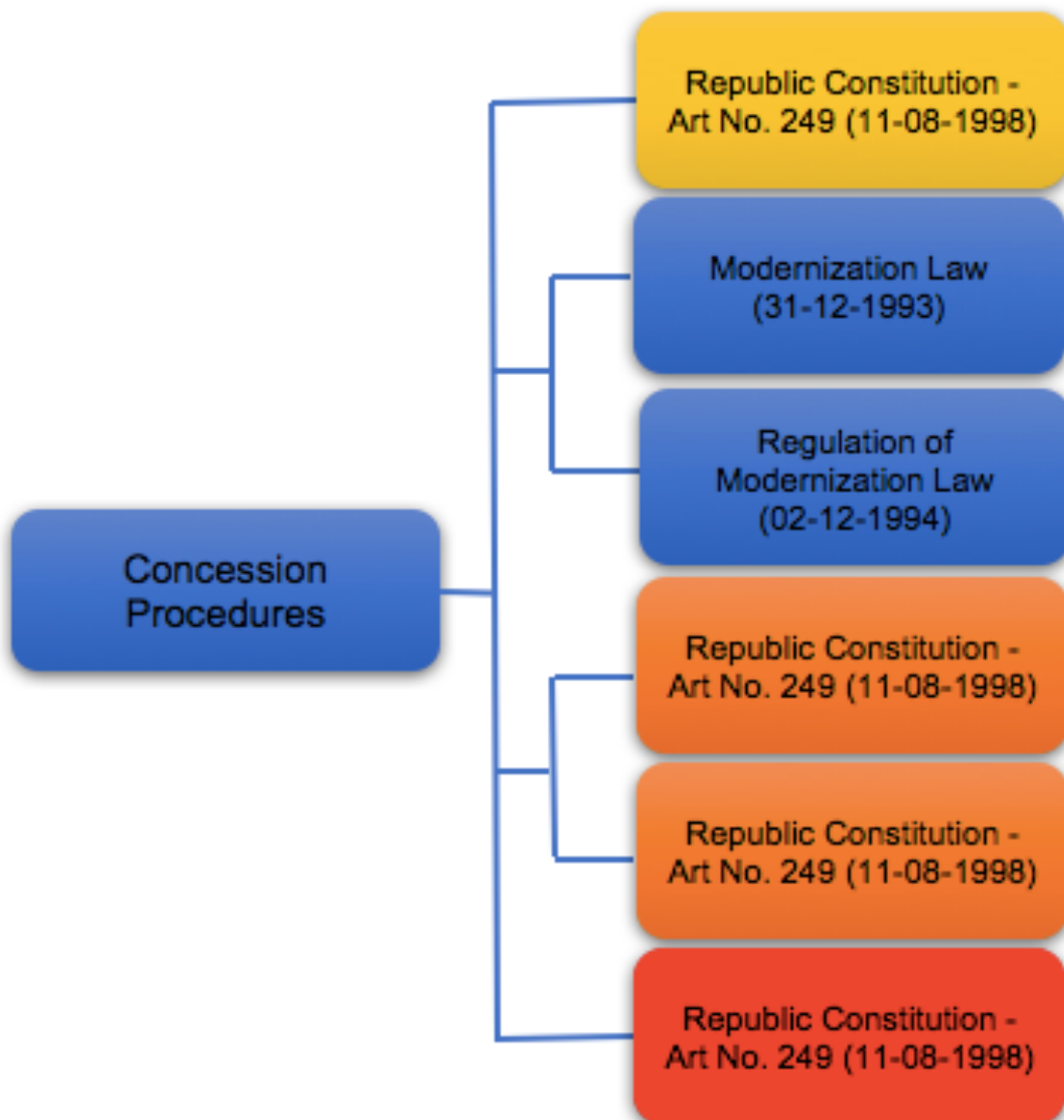
Andipuerto S.A. and Contecon S.A. are subject to tariffs with control ceilings based on the Tariff Normative. The PAG Unit is in charge of the analysis and information of the investments, projects, procedures, etc. that are mentioned in the clauses stipulated in the contract. The performance of each concessionary depends on how they meet the requirements that the PAG provided at the beginning of the contract. All of these clauses go together with the mission and objectives of the PAG. However, according to the interview with one of the officials of the PAG, PAG does not use a data driven information system regarding the terminals.

The POP is under a Direct Delegation contract. In one of the clauses it is stipulated that the POP has to follow the same Tariff Normative that is used by the POG and which stipulates the maximum rates that can be charged to the customer and the maximum rates for the new 20 km road. Furthermore, it authorizes a special zone for the

development which will start once the delegate entity had obtained the environmental license, among other permissions.

With respect to the intra-competition and inter-competition between the ports, the PAs have a Competition Regulation under the Resolution No. 082/01 indicating the requirements, obligations and parameters to follow. If the concessionaries do not follow the regulation, immediate sanctions apply. In brief, the resolution stipulates that a concessionary cannot have a significant market share creating a monopoly, neither can it buy the shares of another private company within the port if it already has the shares of this company.

Figure 7. Legal base of concession procedures in PAs of Ecuador



Source: Eng. Marco Velarde, Jorge Lacera, Juan Ortega (2008)

In conclusion, the POG will have a direct impact on their performance taking into account their restrictions and limitations. However, according to an interview of the Maritime Chamber of Ecuador to Mr. Jorge Vera, General Manager of PAG (2016), mentioned that the concessionaries, the POG and the POP, are free to make commercial agreements and discounts to their customers, depending on the volume and frequency, and that is not necessarily to charge the maximum values that are stipulated in the Tariff Normative. On the other hand, since the terminal of the POP is not built yet, the POG can improve its infrastructure or productivity, investing in new projects during the lead time to attractive its customers

4.2.3 Pricing Structure of PAG

The Pricing Structure of the PAs in Ecuador is subject to the Resolution No. 033-01 which was approved under the topic “The Pricing Structure for Commercial Ports, for the Foreign Trade” by the NCMMP. The resolution was reformulated in 2002 because the PAG asked to incorporate some changes in the Tariff Normative since they were providing services that were not included in the principal resolution, such as the tariffs for horizontal activities of general and containerized cargo, and tariffs for load and unload vehicles under the “Use of Port Infrastructure per cargo”.

After Resolution No. 033-01 was approved by the NCMMP in 2005, the PAG defined the Pricing Structure (Tariff Normative) that should be applied for each port under its jurisdiction (in line with the Resolution No. 034-06). In Table 9 we see that the main customers for the PAG are the shipping lines, tenants, and towage companies. It is important to mention that the Normative provides only for the “General and Specific Tariffs” for Private Ports, the POG and the POP. The Normative doesn’t stipulate the rules on the charges for the tenants. However, we obtained the rent information from the concessionaries contracts of the POG. It is important to note that in Table 11 we only consider the pricing structure of the POG and the Private Ports.

Table 11. Customer Type and Pricing Structure of PAG considering only for Private Ports and POG

Customer Type	Used Wording
Shipping Lines	Channel fees, Berthage, Port dues, Harbour Dues, Cruise, Marine Services (use of the facilities for practices), Shipping Services, Horizontal Cargo Movement fees, and Berthage.
Tenants	Quayage, Variable Rent, Fixed Rent.
Towage Companies	Fees for the use of the facilities (berthing and un-berthing)

Source: own compilation based on the Resolution No. 034-06 issued by the NCMMP (2006) and Concessionary Contracts of Andipuerto and Contecon S.A. issued by the Port Authority of Guayaquil (1999; 2007)

According to the Financial Statements issued by the Port Authority of Guayaquil (2011) and the National Audit Office (2011) we could describe how is the current revenue structure of the PAG looks like with only 2 concessionaries (Contecon and Andipuerto) and the private ports. In Table 12 we present that approximately 93% of the revenues come from tariffs and contributions charged to the Shipping Lines and Towage Companies, and the remaining 7% is from tenants (only rent payments and other contributions). The POP doesn't show the income for the PAG at the moment because the agreement is very recent.

Table 12. Revenue Structure of PAG considering only the Private Ports and POG

Customer Type	Ecuador
Shipping Lines and Towage Companies	93%
Tenants	7%

Source: own compilation based on the Financial Statements issued by the Port Authority of Guayaquil (2011)

Rent of the POP will be charged in a term of "Retribution Quality" under a fee of land contributions based on a percentage from the annual gross income. Therefore, we can assume that the change in the revenue structure will be slightly different due to the income from the tenants which will depend on the productivity of the new terminal, it means that would be variable per year. The income for the land is stipulated in the contract as follows:

- Year 1 to 15: 1% of gross income,
- Year 16 to 30: 2%,
- Year 31 to 45: 3%,
- Year 46 to 50: 5%.

As mentioned before, the POP is also subject to the Tariff Normative, therefore, the new access channel is also subject to these tariffs, but for the road of 20 km other amounts were defined that were not described in the normative. Therefore, the final pricing structure considering the new tariffs of the POP will be the following (see Table 13):

Table 13. Customer Type and Pricing Structure of PAG considering all ports

Customer Type	Used Wording
Shipping Lines	Channel fees, Berthage, Port dues, Harbour Dues, Cruise, Marine Services (use of the facilities for practices), Shipping Services, Horizontal Cargo Movement fees, and Berthage.
Tenants	Quayage, Variable Rent, Fixed Rent, Property Contributions.
Towage Companies	Fees for the use of the facilities (berth and departure).
Inland Transport Operators	Inland port charges

Source: own compilation based on the Resolution No. 034-06 and CAMAE (2006; 2016)

To summarize, since the PAG did not invest in the infrastructure of the new port, the new access channel and the hinterland infrastructure, it is reasonable that it agreed to a “Direct Delegation Contract”. With respect to the current revenue structure and considering the Port Pricing Structure evaluated in Section 2.3, we could see that the PAG does not charge shippers which is an advantage for the ports. Based on the interview with one of the officials from the PAG, they don’t count with incentives program for port users, price differentiation for non-perfect complements, price differentiation to promote maritime connectivity, and price differentiation of the charges is based on environmental performance.

4.3 Maritime and Port Sector in Guayaquil

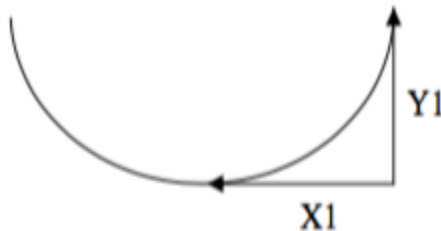
In this section we analyze the competitive advantage of Port of Posorja and Port of Guayaquil as well as the vessel and cargo traffic in the port system of the PAG based on the statistics for the period between 2011 and 2015 issued by the Sub-Secretary of Ports and Waterborne Transport (SSPWT). Sections 4.3.1, 4.3.2 and 4.3.3 are focused on our second sub-research question.

4.3.1 Guayaquil’s draught

The Port of Guayaquil is located on the occidental coast of South America, in a stretch of sea called salty estuary, 10 km south of the City of Guayaquil. As we mentioned before, the Port of Guayaquil has some restrictions in its infrastructure. The ships that enter the port need to cross the access channel from the sea. The access channel has a length of 51 nautical miles, an outer channel marine environment of 10.8 nautical miles and the navigation channel (inner channel) of 40.2 nautical miles.

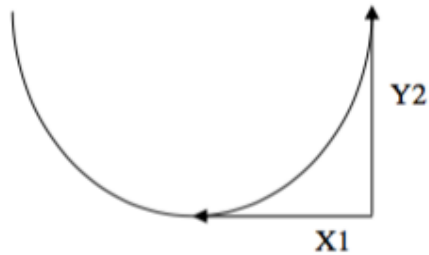
The PAG invested substantial funds in the inner channel dredging. However, the shape of the estuary is concave in nature. Because of the shape and the fact that the bottom consists of clay, dredging has only a limited and temporary effect, as the estuary fills up again. On Figure 8 we can see that when the estuary is not dredged, the weight (Y1) has almost the same force of stability (X1). On Figure 9 we see that when the estuary is dredged, the weight (Y2) is greater than the force of stability (X1). The reason for this is the expansion characteristics of the clay material, the inner channel is fills up quickly and also doesn’t allow dredging of more than 9.60 meters.

Figure 8. Inner Channel of Ecuador - Salty Estuary Deep without dredging



Source: Sang & Tobar (2010)

Figure 9. Inner Channel of Ecuador - Salty Estuary Deep after the dredged



Source: Sang & Tobar (2010)

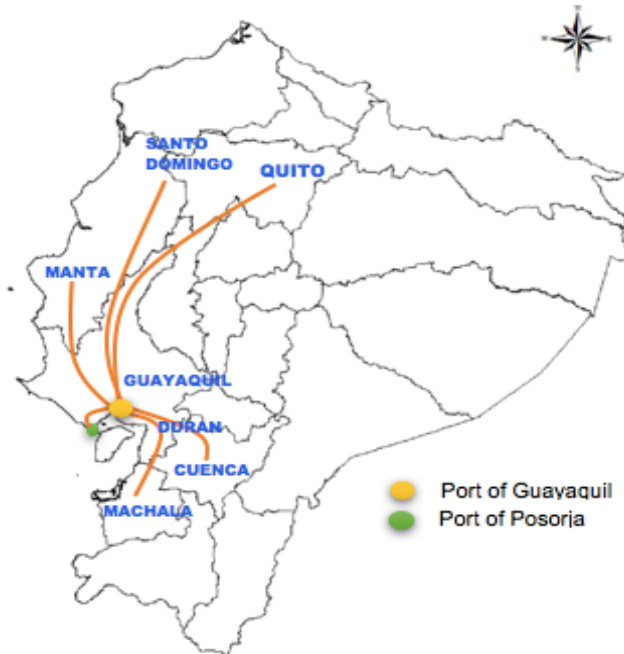
Another restriction is the current channel access. The rocky seabed also limits the depth of the channel up to 8.20 meters at low tide and 9.75 meters at high tide. Therefore, vessels with major capacity cannot go through this channel. To improve this situation, the PAG has decided to build a new deep sea port in Posorja.

4.3.2. Port of Guayaquil

The Port of Guayaquil is the best Port City of the country. Historically it has maintained its a good image in social and economic terms. Good position of the port in the region is crucial for the different port activities it provides, because it is situated close to the industrial zone and commercial services. Guayas Province is home to 25% of the national population, 59% of the import cargo and 62% of the export cargo. The main products that this province provides are bananas (30.64%), shrimps (61% Guayas and Santa Elena), cocoa beans (35%). All of this factors are part of the hinterland of the Port of Guayaquil, giving to the port a competitive advantage in this segment. According to the statistics of the Sub-Secretary of Ports and Waterborne Transport, the distribution of cargo (tons) has maintained a constant average of 70% for the POG, 20% for the Port of Bolivar, 6% for the Port of Esmeraldas, and 4% for the Port of Manta (see Figure 10).

With respect to vessel calls, from 2011 to 2015, the SSPWT recorded an average of 34.5% of vessels calling at Guayaquil with a draught between 9.01 and 9.75 meters. 9.75 meters is the maximum draught permitted. This percentage is high compared to other major ports in the region. The opening of the Panama Canal expansion and the new level of traffic resulting from this will surely bring negative consequences to the POG. With respect to the quay length, 48% of vessels arrived at the POG with dimensions between 150,01 to 200 meters of LOA during the last five years. Vessels with more than 250,01 of LOA are only 12% of the total traffic, mostly because of the draught restriction. Also, we notice that during the last years, vessel calling decreased by 26.5% to the POG compared to the period between 2011 and 2015 (Table 14)

Figure 10. Ecuador's Hinterland



Source: own elaboration

Table 14. Vessel traffic in the Port of Guayaquil by arrivals and sailing draught (Vessels in Units) (2011 to 2015)

ARRIVAL DRAUGHT	2011	%	2012	%	2013	%	2014	%	2015	%	Avg.
Less than 8.20 metres	557	44%	491	50%	490	48%	470	51%	480	52%	49%
Between 8.21 and 9.00 metres	274	22%	166	17%	163	16%	184	20%	163	18%	18%
Between 9.01 and 9.76 metres	423	34%	325	33%	376	37%	274	30%	278	30%	33%
Between 9.77 and 11.00 metres	0	0%	1	0%	0	0%	0	0%	0	0%	0%
Between 11.00 and 12 metres	0	0%	0	0%	0	0%	0	0%	0	0%	0%
More than 12 metres	0	0%	0	0%	0	0%	0	0%	0	0%	0%
TOTAL	1254		983		1029		928		921		

SAILING DRAUGHT	2011	%	2012	%	2013	%	2014	%	2015	%	Avg.
Less than 8.20 metres	548	44%	429	44%	400	39%	385	41%	408	44%	42%
Between 8.21 and 9.00 metres	308	25%	199	20%	225	22%	198	21%	197	21%	22%
Between 9.01 and 9.76 metres	398	32%	355	36%	404	39%	345	37%	316	34%	36%
Between 9.77 and 11.00 metres	0	0%	0	0%	0	0%	0	0%	0	0%	0%
Between 11.00 and 12 metres	0	0%	0	0%	0	0%	0	0%	0	0%	0%
More than 12 metres	0	0%	0	0%	0	0%	0	0%	0	0%	0%
TOTAL	1254		983		1029		928		921		

LENGTH OVERALL (LOA)	2011	%	2012	%	2013	%	2014	%	2015	%	Avg.
Less than 100 meters	29	2%	27	3%	23	2%	0	0%	7	1%	2%
Between 100,01 and 150 meters	212	17%	129	13%	126	12%	127	14%	100	11%	13%
Between 150,01 and 200 meters	552	44%	426	43%	527	51%	481	52%	447	49%	48%
Between 200,01 and 250 meters	408	33%	301	31%	221	21%	186	20%	190	21%	25%
Between 250,01 and 300 meters	53	4%	100	10%	132	13%	134	14%	168	18%	12%
More tha 300,01 meters	0	0%	0	0%	0	0%	0	0%	9	1%	0%
TOTAL	1254		983		1029		928		921		

Source: own compilation based on the data from SSPWT (2011 – 2015)

However, as we can see from Table 15, cargo movement, (containerized cargo) increased by 19.03% in TEUs compared to the period between 2011 and 2015. We can assume that the POG has the capacity to handle great quantities of TEUs without a problem, but the draught limitation is of big concern.

Table 15. Cargo movement of Port of Guayaquil – Import and Export (Containerized cargo) (In TEUs) (2011 to 2015)

Description	2011	2012	2013	2014	2015
Containerized Cargo	945,344	971,036	1,056,605	1,056,475	1,125,206
Percentage (Increase and Decrease)	-	2.72%	8.81%	-0.01%	6.51%

Source: own compilation based on the Statistics of the Sub-Secretary of Ports and Waterborne Transport, years 2011 to 2015

The POG has two terminals. One is for Container and Multipurpose Cargo and the other terminal is for Bulk Cargo. Table 16 shows the main features of the Port of Guayaquil.

Table 16. Main features of Port of Guayaquil

CONTECON S.A. (Container and Multi-Purpose Terminal)		
Containers	4 Quays with a total length of 700 meters.	Draught of 9.75 meters.
Multi-Purpose	5 Quays with a total length of 925 meters.	Draught of 9.75 meters.
Equipment	Quays	6 cranes
	Yard	8 RTG cranes, 4 lift trucks, 25 yard tractors, and 27 yard chassis
	Within the Warehouses	15 top loaders, 40 lifts, 21 scales.
Reefer Yard	Reefer testing	Qty. 1510
Storage	For containerized cargo, banana, consolidated and deconsolidated cargo, parking, general cargo, reefer cargo, multi-purpose cargo, anti-narcotics, abandon place, equipment maintenance, X ray, dangerous cargo.	442,760.19 square meters.

ANDIPUERTO S.A. (Break Bulk Terminal)		
Break Bulk	1 Quay with a total length of 155 meters.	Draught of 9.75 meters.
Equipment	Quays	7 Hydraulic spoons, 5 hoppers
	Yard	5 dump trucks, 8 Ottawas heads, 6 platforms.
	Within the Warehouses	2 Pneumatic Sucker, 14 lift trucks, 4 clamps, 4 Lifts, 5 frontal lift, 4 tractors, 5 mini-loaders, 8 baggers.
Storage	For Multi-Purpose cargo, Liquid Grain and Solid Grain.	64,210 square meters, capacity 3440 tons, capacity 6450 tons respectively.

Source: Port Authority of Guayaquil (2016)

The port is constantly investing in the personnel in order to have well prepared employees in the port. With respect to the costs, the terminals charge similar tariffs to their customer because it has to follow the guidelines of the Tariff Normative issued by the PAG. Therefore, the port depends on the tariffs established by the PAG.

In conclusion, after having analysed the statistics, we can say that the POG has not been affected by big vessels due to the draught restriction. Only 12% of the vessels between 250,01 and 300 meters called at the port, while the major amount of the vessels (30%) are between 9.01 and 9.76 meters. If the POG doesn't take action to change this situation, it will become an obsolete port by 2020.

4.3.3. Port of Posorja

Posorja is one of the five rural parishes of Guayaquil. It is located at the west coast of the city and is borders El Morro in the north, Morro Channel in the east, Guayaquil Golf in the south, and General Villamil in the west. As it was mentioned above, it is 120 km from Guayaquil City. This region has only 25.000 citizens, and about 50% of the population are working in the fish and shrimp production.

As this port is recently agreed with the PAG, the infrastructure and superstructure of the port is not there yet. However, according to the CAMAE (2016), the presentation of the final Development Project by DP-World should take place in September 2017.

On the other hand, according to the current evaluations by the PAG (2016), the main features of the POP will be the following:

- Draught: 16 meters;
- The oceanographic conditions are optimal;
- There are no waves, current and sedimentation;
- The soil and geological conditions of the ground is ideal, due to its consistency and absence of fillers;
- The dredging maintenance is minimal due to the ground composition, which is rock and not organic clay;
- The new access channel will be 16 meters deep;
- Possibly it will have 5 quays with the length of 325 meters and the width of 300 meters;
- Good protection against waves and currents;
- Large waterfront and land-side;
- The port has sufficient funds to invest and improve the capacity of the port.

It is important to note, that according to the interview with Mr. Ian Echeverria from Universal Cargo – Freight Forwarder, the new port will bring positive and negative effects. On the positive side, the POP will bring new opportunities for the country and the start of new businesses. On the negative side, it will increase operation costs since it will be necessary to increment the personnel transport costs to Posorja, or even open new

facilities in Posorja sector, which assume additional costs that can in the end make the services more expensive for the costumers.

In addition, Private Port Terminals Association of Ecuador (2016) will impose additional costs that the importers and exporters would have to incur for inland transport; the transfer of the containerized cargo. The impact for the inland freight would increase by approximately 2% considering that the POP is used as the origin and the POG is a destination.

With respect to tariffs, it is not known yet what tariffs will the POP charge. However, we know that the POP is also subject to the Tariff Normative. Therefore, the tariffs cannot be so different from the tariffs used by the POG.

4.4 Conclusions.

After the evaluation of the PAG structures together with the Port System, we can answer our Sub-Research Questions No. 1, 2, and 3.

1. What is the current strategy used by the Port Authority of Guayaquil for the case of Guayaquil?

The limitations/restrictions of the current ports in Ecuador have forced to the PAG to apply the following current strategies:

- The private/public partnership with the new terminal DP-World.
- The construction of the new access channel by DP-World.
- The construction of the Deep Sea Port with reliable port services by DP-World.
- The dredging of the old and inner channel.
- Technology system in the PAG premises.
- The fair competition between ports establishing the same tariff ranges for POP and POG.
- The continuous, on-going training for the employees.
- The development of port services that help the environment.

2. What is the current pricing structure of the PAG?

The current pricing structure of the PAG is the assignation of maximum values established by the Tariff Normative for the ports in Guayaquil. The revenue structure shows that 93% of their incomes are coming from the shipping lines and tug companies, and 7% from the tenants. What concerns the tenant charges by the PAG for the use of land, the POG is charged by variable and fixed rent while the POP is going to be charged on an annual basis of "Contribution Property". Non-core tenants and shippers are not charged in line with this pricing structure.

3. What are the competitive advantages of the Port of Posorja and the Port of Guayaquil?

Based on the main features of each port we find that the competitive advantages of each port per segment are the following (see Table 17):

Table 17. Competitive advantages of POG and POP

	Port of Guayaquil	Port of Posorja
Geographic Location:	* Well-Connected to the hinterland * Proximity to major production/ consumption areas.	* Deep sea waters, draught: 16 meters * Land waterfront and land side expansion possibilities.
Pricing:	* Attractive inland costs for port users.	* We cannot determine a competitive advantage in this segment since the service tariffs issued by DP-World are not available yet.
Market Segment:	* Specialized in Bulk cargo.	* POP will offer services for big container vessels up to 15,000 TEUs (approx.)
Good Image of the Port:	* Historically known by its efficiency and productivity in Ecuador.	* DP World is internationally known by their performance and developments in ports.

Source: own elaboration

Chapter 5 Port Authority of Guayaquil Strategies

The main research question of this study is to know what would be the best strategy for the PAG to achieve its mission. According to the international best practices and the evaluation of the port system structure of the PAG as well as based on the interviews carried out as part of this research, we can say that in order to achieve its mission, PAG should consider the following points:

First of all, the PAG should work on formal policies related to the Development, Tariff, and Concession. PAG can only achieve its objectives when based on the resolutions, annual reports, annual performance, and the statistics by the SSPWT. With respect to the Ministry of Transport, they work most of the time as an individual entity. In course of our research we did not find a direct connection with the PAG. Therefore, we consider all the strategies per policy:

Development Policy:

- PAG should work on future scenarios, maintaining a frequent communication with the private sector, creating public policies that are applied consistently, permitting the private sector to invest in confidence projects that supports the stated public and seaport policy.
- PAG should work together with the Minister of Transport in a project for the development of cooperation between the city and the port in order to accommodate traffic flows and the creation of Transport Integration.
- Ports are space-intensive and due to the restrictions of the POG, PAG should consider the creation of a Re-Development policy considering a port re-location for POG, and the remaining areas should be used for other purposes in the maritime sector. For instance, as it is done in case of Port of Rotterdam and Port of Antwerp.
- PAG should work more with the Minister of Transport planning on the development of the ports such as the maritime infrastructure including coastline defences, port entrances, lighthouses and aids to navigation, navigable sea routes, development in the hinterland connections, development of the location, and other.
- The Minister of Transport in general is focused on the transport quality of Ecuador. Therefore, its objectives should be focused also on bilateral, multilateral and shipping forums, negotiating agreements on the waterborne or intermodal transit privileges with neighboring countries.
- PAG should consider an investment in “information system” with the terminals in order to exchange daily data and operations of the productivity of the port.

- Since in Ecuador only the truck modality exists for the hinterland, the PAG together with the Ministry of Transport should take into account the study of new hinterland transport possibilities. One could imagine the development of rail and barges in order to reduce congestion and pollution.

Concession Policy:

- PAG should agree at the beginning of the concession contract with the terminals operators on the constant innovation of the terminal equipment in order to remain attractive for their port users and to provide high quality services for the shipping lines. All of this is based on the maritime market trends.
- PAG, being a Landlord Port, should offer management that includes economic exploitation, a long-term development of the land, and the upkeep of basic port infrastructure such as fairways, berths, access roads and tunnels in order to generate more income from the tariffs and the strategic distribution of the real estate.
- Since PAG needs to manage tight competition between the POG and the POP, even when the POP is not build yet, the best solution for this scenario is not to create one consortium.
- The PAG should have a procedure that can standardize report presentations regarding the status and progress of the concessionaries from the economic, financial and operative point of view.
- PAG should focus on more environmental standards in order to reduce congestion and pollution.

Pricing Policy:

- PAG should focus more on the port finances and operations.
- PAG should work on incentives programs for shipping lines, so that port users, such as importer and, exporters are not loaded with handling fees. The incentives are provided in detail in Table 5. The incentives include yearly volume discount, contributions based on the efficient utilization of port assets, call frequency, and others.
- PAG should work more on cooperation with the port authorities of the neighboring countries, as well as on cooperation with investors in accessible hinterland. This will generate more income for PAG.
- In case PAG wants to invest in the hinterland infrastructure, inland transport operators have to be charged directly (with modest prices). In case PAG wants to invest in more multimodal inland transport, the tariffs that are charged directly to the inland operators, will give the advantage to use price schemes in order to influence choices of inland transport operations.

- PAG should work more in the Tariff Normative creating a formal Port Pricing Policy considering the following points:
 - pricing differentiation to promote maritime and intermodal connectivity,
 - capturing value from non-core tenants,
 - Incentives programs,
 - price differentiation based on environmental performance.

- As it can be seen in the Investment and Development Policy, PAG plans to have new activities for maintenance and repair of the ships. The non-core tenants acting in this area can be charged by price differentiation since they are imperfect complements.

Chapter 6 Conclusions

We can conclude saying that the most important strategy applied by the PAG is the elaboration of formal policies. We have noticed that they have clear objectives and goals, but without formal policies. The PAG prepares its projects based on, among others, annual reports, annual performance, resolutions. Therefore, the new developments, investments, tariff structures and concession contracts have to be more organized in order to achieve truly its mission.

In addition, the PAG should be more clear with the private sector regarding the new projects in order to receive good performance. Continuous communication between the civil society and the private sector is very important for the port structure. Therefore, the PAG should make a good and clear links with them. The elaboration of formal policies will help minimize the tension in the market and will improve the relationship between the terminal operators and the PA.

On the other hand, cooperation between the Minister of Transport and the PAG is highly necessary. We could note that the Minister of Transport and the PAs have their own objectives and missions. Only one part of the directorate of the Ministry, the Sub-Secretary of Ports and Waterborne Transport, works together with the PAs of the country. However, this entity is only focused on the statistics of each PA and the legislation aspects. In order to achieve its objectives and to be attractive for the shipping lines, the PAG should work on new projects with the Ministry of Transport.

Taking into account the findings of this study, the next step would be the post-concession economic analysis of the Port of Posorja in order to know how it will affect the port system and the analysis of the POP on how it operates as a hub port for WCSA ports.

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Annexes

Annex 1 - Port Authority of Guayaquil Interview (Spanish)

ENCUESTA / INTERVIEW

Autoridad Portuaria de Guayaquil / Port Authority of Guayaquil

1. ¿Cuáles son sus actuales estrategias ante la situación del Puerto de Posorja y Puerto de Guayaquil?

Aprovechando la oportunidad que se le está brindando al sector privado se crea la estrategia de una Alianza Publico Privada, en beneficio del País.

2. DP-World firmó Contrato de Delegación Directa, Alianza Publica Privada, el día 6 de junio del 2016, podría indicarme brevemente ¿Cuáles fueron los términos negociados en el contrato de concesión con la nueva terminal?

Construir la vía o carretero de acceso al Terminal (Longitud 20 Km), construir el Terminal Portuario, el muelle, dragar y el canal de acceso.

3. Parte de las cláusulas del contrato con DP-World, ¿Será la regulación y control de tarifas al Puerto de Posorja así como se realiza con el Puerto de Guayaquil?

Son tarifarios máximos

4. ¿La Normativa Tarifaria correspondiente a la Resolución No. 034-06 sigue siendo la misma a cobrarse a los puertos o se cuenta con otra resolución actualmente (Nómbrela de ser el caso)? Así mismo, la actual Normativa será también aplicada al Puerto de Posorja?

La normativa se sigue aplicando a la anterior, no existe modificaciones presentadas

5. ¿La APG cuenta con plan de incentivos tarifarios para sus consumidores? Nómbralos de ser el caso.

APG no tiene incentivos tarifarios, tiene 2 concesionarios que presta servicio a la comunidad portuaria, y son los que tienen definidos tarifarios máximos de los servicios que prestan.

6. ¿Cómo será la estructura tarifaria para las nuevas actividades relacionadas al reparo y mantenimiento de buques?

No tiene esa actividad la APG actualmente

7. ¿Existe algún programa de diferenciación de precios para los consumidores que realicen actividades considerando el cuidado del medio ambiente?

Todas las actividades portuarias deben de cumplir con las normativas de control ambiental

8. ¿La APG cuenta con algún sistema tecnológico de intercambio de información con las terminales para el control de las actividades portuarias o se pide reportes mensuales, anuales, entre otros?

En la actualizada no existe un sistema integrado de información, peros se está realizando el proceso para realizar un sistema tecnología con las actividades portuarias.

9. ¿Qué estrategia creería usted como Autoridad Portuaria ser la adecuada para el Puerto de Posorja y Puerto de Guayaquil? Tomando en consideración la ventaja competitiva de Posorja (Calado e infraestructura).

El puerto de Posorja es un negocio a iniciarse que va a captar la oportunidad para que el País tenga un puerto de gran calado

10. ¿Se ha pensado realizar la construcción de nuevos hinterland para la introducción de nuevas modalidades?

El Gobierno está interesado en promover la alianza público privada a fin de conseguir un mayor desarrollo portuario en todos los puertos del País.

Annex 1.1 - Port Authority of Guayaquil Interview (English)

SURVEY / INTERVIEW

Guayaquil Port Authority / Port Authority of Guayaquil

1. What are your current strategies to the situation of the Port of Posorja and Port of Guayaquil?

Seizing the opportunity that is giving the private sector the strategy of a Public Private Partnership is created for the benefit of the country.

2. DP-World Delegation Agreement signed Direct, Public Private Partnership, on June 6, 2016, could you briefly tell me what were the terms negotiated in the concession contract with the new terminal?

Build the road or access road Terminal (length 20 km), build the Port Terminal, pier, dredging and the access channel.

3. Part of the clauses of the contract with DP-World, Will the regulation and control of the Port of Posorja rates and is done with the Port of Guayaquil?

Are tariff peaks

4. The corresponding Resolution No. 034-06 Tariff Regulations remains the same to be charged to ports or currently has another resolution (Name them if applicable)? Likewise, the current legislation will be also applied to the Port of Posorja?

The law still applies to the above, there is no change presented

5. The plan has APG pricing incentives for consumers? Name them if appropriate.

APG has no pricing incentives, has 2 dealerships that serves the port community, and are those defined maximum tariff of services they provide.

6. How will the rate structure for new activities related to the repair and maintenance of ships?

It does not have such activity the APG currently

7. Is there a price differentiation program for consumers who carry out activities considering environmental care?

All port activities must comply with environmental control regulations

8. Does the APG has some technological information exchange system with terminals for the control of port operations or monthly, annual reports requested, among others?

In the updated there is no integrated information system, but it is making the process technology for a system with port activities.

9. What strategy would you believe as Port Authority be appropriate for the Port of Posorja and Port of Guayaquil? Taking into consideration the competitive advantage of Posorja (Draught and Infrastructure).

Posorja port is the start business that will capture the opportunity for the country to have a deep-water port

10. Have you thought about making the construction of new hinterland for the introduction of new forms?

The government is interested in promoting public-private partnership in order to achieve greater port development in all ports of the country.

Annex 2 – Freight Forwarder Interview (Spanish)

ENTREVISTA / INTERVIEW

Freight Forwarder / Consolidadora de Carga

1. ¿Qué piensa de la nueva concesión con DPworld – Puerto de Posorja acorde los nuevos cambios tecnológicos en el transporte marítimo? (Considerando la situación del Puerto de Guayaquil y la venida de buques con mayor calado)
 - a. **Me parece una buena oportunidad en tanto se cambie la legislación Aduanera del Ecuador y se facilite y se permita hacer operaciones de trasbordo de carga consolidadas con destino a otros países.**
2. ¿De qué manera esta nueva concesión afecta en su actividad como Freight Forwarder?
 - a. **Negativamente porque aumentaría los costos de operación de los Freight Forwarder, ya que se requerirá aumentar costos de movilización del personal hasta Posorja o en su defecto abrir oficinas en Posorja, lo cual es un costo adicional que podría encarecer el costo al usuario final**
 - b. **Positivamente: se abren oportunidades de nuevos negocios con cargas de transferencia para otros países.**
3. ¿Que oportunidades o amenazas ve para el país con el nuevo Puerto de Posorja?
 - a. **Oportunidades: se podría competir con otros puertos de la Región como Callao**
4. ¿Qué estrategia por parte de la Autoridad Portuaria de Guayaquil creería usted ser la adecuada para el Puerto de Posorja y Puerto de Guayaquil?
 - a. **Ser atractivos para las líneas navieras para que lleguen a estos puertos. En el caso del puerto de Guayaquil el Dragado es fundamental.**
5. Como Stakeholder/parte interesada de los puertos, ¿Cuáles son sus intereses?
 - a. **La des consolidación y consolidación de contenedores con cargas que lleguen a este puerto para hacer transferencia otros países.**

Annex 2.2. – Freight Forwarder Interview (English)

INTERVIEW / INTERVIEW

Freight Forwarder / Cargo consolidator

1. What do you think of the new concession DPWorld - Port of Posorja according to the new technological changes in shipping? (Considering the situation of the Port of Guayaquil and coming of ships with greater draft)

a. I think a good opportunity as the customs legislation of Ecuador and facilitate change and be allowed to transfer operations consolidated cargo destined for other countries.

2. How this new concession affects their activity as Freight Forwarder?

- a. Negatively because it would increase the operating costs of the Freight Forwarder, as costs increase will require mobilization of personnel to Posorja or failing to open offices in Posorja, which is an additional cost that could increase the cost to the end user
- b. Positively: new business opportunities open to transfer loads to other countries.

3. What opportunities or threats for the country sees the new Port of Posorja?

a. Opportunities could compete with other ports in the region as Callao

4. What strategy by the Port Authority of Guayaquil believe you to be adequate for the Port of Posorja and Port of Guayaquil?

a. Be attractive to shipping lines to arrive at these ports. In the case of the port of Guayaquil Dredging it is essential.

5. As Stakeholder / stakeholder ports, what are your interests?

a. The des-consolidation and consolidation of cargo containers arriving at this port transfer to other countries.

Annex 3 –Port of Guayaquil (Bulk Terminal) Interview (Spanish)

ENTREVISTA / INTERVIEW

Terminal Portuaria de Carga al Granel – Andipuerto / Break Bulk Terminal – Andipuerto

1. ¿Como ha visto la evolución de naves arribadas a Andipuerto durante su trayectoria como terminal portuario?

El Terminal cuenta con un muelle de 151 metros, con Duques de Alba en los dos extremos, separados a 25 metros. Hemos atendido naves de hasta 225 metros de eslora. La mayoría de las naves que estamos atendiendo tienen una eslora entre 180 y 190 metros. Atendemos unas 110 naves con alrededor de 1'800,000 TM por año.

2. ¿Creería usted necesario tener un Puerto de Aguas Profundas para el país?

Guayaquil es una ciudad que creció junto al Río Guayas, por el que se desplazaban naves con carga de importación y se cargaban con nuestros productos de exportación. El crecimiento de la actividad portuaria los llevó a construir el Puerto Nuevo en 1958; y la introducción del uso de contenedores y la necesidad de facilidades para carga al granel son razones de la ampliación en 1975.

Hoy se construyen naves de mayor capacidad, y se amplía el canal de Panamá para permitir el tránsito de tales naves, lo que ha motivado diversos análisis sobre la necesidad de Guayaquil de contar con un puerto de aguas profundas, que inclusive ha interesado a inversionistas en tal emprendimiento.

El Ecuador ya tiene en Manta un puerto de mayor profundidad que el de Guayaquil, con escaso volumen de carga por las pocas ventajas de su hinterland. Su mayor calado es aprovechado por naves con carga al granel para las industrias de Manta. Una línea naviera estuvo moviendo contenedores por Manta, pero al poco tiempo desistió.

Los promotores del Puerto en Posorja han solicitado no permitir profundizar el calado actual del canal de acceso al Puerto de Guayaquil en el afán de quedarse con esa carga, lo que demuestra la poca certeza de éxito de los inversionistas.

Tener presente que el Hinterland de Guayaquil se abastece con el 40% de las importaciones, y que en el Puerto de Posorja el 100% de la carga debe trasladarse hacia el resto del País.

3. ¿Qué estrategia por parte de la Autoridad Portuaria de Guayaquil creería usted ser la adecuada para el Puerto de Posorja y Puerto de Guayaquil?

La Autoridad Portuaria de Guayaquil (APG) tiene jurisdicción sobre los dos puertos, el de Posorja de inversión privada para su construcción y desarrollo, y el de Guayaquil, concesionado a Contecon y a Andipuerto, puerto público de administración privada.

La APG debe seguir impulsando la Concesión del Puerto de Posorja procurando condiciones favorables para el comercio exterior:

- La exportación del banano no puede añadir días de almacenamiento en contenedor por su rápida maduración; hay que minimizar los tiempos entre origen y destino de la fruta. Además, existirá un costo adicional por movimiento de contenedores hasta Posorja que afectaría a la negociación de la fruta.
- La importación de granel, en gran volumen demanda almacenamiento y transporte.

Habría que considerar el uso de barcazas.

- La importación de hierro demanda almacenamiento y transporte.

4. Como Stakeholder/parte interesada de los puertos, ¿Cuáles son sus intereses?

Pensamos que Andipuerto seguirá atendiendo a sus clientes de carga al granel y hierro. No tenemos otras opciones ya que el Terminal no tiene espacios por desarrollar.

5. ¿Cuál sería su plan de desarrollo e inversión para Andipuerto?

Construir 180 a 200 metros de muelle para permitir el atraque y atención simultanea de dos naves. Invertir en sistemas de transportación y despacho de la carga para mejorar los ritmos de atención a las naves y a nuestros clientes.

Annex 3.3 –Port of Guayaquil (Bulk Terminal) Interview (English)

INTERVIEW / INTERVIEW

Port Cargo Terminal Bulk - Andipuerto / Break Bulk Terminal - Andipuerto

1. How has been the evolution of ships arrived to Andipuerto during your career as a port terminal?

The terminal has a quay of 151 meters, with Dukes of Alba at both ends, spaced 25 meters. We have served ships up to 225 meters in length. Most ships are attending have a length between 180 and 190 meters. We serve about 110 ships with about 1,800,000 MT per year.

2. Would you believe need to have a Deepwater Port for the country?

Guayaquil is a city that grew along the Guayas River, by which ships with import cargo moved and loaded with our export products. The growth of port activity led them to build the Puerto Nuevo in 1958; and the introduction of containerization and the need to bulk loading facilities are reasons for enlargement in 1975.

Today ships of greater capacity are built, and the Panama Canal is expanded to allow the transit of such ships, which has led to various analyzes on the need to Guayaquil to have a deep water port, which has even interested investors such an undertaking.

The Manta Ecuador already has a port deeper than that of Guayaquil, with little cargo volume for the few advantages of its hinterland. Its greatest depth is used by the bulk cargo ships with industries to Manta. A shipping line was moving containers Manta, but soon gave up.

Puerto promoters in Posorja have requested not to allow the current draft deepen the access channel to the port of Guayaquil in an effort to keep the burden, which shows the little certainty of success for investors.

Keep in mind that the Hinterland of Guayaquil is supplied with 40% of imports, and at the Port of Posorja 100% load should be moved to the rest of the country.

3. What strategy by the Port Authority of Guayaquil believe you to be adequate for the Port of Posorja and Port of Guayaquil?

The Port Authority of Guayaquil (APG) has jurisdiction over the two ports, Posorja private investment for construction and development, and Guayaquil, granted to Contecon and Andipuerto, public port of private management.

APG should continue to promote Posorja port concession seeking favorable conditions for foreign trade:

- The export of bananas cannot add days' storage container for their quick maturation; we must minimize the time between origin and destination of the fruit. In addition, there will be an additional cost for moving containers to Posorja would affect the trading of the fruit.
- Import bulk, large volume storage and transport demand. You should consider using barges.
- Imports of iron storage and transport demand.

4. As Stakeholder / stakeholder ports, what are your interests?

We think Andipuerto continue serving customers to bulk cargo and iron. We have no other options because the terminal does not have space to develop.

5. What would be your plan of development and investment for Andipuerto?

Building 180-200 meters of quay to moor and simultaneous attention of two ships. Investing in transportation systems and cargo clearance rates to improve attention to the ships and to our customers.