



LAW SCHOOL FACULTY

International Business School

**Thesis Prior to Obtain the Title of Graduate in International Studies with Mention
in International Trade**

Theme: “PUERTO BOLÍVAR, CORREDOR LOGISTICO PARA EL AUSTRO”.

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DEDICATION

I dedicate this thesis to my parents, from whom I have received guidance, love and unconditional support throughout my life

ABSTRACT

The main objective of this Thesis is to let the reader have a better understanding about Ecuadorian port activity. As a main factor it has been taken into consideration the geographical location and strategic situation of Puerto Bolivar, as well as the service that will be provided by a first class LOGISTIC CORRIDOR through proceeding with the planning, implementation and modernization for import, export and tourism which consequently would change it into an integrated entity of the Austro Ecuatoriano.

Statistics, surveys, and opinion polls were taken for this Thesis, through which many shortcomings in Puerto Bolivar have been determined. On the other hand the advantages of the Port have been highlighted in order to observe the significance of this Port as a LOGISTIC CORRIDOR.

INTRODUCTION

The research and complex understanding of the port geography, the current limiting infrastructure that exists today and the strategic location of Puerto Bolivar in the Austro Ecuatoriano are the main aspects that have determined the development of this work. This study aims to propose the implementation of some services at the port, so that Import-Exports are privileged by having available a Logistic Corridor with the highest standards in service, transportation, communication, dedication and reliability, all carried out with: logistics, planning, implementing and controlling the efficient flow of goods, either raw material or finished products. This proposal supports the generation of employment,

I hope that this research encourages investors and in a short period of time it becomes a truth, giving one of the most important steps in the integration of the country.

CHAPTER I

1. ANALYSIS AND UNDERSTANDING OF THE CORRIDOR'S OPERATION WITHIN THE INTERNATIONAL LOGISTIC CORRIDOR

This chapter will discuss the organization of a Logistic corridor, taking into consideration each of the features that are necessary to provide adequate service to all those who will benefit from this activity which involves planning, implementing and controlling efficiently value-added primary products; additionally accurate information to the customer, from the point of origin to the point of consumption.

The agents composing a Logistic Corridor, will provide necessary facilities for the receipt and / or shipment of the goods according to the needs , as well as, trained personnel and necessary machinery for the mobility of the different items , such as: cranes, lifts, transport vehicles, etc., and adequate facilities, with advanced technology, to deliver a quality service.

All of these components exist within the context of a supply chain which covers the logistic corridor itself, staff, organization, technology and physical infrastructure, thereby offering users t benefits from an excellent service, which will make the difference in competitiveness.

The established parameters in the International Chamber of Commerce-ICC-(1936) are contained in INCOTERMS (International Commercial Terms), with their characterization, definitions, developments and implementations that have been made according to the different needs, taking into consideration everything that involves transportation: air, land, sea and river to be observed by Logistic Corridors, which are responsible for loading and unloading goods.

In the seminar "Transportation Corridor Development" by José Maria Rubiato Elizalde, in his exposition he expressed a concept that perfectly encompasses all matters relating to the functions and responsibilities of a logistics corridor: "A Logistic Corridor is a geographic transport system, which involves a set of services and infrastructure. Therefore it can be defined as a chain management, which will provide logistical supply, concentrating on optimizing

processes and actors, with a production line that focuses on a specific area, in order to produce and sell goods or services related to each other".¹

In the sixth national meeting of the Community GEIO Medellin October 27 to 29 2010, Wilmer Molina Álvarez, Lorena Valencia, Yenny Gomez and William Jair Reina Avila stated "Logistics Corridor, is the one that articulates origins and destinations in physically and functionally aspects such as transport infrastructure, information flows and communications, business practices and trade facilitation".²

"In THE GRADUATION PROJECT OF THE ESCUELA SUPERIOR POLITÉCNICA DEL LITORAL WITH THE THEME: ANALYSIS OF THE TRANSPORTATION IN THE LOGISTICS CORRIDOR MANTA-MANAOS done by Julio Bustamante, Gallo and Sussy Saavedra Jessenia Bailon they state: "In common international trade, the concept of corridor and particularly associated with its transport, means: "A geographical dimension in the development of these activities."

According to the definition used by ECLAC, "a corridor is a concept that integrates the following components:

- a) Standards and financial trade practices
- b) Governmental requirements
- c) Infrastructure, vehicles, equipment, facilities and actors

The corridor itself gives its attention to issues of infrastructure. However, because of its importance or for purposes of facilitation of trade and movement of people between countries it will necessarily be a reference to the other aspects.

The dynamics of operational corridors motivated by geographical, socio-economic or variations from its other components may generate adjustments to the fundamental setting. On the other

¹ ELIZAL DE RUBIATO, Jose Maria. "Desarrollo de corredores de Transporte: logística y facilitación del comercio en el ámbito nacional y regional". En: Seminario Logística y Facilidades del Comercio y Transporte. Lima, Perú. 14 y 15 de Noviembre de 2005

² MOLINA ALVAREZ, Wilmer. VALENCIA GOMEZ, Yenny Lirana. REINA AVILA, William Jair. "Plataformas Logísticas". En: VI Encuentro Nacional de la comunidad GEIO. Medellín, Colombia. 27 al 29 de Octubre de 2010

hand, the execution of infrastructure improvement or deterioration of this can cause rearrangement of flows in the corridor's development".³

A Logistics Corridor is an essential tool for trade between countries, since it is responsible for either the import or export movements, that is why this could be called a FUNDAMENTAL connector, which commitment is to make transportation through alternative routes, in order to integrate nations, respecting the rules and laws in international trade agreements.

Logistics corridors should always keep a certain order, so that they could be compared to a military complex, since it must be well organized and maintain a very demanding discipline when handling the merchandise. Therefore they need the agents before mentioned, in order to provide good customer service and thus be a reliable corridor as a transit way or final destination for any country in need of a logistic corridor's service.

Based on different concepts that have been offered, a logistics corridor could be defined as an integrated entity with different operations in a defined geographical area in order to facilitate commercial transactions, the loading and unloading of goods and to provide a complete service to national and international trade, regarding to Imports and Exports between countries.

1.1. Essential Elements of a Logistics Corridor

A Logistics Corridor should be well structured for different elements that include certain aspects in order to work effectively. Next, I mention the main elements to maintain proper organization with the purpose of achieving efficient work.

A) Infrastructure factors

-Locational aspects -network- infrastructure -transport system – transport organization chain.

B) Telematics

-Communication networks –terminals -informatics

³ BUSTAMANTE, Julio. SAAVEDRA GALLO, Jessenia. BAILON, Sussy. *"Análisis del Transporte de el Corredor Logístico Manta- Manaos"*. Director: Ing. Washington Martínez. Escuela Superior Politécnica del Litoral. Facultad de Economía y Negocios. Guayaquil, Ecuador

C) Trade policies

-Customs - trade – phytosanitaries-security.⁴

A good corridor should always be composed of the elements mentioned above, in order to provide efficient service to users, for which they must have logistics operators, who are responsible for making the relevant arrangements.

This research emphasizes the seaway, by which it is necessary to give the proper maintenance of access roads to the port, having in consideration that it is a key factor for efficient transport of the goods to their destination.

Additionally, it should be co-ordinated with air services as they are the fastest way to transport perishable goods. This way, we would be able to give a proper use to Puerto Bolivar, as the point of connection with the Ecuadorian Austro.

A role model to follow as a logistic corridor, is the one that unified both Atlantic and Pacific oceans, was the Panama Channel built with a technical infrastructure which goal was to serve as a bridge and to allow the transit of large ships through the channel.

In 1855 the Panama Channel became a major point of the Americas unifying the world. This is a Logistic Center that connects several continents today, using modern technology such as fiber optics, in order to optimize communications and provide excellent service quality.

Regarding our country:

The first president who took the initiative to enter the Amazon region was Gral. Eloy Alfaro with a plan of unifying different regions of our country, such as El Oro - Guayaquil - Quito - Pailón - Ambato - Curaguay through the railroad.

"In 1942 the authorities approved a way to the Amazon area and allowed sailing through the – Curaguay - Putumayo – Napo –Pastaza - Morona rivers toward the Amazon" ⁵

⁴ Ing HIGUERA, Edgar. *"Planeación de Infraestructura en Función de Corredores Logísticos"*. En: Taller, El Futuro de América del Sur: Construyendo la visión estratégica de la integración física suramericana. Colombia. 7 de Julio de 2005

"The Manta-Manaos-Belen corridor meant a sustainable development of trade, for which, a multimodal transport component was needed. The potentiality of becoming a bi-oceanic corridor (Atlantic – Pacific) was based on basic components of the project road and river ways. "⁶

Without the logistic corridors, especially maritime, the merchandise exchange with significant volumes would be difficult, even if it is transported through air where mobility costs would be expensive. Not so in the case maritime vessels which have great mobilization capacity and a lower cost with additional land transportation, which is suitable for door to door service. Even among neighboring countries, having a service requires having a fleet of vehicles that can cover the transportation needs with efficiency and punctuality.

In order to analyze the performance of logistics corridors as part of the international trade in southern Ecuador, I will quote some key terms that allow understanding the process of regulation of commercial transactions among countries in order to better understand the Central Chapters of this thesis, as well as the trade dynamic which takes place in the Ecuadorian region.

1.2. Logistics Operators

In order to define the roles of a logistic corridor, I will list some concepts:

In the Catalogue ALDIA, Logistics is an operator that "integrates the provision of specialized services for the supply chain such as: Storage, Inventory Management, Transportation and Physical Distribution adapted the specific needs of each client".⁷

"According to all experts: "A logistics operator is the one that coordinates all activities required for the direction of the flow of materials and products you need as a company, from the source of supply to the final consumer. "⁸

⁵ BUSTAMANTE, Julio. SAAVEDRA GALLO, Jessenia. BAILON, Sussy. *"Análisis del Transporte de el Corredor Logístico Manta- Manaos"*. Director: Ing. Washington Martínez. Escuela Superior Politécnica del Litoral. Facultad de Economía y Negocios. Guayaquil, Ecuador.

⁶ BUSTAMANTE, Julio. SAAVEDRA GALLO, Jessenia. BAILON, Sussy. *"Análisis del Transporte de el Corredor Logístico Manta- Manaos"*. Director: Ing. Washington Martínez. Escuela Superior Politécnica del Litoral. Facultad de Economía y Negocios. Guayaquil, Ecuador.

⁷ ALDIA LOGISTICA. *"¿Qué es un operador Logístico?"*

⁸ TODO EXPERTOS. *"Operador Logístico"*. Publicado: 10 de Marzo de 2002.

"The functions of a logistics operator are Ordering Procedures: Activities relating to the collection, verification and transmission of orders; Material Handling: to determine material and procedures to be used and to move products within warehouses and between them and the store;. Packing: to decide what protection systems will be used; Transport of products: to decide what transport will be used and to process a route plan.

Storage: select the location, size and characteristics of the warehouses.

Inventory control: to determine the amount of products that should be available to deliver to a prospective buyer. It also establishes the frequency of orders. Customer Service: it determines where the points of services will be located, what type of goods, and the appropriate staff to assist the customer.

All these functions are developed by a logistics operator which can also be done with the lowest cost according to all the features."⁹

In reference to the bibliography, logistics operators are responsible for making all necessary arrangements relating to the import and export of products and services, they are responsible of managing in the best way the merchandise to be exchanged among countries, as they are in charge of the insurance, national and international transportation of goods, in order to move the merchandise from one place to another, using the necessary tools to perform all these transactions with appropriate security , all according to the requirements and convenience of the user.

International trade has accepted the usage of some terms which regulate the functioning of business operations in the global market that are based on an appropriate logistics for the proper marketing and mobilization of imports and exports. In the same way, the International Chamber of Commerce (ICC) has created the appropriate tools (incoterms) to implement standards to improve international trade relations. As we know, globalization is one of the main reasons why trade expands every day, so it is necessary to provide good service.

⁹ TODO EXPERTOS. "*Operador Logístico*". Publicado: 10 de Marzo de 2002.

These tools help to overcome the marked differences in the buying and selling activities among individuals and companies from countries with different business cultures, immersed in a world of traditions, customs, languages, laws and religions. For this reason the ICC, has determined the need to establish buying and selling terms in order to define the obligations to be accomplished, both sellers and international buyers, with the exchange and business procedures.

To do this, the ICC felt the need to create some terms to be upheld, in case an international dispute takes place, which will be used as rules to help resolve any problems that might arise between the involved parties.

1.3. Incoterms 2010

Incoterms are a treaty of international rules established by the International Chamber of Commerce, which define, determine and regulate the processes that protect transactions and sale contracts in the world, in order to facilitate importers, exporters, logistic operators, insurance companies, etc, established through rules and regulations, to which users should freely and voluntarily submit.

According to the International Chamber of Commerce "Incoterms rules define the responsibilities of buying and selling companies in the delivery of goods under buying and selling contracts. They are authoritative rules that determine how to assign the costs and risks between the parties. The Incoterms rules are regularly incorporated in buying and the selling contracts worldwide and have become part of everyday language of trade. Incoterms ® 2010 contains ICC rules for the use of the eleventh incoterms trade terms. It recognizes the latest developments in commercial practice and also updates and consolidates some of the above rules."¹⁰

The rules and precepts of Incoterms, although were established 70 years ago, are regulated, complemented and updated according to the needs generated over the years. The International Chamber of Commerce is responsible to regulate as required by foreign trade.

¹⁰ CAMARA DE COMERCIO INTERNACIONAL...INCOTERM® 2010." *Reglas de ICC para el uso de términos comerciales nacionales e internacionales*"

Other Incoterm Objectives:

Facilitate foreign trade operations and establish optional terms and rules to determine rights and obligations both of the seller and the buyer in international transactions which can be used in budgets, orders and contracts for the international sales.¹¹

“INCOTERMS are voluntarily accepted by the parties, that is, they are not in a legally binding scheme, and their main virtue is to be simplified in its latest version, using 11 standard denominations, so they know exactly what to expect.”¹²

1.3.1. Categorization of Incoterms 2010

To facilitate its use, Incoterms ® will be divided into two categories:

- Rules for any means of transportation:

EXW EX WORKS-IN FACTORY

FCA FREE CARRIER

CPT CARRIAGE PAID TO

CIP CARRIAGE AND INSURANCE PAID TO

DAT DELIVERED AT TERMINAL / AT BORDER

DAP-DELIVERY AT PLACE

DDP DELIVERED ON SHIP PLACE- DELIVERY DUTY PAID AGREED INSTEAD

- Rules for Maritime transport and inland waterway

FAS FREE ALONGSIDE SHIP

FOB FREE ON BOARD

CFR-COST AND FREIGHT

CIF COST INSURANCE AND FREIGHT¹³

¹¹ ¹¹ BORREGO ZABALA, Bartolomé. “Los INCOTERMS 2010 que todo profesional del Comercio Internacional debe conocer y utilizar”. Pag: 32 Publicado: 6 de Abril 2011.

¹² MOLINS, Alejandro. “Logística Internacional”. Escuela de Organización Industrial. 2011-2012.

¹³ MOLINS, Alejandro. “Logística Internacional”. Escuela de Organización Industrial. 2011-2012.

According to Reverse Logistics Concepts document Glossary of Terms, Incoterms are grouped into four categories: E, F, C and D.

EXW The seller provides the goods to the buyer at his own place, or they are directly delivered to the customer.

FCA, FAS and FOB The seller is responsible to deliver the goods to a means of transport chosen by the purchaser, or they are delivered indirectly without payment from the main transportation.

CFR, CIF, CPT and CIP. The seller contracts the transportation without assuming the risk of loss or damage of the goods or additional costs due to events occurring after shipment and dispatch. It is an indirect delivery to major transportation payment.

DAT, DAP and DDP the seller stands all costs and risks to carry the goods and make a direct delivery on arrival. The costs and risks are transmitted at the same point, as the terms E and F.

The terms in D are not intended when the payment transaction is done through a letter of credit, as financial institutions do not accept it.

According to Bartolome Borrego Zabala and in this part of the chapter, you can clearly see that the incoterms serve to regulate three aspects basically related to the place of delivery:

- The transfer of risks between buyer and seller.
- The costs are paid by buyer and seller, and
- The documentation, procedures and formalities (customs, licenses, fees, and other documents, etc) and private operators such as transporters, insurance companies, customs agents, etc.¹⁴

¹⁴ BORREGO ZABALA, Bartolomé. *“Los INCOTERMS 2010 que todo profesional del Comercio Internacional debe conocer y utilizar”*. Pág.: 38 Publicado: 6 de Abril 2011

GRAFHC 1: INCOTERMS 2010

The chart displays the responsibilities of the seller (Vendedor) and buyer (Comprador) for various Incoterms 2010, categorized by transport type (Transporte Polivalente o Multimodal and Transporte Marítimo o Vías Navegables) and specific trade terms (EXW, FCA, CPT, CIP, DAT, DAP, DDP, FAS, FOB, CFR, CIF). The responsibilities are indicated by green circles (Vendedor) and red circles (Comprador).

		MERCANCÍA ACONDICIONADA PARA SU VENTA	ALMACÉN, TRANSPORTE INTERIOR Y ADUANA DE EXPORTACIÓN	GASTOS DE MANIPULACIÓN EN ORIGEN	TRANSPORTE EXTERIOR	SEGURO DE LA MERCANCÍA	GASTOS DE MANIPULACIÓN EN DESTINO	ADUANA DE IMPORTACIÓN	TRANSPORTE INTERIOR Y ENTREGA
TRANSPORTE POLIVALENTE O MULTIMODAL	EXW	●	○	○	○	○	○	○	○
	FCA	●	●	○	○	○	○	○	○
	CPT	●	●	●	●	○	○	○	○
	CIP	●	●	●	●	●	○	○	○
	DAT	●	●	●	●	●	●	○	○
	DAP	●	●	●	●	●	●	○	●
	DDP	●	●	●	●	●	●	●	●
TRANSPORTE MARÍTIMO O VÍAS NAVEGABLES	FAS	●	●	○	○	○	○	○	○
	FOB	●	●	●	○	○	○	○	○
	CFR	●	●	●	●	○	○	○	○
	CIF	●	●	●	●	●	○	○	○

● VENDEDOR
 ○ COMPRADOR

WWW.PYMESYAUTONOMOS.COM
 GAUDIZ 2010

FUENTE: Blog.Pymesautonomus. Manual para Dominar los Incoterms 2010
 ELABORACIÓN: Germán R. Udiz

This table represents a simple chart and will help us to accomplish the objectives of this research.

It is not recommended to use Incoterm EXW (Ex works) for international sales, since it does not include transportation costs of the goods. The seller is just in charge of delivering the merchandise in his company. It is recommended to use the Incoterm FCA (Free Carrier) which includes the transport cost of the goods to the destiny port. Another reason not to use this is because they can find problems in the Export Customs Operations (DAE) since the seller sends directly the export.

A presentation on the main logistics tool has been made -to refer to Incoterms-, as I mentioned before, this is one of the main requirements for international trades, which must be agreed simultaneously by the parties that will be held in the commercial transaction.

1.4. Logistic Concepts and Terms

It is necessary to know several concepts and terms, such as: supporting information to understand and develop the subtopic for this part of this chapter, which is why the information from professional sources has been taken from: Dictionary of Economics and Finance, Logistics Glossary of Arnulfo Garcia Arturo Olivares. Practical Handbook of Logistics PILOT, and Reverse Logistics Traceability, Spanish Association of Commercial Coding-AECOC. Most of the terms are summarized and for others, a comment has been issued.

1.4.1. Definition of Logistics according to RLEC

Logistics is the process of planning, implementing and efficiently controlling the flow of raw materials, work materials in progress, finished goods and related information, from the point of origin to point of consumption in order to satisfy customer requirements. Reverse Logistics Executive Council.

1.4.2. Definition of Supply Chain

A supply chain can be defined, as the event that links people in different business activities, through a technical organization, which allows processing and proper handling of raw materials, in order to obtain quality products to be commercialized.

"The supply chain includes business processes, people, organization, technology and physical infrastructure that allows the transformation of raw materials into intermediate and finished products and services that are offered and distributed to the consumer to satisfy their demand."
(Practical Manual Logistics PILOT p.9)

1.4.3. Definition of Value Chain

Value Chain is the process to which the products are subject, from its beginning and the different stages it takes to achieve completion, then additional values are added, that grant the specific quality of product. "The value chain consists of a series of processes that enable a company to manage their products from conception to commercialization so that at each stage a value is added."¹⁵

1.4.4. Definition of Traceability

Traceability is the process by which the product is monitored through the supply chain, in order to control the physical situation and background to which the product is subject to, with an appropriate procedure. "Procedures for controlling the history, physical situation and background of a product along the supply chain at any time, through certain tools."¹⁶

1.4.5. Definition of Reverse Logistics

A reverse Logistics handles the managing of the flow of materials from the final customer oriented to any link of production, covering: suppliers, producers, distributors and others. Reverse Logistics is the responsibility for guiding and positioning the product in the right place and establishes the environmental, legal and economical value. Additionally Reverse Logistics is the responsibility of fixing everything that relates to issues concerning post-sales.

"In contrast to traditional logistics, reverse logistics is responsible for managing the flow of materials and its associated information from the final client to any of the links in a chain (suppliers, producers, distributors) for the purpose of adapting the product in the right place and creating economical, ecological and legal value Includes activities such as refunds, repairs, resale, re-manufacturing, recycling, eco-design and reuse. "¹⁷

¹⁵ "Reflexiones sobre Logística Inversa"

¹⁶ (AECOC: Asociación Española de Codificación Comercial. *Logística Inversa Trazabilidad*. p. 5).

¹⁷ ING. MERCADO HOYOS, Luis. "Logística Inversa".

1.5. The Freight

Transportation is an important part of the international supply chain and helps to understand the functioning of international trade corridors.

The movement of goods is carried out through a variety of means of transportation, such as rail, road, sea, air, or by the proper coordination and combination of some of these means of transportation. In this chapter the trade performance of the region between Ecuador and Peru has been prioritized. It does not ignore the activities carried out by the transportation sector, as it simplifies business and synchronized operations, which allows the planning of the logistics to provide efficiency and competitiveness in foreign trade.

The transportation division is considered one of the most strategic points in the development of the economy, that is why it is necessary for adequate logistics, to consider this element as a basic and priority element, and a transportation network which ensures a constant flow of goods is necessary.

In today's world, the different media transport whether by land, air or sea has a major influence in the logistics business development, as it is the factor which allows goods to be transported in an appropriate and effective way, which affects and energizes the global economy.

The transport itself through different ways, needs its own logistics, which joins a larger process, as in the case of International Corridors, and while the cost is very representative, it should be taken into account that through proper transportation, the supplier will be able to meet the demand of the customer, so that the delivery of the products or merchandise is done properly and on time.

In brief, if logistics is the set of procedures tending to have adequate facilities and trained personnel, it should be noted that transport becomes a key piece within delivery processes, and supply of goods. Therefore, transportation is a key factor in providing a service in an International Corridor, for it to offer efficiency, quality and excellence. Here I quote the different kinds of transportation.

1.5.1. Air transportation

Air transportation is irreplaceable for its speed, which is a way to adapt remarkably fast, for the transport of urgent, perishable or valuable goods. Its rates are well studied, so that at the current time it is increasingly competitive.

The merchandise handled by this means of transportation, are goods that should arrive urgently, therefore, to transport them, air service is used as a means of transportation.

Many import and export companies depend on air transportation, due to the speed it provides. Another reason is the savings in packaging, and storage costs, premiums of insurance companies, the transit time and the easiness of handling the load.

The advantages of this type of transport are:

- Faster
- Major geographic coverage
- Increased security, lower accident rate
- Flexibility
- Allows inter-modality

Disadvantages:

- More expensive
- Restrictions on the type of cargo
- Load limitation due to measure of doors and capacity, as well as weight¹⁸

¹⁸ TORRICO, Carlos A. “*Logística Internacional (transporte y seguro)*”.

1.5.2. Ground Transportation

Ground transportation is an effective means for door-to-door service. This kind of transportation is relatively faster than transportation by train or vessel. It is considered the first terrestrial means that uses the road network, to transport people, mail or parcels.

While its capacity is more limited if compared with ocean carriers or related to the railroad transportation, the speed and agility of the service exceeds the above transportation means, which, ultimately, are subject to land transport.

Other points to note are: speed in shipping, insurance costs and accident premiums that are significantly lower, as well as the financial and packaging costs are more accessible.

Attached is a list of the advantages of land transport:

- Door-to-Door Service
- Moderate restrictions to the transport of certain goods
- Increased ability to negotiate (times, prices)
- Flexibility: adapts to all demands and customer requirements
- Commonality: most used means anywhere in the world
- Traceability: tracking with new systems

The main disadvantages are:

- Severe hazard (release and waste)
- Damages in the road network
- Submitted to road network and traffic restrictions
- Major accidents in tons per km¹⁹

¹⁹ TORRICO, Carlos A. “*Logística Internacional (transporte y seguro)*”.

1.5.3. Sea transportation

In this part of the chapter, I will proceed in detail, because it adds to this topic, as a part of the research.

According to CORPEI, 94% of Ecuadorian trade is done by sea transportation, especially with large volumes of merchandise in container transport.

As 75% of the earth's surface is covered by water, sea transportation is a key factor for the exchange of products to different regions, as a natural communication channel.

One of the most important characteristics of this means of transportation is its high load capacity and adaptability to carry all kinds of products and volumes.

We can find various types of vessels that fit load requirements such as:

- a) Equipped Vessels with ventilation and cooling warehouses for perishable cargo.
- b) Tankers, cement carriers that are designed for specific transport of such goods.
- c) Vessels are built for different purposes such as the transportation of containers, or a cargo service in both directions.
- d) Tankers to transport petroleum products.

Low-cost of sea transportation service, compared to other means of transportation, particularly on large volume loads and additionally the great distances they travel, make this means of transportation better suited to a high percentage of products sold internationally.

Maritime transportation offers both the exporter and the importer, different navigation options, routes and services for the movement of goods; for this reason, the user is empowered to choose the service, type and capacity offered by different shipping companies and hire according to their needs.

We mention the main advantages of sea transportation:

- Cheaper
- Can carry a variety of cargo
- Lower load restrictions (type, weight, volume etc.)
- Delivery of large amounts (liquids, containers)

Disadvantages:

- Need for land infrastructure and customs
- Relative speed, depending on the vessel and kind of service
- Low traceability
- Large amount of dredged material and sedimentation of rivers
- Insufficient infrastructure in ports plenty to serve²⁰

1.5.4. Train transportation

Is very positive for the transport of large masses. It is greater than road transportation, but its speed is usually lower.

This transport system works on rails or tracks on which the trains run. The railroad was born in the early nineteenth century in England and was one of the most important characterizations of the Industrial Revolution and the first carrier on a massive scale.

In Ecuador in the XXI century, we can say that rail transportation has disappeared, and that the few routes of the Ecuadorian Railway Company (state-owned), have been reserved as part of the folklore, therefore its use is restricted to the tourism sector.

However, it should be noted that, the attractiveness of restoring or upgrading it is because its use is appropriate since its ability to move large volumes of cargo could become an economical and cost effective freight transport over considerable distances with impressive heavy weights or volumes

²⁰ TORRICO, Carlos A. “*Logística Internacional (transporte y seguro)*”.

The main advantages are:

- It is a very safe way of transportation and is less affected by weather variations than any other means of transportation.
- It is a means of transportation designed to transport large volume loads.
- It is the most suitable for the movement of all kinds of goods, from the economic lower density, to those with higher density, which can be transported at reduced rates.
- Rail transportation is recognized as superior compared to any other means of land transportation when it comes to transporting assorted goods over long distances as their ability to move large volumes of cargo, can charge low rates, following its rule of applying base rates decreasing as the distance increases.

Among the disadvantages of this way of transportation, we can say:

- The railroad cannot compete with motorized transport, because users prefer a direct service from door to door, even though it has higher rates.²¹

1.5.5. Multimodal Transportation

This transport has the advantage of grouping goods in Intermodal Transport Units (ITU), as containers and moving boxes, which reduces costs.

Multimodal transport consists in the transfer of goods, using more than one means of transportation on its way from the origin point to the destination.

The novelty of international multimodal transportation is done as a single operation, covered by a single document in a single shipment and under a unique responsibility throughout the journey. Multimodal transport means a substantial renovation of the concept of international transport, to replace the old system of carrying from one gate to another, for the integral service known as "door to door".

²¹ *"Los Transportes"*

The main advantages of this means of transportation are:

- Facilitates the movement of goods, reducing the total transport cost through greater efficiency, under a unique responsibility of the operators.
- Ensures an integrated process between two points situated as close as possible between the consignor and the consignee.
- The complexity of the foreign trade procedures are leveled, because the buyer or seller from outside a country, buys from a single company: the multimodal transport operator; through a unified main document that allows the bill of lading for multimodal transport, which requires a reasonable time to prepare its operations.
- The facilities provided by both the buyer and seller, raise competitiveness, by providing a door-to-door service, which is functional and attractive to overseas buyer.
- Exhibits the alternative of using different means of transportation available and combine them properly, so that the goods are not at risk.
- Assumes loss or damage to the place of its destination.²²
- It offers maximum benefits on international trade logistics for its different method of logistic transportation either individually or by itself, the different means of transportation cannot do it.

²² “Logística”. Publicado: 24 de Mayo de 2011.

CONCLUSION

Logistic Corridors are in charge of all that relates to the activity of the international transport of goods, which is specifically dedicated to the transfer of goods, and must be done in a legal way, thus meeting health standards, respecting safety standards and complying with domestic and international laws established by agreements, statutes and regulations which have to be respected by the international community.

It is the responsibility of the logistics operator that has made a transaction that the goods arrive at their destination, under the conditions stipulated in the contract which entails: the faithful fulfillment of the agreed period and the price set without damage.

The transfer of goods involves some physical risks that may suffer from accidents, which can be caused during handling and transportation. For this potential damage affecting the goods during transport and in order to have protection for both exporters and importers, it is necessary to have a backup:

- 1) Legal Protection is the ability to demand and sue responsibilities of third parties for damages that may occur.
- 2) Economic Protection is to obtain compensation for the loss or damage suffered, which is usually implemented through an insurance policy.

The Logistics operator is in charge of hiring the services in all branches of transportation, and is also the one to choose the most suitable Logistics Corridor, according to customer needs, who should guide, what is most convenient for the marketing and transport of goods. For this, you must have a logistics corridor that offers infrastructure, technology, communication, informatics and trained personnel according to current requirements, in order to offer an efficient, reliable and competitive service.

CHAPTER II

2. DESCRIPTION OF THE DYNAMICS AND OPERATION OF TRADE IN SOUTHERN ECUADOR AND NORTHERN PERU

This chapter will describe the dynamics and functioning of Puerto Bolívar, through statistical data. It will also include information regarding the movement of goods in the period 2009-2011, in order to understand why it is believed that this port is only for banana exports.

"The historical background of Puerto Bolivar starts in the 60's in the XIX century, when the precarious canoe pier started marking a developing route in the province of El Oro, as a connecting door to Guayaquil, with international projections. In 1869 the Mayor of Machala, José Maria Ugarte, said "how convenient it would be to make a shack in the immediate area above the seashore called Huayla, considering that the sea in this sector has increased depth, and represents one day less in the journey to Guayaquil.

The purpose of having a port called Puerto Bolivar is the oldest reference according to the minutes of year 1883 when the commemoration of Simon Bolivar's death 53 years took place.

In a significant ceremony at Puerto Bolivar, native, civil and ecclesiastical authorities, landowners were involved, after the Te Deum celebrated by Ramon Martinez, pastor of Machala who blessed the waters and the precarious platform, precursor of the future docks.

When Puerto Bolivar was established, it became a development motor in Machala city by facilitating the transportation of cacao, bananas, other fruits and wood to Guayaquil appropriate for the growing needs.

Puerto Bolivar is one of the four major ports of Ecuador. It is managed by a Port Authority that legally represents and manages its economic activity.

Puerto Bolívar is the exit door for the El Oro province export products, and it is the natural entry of merchandise for the different southern regions of Ecuador and the northern area of Peru.

The growth of the port is part of the regional industrial and agriculture development; also with the commercial movement and special projects, industrial parks and gas exploitation in the Gulf of Guayaquil. All these economic factors increase the port activities.

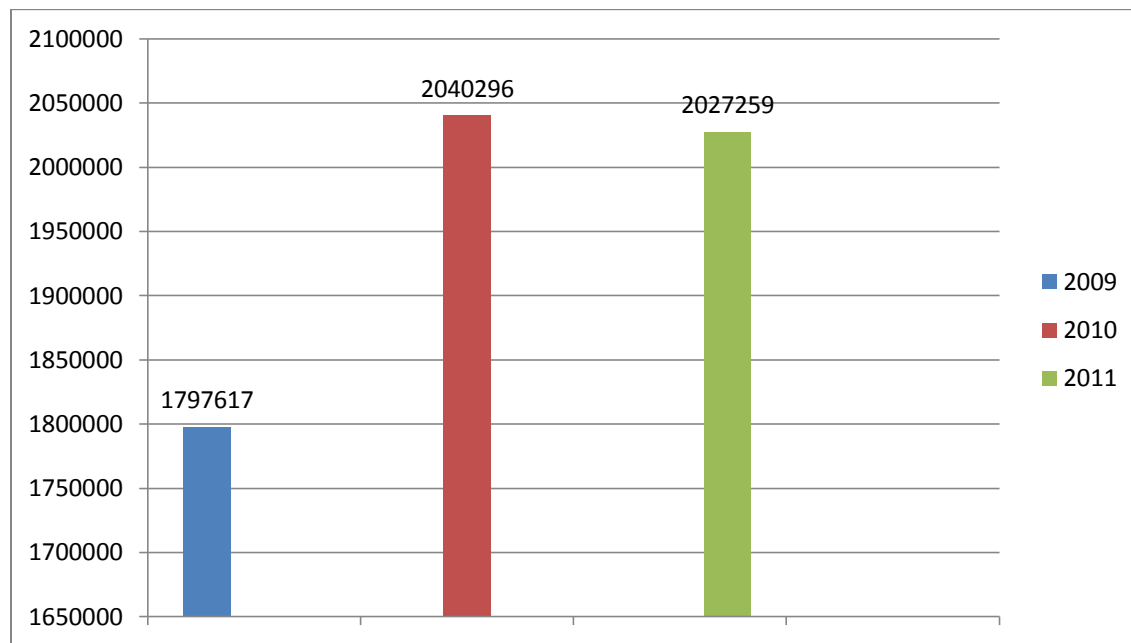
Globalization of foreign trade increased the cargo volume through the sea way, and the PEACE AGREEMENT with Peru had a positive effect, to provide financing for development projects in border areas that have repercussions in the port development.”²³

2.1. Port Dynamics and Operation

In order to understand the dynamics and operation of the port, it is necessary to carry out research to obtain data and statistics that allow me to understand the rhythm of change that has taken place in the Port over the years, in all matters relating to embarking and disembarking. For this I have researched a sample between Port of Guayaquil and Puerto Bolivar, all aimed to discover what are the advantages and disadvantages that can be offered to potential users. Additionally I have taken into consideration the existing shortcomings to suggest a better performance in the future. Next I will show charts and pictures of statistical data of the Port dynamics during the years: 2009, 2010 and 2011.

²³ PUERTO BOLIVAR.

GRAPHIC # 2: Total Loads Mobilized through Puerto Bolivar (metric tons)



Made by: Renato González. Source: www.obraspublicas.gob.ec

According to the chart above, you can see the change in metric tons that has taken place in the last three years, which have been mobilized through Puerto Bolivar. According to statistics, in 2009 it moved to 1'797 .617 metric tons. In 2010 there was a movement of 2'040 .296 and in 2011, 2'027 .259 metric tons. So I can conclude that in relation to mobility of goods at the port, there is a considerable increase between 2009 to 2010 and a slight decrease in 2011 relative to 2010. These increases are due to the improvement in the operations of embarking or disembarking in the port and on by the increase of small and medium producers of bananas. In an interview in the newspaper "The New Entrepreneur"²⁴ Wilmer Encalada, manager of Port Bolivar Port Authority stated:

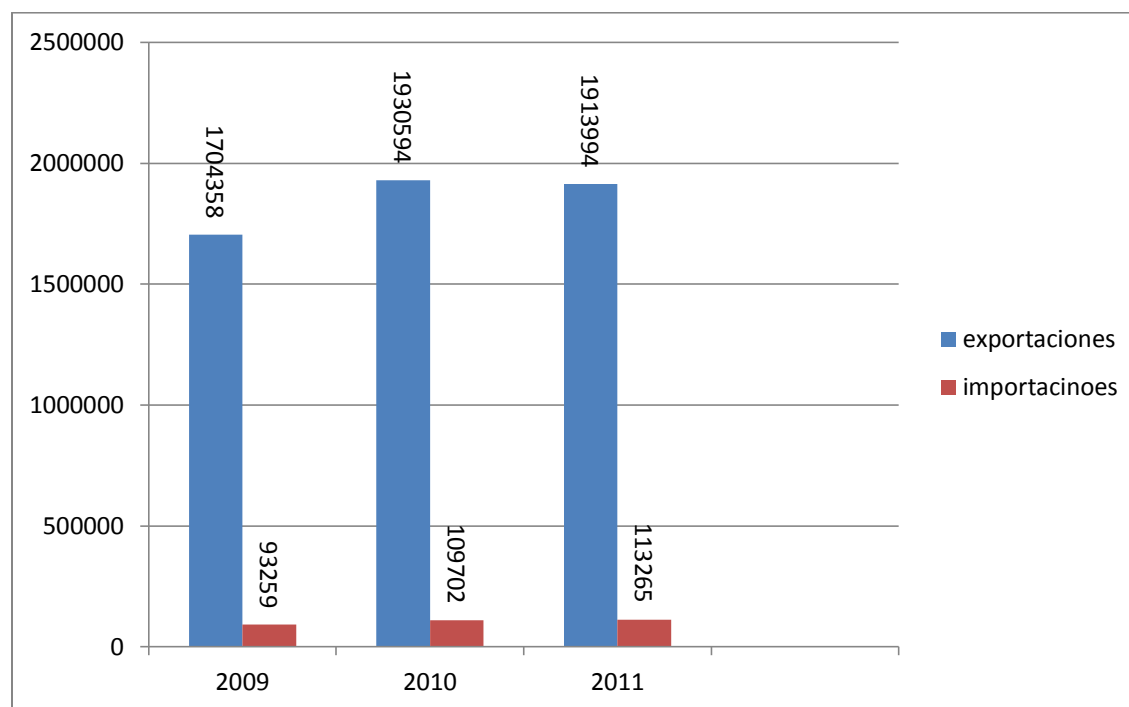
In order to establish a connection between embarking and disembarking that have been made throughout Puerto Bolivar and Port of Guayaquil, as the main port of the country and according to statistics reference, the following percentages of agreement for National port mobilization are described:

²⁴ EL NUEVO EMPRESARIO. "Ecuador: La exportación de banano aumenta; productores esperan que aranceles disminuyan." Publicado: 24 de Enero de 2011.

This chart shows the total of imports and exports that have been handled in each year. The percentage represents the national movement.

Puerto Bolívar			Port of Guayaquil		
Year	Metric Tons	%	Year	Metric Tons	%
2009	1'797.617,00	4,62	2009	7'325.217,57	18,84
2010	2'040.296,00	5,00	2010	7'657.235,00	18,00
2011	2'027.259,00	5,00	2011	9'628.062,00	22,00

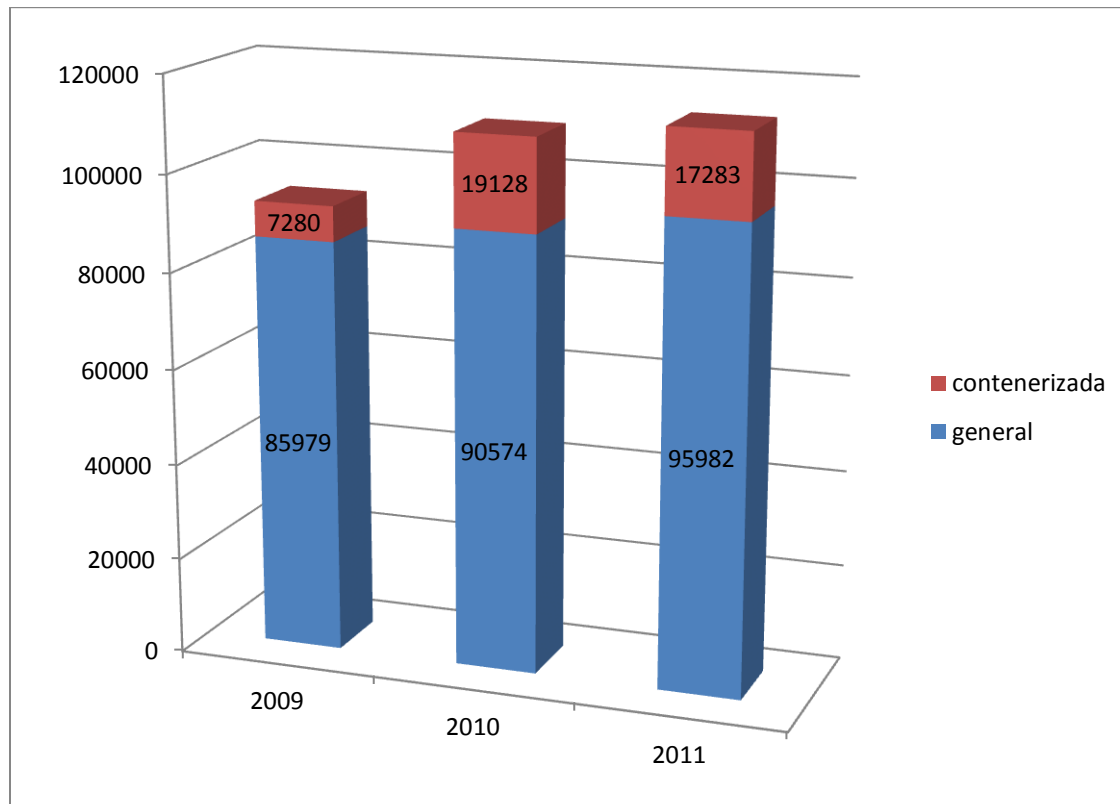
GRAPHIC # 3: Relation of Exports and Imports: Puerto Bolivar (metric tons)



Made by: Renato González. Source: www.obraspublicas.gob.ec

With this chart the value of imports and exports that are made through Puerto Bolivar, measured in metric tons, is perfectly understandable. It qualifies as a purely export port, as it is observed that its growth is due to different export items. However, we can say that there is a slight margin of growth in term of imports.

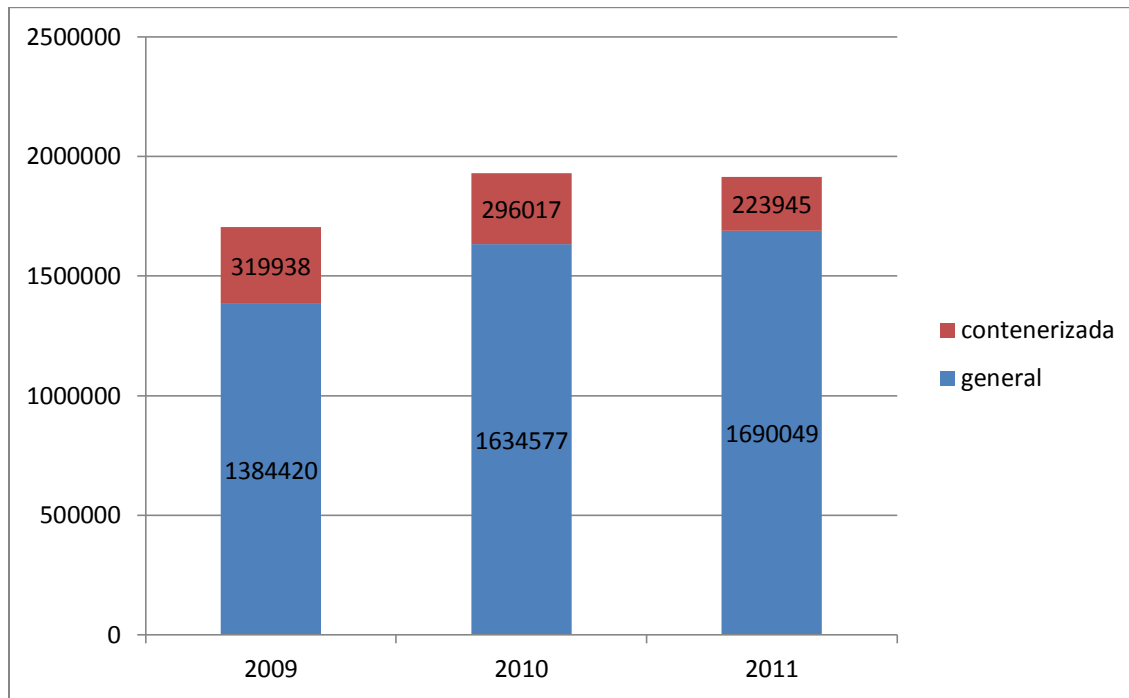
GRAPHIC # 4: Imports by Type of Cargo in Puerto Bolivar (metric tons)



Made by: Renato González. Source: www.obraspublicas.gob.ec

Concerning general cargo imports, statistical data shows a significant rise. Therefore, it is assumed that the marine terminal is in constant operation, that is why this is an ambitious project which suggests an infrastructure implementation, services and facilities necessary to declare Puerto Bolivar as a First-Order Logistics Corridor, that allows large-scale imports. With a qualified Logistics Corridor, it can provide an excellent service to the surrounding provinces, taking into consideration the advantage of distance and time, in the delivery of goods.

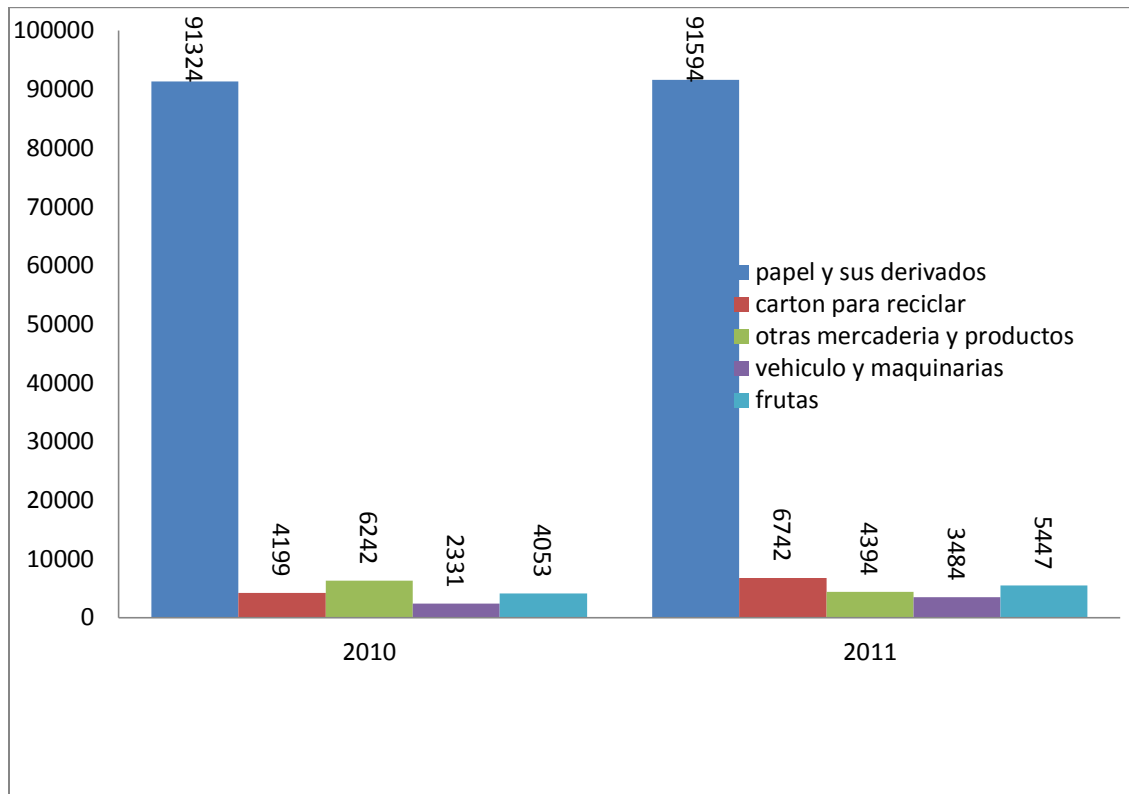
GRAPHIC # 5: Types of Cargo exports in Puerto Bolivar (metric tons)



Made by: Renato González. Source: www.obraspublicas.gob.ec

As I mentioned before, Puerto Bolivar is an exporter port. This chart shows that rates of metric tons exported through this port, have maintained even rising and growing. By analyzing these last charts, we can say that the dynamics of the port are in constant motion.

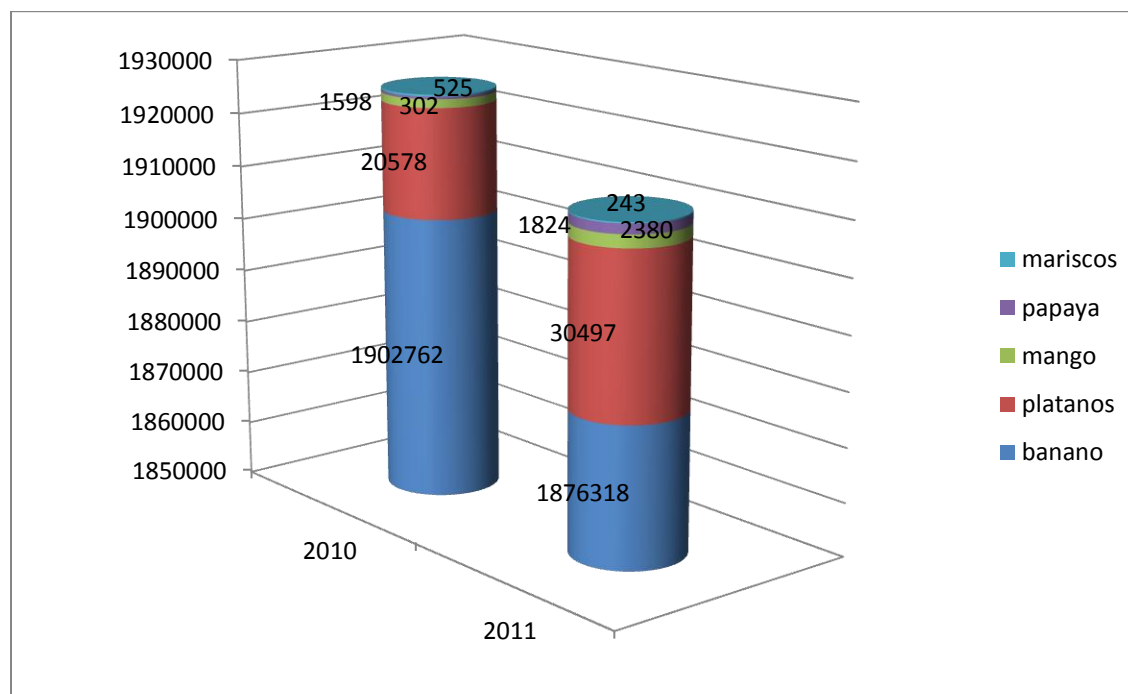
GRAPHIC # 6: Puerto Bolivar main Import Products in Puerto Bolívar (2010-2011) (metric tons)



Made by: Renato González. Source: www.obraspublicas.gob.ec

I have chosen five items, as they are the main items to import. As you can see paper and its derivatives are products which have been most imported in Port Bolivar, in relation to: a) cardboard for recycling; b) other goods and products, c) vehicles and machinery, d) fruits, which show that the port moves various kinds of goods in terms of imports.

GRAPHIC # 7: Puerto Bolivar main export products (2010-2011) (metric tons)



Made by: Renato González. Source: www.obraspublicas.gob.ec

Analyzing this chart, it is proved that the export of bananas and fruits is one of the highest recorded captions in Puerto Bolivar.

Also it is important to note, that according to the statistical table, exports, in 2011 suffered a considerable reduction, due to a decrease in export which was published in a local newspaper. Also the export of bananas had a significant drop during this period.

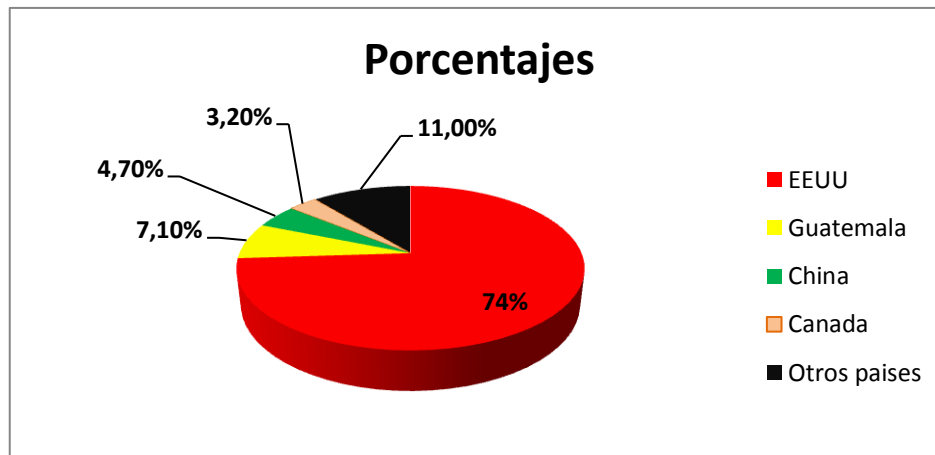
By taking into account the mobilized metric tons in the port, both in terms of imports and exports, I will make a more specific analysis, on the main products embarking and disembarking at Puerto Bolivar.

According to the chart and to the statistics, we can say that Puerto Bolivar has stalled its growth process, which shows the comparative chart in relation to years: 2009, 2010 and 2011, some other quotes that come to the port belong to recycled paper and cardboard, followed by other goods, vegetables, fruits and machines. In relation to exports it is observed that mostly these correspond to the shipment of bananas, and fruits in general.

For these reasons we can say that Puerto Bolivar is not progressing and this is why I am motivated to propose this project of implementation of the infrastructure, services and facilities necessary to declare Puerto Bolivar an important Logistic Corridor, by increasing modern technologies for the logistic operator, providing the user with an efficient service, which would benefit the provinces of the South of Ecuador and implementing an international level trade, both in imports and exports.

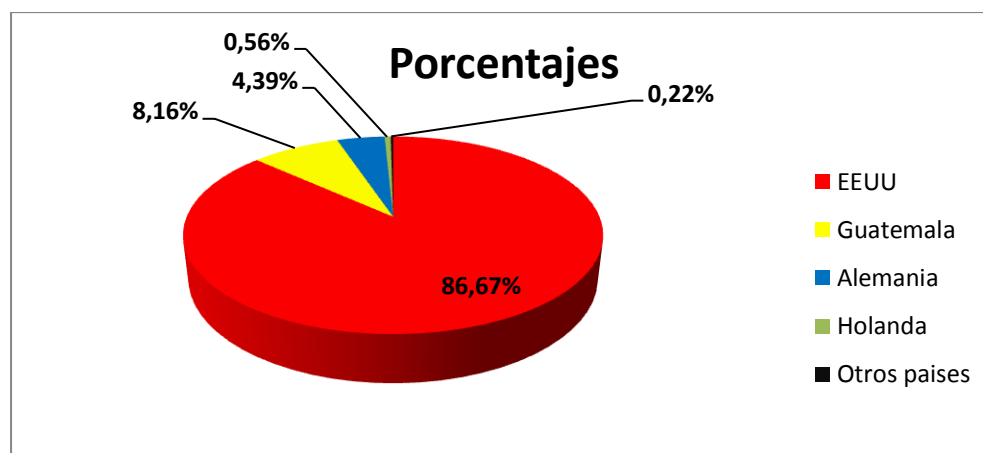
To show international trade with major countries operating through Puerto Bolivar, I will post an import and export percentage chart.

GRAPHIC # 8: Puerto Bolivar main Importing Countries in 2010. (Percentages)



Made by: Renato González. Source: www.obraspublicas.gob.ec

GRAPHIC # 9: Puerto Bolivar main Importing Countries in 2011 (percentages)



Made by: Renato González. Source: www.obraspublicas.gob.ec

Import graphics of 2010 and 2011 show that the United States mostly uses this Port for their business, and it is also shown that an increase of 12.67% of imports came from that country.

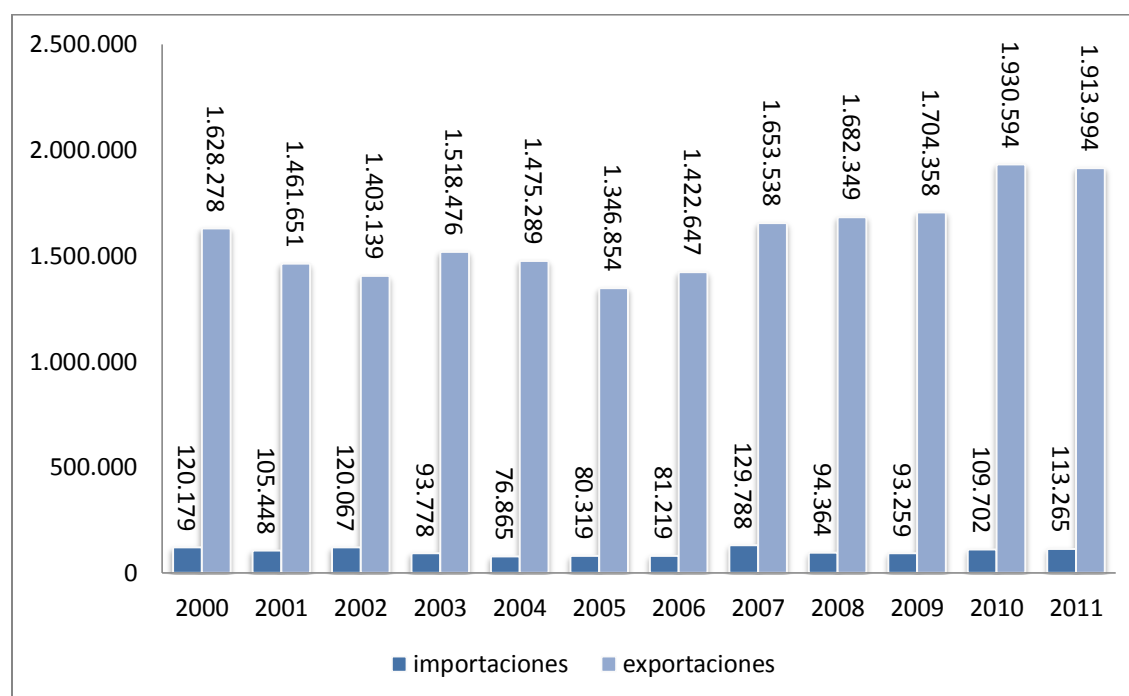
Guatemala has increased 1.06% over the years 2010-2011.

Imports from Germany in 2011 was a percentage of 4.39% and Netherlands a 0.56%.

It is said that the number of metric tons that entered Puerto Bolivar has increased in 2011 which is why it is important to implement and modernize port facilities in order to have more movement and fluidity in loading and unloading goods.

It is vital to analyze all the imports and exports through Port Bolivar during the period 2000 - 2011, and to have a concrete data that will reveal the exact operational movement of the Port, which will facilitate the proper development of this work, In order to demonstrate the feasibility of the project.

GRAFHC # 10: Imports and Exports of Puerto Bolívar 2000-2011 (metric tons)



Made by: Renato González. Source: www.obraspublicas.gob.ec

This information has been extracted from the website of Obras Publicas. The statistical table shows that exports mobilized a major volume of metric tons in relation to imports, with a slight fluctuation in both areas. It is important to say that the volume tons of imports that come through Puerto Bolivar are very reduced compared to Puerto de Guayaquil.

E.g. in 2009 Port of Guayaquil imported 3'596.171 metric tons in relation with Puerto Bolivar which were 93,259 tons, with a difference of 3'502.912 tons, In 2010, 4'110 .829 metric tons were mobilized by Port of Guayaquil and Puerto Bolivar mobilized 109.702 tons with a

difference of 4'001.112. In 2011 4'965 .468 metric tons were mobilized by Port of Guayaquil and Puerto Bolivar 113,265 tons with a difference of 4'852 .203. The contrast is obvious, which is why the question arises, can the volume of metric tons in imports through Port Bolivar be expanded? The present work has the objective to demonstrate that with the implementation of modern facilities at the Port, you can mobilize greater amounts than those made today.

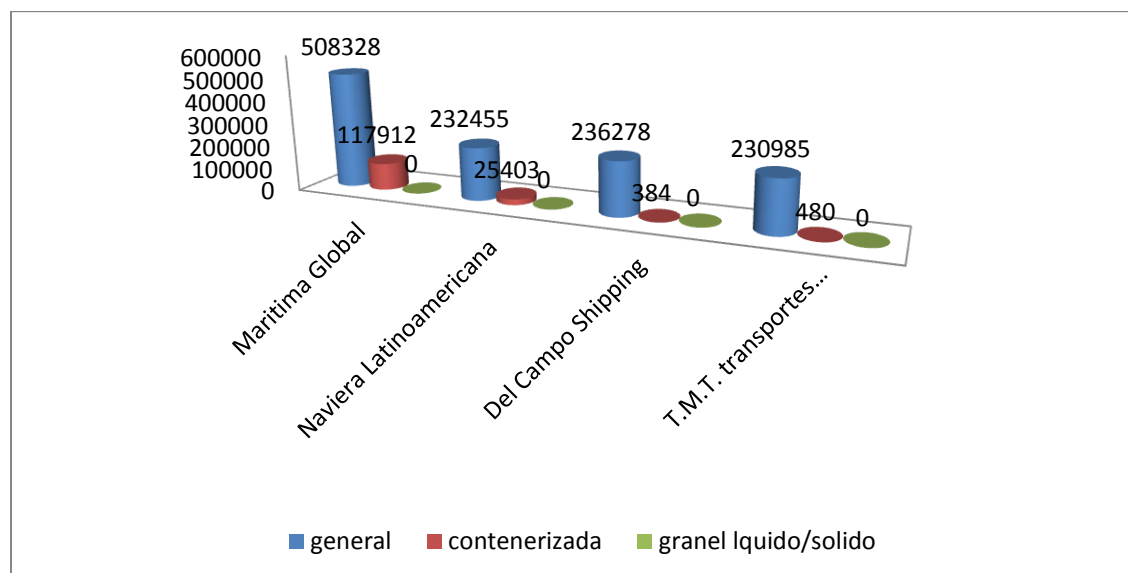
2.2. Maritime Mobilization Feasibility

Regarding the feasibility of maritime mobilization, we must emphasize that Puerto Bolivar is capable of taking vessels up to 20,000 tons; therefore, it is necessary to know the different principal shipping companies working with the port for import cargo movement during the period 2010-2011:

- Bluepac Shipping Agency S.A: having transported a total of 134,692 metric tons, so it is considered the main shipping company working with Puerto Bolivar.
- Pormar Transporter Pormar S.A, which has mobilized 34,797 metric tons.
- Martina Global S.A. MARGLOBAL., which has transported 15,251 metric tons.
- Naviera Latinoamericana Navelat S.A. has mobilized 2,131 metric tons.
- Agencia de Vapores Internacionales AGVAPINSA., 521 metric tons.

This maritime fleet is able to transport large volumes and therefore would not be a limiting issue, in the case of implementation of services at the Port. Additionally we can say that these are the same carriers that move the exports from Puerto Bolivar.

GRAPHIC # 11: Major Shipping Companies Exporting from Puerto Bolivar (metric tons)



Made by: Renato González. Source: www.obraspublicas.gob.ec

Marítima Global has routes with Russia and the United States on a weekly frequency, but are direct routes.

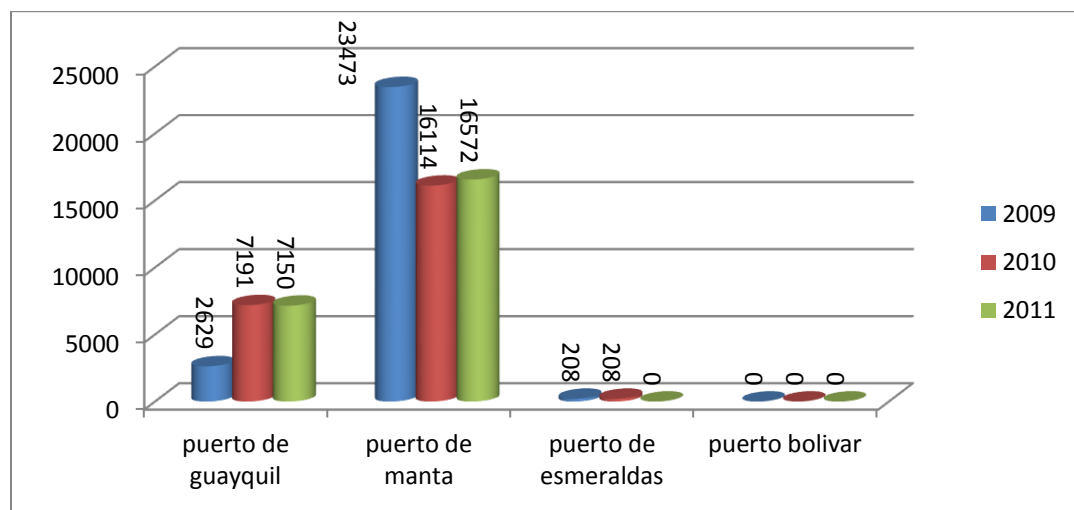
TMT has routes to Algeria on a monthly basis, Balboa, Turkey, Libya on a weekly basis.

Del Campo Shipping has monthly frequency to Serbia and Poland (Gdansk).

Shipping companies offer the service of cranes to load and unload the goods, since the port does not have them in their facilities. Most shippers have direct routes from port to port; they do not make stops in other ports except TMT with stops in Guayaquil, Balboa and Panama.

The shipping companies provide transportation services of goods, but not the necessary documentation for the handling of goods, so each shipping company has representative agents, which are those that are responsible for the care, handling and safety of the articles moving from one place to another.

GRAPHIC # 11: Tourism Passengers Entry through National Ports



Made by: Renato González. Source: www.obraspublicas.gob.ec

Statistically the Port of Manta is the main touristic port of Ecuador, with an income of 59 ships during the past three years, with a flow of passengers of: 56 159 a determining factor in the development of the city of Manta.

CONCLUSION

By placing an overall balance of different statistics that have been presented, we can say that Puerto Bolivar is the second largest state owned port in terms of overall exports, without mentioning the ports that are dedicated to the export of oil taking into account that this is considered the main export item.

We highlight the fact that it has maintained over the years a steady growth; it is more evident in the years 2009-2011 in terms of export volumes.

Puerto Bolivar is clearly qualified as an exporting banana port. From an objective point of view, one can say that being a port that is able to mobilize all kinds of merchandise and considerable volumes, it is not properly used, which leads to missed opportunities to offer to the provinces of the south and so become the main port as a trade bridge, which also would have the advantage of conducting transactions in a shorter time because of the distances and for being a port with less frequencies, could provide a more efficient service.

For these reasons, I can conclude saying that, as a result of the amount of vessels entering Puerto Bolivar, to transport banana exports, they could be used to mobilize exports and imports of the Ecuadorian Austro provinces, in particular the province of Azuay, which has a significant industrial growth in the recent years, with items such as appliances, ceramics, straw hats, tires, flowers, etc.

And a very important issue that I can discuss here is that the port does not have the infrastructure to handle liquid and solid bulk cargo which should be considered for future implementations and consequently ensure this Logistics Corridor development.

CHAPTER III

3. DIAGNOSIS OF THE FREIGHT LOGISTIC IN THE PORT

In this chapter I will discuss the main advantages and disadvantages of using the facilities at Puerto Bolivar, based on the information from different sources and through a deep investigation of factors such as: natural and geographical aspects related to the port, administrative organization, individual docks infrastructure: capacity, depth and extension, all this with the purpose of making a diagnosis of the current situation and making an assessment of the benefits, shortcomings and port weaknesses; at the same time I will investigate the feasibility of modernization, in order to motivate the use of the port, so it can be transformed into an important place for loading and unloading for the South of Ecuador and the north of Peru.

3.1. Natural and Geographical Factors in the Port

The Natural and geographical factors that converge in Puerto Bolivar are:

- It has a great breakwater and natural windbreak forming Jambelí Island, so the port can work 365 days of the year. It is not subject to the change of tides.
- Estero Santa Rosa facilitates the handling due to its calm waters and a wide area.
- The topography of the area is low and regular with heights below 5 meters above sea level.
- It has the advantage of a natural channel of 9 km for the entry of ships.
- The inflow zone comprises the maritime geographic area Jambelí Channel.
- Location: El Oro Province, eastern edge of Estero Santa Rosa, in front of the Jambelí Island.
- Geographical coordinates: 03 ° 15'55" south latitude, 80 ° 00'01" west longitude.
- Maritime Access: From the sea buoy 4.5 nautical miles to the Port.
- It is located just 13 miles from the international traffic routes and a close distance to the Panama Channel, considered a port connector with the rest of the world.
- Puerto Bolivar covered over twelve maritime destinations and its geographical position is ideal for international trade with countries like: USA, Germany, Russia, England, Italy, Chile, Spain, Belgium, Canada, Serbia, Montenegro; Poland and Syria.
- Official Depth 10.5 m MLWS (mean low water springs).

- The access time from the international route navigation to the sea buoy is 3 hours with 45 minutes.
- The wind speed varies between 1.7 and 4.2 m / sec.
- The average speed of the current in the channel is 1 knot (0.5 m / sec).

In summary, having all these natural advantages we can say that this port can be enhanced with relatively low cost investment ²⁵



Photo 1 Extracted from Puerto Bolívar Manual 2011 (Port Authority of Puerto Bolívar)²⁶

³¹ Ing. Carrasco García, Arnaldo. "Visión de Futuro de Autoridad Portuaria de Puerto Bolívar"

³² Autoridad Portuaria de Puerto Bolívar. "Manual del Puerto 2011".

3.2. Ports Administrative Organization

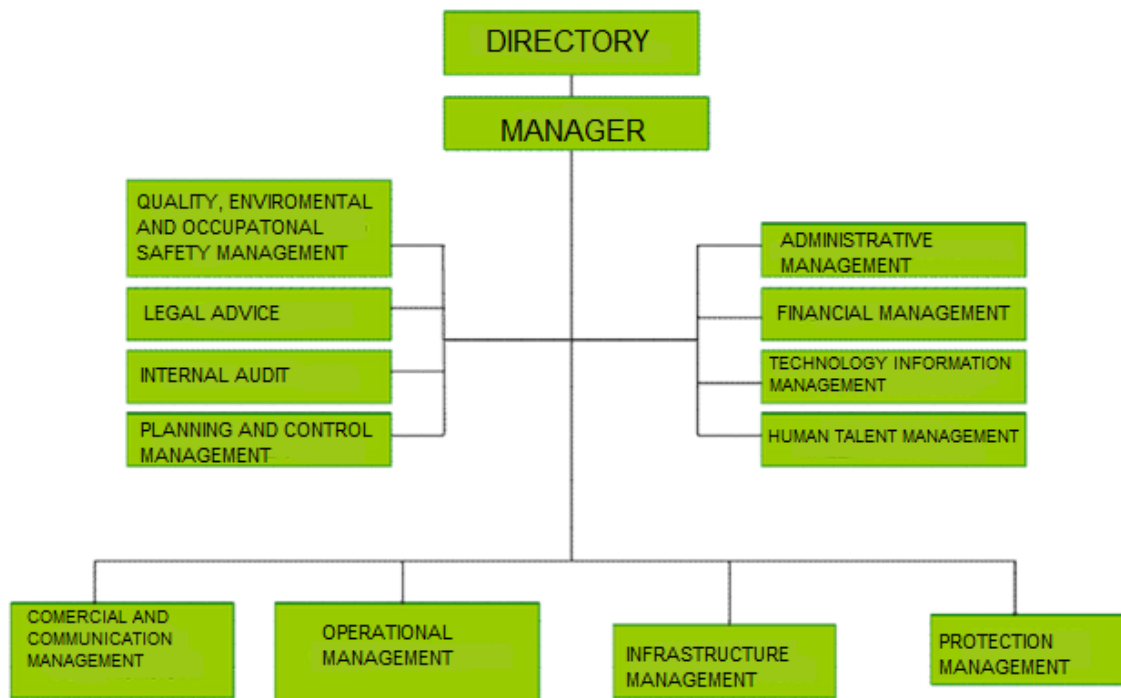


Table 1 made by the coordinator of the sig, Puerto Bolivar System Management Manual page 09, 03-09-2013.

In Chapter 1, I mentioned that the processes that take place in the port work relatively like a military system, because a military's forts have to be exact, taking into consideration that the activities carried out on it should be accurate, otherwise, improper movement or taking a bad decision can cause chaos and inconvenience to the proper functioning of the port.

According to this Organization Chart, we can see that for the good organization of the port, its operation depends on a Directory and on the Operations Manager, so the manager is responsible for monitoring different administrative areas; quality commercial, operational, infrastructure and protection control; that is why efficiency is important in the functioning of a port, is subject to follow different quality processes, safety and efficient handling of goods, in order to mobilize them properly and provide quality service to users, considering the requirements that must be followed for the loading and unloading of goods.

In Puerto Bolivar assignments vary on the different days of the week. According to the interview with Engineer Alex Salinas, Chief of Operations of the Port, from Wednesday to Saturday they need more man-power due to the number of frequencies of vessels, but not from Sunday to

Tuesday which decreases considerably, so we can tell that the difference in week labor is notable, and it varies between 100 to 1500 people.

3.3 Governing Process of the Port



Table 2 made by the coordinator of the sig, Puerto Bolivar System Management Manual page 10, 03-09-2013.²⁷

According to Table No. 2 the Process Map for the Port Authority of Puerto Bolivar, formed by the Director and Integrated Manager, are responsible for the Value Adding Process, monitor Advisory and Support Enabling Processes in order to offer a quality service to:

- Customers: Exporters - Control Entities;
- Customers: Camera-Control Agencies - Exporters.

You can see that this table does not name the importers, showing that imports do not have very regular inspections.

³³ Coordinador del SIG, "Manual del Sistema de Gestión Puerto Bolívar". Realizado: 3 de Septiembre

3.4 Facilities

Puerto Bolivar has 57.5 hectares and 8 hectares in reserve for expansion or future construction.

The infrastructure comprises:

An Espigon pier, with the following characteristics:

- A structure with a stone and reinforced concrete piles.
- Two berthing with a length of 130 meters and 30 meters wide, with a draught of 10.5 meters.



Photo 2 Taken by Renato González, Espigon Pier.

A marginal wharf:

- Reinforced Concrete Structure
- With a length of 365 meters by 25 meters wide and a draught of 10.5 meters.
- Allows simultaneous berthing of two ships of up to 27,000 tons.



Photo 3 from Puerto Bolívar Manual 2011 (Puerto Bolívar Port Authority)²⁸

Coastal Wharf:

- With a length of 60 meters and a draught of 7.5 meters.
- Built especially for the tourism service.

It also has a fifth Wharf which is under construction and will be operating during 2013.



Photo 4 taken by Renato González Fifth wharf in construction

The Fifth pier under construction is scheduled to be in service soon. With this improvement Puerto Bolívar will be capable of loading and unloading a greater number of vessels so the waiting time will be less and consequently providing more efficient and faster service.

³⁴ Autoridad Portuaria de Puerto Bolívar. "Puerto Bolívar Manual 2011". Up Cit

Storage area:

- It has 27,104 square meters of warehouses and yards, for the storage of goods service.
- 6 warehouses for general cargo, with a total of 10,152 square meters.
- 6 warehouse for banana palletizing service, with a total of 14,592 square meters.
- 1 storage unit with a capacity of 2,360 square meters, for bulk cargo.



Picture 5 Taken by Renato González Palletizing Warehouse.

Parking area:

- Parking for heavy vehicles and special parking for the banana workers with an area of 50,318 square meters.
- Parking for light vehicles with an area of 1,530 square meters, in the operational area.
- Parking in the Administrative and banking of 2,290 square meters.
- The Port has yards for containers with 896 plugs or outlets for refrigerated containers.
- It has its own power generator that generates 5.2 megawatts.
- As an additional service, it offers two banks: Bank of Machala and Pacific Bank.
- Maneuverability: The maneuvers in the Estero Santa Rosa are easy, because it has calm waters and a wide area.

It is located in El Oro province in the south of the country in the middle of a rich banana region and its main business is the exportation of the fruit. Land access: Connected to first order roads with Guayaquil 182 km, Cuenca, Pasaje and Giron 180 km, with Loja 230 km and Huaquillas 80 km; and second order roads with Zamora 300 km and Macas 440 Km.



Map 1 extracted from “Plan Binacional de desarrollo de la Región Fronteriza”²⁹

Also it has a 1,600 meters building assigned to the anti narcotics police, equipped with scanner service and trained dogs with the aim of verifying that the goods entering and leaving Puerto Bolivar are not contaminated with narcotic drugs and psychotropic substances.



Photo 7 extracted from Puerto Bolívar Manual 2011 (Puerto Bolívar Port Authority) anti-narcotics Building.

³⁵ Plan Binario de Desarrollo de la Región Fronteriza. “Ventajas que ofrece Puerto Bolívar para el transporte y el comercio marítimo”

3.5 Superstructure

Puerto Bolívar does not have its own superstructures, the service provided to users is through outsourcing. This is hiring companies to develop specialized activities that have their financial, technical or own material, who are responsible for their results of its activities and workers are under its exclusive subordination.

A crane superstructure intended for internal mobilization containers.

In operation are three scales used to weigh all cargo that enters or leaves the port facilities, the customer service is 24 hours a day and 7 days a week for weighing all import or export goods entering by sea or leaving by land.



Photo 8 Taken by Renato González Weighing Scale

3.6 Puerto Bolivar Disadvantages

The main disadvantage is the fact that the Port is used for exclusive bananas shipment, making it dependent on a single product that is susceptible to unforeseen changes for various reasons. This will affect the activities of the Port, at the same time being a port somewhat monopolized for banana exports, has slowed the integration of new routes limiting the frequency of vessels which may arrive to the Port, carrying a variety of products, which would break the deadlock and have a constant growth, Puerto Bolivar offers multiple opportunities and it should take advantage of these.

In reference to the superstructure that has been stated above, you can see that this practically does not exist. It is necessary to hire the essential tools for operation and mobilization in the Port, leading to only the vessels who have their own cranes will enter to the port.



Photo 9 Taken by Renato González. Cranes for loading and unloading the merchandise.

Another disadvantage is that Puerto Bolivar does not have Import and Export logistic operators thus affecting the motivation due to not having adequate facilities for the use of the port such as loading and unloading bridge in international transactions, which is a determinant factor in the activities of the Port and consequently originates low income, which is a crucial point for the port implementation.

El Oro province, is essentially agricultural, so imports are marginalized to a few products for agriculture, raw material requirements for the industry are relatively scarce thereby affecting the movement of the port in imports.

The lack of exploitation of tourism has meant ignoring an important source of income, and it is increasing everyday. It is important to mention El Oro Province and Southern Provinces, and to promote them through Puerto Bolivar, as it also has the infrastructure for tourism and cruise ships.

An important fact about this Port is that just in the last 6 years, the operation has increased with new projects and remarkable services.

In Puerto Bolivar with prior approval of the port operator shipments can only make emergency minor repairs to prevent stopping the trip or continue the trip. Captains should note that there are no facilities available on the ground to support ships.

For these reasons, it is important to implement the necessary infrastructure and modernize Puerto Bolivar that would help Imports, Exports and tourism in our country.

What is very important to note is that the Port should give a good service and correct infrastructure, so that it could conduct good and efficient international trade through Southern Ecuador.

3.7 Advantages

Puerto Bolívar offers many advantages, the main ones are:

- Being certified under the International Safety Code (protection to Ships and Port Facilities) until 2013.
- In process of certification to the International Standards ISO 9001 (quality) and 14001 (Environmental).
- 620 meters of docks for mooring 4 vessels at once, and the berth No. 5 with 240 specialized in container handling to be operating in 2013.
- It has large courtyards and warehouses to store all types of goods.
- Natural protection from waves by the island Jambelí.
- Areas reserved for future projects.

3.7.1 Comparative Advantages

- Short channel access 4.5 miles from the buoy sea.
- Lower Rates than other ports.
- It is an attraction for international maritime trade because it is located just 13 miles from the international trafficking routes near the Panama Canal which connects to the rest of the world.
- National and International connectivity corridors, intermodal and multimodal.
- Node logistics supply chain from origin to destination (Logistics Support Area, dry ports, distribution centers in cities and airports).
- Decongested customs.

Puerto Bolivar has reduced operational costs in their transactions, in order to attract a larger number of users, as we all know a business always wants to improve its services, quality and

cost, and as I said earlier this port has better cost than all national ports, creating a competitive advantage which is very convenient for users.

3.8 New Projects for Puerto Bolívar

3.8.1 Logistics Support Area (LSA)

The Logistics Support Area project of Puerto Bolivar promotes the port development of the LSA, which is necessary to add value to foreign trade, this area of support functions in various ports of the nations of the developed world.

This Puerto Bolivar project will be done over an area of 48 hectares, immediate to the perimeter port, this space was negotiated between the Port Authority of Puerto Bolívar and the Social Security Institute of the Armed Forces Palletizing Zones, office of the National Customs Service, Internal Revenue Service and Ecuador Central Bank in order to generate a single window to export products.

3.8.2 Banana Containerization

The previous project also relies on supporting banana Containerization process, which is the second most important production in Ecuador, after oil.

Puerto Bolivar is an specialized port in the export of bananas, around 94% of export cargo corresponds to the fruit production from the provinces of Guayas, Los Rios and lower areas of the provinces of Cañar and Azuay.

The project aims to build collection centers in nearby properties, in order that the fruit enters the cold chain up to six hours prescribed for the evolutionary process of maturation. These collection centers will be linked to each other and close to Machala, Pasaje, El Guabo, Santa Rosa and Arenillas, to enter without problem to the export docks.

3.8.3 Power Plant

Ecuador has natural gas, currently exploited as fuel for power generation feeding the national grid and generates (63 MW). Puerto Bolívar needs to increase the electrical capacity to provide good service to export containerized cargo. The expectation of the project is to build a power

generation plant of 20 megawatts, since the energy to be generated will be used exclusively for port development.

.³⁰ This power project will be able to provide electric power for containers of bananas, mangoes, pineapples, papayas, and seafood that will be exported.

3.8.4 Dry-dock

For now Puerto Bolívar does not have an infrastructure of a dry dock, which is a platform where ships are mechanically repaired before reaching their destination, so the ships anchored in the harbor, are forced to require those services in the neighboring country, Peru



Photo 10 extracted from Puerto Bolívar manual 2011 (Puerto Bolívar Port Authority) Dry-dock

³⁰ Entrevista: Ing. Alex Salinas. Jefe de Operaciones. Telf.: 0985030811. 15 de Febrero del 2013.

CONCLUSION

Considering the study and analysis that has been done with historical data that allows a diagnosis of Puerto Bolivar as well as Natural Factors which allow the smooth sailing of ships and boats, to facilitate the port operations require it has an adequate infrastructure and superstructure. Currently these are not acceptable because they do not have a modern technology, so they are not able to provide a basic service such as having a dry dock for repair or maintenance of vessels, so ships need to go to ports such as those in Peru, to solve mechanical problems. This is one of the main factors for integration into international routes.

It is important to remark that Puerto Bolivar has an organization, management and operational system, which in spite of not having the means of advanced technology still offers a quality service to the user.

Taking into consideration the advantages and disadvantages existing in Puerto Bolivar it justifies all of the port projects, because with the new facilities of Puerto Bolivar it would be able to provide important advantages to south Ecuadorian users such as:

A fifth dock that is being built which will operate in the coming months.

In conclusion, according to the above, we can ensure that Puerto Bolivar has the necessary conditions to start a modernization process allowing a project of sustainable development to increase the number of foreign trade users with a wide variety of products and services and finally not being an exclusive banana port.

CHAPTER IV

4. FORMULATING SOLUTIONS TO BENEFIT ALL AREAS RELATED TO PUERTO BOLIVAR

In this chapter I propose concrete alternatives to be considered for implementation at Puerto Bolivar and give the characteristics of an important port. For this, I will consider factors such as: a) a technical infrastructure equipped with a feature needed for the unloading and loading of goods, b) a modern superstructure designed with enough logistic to synchronize an operational development c) an advance network telecommunications. d) Specialists in different branches, all these in order to give a better service that allows a sustainable competitiveness to the user, consequently justifying the investment made in its implementation.

This Port is important because of its natural maritime viability, allowing vessels fluid access.

The result of the Puerto Bolivar research determines that it is very important for the implementation of several services that contribute to its growth and progress, but it is necessary to remove some and replace them with improvements in order to provide a better service in all areas: import, export, tourism.

As mentioned above, the infrastructure of the port is able to receive a large volume of import and export products, as it has five docks suitable for vessels of 10 meters depth. Currently an underway dredging is being built in order to allow the entry of vessels of 12, 5 meters depth. Puerto Bolivar has a considerable area, which could expand its facilities in the future.

It is necessary to mention that the port lacks a dry-dock and trained staff for the maintenance of the arrival shipment; this service is very important for users who require to repair or maintain their boats. For this reason they go to other ports to solve their problems, so it is important to build a dry-dock with trained staff to offer a first class service to the users.

Another point to mention is that Puerto Bolivar does not have an infrastructure for Bulk Liquid and Dry Bulk; which is why this product cannot be imported or exported. It is vital to put into operation the necessary infrastructure (machinery and spaces) that allow for the handling of this type of load.

According to my visit to Puerto Bolivar, I observed that there is **not** a superstructure because the only crane that serves the port is outsourced, and it is used exclusively for the mobilization of the merchandise from the warehouse to the trucks. **F**or this reason, vessels anchored at Puerto Bolivar have to have their own cranes, which limits the type of vessels **that** can anchor in

the harbor, so it is essential to implement the necessary cranes, to offer this service to the users. Consequently loads and unloads will not be subject to certain types of ships with their own cranes.

In referring to the maritime viability as cited in the previous chapter, Puerto Bolivar has the special property of being a natural harbor, as it has an original breakwater, which is Jambelí Island. This feature allows the Port to work 365 days a year; also it has a 9 kilometers adjacent channel, which permits the entry of vessels up to 10 meters deep. Currently, a dredging is being built to allow the entry of vessels up to 12.5 meters deep. All these developments have been focused on the import export area. However, regarding the characteristics and the port's own natural beauties, it is important to highlight the exploitation of the tourism sector.

Another feature of Puerto Bolivar that is worth mentioning, is its proximity to the Panama Channel which is considered as a connector port and liaison with the world for its strategic location.

In terms of land access routes, Puerto Bolivar has very good roads connecting it to several Ecuadorian provinces such as: El Oro Province, Southern Ecuador, Guayas Province, etc.

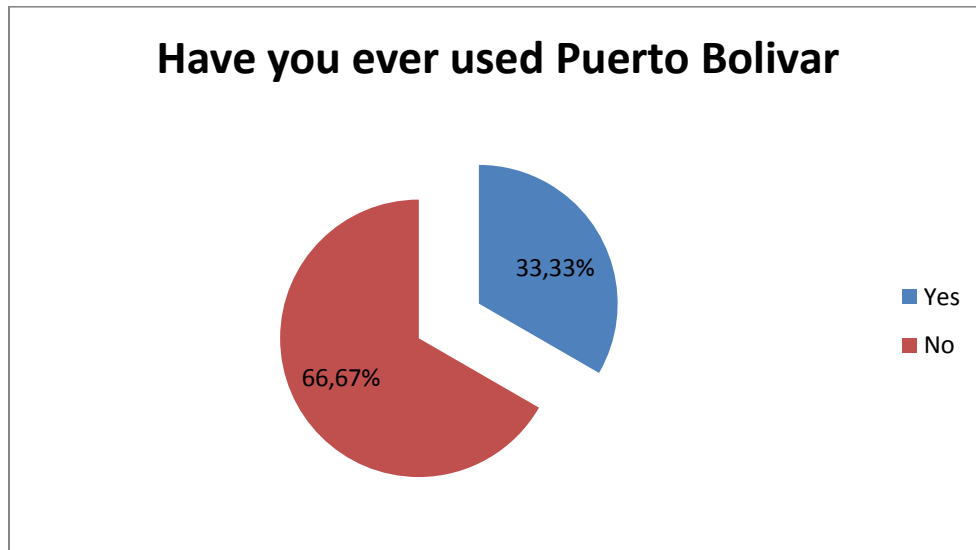
Regarding the communications system, it is imperative to say that being an important connector Port with the rest of the world, this system should be modernized constantly.

Puerto Bolivar offers a lot of benefits to the banana sector; however it is not an excuse to neglect other sectors that could be very significant for the country which is why we insist on the need to implement more port facilities, in order to offer more services.

The analysis that I have illustrated in this work has helped me to prove that Puerto Bolivar can offer a competitive and efficient service. This promotion would be focused to encourage imports and exports as well as for tourists to use this port.

When I asked entrepreneurs if they used Puerto Bolivar for shipping merchandise, the majority answered that they have not used the facilities.

Have you ever used Puerto Bolívar?

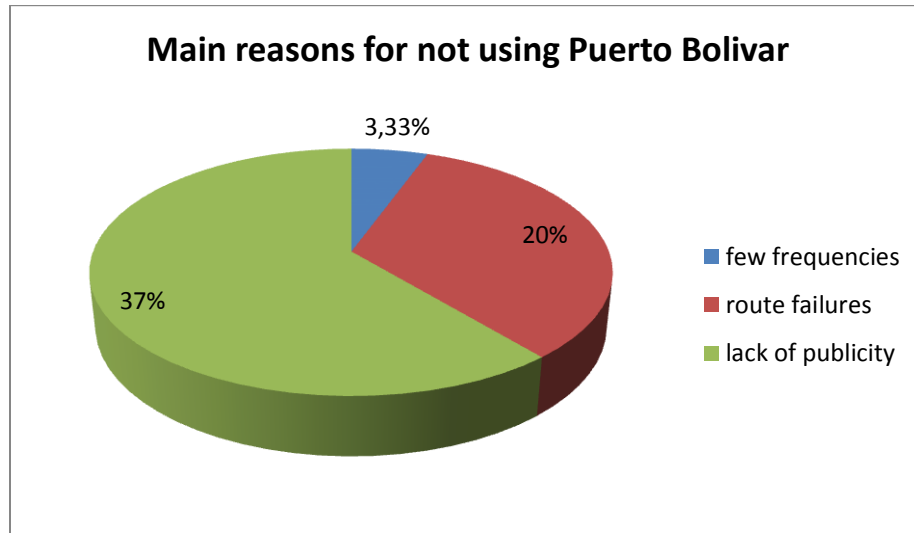


GRAPHIC #13: Made by: Renato González, source: Survey of Azuay and Orense's entrepreneurs

With this work I can motivate the community to use Puerto Bolívar for international trade, increasing routes and frequencies. This could be a project that could favor the economy of the country and also facilitate international trade, increasing routes and frequencies, releasing Guayaquil's port by improving services since most users have problems with delays in goods outputs, and overcrowded warehouses.

The survey was conducted with the purpose of evaluating the feasibility of the project presented in this work, the implementation of services that Puerto Bolivar can offer and the deficiency in the equipment, the slow customs system, the lack of information and publicity, etc

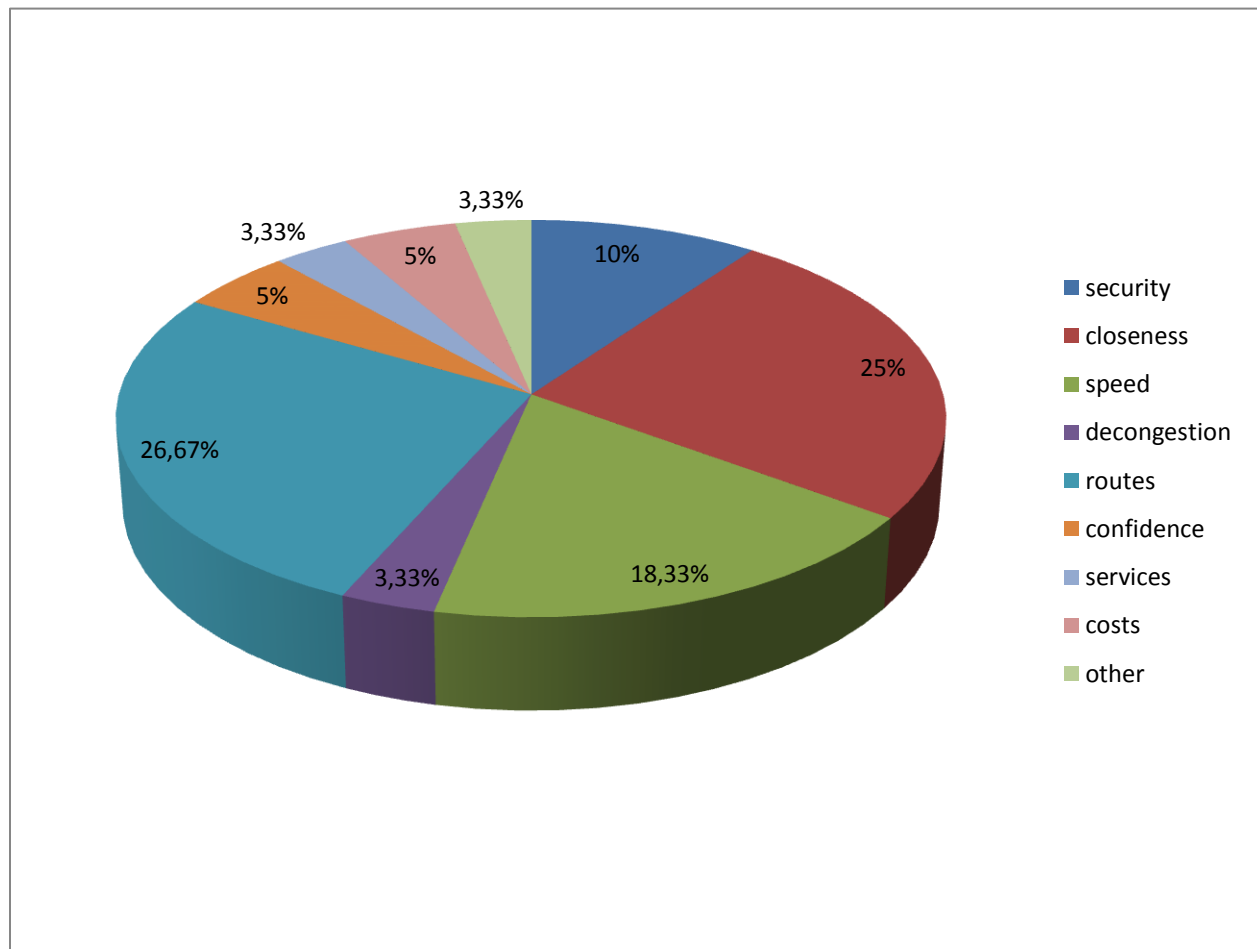
Why you don't use Puerto Bolívar?



GRAPHIC #14: Made by: Renato González, source: Survey of Azuay and Orense's entrepreneurs

In the survey, the preference for using Puerto de Guayaquil rather than using Puerto Bolivar is illustrated. The answers demonstrate that Puerto de Guayaquil is mostly used due to the large number of frequencies, which allows having contact with different Ports worldwide, as well as the agile services, but since it presents high traffic within the port, this is an obstruction to the users.

What are the reasons operate in Puerto de Guayaquil?

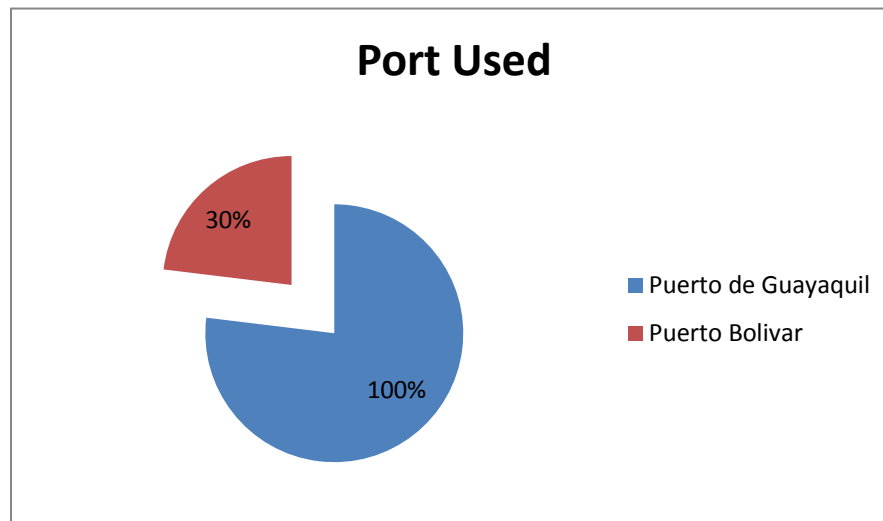


GRAPHIC #15: Made by: Renato González, source: Survey of Azuay and Orense's entrepreneurs

Puerto Bolivar should give all the services that the users need in order to consolidate and to be considered as a Logistic corridor for Southern Ecuador.

According to surveys made in provincial de El Oro, the interviewed users said that they use 80% of services of Puerto Bolivar for exporting bananas and tropical fruits and they use Puerto de Guayaquil to export the same goods 20% The interviewed users of Provincia del Azuay said that they mostly use Puerto de Guayaquil.

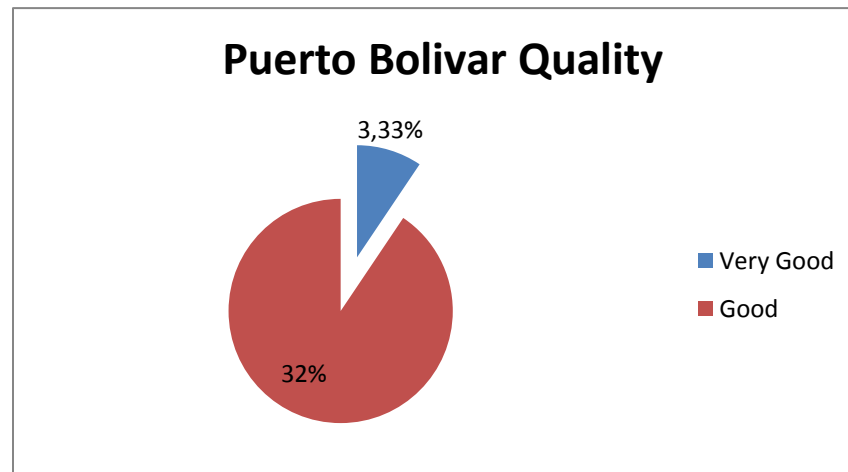
What Port you currently use?



GRAPHIC #16: Made by: Renato González, source: Survey of Azuay and Orense's entrepreneurs

The results showed that most users said that Puerto Bolivar services are good and give the needed facilities for their requirements.

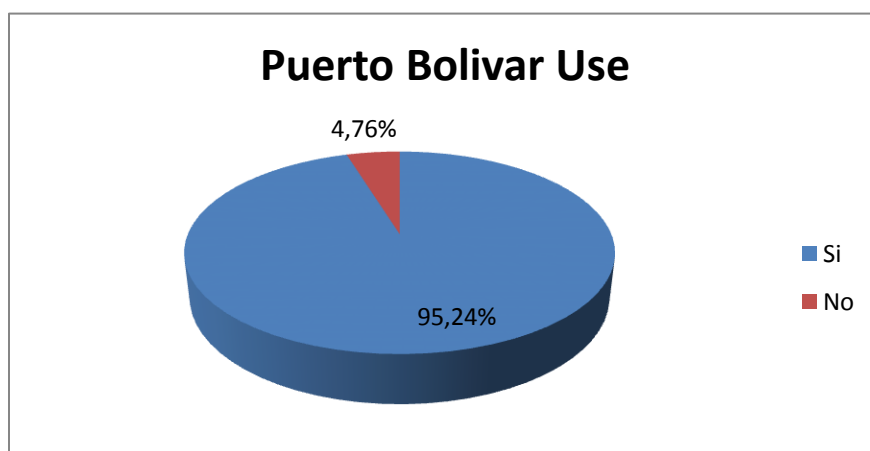
Quality of the Service in Puerto Bolívar? Very Good, Good, Fair, Bad



GRAPHIC #17: Made by: Renato González, source: Survey of Azuay and Orense's entrepreneurs

When asked if they would use the services of Puerto Bolívar, in the case of its implementation, most entrepreneurs answered that they would use it. Most of them say that it is a good proposal and it would be very convenient to work with this port.

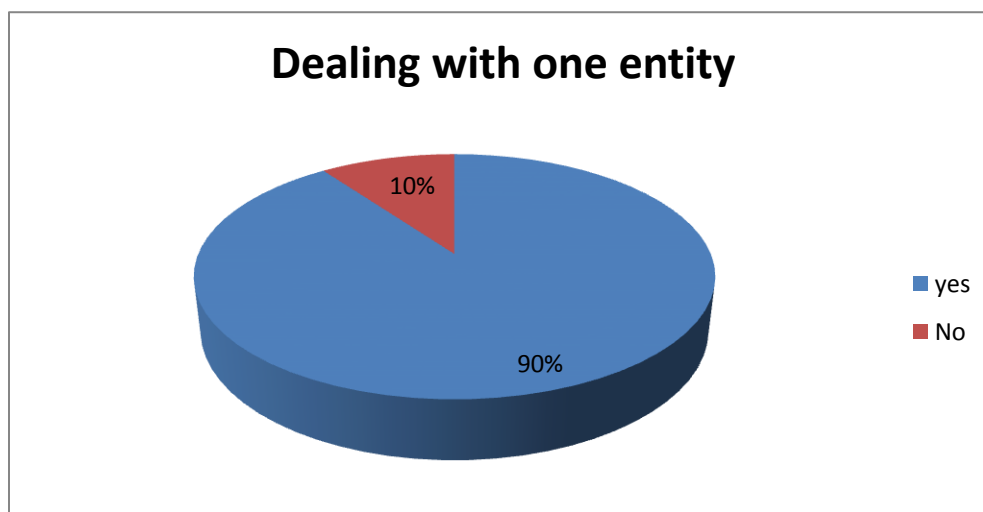
If Puerto Bolivar improves their services, would you use this port?



GRAPHIC #18: Made by: Renato González, source: Survey of Azuay and Orense's entrepreneurs

In the survey made about all kinds of goods handled in Puerto Bolivar, the response of most users was affirmative. This information is displayed in the following illustration.

Would you like to have a port to handle all types of merchandise?



GRAPHIC #19: Made by: Renato González, source: Survey of Azuay and Orense's entrepreneurs

This survey was made with the purpose of unifying the ports, since in Guayaquil there are some ports within the port authority, creating a discomfort to the users since it has to deal with different entities depending on the type of load the user is moving. Puerto Bolivar has some infrastructure projects to handle all types of cargo by the same entity. This would generate additional agility when performing different procedures.

CONCLUSION

Through analytical reasoning and investigative surveys, it can be deduced that the current study is a viable project since it is aimed to improve Foreign Trade based on the congestion of the port of Guayaquil which is prejudicial to importers and exporters. By taking into consideration the natural, geographical and potential characteristics of Puerto Bolivar, we can say that implementing services at the Port can be considered as a good Logistic Corridor for Southern Ecuador.

It is a necessary to work for the improvement of Foreign Trade as this would help to avoid delays because of the congestion in Port of Guayaquil and could give exporters efficient, fast and secure services. However, it is necessary to provide the appropriate technology which includes communication networks, and trained staff, which will be responsible for International advertising in connection with qualified brokers that provide a safe and reliable service.

CONCLUSIONS

This thesis has focused on promoting Puerto Bolivar for its natural and geographical features. This can be implemented with advanced technology; in particular, infrastructure, superstructure and communications which could be considered to offer an efficient service that has all of the requirements of International Trade, qualifying it as a high standard Logistic Corridor, able to provide quality, safety and agility service, according to the needs of the International Chamber of Commerce, which is responsible for creating, regulating and standardizing the International Commercial Terms (INCOTERMS), that is the one that defines, determines and regulates the processes that create transactions and contracts of worldwide sales.

It is Important to outline the activities of a Logistic Corridor which forms part of the supply chain, and is in charge of connecting various links intended to bring together the different business activities and people, through a technical organization from the place of origin, to the place of commercialization.

The study has been conducted with statistical data from 2009, 2010 and 2011, and a field study, that provides a concrete idea about the functioning and dynamics of Puerto Bolivar with the result of relinquishing the assumption that this port only serves banana exports.

By analyzing the advantages and disadvantages based on various sources and through a research of importers and exporters, I have developed a diagnosis of the current reality of Puerto Bolivar, which has been compared to the requirements that a logistics corridor must have. As a consequence it should strengthen the following areas: Infrastructure, Superstructure, Telecommunication Network, specialized in different areas as well as logistics Operators in order to create the port into an important Logistic Corridor for productive and commercial service for Southern Ecuador.

In conclusion, I can say that this is a viable proposition, which could be interesting to the Central Government to carry out its implementation, because this will contribute to the improvement of foreign trade, and development of the Ecuadorian southern provinces.

Finally, I express that Puerto Bolivar would be able to handle all kinds of goods by decongesting, having agile and efficient loading and unloading and also could contribute to touristic exploitation for benefit of El Oro and Ecuadorian Southern provinces.

RECOMMENDATIONS

Important points to be taken into consideration to carry out the implementation of Puerto Bolívar, in order to make it a Logistics Corridor:

- Logistic Implementation that includes advanced technology, in response to offer a quality, agility and safety service.
- Undertake a professional and current analytical study of the operation of Puerto Bolivar.
- Increase new strategic routes oriented to International Trade.
- Modernize the Port to accomplish the requirements and standards of the International Chamber of Commerce.
- Make a feasibility study of Puerto de Guayaquil in order to help its decongestion.
- Prove the implementation of a variety of products for import and export and not rely only in banana export.
- Carry out a statistical examination of the reality of tourist in the south of Ecuador to justify the operation of an entry, which currently does not exist.
- Finally, make a research of the reality in southern Ecuador and promote the exploitation of tourism as a significant source of revenue for the country.

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