



VIGILADA MINEDUCACIÓN

Comparative study of the logistic and regulatory process of fruit exports between Colombia and Panama (Port of Urabá and Colón)

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Medellin Colombia
2020

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Abstract

The main objective of this degree project is to compare the fruit export process between the port of Urabá (Colombia) and the port of Colón (Panama) at a logistical and regulatory level. It was developed through the Comparative methodology and the information was collected from secondary sources such as: databases, books, official pages of entities, repositories of different universities and current regulations of each country (Colombia and Panama).

Within this research work, you will find detailed information on how the fruit export process is carried out from Colombia and Panama, specifically from the port of Colón and Urabá, in order to carry out the comparative proposed as objective and They evaluate variables such as: the logistic performance indicator, port infrastructure and installed capacity, how each country manages the cold chain, which are the regulatory entities and what technologies or information systems each country manages for that process. In the findings, it was identified that the port of Colón exceeds the port of Urabá in installed capacity and internal management of the units refrigerated with fruit, while the regulatory and support entities fulfill the same function of control and intervention in the process. customs for export of the fruit as it can be evidenced in the logistic performance index.

Key Words: Export process, Logistics, Ports, Regulation, Fruits

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TABLE OF CONTENT

Introduction	10
1. PROJECT FORMULATION	13
1.1 State of art	13
1.2 Problem Statement	14
1.3 OBJECTIVES	15
1.3.1 General Objective	15
1.3.2 Specific Objectives	15
1.4 JUSTIFICATION	16
1.4.1 Theoretical Justification	16
1.4.2 Social Justification	16
1.4.3 Personal Justification	16
1.5 REFERENCIAL FRAMEWORK	18
1.5.1 Theoretical Framework	18
1.5.2 Conceptual Framework	19
1.5.3 Legal Framework	21
1.6 METHODOLOGICAL FRAMEWORK	23
1.6.1 Research Method	23
1.6.2 Research methodology	23
1.7 Reach	24
2. INVESTIGATION DEVELOPMENT	25
2.1. LOGISTICS PERFORMANCE INDEX	25
2.1.1. Panama	27
2.1.2. Colombia	33
2.2. PORT INFRASTRUCTURE	39
2.2.1. Colon Port Panama	39
2.2.2. Port of Urabá Colombia	43
2.3. CUSTOMS AND SUPPORT AUTHORITIES	49
2.3.1. Panama	49
2.3.2. Colombia	51
2.4. LEGAL REQUIREMENTS FOR THE EXPORT OF FRUITS	53

2.4.1.	Panama Requirements.....	53
2.4.2.	Colombia Requirements	53
2.5.	COLD CHAIN LOGISTICS.....	57
2.5.1.	Panama.....	57
2.5.2.	Colombia.....	57
2.6.	TECHNOLOGICAL SUPPORT PLATFORMS.....	61
2.6.1.	Panama Platforms.....	61
2.6.2.	Colombia Platforms	62
3.	CONCLUSIONS AND RECOMMENDATIONS.....	65
3.1.1	Conclusions.....	65
3.1.2	Recommendations	67
4.	BIBLIOGRAPHY	68

List of Figures

Ilustration 1. SUMMARY LOGISTICS PERFORMANCE INDEX COLOMBIA AND PANAMA YEAR 2018.....	26
Ilustration 2. LOGISTIC SERVICES OFFERED 2015 USA –COLOMBIA	37
Ilustration 3. CCT Panama instalation	39
Ilustration 4. Banacol facility.....	44
Ilustration 5. UNIBÁN FACILITIES	47
Ilustration 6. ORGANIZATIONAL CHART ANA TECHNICAL GENERAL DIRECTORATE.	50
Ilustration 7. ORGANIZATION CHART CUSTOMS MANAGEMENT - DIAN	52
Ilustration 8. ICA Logo	54
Ilustration 9. Logo DIAN Logo	55
Ilustration 10. MIDA logo	61
Ilustration 11. LOGO NATIONAL CUSTOMS AUTHORITY -ANA.....	62
Ilustracion 12. SIS PAP Logo	62
Ilustration 13. VUCE logo	63
Ilustration 14. DIAN logo	64

List of Tables

Table 1 . COLOMBIA AND PANAMA LOGISTICS PERFORMANCE INDEX 2014-2018..... 26

Table 2. PANAMA LOGISTICS PERFORMANCE INDEX 2014 TO 2018..... 27

Table 3 . COLOMBIA LOGISTICS PERFORMANCE INDEX 2014 TO 2018..... 33

Table 4. MOVEMENT OF CCT CONTAINERS FROM 2014 TO 2018..... 40

Table 5. GARAGE OF ENTRY AND EXIT OF CONTAINERS CCT 40

Table 6. INFRASTRUCTURE CCT PANAMA 42

Table 7. BANACOL INFRASTRUCTURE 45

Table 8. Unibán Infrastructure 47

Table 9. EXAMPLES OF TEMPERATURE CONTROL FOR FRUITS 59

Table 10. COMPARATIVE - REFRIGERATED INFRASTRUCTURE: URABÁ AND COLÓN
..... 66

List of Graphics

GRAPHIC 1. COLOMBIA AND PANAMA LOGISTICS PERFORMANCE INDEX PERIOD 2014-2018	26
GRAPHIC 2 . COMPARATIVE VARIABLES PANAMÁ IDL	28
GRAPHIC 3. Panama Ranking 2014 to 2018.....	28
GRÁPHIC 4 . COMPARATIVE VARIABLES COLOMBIA IDL	33
GRAPHIC 5. RANKING OF COLOMBIA 2014 TO 2018	34
GRAPHIC 6. MOVEMENT OF CCT CONTAINERS FROM 2014 TO 2018	40

INTRODUCTION

Foreign trade operations play an increasingly important role in the world, the dynamics of international trade have allowed countries to develop and implement improvements in their processes to facilitate commercial transactions, all this has also allowed exporters and importers and Likewise, all those who make up the chain are increasingly aware of establishing protocols and procedures in which it is important to highlight that each link in the logistics chain plays an essential role for the success of the operation and that is why through This work wants to give a broader dimension of the fruit export process at a logistical and regulatory level in both countries and in the selected maritime terminals.

It was evidenced that the authors (Velandia Velandia & Santana Acero, 2019) carried out in their research a comparison of the port system of Panama and two ports in Colombia, but from a more focus on the use of technological tools implemented in the terminals, however, within Its objectives were never discussed with the depth and intention of comparing how Panama and Colombia carry out the fruit export process in the logistical and customs parameters, taking as a reference the ports of Colón and Urabá in each country, respectively.

In the research process of the proposed objectives, a comparative process was used, starting from the general to the specific where it allowed establishing differences and similarities of each country and being able to define, as well as in each one of the specific objectives proposed.

Taking into account the development of the aforementioned objective, it was evident that Colón (Panama) in terms of port infrastructure for the management of fruits and refrigerated units, exceeds the port of Urabá (Colombia), however, customs management and the entities of Support that intervenes fulfill the same function in both countries.

The structure of the research work begins with the IDL indicator issued by the world bank every 2 years, this helps us to understand a little more about this competitive process, since

this indicator highlights how countries are perceived in the commercial and / or international context and under its 6 variables, it allows us to understand whether a country is competitive or not, what shortcomings it has and what those possible improvement interventions would be, in order to be increasingly efficient and recognized.

This indicator is an important factor that since the beginning of globalization has become a benchmark of high importance for international trade and it has stolen the leading role for countries to strengthen their logistics chain, to make these international exchanges more cost-effective. , since the countries have understood throughout this journey, that investing in the development and improvement of their logistical capacity is essential to obtain an optimal result from their maritime activities and that it favors economic advancement, since it is the progress that countries need to become more competitive and sustainable nations, with the ability to adapt to changes and / or challenges that arise in the international dynamics.

In the structure of the research development, the analysis of the infrastructure of the port of Colón (Panama) and Urabá (Colombia) continues, identifying its installed capacity for handling the fruit-cooled units and its internal logistics process, which is considered a fundamental link in the export process. There is another aspect of vital importance for the logistics operations carried out by a country and that is customs regulation, since it shields any operation from regulatory and regulatory recklessness, allowing each action or movement to be available to direct and indirect agents, complying with the required requirements and is appropriate to the guidelines established by each country and given the above, the entities that intervene in the process of exporting fruits that are in charge of monitoring and sanitary control of the product are also detailed, giving endorsement or accreditation of the same for leaving the country.

In support of this process, regulatory entities have implemented technological platforms and information systems that have allowed them to consolidate and simplify internal procedures and, in turn, facilitate the management of processes for fruit exporters. The implementation of technology plays a very important role since the agility of the procedures before, during and after the entry of the fruit into the maritime terminal depends to a great extent on the corresponding export procedures.

One of the most important factors that allowed to give essence and shape to the fruit export process in the research work, was to identify how each country within its logistics, manages the cold chain, it is here that the great similarities and Control differences for the conservation of the product and that it reaches its final destination in optimal conditions. Within this process, it was identified how each country assumes the cold chain from the beginning, since it is considered that the pre-harvest and post-harvest process of the fruits is of utmost importance in order to determine how their handling will be in terms of temperature and humidity given the ripeness requirements of the fruit demanded by the client, likewise determine how it will be stored and in turn the sensitivity they have to any operation or movement that is carried out such as loading / unloading, transport, transit time and Other characteristics that must be taken into account for the export process to finish successfully.

In this research work, the objective of being able to compare and identify the process of exporting fruits from the aforementioned maritime terminals of each country and compare them from the variables proposed in the specific objectives set was met.

1. PROJECT FORMULATION

1.1 State of art

The export of fresh fruit from Latin American countries is increasingly notable abroad, standardizing and simplifying processes is becoming increasingly necessary in all countries in order to reduce costs, optimize times and increase competitiveness.

(Velandia Velandia & Santana Acero, 2019) Make a comparative description between the operation, capacity, size, geographic space, movements made in a given time, among others, of a port system in Panama and two in Colombia. The author wanted to highlight the competitive advantages of each one, establish their differences and emphasize the technological tools used by each one and thus manage to establish improvement actions and strategies that help in the process.

In foreign trade operations, the control and intervention of entities is increasingly essential in order to regulate and monitor operations, especially when they are from the agricultural industry that require special management due to their susceptibility. This is where Regulatory entities in each country play an important role in guaranteeing that the products comply with the necessary conditions for leaving the country and also give the endorsement to the destination country so that they can enter without any inconvenience, complying with the required phytosanitary measures.

In Colombia, the competent authority to monitor and control the agricultural health and food safety of the Colombian countryside is the ICA (INSTITUTO COLOMBIANO AROPECUARIO), which through resolution No. 00000448 establishes the requirements for registration before the entity of the properties and the production of fresh vegetables / fruits, the record of exporters and the record of packing plants of vegetables for fresh export and also establishes its function: "That the Colombian Agricultural Institute ICA as a National Organization for Phytosanitary Protection –ONPF has the role of protecting health plant of the country, through the execution of actions for the prevention, control and eradication of pests "(ICA, 2016).

The Ministry of Agricultural Development MIDA in Panama, "is the competent entity to guarantee food security and provide well-being in the agricultural sector, through Law No. 47 of July 9, 1996, establish phytosanitary protection measures and adopt provisions for the

plant products, in which the entity is empowered as the only person in charge of monitoring, controlling, authorizing and establishing measures for the inspection and eradication of pests in Panamanian territory” (MIDA, 1996).

1.2 Problem Statement

Globalization as a phenomenon, system or world ideology allows interaction between people, regions and countries, which has generated a great economic impact in the sectors that intervene in it; political, cultural, economic, social, productive, among others, and the great combination of possible scenarios between these, which opens a path of advantages, disadvantages and relevant aspects, which will define the process as something lucrative or, on the contrary, a great obstacle individual progress as a country.

It is important that each country takes advantage of the competitive and comparative advantages for market participation and is always evolving and adhering to the different and constant changes that are occurring and therefore, being able to measure productivity and efficiency in the logistics process, is one of the factors of great importance

Within these measures, there is a regulatory and customs process that frames and guides the entire chain of requirements and procedures that each country must comply with in order to carry out its export process, under the custody and surveillance of the entities in charge of giving the guarantee and the approval of the measures required for each sector and country of destination.

The alignment of entities' performance in foreign trade operations is increasingly essential for processes (imports and exports) to be carried out quickly and efficiently, delays, damage to computer systems and regulatory difference. from one country to another, it has brought with it differences for the correct harmony at the customs and logistic level, it is there where it is evident that although there is a liberation from trade and facilitation is sought at the time of making the sale and purchase of goods internationally Each country establishes norm and laws according to its conditions in front of the market.

What are the logistical and regulatory differences in the fruit export process of the port of Urabá (Colombia) and the port of Colón (Panama)?

1.3OBJECTIVES

1.3.1 General Objective

Compare the fruit export process between the port of Urabá (Colombia) and the port of Colón (Panama) at a logistical and regulatory level.

1.3.2 Specific Objectives

- Carry out a comparative analysis of the logistics competitiveness index from 2014 to 2018 between Colombia and Panama.
- Analyze the infrastructure of both terminals for the export of fruits.
- Identify the supreme customs entity of each country and the support entities involved in the fruit export process.
- Know the legal requirements must be met by exporters in each country for the export of fruits.
- Know the logistics process of the cold chain for the export of fruits in each country
- Identify the technological platforms for processing trade operations.

1.4 JUSTIFICATION

1.4.1 Theoretical Justification

This research work will contribute to the research line of international trade, the theory will be taken as a basis and in its processes, rules, regulations and other aspects that cover the logistics chain of fruit exports from Colombia and Panama to the rest of the world. Therefore, it could be a contribution for future research.

Exports are of utmost importance in both Colombia and Panama, the above is due to the fact that this account makes up the trade balance. "The balance is the difference that exists between the total exports and imports of a country" (DANE, 2019).

1.4.2 Social Justification

This research will mainly allow producers and marketers of fresh fruit from Colombia and Panama to acquire knowledge of how the export process is at a logistical and regulatory level. Additionally, when comparing these processes between Colombia and Panama, it will allow broadening the panorama and identifying strengths and weaknesses.

In the educational field, it will be a research benchmark for students and teachers, who thus contribute to personal and professional training and who wish to consolidate knowledge and strengthen their ideas.

1.4.3 Personal Justification

As international business students, conducting research allows us to acquire great knowledge that contributes to our personal and professional training, international trade is a passion, it is a set of words that generates feelings and emotions by having the wonderful opportunity to be able to introducing ourselves and interacting in the global world, this allows us to get closer to other cultures, to know the world and to know its dimension and scope, to be an important link in that chain, since discipline and skill are required to face each challenge with the knowledge that this requires ; It takes strength, leadership, patience and the capacity to react to face any eventuality and make the pertinent decisions.

In this long journey where you have everything to learn, where nothing is easy and simple, it is where we demonstrate with our passion and love for what we do, that every effort is worth it, that every day we take something learned and a professional teaching and personal, that will remain as an experience for our whole life that will continue to fuel this passion.

1.5 REFERENCIAL FRAMEWORK

1.5.1 Theoretical Framework

For the preparation of this research work, some theoretical contributions that are aligned with the objectives set will be taken into account, mainly to establish the differences at the logistical level of the port of Colón (Panama) and Urabá (Colombia) for the export of fruits.

Maritime terminals worldwide are considered the base of connection between countries for the exchange of merchandise by sea, so it is important that States encourage private companies to make investments for infrastructure development and, therefore, the operations of export and import flow in the right way, that's where we should mention the following theory:

Competitive Advantage Theory

(Machinea, 2007) comments on the book "The Competitive Advantage of Nations" by Michael E. Porter that "The competitiveness of a Nation depends on the ability of its industry to innovate and improve itself" based on the book "The Chess of the Free commerce "by Carlos Rodero where he indicates that:

“Nations export in sectors where their companies achieve a (disparity) ahead in technology, (since) instead of limiting themselves to the deployment of a fixed mass of production factors, a more important issue is to determine the way in which companies and nations improve factor quality, raise productivity with which they are used, and create new factors” (LEGISCOMEX, 2020)

The State plays an essential role in the growth of a country, where it must strengthen and incentivize the industry towards competitiveness, not only national but also international, to be able to reflect on a logistical and regulatory level.

So, the competitive advantage of each country is defined by how each country develops strategies not only to grow its wealth or fulfill its economic projection, but also to invest and

distribute this wealth in developing its factors of production, because there as the theory indicates , that significant competitive advantages are established over these factors over other countries. This theory indicates that countries must always be willing to be in constant evolution, to renew themselves and be innovative, as this will offer to be more competitive, taking into account that each nation may not be 100% competitive in all factors of production, it will depend on its strategy and intelligence to be able to invest and innovate in the sector that can further increase its productivity and the development and use of technology becomes a key factor in this process.

This theory contributes significantly to the development of this research work, given that the production factors are embedded in the theory and these will allow us to obtain the comparison of both terminals clearly, understanding that infrastructure, technology and other factors that include It helps that one country is competitive against another, the above will allow us to deepen whether each country is really empowering itself to be immersed in international dynamics and facilitate foreign trade processes at the logistical and customs level, specifically in the export of fruits.

1.5.2 Conceptual Framework

This research work will be based on identifying the logistical and regulatory differences in the fruit export process of the port of Urabá (Colombia) and the port of Colón (Panama), the contributions of Michael E's theory of competitive advantage Porter are essential for the focus and development of this research, for this reason it is important to mention the “Porter's Diamond” in which four components that make it up stand out: 1) Strategy, structure and company rivalry; 2) Conditions of demand; 3) Related and support sectors; 4) Conditions of the factors and this author also proposes two auxiliary components that are the government and the fortuitous or causal events.

The four components of the Porter Diamond fully contribute to obtaining a favorable advantage for the industry at a competitive level and it is there where each nation must identify and potentiate to play an essential role in this process, this diamond system makes

the industry dynamic and Efficient, however, since each of these variables is interconnected, it can affect the other and, because they are not aligned, the objective of being competitive not only as a company but also as a country may not be achieved.

It is worth mentioning each of the variables that make up Porter's Diamond in order to size its structure and identify what each of these encompasses:

- 1) **Strategy, structure and rivalry of the company:** It is how each company establishes in its strategic plan and is projected organized to be competitive in its country.
- 2) **Demand conditions:** This variable is important because it is made up of the supply and demand for the product that companies produce and their behavior in the market.
- 3) **Related and support sectors:** This factor or variable can fit all those companies that, at the international level, can supply the absence of products in a Nation.
- 4) **Factor conditions:** This is how the Nation is in competitive terms, including in this all the production factors such as infrastructure, skilled labor, technology and innovation.

The fourth variable mentioned is the pillar for the development of this research work, this contains an essential production factor such as infrastructure, this factor will help us to make the comparison between the port of Colón (Panama) and Urabá (Colombia).

(Machinea, 2007) from the book "The Competitive Advantage Of Nations" by Michael E. Porter highlights the following "The most important factors of production are those that involve a sustained and large investment and are specialized" taking into account the above, a Production factor is also technology, therefore, it will be important because it will allow us to include it in the comparison and identify if it is implemented at the logistical and regulatory level in each country. Production factors can be innovated, reinvented and opportunities for improvement can be established in order to make it more agile and efficient in the logistics chain, bearing in mind that the regulatory sphere is immersed in this.

1.5.3 Legal Framework

- **Colombia**

In Colombia, the competent authority is the DIAN “Directorate of National Taxes and Customs”, it is the entity in charge of facilitating and guaranteeing the understanding and compliance with the law at the tax, customs and exchange level in the country. The customs regulatory framework in Colombia is the Customs Statute DECEE 1165, which entered into force on August 02, 2019, this decree seeks to harmonize and provide legal security to foreign trade operations, eliminating the dispersion of regulations on customs matters, additionally also to eliminate the validity of Decree 390 of 2016 and Decree 349 of 2018.

It is important to highlight Resolution No. 00000448 of the ICA (INSTITUTO COLOMBIANO AGROPECUARIO), which, by issuing it, seeks to protect the country's health and establish the measures to be taken by the parties involved. This resolution highlights this resolution because the conditions for the export of fresh fruits are contemplated in it.

- **Panama**

The National Customs Authority is the highest body of the national customs service and is the State institution in charge of controlling, monitoring and supervising the entry, exit and movement of goods, people and means of transportation through the country's borders, ports and airports. , for the purposes of the tax collection that they are taxed or for the controls that are applicable to them, as well as to prevent, investigate and sanction customs offenses, to compile statistics on foreign trade, intervene in international merchandise traffic and fulfill the functions conferred on it, through international agreements of which the Republic of Panama is a part (Rendón Serna & Usma Cardona, 2015).

The clear objective that was had with the arrival of the National Customs Authority was to be able to control and harmonize trade, provide security and stability to customs processes, ANA is the entity in charge of controlling, supervising and regulating the movement of entry and exit of goods and people. The customs regulatory framework in Panama is the Decree-Law issued by the National Customs Authority "ANA". This Decree-Law No. 1 of February 13, 2008 establishes the legal provisions related to the customs regime in Panama. "The promulgation of the Decree Law 1 of 2008 the National Customs Authority is born, an

institution of public security, with legal personality, its own assets and autonomy in its internal regime, which exercises its jurisdiction throughout the national territory”(Rendón Serna & Usma Cardona, 2015) .

The regulatory framework is also made up of the draft of the Customs Law of January 15, 2015, this is also regulated by the customs authority and all the regulations are provided for in international agreements signed by the Republic of Panama with other countries, it is also important mention resolution 246 of October 22, 2012 where all the measures of tariff quota control for the products detailed therein are contemplated, lastly is resolution No. 5 of December 24, 2008 (Gazette 26269) where the manual is established of functions of the National Customs Authority.

After the opening of the Panama Canal, the commercial dynamics of Panama had a great evolution and significant growth, but in great need of an entity that would regulate and exercise control in the activities that were being developed. An efficient and trained customs entity would provide the effective link required, in the face of the demand and movements presented.

1.6 METHODOLOGICAL FRAMEWORK

1.6.1 Research Method

The method used in this research work is comparative starting from the general to the specific, this comparative allows us to establish relationships of similarities and differences between the logistics and customs process of the port of Colón in Panama and the port of Urabá in Colombia.

- **Research focus**

This research work is of a qualitative and quantitative nature, all the information will be taken as the essence for its development and will be taken to carry out a deeper and more detailed analysis for the stated objectives.

- **Type of Study**

The focus of this research work is comparative, the objective is to compare the logistical and regulatory differences in the export of fruits between Colombia and Panama, which implies the collection of information based on the rules and procedures of each country.

1.6.2 Research methodology

- **Techniques and instruments for collecting information**

The techniques and instruments for collecting information for this research work will be from secondary sources; databases, books, official web pages of entities of each country (Colombia and Panama), consultation of repositories of different universities; in order to obtain information related to the investigation problem. According to (Monje & Arturo, 2011) “the secondary sources is a cumulative writing referring to the experiences and theories of other authors”

- **Selection and analysis of information**

The information collected will be from sources and official pages of each country involved in the investigation, from reliable sources that allow the construction of a clear panorama against the investigation, all the information consulted will be validated in order to avoid including false or erroneous information for its development.

It is important to highlight that the information collected will be in favor of meeting the objectives and guidelines established for the development of this work and this will be classified according to the development of the specific objective being investigated, the above in order not to lose track of the research and preserve the horizon of the work, all the information is true and can be validated through the citation and the bibliography contained in the development.

- **Bias Control**

In order to minimize bias, it is determined to extract information from reliable sources where it can be validated that the information is true.

1.7 Reach

For this research work, data will be taken from the year 2014 and 2018 which will allow us to know and compare the evolution that each terminal has had in relation to the export of fruits and to demonstrate its strengths and weaknesses at the logistical and regulatory level.

2. INVESTIGATION DEVELOPMENT

2.1. LOGISTICS PERFORMANCE INDEX

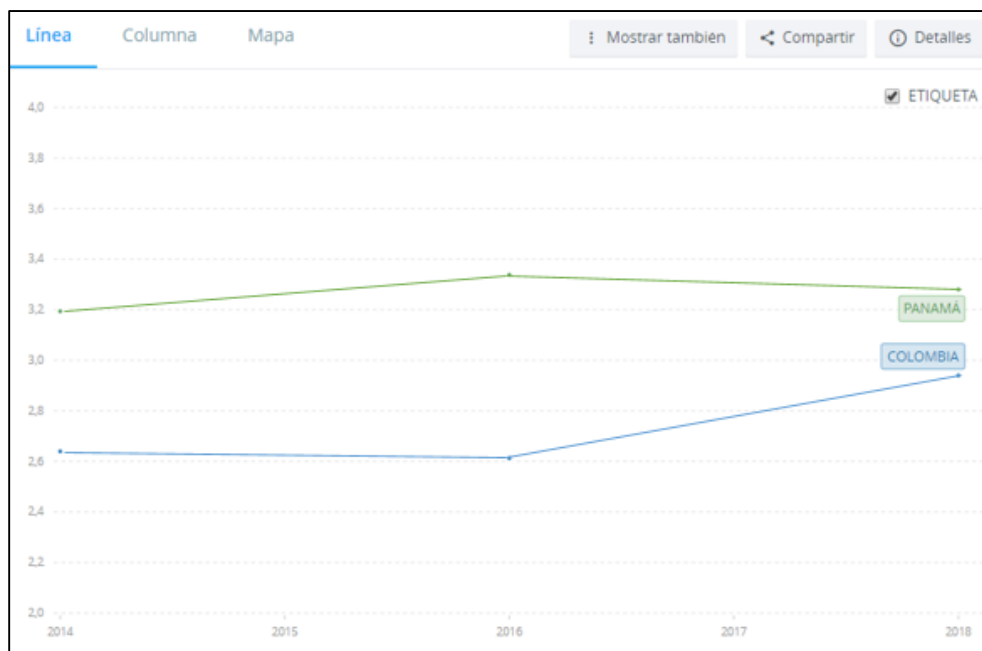
The World Bank issues a report every two years where the IDL indicator (logistic performance index) is related, this index reflects the logistical performance in terms of efficiency in different variables and (THE WORLD BANK, 2020) defines them as follows:

- **Customs:** This variable measures the efficiency of the export or import customs clearance process, that is, the speed, simplicity and predictability of the procedures by customs agencies and how agile the country is for these procedures.
- **Infrastructure:** It measures the quality of the operation at the infrastructure level of each country, where it depends on the operation of its ports, railways, roads, information technology, among others.
- **International Shipping:** Facility that each country has to be competitive in making shipments with competitive prices.
- **Logistic competition:** competition and quality of logistics services (transport operators, customs agent)
- **Tracking:** Capacity that each country has to be able to monitor each of its operations (Import and Export), through allies, operators and technology.
- **Opportunity / Puntuality:** Lead Time, Compliance of each country in the agreed times for delivery.

This index varies from 1 to 5, where the highest score represents better performance and the lowest score represents lower performance at the logistical level, the data collected by the World Bank is carried out with the accompaniment of institutions and private companies involved in the process. of international logistics.

The following image reflects the growth that COLOMBIA AND PANAMA have had in the last 4 years (2014 to 2018), it is evidenced in general terms, that is, consolidating the six variables that the IDL takes to assign the score.

GRAPHIC 1. COLOMBIA AND PANAMA LOGISTICS PERFORMANCE INDEX PERIOD 2014-2018



(BANCO MUNDIAL, 2019)

ILUSTRATION 1. SUMMARY LOGISTICS PERFORMANCE INDEX COLOMBIA AND PANAMA YEAR 2018

Nombre del país	Año Más Reciente	Valor Más Reciente
Panamá	2018	3,28
Colombia	2018	2,94

(BANCO MUNDIAL, 2019)

TABLE 1 . COLOMBIA AND PANAMA LOGISTICS PERFORMANCE INDEX 2014-2018

IDL	2014	2016	2018
PANAMÁ	3,194	3,338	3,28
COLOMBIA	2,640	2,612	2,94

Own construction with information from (BANCO MUNDIAL, 2019)

Panamá from 2014 to 2016 shows a growth of 0.144 points in the logistics performance index, however, from 2016 to 2018 this index decreases by about 0.058 points.

Colombia from 2014 to 2016 there was a decrease of 0.028, however, from 2016 to 2018 the logistics performance index increased by 0.328.

In Illustration 1, it is evident that in 2018 Panama in general terms has 0.34 points above Colombia, that is, COLOMBIA in the year 2018 obtained a score of 2.94 and Panama of 3.28, if we analyze this from 1 to 5 Both countries would be at a mid-point of performance at the logistical level.

It is important to highlight that the Ranking is interpreted by positions, which indicates that the lower the Ranking, the better positioned each Country is at the level of the logistics performance index.

Next, we will detail the 6 variables that influenced the rating assigned to each Country in the period from 2014 to 2018.

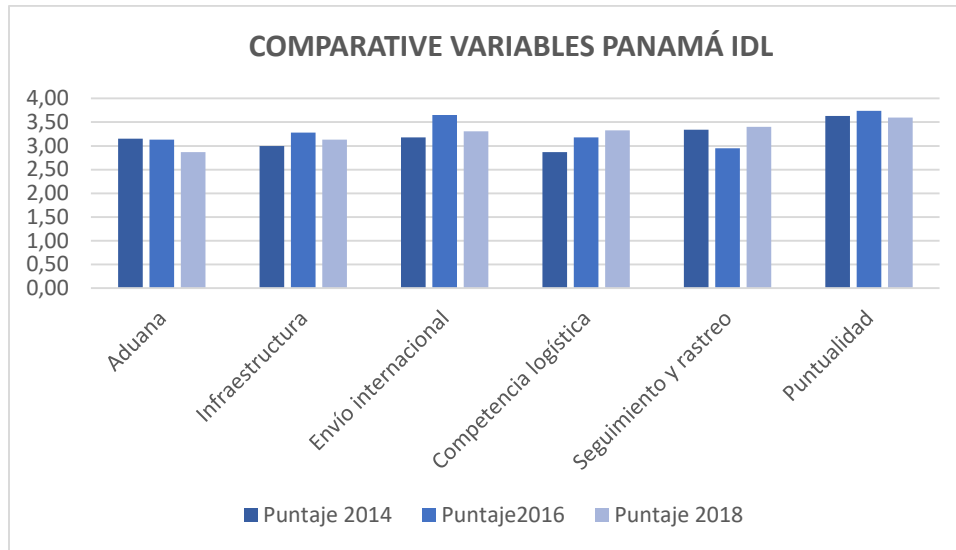
2.1.1. Panama

TABLE 2. PANAMA LOGISTICS PERFORMANCE INDEX 2014 TO 2018

PANAMÁ	Ranking	Score 2014	Ranking	Score 2016	Ranking	Puntaje 2018
Customs	45	3,15	40	3,13	38	2,87
Infrastructure		3,00		3,28		3,13
International Shipping		3,18		3,65		3,31
Logistic Competition		2,87		3,18		3,33
Tracking		3,34		2,95		3,40
Punctuality		3,63		3,74		3,60

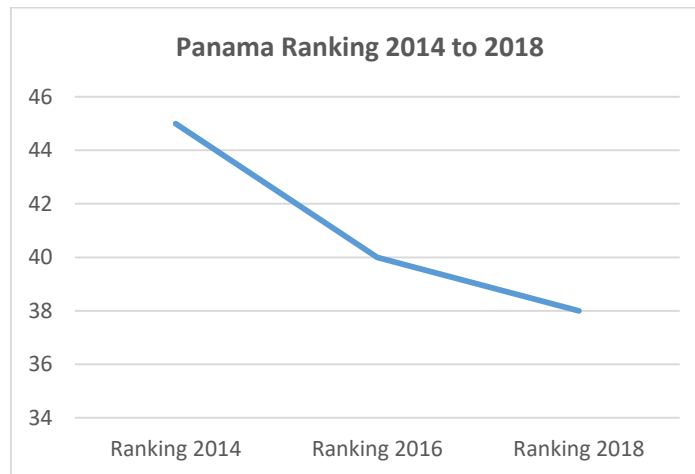
Own construction with information from (BANCO MUNDIAL, 2019)

GRAPHIC 2. COMPARATIVE VARIABLES PANAMÁ IDL



Own construction with information from (BANCO MUNDIAL, 2019)

GRAPHIC 3. PANAMA RANKING 2014 TO 2018



Own construction with information from (BANCO MUNDIAL, 2019)

Obviously Panama in general terms has been a good ranking between 38 and 45 in the period from 2014 to 2018, however, a significant variation is noted if we compare this range, to understand the changes we must delve into the different variables and the behavior that have specifically had between the year 2014 to 2018 that obtained a better position.

- **Customs:** The efficiency in customs clearance has decreased significantly in Panama, in 2014 it obtained a better score with 3.15, however, from 2016 to 2018 a decrease of 0.26 points is evident, but comparing 2014 vs 2018 this value varies by 0.28 points. According to (UNITED NATIONS, 2017) indicates that in Panama "There is no regional integration of customs controls and there are limitations in the follow-up and monitoring processes." Taking into account the above, the asynchronous operation of customs has caused Panama to lose strength and that is where the ANA customs authority must demand and promote best practices in order for this process to be agile and efficient.

It is also important to highlight the following: "There is a slow implementation of the single window for foreign trade and the automation of the services of different agencies related to trade" (UNCTAD DE LAS NACIONES UNIDAS, 2017), the aforementioned is a factor key that influenced the notable decrease in the period from 2016 to 2018 .

- **Infrastructure:** The quality of the operation at the infrastructure level in Panama in the period from 2014 to 2016, increased by 0.28 this was due to the expansion of the Panama Canal, this generated that ships of greater capacity could cross the gates and also allowed in Internationally, it is a new commercial route, however, if we compare the 2016 score of 3.28 vs. 2018, it decreased by 0.15 points, that is, in 2018 the score was 3.13.
- It is important to highlight that in 2014 the national government issued Executive Decree No. 881 in which it sought to promote the country's logistics platform, according to (Panama Maritime Authority, 2014) "The same, must seek the necessary mechanisms to overcome the current obstacles in logistics in order to improve our competitiveness indexes and position Panama as a logistics hub in the region ”.
- In the period from 2016 to 2018 it was significant and this can be explained by the following: "It is necessary to enhance this specialization with policies that position it as a logistics focus in these sectors and other strategic ones" (CAF, 2016).
- The CAF entity seeks to promote the execution of the logistics strategy in Panama and it is important to highlight the intervention of Mrs. Mercedes Eleta De Brenes, president of APEDE where she indicates:

“The logistics activity contributes more than 30% of the Gross Domestic Product (GDP) of the country, a figure that has been growing since the transfer of the Panama Canal to the Isthmus. There is no doubt that our country has one of the most advanced port and airport structures in the region, with high levels of logistics competitiveness, however there are still great challenges for the positioning of value-added services and in that sense we have several pending tasks as a country”. (CAF, 2020).

- **International Shipping:** In this variable Panama has had a noticeable variation from 2014 to 2018, the best score obtained is 3.65 in 2016, which grew 0.47 points vs. 2014, that is to say that this year it had a score of 3.18 and in 2018 it decreased 0.34 vs 2016.

(CARRIÓN CHÁVEZ & GARCÍA RIOFRÍO, 2020) in their research indicate the following: “within the procedure for cross-border trade, the nationalization time for both exports and imports is 30 hours, distributed as follows: 24 hours in border enforcement and 6 hours in documentary compliance”.

It is also important to highlight that this variable covers all export processes and all the production factors that intervene in order for companies to be competitive in sending shipments with competitive prices, for this reason it is considered that the decrease in this variable is given according to (UNCTAD OF THE UNITED NATIONS, 2017) by:

“The existing knowledge in the international logistics of Panama has not been transmitted to the internal logistics and, therefore, the national production has not been able to benefit from the global position of the country. This situation causes an increase in the cost of Panamanian products, which undermines their competitiveness in national and international markets. Nationally, this increases the cost of living due to the high prices of consumer products, especially perishable products. At an international level, despite having excellent global accessibility, this situation translates into the inability to place Panamanian products in global markets due to their high costs.”

- **Logistic Competition:** The logistics services in Panama and the quality of the service of the operators have had a great improvement since 2014, it is even one of the variables that shows a constant growth since this time, for the year 2014,2016 and 2018 of 2.87; 3.18 and 3.33 respectively.

Panama has outstanding logistics services and according to (GEORGIA TECH PANAMÁ -LOGISTICS INNOVATION & RESEARCH CENTER, 2020) includes all service providers such as: Warehouses, cargo agency, cargo consolidation, transportation, customs brokers, maritime agencies, supply of ships, stevedores, fuel supply, shipping companies, shipping lines, haulage companies, logistics consultants and technology providers ”, taking into account the foregoing, it is increasingly important for the country to strengthen this aspect so that each time operators generate confidence, are more efficient in the service and are immersed in this international dynamic since Panama, due to its geographical position, allows it to potentiate this variable.

- **Tracking:** Panama's ability to monitor foreign trade operations, in the period from 2014 to 2018 its score has been inconsistent, in 2014 this variable obtained a score of 3.34 and was better if we compare it with 2016 which was 2.95, which reflects a value lower by 0.39 points.

In 2018 Panama obtained the best score in this period and this was 3.4, the above was because in this year Panama implemented a platform “Starting today, August 1, the Directorate General of Merchant Marine (DGMM), of the Panama Maritime Authority (AMP) puts into operation the "Maritime Safety and Inspection System, Global Platform Software", which will be available 24 hours a day, 7 days a week, a friendly system, accurate and fast data reception ”(AUTORIDAD MARITIMA DE PANAMÁ, 2018) and in turn Panama has a multimodal platform that allows it to obtain complete traceability on the Panama Canal, the railroad, the ports, all roads, airports, In other words, it has an integrated system to control all the logistics flow in the country, this generates a plus and a differentiating factor compared to other Latin American countries(REPÚBLICA DE PANAMÁ GOBIERNO NACIONAL , 2020).

- **Oportunity / Puntuality:** In this variable Panama in the period from 2014 to 2016 has had an average score of 3, in 2014 Panama obtained 3.63 and in 2016 an increase of 0.11 points was achieved, in this same year the opening of the Panama canal, which notably favored the docking of ships.

In 2018 the score was 3.6 lower by 0.14 points compared to 2016 the above can be explained.

“In railway services, which are affected by peak demand for transfers that occur on weekends. They also refer to the problems of accessibility and connectivity between the different logistics assets located in the inter-oceanic zone due to congestions in the road network in a notable way, congestion towards the ZLC and its neighboring ports considerably affects traffic, increasing traffic transportation costs and affecting the quality of the product. Today, this is derived from a single access road, with one lane each way” (UNCTAD DE LAS NACIONES UNIDAS, 2017).

It has been evidenced with what they propose in (UNCTAD DE LAS NACIONES UNIDAS, 2017) that the flow of cargo has increased and the infrastructure has fallen short, which generates delays for deliveries, transport limitations and timely congestion of cargo.

Foreign trade operations in Panama are activities of utmost importance to the economy, they contribute significantly to the growth of the country and undoubtedly its geographical position is a relevant competitive advantage that allows it to be more active in the international dynamic, however the country must be at the forefront of it and strengthen that advantage with investment in maritime, land, rail and state-of-the-art infrastructure that allows it to achieve a better ranking worldwide, this will allow the improvement of the processes involved in the entire export logistics chain and import, understanding by this that it covers the logistics, customs, exchange, tax process and being aligned with all entities in order to be the logistics hub projected for the coming years.

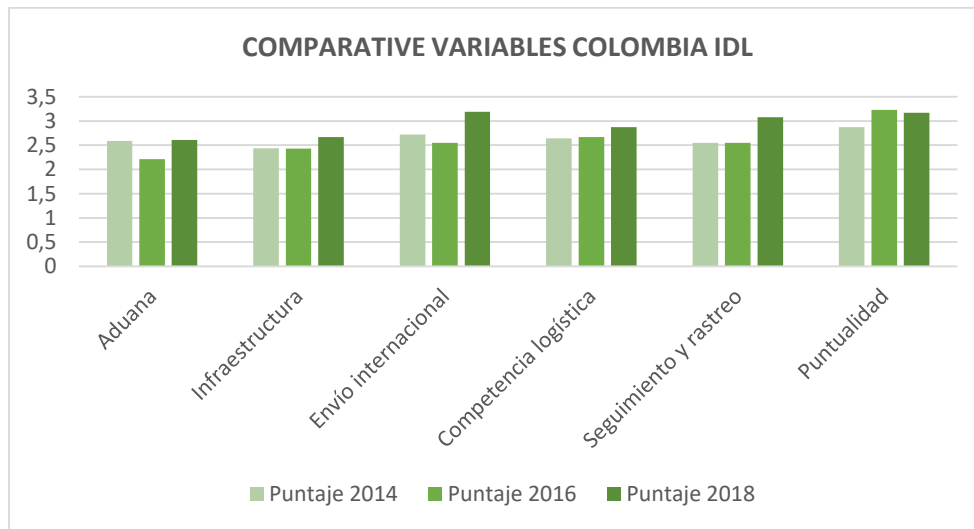
2.1.2. Colombia

TABLE 3 . COLOMBIA LOGISTICS PERFORMANCE INDEX 2014 TO 2018

COLOMBIA	Ranking	Score 2014	Ranking	Score 2016	Ranking	Score 2018
Customs	97	2,59	94	2,21	58	2,61
Infraestructure		2,44		2,43		2,67
International Shipping		2,72		2,55		3,19
Logistic Competition		2,64		2,67		2,87
Tracking		2,55		2,55		3,08
Puntuality		2,87		3,23		3,17

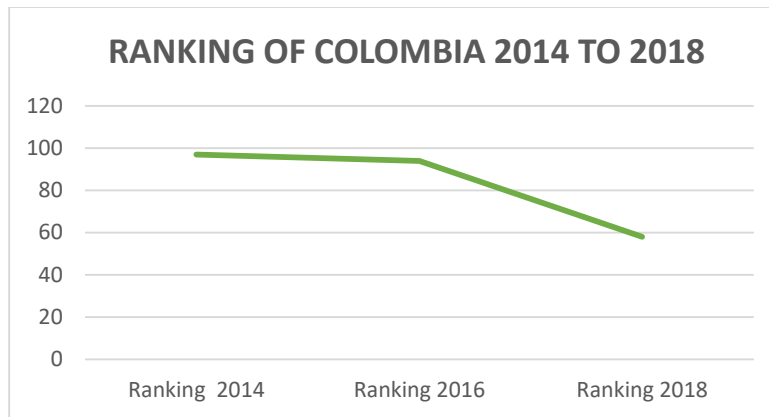
Own construction with information from (BANCO MUNDIAL, 2019)

GRÁPHIC 4 . COMPARATIVE VARIABLES COLOMBIA IDL



Own construction with information from (BANCO MUNDIAL, 2019)

GRAPHIC 5. RANKING OF COLOMBIA 2014 TO 2018



Own construction with information from (BANCO MUNDIAL, 2019)

Colombia and Panama, two countries so close; they must potentiate their strengths to be immersed in the international dynamics at the logistical and port level, the strengthening of the aforementioned variables is important for each country to improve its performance at the logistical level, which is why countries must take measures such as: Investment in technology; that is, systematization of processes that make export and import operations agile procedures, synchronized internally and externally with each and every one of the entities or operators involved in the logistics chain, investment in infrastructure and most importantly, in education such as important pillar to build country.

- **Customs:** For Colombia, this indicator is one of the ones with the greatest fluctuation and where the country has had to intervene constantly in its development and evolution, since the high needs for improvement and growing international trade, required that the country have to develop strategies and changes compared to the figures that I present in the IDL between the years 2014-2018. Proving the above, in the years between 2014 and 2016, the country obtained a negative variation within its customs processes of 14%, going from a score from 2.59 in 2014 to 2.21 (BANCO MUNDIAL, 2019). There were a series of variables that intervened to present this steep decline, and among these factors the lack of efficiency and agility in processes (times), the lack of modernization of the customs system, corruption and bribery in ports and customs and high export costs (Aldana Mendez & Hernandez Gutierrez, 2017).

In 2016, Colombia understood the importance of generating immediate improvement actions that would facilitate foreign trade, for this reason Customs Statute 390 arrived, with the clear intention of seeking to strengthen current procedures, systematizing processes, modernizing and adapting to practices. international.

This improvement could be seen in the country's IDL ranking between 2016-2018, since growth is evident and an improvement is reflected not only in this variable, but also in almost all those that make up this survey. The international perception positively reflected the changes that were made within the country in its processes as evidenced by the article by (Cano García, 2016), where it states positive changes in the decree such as improved services, risk management system, systematization of processes and classification of users according to said risk for granting benefits.

As a regulatory body, DIAN considers that the IDL of 2018 allows to contemplate the progress that Colombia has had in customs matters and the effect that the statute has generated, since the director of this entity Claudia Gaviria affirms that “The new customs legislation adopted in 2016 and what is found in the development process has played a decisive role in improving the logistics performance of the country, coupled with improvements in infrastructure and implementation of modern customs control techniques such as non-intrusive inspection, advance declarations and application of a modern risk profiling and management model” (DIAN, 2018)

- **Infrastructure:** This indicator has a positive or negative impact on the different variables, since the quality of the operation in terms of time falls on it. The operation in Colombia in the period between 2014 and 2016 presented a drop that had already come since 2012, since its score at that time was 2.72 and in 2014-2016 it went to 2.44 and 2.43 respectively.

One of the possible explanations that critically affected the inefficiency in this variable was the lack of investment in the transport infrastructure, since it was necessary to improve the roads that would allow for an improvement in cargo mobilization, rehabilitation of sea and air ports. and increase the installed capacity of these, in order to be more productive and competitive (LEGISCOMEX, 2020)

For the year 2018, Colombia presented an evident positive change when going from 2.43 to 2.67 in the indicator and a summary of some of the implemented changes,

would define the positive result that the country had in the matter of infrastructure and transportation: Public and private investment in ports and airports, investment in national roads that represent time savings of up to 6 hours, restructuring of the tariff model and tools for measuring efficiency and costs were of vital importance in order to see an increase in port traffic of 42% in 2017 and the installed capacity will increase by 47% (DNP, 2018).

- **International Shipping:** Colombia had a considerable variation between the years 2014 to 2016, as it went from being with a score of 2.72 to 2.55 and where (Valenzuela Salamanca, Pérez, Tinoco, Charfuelan Malte, & Ramírez, 2018) explains that this decline is due to concentration In terms of costs, the low availability of international shipping services and the little implementation of systems that allow the pertinent monitoring of merchandise, for the year 2016 Colombia demonstrated a positive change in this indicator, rising 0.64 points and registering great progress, since the country had an improvement in cost issues of 25.26% (ANALDEX, 2018) where the improvement in infrastructure and customs processes greatly helped in this process.
- **Logistic Competition:**
In the period from 2014 to 2018 this variable has had a constant growth, an important factor that should be highlighted is the signing of the FTA with the United States where positive coverage of logistics services is generated and a greater participation of operators in the processes of foreign trade, in illustration 2, it can be seen how the trade union managed to generate greater participation by Colombia in the field of logistics services.

ILUSTRATION 2. LOGISTIC SERVICES OFFERED 2015 USA –COLOMBIA

Servicios logísticos ofrecidos - 2015	EEUU	Colombia
Planeación de Transporte y Distribución	25%	28%
Ejecución de Transporte y Distribución	51%	70%
Administración de pedidos de clientes	18%	14%
Administración de servicio al cliente	5%	11%
Consolidación de despachos / Cross - docking	30%	39%
Administración y pago de fletes	33%	29%
Ejecución del Almacenamiento	67%	37%
Provisión de Servicios Logísticos	14%	17%
Logística de Reversa	36%	29%
Planeación y Administración de Inventarios	18%	3%
Consultoría en desempeño logístico	15%	14%
Coordinación de tercerización 3PL (4PL)	11%	24%
Valor agregado al producto (empaquete, etiquetado, etc)	30%	26%
Agenciamiento aduanero	53%	67%

Image taken from (Fajardo González, 2017)

Colombia as a country "not only emerges as an element of great importance in the presentation of logistics services, treatment of cargoes and goods that flow around this alliance, but also has the challenge of reducing logistics costs and increasing the competitiveness" (Valenzuela Salamanca, Pérez, Tinoco, Charfuelan Malte, & Ramírez, 2018).

- Tracking:** Monitoring and tracking: This indicator shows that between 2014 and 2016 it did not have a significant growth or change, since for 2 years it was located with a score of 2.55 and “the drop in this component is due to causes in arrears such as : informal payments (corruption), non-consensual storage, maritime transshipment, theft and prior inspection (Aldana Mendez & Hernandez Gutierrez, 2017). In 2018 the score increased by 0.53 points compared to 2014 and 2016, this was because this year the DIAN issued resolution 002429 for the implementation of electronic security devices used in the monitoring and control of trade operations abroad and establishing international carriers as obligated, that is, for all those goods that are under customs control "to promote the modernization of customs customs operations through the systematization of customs procedures and the application of techniques and technologies that as electronic security devices contribute to the control and monitoring of cargo under customs authority” (DIAN, 2018)

- **Punctuality:** Within this indicator, we can see that in 2014 it had a negative indicator with a score of 2.87, where it can be explained that “it is because transport represents a large proportion of time in the supply chain process. The transport activity in Colombia presents an average of 21 hours in otiose times on average ”(Valenzuela Salamanca, Pérez, Tinoco, Charfuelan Malte, & Ramírez, 2018). For the years 2016 and 2018 there was a notable improvement compared to 2014, as it is closely linked to the changes presented in recent years in Customs, infrastructure and logistical competition, since agreements with all these interventions in these sectors have been able to generate progress significant as decree 390 in customs, private and public investment in infrastructure that quickly determines a shortening in time that favors this indicator.

It is important to highlight and recognize Colombia's constant effort to improve and sophistication of its processes, provide better alternatives that achieve greater commercial expansion, be more competitive in processes, costs, time, and everything that intervenes in commercial relations, and all this improvement is You can see precisely valued in this indicator (IDL) where in the course of 2 years (2016-2018) I pass from position 97 to position 58.

2.2.PORT INFRASTRUCTURE

2.2.1. Colon Port Panama

Colon Container Terminal (CCT) is a private terminal that is part of the Evergreen group, this maritime terminal began operations in 1997 in order to take advantage of the geographical location and facilitate foreign trade operations (GEORGIA TECH PANAMA, 2020).

Colon Container Terminal is located in Coco Solo Norte, Colón province, the maritime terminal achieving services due to its location in several regions, “From the Atlantic entrance of the Panama Canal, CCT serves the regional markets of the Caribbean, North America , Central and South with shipments originating mainly in the Far East, this port has land access to the Colon Free Zone and the railroad” (GEORGIA TECH PANAMÁ -LOGISTICS INNOVATION & RESEARCH CENTER, 2020).

ILUSTRATION 3. CCT PANAMA INSTALATION

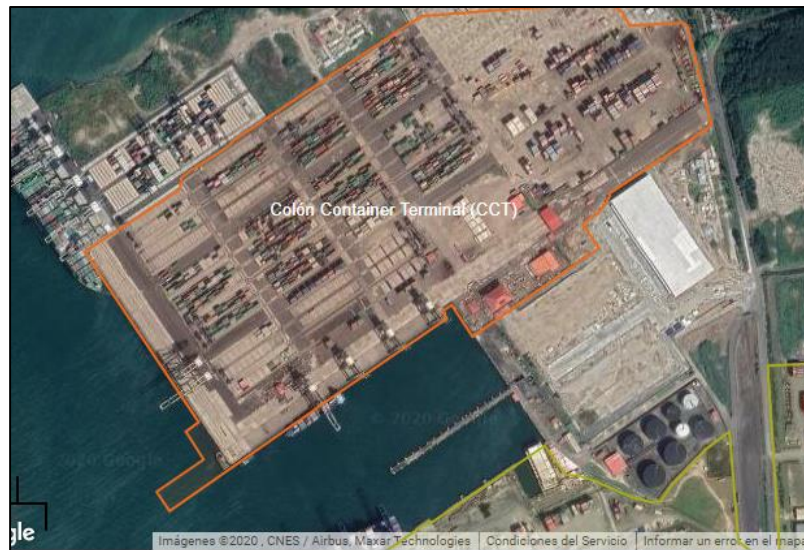


Image taken from (GEORGIA TECH PANAMÁ -LOGISTICS INNOVATION & RESEARCH CENTER, 2020).

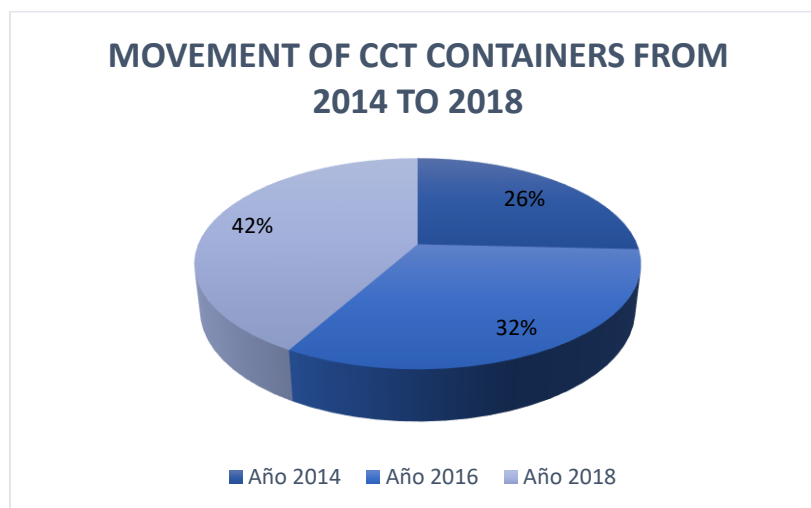
The maritime terminal according to the figures taken from the Panama Maritime Agency and recorded in Table 4, it is evident that the port has had a remarkable growth in the number of containers that have been handled and this according to what was reported by (CCT, 2020) can be given because this port has become a place of transshipment of cargo due to its proximity to the Panama Canal, below we present the information:

TABLE 4. MOVEMENT OF CCT CONTAINERS FROM 2014 TO 2018

VARIABLE (in TEU's)	Year 2014	Year 2016	Year 2018
CONTAINER MOVEMENT * These figures include the movement of local containers (import and export) and the two movements of containers	502,706	632,845	816,373

Own construction with information from (AMP, 2020)

GRAPHIC 6. MOVEMENT OF CCT CONTAINERS FROM 2014 TO 2018



Own construction with information from (AMP, 2020)

It is also important to begin to delve into the terminal facilities, its capacity, the services it offers and all those internal production factors that facilitate the fruit export process from entering the maritime terminal until the refrigerated container is documentary and customs-ready. ready for shipment.

TABLE 5. GARAGE OF ENTRY AND EXIT OF CONTAINERS CCT

VARIABLE	INCOME	EXPENSE	Important
Electronic weights	YES	YES	"Currently the terminal is expanding the Entry and Exit Gate, which will result in 9 lanes and 2 fumigation arches to provide a better service to our customers" (CCT, 2020)
X-ray * is only used by customs	YES		
Units registration	YES	YES	
Inspection ramp	YES		

Own construction with information from (CCT, 2020)

Table 5 shows that the port, since it has the electronic weight, the X-ray machine, the unit register and the inspection ramp at the entrance gate, greatly facilitate the control of the competent authorities at the time of entry of the container with fruit, because it is there where it can be validated that the information entered in the customs documents and filed in the MIDA for the inspection request and subsequent issuance of the phytosanitary coincides with what was physically recorded at the time of the entry of the refrigerated container to the terminal and that this in turn can be confirmed at the time of the profiling of the unit by each of the entities.

The expansion of the sentry box will allow the entry of more units, thus reducing the entry times of the fruit containers and a more efficient operation will be achieved given the handling and care of the fruit as it is part of the perishable load.

The maritime terminal is a link of great importance in the logistics chain of fruit exports because in this, it is where the entire operation is carried out so that the fruit gets temperature control and proper handling, in addition to being shipped in time. and conditions provided by the exporter and the client at destination.

Port infrastructure for the handling of refrigerated containers for perishable products is vital, even on this it will depend that exporters and shipping lines use the facilities taking into account not only the costs but also the installed capacity, adequate machinery and the necessary conditions. for handling refrigerated containers. "The port has its own power plant, 984 connectors for refrigerated containers, an inspection ramp and phytosanitary areas, customs, quarantine and migration services, and an intermodal connection by rail" (LEGISCOMEX, 2017).

It is important to highlight that for fruit handling (CCT, 2020) it indicates that "it has maintenance and monitoring of refrigerated containers and additionally with inspection services prior to the dispatch of refrigerated containers".

TABLE 6. INFRASTRUCTURE CCT PANAMA

VARIABLES	Colon (CCT) PANAMA
Hectares	74.33 Hectares
Container docks	4
Container storage capacity (in TEU's)	45000
Container storage area	27.8 Hectares
Cranes	46
Tractors	104
Chassis	93
Low bed	4
Empty stackers	11
Lift truck	14
Connectors for refrigerated containers..	1032
Energy plants	5 with 1600Kva capacity
X-ray machine	1

Own construction with information from (CCT, 2020)

The infrastructure and machinery that is shown in table 6 is extremely important, it is confirmed that the maritime terminal has the logistical capacity to control and handle the refrigerated containers and that it has electrical support from the power plants so that, in the event of In some eventuality, the maritime terminal may react and take care of the units' connections in a timely manner, guaranteeing the cold chain of fruits and other perishable products.

- **Port Services**

Port services add value to the logistics chain and this generates a competitive advantage for the maritime terminal compared to other ports. Port logistics services allow the terminal to be more operationally efficient and offer customers a higher quality service.

The Colón maritime terminal offers extensive services in order to provide a timely response to users and has a 24-hour maintenance and repair workshop every day of the week and the terminal has specialized engineers, electricians and mechanics to repair and carry out equipment maintenance (CCT, 2020) The fact that the terminal has the workshop 24 hours, 7 days a week offers a timely response to the requirements that may be had in the event that

the refrigerated unit presents any type of breakdown or fails within the terminal, guarantees users that there is specialized support when any inconsistency occurs.

Highlighting the services that the terminal also offers for the handling of refrigerated containers and according to the information from (CCT, 2020) the following are highlighted:

- Reefer monitoring
- Pre-trip inspection
- Maintenance of refrigerated equipment (REM)

- **Entities Offices**

The offices of the entities within the maritime terminal generate efficiency and agility in the actions of the entities in the process of exporting fruits, even reducing time and costs that may be generated by the movement of officials to the inspection areas in the which carry out customs verification and the MIDA certifies that the fruit meets the sanitary requirements for export.

In the Colón terminal in Panama there is an administrative building that houses offices from the same dock and in turn, there are also offices of the shipping lines in order to facilitate document management and at the entrance are the government customs entities, Aupsa and agricultural quarantine (CCT, 2020) and detailed as shown below given the intervention of the entities in the process of exporting fruit:

- National Customs Authority (ANA)
- Ministry of Agricultural Development (MIDA)

2.2.2. Port of Urabá Colombia

- **Banacol**

According to information provided by (BANACOL, 2020), it indicates that "the strategic location of our facilities represents enormous advantages, both for shipping lines and for exporters and importers, who benefit from our competitive proposal, in addition to the proximity to the centers of the country and other development projects in the region ". Banacol is one of the most recognized banana companies in the world because it is dedicated

to the commercialization of fruit and it is there that in the Urabá area the harvest of fruit for export is strongly potentiated, either on the company's own farms or of small producers who have the properties registered in the ICA for the production of fruits.

The maritime terminal "has port facilities and operations in the Nueva Colonia and Zungo sectors, with river operations in the León River and marine operations in Bahía Colombia, in the Gulf of Urabá" (BANACOL, 2020), which allows for greater installed capacity and obtain more movement of refrigerated units by means of barges that take the units to the docking site of the Ship for loading.

ILUSTRATION 4. BANACOL FACILITY



Image taken from (BANACOL, 2020)

As mentioned above, Banacol is made up of two sectors: Nueva Colonia and Zungo, each port sector has its equipment and machinery necessary to carry out the logistics operation within the terminal. Table 7 details the Banacol infrastructure from each sector and as an integrated logistics unit for the correct operation and management of the maritime terminal, from this information it is important to highlight the installed capacity, connections, power plants, sortiecontainers, cold rooms and powers packs available for handling refrigerated containers with fruit, the above is essential given that it is a terminal specialized in the agricultural sector.

TABLE 7. BANACOL INFRASTRUCTURE

VARIABLES	BANACOL	
	NEW COLONY	ZUNGO
Hectares / M2	40.000 m2	100.000 m2
Container storage capacity (in TEU's)	912	548
Tugs and flat	15	
Electrical connectors for refrigerated containers	358	188
Power plants and electrical backup	162	
Own Reefer containers for fruit storage	120	
Sortiecontainer	1	
Cold rooms	2	
Power Packs	108	

Own construction with information from (BANACOL, 2018)

• **Port Services**

The port services offered by Banacol are carried out by CFS (Compañía Frutera de Sevilla Llc) and indicate through BANACOL the following “We offer port, maritime and river operation services to various types of cargo, whether perishable, general, palletized, containerized or extra dimensioned”(BANACOL, 2020).

Banacol through the CFS administration offers important services for the logistic process of fruit export, (BANACOL, 2020) the services are:

- Filling / emptying of dry and refrigerated containers (with refrigeration option).
- River and marine transport from the Nueva Colonia and Zungo Terminals to ships anchored in the Gulf of Urabá and vice versa, for palletized cargo and containers.
- Maintenance of dry and refrigerated containers, according to IICL standards.
- Merchandise cross-docking, with the possibility of using a transfer room with temperature control, to guarantee the cold chain. Running in parallel the inspections of the corresponding authorities.

The services offered by the maritime terminal generate competitive advantage and increasingly strengthen Urabá as a strong agricultural area in the country, these services allow the Banacol company and the private users accepted by the terminal, to have the confidence and security that the fruits are in the hands of an operator who has the knowledge required to handle the Reefer.

- **Entities Offices**

The Banacol cargo port has a single inspection zone (ZUI), with the intention of strengthening the banana export logistics chain and for this entities such as the ICA, DIAN, Invima and the Directorate of Antinarcotics of the Police participated National, which will facilitate the inspection process at this company's cargo ports (ICA, 2018).

The unique inspection area facilitates the coordination of entities such as the ICA, DIAN and the anti-narcotics police involved in the fruit export process and allows the integration and alignment of actions in order to streamline internal procedures within the maritime terminal, guaranteeing the fulfillment of the objectives of each of the entities. In the logistics process, the unique inspection zones allow full control of the chain and generates a competitive advantage over other terminals because no additional movement of the refrigerated units is generated due to inspection issues, which is favorable not only in times but also in costs.

- **Unibán**

Unibán is a Colombian company located in the Urabá area, which has a privileged strategic location to the Panama Canal, the United States and Central America and offers a great advantage to internal trade as it is 40% closer to the main cities, in addition of having an interconnection with the departments of Córdoba and Sucre (UNIBAN, 2020) .CI Unibán SA is an international marketer recognized mainly for the production of bananas and plantains, however within its portfolio of services they are also dedicated to the production and pineapple export, this company is strategically located in the Urabá area given the agricultural diversity of the sector

ILUSTRATION 5. UNIBÁN FACILITIES



Image taken from (UNIBAN, 2020)

The maritime terminal has evolved as it has expanded internationally with its subsidiaries, which has favorably impacted the improvement of processes within the terminal and the handling of fruit in refrigerated units, even as indicated by (UNIBAN, 2020) in 2015 “begins a transformation of the logistics process going from 100% of products exported on pallets, to the use of refrigerated containers in a proportion of 85%”, the foregoing undoubtedly generates specialization in the management of refrigerated units for the fruit export process, generating confidence and security in the processes and in turn reducing costs due to risks.

TABLE 8. UNIBÁN INFRASTRUCTURE

VARIABLES	UNIBAN
Container storage capacity (in FEU's → (Forty Equivalent Unit))	2.600

(UNIBAN, 2020)

- **Port Services**

Uniban has a variety of its own services that facilitate operations within the terminal and thus be able to offer a good service to its users, according to (UNIBAN, 2020) some of its services:

- Mobilization of containers.
- Storage of dry and refrigerated goods.
- Customs and customs warehouse.

- Transfer room for refrigerated and frozen products.
- Repair of dry containers and reefers.
- Power supply for refrigerated containers.
- Inspection Zones to streamline the review of loads by DIAN, INVIMA, ICA and the Antinarcotics Directorate of the National Police.

It is important to highlight the services that the maritime terminal has for refrigerated units, it provides support and security to users who use port facilities for the logistic process of exporting fruit and guarantees a timely response to developments that may occur within the terminal, An important link within the production factors of the maritime terminal are the inspection areas which improve the competitiveness of the terminal and facilitate DIAN and ICA in the processes of verification and control of fruit exports.

- **Entities Offices**

Regulatory entities that monitor and control fruit export procedures, such as DIAN and ICA, through SIIS (simultaneous inspection system) participate and coordinate the inspection processes within the terminal in order to jointly review that the declared information is physically consistent with the product. Uniban has inspection areas with “a total area of 1,759 m², distributed as follows: inspection areas for fresh fruits and vegetables (Zungo and Nueva Colonia Terminals) inspection area in refrigerated transfer room, inspection area of special loads, inspection area of loose and general containerized loads, area for offices and public attention ”and the goods for export and import will be reviewed by the ICA, DIAN, Invima and the Anti-Narcotics Police (ICA, 2017). The inspection area in the refrigerated transfer room is an important competitive advantage since it allows exporters to have the option of not initially loading fruit into the refrigerated container, but rather that this process be carried out in the terminal through Cross-docking and even if the thermoking is emptied, inspected and alternately, it is charged to the refrigerated unit and the transfer unit allows the cold chain to be preserved and that there are no variations in temperature.

2.3.CUSTOMS AND SUPPORT AUTHORITIES

2.3.1. Panama

- **Panama Customs Authority**

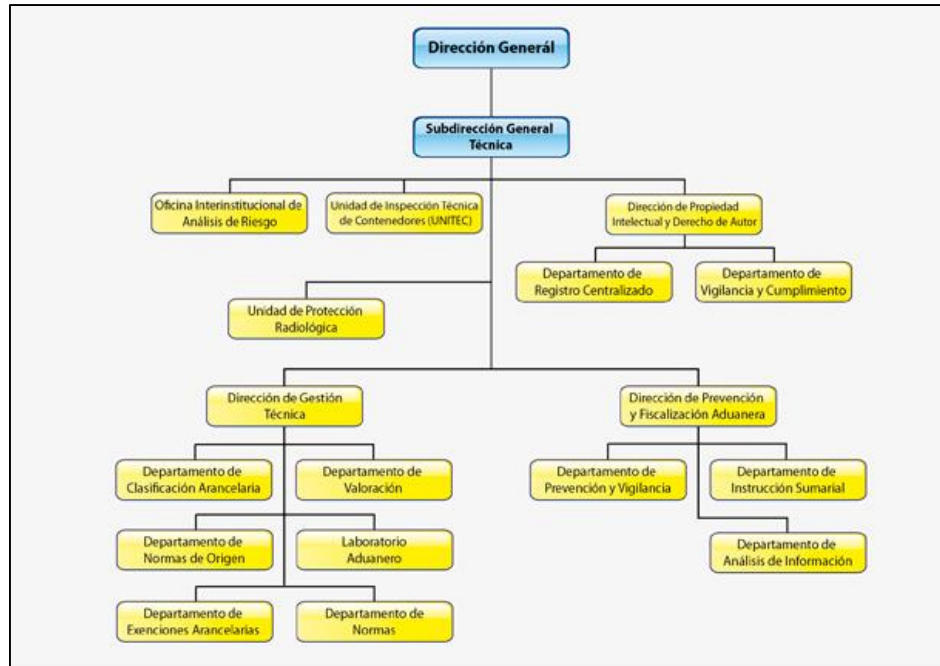
The competent authority in Panama is ANA "National Customs Authority", this is the highest authority in the customs and tax field, it is the entity in charge of supervising and controlling international trade operations (Rodríguez, 2018) mentions:

“With reference to customs processes, the entity in charge of carrying out all these processes is the National Customs Authority (ANA), which is responsible for monitoring and controlling the processes of customs procedures, the entry and exit of goods, people, and media. transportation through the country's ports, airports and borders, tax collection, and sanctioning all kinds of customs offenses. Likewise, the National Customs Authority determines the legal procedures and procedures for the facilitation of customs operations”

The customs authority in Panama has had many changes since 1904 in order to facilitate foreign trade operations and exercise better controls (ANA, 2020). The entity over the years has been transformed and has improved its actions in customs processes. in order to streamline procedures, be more efficient and autonomous in customs intervention.

Figure 6 shows the specific area in charge and directly involved in the customs process for foreign trade operations, it is led by the General Directorate with a directive vision, it continues with a coordinating area called General Technical Sub-Directorate and this covers essential areas so that foreign trade users comply with current legal regulations on customs issues.

ILUSTRATION 6. ORGANIZATIONAL CHART ANA TECHNICAL GENERAL DIRECTORATE



Taken from (ANA, 2020)

The customs entity is the one that certifies the exit of the merchandise from the Panamanian territory, guaranteeing that the products went through the procedures and legally complied with the customs formalities provided in the regulations, before the customs entity the export document is processed as a document that contains the Complete information of the product to be exported and this can be processed by a customs agency or by the exporter himself (ANA, 2020).

- **Ministry of Agricultural Development (MIDA) in Panama**

The Ministry of Agricultural Development, plays an important role in the fruit export process, this entity is in charge of "Issuing norms that regulate agricultural activity and ensuring compliance in coordination with the competent public institutions in accordance with the law" (MIDA, 2020).

The MIDA, through the National Plant Health Directorate, is in charge of ensuring the health security of the agricultural sector, guarantees that in its inspection processes the products are free of pests and meet the specifications required in the country of destination and certifies it through the Agro-Export Phytosanitary Certificate (MIDA, 2020).

The entity has an Agro-export sanitary certification department, this area is responsible for ensuring compliance with the phytosanitary procedures and regulations that must be taken into account for the export of fruits and in turn update the current regulations and processes established for the export of the same, it is important to mention that this area has a section called Agroexportation, in charge of carrying out the inspection of fruits and other products of plant origin and issuing the respective phytosanitary export certificate.

2.3.2. Colombia

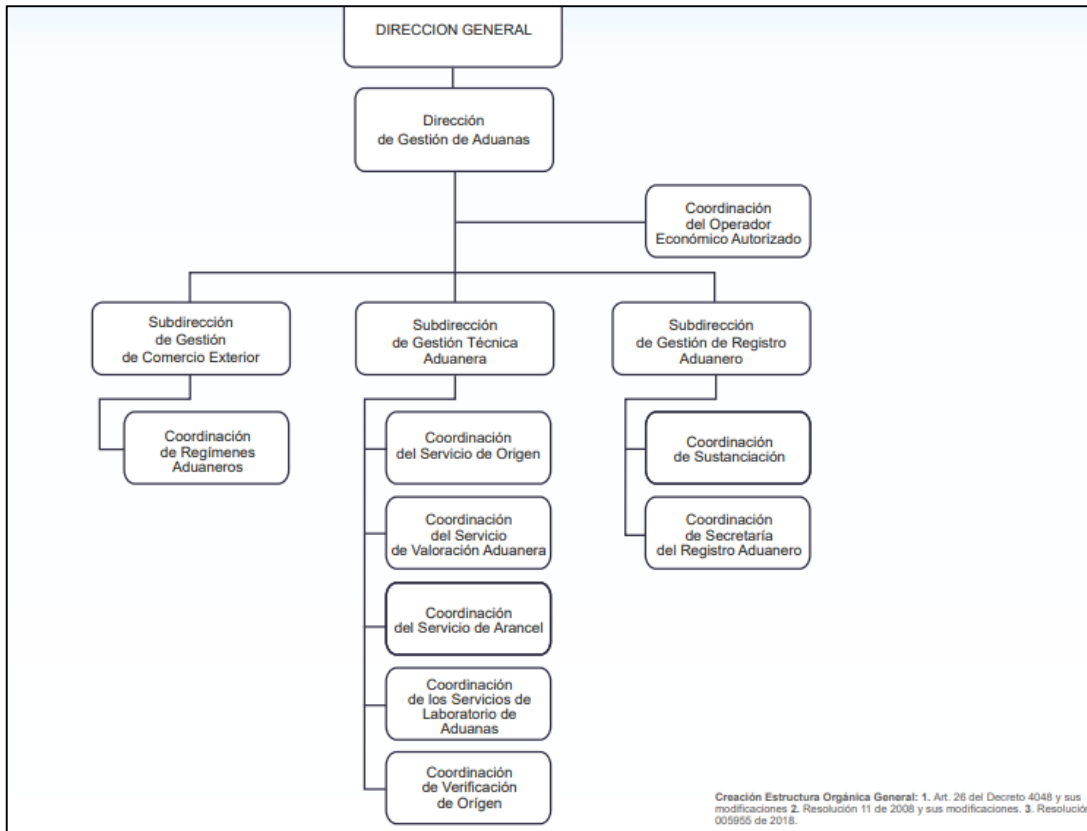
- **Colombia Customs Authority**

The customs authority in Colombia is the Directorate of National Taxes and Customs (DIAN), it is the competent authority in charge of controlling, monitoring and ensuring compliance with the TAC (Tax, Customs and Exchange) obligations of export and import operations (DIAN, 2020).

Customs management is carried out before the entity, all export and import operations must be presented in order for the merchandise to be enabled to leave or enter the National Customs Territory.

Figure 7 shows the organic structure of the area in charge of operating processes in exports, this subdirectorate is led by the customs management directorate, which divides it into three fundamental subdirectorates to comply with current customs regulations.

ILUSTRATION 7. ORGANIZATION CHART CUSTOMS MANAGEMENT - DIAN



Taken from (DIAN, 2020)

- **The Colombian Agricultural Institute (ICA)**

In the process of exporting fruit in Colombia, the entity that intervenes is the Colombian Agricultural Institute "The ICA designs and executes strategies to prevent, control and reduce sanitary, biological and chemical risks for animal and plant species that may affect the agricultural, forestry, fishing and aquaculture production in Colombia "(ICA, 2020).

It is important to highlight that the entity has within its powers the verification of products at the time of entry or exit from the country, guaranteeing that they comply with the health protocols required by the entity and entities worldwide.

The ICA has a subdirection called Sanitary and Phytosanitary Regulation, it is in charge of establishing the guidelines for Sanitary and Phytosanitary control, additionally updating the current regulations related to the export and import of agricultural products.

2.4.LEGAL REQUIREMENTS FOR THE EXPORT OF FRUITS

2.4.1. Panama Requirements

Within the export requirements of Fruit in Panama, each of the entities in charge of regulating and supervising that each of the supporting documents are aligned to said process and comply with the requirements so that the process is complete and consistent, so that Each company and / or company must know each part of the process carefully and a detailed description will be made here.

In Panama, exporters must have the following updated and organized documentation, which will be validated by the customs agent and the respective surveillance and control entity and request the following according to (APEXPANAMA, 2020)

- Export Declaration.
- Sworn commercial invoice: 1 original and 5 copies
- Certificate of Origin and this item, depending on the country of destination, determines whether it has a cost or not.
- Phytosanitary certificate.
- All certificates must be countersigned.

Additionally, for those who export agricultural products, MIDA carries out a phytosanitary certification called "Agro-export certification" to monitor, control and incentivize companies engaged in this activity to continuously improve their processes, as the entity conducts an inspection visit to review that the company complies with all the phytosanitary requirements of the destination country, where the merchandise will be sent (MIDA, 2020).

2.4.2. Colombia Requirements

Within the export requirements of Fruit in Colombia to be exported, each of the entities in charge of regulating and supervising that each of the supporting documents are aligned to said process and meet the requirements to give the go-ahead, so that each company and / or company must know each part of the process carefully and a detailed description will be made here.

In Colombia, prior to exporting, exporters or companies that wish to carry out an export abroad must have the following information organized and up-to-date, because although it is already available when consolidating or creating said company, it is important to keep it updated for any international operation:

- **Chamber of Commerce.**
- **Unique tax registry.**

Additionally, each exporter must present the following documentation issued by the health entities, who are in charge of supervising that everything required is found in the correct way and to give the approval of said process. Each entity plays a fundamental role in the export process and that is why (ANALDEX, 2018) indicates the following:

ILUSTRATION 8. ICA LOGO



Taken from (ICA , 2020)

Before this entity, the following processes must be carried out (ANALDEX, 2018)

- Registration of the farms for the production of fresh fruit for export. The ICA Resolution where the specific fruit is established must be required.
- Resolution establishing the export record of the fruit. This requirement is fulfilled when you are a marketer or producer.
- The producer or marketer must contract a vegetable packing plant FOR EXPORT IN FRESH. This plant must be registered with the ICA and must have a resolution where it is authorized.
- At the time of export, the ICA issues the PHYTOSANITARY permit.

The ICA also issues a certificate when it is only a marketer, through a resolution as an exporter.

In front of the point where it is indicated that the legal or natural person who wishes to export must contract a packing plant, register it with ICA and it must comply with the following requirements (ANALDEX, 2018).

- Indicate a detailed location of where the silver is located and together with it, a sketch of arrival at the plant and a location plan.
- Accredite the ownership, possession or possession of the warehouse or packing plant where the post-harvest activities will be carried out.
- They must have a minimum infrastructure, packing plant, areas with rigid floors or floors that prevent contact with the soil, prevent the entry of pests, facilitate cleaning and disinfection of the post-harvest room, have good ventilation and sufficient lighting.
- Microbiological analysis of the water from the sources used in the work of the plant, with a validity of no more than (1) year.

ILUSTRATION 9. LOGO DIAN LOGO



Taken from (DIAN, 2020)

The process of processing the document called Certificate of Origin is carried out before this entity and, depending on the country of destination, requires only the signature of the exporter or the DIAN seal attached (ANALDEX, 2018)

- **Exporter's Signature Only:** USA, CANADA, NORTH TRIANGLE (Honduras, Guatemala and El Salvador) and Korea.
- **Signature of the Exporter and Dian:** European Union, Switzerland, Norway and Iceland, Chile, Mexico, Peru, Ecuador, Bolivia, Brazil, Argentina, Uruguay, Paraguay, Costa Rica, Japan and Russia.

Customs brokers.

It is a legal entity and authorized by Dian to facilitate international trade processes, whether import or export. When granting a mandate or power to this agent, he will request the following documentation necessary to carry out the export process:

- The Updated Unique Tax Registry (RUT), Commercial invoice, clear name of buyer (importer): address, telephone, detailed information. Invoice date, means of transport to be used (air or sea).
- Description of the goods in English or Spanish, unit of measure, unit price and total value. Define the International Negotiation Term (INCOTERMS) with the buyer. Choose the negotiating currency agreed with the buyer.
- The agent will also request a packing list that must contain the following information.

El agente también solicitará una lista de empaque que debe contener la siguiente información:

- Product and its care, net weight, gross weight, total boxes, units per box, dimensions of each box and total dimensions.

One of the essential documents that should not be overlooked is the letter of responsibility, as it is addressed to the Anti-Narcotics Police, chief of airline security and chief of security of the Port Societies, where it is declared that the cargo does not carry narcotic drugs. (ANALDEX, 2018).

The exporter must make the request to present the company at the DIAN single window and from there the system will notify him if the company will be visited by the entity. When the entire process is done, the agent issues the export declaration as evidence that the merchandise left Colombia legally (ANALDEX, 2018)

2.5.COLD CHAIN LOGISTICS

2.5.1. Panama

The Republic of Panama through the Ministry of Agricultural Development created in 2019 the Secretary of the Cold Chain attached to MIDA in order to “Promote through modern, efficient, effective and effective mechanisms that facilitate the conservation of products, especially food, in optimal conditions, both for national consumption and for export ”(GACETA OFICIAL PANAMÁ, 2009).

The Undersecretary of the Cold Chain is made up of the MIDA that ensure the safety and control of agricultural products, both entities have a committee in order to carry out consultations and mutual accompaniment to correctly carry out the operation and maintenance of the cold chain.

It is important to highlight that this Undersecretariat was created in order to offer producers a tool to reduce the percentage of losses in their production and marketing processes for agricultural products (GACETA OFICIAL PANAMÁ, 2009).

These post-harvest collection centers favor producers who do not have storage capacity on their farms, additionally they pay a cost for storage and are guaranteed that the fruit cold chain is controlled and is constantly monitored so that When the producer decides to dispose of it for national distribution or export, it is in adequate conditions. Additionally, from these collection centers, the fruit can be dispatched to the maritime terminal in order to complete the corresponding export procedures.

2.5.2. Colombia

Throughout the fruit export process, having an adequate control of the cold chain from all the different stages of the logistics process is essential to mitigate the risks that can be had with the merchandise, especially the losses caused by storage and transport. .

In addition to the storage and transport variables, of which the information will be expanded later, there are other fundamental factors that must be taken into account in this pre and post-

harvest process of the fruit and they are the following according to (COLOMBIA TRADE, 2016).

- **Product characteristics:** The characteristics of each fruit must be thoroughly understood in order to determine which are the particular cares that must be taken and adjust them to that need, especially in terms of temperature and humidity.
- **Packaging:** This is a fundamental factor to guarantee the useful life of the fruits and to guarantee their quality.
- **Temperature:** This process must be adjusted throughout the chain, including the post-harvest process of the fruit, since this depends on the success of the links in the chain and the arrival of the product at its destination in adequate conditions.
- **Loading and Unloading:** It is a process that must be carried out in a controlled manner to guarantee the permanence of the temperature of the fruits, which is why it is necessary to have warehouses with a temperature adjusted to said need, to have transport equipped for said products, which have a pre-cooling process and only open the vehicle at the exact moment of loading or unloading, in this transport process thermoking or the refrigerated container with temperature setting is commonly used.
- **Storage:** The fruits must be stored in such a way that the passage of the air that cools them is not hindered. For this, it is recommended to leave circulation aisles between pallets and not to store the product hindering the air outlet produced by the evaporators.
- **Technology:** Technology plays an important role in the cold chain to ensure maintenance and temperature control throughout the process. Therefore, the investment of companies in technology will be reflected in its quality and profitability.

Storage

Storage is one of the most important processes in the control that must be taken in the cold chain and being able to manage adequate cold storage is essential for the preservation of the fruit, additionally it is completely linked to the pre-cooling process that should be done in the post-harvest process, since the quality of the fruit may be lost under normal environmental

conditions. Some of the following recommendations are necessary to have an adequate storage of the fruits and the special care that must be taken in the refrigeration process:

The appropriate temperature within the fruit storage process is crucial and these require a maturing and preservation process that varies between each type, so it is essential to know which one is appropriate for each one and to mitigate the microorganisms that cause product deterioration. . These are some of the examples of fruit and the temperature it requires:

TABLE 9. EXAMPLES OF TEMPERATURE CONTROL FOR FRUITS

Fruits	Storage temperature (°c)	RH (%)
Cherries, strawberries, plums	-1 a 0 °C	90 - 95
Lemmons	11 °C a 15 °C	86 - 88
Tangerines	0 °C a 3 °C	90 - 95
Apples	-1 °C a -3 °C	90
Peaches	-1 °C	90

Own construction with information from (COLOMBIA TRADE, 2016)

Transport

The type of transport is of vital importance for products such as fruit, depending on variables such as temperature, humidity, maturation, among others, the necessary conditioning must be taken into account so that the transport in progress is effective and reaches its final destination. in optimal conditions.

When transporting fresh refrigerated products such as fruit, it is important to note that the container floor must be completely covered and thus force air to flow through the boxes. It should be noted that no floor area, bottom or side walls should be left uncovered.

Characteristics of containers for refrigerated cargo.

The container must be adjusted to the type of product and especially in fruits, as each one has a different temperature, humidity and maturation that requires specific transport needs, also taking into account an important factor such as shipping.

The most used containers for the transport of perishable products and in this case fruit, are the following:

- **Super coolants:** It has a better motor with a more efficient insulating material.
- **Controlled atmosphere:** It is widely used in the transport of fruits, as they are very efficient in controlling their ripening process and in the packaging unit temperature sensors and ethylene tubes can be located to have additional temperature control support for if there is any variation.
- **Ventilated:** They have thermal insulation and motors that provide high ventilation. They are an ideal solution for products such as onions, potatoes, dried garlic, coffee, among others.

2.6. TECHNOLOGICAL SUPPORT PLATFORMS

2.6.1. Panama Platforms

- MIDA

ILUSTRATION 10. MIDA LOGO



(MIDA, 2020)

The Ministry of Agricultural Development -MIDA-, through the National Plant Health Directorate and the Informatics Unit, carried out the official launch of the digital tool: Agricultural Government Platform (PGA), during an activity carried out in the Processing Plant of the exporting company Verba Odrec, SA Llanito Verde, in La Chorrera, West Panama (MIDA, 2019).

The platform used to facilitate the fruit export process is MIDA, "With this digital platform, all processes will be provided to exporters, which are currently carried out in person and manually, so with this modernization of services, there will be a saving of time and economy, in addition the connection with other national and international services is facilitated "(MIDA, 2019). This platform is aimed at exporters from the agricultural sector, packaging and producers in order to facilitate and streamline the procedures of registration with the entity, thus allowing the simplification of document processes and in turn generating time savings, it is important to note that the platform provides traceability of the request, undoubtedly these technological tools favor companies to manage in a faster way the authorization as fruit exporters complying with the requirements established by said entity.

- **SIGA**

ILUSTRACION 11. LOGO NATIONAL CUSTOMS AUTHORITY -ANA



(ANA, 2020)

- **SIGA:** The Integrated Customs Management system facilitates and allows the exchange of electronic information between the different actors of the commercial community, the consenting bodies of the different Ministries and the National Customs Authority of Panama(ANA, 2020).
- **VUCE**

Single Window for Foreign Trade: It is the platform where all the necessary procedures for the export process are channeled. Documentation must be physically delivered.

2.6.2. Colombia Platforms

- **SISPAP**

ILUSTRACION 12. SISPAP LOGO



Image taken from (ICA, 2020)

ICA has the SISPAP platform, which provides those who wish to import or export information and participate directly in the process of agricultural or livestock material, from and to Colombia. They will be able to previously know the phyto requirements demanded by the ICA for Import or Export, they will be able to register online the requests to obtain the documents for each of these procedures, it will also allow the user to know the status of their requests (ICA, 2020).

In the SISPAP platform, the ICA certificate for the export of fruits is processed, in this the information of the FOB value, the number of kilos, the exporter and the importer is recorded, in addition to the properties registered in the ICA where it is credited that the fruit It was produced on properties registered with the entity, on this same platform payments are managed for requests for inspection of the fruit in port, the draft of the CFE is generated and finally, after the inspection, the entity issues the Phytosanitary Export certificate.

- **VUCE**

ILUSTRATION 13. VUCE LOGO



Image taken from (VUCE, 2020)

- **VUCE Anti-narcotics police:** In this VUCE module, the authorization of companies before anti-narcotics police to carry out export operations is processed, here is the resume of the company and includes legal information, products to export, agencies of customs and consignees, this information is synchronized for the moment the merchandise enters the terminal, selectively select the SAE (Shipping Authorization Request).
- **IIS - Simultaneous Inspection System:** Optimizes the export process, making the coordination of control entities more efficient, generating a single cargo inspection through electronic scheduling at the maritime terminals of the country's port cities (VUCE, 2020). This process in the VUCE system before the unit enters the terminal is a key point so that at the time of the confirmation of entry the entities give profiling of the refrigerated unit and act according to whether the physical inspection is carried out, the inspection Simultaneous in the fruit export process, it facilitates the logistics and movements of the refrigerated unit within the terminal, since at the time of obtaining a physical profiling of the fruit by the entities, they simultaneously attend the control, that is, DIAN, ICA is present and, given the case, anti-narcotics police.

- **DIAN**

ILUSTRATION 14. DIAN LOGO



(DIAN, 2020)

- Certificate of Origin, on the DIAN platform there is a module to process the sworn forms and certificates of origin so that exporters can prove the origin of the products and allow their client abroad to benefit from the tariff preference.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1.1 Conclusions

1. Evidence is achieved based on the Panama IDL Ranking, that despite the expansion of the Canal there was a more significant improvement in the period between 2014 to 2016, since in 2018 although it occupies the 38th position, a deterioration is evident 4 variables of said indicator (Customs, infrastructure, international shipping and punctuality) which would be expected that due to the opening of this great project and the investment made, it would be reflected in a very marked competitive advantage for the country and its economic development. The aforementioned shows that all these changes trigger the impact of the logistics and export processes of the fruit, since the efficiency with which these processes are carried out depends on these variables.
2. Panama must continue to potentiate the integration of the logistics chain in order to achieve the logistics hub that was proposed as a goal and to increasingly strengthen the links of the chain in order to be integral in the operation and to achieve the objective. proposed as a country, in turn marking competitive advantages in port infrastructure and its proximity to the Panama Canal.
3. It was possible to show by means of the indicator that in the period from 2016 to 2018 that the improvement in infrastructure and the customs changes that were made in Colombia positively impacted the rest of the variables that define the IDL, since of the 6 variables that are evaluated, only the punctuality variable decreased by 0.06 and due to this Colombia was able to position itself in Ranking 58 after occupying position 94 in 2016. It is important to highlight that all the changes that occurred in each of the variables they favor the logistic and customs process of the export of fruits, due to the changes that occurred in the following items: implementation of decree 390 in customs, the improvement of port and road infrastructure that allowed the reduction of time and costs in the processes.
4. Both countries and maritime terminals have the presence of entities that perform the same control and regulatory function in order to facilitate and expedite the procedures in port for the fruit export process, have a higher customs entity and entities of support

such as ICA and MIDA, Colombia and Panama respectively which allow to control and monitor all sanitary processes for fruit as export.

5. The port of Colón (Panama) has an obviously higher installed capacity than the port of Urabá (Colombia), surpassing it in hectares, machinery, equipment, connectors for refrigerated equipment and storage capacity, as consolidated in Table 10, Panama has a superior competitive advantage in facilities for handling refrigerated fruit units for export.

TABLE 10. COMPARATIVE - REFRIGERATED INFRASTRUCTURE: URABÁ AND COLÓN

VARIABLES	Colón	URABÁ
	Panamá	
Container storage capacity (in TEU's)	45000	4060
Hectares	74,33	14
Connectors for refrigerated containers.	1032	546
Terminal machinery	272	15

Own construction with information from (UNIBAN, 2020), (BANACOL, 2018) (CCT, 2020)

6. Colombia and Panama have entities in charge of controlling and monitoring the agricultural export and certification processes, guaranteeing all the processes linked to the external and internal production and marketing chain, where Colombia has the ICA and Panama has the MIDA. Both play a fundamental role since they are the ones who establish the parameters and / or requirements that must be met in the country of origin and destination to carry out any international process.
7. Within the changes that both customs have experienced throughout these years, they have developed technological platforms or online information systems that favor, facilitate and incentivize all interested parties in the export process, each country provides detailed information , concise of the procedure and instructions to supply the export procedures for fruits.
8. The port of Urabá Colombia has two maritime terminals managed by private companies which limit access to small and large exporters who wish to carry out fruit export operations through Urabá and be competitive in the international market.

3.1.2 Recommendations

1. Colombia must encourage private investment in the port of Urabá in order to enhance the Gulf of Urabá and its specialization in fruit handling.
2. The Colombian state must streamline the Antioquia port project and also the main roads leading to it, given its strategic location, it could be considered in the future as an important port of departure to achieve a significant competitive advantage in terms of time and costs.
3. It is important that the countries extract from the IDL rating issued by the World Bank and carry out an analysis that is not only numerical but also in-depth, where the real improvement or deterioration in the overall score and of each of the variables is evident, in turn, take improvement actions taking into account that the customs and infrastructure variables have a significant impact on export processes.

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