

The Panama Canal expansion

A driver of change for global trade flows

Rodolfo Sabonge



UNITED NATIONS

ECLAC

The Panama Canal expansion
A driver of change for global trade flows

Rodolfo Sabonge



UNITED NATIONS



This document has been prepared by Rodolfo Sabonge, consultant in the Infrastructure Services Unit of the Natural Resources and Infrastructure Division, Economic Commission for Latin America and the Caribbean (ECLAC) of the United Nations within the activities of the United Nations Development Account: "Facilitating the Effective Integration of Developing Countries in the Global Economy through Aid for Trade Schemes" (ROA 139-7).

The views expressed in this document, which has been reproduced without formal editing, are those of the author and do not necessarily reflect the views of the Organization.

Contents

Abstract.....	5
I. Background.....	7
II. Infrastructure and existing canal capacity, expansion project	9
III. Principal cargoes, trade routes, types and size of ships that transit through the Panama Canal.....	11
A. Dry bulks	12
B. Tankers	13
C. Containers	14
IV. Panama Canal expansion project.....	15
V. Potential implications of the Panama Canal expansion.....	17
A. Port development	18
VI. Conclusions and recommendations.....	21

Abstract

This paper describes the role of the Panama Canal in establishing and opening new global trade routes as well as the ambitious expansion project currently underway designed to meet the needs of modern global trade. Over the span of the last several decades, there have been changes in trade routes resulting from the increasing role of dry bulk carriers, tankers, gas carriers, refrigerated vessels, container vessels, vehicle carriers and general cargo. Growth in intraregional trade, changes in global consumption patterns and maritime technology have also had an impact upon trade flows passing through the Panama Canal. In order to accommodate all of these changes, the Panama Canal is currently undergoing an expansion process that will increase its potential as a center of transshipment to the rest of Latin America and the Caribbean as well as the world.

I. Background

The construction of the Panama Canal early in the Twentieth Century changed trade patterns by opening new routes between countries and regions that traditionally could not trade at competitive prices due to the vast distance between them. The Canal was built mainly for military purposes but, over due time, became a facilitator for trade by shortening the time and distance between production and consumption markets. From its inauguration until Fiscal Year 2013, more than one million vessels have transited the Canal with more than 9.4 billion long tons of cargo. These statistics are proof that the Panama Canal has been a very effective catalyst of international trade, reducing the time and distance between countries and which has translated into more competitiveness and economic growth for countries and regions.

For Panama, the construction of the Canal in its territory did not come free of sacrifices mainly because the country lost its sovereignty in the Canal Zone —essentially, the piece of land with highest strategic value for its development as a nation. It took almost one hundred years for Panama to obtain control over the water way and the adjacent land. The efforts to recover the land were plagued with confrontations, loss of life, and property.

With the transfer of the Canal to the Republic of Panama, the country took steps to change the Canal's business model. During the United States' management of the Canal, it had operated as a nonprofit public utility; however, once returned to Panama, the new business model incorporated the Panama Canal Authority in its legal framework thus allowing the Canal to operate more like a corporation with the objective of being profitable and providing direct benefits to the Government of Panama. This was achieved through an amendment to the Panama's Political Constitution and through the resulting organic law. Both were the result of a consensus - reached between the Government and civil society - which determined that the Canal should function insulated from politics, as an autonomous institution, and under a for-profit model which would provide wealth, economic growth, and improve the quality of life of all Panamanians. The result of this change in business model can be seen in the financial results which by Fiscal Year 2008 had already doubled Canal revenues from US \$900M to US \$2.007B and government profits increased from US \$500M to US \$1.4M.

II. Infrastructure and existing canal capacity, expansion project

With the transfer of the Canal, the country was finally able to claim sovereignty of all of its territory. However, the Canal that the United States transferred was close to becoming obsolete because the demand was very close to reaching capacity and also because the changes that had taken place in the world favored the use of larger vessels that could not fit in the existing Canal.

Faced with this challenge, the Panama Canal Authority conducted more than 70 studies at a cost of US \$140M to determine the technical, economic, and environmental viability of expanding the Canal. In this endeavor, the Panama Canal Authority contracted the leading consulting firms in the world specialized in engineering, environment, marketing and demand, financial, and economics to undergo the evaluation. The results became part of a master plan which was then part of a national referendum 2006 and in which nearly 78% of the population voted in favor of the project.

Meanwhile, the Panama Canal Authority focused on improving the Canal's financial performance and also in making huge investments to maintain and improve the service of the existing Canal. Canal Service is measured in terms of Canal Waters Time (CWT) which improved significantly thus allowing the Canal to increase vessel transits and reliability. All of these steps were instrumental in achieving the investment grade to finance the expansion project. The Panama Canal Authority approached financial markets and was able to secure, in the midst of the global financial crisis, US \$2.3B to finance the part of the estimated cost of the expansion of US \$ 5,250B. Financing was secured from the European Investment Bank, the Japanese Bank for International Cooperation, the Inter-American Development Bank, and CAF (Corporación Andina de Fomento).

III. Principal cargoes, trade routes, types and size of ships that transit through the Panama Canal

Seaborne trade is made up mainly of crude oil and products (32.3%), containerized trade (15.5%), coal (11.1%), iron ore (11.7%), and grain (3.9%) with the remaining percentage corresponding to other trade. The fact that in general terms seaborne trade grows, does not necessarily mean that the Panama Canal traffic will grow at the same rate. This is because not all the growth takes place in the origins or destinations that are relevant to the Panama Canal.

In the case of tankers that transport petroleum and products, for instance, one can see that tanker market includes mainly Post-Panamax vessels that navigate mainly in the routes that use the Suez Canal. By the year 2016, the composition of the fleet will most likely remain similar in size distribution and it is quite evident that this segment of the market will most likely not be affected by the Panama Canal expansion.

A similar situation exists with respect to coal and iron ore although there is a possibility that these vessels may transit through Panama or through a potential Canal in Nicaragua given that these commodities are already growing in Latin American countries such as Colombia, Venezuela, and Brazil, all of which could benefit from using an expanded Panama Canal. As an example, around 15 million long tons of thermic coal currently transits through the Panama Canal as compared to 561 million tons that don't currently use the Canal.

Growth is expected in commodities like soybeans which come from the United States and are destined to Asia through the Panama Canal. The expanded Canal will allow larger vessels with beams of up to 49 meters thus reducing the unitary cost of transport for a supply of ships which are available or have been ordered.

Traffic demand between the Atlantic and Pacific oceans is driven mainly by organic growth of trade in the region and the changes in global consumption. In the ninety-nine years of existence of the Panama Canal, trade has evolved in various respects; inter alia, international economic and political conditions, changes in technology, in trade regulations, and in the development and findings of raw materials. After the World War I and World War II, and beginning in the 1950s, Panama Canal traffic started growing steadily as world trade was driven by the new economic order derived from the Bretton Woods agreements which created the International Monetary Fund, and the General Agreement on Tariffs and Trade (the predecessor to the World Trade Organization). Japan's surprising

emergence after the war resulted in an accelerated flow of trade through the Canal and Japan became the second user of the Canal only after the United States for many years. During this period, the shipping and maritime industries experimented significant changes as vessels became specialized to carry specific product types and the advent of the container. Simply put, trade was never the same again.

Special vessels were built to carry chemicals such as ammonia, sulfuric acid, and other caustic liquids that required stainless steel storage tanks. Refrigerated vessels were built to transport perishables, vehicle carriers were built to transport cars and heavy equipment, and container vessels were first built with their own cranes to later change container terminals so that all the container moving equipment was at the terminal.

Efficiency of vessels increased significantly due to hull design and new and improved propulsion engines and propeller design. More recently, vessel tracking technology and weather monitoring systems allow ship managers to guide vessels away from storms and currents in order to improve fuel consumption and safety. All of these improvements have reduced the cost of transport and consequently affect route selection and vessel deployment.

To better explain demand behavior and inter-oceanic traffic demand, it is important to segment the market and define each segment's characteristics:

Dry bulk carriers: used to transport grain, such as corn, soybeans, wheat, as well as other dry bulks, such as iron ore, coal, steel manufactures, fertilizers, copper, aluminum, sugar, salt, cement, wood chips, etc.

Tankers: used to transport crude oil, petroleum products (diesel, gasoline, jet fuel, etc.), chemical carriers, orange juice, etc.

Gas carriers: used to transport natural gas and petroleum gas.

Refrigerated vessels: used to transport perishable goods, such as fruit, meat, dairy products, chocolate, etc.

Container vessels: designed especially to carry containers which carry general cargo, mainly finished or processed goods, and also used grains, scrap paper, etc.

Vehicle carriers: used to transport cars, heavy equipment, and project cargo. Includes Ro-Ros equipped with ramps so vehicles are driven in and out of the vessel.

General cargo: used to transport a great variety of products, in small parcels, usually used as feeder vessels and also for short sea shipping between smaller ports that don't have container cranes.

Cruise ships: this segment of the market is more in line with the entertainment and recreation industry than in the cargo/freight carrying industry, but it is still an important aspect of shipping that needs to be taken into consideration when forecasting because this segments has special needs that are not common to the rest of the shipping industry.

A. Dry bulks

Dry bulks include a vast array of products, including grain, fertilizer, minerals, coal and coke, and other forest products. In most cases, the shipper deals with the whole supply chain so that maritime transport is negotiated FOB at port of export. Globalization has resulted in changes in trade flows of dry bulks. As globalization has prompted economic growth, this has changed the demand of dry bulks. New industrialized economies, such as China, have become a main buyer of dry bulks from all over the world. Some flows have changed direction - as is the case of grain -where China used to be a net exporter of grain and now is a net importer of grain. Infrastructure development in China has also created new flows of raw materials, such as steel, iron ore, copper, aluminum, etc. to China. This has opened the door to a lot of exports from Latin America which requires the use of the Panama Canal.

The principal limitations for dry bulk carriers are twofold: the terminal's capacity and draft as well as the lot size that can be received and stored at ports of destination. Most terminals in Japan, South Korea, and Taiwan are limited to 39.5 meters which coincide with the draft limitations of the existing Panama Canal. Therefore, dry bulk trade flows to these countries will not be able to benefit from the expanded Canal and they will have to continue using existing Panamax vessels carrying around 52,000 to 55,000 metric tons of cargo.

China's industrialization has been key in changing trade flows in the last fifteen years. China has become the main exporter of finished goods and an importer of raw materials, semi-processed goods, and scrap.

Another important catalyst of change in trade flows has been the advent of Free Trade Agreements which have lowered trade barriers between countries, reduced tariffs and import quotas. Implementation of trade facilitation measures such as harmonization of customs and sanitary and phytosanitary rules and regulations have also had a positive impact on trade flows.

An important aspect to keep in mind when assessing the changes in trade flows is the value of the cargo. Dry bulks —such as coal and iron ore— are raw materials with very low value so they cannot afford high freight rates. Thus, rises the need to transport them in as big a vessel as possible to reduce the unitary cost of transport. This is why it is common to use capesizes with drafts of over 18 meters.

The existing dry bulk fleet is mainly made of Panamax and Capesizes.

B. Tankers

The principal drivers for products in this segment of the market are linked to the industrial development of Asia, construction of refineries in the United States, environmental regulations, economic conditions, climate, and geopolitical factors. Many of these are often very volatile. The industrial development of Asia, in particular, is related to petrochemical production. Traditionally, the United States has supplied petrochemicals to Asia but, recently, petrochemical activity is growing rapidly in Asia while it has slowed down in the United States. In the case of the Panama route, once the Transisthmian pipeline was reopened, it again became an important competitor to the Panama Canal. The reopening of the pipeline in the southerly direction (Atlantic to Pacific) serves as an alternative to the Canal in that direction but, since the pipeline is also used to blend Ecuadorian oil, it is now transiting the Canal because this oil is used in the Atlantic side as part of the blending process.

Demand in this segment will evolve as a consequence of changes in supply and demand in the region. Ecuador has the fourth largest oil reserve in Latin America and is a net exporter, only fourth after Mexico, Venezuela, and Brazil. Ecuador may be one of the only countries in the world that has not peaked as far as reserves and therefore, may be one of the few countries which can increase its production significantly before its reserves start declining.

The oil industry is an exceptional example of how products influence the growth in the size of vessels. In the 1980s, tankers had grown to over 500,000 dwt and had it not been for the EXXON Valdes accident, tankers would have continued growing beyond ULCCs. After the accident, tankers have stabilized in size of VLCC (200,000 DWT) and Aframax (80,000 – 120,000).

Technological changes have also affected demand and the modes of transport. Dry and liquid bulks are being affected by changes in sources of energy. The reduction of nuclear power in some countries has resulted in sudden increases in demand for coal and natural gas. Other changes in technology are also having an impact on trade flows, as can be seen by the increased use of electric arc ovens in the United States which is prompting an increase in demand for scrap steel.

The LNG fleet is mainly composed of post-panamax vessels of around 100,000 cubic meters of capacity. New orders are showing the same pattern in size, so most of them will be able to transit the expanded Canal.

Regarding supply and demand, this segment has experimented significant changes. Developments in Peru, Trinidad y Tobago, Bolivia and Venezuela will most likely transit through the expanded Canal to reach their principal destinations, some in Latin America, and others in Europe, and Asia.

C. Containers

The main container trade routes are the Transpacific, Asia-Europe, and the Transatlantic. In this segment of the market we already see Neo-panamax ships and post-panamax vessels, representing around 53% of the fleet capacity; by the year 2016, neo-panamax and post-panamax vessels will represent 60% of the world fleet with a capacity to transport 12 million TEU of the total 20 million TEU that will then be operating in the world fleet. The majority of these vessels will be able to transit through the expanded Canal, which is quite significant, taking into consideration that this is the principal segment of traffic through the Canal. By the year 2016, container vessels of up to 366 meters in length, 49 meters in beam and 15 meters in draft will be able to transport up to 13,200 TEU through the Panama Canal.

The most relevant change has come in the container segment. Growth in this segment has been mainly driven by containerization of cargo that used to move in general cargo vessels. The effects of globalization have also increased the flow of containers as products increasingly move around the world to serve global markets. In this respect, to understand behavior, it is also important to understand the way in which containers enter and move in the United States —the most important consumer market in the world. The United States has developed a rail and road network that allows containers to enter both the east and west coasts and feed them to any major city in the United States. The principal ports that serve the United States on the West Coast are: Tacoma, Seattle, Portland, Oakland, Los Angeles / Long Beach; Prince Rupert in Canada; Lazaro Cardenas in Mexico. Contrary to what many believe, the intermodal system in the U.S. is mainly used to move containers from the coast to cities inland in what is called the mini-land bridge. In other words, most of the containers that come in to the West Coast do not make it to cities in the East Coast. The other reason to use the intermodal system is that it is a lot faster than moving cargo via the all water services through the Panama Canal. It is much faster —but it is also a lot more expensive - so it is mainly used for cargo with higher value where the cost of inventory exceeds the value of time.

In the year 2002, the labor unions of the West Coast ports in the United States went on strike. It was estimated that the strike cost the United States economy to lose US \$2B per day and it lasted ten days. As a consequence of that strike, shippers and retailers decided to diversify and establish distribution centers in the East Coast and move part of the cargo to the all-water route through the Panama Canal. Given the fact that this type of cargo is very sensitive to time and reliability, cargo that moved to the all-water route has remained there and the flow continues to grow. From these decisions, shippers and retailers have moved their distribution centers to port cities like Savannah, Georgia, and Norfolk, Virginia. These changes have also led to a more balanced import/export flow from/to both sides of the United States.

The container segment has been affected severely by the global financial crisis and by structural problems caused by the carriers themselves. The growth in demand has been well under the capacity of the fleet which has affected the profitability of the carriers. In response to this situation, the lines have elected to idle the ships and send older and less efficient ships to scrap. Based on expected demand, this situation will most likely continue past 2015.

Another reaction on behalf of the lines is to consolidate either through mergers or alliances. Carriers that used to be competitors, such as Maersk, CMA-CGM, and MSC, tried to engage in the P3 alliance hoping to improve vessel utilization.

There are many projects that have been proposed to connect the two oceans with dry canals in Central America and in Colombia. However, these projects do not make much sense because the distances are not significantly lower and the cost to transfer the containers by land would be cost-prohibitive.

IV. Panama Canal expansion project

The expansion of the Panama Canal comprises the deepening and widening of the navigable channels, including both entrances (Atlantic and Pacific), the Gaillard Cut, and Gatun Lake. The project also includes an increase in the operating level of Gatun Lake, as well as the most important part of the project: the construction of two new locks complexes, one in the Atlantic entrance next to the existing Gatun Locks and another on the Pacific side next to the existing Miraflores Locks. Both lock complexes include the construction of water saving basins in order to save water with every lockage. In all, the new locks, even though are 40% bigger than the existing locks, use 97% of the water. Since the Panama Canal expansion project is using the existing navigable channels and existing watershed, the project caused minimal impact upon the environment. Another plus is that during the construction of the project, the Canal continues to operate and generate revenues, which results in generating the funds necessary to finance its own construction.

The Panama Canal organization that will operate the new locks is basically the same that operates the existing Canal so the learning curve will be minimal. The Panama Canal Authority also has the knowledge and expertise in other important areas such as marketing and pricing thus ensuring the Canal remains competitive and profitable to generate not only the necessary income to service the debt but also to provide increasing profits to the Republic of Panama.

The expansion project began in 2007 and, as expected, world trade has continued changing ever since. Demand studies have been updated since they were initially made and it is expected that traffic will grow much more rapidly than originally anticipated. In this respect, it is important to realize that the growth of seaborne trade in the world is not necessarily reflected in Panama Canal traffic given that it serves very specific routes. Moreover, what is important for Panama is that the trade lanes that can benefit from using the Canal.

As of August 2014, the project was one year behind schedule so its completion is now scheduled for the beginning of 2016.

V. Potential implications of the Panama Canal expansion

The expansion of the Canal —scheduled to conclude by the beginning of 2016— will not significantly change the trade patterns and the way in which goods are transported around the world. However, unlike what happened in 1914 when the opening of the Canal opened up unimaginable trade routes, the expansion seeks to adapt to developments in the maritime industry. With the expansion, Panama will allow ship owners to take advantage of economies of scale that will be generated by the deployment of larger vessels thus reducing the fuel costs associated with the crossing, as well as other operational costs. The ship owners will benefit from the connectivity offered by the isthmus confluence of 30 line services moving cargo between markets of the highest density and 33 feeder services that serve regional trade routes of Latin America and the Caribbean which are characterized by a lower charge density.

The new locks will allow the passage of ships that carry up to 13,200 TEU, instead of the maximum of 5,100, transported in PANAMAX vessels. The Canal will transit fewer ships but with higher load capacity. While it is true that every day we see orders for ships exceeding 13,200 TEU —as the Triple E of Maersk 18000 TEU— the ACP took necessary forecasts so if you needed and justified an additional extension, you can take on the challenge. It has already plotted the route for a fourth set of locks. Much of the cargo to be transported by the channel in larger ships will have as destinations the main ports of the East coast of the United States. However, at the moment, only the ports of Norfolk and Baltimore have 50 ft. of draft. Other ports, such as New York / New Jersey, Savannah, Charleston, Jaxport and Miami are in the process of carrying out investment projects enabling them to attend Panamax vessels that transit in the Panama route.

With the expansion, Panama will increase its potential as a center of transshipment to the rest of Latin America and the Caribbean. Today, the Panamanian ports are the headquarters of eleven "hubs", or transportation hubs of major shipping companies in the world including Maersk, CMA-CGM, MSC, APL/MOL, Hapag Lloyd, Evergreen and Hamburg Süd. The impact of enlargement will extend the segment of bulk dry. Each year, about 50% of the exports of grain from the United States are shipped to markets in Asia using the route through the Panama Canal.

With the expansion, American exporters may send ships up to 95,000 tons of dead weight load and take advantage of economies of scale. Similarly, the Brazilian exporters may send their shipments of soybeans departing from ports located in the northeast of Brazil towards Asia. Shippers of coal will also benefit from enlargement. We hope to see ships of 180,000 DWT departing Newport

from News/Hampton Roads, Virginia —terminals which already have a depth of 50 feet— and destined for China, save up to 13 days of transit in comparison with the alternative offered by the Cape of Good Hope. Colombia will also improve its foreign trade by exporting coal in larger ships through the expanded Canal. It is expected that by the year 2025, the exports of Colombian coal will increase triple up to 240 million tons. The Panama route will allow savings up to 15 days of transit for ships departing from Puerto Bolivar and bound toward China. There is also the possibility of exports of iron ore originating in Brazil and destined to Asia.

In the segment of bulk liquids, an expanded Panama Canal will open for the first time the possibility of shipments of (natural) shale gas from the Gulf of Mexico in the United States to Asia. Currently, ships carrying shale gas may not use the route of the Canal by the limitations established by the dimensions of the current locks.

A. Port development

The advents of containerization as well as the increase in the size of vessels have already had an important impact on port development in the world. The bigger vessels require longer berths, larger yards, more and bigger cranes, and better land connectivity via rail or road to get the containers in and out of the ports in a more expeditious manner. The bigger vessels have also affected the depth of navigable channels. All of these factors have had an impact on the port financing needs to plan and execute these improvements.

Additionally the deployment of larger vessels has also prompted the need for more transshipment because it is very difficult to fully load vessels at either origin or final destination. Therefore, vessels have to plan and make several stops along the way but, the larger the vessel the less calls it wants to make and therefore, carriers need to organize their networks around strategic hubs where they can minimize the number of calls. Transshipment activities have also evolved around the world so that today there are PTP (Pure Transshipment Ports). World geography, as well as the geographic distribution of economic growth, has influenced trade routes in that most of the main hauls move in the East-West direction and most feeder services operate North-South. So PTPs operate in strategic locations along the East-West routes which also have good connectivity in the North-South axis. Panama is privileged as a natural hub in the East-West routes because of the Canal and as a transshipment hub in the North-South axis for the rest of the Americas and the Caribbean.

The other important route that operates in the East-West direction in the U.S. is the intermodal service where vessels call U.S. West Coast ports and containers are moved via the land-bridge by rail to the Midwest and to the East Coast.

The potential growth of the all water routes through Panama depends not only on the expansion of the Panama Canal but also on the development of the ports on the East Coast to have the maximum draft required by the larger vessels. It is still doubtful that these ports will have made the necessary investments due to a lack of funds and the necessary environmental permits that take a long time to process in the United States. Ports of origin, most of them in China, already have the necessary infrastructure and depth to take the larger ships but, so far, destinations are limited to Europe (mainly Rotterdam and Antwerp). Therefore, inter-oceanic traffic demand in Central America is not only defined by origin and destination of cargo, but also by port capacity at the destination.

Macroeconomic factors are beyond the control of the ports and the other actors involved in the transport and distribution of cargo. These factors are mostly associated with the economic structure of production and consumption. Transport is a function of international trade, but is also a function of the location of the major players in international trade. After the financial crisis in the United States, demand has not recovered to the growth rates that existed before the crisis, and this is due to the debt levels that prevailed after the crisis and the loss of value in housing, stocks, etc. The crisis affected the consumption habits of the population. An ageing population is also a factor that is

affecting the United States, just as it affected Japan and Europe. Therefore, demand forecasts for the Asia-United States route, do not have growth rates similar to those from the first decade of the 21st century. All of this impacts the composition of the traffic that is expected and that will need to transit in the next 10 to 20 years. Another factor that has also negatively affected growth rates is the fact that most of the products that used to move as general cargo have already been containerized, i.e., there is no organic growth in containerization anymore. The only exception to this is perhaps the refrigerated cargo that, until a few years ago, was transported in refrigerated ships and is now migrating to refrigerated containers.

It is important to recognize that when conducting an analysis of the size of vessels that could pass through the Central American isthmus, the analysis must take into consideration the geographical location of the main bulk and their markets. The three major dry bulks are coal, iron ore and grain.

Major trade flows of bulk are very far from the area of influence of the inter-oceanic traffic through the isthmus of Central America. The exception is grain, whose main source is the Gulf of Mexico (specifically for the mouth of the Mississippi River) and the area of Matto Grosso, Brazil in South America. In both cases, the limiting factor in terms of the size of vessel to be used is the draught of the cargo ports, which are in the mouth of rivers and which would be extremely expensive to dredge. The only part of this market segment that could require the passage of larger ships by the Central American isthmus would be coal from Colombia and mineral iron from Venezuela or the northeast of Brazil. In both cases, the distance which shortens the route through the Central American isthmus is relatively marginal to the alternative by the Cape of Good Hope so the costs of any channel to the ship would have to be too low to justify the transit of these charges.

International trade of liquid bulks includes a wide variety of products: mainly crude oil and its derivatives, organic and inorganic chemicals, edible oils, petrochemical gases and natural gas, to the main ones. These goods are transported by sea using tanker ships, chemical tankers, gas tankers and OBOs. Trade flows for this category are not important in the Mesoamerican region. In addition, larger vessels do not reach the shores of North America therefore, any commercial oil flow, whether from Mexico, Brazil or Venezuela, does not require transit through the isthmus. Petroleum products move in AFRAMAX tankers and natural gas or oil moving in specialized vessels designed for this purpose. The issue of natural gas depends on the changes that are occurring in the United States regarding legislation that allows their exploitation and export. The main sites are in Central States, and adjacent to the Gulf of Mexico, States with the potential to export into Asia in tankers across the isthmus is a potential market that could grow in the coming years.

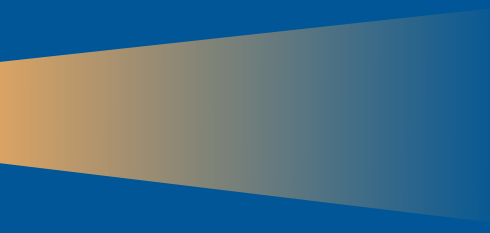
VI. Conclusions and recommendations

- The expansion of the Canal - scheduled to conclude by the beginning of 2016 - will not significantly change the trade patterns and the way in which goods are transported around the world. However, unlike what happened in 1914 when the opening of the Canal opened up unimaginable trade routes, the expansion seeks to adapt to developments in the maritime industry.
- With the expansion, Panama will allow ship owners to take advantage of economies of scale that will be generated by the deployment of larger vessels thus reducing the fuel costs associated with the crossing, as well as other operational costs.
- Carriers will also benefit from the connectivity offered by the isthmus confluence of 30 line services moving cargo between markets of the highest density and 33 feeder services that serve regional trade routes of Latin America and the Caribbean which are characterized by a lower charge density.
- The new locks will allow the passage of ships that carry up to 13,200 TEU, instead of the maximum of 5,100, transported in PANAMAX vessels. The Canal will transit fewer ships but with higher load capacity. While it is true that every day we see orders for ships exceeding 13,200 TEU - as the Triple E of Maersk 18000 TEU - the ACP took necessary forecasts so if you needed and justified an additional extension, you can take on the challenge.
- Much of the cargo to be transported by the channel in larger ships will have as destinations the main ports of the East coast of the United States. However, at the moment, only the ports of Norfolk and Baltimore have 50 ft. of draft. Other ports, such as New York / New Jersey, Savannah, Charleston, Jaxport and Miami are in the process of carrying out investment projects enabling them to attend Panamax vessels that transit in the Panama route.
- With the expansion, Panama will increase its potential as a center of transshipment to the rest of Latin America and the Caribbean. Today, the Panamanian ports are the headquarters of eleven "hubs", or transportation hubs of major shipping companies in the world including Maersk, CMA-CGM, MSC, APL/MOL, Hapag Lloyd, Evergreen and Hamburg Süd. The impact of enlargement will extend the segment of bulk dry.

Each year, about 50% of the exports of grain from the United States are shipped to markets in Asia using the route through the Panama Canal.

- With the expansion, American exporters may send ships up to 95,000 tons of dead weight load and take advantage of economies of scale. Similarly, the Brazilian exporters may send their shipments of soybeans departing from ports located in the northeast of Brazil towards Asia. Shippers of coal will also benefit from enlargement.
- Coal carriers will be able to move in vessels of up to 180,000 DWT departing Newport from News/Hampton Roads, Virginia —terminals which already have a depth of 50 feet— and destined for China, save up to 13 days of transit in comparison with the alternative offered by the Cape of Good Hope.
- In the segment of bulk liquids, an expanded Panama Canal will open for the first time the possibility of shipments of (natural) shale gas from the Gulf of Mexico in the United States to Asia. Currently, ships carrying shale gas may not use the route of the Canal by the limitations established by the dimensions of the current locks.

Only one recommendation, that is to relate two topics that go hand in hand, value chain and competitiveness. World trade is the result of value chains which increasingly include a complex network of supply chains which achieve their efficiency based on logistics and international physical distribution systems in which the different modes of transport play a significant role. The Panama Canal and its expansion program add value to supply chains by reducing the time, distance, and cost, by allowing larger vessels to transit, thus facilitating taking advantage of economies of scale. But expanding canals is not enough. In Panama's case, its competitiveness will depend on expanding and increasing the scope and capability of logistics and maritime clusters to provide better services, both to the cargo, as well as to the vessel. This is key to sustaining the competitiveness of all logistics hubs in the world.



Economic Commission for Latin America and the Caribbean (ECLAC)
Comisión Económica para América Latina y el Caribe (CEPAL)
www.eclac.org