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Snapshot of Colombian Transportation and Infrastructure

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Report Highlights:

This report is the first in a series on Colombian transportation and Infrastructure issues. This overview describes the state of the trucking, rail, and river transport systems and their pros and cons for transporting agricultural goods in Colombia.

General Information:

Colombia is the largest U.S. agricultural market in South America, accounting for about 47 percent of U.S. agricultural exports to the region of a value of \$1.22 billion in 2007 and \$1.7 billion in 2008. The United States is Colombia's largest trading partner, accounting for 26 percent of imports and 35 percent of exports. There are several factors contributing to Colombia's competitiveness in the world market. However, in this report we will focus on transportation costs because it can pose as an even greater barrier to U.S. markets than import tariffs. When the US-Colombia Trade

Promotion Agreement (CTPA) is ratified, transportation is expected to become the largest barrier to US/Colombian trade. It is estimated that land transportation accounted for about one third of the total transportation cost of exporting and importing a container in 2007 (MIDAS-USAID 2007).

Currently, the most relevant issues impacting Colombia's transportation costs are the lack of infrastructure, federal government regulations that set the minimum rates shippers can pay for truck services, state and county government regulations that restrict entry to city centers, as well as the implicit security costs which are unique to Colombia. The implicit security cost for export routes to Western Europe and the U.S. is intrinsic to Colombia. The Caribbean seaports, due to their location, are not impacted as much as the Pacific port of Buenaventura, since this port copes with the socioeconomic problems associated with the surrounding city. In addition, there are natural barriers such as the mountain terrain of the Andes ranges and river systems that impede direct connection between the major centers of production and consumption (Bogota, Medellin, and Cali) to major ocean ports.

Table 1: Modal Share for Colombia's General Cargo

Mode	2003	2004	2005
Highways	67.7	69.7	71.9
Railways	29	27.5	25.3
Waterways	2.5	2.5	2.5
Air	.1	.1	.1
Cabotage	.6	.3	.2

Source: Colombian Ministry of Transportation

Buenaventura and Cartagena are the main entry points of U.S. agricultural products to Colombia (PIERS 2007). U.S. bulk grain exports to Colombia are shipped from the U.S. Gulf to Buenaventura, Santa Marta, and Barranquilla. U.S. containerized exports enter Colombia through Cartagena, Buenaventura, San Andres, and Barranquilla, originating mostly from the East Coast and the U.S. Gulf. Highways carry 72 percent of Colombia's general cargo, whereas barges and rail ship 25 and 2.5 percent, respectively (table 1). Air and cabotage (cargo shipments between ports in the same country) account for 0.3 percent. In 2007, the Colombian public investment in transportation was allocated as follows: highways 93 percent; airways 4.56 percent, inland waterways 1.96 percent, and railways 0.15 percent.

Colombia's Highway System

Since 1998, the Government of Colombia has regulated truck rates by establishing the minimum rate per metric ton/kilometer (Colombian Ministry of Transportation 2008c). Rates vary by route but do not reflect current market conditions such as negotiated rates based on volume of cargo, long

term contracts, reduced load and unloading time, weekend deliveries, truck model and year, availability of backhaul cargo, reduced cargo insurance and improved security allowing for an operation of 24 hours/7 days per week. Several times the Colombian Government tried, but failed to modify the parameters that determine the minimum rate to reflect current market conditions due to strong opposition by the trucking associations.

Table 2: Colombian truck supply by type of ownership, 2005

Type of ownership	Number of trucks	Share (%)
Owner operators	147,390	76
Private carriers*	32,579	17
Transportation companies	4,937	3
Leasing	8,662	4
Total	193,568	100

*manufacturing companies that own their trucks

Source: Colombian Ministry of Transportation

These trucking associations that represent owner/operators are concerned that some of their members will be driven out of business if changes are made to the established minimum truck rate (World Bank 2006). Owner/operators account for 76 percent of Colombia's truck supply but cannot contact the shipper directly (table 2); they must do so through an established transportation company which provides cargo insurance, advance payment to the truckers, ensures trucks meet technical and legal requirements, and assures that invoices are in order. For this service, shippers have to pay an additional 12.5 percent to the transportation company. To improve competitiveness, large companies buy their own truck fleets to ensure a reliable input supply and reduce costs further by eliminating the 12.5 percent transaction fee paid to the transportation companies.

In addition, the Colombian government influences the truck fleet supply by a policy of vehicle reposition called "Chatarrización", which means that for every truck built or imported, 1 or 2 old trucks with the same cargo capacity must be taken out of service and sold for scrap. Although the shippers feel that this policy will modernize cargo vehicle supply and improve safety and quality of the environment, they also feel that it is an indirect tool to support the government's policy of establishing minimum rate per metric ton/km. The average age of cargo vehicles in Colombia is 24 years (Colombian Ministry of Transportation 2006e).

Table 3: Selected agricultural products shipped by truck, 2004

Products	Metric ton	% Share
Coal	13,202,129	11.2

Corn	6,954,406	5.9
Rice	3,478,817	3.0
Wheat	1,878,254	1.6
Other flours	1,861,538	1.6
Soybeans	1,165,938	1.0
Milk	1,548,738	1.3
Oils and animal fat	1,343,618	1.1
Cattle	1,295,317	1.1
Animal feed	1,030,499	0.9
Fruits	999,185	0.8
Bananas	904,191	0.8
Others	81,934,712	69.7
Total	117,597,341	100.0

Source: Colombian Ministry of Transportation

The Colombian highway system comprises of 103,339 miles. The Federal Government operates 10,395 miles and the state and county governments operate 92,944 miles (Ministry of Transportation 2008a). Even though the Colombian government allocated over 90 percent of the transportation budget to the highway system, the general condition of the state and county highways is deteriorating due to a lack of financial resources. For example, the 2007 Ministry of Transportation Highway Survey showed that approximately 15 percent of the paved roads were in good to excellent condition, 35 percent in acceptable condition, and 50 percent ranged from bad to very bad. Twenty six percent of non-paved roads were in good to excellent condition, 41 percent in acceptable condition, and 33 percent varied from acceptable to very bad. In 2006, it was estimated that 48 percent of the Federal highways were built in flat regions; 29 percent were in wavy regions; and 23 percent in the mountains. Coal is the main product transported by truck (table 3) (Ministry of Transportation 2006d). Grain and other flours accounted for 13 percent of total cargo hauled by truck in 2004.

Colombia's Railway System

The Colombian railroad system is the second largest mode of transportation, accounting for a quarter of freight transported and consisting of 2,150 track miles with a narrow gauge size of 35 inches (Ministry of Transportation 2008a). Rail gauge is the distance between the inner sides of the two parallel rails that make up a railway track. Currently, only 47 percent of the total track miles are in service through concessions granted by the government to private railroad companies. It is estimated that 1,142 track miles are inactive or abandoned. Coal is the largest product hauled by rail, representing 99.2 percent in 2007, followed by cement, steel, scrap iron, grains, and coffee (Ministry of Transportation 2008a). The Colombian intermodal system is beginning to develop, but it is limited due to the mountainous terrain and narrow gauge size. Narrow gauges are less expensive to build, equip, and operate than standard-gauge railways, particularly in mountainous

terrains like Colombia. However, these gauges have a low haulage and speed capacity and are used in industrial settings such as mining, logging, construction, tunneling, quarrying, and the conveying of agricultural products (NationMaster 2009). Ferrocarril del Oeste (Pacific Concession) with an extension of 310 track miles between Buenaventura and La Felisa began an intermodal system (rail and truck) from Buenaventura to Cartago (Valle del Cauca) and between the Zarzal and La Tebaida (Quindio) and is expected to continue services to Bogota and Medellin. In the United States, trucks compete with rail for shipments between 300 and 600 miles. Truck is the preferred mode of choice when freight shipments weigh less than 50,000 pounds and travel fewer than 300 miles. However, the U.S. and Colombia railway systems are not comparable because the North American Railroads (Canada, U.S., and Mexico) have a standard gauge size of 56.5 inches which facilitated the regional integration and increased efficiency in the region.

Colombia's Inland Waterway System

The inland waterway system hauled less than 3 percent of Colombian general cargo in 2005 (table 1) and received less than 2 percent of the Colombian transportation budget allocation. There are 4 main inland waterways: Magdalena, Atrato, Orinoco, and Amazonas. The Magdalena and Atrato waterways are the most important, accounting for 45 and 52 percent of the 2007 cargo movement, respectively (Ministry of Transportation 2008a). The Magdalena waterway is navigable for 1,717 miles and the major tributary is the Magdalena River. Major products shipped through the Magdalena River are petrochemicals, machinery, cattle, cement, fertilizers, and wood. The Magdalena River is the largest inland waterway but does not directly connect the major consumption or production centers such as Bogota and Medellin with the ports in the Caribbean Sea. It requires transshipments and does not operate at full capacity due to lack of investments in dredging, channel improvements, and protective levies. From Barranquilla to Capulco (about 310 miles) the river is navigable with a depth of 6 feet allowing night navigation with satellite navigation systems. The "Canal del Dique"(71 miles) that connects the Magdalena River to Cartagena has channel depth problems and is not navigable at night. From Barrancabermeja to Puerto Salgar, navigation is intermittent (World Bank 2006, Colombian Ministry of Transportation 2008a).

According to the Autonomous Regional Corporation of the Magdalena River (Cormagdalena) [an agency similar to the U.S. Army Corps of Engineers], some of the major challenges facing the Magdalena river system are the low demand for cargo, small barge fleet, shallow channel depth, and lack of funds available to build levies and locks. To address these issues, latest technology, shallow-draft barges from both the state of Louisiana and the United Kingdom will assist in navigating difficult areas so that transport to Puerto Salgar, the connector port with Bogota, is

possible. The US Trade and Development Agency has recently announced a grant to this port to upgrade its infrastructure, in order to make intermodal transfers easier. Cargo that travels on the Magdalena to Puerto Salgar can be transferred to truck transportation and transported to nearby Bogota, only 40 miles away. With shallower-draft barges, improved port infrastructure at Salgar, and continued improvement of the navigability of the river, Puerto Salgar with grow in importance as a transportation hub for Colombia's largest population center and offer an alternative to Buenaventura.

In the Atrato waterway, the Leon River accounts for more than 50 percent of Colombian cargo, consisting of bananas, fertilizer, and wood. In the Orinoco waterway the major tributaries are the Meta, Guaviare, Inírida and Vichada Rivers. Cattle shipments are the main cargo in this waterway. The Amazon River is the most important tributary and the only means of transportation in the Amazon region to Brazil.

Colombian Maritime Ports

Colombia's international trade is moved through 5 regional port societies (20 percent); 5 private ports (67 percent) specializing in petroleum, coal, and banana shipments; and private berths owned by companies that handle their own cargo (8 percent) (Ministry of Transportation 2008a and 2008b). The regional port societies are not the port authorities but rather a group of private companies that have the government concession to operate the ports.

Buenaventura is the largest and closest Pacific port to the main production and consumption centers of Bogota, Medellin, and Cali. The average distance to these centers is 241 miles. The port accounted for 40 percent of international trade in 2007. It was followed by Santa Marta, Cartagena, and Barranquilla. About 52 percent of Colombian imports entered the country through Buenaventura (Ministry of Transportation 2008a and PIERS 2007). The port of Buenaventura's major challenges are: (1) lack of funds to build highways that connect the yard terminals with the main economic centers; (2) the need to increase the access channel depth to 17 meters in preparation for receiving post-Panamax vessels; (3) weather conditions that limit hours of operation (Buenaventura is one of the rainiest cities in the world with 6000-7000 mm precipitation annually); (4) its location close to the city limits restricting expansion and increasing the needs for added security; (5) although the port is the main source of employment, the city does not have the resources to improve the standard of living conditions. It is expected that congestion at the port would be reduced with the intermodal system developed by Ferrocarril del Oeste and the building of double lane highways within the next 6-7 years that connect the port with the main economic centers. Despite all these challenges, companies continue to invest in the port of Buenaventura

because of its geographic location facilitates trade with Asia. TC Buen, a new port project located just north of the port of Buenaventura is under construction. This port will move containers only and is expected to be completed by 2011.

The Port of Cartagena (Caribbean Sea) is a natural port and one of the most efficient in Latin America. It is Colombia's #1 container port, with two access channels with a depth of 11-12 meters. Cartagena's port does not have the weather problems similar to Buenaventura. The Cartagena Port Society controls the complete operation and equipment of the port and specializes in container transshipments. Due to its location, it is able to operate 24 hours, 7 days per week. In response to the expansion of the Panama Canal, the port bought dredging equipment to gradually increase the access channel depth to 17 meters. The Port Society has also begun constructing the CONTECAR container terminal, located a few kilometers upriver from the Port Society's original port, which will serve as a deeper port for handling Post-Panamax¹ vessels as well as a place to expand operations.

Cartagena's main grain terminal, "Muelles del Bosque", works in partnership with Cargill. In 2008, nearly all grain originated from the United States. This company is investing in Buenaventura due to its proximity to Bogota and the ability to handle China trade, chemicals, fertilizers, and grain, especially if China becomes a net grain exporter.

The port of Santa Marta exported the largest cargo volume in 2007, mostly coal. After Buenaventura, it is the second largest receiving Colombian port of U.S. bulk agricultural products. The Panama Canal expansion is not an issue to this port because it has a deep natural access channel (21-36 meters) able to handle Post-Panamax vessels. The Port Society of Santa Marta is planning to expand its current bulk grain terminal capacity of 5 million MT, in response to the Colombian government's plan to create and consolidate coal exports into one specialized port to promote tourism in the area. There is also a freight rate advantage from Santa Marta which makes hauling grain from this port relatively cheaper than from other ports.

The port of Barranquilla accesses the Caribbean Sea through the Magdalena River (12.4 miles). Barranquilla port is also a feeder port for hubs, and handles mostly grain (42% of total cargo), followed by stainless steel (22%) and coal (14%). The access channel is too shallow to receive Panamax or Post-Panamax vessels, however, the channel is open to Handymax² vessels. A project to expand the cargo capacity of the port by deepening the access channel is currently underway.

Due to its location, it is a key port for fluvial or truck shipments of grain to the major poultry-producing region of Santander. Shipments that move by barge unload at Puerto Capulco (Santander del Norte) or Barrancabermeja (Santander) to supply the poultry industry which is just a

few miles away.

References

Autonomous Regional Corporation of the Magdalena River (Cormagdalena).

Economic Research Service (ERS), USDA. 2008. Outlook for U.S. Agricultural Trade, AES-60
<<http://usda.mannlib.cornell.edu/usda/current/AES/AES-12-01-2008.pdf>>.

Brodie Peter. 2003. "Dictionary of Shipping Terms" 4th Edition. Cromwell Press Ltd. Great Britain.

Foreign Agricultural Service (FAS), USDA. 2009. U.S. Trade Exports—FATUS Commodity Aggregations <http://www.fas.usda.gov/ustrade/USTExFatus.asp?QI=>.

Knight, Kevin. 2008. "The Implications of Panama Canal Expansion to US Ports and Coastal Navigation Economic Analysis." A White Paper Prepared by Institute for Water Resources, US Army Corps of Engineers.

Más Inversión Para el Desarrollo Alternativo Sostenible (MIDAS)-USAID. 2007. "La Competitividad del Transporte y los Servicios Logísticas en el Comercio Exterior Colombiano".

Ministry of Transportation. 2008a. "Diagnostico del Sector Transporte". Oficina Asesora de Planeacion. Grupo de Planificacion Sectorial.
<<http://www.mintransporte.gov.co/Servicios/Estadisticas/home.htm>>.

—. 2008b. "Anuario Estadístico del Transporte en Colombia 2008". Updated September 10, 2008.
<<http://www.mintransporte.gov.co/Servicios/Estadisticas/home.htm>>.

—. 2008c. "Resolution No. 003175 de 2008". Bogota, August 1, 2008.

—. 2006d. "Encuesta Origen —Destino a Vehículos de Carga, Año 2004". Dirección de Transporte y Tránsito.

—. 2006e. "Parque Automotor de Transporte de Carga en Colombia". Dirección de Transporte y Tránsito.

Nation Master. 2009. <<http://www.nationmaster.com/encyclopedia/Narrow-gauge>>. Accessed January 21, 2009.

Port Import and Export Reporting System Services (PIERS). 2007. *Journal of Commerce*.

World Bank. 2006. "Infraestructura Logística y de Calidad para la Competitividad de Colombia". Reporte No 35061-CO.

Footnotes

¹ Post-Panamax container ships usually move about 5,000-8,000 containers, have a width of 14 to 20 containers, and a draft of 15 meters, requiring an access channel of 17 meters. Super Post-Panamax vessels have a carrying capacity greater than 9,000 containers. Source: Knight, 2008

³ A Handymax is a bulk carrier with a capacity of 35,000-50,000 Deadweight tonnages (DWT) (Brodie 2003). DWT is a measure of how much weight of cargo a ship can safely carry, and is the sum of the weights or masses of cargo, fuel, fresh water, ballast water, provisions, passengers and crew