

## Technical Note: Infrastructure and Logistics Policies in Colombia

### Authors/Collaborators

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### Main findings

- Colombia's geographical characteristics make it difficult to build transport infrastructure, plus existing infrastructure is in poor conditions and there exists a limited supply of trans-border transportation services.
- Colombia is addressing its logistics inefficiencies by (i) accelerating river, train and intermodal platform projects through PPP schemes; (ii) strengthening institutional framework; (iii) improving information systems interoperability; (iv) improving train workforce for intermodal infrastructure jobs and (v) investing in CTI to enhance efficiency in the trade process.
- The Infrastructure and Transport Expert Commission (2019)<sup>1</sup> recommended to create an institutional arrangement to implement the country's logistics policy, strengthen governmental entities in the transport sector, fortify the ecosystem of PPPs, set up a transport centralized data collection structures in real-time, enhance innovative mechanisms to make new payment sources viable at the national and regional levels, and to transition to city intermodal means.

### 1. Background

**Colombia's unique geography makes it intrinsically difficult to create a quality national infrastructure system.** Infrastructure is a crucial factor in economic growth by connecting different parts of the country to construct efficient value chains of capital and labor, and move goods and services within and across borders. While Colombia is the only South American country that has strategic access to both the Atlantic and Pacific Ocean, most major cities are located in the interior and separated by mountainous terrains that are challenging to connect

**Infrastructure lags comparable peers.** According to the World Economic Forum (2019), Colombia ranks 81 in the infrastructure among 141 countries, below regional peers as Peru, Chile, and Mexico. The qualities of roads and railroad infrastructure are the most problematic components (ranking 104<sup>th</sup> and 99<sup>th</sup>, respectively). Colombia has one of the biggest gaps in the transport infrastructure sector in the region (IDB, 2016). Specifically, the quantity of roads and railways is small, compared to countries with similar levels of development and income per capita.

**Colombia's cargo infrastructure exhibits a lack of intermodalism.** Excluding coal and hydrocarbons, 97% of the cargo transport is being done through roadways. Despite its poor ranking, the governmental investment priority has been the development of highways. While in 2018 the investment in roads represented 71% of total public investment in the transport sector, rail and river just accounted for 4% and 0.37%, respectively (Ministry of Transport, 2019).

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<sup>1</sup> Led by the Vice president of Colombia, Marta Lucia Ramirez, a total of 10 experts made more than 130 recommendations to improve the country's infrastructure, transport, and competitiveness indicators. It embodied seven thematic axes: institutional architecture, sources of payment and financing, public-private partnerships, urban accesses, public transport, logistics, and maintenance and sustainability (See Appendix A).

**The absence of intermodalism upsurges transportation costs.** Despite the highway mode is efficient for certain journeys, one of the main advantages of intermodalism is the reduction in costs (IDB, 2016). For example, in the case of the Barranquilla-Tocancipá corridor, moving 1,000 tons of steel using the river mode, rail and road represent a reduction of 36% in costs compared to only the road mode (Ministry of Transport and IDB, 2018). Overall, the cost for an average container is more than US \$ 1,800, compared to the Latin American average of US \$ 700 (Yepes et al, 2013).

**Logistic inefficiencies affect trade processes.** Colombia takes up to 4.6 days in the exporting process. This means that 72% of the total time taken to transport a product from its source to set foot out of the country is due to the exporting process. As a benchmark, regional peers such as Chile and Peru take 2,5 and 2 days, respectively (ENL; 2018). Even more, from every COP 100 collected in sales, a company must allocate COP 13.5 to its logistics costs, above regional peers (ENL, 2018). The main logistic costs are storage (46.5%) and transportation and distribution (35.2%). Additionally, the idle time for loading and unloading (3.6 and 3.8 hours, respectively) exceeds those required to execute these operations (3.3 and 2.6 hours for loading and unloading, respectively) (DNP, 2018). Institutional weaknesses, non-interoperable systems, and lack of qualification in logistics workforce, all play major roles in explaining this lag.

**The transport sector exhibits low competition and inefficiencies.** There is evidence of high concentration of vehicle fleet in small companies, which exhibit low levels of professionalization, informality, and limited access to credit (DNP, 2015)<sup>2</sup>. Inefficiencies are identified in the road transport operation: routes average are 65,316 km / year / vehicle, lower than Argentina (116,000 km/year/vehicle) , Chile (110,000 km/year/vehicle) or Mexico (108,000 km/year/vehicle) (Barbero & Guerrero, 2017). The continuous intervention in load transport prices also generates inefficiencies. For example, 22.4% of firms in Colombia have their own fleet, indicating a deviation of resources towards non-core business investments (DNP, 2018). More than 50% of the tractor trucks, trucks, buses, and minibuses in Colombia have more than 11 years of operation, while the automotive fleet of cargo average age is estimated at 21 years (RUNT, 2018). The country's vehicle fleet of cargo, along with the Dominican Republic, is the oldest in Latin America (Barbero & Guerrero, 2017).

## 2. The Traveled Path

### A. Road Infrastructure

Road is a major constraint of the country's infrastructure. Only 25,000 km of the 213,000 km of roads are paved and the condition of highways is among the lowest in the region (IDB, 2016). According to the World Economic Forum (2019), Colombia scores 65 out of 100 in the Highway Connectivity Index, which is below the average for Latin America (73) and the OECD (84). The Fourth Generation (4G) of road concessions was an ambitious program developed by the government through public-private partnership (PPP) schemes<sup>3</sup>, aiming to build 29 projects totaling 8.000 KMs of roads and USD 10.000 million in investments. The first three projects will be delivered this year, and on average the program's construction progress is 40,19%. Though investors have great confidence in the institutional and legal frameworks, the main problems these projects have encountered rely on the indigenous group consultations, regional environmental approvals, and reputational risk of project developers derived from the Odebrecht corruption scandal. Also, the

<sup>2</sup> In terms of park ownership, 61% are owners of a single-vehicle; 16%, from two vehicles, and 23%, from more than three vehicles, according to data from the National Single Registry of Traffic of the Ministry of Transport - RUNT.

<sup>3</sup> Colombia ranks 2<sup>nd</sup> in the Infrascope PPP index of The Economist (2019).

private sector has been involved in the development of road infrastructure in the areas most affected by the conflict through instruments such as “Works for taxes”<sup>4</sup>.

## **B. Rail Infrastructure**

16% of Colombia’s cargo is transported by rail; from which 99% corresponds to coal (CPC, 2019). In 2016, the book “Challenges for Rail Transport in Colombia” identified the challenges and obstacles for the reactivation of the rail system in the country (IDB, 2016). In 2017, with the help of the French Development Agency, a study drafted the institutional framework section of an eventual Railway Master Plan out. In 2018, in cooperation with the IDB, the regulatory, tariff and institutional sections of the Railway Master Plan were designed. The UK Government Prosperity Fund (2018) provided resources to structure the regional integration rail corridors. The National Infrastructure Agency (ANI) has been leading the promotion of rail transport for non-mining energy products.

The Railway Master Plan will be published between August and October 2020, and has embedded emblematic projects that are being structured by ANI and FDN (Colombia’s infrastructure development bank) such: (i) La Dorada – Chiriguana, which scope is to rehabilitate and improve 521 kms of abandoned narrow rail to connect north with the only operating rail that takes cargo to the Caribbean, and south with a future intermodal logistic platform at La Dorada by the Magdalena River); (ii) Tren de Cali (Cali’s train), which is in early feasibility stages and consists of light rail that will connect Cali (fourth most important economic city) with its suburban areas and most important municipalities; and (iii) North Regiotram, a light rail that will connect north suburban areas of Bogotá with the subway line that is about to begin construction. Two significant rail projects have been already awarded and will start construction soon: (i) Bogotá’s first subway (elevated) line and (ii) West Regiotram, a light rail that connects Bogotá’s downtown with suburban areas and municipalities on the west.

## **C. River Infrastructure**

Despite a total capability of 18,225 kilometers of navigable rivers, the volume of cargo transported in Colombian rivers is limited compared to other countries and other modes of transportation; only 1% of the total cargo transported was made by waterways (Ministry of Transport, 2015). In 2008, the National Code of River Navigation and Port Activities was established to promote safety in river transport. In 2015 the Fluvial Master Plan recommended: (i) institutional planning, (ii) transport operation, (iii) provision of infrastructure and (iv) promotion and financing– including a portfolio of 13 projects in 20 years. Nowadays, two big PPP projects are being launched by the ANI to restore navigability of Magdalena River and Canal del Dique<sup>5</sup>, plus a program of USD 250 million to restore docks and navigability of small rivers in tropical rain forest populations is being held by INVIAS.

## **D. Air Infrastructure**

In 2018, the Aeronautical Strategic Plan was launched, aiming to mobilize 100 million passengers and double the number of cargo transport by 2030. In this context, the national investment for airports was reformulated to 17 trunk airport projects, 6 aeronautical regional projects that cover other airports and other investment projects nationwide (including civil aviation authority, air

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<sup>4</sup> Innovative tax charge scheme where companies receive a tax exemption if they pay up to 50% of their income tax by making public works in municipalities affected by violence in Colombia

<sup>5</sup> Canal del Dique is a project connecting Magdalena River with the most important port of the Caribbean Coast in Cartagena. The channel was initially built during the Spanish colony, but deteriorated and in 2011 the floodgates broke, causing environmental disasters along the channel’s route, in Cartagena’s touristic bay, and compromising Cartagena’s water supply.

navigation services, strengthening of human talent, among others). Also, the national planning schemes of the airports are being updated with a projection of 12 to 20 years.

### **E. Port Infrastructure**

Ports in Colombia are less efficient than in Latin-American peers. In 2019, the Study of Capacity and Demand of the Colombian Port System (DNP, 2019) found port capacity increased by 52% between 2010 and 2018 (reaching 401 million tons) and that by 2023 the system would reach 463 million tons of capacity. Yet, international rankings indicate that port and border handling remains a significant bottleneck for international trade of goods (OCDE, 2019). Colombia's exports required nearly twice as much time (112 hours) as exports from Chile and six times more than Mexico. Most delays in processing exports are explained by port handling and clearance and inspections required by agencies other than customs (Doing Business, 2019).

Besides, the National Plan for Maritime Dredging was formulated in 2017, to improve the maintenance, deepening and operation strategies for maritime accesses to Colombian ports by 2035. It established that Buenaventura and Tumaco, the two commercial ports of the Colombian Pacific Coast, needed urgent dredging interventions since sedimentation brought by oceanic currents was affecting their competitiveness (by reducing their depth). The Ministry of Transport is working to approve monetary resources to execute these key projects. DIAN is making efforts to migrate to a fully digital system on port, but results are difficult to materialize due to DIAN's complex structure. The government has the goal to implement this system by august 2022 and many manual procedures have been digitalized due to covid-19 crisis.

### **F. Logistics (quality services)**

According to the World Bank (2018), Colombia ranks 58 out of 160 economies in the Logistics Performance Index (LPI), above the Latin American and the Caribbean average. In 2011 the Specialized Logistics Infrastructures (ILE) or logistics platforms were delimited as areas in which logistics processes of transport, storage, distribution, and value-added logistics services are carried out. These ILE lack a business model so these figures are not appealing for investors that still see many risks and undefined legal issues which brings uncertainty for their investments (DNP, 2020). The Expert Infrastructure and Transport Commission recommended closing these gaps to promote significant investments directed towards logistic platforms development.

In 2015, the Intermodal Transport Master Plan (PMTI) was designed to organizing the infrastructure development by strategic logistic corridors and suggesting an institutional strengthening. In 2016, the Ministry of Transport carried out the Intermodal Transport Master Plan 2 (PMTI 2) addressing the maturing components of infrastructure projects, payment sources, financing, access to cities, and regulatory aspects to modernize the legal framework of the transport. Finally, in 2020, the National Logistics Policy (CONPES Document 3982) was adopted to improve the country's logistics performance through the promotion of intermodality, trade facilitation and institutional mechanisms for coordination.<sup>6</sup> This policy will bring Colombian logistics to OECD levels by reducing total logistics costs from 13,5% to 9,5% in 2030. It is expected that the logistics policy

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<sup>6</sup> Strategies: (i) Promote intermodality through the development of efficient modal interchange connections to reduce the logistics costs; (ii) Promote trade facilitation through optimization of the operation and infrastructure of commercial exchange nodes to reduce logistical times in foreign trade operations; (iii) Design mechanisms for institutional coordination, promotion of ICT and strengthening of human capital to improve their performance.

implementation will derive in an increase of 48 million tons of cargo transported by rail systems and 22 million tons by river systems, reducing road transport participation from 73% to 65%. Finally, it is expected that the actions in the logistics policy will account for a 50% reduction on logistic costs in one of the main international commerce corridors from Bogotá to the Caribbean Coast.

#### **G. Load Transportation (quality services)**

Road Load Transport Observatory (OTCC) was established as a public-private organization to monitor road load transport policy. Also, the Efficient Cost Information System for Automotive Load Transportation (SICE-TAC) was established as a reference parameter to estimate transportation rates. The policy for the modernization of the automotive cargo transport sector was formulated by the CONPES Document 3963 (2019), which established the strategy for the renewal of cargo transportation vehicles by road, with a gross vehicle weight equal to or greater at 10.5 tons and over 20 years old. The entry of new vehicles was regulated, establishing a one-to-one policy (for each disintegrated vehicle, the registration of a new vehicle is authorized). Between 2013 and 2019, 21,694 cargo vehicles were disintegrated.

Between 2016 and 2018, two projects were carried out related to the design of qualifications for logistics and transport processes to identify gaps in the supply of education and training of human capital in logistics and the needs of the productive sector (excluding air transport). Also, the Transportation Modes Efficiency Committee was established as a space for public-private coordination to solve operational and strategic problems in the different modes of transportation. Furthermore, the revision of the legal framework is being carried out to expand the Authorized Economic Operator program to land load and load rail carriers. Law 1682 of 2013 indicated the need to define logistical corridors of strategic importance for the country. In this area, Decree 1478 of 2014 outlined the guidelines for the establishment of logistical corridors of strategic importance and, through resolution 0164 of 2015, the Ministry of Transport established the logistical corridors. Finally, Regional Logistics Alliances<sup>7</sup> (ALR, for its acronym in Spanish) were established, as regional articulation spaces to promote logistics development initiatives.

#### **H. ICT (Logistics information)**

Since 2016, the National Planning Department published the National Logistics Observatory (ONL, for its acronym in Spanish), a portal in which information on the country's logistics performance and development is consolidated. Since 2016, the Ministry of Transport published the Logistics Portal of Colombia (PLC, for its acronym in Spanish) as an initiative to improve the country's competitiveness by reducing logistics costs and reducing the environmental impact of the transport sector. The PLC shows information generated by the Ministry of Transport through the National Registry of Cargo Dispatches, the Regional Logistics Alliances, the Strategic Logistics Corridors and the Statistics of the transport sector. ProColombia developed the logistics cost simulator, as an analysis and information tool for Colombian exporters. Since 2015, the National Logistics Survey (ENL) has been carried out to collect information related to the logistics costs of the Colombian business sector, and which has served as a technical input to design strategies to strengthen national logistics performance<sup>8</sup>.

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<sup>7</sup> To date, 8 ALRs have been established: Magdalena, Caribbean, North of Santander, Santander, Antioquia, Bogotá – Cundinamarca, Valle del Cauca, Putumayo and Amazonas.

<sup>8</sup> Versions have been developed in 2015, 2018 and the 2020 version is currently being developed.

### 3. Policy recommendations<sup>9</sup>

1. **Develop intermodal transport:** Promote intermodality through the generation of conditions for the development of competitive transport modes and the modernization of the provision of cargo transport services. In this sense, the Infrastructure Pact<sup>10</sup> is being carried out with the objective of bringing digitization to the rail, river and maritime modes, as well as preparing the regulatory framework to encourage their investment, and also creating training programs for Colombian skilled labor for the needs of these new modes. Notably, the Infrastructure and Transport Expert Commission (2019) recommended the creation of institutional arrangement and leadership to implement the country's logistics policy, adjust regulations to make it attractive for multimodal development, define the business model of the ILE, and create alliances with the private sector to nurture the DNP logistics central observatory.
2. **Reduce foreign trade operations clearance o dispatch times:** Promote trade facilitation through the development of commercial exchange nodes and the optimization of import and export procedures. Besides, the migration of the tax entity (DIAN) to completely digitalized procedures should be warranted. This process needs a strong political will and articulation.
3. **Strengthen institutional arrangements:** This requires redesign the Ministry of Transport, put UPIT and CRIT (centralized planning and regulation units in the transport sector) into operation, guarantee the operation of the logistics, and foreign trade committee and form regional logistics alliances. These recommendations are aligned with the Infrastructure and Transport Expert Commission (2019) towards strengthening the corporate governmental entities in the transport sector and the creation of the UPIT and CRIT.
4. **Eliminate dispersed and non-interoperable information in the transport and logistics sector:** Promote access to information and the use of ICT in logistics. Position the National Logistics Observatory as a tool for macro analysis of logistics and national transport, apply the National Logistics Survey (diagnosis) every two years, improve the National Registry of Cargo Dispatch by road to optimize the quality of information, as well as place the Logistics Portal of Colombia as the platform that disseminates information on the operation of logistics corridors.
5. **Increase the levels of technical qualification at different stages:** The National Logistics Policy established the promotion of logistics-oriented qualified human capital. In the National Development Plan 2018-2022 "Pact for Colombia, Pact for Equity", the pact for infrastructure was established, which aims to create training programs for different skills in rail, rivers, and maritime modes.

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<sup>9</sup> Appendix A summarizes the main recommendations made by the Infrastructure Expert Commission (2019) and the Private Competitiveness Council (CPC, 2019). Most of these recommendations are already considered in this agenda.

<sup>10</sup> This was made in the context of the Growth Pacts, that was made with the support and participation of 85 unions and more than 60 public sector entities. They contain a total of 832 commitments, aimed at strengthening the competitive environment, productivity, innovation, formalization, and entrepreneurship, as well as investment and internationalization of the sectors

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## Appendix A. Policy Recommendations

### Main Recommendations made by Infrastructure and Transport Expert Commission (in agenda):

- **Logistics:**
  - Create institutional arrangement and leadership to implement the country's logistics policy
  - (In process) Adjust regulations to make it attractive for multimodal development
  - Define the business model of the ILE (real estate + logistics)
  - (In process) Alliances with the private sector to nurture the DNP logistics central observatory
- **Institutional:**
  - (In process) Strengthen corporate governments of entities in the transport sector
  - (In process) Create UPIT and CRIT (centralized planning and regulation units in the transport sector).
- **PPPs:**

- (In process) Regulate greater competition in private initiatives
- Strengthen the ecosystem of PPPs at the territorial level (budget, structuring methodologies, medium and long-term planning)
- **Transport:**
  - Set up centralized data collection structures in real time.
- **New Payment Sources:**
  - (In process) Create innovative mechanisms to make new payment sources viable at the national and regional levels. These payment sources may be added in an autonomous patrimony and their origin may come from new tax collections, economic rights of future toll flows, concessions toll remnants, land value capture, among others.
- **Urban accesses:**
  - Transition of access to cities with intermodal means.
  - Adapt the private infrastructure to adapt the loading and unloading sites.
  - (In process) Construction of nodes so that cargo can make efficient modal exchanges.
  - (In process) Adapt electronic and interoperable tolls.

#### **Recommendations made by the Private Competitiveness Council (CPC, 2019)**

- Eliminate Decree 2092 of 2011, and its subsequent amendments, to complete the probation scheme and allow loads to be generated in conditions of competition.
- To improve road access to urban areas, ports and airports for all actors in the logistics chain, it is recommended to modify Law 105 of 1993 to allow for Nation-Territory co-financing schemes that improve road access to large urban areas, ports and airports.
- Given that there are numerous master plans for various modes of transportation, it is recommended to update the Master Plan for Transportation as a guiding national policy that establishes a single methodology for prioritizing transportation projects that unifies all modes, the schedule for their execution and their corresponding financing. In fact, the IMF maintains that promoting the infrastructure sector as a strategic investment area to cope with the economic slowdown requires a rapid inventory of viable projects to be implemented in the reactivation stage (IMF, 2020).
- Decree 946 of 2014 created the Transportation Infrastructure Planning Unit (UPIT), however, so far it has not begun to function. It is key to guarantee the operation of the (UPIT) who will oversee leading the long-term vision of the sector and will build the guiding national policy mentioned in the previous point.
- Define a clear and expedited process to include the private initiative mechanism in the prioritization of infrastructure projects. This would prevent the productive sector from wasting away in structuring unnecessary projects and, instead, dedicate its efforts to presenting relevant initiatives. In addition, additional sources of resources would be found for infrastructure projects.
- Implement a comprehensive program of tertiary roads that includes an update of the inventory of tertiary roads.