

# API

## Integration Priority Project Agenda 2017

South American  
Infrastructure and  
Planning Council



**UNASUR**

Unión de Naciones Suramericanas  
União de Nações Sul - Americanas  
Union of South American Nations  
Unie van Zuid - Amerikaanse Naties

**COSIPLAN**



Presidency Pro Tempore  
Argentina 2017-2018

VII Ordinary Meeting of COSIPLAN Ministers  
December 7, Buenos Aires, Argentina

IIRSA Technical Forum  
Technical Coordination Committee





**UNASUR**

Unión de Naciones Suramericanas  
União de Nações Sul - Americanas  
Union of South American Nations  
Unie van Zuid - Amerikaanse Naties

**COSIPLAN**

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**API**

Integration Priority  
Project Agenda  
2017

Technical Coordination Committee



**INTAL**























# Note

The information about the projects presented here is built on the data contained in the COSIPLAN Project Information System (SIP) ([www.cosiplan.org/proyectos](http://www.cosiplan.org/proyectos)) as of August 16, 2017. The information in such system is permanently updated by the UNASUR Member States.


The maps in this document have been prepared by IIRSA Technical Coordination Committee (CCT) as a technical and general reference work tool. Borders, colors, denominations, or other information shown in them are used exclusively for illustration purposes, and are not to be understood as a judgment, opinion or other on the legal status of a territory or as recognition of borders by the institutions that make up the CCT. ■

## MAP LEGEND

### Projects

	Navigability		Ring Railway
	Oil/Gas Pipeline		Tunnel
	Electric Transmission Line		Navigability
	Road		Bridge
	Rail		Environmental Program
	Telecommunications Line		Multimodal Transportation
	Border Crossing		Dry Port
	Port		Electricity Generation
	Logistics Center		Gas
	Airport		River
	Ring Road		Telecommunications Infrastructure

### Geographical Legend

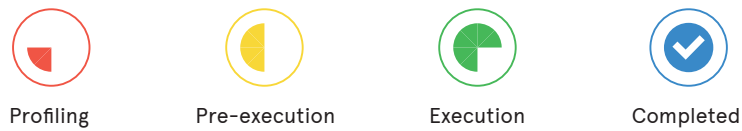
	Country Capital		Existing Waterway
	City		Existing Railroad
	Country Border		Existing Road

## REFERENCES

### Integration and Development Hubs



### Project Life Cycle Stages

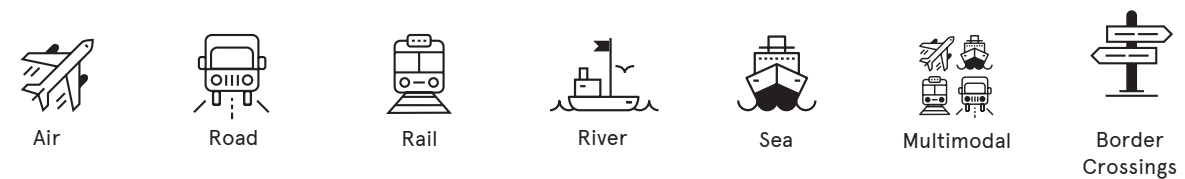


### Sectors

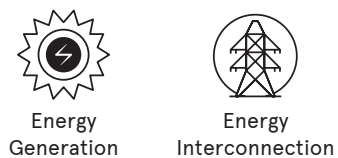


### Subsectors

#### Transport



#### Energy



#### Communications



### Types of Financing



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[cosiplan.org/api2017](https://cosiplan.org/api2017)



ANNEX 1: Detailed List of API 2022 and 2027 Structured and Individual Projects

ANNEX 2: API 2022 and 2027 Individual Projects Sectors, Subsectors, and Types of Works

# Preface

**Planning and implementing connectivity infrastructure is a necessary condition for promoting the development and strengthening the integration of South America.**



Argentina is firmly committed to the prioritization of integration projects that truly contribute to South American connectivity. COSIPLAN is the natural forum for our government technical teams to create the network of connections that enables us to be competitive in the world, by designing comprehensive logistics solutions to enhance the region's production chains.

In 2010, the presidents charged the COSIPLAN with the task of identifying and selecting a series of works that would impact powerfully on the integration and development of South America, the result of which was the Integration Priority Project Agenda (API), which was analyzed and updated this year with the purpose of confirming the priority of its projects and providing a major boost to their execution.

This revision exercise was highly positive and fulfilled the objectives of adjusting the Agenda

to the current political and economic dynamics, focusing on the projects that are more efficient in the use of resources and bring the greatest benefits to the South American citizens.

To move forward in this activity, the efforts made by the multilateral organizations that support the COSIPLAN work and finance its projects has been fundamental, but also important is to attract the private sector in order to leverage the investments we need. Our responsibility is to establish clear rules of the game and transparent procedures to encourage its participation in a context of healthy competition so as to build the works we need and generate employment and further development for our countries.

We are aware of the enormous responsibility of disseminating the information about those projects and make it transparent. To this end, we must include all the sectors of society —such as non-governmental organizations, civil associations and academia— in the decision-making process. The contribution of these actors is essential to find the best solutions to positively transform the South American territory.

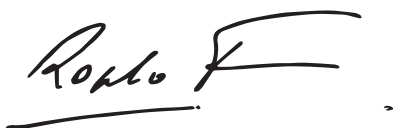
A fundamental element to make our work transparent and known to our citizens is the use of technology. In this regard, I would like to highlight the huge effort involved in developing and keeping up to date the information systems that support the project management planning and monitoring processes. The COSIPLAN Geographic Information System, together with the Project Information System (SIP), represent a robust tool to support public policy decisions and, at the same time, empower citizens by



providing relevant information on the projects that are being implemented where they live.

The objective of our government is to consolidate change in Argentina by fighting corruption and drug trafficking, eradicating poverty and definitely bringing Argentines together. This is our dream for our country and for our brother countries, since together we can change the situation of the region and improve the quality of life of our citizens, working seriously on the execution of the most important infrastructure projects to connect us and looking to the future with hope.

Argentina, as the COSIPLAN and UNASUR Presidency Pro Tempore, wants to express its gratitude to the South American countries for the support we have received during our presidency of this important regional dialogue forum. We reaffirm our commitment towards South American integration with the firm resolve to achieve sustainable economic and social development for all South Americans.

A handwritten signature in dark ink, appearing to read 'Rogelio F', with a horizontal line underneath.

**Rogelio Frigerio**

Minister of the Interior, Public Works and  
Housing of the Argentine Republic

UNASUR-COSIPLAN Presidency Pro Tempore







# Physical Integration as a Pillar for South American Unity

**Y**ears ago, the sovereign countries of South America became aware of the need to connect and integrate all the territories of the region, and have been working continuously to attain such goal since 2000. The First South American Presidential Summit, held in Brasilia that year, marked the beginning of an integration and cooperation process in different fields. A concrete outcome was the creation of the Initiative for the Integration of Regional Infrastructure in South America (IIRSA) with the purpose of encouraging the integration and modernization of physical infrastructure under a regional vision of the South American space.

In 2008, the presidents created the Union of South American Nations (UNASUR) as a forum for high-level political discussion and coordination. In order to comply with the integration agenda, several sectoral councils at ministerial level were established, one of them being the South American Infrastructure and Planning Council (COSIPLAN), which made IIRSA efforts its own and decided to incorporate this Initiative as its technical forum.

One of the main tasks commissioned to the Council by the presidents was to identify and select a series of works that would impact powerfully on the integration and development of South America. The result of this work was the Integration Priority Project Agenda (API), the objective of which is to promote regional connectivity by building infrastructure networks for physical integration purposes, considering sustainable social and economic development criteria, and preserving the environment and the balance of ecosystems.

This section presents the actions related to physical integration that led to the creation of API in 2011. Then, it describes the path followed by the Agenda over its first five years, since its set-up until its refinement, as well as the evolution of its projects. Finally, the first five-year review of API is outlined, focusing on the exercises undertaken by the countries in 2017 and the new configuration of the Agenda.

## The Path towards the Creation of API

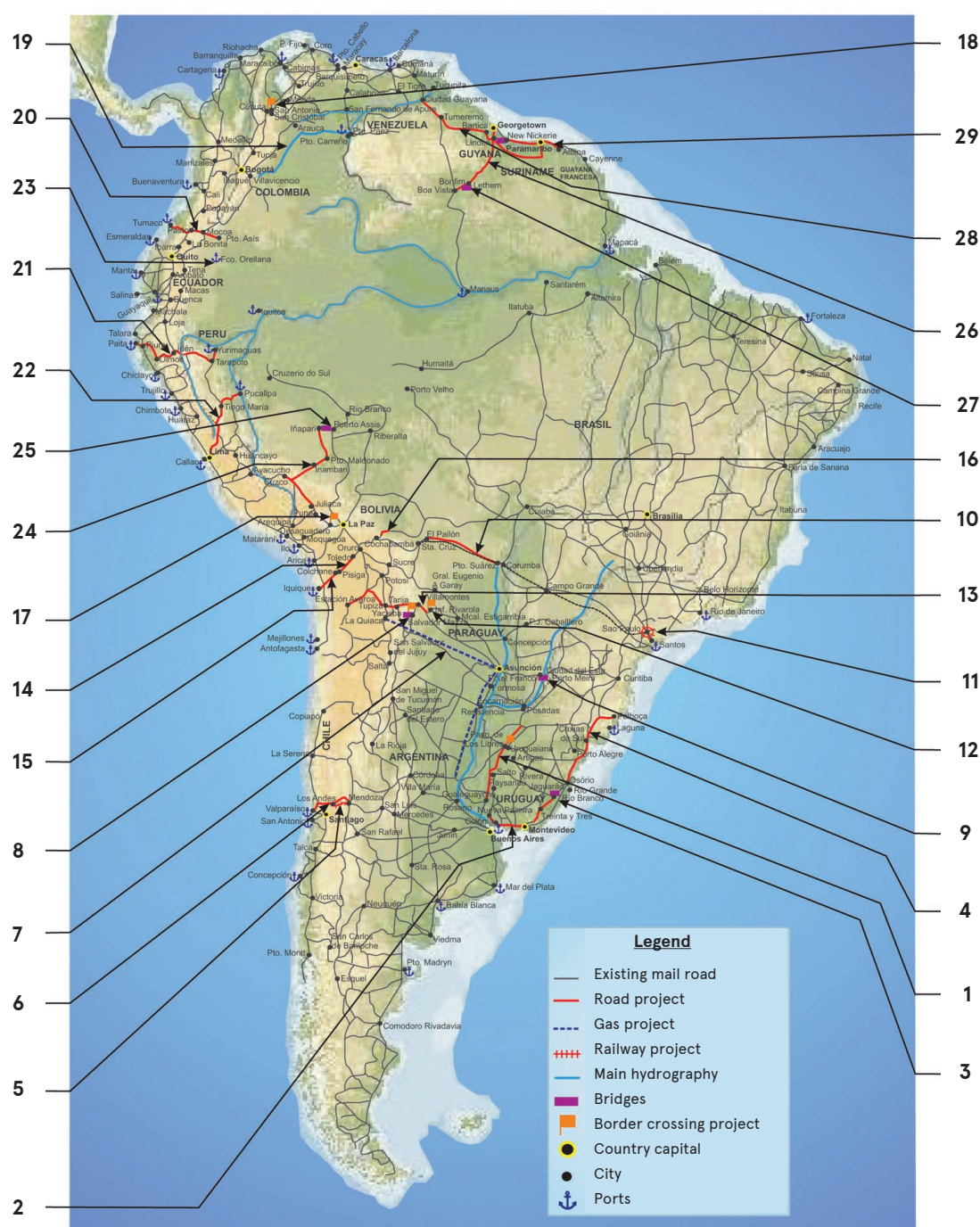
The integration of transport, energy and communications infrastructure is one of the most significant dimensions of the integration project envisioned by the governments of the South American countries. In this context, API constitutes a major policy action of UNASUR to coordinate the efforts made by the South American countries to promote sustainable development and the social welfare of their peoples. Its creation relies on the experiences

undergone and results attained by these countries as from 2000 in the field of cooperation for regional integration.

## The Origins of Territorial Planning in South America

Under the umbrella of IIRSA, South America acted for the first time as a single, integrated unit, its most significant results being the

## 2005–2010 IIRSA Implementation Agenda based on Consensus



creation of “IIRSA Project Portfolio” and of the “Implementation Agenda Based on Consensus (AIC) 2005–2010.”

**IIRSA Project Portfolio** was set up in 2004 as a series of works that would impact powerfully on regional integration and socioeconomic development in the sectors of transport, energy

and communications. Its structuring was possible thanks to the development and application of the Indicative Territorial Planning Methodology<sup>1</sup>.

**The Implementation Agenda Based on Consensus (AIC)** was launched in 2005 in order to accelerate physical integration results, focused on a subset of particularly important projects. AIC was made up of 31 projects.

## LEYEND

1. Upgrade of Route 14 to a Four-lane Road, between Paso de los Libres and Gualeguaychú
2. Upgrade Works of the Río Branco – Montevideo – Colonia – Nueva Palmira Road Corridor
3. Construction of the Jaguarão – Río Branco International Bridge
4. Upgrade of the Palhoça – Osório Road Section to a Four-lane Road (Rodovia MERCOSUR)
5. Railway Project Los Andes – Mendoza (Central Trans-Andean Railway)
6. International Route No. CH-60 (between Valparaíso and Los Andes)
7. Northeastern Argentina Gas Pipeline
8. Construction of the Salvador Mazza – Yacuiba Binational Bridge and Border Center
9. New Presidente Franco – Porto Meira Bridge, with a Paraguay – Brazil Border Center
10. Construction of Pailón – San José – Puerto Suárez Road
11. São Paulo Ring Railway (Northern and Southern Sections)
12. Infante Rivarola – Cañada Oruro Border Crossing
13. Construction of the Cañada Oruro – Villamontes – Tarija – Estación Abaroa Road (First Stage)
14. Toledo – Pisiga Road
15. Paving and Improvement of the Iquique – Colchane Road
16. Rehabilitation of El Sillar Road Section
17. Desaguadero Binational Border Service Center
18. Cúcuta – San Antonio del Táchira Border Crossing
19. Improvement of Navigation Conditions on the Meta River
20. Tumaco – Pasto – Mocoa – Puerto Asís Road Corridor
21. Paita – Tarapoto – Yurimaguas Road, Ports and Logistics Centers
22. Lima – Tingo María – Pucallpa Road, Ports and Logistics Centers
23. Francisco de Orellana Port
24. Paving of Iñapari – Puerto Maldonado – Inambari Road, and Inambari – Juliaca / Inambari – Cusco Roads
25. Bridge over the Acre River
26. Boa Vista – Bonfim – Lethem – Georgetown Road (First Stage: Studies) (2)
27. Bridge over the Takutu River
28. Venezuela (Ciudad Guayana) – Guyana (Georgetown) – Suriname (Paramaribo) Road (First Stage)
29. Improvement of Nieuw Nickerie – Paramaribo – Albina Road and International Crossing over the Marowijne River
30. Exports through Postal Services for SMEs
31. Implementation of the South American Roaming Agreement

1. See Chapter 4, “The Territory and Integration Infrastructure Planning”

The criteria that governed the selection of the projects were the following:

- Portfolio projects having political support from the countries involved, including the commitment of the economic and financial areas of their respective governments, thus ensuring that strategic priority is assigned to them
- Anchor projects, or projects associated with anchor projects having high impact and visibility
- Projects at an advanced preparation stage, and having good short-term finance and implementation prospects

**The Strategic Management Information System (SIGE)** allowed the progress of the works to be monitored, identifying the critical stages for project implementation and providing information for decision making.

Both IIRSA Project Portfolio and the Implementation Agenda based on Consensus were reviewed and updated on an annual basis by the South American countries, and they became the main tools for implementing integration.

## The Mandate of the Presidents to Integrate the Region

Over the years, cooperation in the region developed more and more, which led to envisioning the possibility of creating a supranational body that would encompass all the South American sovereign countries. As a result, in 2008 the South American presidents created the Union of South American Nations (UNASUR) as a forum for high-level political dialogue and coordination among the twelve countries of the region.

2009, the South American Infrastructure and Planning Council (COSIPLAN) became the forum where political and strategic discussions are held with a view to planning and implementing regional infrastructure integration, and incorporated IIRSA as its technical forum.

In 2010, the presidents charged the COSIPLAN with the task of identifying and selecting a series of works that would impact powerfully on the integration and development of South America.

During 2011, thanks to the collaborative work of the twelve countries, **the Integration Priority Project Agenda (API)** was set up with the purpose of promoting *“regional connectivity by building infrastructure networks for physical integration purposes, considering sustainable social and economic development criteria, and preserving the environment and the balance of ecosystems.*

In 2012, the presidents approved the COSIPLAN Strategic Action Plan (PAE) 2012–2022 and the Integration Priority Project Agenda (API), the two instruments that would structure its work in the next ten years.

API was presented to civil society that same year during a dissemination seminar attended by international experts and representatives of third sector organizations. Since then, the progress and implementation of the API projects have deserved special attention by the Council.









## Connectivity Networks for Regional Development

API differs from AIC because it is made up of a series of “structured projects” that involve one or more “individual projects,” i.e. projects from the COSIPLAN Project Portfolio. The structured projects strengthen physical connectivity networks that are regional in scope with the purpose of enhancing existing synergies and solving deficiencies in the infrastructure in place.

The countries established a series of characteristics that should be taken into account when selecting the projects:

- The development of integration infrastructure is a tool for sustainable economic, social and environmental development.
- The Agenda is made up of projects – which may be national, binational or multinational– with a high impact on the physical integration of the region.
- The twelve countries are represented in the Agenda, and there is a balance in the number of projects promoted by each of them.
- The projects are selected by consensus on the basis of predefined criteria.
- The projects will seek, wherever viable and appropriate, a relative increase of all the transportation modes.
- The priority projects may be supported by actions in the regulatory and

territorial planning fields, which will shape an Integration Territorial Program.

- A selection will be made of ongoing projects included in AIC to be added to API, provided that they meet the selection criteria to make up API.

The projects are included in the Agenda on account of their contribution to the improvement of connectivity among the regions, regardless of the countries where the infrastructure is located, implemented, and put into operation. Therefore, even though there may be structured projects located in only one country (i.e., national scope projects), each project always concerns two or more countries, thus ensuring the binational or multinational character of their impact.

After having defined the key characteristics of API and laid the foundations for its comprehensive evaluation together with the territory that they involve, the specific criteria that each individual project must fulfill to be part of the Agenda were established:

• **CRITERION 1:** *The projects should belong to the COSIPLAN Project Portfolio and be a priority in government action, and there should be a commitment to accomplish them.*

Regarding this first criterion, the fact that the projects should belong to the COSIPLAN Project Portfolio proves that they were identified through the application of the above-mentioned Indicative Territorial Planning Methodology, and that they are in line with the portfolio structuring process (Integration and Development Hubs -





Project Groups – Strategic Functions).

In addition, as they are included in the Portfolio, their impact on regional integration was already agreed upon by all the countries.

Equally important is that the projects should be a priority in government action, which means that they should be included in national or subnational development plans, sectoral policies and strategies, national legislation, etc. This may also refer to projects politically supported at the regional level, i.e. either included in bilateral or multilateral agreements, or mentioned in presidential summit or ministerial meeting declarations.

• **CRITERION 2:** *Feasibility studies should be available, or the country should have the funds allocated to start their execution.*

The requirement that feasibility studies should have been carried out is meant to include projects at an advanced preparation stage and having good finance and execution prospects vis-à-vis the implementation time frame established for the Agenda (2012–2022). Moreover, these studies provide accurate information about project resources and schedules. However, the countries have agreed to incorporate projects in the profiling stage, provided budget resources are allocated to conduct the required studies and their completion falls within the Agenda time frame.

• **CRITERION 3:** *The projects should strengthen connectivity networks that are regional in scope, and involve cross-border synergies*

This criterion refers to the project potential for promoting regional territorial development by encouraging connectivity, eradicating bottlenecks, and adding missing links to existing networks. Similarly, cross-border synergy effects are expected to result from action coordination among the countries, thus contributing to the integration of API projects. This is why there are structured projects made up of individual projects with converging objectives.

• **CRITERION 4:** *There should exist an opportunity or a need for taking complementary actions intended to promote efficient service provision and the sustainable development of the territory, according to the characteristics and modality of each specific project.*

As already explained, this criterion introduces the concept of Integration Territorial Programs (PTIs) in the understanding that it is necessary to make headway with the identification of actions complementary to infrastructure implementation for the API projects that may so require. These programs will help leverage the impact of infrastructure on the development of the territories involved, while considering the economic, social and environmental aspects.

## Consensuses and Collaborative Work

Once the basic concepts related to the Agenda as well as its characteristics and selection criteria were established, the countries decided on its structured and individual projects through and agreed-upon procedure that was followed throughout 2011.

### 1. *Revision of the COSIPLAN Project Portfolio and Preliminary Identification of Priority Projects at the National Level*

The first step in this process consisted in reviewing the COSIPLAN Project Portfolio at each country level, since the API projects should belong to such Portfolio. The countries updated the project information in the Database, and identified the projects they wished to include in or exclude from it for consideration at the meetings of the Executive Technical Group (GTE) on the relevant Integration and Development Hubs.

In addition, the countries identified their priority projects on a preliminary basis through a domestic dialogue and consensus process. For this purpose, national and subnational development plans, sectoral policies and strategies, bilateral agreements and/or investment priorities were taken into account.

### 2. *Update of the COSIPLAN Project Portfolio and Presentation of the Priority Projects*

Based on the work previously done, in June 2011, the city of Bogotá hosted a series of GTE meetings on the nine Hubs devoted to the above-mentioned purpose. Furthermore, the tasks of defining its features and project selection criteria were fulfilled. As a result of these meetings, a preliminary list was drawn up based on the projects presented by each country. At the closing plenary session, all the countries agreed to review and confront the projects in the preliminary list against the four selection criteria laid down, with a view to presenting their conclusions at the following meeting.

### 3. *Selection and Proposal of the Priority Projects at the National Level*

During this stage, the countries analyzed the preliminary list of the API projects of direct concern to them, based on a dialogue process

held at different government levels with the aim of achieving domestic consensus so as to make progress towards preliminary agreements with neighboring countries. To standardize the information on the Agenda projects, IIRSA Technical Coordination Committee (CCT) designed a file with the purpose of collecting basic data about the projects and account for their compliance with the selection criteria.

### 4. *Definition of the Integration Priority Project Agenda (API)*

On the basis of the data collected at the previous stage, in July 2011, a GTE meeting was held in the city of Montevideo, Uruguay, with the purpose of reviewing the list of projects included in the Agenda. The National Coordinations presented the projects proposed and accounted for their compliance with the selection criteria agreed upon. On this occasion, it was decided that projects with converging objectives should be grouped into structured projects of a larger scale in order to enhance their impact on the physical integration of the countries.

### 5. *Consolidation of API by IIRSA National Coordinators*

The XVIII Meeting of IIRSA National Coordinators was held in the city of Rio de Janeiro in August 2011. The purpose of the meeting agenda was to complete the work underway regarding the set-up of API, and to define the next steps towards its implementation and monitoring. The following was agreed upon at the meeting: the name of the Agenda would be Integration Priority Project Agenda (API), and the terminology to be used in API would be "structured project" and "individual project". Furthermore, the information accounting for compliance with the selection criteria as well as the schedule of completion of the individual project stages were completed.





As far as monitoring is concerned, it was agreed that a tool associated with the project Database would be designed to monitor the API projects. This information would be available to the general public on the COSIPLAN website. This mandate would result in the creation of the current Project Information System (SIP).

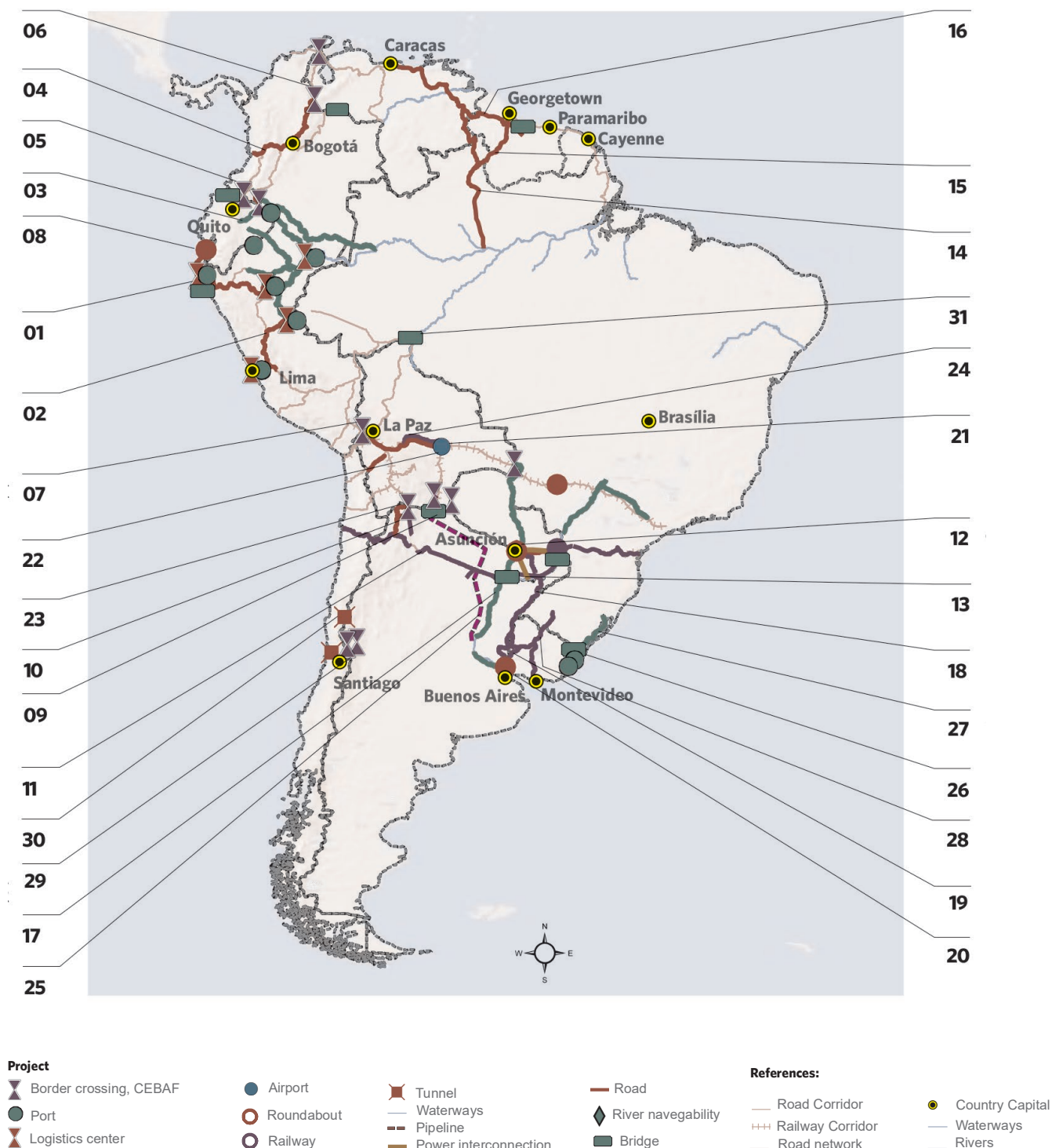
## **6.** *Approval of API*

The last step in this procedure was the approval of API by the COSIPLAN Coordinating Committee at the meeting held on November 29, 2011. This Agenda was subsequently submitted for consideration and approval by the Ministers who made up the Council at their second ordinary meeting, held the next day. During the VI Meeting of the UNASUR Council of Heads of State, which took place in November 2012 in Lima, the South American presidents approved the Agenda.

## API Projects in 2011

After the process described above was completed, API was made up of 31 structure projects including 88 individual projects for a total investment estimated at US\$13.653 billion. Most projects (52%) were already at the execution stage, while a third of them were at the pre-execution stage.

Each Integration and Development Hub and each of the countries was involved in at least one API structured project, thus complying with the principles proposed. The Hub with the greatest number of individual projects was the Amazon Hub (25 projects), followed by the Capricorn and Paraguay-Paraná Waterway Hubs (18 and 15 projects, respectively).





## LEGEND

1. Paita – Tarapoto – Yurimaguas Road, Ports, Logistics Centers and Waterways
2. Callao – La Oroya – Pucallpa Road, Ports, Logistics Centers and Waterways
3. Northeastern Access to the Amazon River
4. Caracas – Bogotá – Buenaventura / Quito Road Corridor
5. Colombia – Ecuador Border Interconnection
6. Colombia – Venezuela Border Crossings Connectivity System
7. Desaguadero Binational Border Service Center (CEBAF)
8. Autopista del Sol Expressway: Improvement and Rehabilitation of the Sullana – Aguas Verdes Section (Including Tumbes Bypass)
9. Construction of the Salvador Mazza – Yacuiba Binational Bridge and Border Center
10. Argentina – Bolivia West Connection
11. Paranaguá – Antofagasta Bioceanic Railway Corridor
12. Foz do Iguaçu – Ciudad del Este – Asunción – Clorinda Road Connection
13. Itaipu – Asunción – Yaciretá 500-kV Transmission Line
14. Rehabilitation of the Caracas – Manaus Road
15. Boa Vista – Bonfim – Lethem – Linden – Georgetown Road
16. Routes Interconnecting Venezuela (Ciudad Guayana) – Guyana (Georgetown) – Suriname (South Drain – Apura – Zanderij – Moengo – Albina), Including Construction of the Bridge over the Corentyne River
17. Improvement of Navigation Conditions on the Rivers of the Plata Basin
18. Paraguay – Argentina – Uruguay Railway Interconnection
19. Rehabilitation of the Chamberlain – Fray Bentos Railway Branch Line
20. Nueva Palmira Beltway and Port Access Roads Network
21. Passenger and Cargo Hub Airport for South America (Viru Viru, Santa Cruz, International Hub Airport)
22. Improvement of Road Connectivity in the Central Interoceanic Hub
23. Infante Rivarola – Cañada Oruro Border Crossing
24. Central Bioceanic Railway Corridor (Bolivian Section)
25. Northeastern Argentina Gas Pipeline
26. Construction of the Jaguarão – Río Branco International Bridge
27. Multimodal Transportation in the Laguna Merín and Lagoa dos Patos System
28. Montevideo – Cacequi Railway Corridor
29. Optimization of the Cristo Redentor Border Crossing System
30. Agua Negra Binational Tunnel
31. Porto Velho – Peruvian Coast Connection

## The First Five Years of the Integration Priority Projects

From its creation in 2011 up to 2016, API included the original 31 structured projects. In 2012, API was made up of 88 individual projects for an investment estimated at US\$17.2607 billion. This amount accounted for 13.3% of the total COSIPLAN Portfolio that same year.

Changes in terms of number during this period were in individual projects. A relatively greater variation was experienced in the

estimated investment in the works concerned, which increased by 16.7% between 2012 and 2016, from US\$17.261 billion to US\$20.149 billion.

The estimated investment growth was not necessarily due to the rise in the number of individual projects, which grew from 88 in 2012 to 103 in 2016, but to increasingly accurate information on the investments necessary to implement them.

### Evolution of API between 2012 and 2016

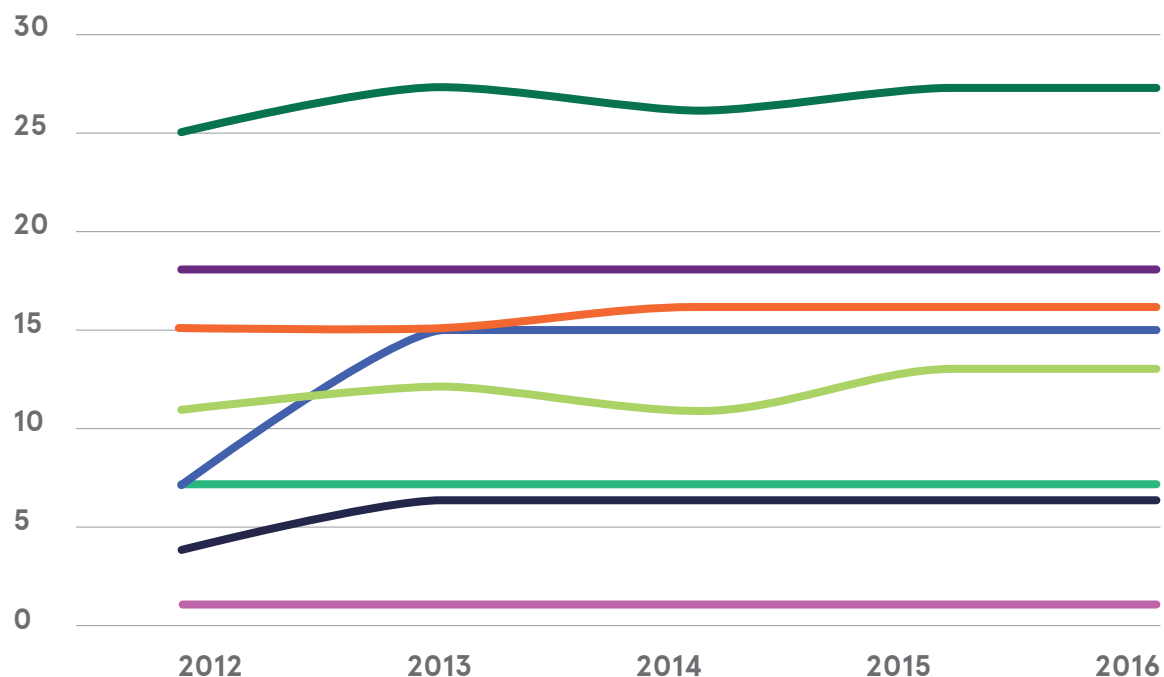
*\*US\$ million*

	No. of Individual Projects	Estimated Investment*
<b>2012</b>	88	17,260.7
<b>2013</b>	101	16,713.8
<b>2014</b>	100	21,172.6
<b>2015</b>	103	21,135.5
<b>2016</b>	103	20,148.6

The increase in the number of individual projects occurred mainly in the MERCOSUR-Chile Hub. In 2013, a number of countries disaggregated some individual projects, and thus six individual projects turned into nineteen new, more specific individual projects. This made it easier to record their progress as well as to monitor them, while their integration to the structured projects made it possible to focus API on a small number of projects.

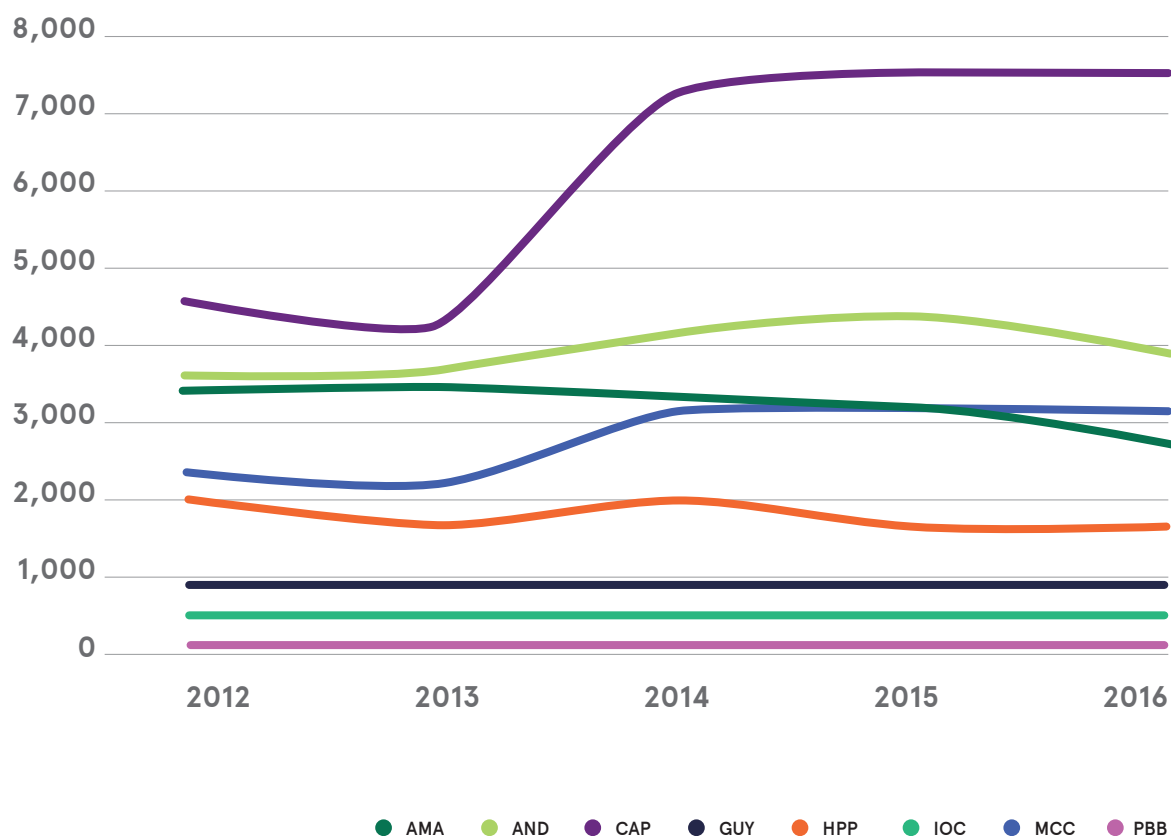
Over such five-year period, some Hubs remained totally unchanged in terms of number of projects, such as the Central Interoceanic, Peru-Brazil-Bolivia, and Capricorn Hubs. However, even though the first two Hubs kept the same amount of estimated investment, this investment grew the most in the Capricorn Hub.

## Evolution of API between 2012 and 2016 by Hub in Terms of Number of Individual Projects



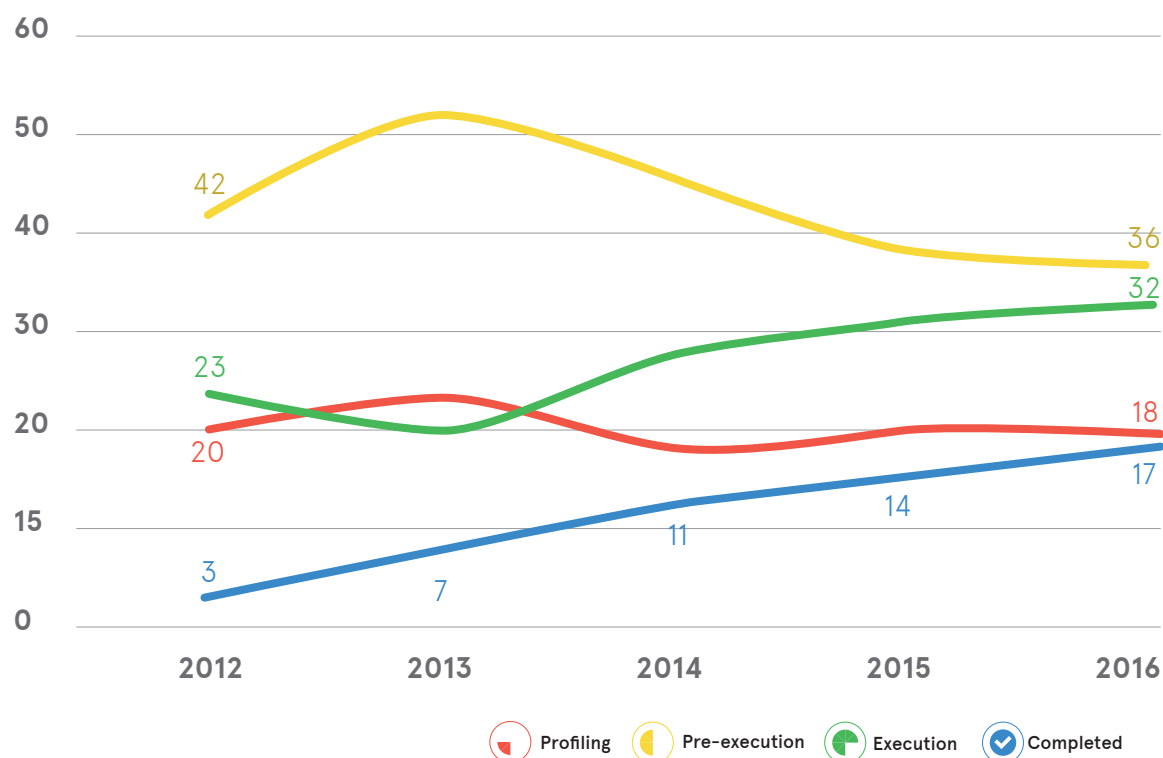
## Evolution of API between 2012 and 2016 by Hub in Terms of Estimated Investment

\* US\$ million



When considering the stages of the individual projects in the 2012–2016 period, the evolution in terms of the increase in the number of projects at the execution stage and completed as well as the reduction of projects at the pre-execution stage become apparent, which also reveals the progress of the Agenda.

## Evolution of API between 2012 and 2016 by Life Cycle Stages



Some individual projects were included in API when they were already completed as they were important for the completion of the connectivity sought by the structured project.

The 11 individual projects that were completed between 2011 and 2016 are the following:

- Binationl Border Service Center (CEBAF) at San Miguel (Colombia – Ecuador) (AND31)
- Construction of the New International Rumichaca Bridge and Improvement of the Existing Bridge (Colombia – Ecuador) (AND91)
- 500-kV Transmission Line (Itaipu – Villa Hayes) (Paraguay) (CAP67)
- Port of Paita (Peru) (AMA24)
- Improvement of Navigation Conditions on the Morona River (Ecuador – Peru) (AMA39)
- El Callao Multi-Purpose Northern Terminal (Peru) (AMA66)
- El Callao Mineral Shipping Terminal (Peru) (AMA67)
- Providencia Port (Ecuador) (AMA71)
- Construction of New Yurimaguas Port (Peru) (AMA102)
- Puerto Suárez – Corumbá Integrated Control Area (Bolivia – Brazil) (IOC25)
- Rehabilitation of the Rivera – Santana do Livramento – Cacequi Railway Section (Brazil – Uruguay) (MCC115)



Physical Integration as a Pillar for South American Unity

A total of US\$1.327 billion was invested to complete such projects, most of which belong to Peru, even though there were completed projects in all the Hubs, except for the Paraguay-Paraná and Peru-Brazil-Bolivia Hubs. Most of such projects (6) were located in the Amazon Hub. Of the projects completed in this period, only one falls in the energy sector, involving 42% of the investment made. As for the other projects, three fall in the river subsector, three in the sea subsector, two in the border crossings sector, one is a road and another one falls in the rail subsector.

## More Technology to Improve COSIPLAN Management

During 2013, a series of activities were carried out, and tools aimed at improving information quality and at implementing a project monitoring system were developed<sup>2</sup>.

On the one hand, the **Life Cycle Scheduling Methodology** was developed, which is a tool that enables the status and evolution of projects over time to be known. For this purpose, it was agreed to work with the project life cycle stages as agreed by the governments in 2008, namely: profiling, pre-execution, execution, and completed<sup>3</sup>.

The pre-execution and execution stages were subdivided since they demand long periods of

time, and such subdivision would allow more detailed information on the progress of the projects.

On the other hand, a new IT tool to replace the Project Portfolio Database was developed. This database had a file for each of the projects that made up the Portfolio.

The new **COSIPLAN Project Information System (SIP)** was made up of three components: Portfolio Database, API Structured Project Database, and **API Continuous Monitoring System**. These three components are interconnected; the information is recorded simultaneously, and can be accessed from the same IT platform using their respective sign-in buttons.

The project life cycle schedules, made out using the new criteria, were directly uploaded to the Continuous Monitoring System by those responsible for the update of the project files in each country. At present, this information serves as a baseline to measure the progress made by the projects and identify their deviations, if any, thus contributing to decision making with a view to removing the obstacles that may emerge throughout the life cycle of these priority projects.

<sup>2</sup> See Chapter 4, "The Territory and Integration Infrastructure Planning."

<sup>3</sup> Project stages: Profiling: At this stage, background information is studied in order to assess the suitability and technical and economic feasibility of implementing the project idea. Pre-execution: This stage includes projects in the following phases: pre-feasibility, feasibility, and investment. Execution: This refers to the set of activities required for the physical construction of the project, such as contract conclusion, purchase and set up of machines and equipment, miscellaneous installations, etc. Completed: Projects works finished and put into operation.



## The Five-year Review in 2017

As stated in the Strategic Action Plan 2012–2022, API will be revised every five years, with the purpose of analyzing the progress made by the individual and structured projects; basically, it is necessary to analyze whether those projects not yet implemented after five years continue to have the same priority as when they were included, taking into account that the situation of the countries, the region and the world is different from that in 2011.

During the period from 2001 to 2017, the social and political configurations of the region and the world underwent changes. The region witnessed different events that had an impact on infrastructure investment decisions in our countries, such as a great number of natural disasters, changes in the world trade patterns, and the restructuring of alliances to further the integration process, among many others.

These changes had an impact on the regional governments' definition of their plans and priorities, one of such priorities being infrastructure investments –both national and those necessary to improve integration with their neighboring countries. In this context, the review and revision of API enabled the validation and adjustment of these priorities to the current political and economic dynamics, with the purpose of planning and implementing the projects that are more efficient in the use of resources and bring the greatest benefits to the South American citizens.

API five-year review was conducted throughout the first half of 2017 and involved all the countries in several work stages under the coordination of the Presidency Pro Tempore, held by Argentina.

## Situation Diagnosis

Between January and March 2017, the COSIPLAN Technical Coordination Committee made a diagnosis using several sources of information:

- **The COSIPLAN Project Information System**
- **API reports 2011 through 2016**
- **Communications and information exchange with the National Coordinations**
- **A diagnosis of API made by the countries in 2015 concerning the difficulties that delayed the implementation of each project**
- **A report drafted by the UNASUR General Secretariat on API multinational projects**

In aggregated terms, the diagnosis identified three groups of projects:

- **A group made up of projects that made progress on schedule;**
- **A group including those projects that required that a longer term be established for their completion and were still a priority in governmental plans;**
- **A group of projects with many difficulties hindering their implementation or that were no longer a priority in the investment plans of the governments concerned.**

On the basis of these results, a proposal to rearrange the projects was presented to the National Coordinations during their first plenary session.



## Project Review and Revision Methodology

On April 18 and 19, 2017, the city of Buenos Aires, Argentina, hosted the **First Meeting on API Review**, which was attended by delegations from Argentina, Bolivia, Brazil, Chile, Colombia,

Ecuador, Guyana, Paraguay, Peru and Uruguay, as well as by representatives of civil society organizations, the UNASUR General Secretariat, and COSIPLAN-IIRSA's Technical Coordination Committee.



Photo: First Meeting on API Review, April 19, 2017, Buenos Aires, Argentina

The objective of the meeting was to present the diagnosis of API and to agree upon the criteria for the five-year review, as well as to analyze the status and the estimated completion of the 31 structured projects. As a result of their work, the countries agreed to rearrange API projects by splitting them up into two groups: the first one was to include projects to be decidedly completed by 2022, and the second

one was to be made up of projects scheduled to be completed by 2027.

Structured projects that could not be grouped into either category would no longer be deemed a priority, but might be analyzed again in the next API review, to be held in 2022. The individual projects making up such API projects would remain included in the Portfolio unless the countries concerned decided otherwise.

The individual projects that were chosen to remain in API 2022 or API 2027 should comply with the following requirements:

- They could not be at the profiling stage.
- No project at the pre-execution stage would be allowed to remain at the same sub-stage as the one at which it was at the time of its inclusion into API (2011).
- The studies for projects at the pre-execution stage could not date back earlier than 2013.

- It was mandatory to complete the Continuous Monitoring System for every project.

- They could not be at the profiling stage.

Any new API project that the countries propose to add should comply with the four criteria defined by COSIPLAN during the creation of API in 2011.

Once the review and revision methodology and the next meetings and occasions for analysis were agreed upon, a first evaluation round for each structured project was launched.

## Project Update

The second stage of review and revision took place from May 16 to June 29 and involved the Videoconferences to Update the Project Portfolio and API by Integration and Development Hub. This activity, which the countries have carried out each year since 2009, allows the Portfolio to reflect the investment priorities of the governments concerning integration projects with their neighboring countries.

## Meetings to Update the Project Portfolio and API in 2017

Date	Hubs	Countries
May 16	Central Interoceanic and Peru-Brazil-Bolivia Hubs	Bolivia, Brazil, Chile, Paraguay, Peru
May 23	MERCOSUR-Chile Hub	Argentina, Brazil, Chile, Paraguay, Uruguay
May 30	Paraguay-Paraná Waterway Hub	Argentina, Bolivia, Brazil, Paraguay, Uruguay
June 5	Capricorn and Southern Hubs	Argentina, Bolivia, Brazil, Chile, Paraguay
June 22	Amazon Hub	Brazil, Colombia, Ecuador, Peru
June 29	Andean Hub	Bolivia, Colombia, Ecuador, Peru, Venezuela

During these meetings, the countries continued the discussions, supplied up-to-date information on the projects, and thus defined the location of each project in the categories defined, providing the technical rationale in each case. The teams of the government agencies involved in the different project development stages participated in the videoconferences and supplied valuable details of the works.



## The New Configuration of API

Once the cycle of Videoconferences by Hub was completed, the countries met again on July 11 in Montevideo, Uruguay, for the Second Meeting on API Review, which was attended by delegations of Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Uruguay, Venezuela, and the COSIPLAN-IIRSA Technical Coordination Committee.

The delegations present recognized the need to maintain a commitment to action regarding the API projects, taking into account essential factors when planning infrastructure works, such as the stability of the state policies concerned with the development of long-term programs, the complex and uncertain international



Photo: Second Meeting on API Review, July 11 2017, Montevideo, Uruguay.

economic circumstances then and in the future, and the consequences of environmental change that bring about emergency situations and unplanned reconstruction works.

During the meeting, the composition of API 2022 and API 2027 was completed, and agreement was reached on the projects that were not to remain in any of these two groups.

## 1. API 2022 Projects

API 2022 is made up of 14 structured projects that comprise 42 individual projects involving an investment estimated at US\$11.0878 billion.

### The projects that make it up are the following:

- Paíta - Tarapoto - Yurimaguas Road, Ports and Waterways (API 1)
- Callao - La Orola - Pucallpa Road, Ports and Waterways (API 2)
- Caracas - Bogotá - Buenaventura / Quito Road Corridor (API 4)
- Colombia - Ecuador Border Interconnection (API 5)
- Desaguadero Binational Border Service Center (CEBAF) (API 7)
- Autopista del Sol Expressway: Improvement and Rehabilitation of the Sullana - Aguas Verdes Section (API 8)
- Itaipu - Asunción - Yacyretá 500-kV Transmission Line (API 13)
- Nueva Palmira Beltway, Upgrade of the Direct Influence Road Network and Port Access Roads System (API 20)
- Infante Rivarola - Cañada Oruro Border Crossing (API 23)
- Northeastern Argentina Gas Pipeline (API 25)
- Construction of the Jaguarão - Río Branco International Bridge (API 26)
- Argentina - Uruguay - Brazil Railway Corridor (API 28)
- Optimization of the Cristo Redentor Border Crossing System (API 29)
- Porto Velho - Peruvian Coast Connection (API 31)

The technical characteristics of the projects are as follows:



### Road Subsector

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- Paving, upgrade to four lanes, improvement and rehabilitation of more than 3,475 km of road corridors; some sections include tunnels and bridges, road interchanges, pedestrian bridges, traffic signing and road marking, and complementary works
- Construction of an 8.5-km beltway
- Construction of a bypass made up of a 18.7-km long four-lane road, two road interchanges, two grade-separated junctions, and two bridges
- Construction of a road junction and a roundabout
- Upgrade of urban streets for direct access to a port
- Rehabilitation of a binational tunnel
- Construction and rehabilitation of 47 bridges (including a 1,084-m, a 400-m long and 16.9-m wide, an 80-m and a 71-m bridges)



### Rail Subsector

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- Rehabilitation of 1,051 km of rail corridors



### River Subsector

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- Modernization and construction of three river ports
- Improvement of navigation conditions along 2,600 km of waterways



### Sea Subsector

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- Upgrade of four sea ports



### Multimodal Subsector

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- Design of one management control system made up of interconnected management stations



### Border Crossings

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- Construction of nine binational border service centers, including one border center for integrated control operations in a single customs office and complementary works involving 1,031 m<sup>2</sup>, a 32,000 m<sup>2</sup>-border complex, a freight control center with an area of 47 ha, and a passenger control center with an area of 20 ha



### Energy Interconnection

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- Improvement of two 500-kV transmission lines running along 621 km
- Construction of a 1,508-km, 24-inch diameter trunk gas pipeline and spur pipelines running along 1,533 km

## 2. API 2027 Projects

API 2027 is made up of 12 structured projects that comprise 35 individual projects involving an investment estimated at US\$12.0092 billion.

### The projects that make it up are the following:

- Colombia - Venezuela Border Crossings Connectivity System (API 6)
- Territorial Development for Border Integration and Connectivity in Salvador Mazza - Yacuiba (API 9)
- Territorial Development for Border Integration and Connectivity in La Quiaca - Villazón (API 10)
- Foz do Iguaçu - Ciudad del Este - Asunción - Clorinda Road Connection (API 12)
- Boa Vista - Bonfim - Lethem - Linden - Georgetown Road (API 15)
- Routes Interconnecting Venezuela (Ciudad Guayana) - Guyana (Georgetown) - Suriname (South Drain - Apura - Zanderij - Moengo - Albina), Including Construction of the Bridge over the Corentyne River (API 16)
- Improvement of Navigation Conditions on the Rivers of the Plata Basin (API 17)
- Passenger and Cargo Hub Airport for South America (Viru Viru, Santa Cruz, International Hub Airport) (API 21)
- Improvement of Road Connectivity in the Central Interoceanic Hub (API 22)
- Bioceanic Railway Corridor for Integration (Bolivian Section) (API 24)
- Multimodal Transportation in the Laguna Merín and Lagoa dos Patos System (API 27)
- Agua Negra Binational Tunnel (API 30)



The technical characteristics of the projects are as follows:



### Air Subsector

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- Expansion of a freight and passenger airport



### Road Subsector

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- Construction, improvement, paving, and upgrade to four lanes of more than 1,578 km of road corridors and accesses
- Upgrade of a road interchange
- Construction of a 46.1 km ring road
- Construction of two parallel tunnels, one for each direction of travel, running along 13.9 km
- Improvement of six bridges, including a 280-m international bridge, and a 760-m, a 167.1-m and a 30-m bridges



### Rail Subsector

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- Rehabilitation and construction of 1,894 km of rails



### River Subsector

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- Improvement of navigation conditions on approximately 4,708.3 km of waterways
- Dredging works, upgrade of corridors and complementary works in two lakes and their tributaries (including dredging, the installation of signs and markers and aids to navigation in navigable waterways, and cartographic and hydrographic surveys)
- Construction of two river port terminals
- Dredging of 143,000 m<sup>3</sup> of material



### Border Crossings

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- Construction and improvement of five border crossing centers, including a binational border service center with four facilities and another one covering a 24.8-ha area

### 3. Non-priority Projects

#### Northeastern Access to the Amazon River (API 3)

BRAZIL · COLOMBIA · ECUADOR · PERU

The National Coordinations concerned agreed to continue working on the individual projects that made up this structured project within the framework of the COSIPLAN Portfolio. Efforts will especially focus on defining the Terms of Reference for the study Improvement of Navigation Conditions on the Putumayo – Içá River (AMA38). The study and the identification of financing sources will be carried out under the coordination of Colombia.

#### Paranaguá – Antofagasta Bioceanic Railway Corridor (API 11)

ARGENTINA · CHILE · BRAZIL · PARAGUAY

The National Coordinations of Argentina, Brazil and Paraguay informed that the investments required to make headway with this project were no longer a priority in their respective governments' plans.

The countries expressed their interest in dealing with this bioceanic connection within the framework of the Working Group on Rail Integration with the objective of identifying the issues to be solved, analyzing the possibility of conducting studies and planning the project for the long-term.

#### Rehabilitation of the Caracas – Manaus Road (API 14)

BRAZIL · VENEZUELA

The National Coordinations of Brazil and Venezuela informed that the road sections on both sides of the border were under repair, and stated the rehabilitation of the road was not a priority in their governments' plans.

#### Paraguay – Argentina – Uruguay Railway Interconnection (API 18)

ARGENTINA · PARAGUAY · URUGUAY

The National Coordinations of Argentina and Paraguay informed that the investments required to make progress with this project were not a priority in their respective governments' plans.

Argentina informed that the possibility of reactivating the whole Urquiza railway is being studied. Regarding project Rehabilitation of the Zárate – Posadas Railway Branch Line (HPP82), company Trenes Argentinos Cargas plans to analyze the conversion of the line from standard gauge to narrow gauge. As for project Construction and Rehabilitation of the Artigas (Paraguay) – Posadas (Argentina) Railway, the section in the Argentine territory only includes the bridge, which is considered to be operational.

Uruguay informed that project Rehabilitation and Improvement of the Piedra Sola – Salto Grande Railway Corridor was at the execution stage with financing from FOCEM. The National Coordinations decided to include this project to API project Montevideo – Cacequi Railway Corridor and that, from then on, the name of the project was changed to Argentina – Uruguay – Brazil Railway Corridor.

#### Rehabilitation of the Chamberlain – Fray Bentos Railway Branch Line (API 19)

URUGUAY

The National Coordination of Uruguay decided to include this individual project in API project Argentina – Uruguay – Brazil Railway Corridor. Thus, the project would remain a priority and would become part of a structured project involving rail connectivity between Uruguay on the one hand and Brazil and Argentina on the other.



## Monitoring and Dissemination

During the First API Five-Year Review, agreements were reached concerning the Agenda's monitoring modality, the necessary adjustments to the technological tools that follow its evolution, and the dissemination of the progress made by its projects.

Specific guidelines for monitoring the two new agendas were deemed necessary. In the case of API 2022, COSIPLAN will focus on the individual projects that are not at the execution stage yet with the aim of identifying the difficulties that might be preventing them from evolving appropriately. To achieve this, keeping the information on all its individual projects updated in real time in the SIP is needed. The headway made will be presented at the online meetings provided for in the COSIPLAN Work Plan, during which the countries should report on the progress of the projects at the execution stage and the status of the projects at the pre-execution stage, as well as jointly agree on the actions to solve any problems when necessary.

Regarding the projects in API 2027, efforts must focus on the individual projects with implementation difficulties by analyzing the causes and jointly exploring possible solutions for the projects to return to schedule. It is very important that the SMP is kept up to date in real time. Unlike the case of the previous set of projects, it was agreed to identify one coordinating country per structure project; such country will undertake to monitor the project schedule, convene the meetings to discuss the project, propose the participation of key actors who can contribute to solving the problems, and facilitate the dialogue between the institutions of the countries involved in the project.

The IT tools should be adjusted to incorporate the new configuration of API. In this regard, a new display of both Agendas will be implemented in the SIP in 2018, with clear visual identifications on the home page and also in each API project file. In addition, the search filters and the reports should be adapted. Furthermore, new information layers for API 2022 and API 2027 will be added to the COSIPLAN Geographic Information System (GIS-SDI). Finally, the need to take specific actions to disseminate the projects to the general public was identified.

In short, the review and revision exercise was extremely positive and met the objectives of aligning the priorities with the current political and economic dynamics looking into the future. The widespread and sustained commitment of the countries is worth noting. All of them participated in the different work occasions with the involvement of their technical teams, which were key when reviewing and updating each project.

Fernando Álvarez de Celis, Argentina's Under-Secretary of Territorial Planning of Public Investment, stressed the social transformation implications of the infrastructure projects promoted by COSIPLAN. Mr. Álvarez de Celis recognized that the interconnection of many of the countries is complex in some cases, which hinders the real shaping of UNASUR and Latin America as a single territory. "When all these infrastructure works become available to us, it will be very difficult to go back to the former situation. That's why they are transcendent: because they change and unite Latin America for good," he added.■







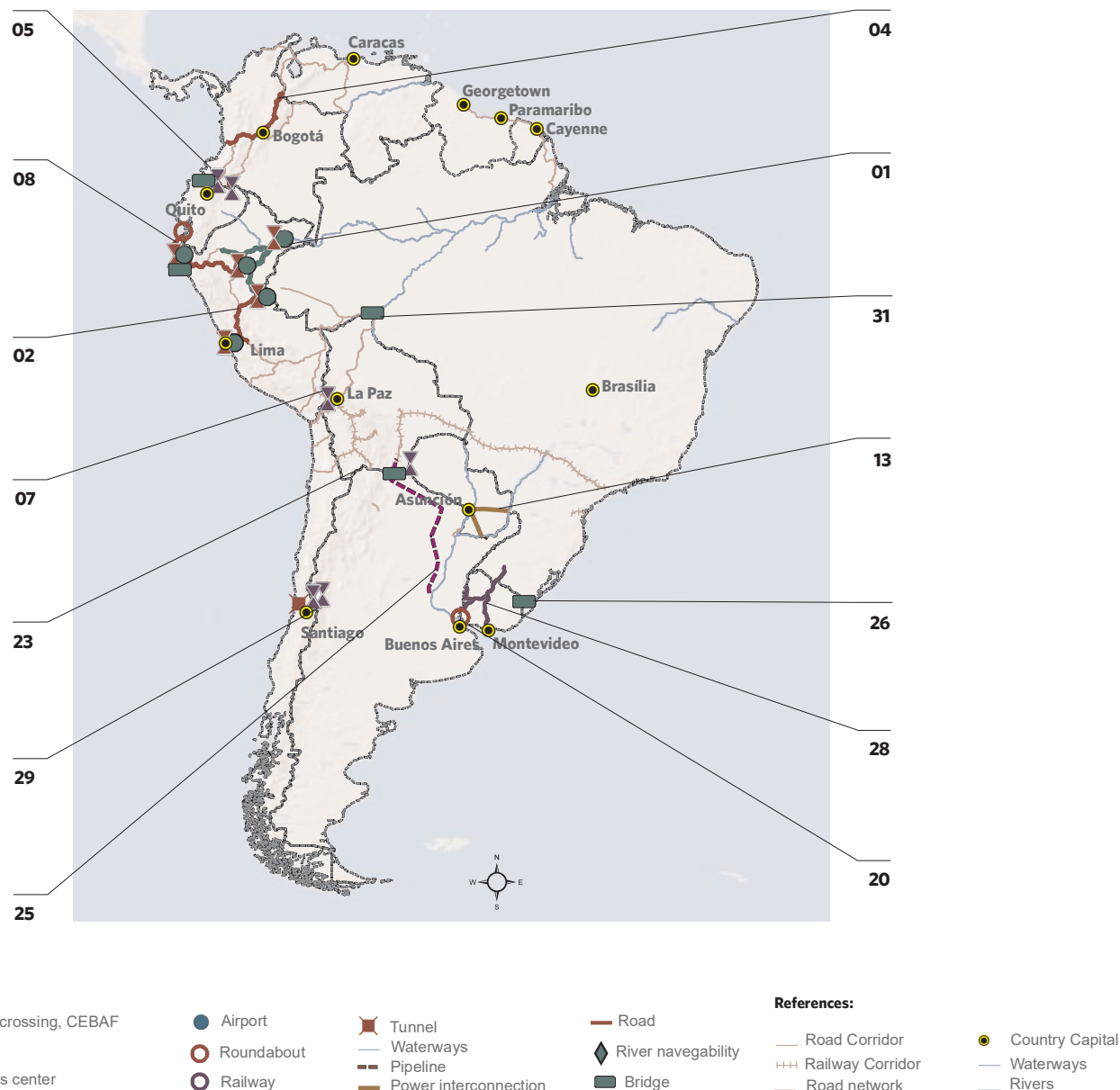
# South America Connected Towards 2022

**A**s a result of the analysis and update of API, the countries identified 14 of the 31 connectivity projects prioritized in 2011, which will be completed before 2022. These structured projects include 42 individual projects involving an investment estimated at US\$11.087 billion.

This section describes each of these projects, and provides information about their location, the countries involved, the characteristics of the works, their progress status, the current commercial and trade dynamics, and the benefits expected in terms of regional integration. This material was prepared thanks to the up-to-date, quality information contributed by the officials that make up the national teams with the purpose of sharing with the South American citizens the details of the projects underway in the territories where they live.

To complete this section, a series of aggregated data about the main dimensions of the 42 individual projects is provided, such as their distribution by country and Hub and sector and subsector, their estimated completion date, the type and source of financing, and the projects with the greatest estimated investment. These data offer the reader a comprehensive view of this set of projects of strategic importance for the region that will be completed over the next five years.

## Map of API Projects 2022

















### LEGEND

- 01.** Paita - Tarapoto - Yurimaguas Road, Ports and Waterways
- 02.** Callao - La Orola - Pucallpa Road, Ports and Waterways
- 04.** Caracas - Bogotá - Buenaventura / Quito Road Corridor
- 05.** Colombia - Ecuador Border Interconnection
- 07.** Desaguadero Binational Border Service Center (CEBAF)
- 08.** Autopista del Sol Expressway: Improvement and Rehabilitation of the Sullana - Aguas Verdes Section (Including Tumbes Bypass)

- 13.** Itaipu - Asunción - Yaciretá 500-kV Transmission Line
- 20.** Nueva Palmira Beltway, Upgrade of the Direct Influence Road Network and Port Access Roads System
- 23.** Infante Rivarola - Cañada Oruro Border Crossing
- 25.** Northeastern Argentina Gas Pipeline
- 26.** Construction of the Jaguarão - Río Branco International Bridge
- 28.** Argentina - Uruguay - Brazil Railway Corridor
- 29.** Optimization of the Cristo Redentor Border Crossing System
- 31.** Porto Velho - Peruvian Coast Connection

## API 2022 Structured Projects

\*US\$ million

API	Name	Hub	Countries	Stage	Estimated investment*	Number of Individual Projects
1	PAITA - TARAPOTO - YURIMAGUAS ROAD, PORTS AND WATERWAYS	AMA	PE		310.5	7
2	CALLAO - LA OROLA - PUCALLPA ROAD, PORTS AND WATERWAYS	AMA	PE		2,672.6	9
4	CARACAS - BOGOTÁ - BUENAVENTURA / QUITO ROAD CORRIDOR	AND	CO		2,825.7	2
5	COLOMBIA - ECUADOR BORDER INTERCONNECTION	AND	CO - EC		319.1	4
7	DESAGUADERO BINATIONAL BORDER SERVICE CENTER (CEBAF)	AND	BO - PE		29.9	1
8	AUTOPISTA DEL SOL EXPRESSWAY: IMPROVEMENT AND REHABILITATION OF THE SULLANA - AGUAS VERDES SECTION (INCLUDING TUMBES BYPASS)	AND	PE		666.3	3
13	ITAIPU - ASUNCIÓN - YACYRETÁ 500-kV TRANSMISSION LINE	CAP	PY		852.0	2
20	NUEVA PALMIRA BELTWAY, UPGRADE OF THE DIRECT INFLUENCE ROAD NETWORK AND PORT ACCESS ROADS SYSTEM	HPP	UY		15.0	1
23	INFANTE RIVAROLA - CAÑADA ORURO BORDER CROSSING	IOC	BO - PY		1.9	1
25	NORTHEASTERN ARGENTINA GAS PIPELINE	MCC	AR		1,870.0	1
26	CONSTRUCTION OF THE JAGUARÃO - RÍO BRANCO INTERNATIONAL BRIDGE	MCC	BR - UY		93.5	1
28	ARGENTINA - URUGUAY - BRAZIL RAILWAY CORRIDOR	MCC - HPP	BR - UY		367.2	4
29	OPTIMIZATION OF THE CRISTO REDENTOR BORDER CROSSING SYSTEM	MCC	AR - CH		1,016.0	5
31	PORTO VELHO - PERUVIAN COAST CONNECTION	PBB	BR		48.0	1
<b>TOTAL</b>					<b>11,087.8</b>	

 Profiling
 Pre-execution
 Execution
 Completed

# Integration Priority Project Agenda 2022



14

Structured projects  
made up of

42

Individual projects

## Estimated Investment US\$ million

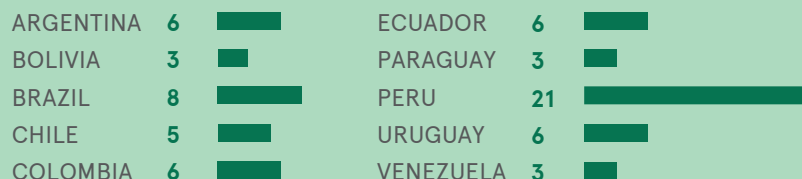
# 11,087.8



**20**  
Nationals  
47.6

**19**  
Binationals  
45.2

**3**  
Multinationals  
7.1



● No. of projects ● US\$ million

### Projects by stages



Pre-execution

**15**

3,323.6



Execution

**16**

6,467.9



Completed

**11**

1,801.8

### Projects by Sector



Transport

**39**

8,871.2



Energy

**3**

2,722.0

### Projects by Type of Financing



Public

**23**

7,854.8



Private

**13**

2,531.2



Public/private

**6**

1,207.2

### Projects by Subsector



Road

**17**

6,528.8



Rail

**4**

367.2



River

**6**

207.8



Energy  
Interconnection

**3**

2,722.0

Transport



Sea

**4**

1,384.9



Border Crossings

**8**

382.5

Energy



## Paita – Tarapoto – Yurimaguas Road, Ports and Waterways



# Integrating the Population into the Domestic and Global Economy

With the consolidation of this important multimodal connection in northern Peru, the economic integration of primary production areas in the rainforest and the sierra with the industrialized cities and ports on the Pacific coast will be strengthened. Furthermore, the completion of river and port projects will improve the connection with the Peruvian, Brazilian and Colombian Amazonian port cities, in addition to offering an attractive alternative for the flow of export products from the region to Pacific markets.

The main objective of the structured projects is to improve the connection between the coastal departments of Piura and Lambayeque, on the one hand, and the sierra departments of Cajamarca and San Martín plus the rainforest departments of Amazonas and Loreto, on the other hand, by strengthening the multimodal transport networks that allow the coast-sierra-rainforest connection to continue by river up to the city of Manaus, the capital of the state of Amazonas, in Brazil.

This structured project, estimated to be completed in 2020, requires a total investment amount of US\$310.5 million and is made up of seven individual projects: two of them are road projects (Paita – Tarapoto and Tarapoto – Yurimaguas Road), another two are concerned with waterway navigability (Huallaga and Marañón rivers), and the other three involve port

modernization (Iquitos, Yurimaguas and Paita ports). The road projects are already completed, as are the Paita and Yurimaguas port projects, while the project to improve Iquitos port is at the pre-execution stage.

Regarding international trade, this group of projects is expected to act as a multimodal hub to make trade with Brazil and Colombia along the Amazon river viable as well as to increase trade with Ecuador through its connection with the five road hubs for the integration of Peru and Ecuador

### Paita – Tarapoto – Yurimaguas Integration Road Corridor

In 2005, the Paita – Tarapoto – Yurimaguas Road was granted in concession to consortium Consorcio Concesionaria Eje Vial Norte for its operation and maintenance for a period of 25 years.

# US\$ 310.5

million investment

# 955 km

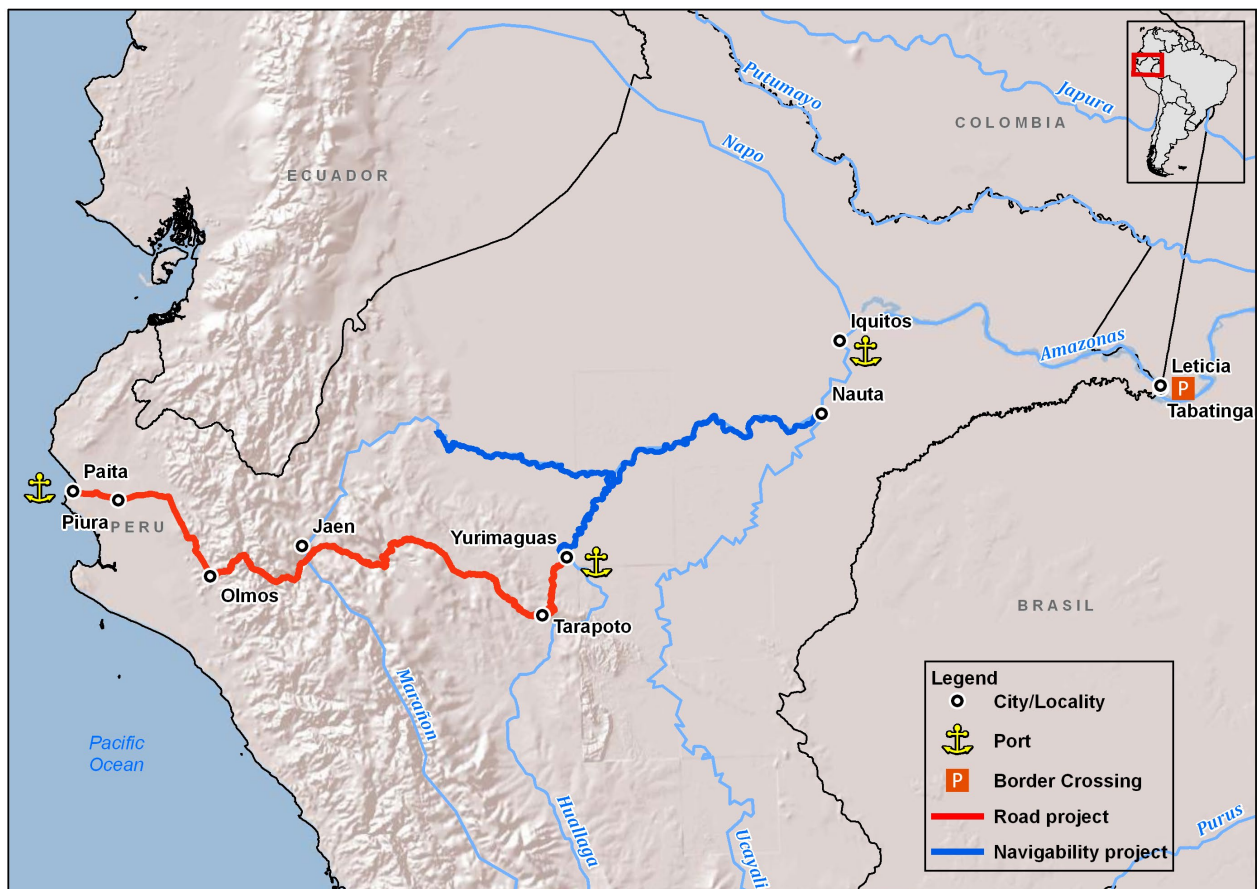
of roads is the length of the Paita - Tarapoto - Yurimaguas Road Corridor

# US\$ 2.590

billion exports from the Port of Paita in 2016

# 3.8 million

m<sup>3</sup> of sand will be dredged from the Amazonian waterways



The total committed investment was US\$510.3 million, including the construction of river flood defenses, slope stabilization, the improvement of engineering and drainage works, environmental protection, the reconstruction of five bridges, and the rehabilitation of the asphalt pavement in critical sectors.

In addition, the road corridor already includes adequate signing and signaling, communication means, and vehicle emergency service. The rehabilitation and improvement projects were executed in two stages. Stage one (first and second years of the concession)

comprised Paita-Piura (54 km) and Piura-Turn-off to Olmos (168 km) section, while stage two (third and fourth year of the concession) comprised Turn-off to Olmos-Corral Quemado (196 km), Corral Quemado-Rioja (274 km) and Rioja-Tarapoto (133 km) sections.

At present, the mandatory works in this section as established in the concession contract are completed: the additional construction works for southern Piura bypass (11.5 km), Piura road interchange, Tarapoto bypass, paving of the Tarapoto-Yurimaguas road (114 km), and the 9.4-km approach road to Yurimaguas



Port Terminal. This port is located in the town of Nueva Reforma and included the construction of a metallic bridge over the Paranapura river.

The works to upgrade the Paita-Piura section (54 km) to four lanes are at the execution stage, involving US\$132 million, and they are expected to be completed by late 2017.

### Waterways for Local and Regional Development

The purpose of these projects is to improve navigation conditions on the Huallagas river (from Yurimaguas to its confluence with the Marañón river) and the Marañón river (from Sarameriza to its confluence with the Ucayali river) to enhance river cargo and passenger transport, both domestic and international. In this regard, in 2012 the Investment Office of the Transport Sector approved the feasibility study for project Improvement and Maintenance of Navigation Conditions on the Ucayali, Huallaga, Marañón and Amazon Rivers, which allowed the project to go on to the next, investment phase.

In 2015, after a favorable Prior Consultation process, the Ministry of Transport commissioned PROINVERSIÓN, the agency engaged in the promotion of private investments, to conduct the tender process to award the concession concerned with the navigability of the Huallaga, Marañón, Ucayali and Amazon rivers to a private party. The tender process is expected to be complete by the end of 2017, when the contracts for the design, execution and operation of such waterways are awarded.

Currently, the main difficulties for the development of commercial navigation on the Amazon waterways concern insufficient depth, bad passes, accumulation of obstacles on the

bed or banks (submerged tree trunks and branches), poor signaling and scarce aids to navigation in critical passes, lack of knowledge of the hydrologic levels for reference purposes and of the limnological characteristics of the rivers, and lack of a system for real-time monitoring of river conditions. All this hinders safe and reliable navigation for economic purposes all year round, limiting it to the low water season.

Among the tasks the firm holding the concession must perform are the following:

- **Opening and maintenance of channels** in the bad passes for them to be navigable for vessels of at least 6 feet (1.8 m) draft during low water level seasons. The works involving the opening of channels include the dredging of 3.8 million m<sup>3</sup> of sand: 900,000 m<sup>3</sup> for the approach channel to the port of Iquitos, 2.1 million m<sup>3</sup> from the bad passes of the Huallaga river, 214,000 m<sup>3</sup> from the bad passes of the Marañón river, and 598,000 m<sup>3</sup> from the bad passes of the Ucayali river. In high water periods, the bottom width of the navigable channel should be maintained at 44–60 m depending on the section, with a depth of 8 feet (2.4 m) in the main channel and 11 feet (3.3 m) in the approach to Iquitos.

- **Installation of a Digital Information System** indicating the location of the navigable channel to enable satellite (GPS) navigation, supplemented by the navigational aids provided by the Navy's Bureau of Hydrography and Navigation. This will consist in the development of digital cartography and a navigation system capable of showing the location of the vessels, the layout of the banks of the main channel and the depth levels.

- **Installation of a network of Water Level Stations** with satellite transmission capability that enables users to know the daily water levels in





the whole network. Thirteen remote data collection sites with real time transmission capability will be installed: three on the Huallaga river, four on the Marañon river, four on the Ucayali river, and two on the Amazon river. These automatic stations will allow users to know, at any time they want, up-to-date river water level information in the different sectors of the basin, thus enabling the planning of shipping according to the prevailing navigation conditions.

- **Establishment of a Maintenance and Monitoring System** for the dredging works, the navigation aid systems, and the hydrometric stations to ensure proper management of river traffic and monitor the general navigation conditions of any given river.

- **Establishment and development of Monitoring and Social and Environmental Management Plans** to prevent pollution and other situations affecting the environment, as well as Contingency Plans to follow in the event of disasters and spillage of pollutant or hazardous substances.

### Port Modernization to Decentralize the Port of Callao

Over the last years, significant investments were made to enlarge and modernize the port facilities in the country within the framework of Peru's Port Modernization National Plan, devised by the National Port Authority. On the basis of a public-private partnership scheme, the purpose has been to decentralize the operations of the port of Callao, which handles about 85% of total traffic, by granting seven terminals in concession: Matarani, the three terminals of the port of

Callao, Paita, General San Martín, and Yurimaguas.

### El Puerto de Paita

As part of the Plan mentioned above, the port of Paita was granted in concession to the Terminales Portuarios Euroandinos (TPE) consortium, made up of companies Tertir Terminais (Portugal), and Cosmos and Translei (Peru). The contract established a total investment of US\$267 million, which would be made in three stages. The first stage involved the dredging of the approach channel and the mooring area up to 13 meters, along with a land fill for the construction of a 12-ha container yard. This yard has a 300-m marginal wharf equipped with an STS Post Panamax gantry crane assisted by two RTG cranes. The first stage works have been completed, and the second and third stage involve the upgrade of the port capacity with new equipment by bringing it to 180,000 and 300,000 TEU, respectively.

In 2016, the port of Paita received 576 vessels, handling a total of 2,146,756 metric tons, 67% of which (about 1,450,659 metric tons) involved 125,747 containers. Because of this high container throughput, equivalent to 219,226 TEU, this port ranks second in importance after the port of Callao and handles 17% of the total national traffic. Exports mainly include agricultural and fishery products along with phosphates, amounting to an FOB value of US\$2.590 billion in 2016. The top ten export products were coffee, phosphate, fresh grapes, fresh mangoes, fresh bananas, squid, cuttlefish, prawns, fish fats and oils, and vegetables. Imports, which reached an FOB value of US\$908 million also in 2016, and consisted mainly of high value added machinery and manufactures, including compressors, heat exchange units, autoclaves, centrifugal pumps, fertilizers, tanks, turbines, distilling plant, wheat and corn.





### Port of Yurimaguas

In 2011, the port of Yurimaguas was granted in concession for 30 years to the Concesionario Puerto Amazonas S.A. (COPAM) company. The contract comprised the design, financing, construction, operation, and maintenance of a new port in Nueva Reforma, located about four kilometers away from the town of Yurimaguas, for an investment of US\$43.73 million. In 2016 the first stage works were completed, involving an investment of US\$30.5 million, and included the construction of a 120-meter long dock with two berths, a wharf for passengers, a 6,000-m<sup>2</sup> roofed storage area for general cargo, a 600-m<sup>2</sup> roofed storage and processing area for perishable products, and an 8,000-m<sup>2</sup> container storage yard.

Works also included control booths to protect the facilities, a weighing station for cargo vehicles, a drinking water reservoir, a water treatment tank, a drinking water and fire protection network, a drainage network, a sewage treatment plant, drainage channels, electrical outlets at the container yards for refrigerated cargo, and a power house for the electric generators. Port equipment included a mobile wheeled crane with a lift capacity of 30 tons at 12 meters, a self-propelled wheeled crane with a capacity of 30 tons, a reach stacker, two 30-ton tractor trailers, six elevators with a 4-ton capacity, four chassis with a capacity of 30 tons, and a boat for maintenance works. The second phase enlargement works will commence when the demand exceeds 600,000 tons a year or when the dock occupancy rate is higher than 44%, and will involve the construction of an additional, 60-meter berth, and the enlargement of the roofed storage area to cover 5,628 m<sup>2</sup> more and of the container storage yard to cover 6,997 m<sup>2</sup> more.

In 2016, the port of Yurimaguas received 1,393 vessels and handled a total of 129,896 metric tons, thus ranking third among river ports after Iquitos and Pucallpa. Of such total cargo, 56.6% (about 73,544 tons) involved general cargo, while the remaining percentage included mainly liquid and solid bulk cargo. Container throughput was 39 TEU (20 containers). This port terminal is one of the most important places for the transfer of goods, passengers and vessels operating three traditional routes: Iquitos-Pucallpa, Pucallpa-Yurimaguas, and Pucallpa-Yurimaguas-Iquitos. Supplies for the oil industry, beer, foodstuff, machinery, hydrocarbons, products for construction purposes, iron, pipes and cement are among the main goods handled in this port.

### Port of Iquitos

The purpose of project Modernization of Iquitos Port is to improve the competitiveness of this port terminal so as to have a modern port to deal with the growing trade flows in the Amazon region. The modernization works include the dredging of the approach channel, the reparation of river engineering structures, the improvement of the facilities in place, and the procurement of equipment to enhance port operations.

The port has facilities to cater for large vessels (traditional ships) with a draft up to 25 feet during high water seasons. In this regard, it has two 200-meter long floating berths, 11 berths for small ships, fore-end moorings and moorings for large vessels depending on the length of the ships, a goods storage area of about 9,000 m<sup>2</sup>, and two logistics operations areas of about 20,000 m<sup>2</sup>. In addition, the port is certified to several international quality management standards, including certification for compliance with the International Ship and



Port Facility Security Code. The National Port Authority, by means of an agreement with the government of South Korea, has devised a Master Plan for the development and upgrade of Iquitos Port Terminal, within the framework of which the best technical alternative will be defined to subsequently assess the economic and financial sustainability of the project. Once the project is found to be feasible, PROINVERSIÓN will be commissioned to start the promotion process to grant it in concession to the private sector. Works are expected to commence in 2019, involving an investment estimated at US\$39.2 million.

In terms of river ports, Iquitos is the main cargo and passenger hub port in Peru.

Strategically located, it is linked to Ecuador through the Napo river and to Brazil and Colombia through the Amazon river. As for cabotage, it is the hub of the main trading routes in the Peruvian Amazonia (Iquitos-Pucallpa, Pucallpa-Yurimaguas-Iquitos), being connected with Yurimaguas through the Huallaga and Marañón rivers and with Pucallpa through the Ucayali river.

In 2016, this port received 4,023 ships, i.e. 40% of the country's total river traffic, and handled a total cargo of 1,319,492 metric tons, which is equivalent to 82% of the total cargo handled by river ports in the country. Of such total (about 945,061 tons), 71% involved liquid bulk cargo, and the number of wheeled cargo is also worth noting (2,151 units). Regarding foreign trade, in







2016 exports through Iquitos customs reached a FOB value of US\$14.7 million, and the main export products were fuel oil, diesel oil, heavy oils, freshwater ornamental fish, live fish for breeding, reptiles, motorcycles, and fresh garlic. The same year, imports amounted to US\$528 million FOB, the top ten import products being gas turbines; turbine parts; raw sugar; flexible tubes, pipes and hoses; aircraft; soybean oil; products made of chicken meat; corn; footwear; and articles of iron.

### Amazonas Norte Multimodal Hub

Economic activity has been boosted by the completion of the road projects in the Paita-Tarapoto-Yurimaguas hub, which increased the trade flows between the production centers and the main population and industrial centers in the northern area of the country. At present, there is a regular flow of vehicular transport, especially on the Turn-off to Olmos-Tarapoto section, where it is joined by traffic from the cities of Chiclayo and Lima to Tarapoto and intermediate cities in the interior of the sierra region. Paving of the Tarapoto-Yurimaguas section has worked to enlarge the agricultural area dedicated to the production of palm hearts and oil palm for both consumption in markets on the Peruvian coast and for export.

One of the most important benefits of the upgrade of the northern Peruvian logistics system is the reduction in travel times in areas of complex topography, which has allowed an increase in transport and an improvement in the efficiency of the cargo logistics chain in a region covering 42% of the national territory and having a potential market of more than six million people. This growth in the competitiveness of the regional logistics platform will foster the development of production linkages and

economic-productive complementation between the main cities and production centers at the local and regional levels, thus encouraging import substitution and a supply of products originating in the region.

In addition, the projects to improve navigation conditions on the rivers of the Amazon basin, added to the improvement of the river port terminals and to the future development of logistics centers, will reduce the operating costs of river freight services and the efficiency losses currently involved in the transportation of cargo along the Huallaga-Marañon-Amazon waterway, increasing the competitiveness of the region and making international trade with bordering countries more viable.

In this regard, having a modern waterway that enables a greater and better use of the existing port terminals and enhances the performance of ships in terms of travel times and maximum use of their cargo capacity –currently limited in the bad passes because of the risk of getting stranded– will increase trade flows with Iquitos and important nearby port cities such as Leticia (Colombia) and Tabatinga (Brazil), and ultimately with the city of Manaus, the main development hub in Amazonia and an exit door to the Atlantic ocean.

The main possibilities that the Amazonas Norte Multimodal Hub brings for Peru include, on the one hand, access to international markets through the modern port of Paita, which will allow the export of agricultural products from the region (rice, palm hearts, fresh fruits, vegetables) for consumption in neighboring countries and in Pacific markets and, on the other, the chance of exporting agricultural supplies (fuels, fertilizers) and foodstuff





(refrigerated fish and seafood, coffee, vegetables, fruits) to cities and agricultural production areas in Ecuador, Colombia and Brazil via the Amazon river. For Brazil, the benefits are related to the possibility of increasing its exports of capital goods and manufactures (construction materials, tools, textiles, footwear) as well as foodstuff (corn, soybean oil, chicken by-products) to Peru via Iquitos-Yurimaguas, and of accessing markets on the Pacific through the port of Paita.■

## Callao – La Oroya – Pucallpa Road, Ports, Logistics Centers and Waterways



# From the Rainforest to the Sea, a Multimodal Corridor Brings Development to Inland Peru

Also known as the Central Branch of the Amazon Hub, this is the most important multimodal connection in Peru. Coordinated through trunk roads, sea and river ports and waterways, it will improve the connectivity of the capital and the port of Callao with cities, production and industrial centers in the core of the country and Amazonia, strengthening the economic complementarity of the rainforest and sierra regions with the metropolitan area of Lima. Likewise, it will allow trade integration with bordering countries through the Amazon waterway network.

The main objective of this structured project is to improve connectivity between the coastal departments of Callao and Lima and the sierra departments of Junín, Pasco and Huánuco, as well as with the Ucayali department in the rainforest, all located in the central region of the country, and also to enable connection through the Ucayali-Marañón-Amazon rivers with important port cities of Peru, Colombia and Brazil. This structured project, which is estimated to be completed in 2020, involves a total investment of US\$2.572 billion and consists of nine individual projects: four are road projects (Lima-Ricardo Palma Central Road, Ricardo Palma-Turn-off to Cerro de Pasco/La Oroya-Huancayo Road, Turn-off to Cerro de

Pasco-Tingo María Road, and Tingo María-Pucallpa Road), one is a project to improve navigation conditions (Ucayali River Waterway), and four are port modernization projects (New Container Terminal, mineral shipping terminal and multi-purpose northern terminal in Callao, and Port of Pucallpa). At present, port projects Mineral Shipping Terminal and El Callao Multi-purpose Northern Terminal are completed, while the other projects are at the execution stage and making progress according to their schedule.

The port of Callao is located in the western end of the Central Branch of the Amazon Hub, on the central coast of Peru, a few kilometers away

US\$ 2.672,6

billion estimated investment in nine individual projects

750 km

of roads included in the Callao - La Oroya - Pucallpa Road Corridor







from the city of Lima, the national capital and main urban, industrial and service center of the country. From this city, it is articulated by the Central Road, which runs east-west across the agricultural and mining production areas in the departments of Lima and Junín until it reaches the mining and industrial center of La Oroya. In this section, it crosses the Longitudinal Highland Highway, a trunk road that links the main cities in the sierra region, and connects with Huancayo to the south and Cerro de Pasco and Huánuco to the north, where it continues to the rainforest cities of Tingo María and Pucallpa. From here, the Ucayali, Marañón and Amazon river waterway serves as a link with the cities of Iquitos, Leticia (Colombia), and Tabatinga and Manaus (Brazil).

### **Lima-Ricardo Palma Central Road**

The purpose of the project is to improve the efficiency of the road transport system through an alternative to the current section of the Central Road, thus allowing time savings for road users and a reduction in the number of accidents. In this regard, in 2013 the Provincial Municipality of Lima granted in concession the three main access roads to the city—which include the 29.5 km-long Lima-Puente Los Ángeles section—for a term of 30 years to company Rutas de Lima.

In 2016, works began on the Lima-Ricardo Palma expressway, which includes the following sections: Lima Bypass-Huachipa Bridge, (10 km), already completed; Huachipa Bridge-Los Ángeles Bridge (19.5 km), at the execution stage; and Los Angeles Bridge-Ricardo Palma Bridge (9.1 km), at the pre-execution stage. The new expressway, which involves an investment of US\$200 million, will initially have four lanes, two for each direction of travel, which may be extended to six depending on future demand. Works also include

the construction of four interchanges, three grade-separated junctions, three approach roads to the expressway, two underpasses, and twelve pedestrian bridges. This new alternative will allow a maximum speed of 100 km/h, thus relieving traffic congestion in the urban areas that the current Central Road crosses in its access to Lima and substantially improving the entrance to the metropolitan area and the port.

Completion of the works on the Huachipa Bridge-Los Ángeles Bridge stretch (19.5 km) was scheduled for December 2017; however, the overflow of the Rímac river affected part of the advanced works, which are now estimated to be completed by the end of 2019. As for the Los Angeles Bridge-Ricardo Palma Bridge section, the Ministry of Transport and Communications and the Provincial Municipality of Lima have been evaluating alternatives for the alignment, considering the limited availability of land due to urban sprawl and topographic conditions, and so far 70% of the land needed has been freed up.

### **Ricardo Palma – Turn-off to Cerro de Pasco / La Oroya – Huancayo Road**

This project aims at improving traffic conditions and road safety in this section of the Central Road to allow significant savings in transportation costs and travel times, thus contributing to enhance the competitiveness of the country's central production corridor. In 2010, the Ministry of Transport granted in concession for a 25-year term the operation, construction and maintenance of Ricardo Palma-La Oroya-Huancayo and La Oroya-Turn-off to Cerro de Pasco road to company Consorcio Desarrollo Vial de los Andes (DEVIANDES), for a committed investment of about US\$100 million.



The road works include the rehabilitation of the roadway and structures along 377 km, including roadway widening in 29 stretches and the construction of four bypasses in the Ricardo Palma-La Oroya section (Huayllatupe, Chacahuaro I, Chicla, Bellavista), in addition to the construction of 10 pedestrian bridges for crossing in populated centers, and the construction of two roundabouts (turn-off to Tarma and turn-off to Cerro de Pasco). Completion of the works was expected for the first quarter of 2017, but natural disasters occurred in the region affected considerably several sections of the road, which were repaired temporarily to make them passable.

### Turn-off to Cerro de Pasco – Tingo María Road

At present, the Turn-off to Cerro de Pasco-Huánuco-Tingo María road is paved, but its oldness, the increase in traffic, and its having been affected by extreme natural events resulted in several damaged stretches that require rehabilitation. The concession will include the management, operation, construction and maintenance of the road, with an estimated investment of US\$624.85 million. The works to be executed by the concessionaire include the rehabilitation of the roadway and structures along 231 km, the construction of a bypass that includes a 4.66-km long tunnel composed of segments, and a new alignment along 6 km, in addition to road widening in critical sectors and a dozen other works that will be evaluated within the framework of the economic and financial structuring of the concession. Project **Rehabilitation of the Turn-off to Cerro de Pasco – Tingo María Road** has its profile approved. In December 2015, the feasibility study was also approved, and the final study is being prepared and expected to be approved during 2017.

Commencement of the works is scheduled for the second quarter of 2018, after the rainy season ends in the region.

### Tingo María – Pucallpa Road

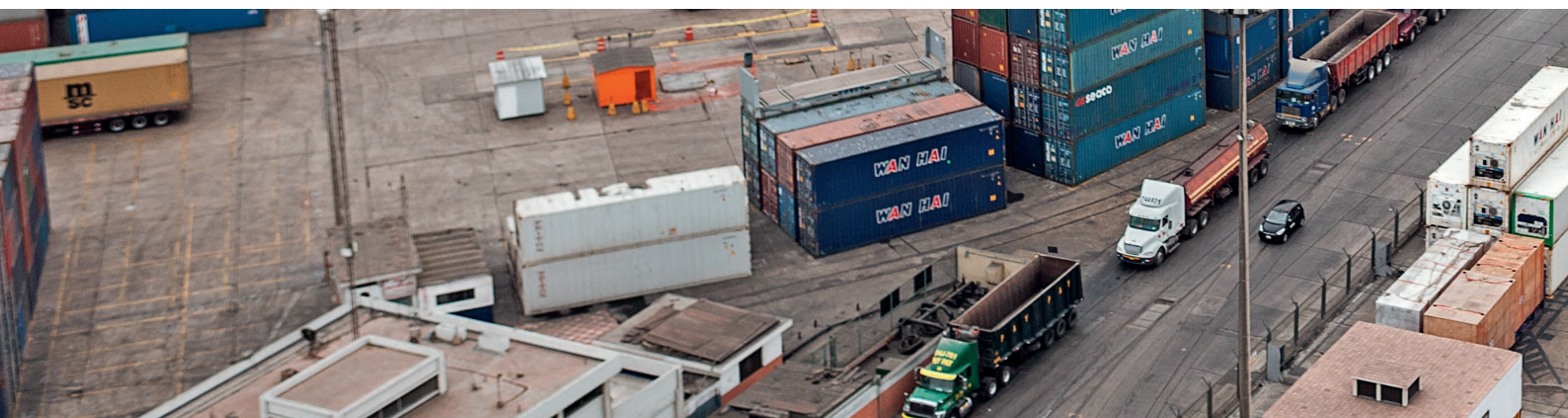
The project includes the improvement and rehabilitation of roadways and structures in a 248-km long stretch, as well as tasks concerning engineering works, drainage systems and slope stabilization. At present, the following sections are completed: Tingo María-Pumahuasi Bridge (15.2 km), Pumahuasi Bridge-Chino Bridge (36.3 km), Chino Bridge-Aguaytía (42.3 km), Aguaytía-San Alejandro (50.5 km), San Alejandro-Neshuya (50.1 km), and Neshuya-Pucallpa (58.8 km). The investment made amounts to US\$327.8 million.

In 2008, natural disasters caused the collapse of the roadway along 25 km of the Chino Bridge-Aguaytía section. After delays due to bad weather, in 2015 the reconstruction works were resumed, involving an investment of US\$63.4 million, and are expected to be completed during 2017. In 2014, a performance-based road maintenance contract involving US\$43 million was signed regarding the 235-km long Tingo María-Pumahuasi Bridge-Chino Bridge-Aguaytía-Neshuya-San Alejandro section for routine maintenance, emergency care services and information gathering tasks. The upgrade of a 10-km stretch to a four-lane road is currently underway (from the turn-off to Pucallpa Airport up to the Jardín del Buen Recuerdo cemetery) with an investment of US\$47.1 million, and is expected to be completed by late 2017.

### Navigability of the Ucayali River

The objective of the project to improve navigation conditions on the Ucayali River





between Pucallpa and the confluence with the Marañón River (1,247 km) is to enhance the transport of cargo and passengers along the most important river trade route in Peru, which connects the port of Pucallpa with Iquitos, the capital of the Amazonian department of Loreto and the main river port of Peru. In 2012, the Investment Office of the Transport Sector approved the feasibility study for project Improvement and Maintenance of the Navigation Conditions on the Ucayali, Huallaga, Marañón and Amazon Rivers, which allowed the project to go on to the next, investment phase.

In 2015, after a favorable Prior Consultation process, the Ministry of Transport and Communications commissioned PROINVERSIÓN, the agency engaged in the promotion of private investments, to conduct the tender process to award the concession concerned with the navigability of the Huallaga, Marañón, Ucayali and Amazon rivers to a private party. The tender process is expected to be complete by the end of 2017, when the contracts for the design, execution and operation of 2,600 km of waterways are awarded.

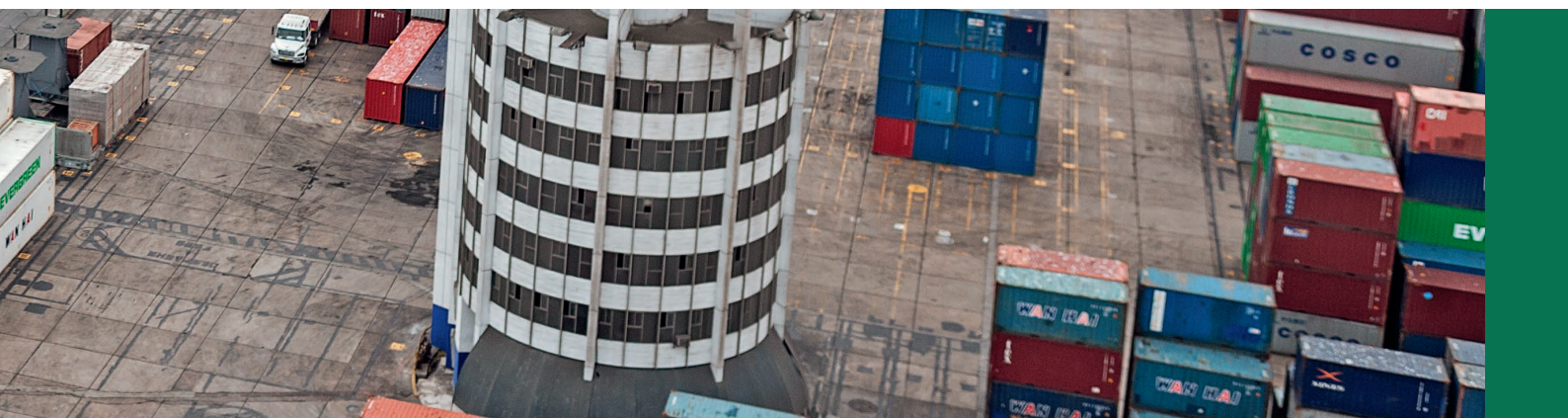
The works planned for the Ucayali river include the dredging of approximately 600,000 m<sup>3</sup> of sediments from the navigable channel in three areas of bad passes, coastal protection works, the implementation of a GPS-assisted navigation system, the installation of real-time water level gauging stations transmitting and disseminating the information via the Internet, the establishment of a system to monitor navigation conditions, and the implementation of a system to remove submerged tree trunks and branches and other obstacles from the river bed. The estimated total investment for this section amounts to US\$19 million.

## Port of Pucallpa

In 2016, the private port for public use called Terminal Portuario LPO of Pucallpa received 2,403 ships, handling 156,212 metric tons of total cargo. Of such total cargo, 86% (about 134,180 tons) involved liquid bulk cargo (oil), while the remaining percentage included wheeled and general cargo. Container throughput was 482 TEU (296 units). Pucallpa is the main port of shipment for all the products supplied to the Peruvian Amazonia (foodstuff, beverages, manufactures, vehicles, and all types of capital and consumer goods), more than 95% of which come from Lima. Cargo traffic with the port of Iquitos, carried out by hundreds of informal operators, is estimated to amount to four million tons per year. The area of influence of the port has a great potential for the development of agricultural, forestry and agribusiness activities; therefore, a sustained increase in both the ships received and the volumes of cargo handled is expected in the next years.

In view of the above, the National Port Authority has detected the need to have new modern and efficient port infrastructure in the Pucallpa area. In this regard, the feasibility study has been updated, which included an analysis of location alternatives. The study recommends the construction of new port infrastructure northeast of the city, on the premises of the former port terminal, as they are located in an elevated area and have adjacent facilities. When the works are completed, there will be a 180-m long dock with three berths where a fixed crane and two mobile cranes will operate; a five-pontoon dock, which will enable night operations, as well as warehouses for general cargo. At present, a contracting process is





underway for the preparation of the technical record, which is to begin in 2017. In addition, progress is being made with the freeing up of the land where the new port will be located. The start date of the works —with an estimated duration of two years— is scheduled for 2018, and the total estimated investment amounts to US\$54.96 million

### Port of Callao

In 2016, the port of Callao received 3,513 vessels, handling 43,604,450 metric tons of total cargo, 40% of which (approximately 17,865,111 tons) involved 1,286,698 containers. Because of this high container throughput, equivalent to 2,054,970 TEU, this port handles 89% of the total national traffic. Exports consist mainly of minerals, fishery and agricultural products, and reached an FOB value of US\$13.076 billion in 2016. The top ten export products were copper, lead and zinc ores and their concentrates, fish meal and pellets, liquefied natural gas, silver ores, tin, coffee, unwrought zinc, and avocados. Imports amounted to US\$24.909 billion FOB that same year and consisted mainly of petroleum fuels and oils, vehicles, agricultural machinery, home appliances, wheat, corn, and soybean oil.

The enlargement and modernization of the port of Callao is being implemented in stages, the total investment committed being US\$1.623 billion, US\$877 million of which had been spent as of August 2017.

### Multi-purpose Northern Terminal

In 2012, the modernization and expansion works of the Multi-purpose Northern Terminal began in two stages. The project consisted in the upgrade and operation of the Callao

Multi-purpose Northern Terminal, which includes former docks 1, 2, 3, 4, 5, 7 and 11. It involved dredging works in the areas adjacent to the dock, as well as the procurement of four gantry cranes to cater for Super Post-Panamax ships, 12 electric container cranes, 20 terminal tractors and 20 chassis for the transport of containers, in addition to the modernization of the infrastructure and equipment of the dock for bulk carriers. Works were completed in 2016, and as of April 2017, the investment made amounts to US\$392.25 million

### Mineral Shipping Terminal

In 2011, the concession contract for the design, financing, construction and operation for 20 years of the Callao mineral shipping terminal was signed with consortium Transportadora Callao for a committed investment of US\$120.3 million. In 2014, the works were completed, and the terminal is currently in operation. The 200-m long dock is located in the area adjacent to the northern breakwater, and the water depth is 13.1 meters. Works included the construction of the approach bridge, the dock and the conveyor belt, which has saved more than 130,000 truck trips per year, reducing pollution levels and relieving congestion to access other ports. The new 3-km infrastructure enables the transportation of up to 2,300 tons of copper, zinc and other minerals per hour.

### New Container Terminal

In 2006, a 30-year concession contract for the design, construction, financing, maintenance and operation of the New South Area Container Terminal was signed with consortium Terminal Internacional de Contenedores del Callao, made



up of P&O Dover/Dubai Ports International and Uniport S.A., involving a committed investment of US\$617 million. The first stage works were completed in 2010 and led to the operation of the New Container Terminal. As of 2017, the investment committed by the concessionaire amounts to US\$704.8 million, of which US\$356.5 million have been invested mainly in the first phase works and equipment. Currently, the South Dock is 650 m long, and the depth of the mooring is 16 meters. It is equipped with six Super Post Panamax gantry cranes and 18 RTG yard cranes, in addition to the equipment necessary for the operation and advanced security systems of the port.

At present, negotiations are underway with the firm holding the concession for the start of the second-stage works, which according to the plans will involve the expansion of the south dock once 70% of its current capacity is exceeded. The second stage consists in expanding the dock from the current 650 m to 960 m, and also includes the expansion of the container yard to 30 ha (currently its area is 24 ha) and the installation of cranes involving an estimated investment of US\$100 million in two years. Meanwhile, the concessionaire started additional works for US\$40 million to improve the approaches to the port and expand the waiting area and the area for refrigerated containers, which is estimated to be completed by mid-2018.

### Amazonas Centro Multimodal Hub

The improvements in the connectivity of the Callao-Lima-Pucallpa hub have resulted in a substantial enhancement of the transport of goods from the industrial center of Lima to the port of Pucallpa, the main point of trade in

products with the Amazon regions. Among the main cargo transported by truck from Lima to Pucallpa are industrialized goods (machines, vehicles, technology, construction materials) and foodstuff (flour, sugar, preserves, beverages, cereals and processed food, among others), which are transferred to ships bound for Iquitos. In the opposite direction, sawn wood, rubber, jute, rice, coffee and cacao, among other products, are sent to Lima from Pucallpa or cities around Pucallpa. Trips on this road, which previously took several days, have been reduced to 24 hours.

As for river navigation travel times, the stretch to Iquitos along the Ucayali river takes four to six days in favorable conditions. The project to improve navigation conditions on the Ucayali river and the construction of the new port terminal in Pucallpa are expected to improve the competitiveness of the Amazon region, resulting mainly in the reduction of travel times and river freight operating costs, the enhancement of port operations and the betterment of the performance of the ships by making the most of their cargo capacity. Furthermore, this will favor the formalization of river transportation activities, which handle more than 75% of the cargo. These improvements will strengthen the growing trade flows with Iquitos, and at the same time will promote trade with the cities of Leticia (Colombia), and Tabatinga and Manaus (Brazil).

The benefits that the projects of the Amazonas Centro Multimodal Hub represent for Peru have to do mainly with the consolidation of the economic complementarity of cities and production centers in the sierra and rainforest regions with the country's capital and the coastal area, where the main urban and industrial centers of the country are located. Also, the





access of Peru's central region to international markets —South American countries, the United States or Asian markets— will be facilitated; this region's export products include rice, coffee, cocoa, bananas, corn, minerals, oil palm, and forest products. Moreover, this will open up the possibility of increasing the supply of finished products and inputs from Lima to Amazonian cities and production areas of Ecuador, Colombia and Brazil via the Amazon waterway network.■



## Caracas – Bogotá – Buenaventura / Quito Road Corridor



# A New Generation of Roads to Reach the Pacific Ocean

Through the completion of the Cúcuta-Bogotá and Bogotá-Buenaventura road corridors, Colombia is committed to laying the foundations for the development of a sound logistics platform that will strengthen its central role as articulator of the Quito-Bogotá-Caracas Road Corridor and consolidate the port of Buenaventura as the main shipping point of the region to the Pacific markets.

The Quito-Bogotá-Caracas Road Corridor aims at articulating the connection between the main urban centers of Ecuador, Colombia and Venezuela, improving traffic conditions and road safety to facilitate the movement of goods and people. All the investments considered in this project are made in the Colombian territory, as the roads from the Colombian border to the capital cities of Ecuador and Venezuela are operational. Regarding trade, investing in road infrastructure is a fundamental factor to ensure the establishment of competitive logistics platforms at the regional level to efficiently connect the cities with the production centers and to provide fast access to outlets to international markets by sea, by air or by road.

In this regard, the project is complemented by the recent construction and expansion of logistics centers, ports, airports and new border crossings, and will contribute to consolidating the main national and international trade flows

that take place in the region by land, also ensuring an efficient connection with the ports strategically located in Buenaventura bay, on the Pacific ocean coast.

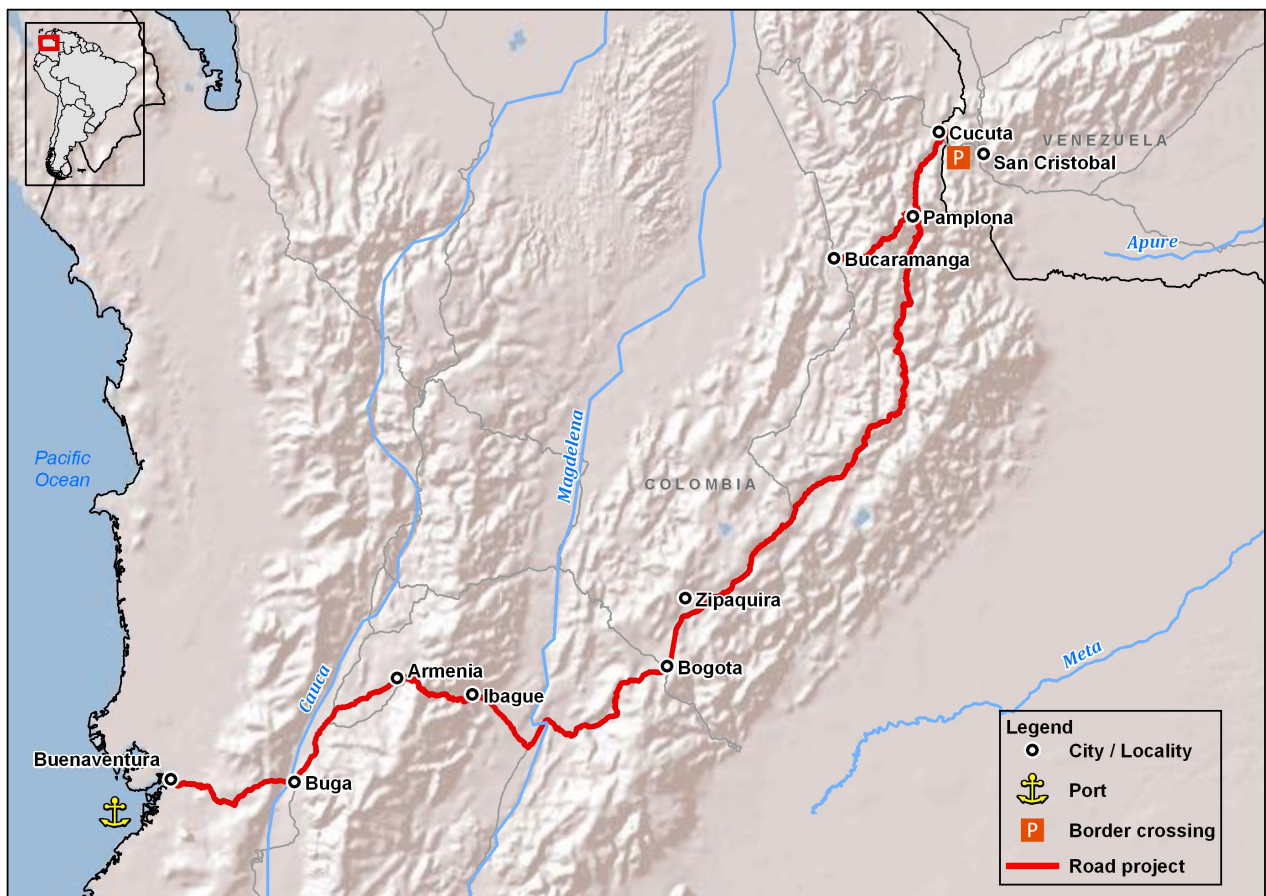
This structured project is made up of two individual projects, and its estimated completion date is 2022. Involving a total of US\$2.825 billion, of which US\$1.950 billion are allocated to the Bogotá-Buenaventura Corridor and US\$975 million to the Bogotá-Cúcuta Corridor, this project is the one with the highest investment of all the projects included in API 2022. Works are located along a route of 1,000 km of roads, and include the expansion of road capacity through upgrades to four lanes, the construction of new bypasses, and the rehabilitation of existing roads.

**US\$ 2,825.7**

million estimated investment

**1,000 km**

of roads



## Improving Connectivity to Increase Competitiveness

The current Colombian logistics platform has low efficiency levels, which is reflected by its ranking in the 120th position worldwide in the 2016 Logistics Performance Index —reported annually by the World Bank—, below the average of Latin America and the Caribbean, which is 105th.

In relation to the quality of trade and transport-related infrastructure, Colombia ranks eighth in South America, ahead of Venezuela and Bolivia, which ranked the lowest. This would mean that, despite the investments made to expand national port capacity, the current development levels are not sufficient to face the growing challenges in terms of increased cargo volumes and competitiveness and reduced logistics costs.

At the national level, the implementation of these projects will substantially improve connectivity by reducing travel times between the departments in the north and northwest of the country, where important cities and production centers are located, and the country's capital and the port of Buenaventura. Additionally, it will consolidate the commercial flows that take place with Venezuela across the northeastern border, and with Ecuador to the south along the Bogotá-Quito Corridor.

## Bogotá – Cúcuta Road Corridor

This section of the corridor, approximately 560 km long, will connect in a safe and efficient manner the Colombian capital city with the city of Cúcuta, located in the Norte de Santander department, in the northeastern part of the country, bordering the Venezuelan state of Táchira. This connection, the main backbone of which are Route 55, called "Central Trunk Road of the North," and Cúcuta-Bucaramanga road, will provide the much-desired link between the capital and the center of the country with the departments of Cundinamarca, Boyacá, Santander and Norte de Santander. In addition, it is expected to smooth and encourage trade in the area of the border with Venezuela, when the facilities of the new Tienditas international bridge and border crossing —linking Cúcuta (Norte de Santander, Colombia) to San Cristóbal (Táchira, Venezuela)—, whose construction is already completed, become operational.

Furthermore, the corridor has a great potential for the development of logistics platforms with multimodal articulation at several points along the way. Examples of this are the northern section of the Atlantic Railway Network, running between Barrancabermeja and Santa Marta, and cargo transport along the Magdalena river corridor, with the possibility of developing multimodal transfer points at the ports of Barrancabermeja and Puerto Wilches.

This corridor is made up of four sections:

- **Bogotá-Zipacquirá (30 km):** This section is under concession and at the operation and maintenance stage.
- **Zipacquirá-Bucaramanga (370 km):** Two stretches of this section form part of the Fourth Generation of Concessions Program (4G Program): Zipacquirá-Barbosa and Barbosa-

Bucaramanga. At present, alternatives for the construction of four-lane stretches along 60 km, in addition to related works, are being considered.

- **Bucaramanga-Pamplona (130 km):** Works have been carried out in this section through the programs known as Competitiveness and Prosperity Corridors between 2009 and 2016, resulting in the construction of 6 km of four-lane road and in the rehabilitation and improvement of 60 km on the Bucaramanga-Cuestaboba stretch. Within the framework of the 4G Program of concessions, the contract for the construction of new roadways, bridges and viaducts and for the improvement of the existing roadway was signed in June 2016. These works are at the pre-construction stage and expected to be completed in July 2020.

- **Pamplona-Cúcuta:** Maintenance works and the construction of a 10-km long four-lane stretch have been carried out along this section within the framework of the gradual progress of the Cúcuta Metropolitan Area concession. Recently, the National Infrastructure Agency granted this section in concession under the 4G Program to a public-private partnership; the project involves construction works on six sections along 62 km, 42.2 km of which will be upgraded to four lanes, while 4 km will have two lanes.

## Bogotá – Buenaventura Road Corridor

This is one of the main road projects in the country, and will improve the connection of the capital city and the central area of the country with the port area located in Buenaventura bay, in the Valle del Cauca department, on the Colombian Pacific coast. The works involve a 536-km long road alignment that crosses the complex geography of the western mountain range. This new infrastructure, with its bridges, tunnels and viaducts, is expected to reduce by six hours the time it takes to carry cargo from Bogotá to Buenaventura, which currently is about 16 hours on average.

The port of Buenaventura ranks first in the country in terms of handling solid bulk cargo other than coal. In 2016, it received 1,764 vessels (14.6% of the national total), including container ships, oil tankers, solid and liquid bulk carriers, and roll-on/roll-off ships, and handled almost 17 million tons of cargo. The main exports were sugar, coffee, copper, and molasses and, to a



lesser extent, vehicles (4.2 million tons in 2016). With regard to imports, the main products were wheat, corn, oilseeds, fuels and fertilizers (12 million tons in 2016). As for international trade, the port is strategically located to cater for the Pacific markets without crossing the Panama Canal, in addition to its proximity to the agricultural, coffee and sugar production centers of the Valle del Cauca department and the central area of the country, where the main Colombian exports originate. Due to important improvements as well as the recent expansion of the Container Terminal and the dredging works, the port complex has great potential to become the hub port of the region, at least as far as Colombian cargo concentration is concerned, and the possibility of handling cargo from neighboring countries.

In the future, this will require a road infrastructure with high safety levels and adequate standards for international cargo transport to ensure an efficient and competitive logistics chain at the regional level. In this regard, the purpose of the Bogotá-Buenaventura Road Corridor project is that each section of the corridor conforms to the technical specifications appropriate to their particular needs, through the construction of four-lane sections, bypasses, bridges, tunnels and viaducts, as well as through the improvement (road geometry and surface), rehabilitation and maintenance of the existing road.

The corridor is divided into seven sections:

- **Bogotá-Girardot (132 km):** Works were carried out in the context of the “Bosa-Granada-Girardot” concession, resulting in the upgrade to four lanes of a 124-km long stretch and the rehabilitation of a 34-km long stretch, including the construction of a 3.9 km tunnel just by El Boquerón. Within the framework of the 4G Program of concessions, the contract for the construction of the third lane, bridges and tunnels, and for the improvement, rehabilitation, operation and maintenance of the existing road was recently signed. Commencement of the works is estimated for November 2017, and their completion for October 2022.
- **Girardot-Ibagué-Cajamarca (146 km):** This section is under concession, and the works planned in 2014 are already completed and operational, involving the upgrade to four lanes along 62.6 km and the rehabilitation and improvement of 91 km of the existing road. The Ibagué-Cajamarca stretch was granted in concession under the 4G Program for upgrades to four lanes and the construction of tunnels and bridges. Construction works started in April 2016 and are expected to be completed in April 2024.
- **Cajamarca-Calarcá (36 km):** Works along this section, which are included in project Central Mountain Range Crossing, involve the upgrade to four lanes along 27 km (18 short tunnels and 23 bridges), and the construction of the main tunnel—called “Túnel de La Línea”—, with a length of 8.9 km, and of complementary works. The upgrade to four lanes and main tunnel components have made almost 90% progress, and have recently been granted in concession for their completion, which is expected to take place in 2018. Progress of the complementary works component is as follows: pilot or rescue tunnel (52%), related works (99.6%), Versailles interchange (40%), and electromechanical equipment (14%).
- **Calarcá-La Paila (52 km):** Through the “Armenia-Pereira-Manizales” concession, this 52 km section has been rehabilitated and is operational. The contract expires in 2027.
- **La Paila-Buga (59 km):** The Buga-Tuluá-La Paila-La Victoria section is under a concession contract granted by the department. This stretch of the project is at the operational and maintenance stage and has four lanes.
- **Buga-Buenaventura (111 Km):** A 4G concession contract for this section was signed in June 2016, including upgrade two four lanes, construction of two-lane sections, bridges, tunnels, and the improvement and rehabilitation of the existing road. It is currently at the pre-construction stage. Construction works are expected to commence on August 2017, and their completion is expected for August 2021.■

## Colombia – Ecuador Border Interconnection



# Revitalizing the Border to Boost Regional Trade

Colombia and Ecuador strengthen their trade integration through the modernization of the Tulcán-Ipiales Border Crossing, the main point of connection between both countries. The implementation of the CEBAFs (Binational Border Service Centers) will make the already important flows of cargo and passengers along the Bogota–Quito Corridor even more dynamic and will favor the development of economic activities in the Amazonian area for the benefit of the economy of border populated centers.

The border between Colombia and Ecuador has an approximate length of 600 km in which three trade areas with very different geographical, socioeconomic and cultural characteristics can be distinguished. First, the Pacific coastal area, linking the Colombian department of Nariño with the Ecuadoran province of Esmeraldas, in which, given the lack of roads, connection is mainly by sea. Second, the Amazonian area, where the department of Putumayo, Colombia, and the province of Sucumbíos, Ecuador, are connected through the San Miguel border crossing and other river crossings. And, finally, the Andean area, between the Colombian department of Nariño and the Ecuadoran province of Carchi, which is the most important one in terms of immigration flows and international trade, which take place through the Rumichaca International Bridge, at the Tulcán-Ipiales border crossing.

The operation of the Binational Border Service Centers (CEBAFs) at the Tulcán-Ipiales border crossing will facilitate customs and immigration operations, avoiding the overlapping of controls and reducing the current delays in the movement of passengers and cargo between the cities and production centers in the Andean region of both countries. In addition, the improvement of the approach road to the San Miguel CEBAF will bring significant benefits to the economy of the populated centers at the border, promoting commercial links and trade among them.

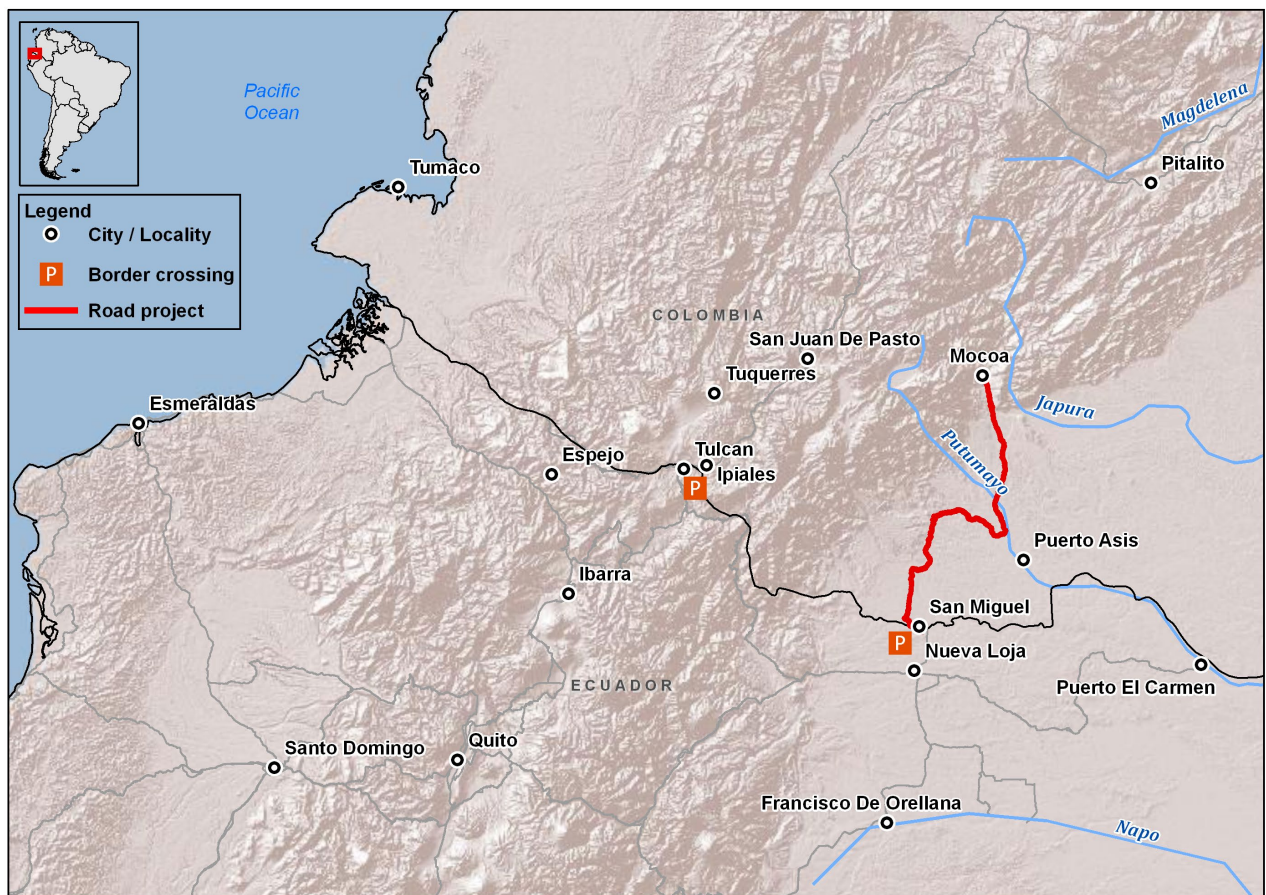
This structured project, scheduled to be completed in 2019 and involving an estimated investment of US\$319 million, is made up of four individual projects, two of which are road projects –the improvement and paving of the Mocoa–Santa Ana–San Miguel section, and the construction of the new Rumichaca International

**US\$ 319**

million estimated investment

**180 km**

of roads



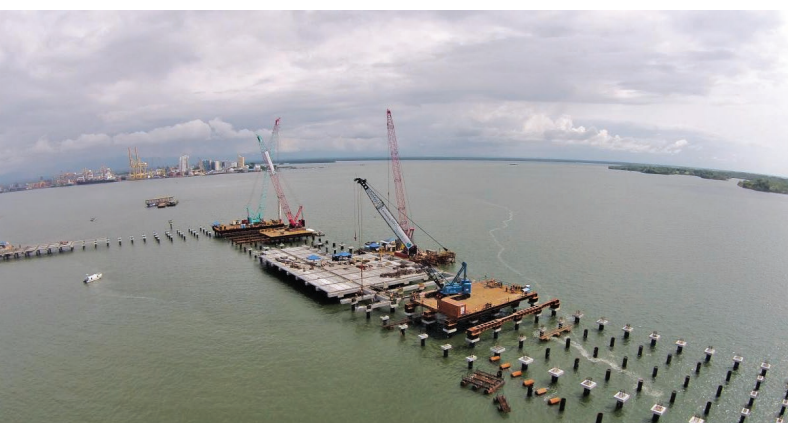
Bridge— and the other two concern the implementation of border centers: the San Miguel CEBAF and the Tulcán-Ipiales (Rumichaca) CEBAF.

Paving of the Mocoa-Santa Ana-San Miguel road section is underway. The project for the construction of the Rumichaca International Bridge was completed in 2013, and the one involving the building of the San Miguel CEBAF was completed in 2015. The Tulcán-Ipiales CEBAF project is at the pre-execution stage, and commencement of the works is planned for 2018.

### Trade Integration through Colombia's and Ecuador's Roads

Trade relations between Colombia and Ecuador are among the most important ones between the countries involved in the Andean Hub; this is evidenced by the significant flows of goods and services that take place in the area, which in 2016 reached a total FOB value of US\$2.187 billion.





Of this total, 36.6% (approximately US\$801 million) involve exports from Ecuador, accounting for about 5% of the total exports of such country in 2016. The top ten products included processed fish, palm oil, delivery trucks, automobiles, wood panels, crustaceans, iron, paper, rubber gums, and cement.

Colombian exports to Ecuador amounted to US\$1.377 billion in 2016, which accounted for around 4.2% of the total exported by the country that year. The top ten export products were packaged drugs, delivery trucks, pesticides, polyethylene polymers, textiles, beauty products, cleaning products, plastics and spare parts for vehicles. It is worth noting that Colombian exports to Ecuador account for 9% of total Ecuadoran imports, a percentage that is similar to Ecuador's imports from the whole European Community, which reached US\$1.772 billion in 2016.

International cargo transport by road in the region is particularly important, since about 65% of the exports from Colombia to Ecuador and 90% of the exports from Ecuador to Colombia are carried by road. As a result, last year operations through the Tulcán-Ipiales border crossing amounted to approximately US\$1.500 billion FOB.

Due to the increase in trade between both countries, driven mainly by the economic agreements signed within the framework of the Andean Community –which, among other benefits, established zero rates of duty for certain products and the possibility of carrying out international cargo transport without restrictions–, the efficiency of transport on the Bogota-Quito route through the Tulcán-Ipiales border crossing has been limited by two main reasons: congestion in the existing customs

facilities on account of the growing cargo traffic, and the mandatory transfer of cargo established by transport operators from both countries, an informal practice from which only liquid and refrigerated cargo is excepted.

### Border Facilitation to Promote Trade

The Tulcán-Ipiales CEBAF project was the result of Decision 459 of the Andean Community, issued in 1999, which established the "Community Policy for Border Integration and Development," one of whose objectives was to facilitate the free movement of people, goods, capital and services through the border crossings of the member countries. Decision 502 of 2005 provided for the creation of CEBAFs in the Andean Community, and its member countries were authorized to establish and regulate them through Specific Agreements that should take into account the particular characteristics of each CEBAF and of the territories in which they were located.

At the presidential summit held on August 26, 2010, the governments of Colombia and Ecuador expressed the need to give priority to the development of their common border and to work jointly on binational integration plans and projects, and agreed, among other issues, to improve the roads connecting both countries and to build CEBAFs at the San Miguel and Tulcán-Ipiales border crossings. Originally, the project involved the construction of a center with four facilities, two for each country, one for immigration control in the case of passengers and the other for customs control in the case of cargo. Later on, the need to reconsider the project of four facilities arose, and a coordinated scheme of immigration control in two facilities was agreed upon. As for the



control of cargo, an integrated control scheme with two facilities located in the entry country will be implemented.

At present, the operational conditions of the Tulcán-Ipiales border crossing are limited in magnitude and design to cater for the heavy traffic of cargo vehicles in both directions of travel, which involves about 1,200 trucks per day. Customs control is carried out in the traditional manner at the national border service centers (CENAFs) located in Tulcán and Ipiales, and it may take between two and three days for cargo to cross the border.

Such delays in customs procedures and formalities, in addition to those caused by the “mandatory” transfer of cargo and to the fact that the Rumichaca International Bridge can only be crossed between 6 a.m. and 10 p.m., entail a cost that carriers add to the cost of transporting cargo, which ends up making the service more expensive, causing extra charges and efficiency losses in the logistics chain.

The 24-hour operation of the CEBAFs, along with the application of integrated controls, will reduce delays in customs procedures, which in turn will speed up cargo traffic and reduce the costs of the logistics platform associated with the border crossing. In this regard, consulting firm HIDROPLAN is expected to submit the final design to turn the current CENAFs into CEBAFs by the end of 2017, which will allow the coordinated implementation of passenger and cargo controls. The commencement of the adaptation works is estimated for the first half of 2018, and the facilities are expected to be fully operational by 2019.

## New Road Infrastructure

Additionally, as part of the actions being carried out by Colombia to enhance international freight transport, the improvement and paving of the Mocoa-Santa Ana section (73 km) and the paving of the Santa Ana-San Miguel section (109 km) are underway. The works, which involve a total investment of US\$210 million, have been granted in concession in the context of the Fourth Generation of Concessions Program (4G Program). The concession contract for the Mocoa-Santa Ana section was signed in 2015 and involves rehabilitation and improvement works as well as the construction of a new road. The 109-km long Santa Ana-San Miguel section includes paving and construction of 10 bridges; progress of the works is close to 50%, and their completion is estimated for 2019.

These improvements in the only road connection that both countries share will lead to an increase in trade and cultural exchange between populated centers in southern Colombia and northern Ecuador and also Quito, located 288 km away from the San Miguel border crossing. This will favor the development of production, commercial and tourist activities by the border communities, and enable access to new markets as well as the efficient transport of products to both countries’ consumption centers. Furthermore, this will help relieve traffic congestion along the Rumichaca bridge, attracting the traffic of vehicles from Route 45 in Colombia and the Amazonian Trunk Road in Ecuador —important agricultural, livestock and fish production hubs in Amazonia—, which currently must cross through the Tulcán-Ipiales border crossing due to the lack of a more efficient alternative.■



## Desaguadero Binational Border Service Center



# A Binational City in the Heart of South America

With the opening of the new Desaguadero CEBAF, Bolivia and Peru seek to organize and expedite border traffic at the main border crossing they share. The new building will have modern technology and unified procedures for the control of passengers and cargo, which will facilitate customs procedures and formalities and significantly reduce waiting times.

The project involves the implementation of a new CEBAF in the town of Desaguadero, located on the Bolivia-Peru border, which will improve the immigration and cargo control processes at a one-stop border post in Peru.

The complex, built on a seven-hectare property located on the approach to the Puente Nuevo international bridge, has two buildings in which the Peruvian and Bolivian authorities will carry out activities in a unified manner.

The new facilities, fully equipped in terms of infrastructure, connectivity and services, will allow the safe and orderly traffic of passengers, vehicles and cargo 24 hours a day, 365 days a year, which currently can only be done in daylight hours. In addition, with the implementation of integrated cargo control, waiting times will be substantially reduced, thus avoiding traffic congestion and saturation of approach roads.

### A Unified and Modern Border Center

The CEBAF facilities are an intelligent infrastructure for carrying out immigration and customs clearing in a unified manner, with buildings for the public and the administration of the CEBAF, lanes for the control of cargo vehicles, warehouses, electronic scales, scanners, and perimeter security.

The new Center will also have sectors for officials from the National Superintendence of Tax Administration (Superintendencia Nacional de Administración Tributaria - SUNAT), the General Directorate of Immigration and Naturalization (Dirección General de Migraciones y Naturalización), the National Service of Agricultural Health (Servicio Nacional de Sanidad Agropecuaria - SENASA), the General Directorate of Environmental Health (Dirección General de Sanidad Ambiental - DIGESA), the National Institute of Natural Resources (Instituto



**US\$ 30**

million estimated investment

**700,000**

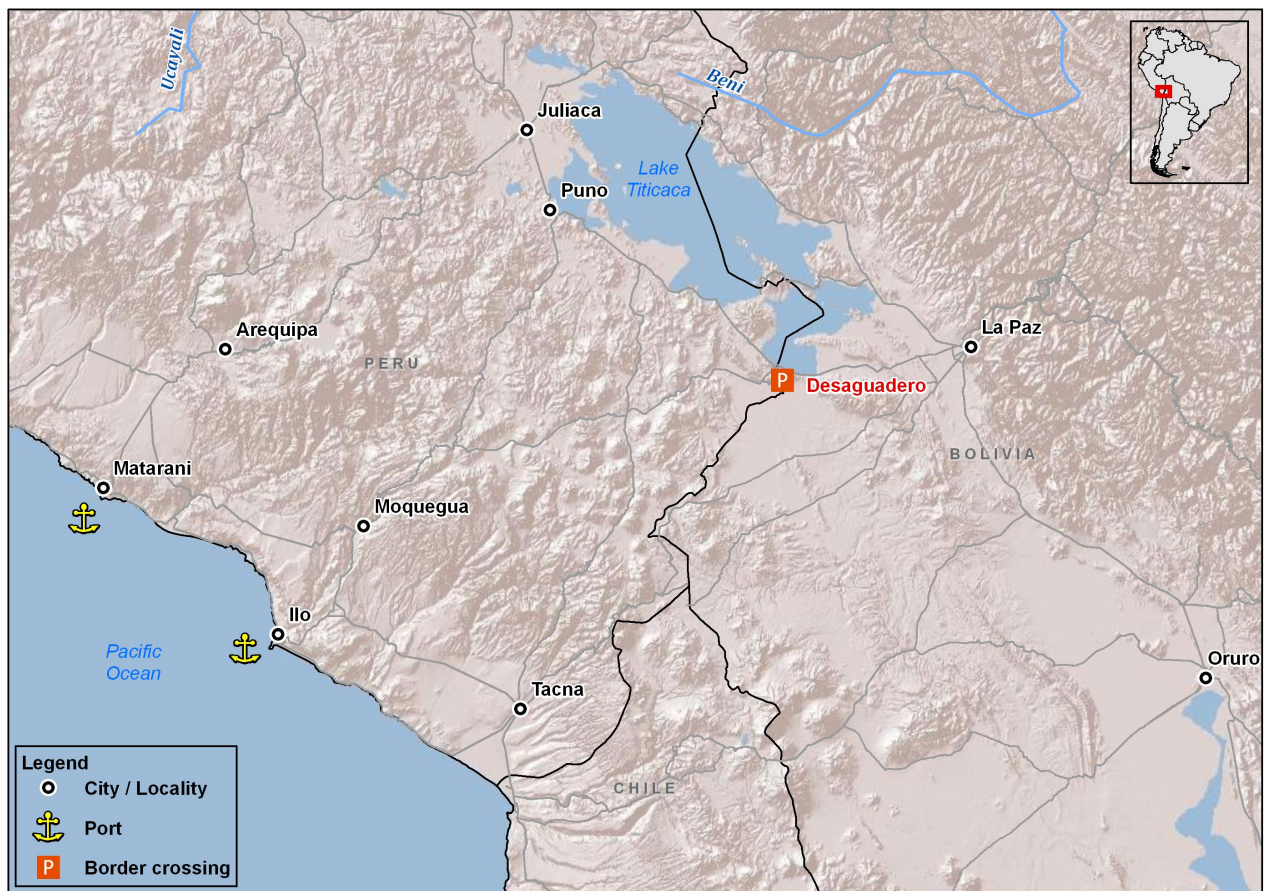
immigration clearing processes per year

**80%**

of Peruvian international trade by road

**US\$ 562.4**

million of cargo handled annually



Nacional de Recursos Naturales - INRENA), the National Police and the Ministry of Transport and Communications, all of them from Peru. On the Bolivian side, officials from the National Customs, the National Immigration Service, the National Service of Agricultural Health and Food Safety (Servicio Nacional de Sanidad Agropecuaria e Inocuidad Alimentaria - SENASAG), the National Police and the Vice-Ministry of Transportation will be present.

Integrated control will involve a single stop for the flow of people, baggage, vehicles, and cargo

that pass through the border crossing, and procedures will be applied to avoid the duplication of formalities and records at entry and exit. This control will be carried out in a sequential manner, starting with the procedures of the country of exit and ending with the procedures of the country of entry, with the participation of transport and communications authorities, sanitary officials, the police, immigration personnel and customs officers, in this order.

At present, civil construction works are at their



completion stage, with only the final equipment of the facilities pending. Completion is estimated for late 2017.

### Foreign Trade and People Going through Immigration

The Desaguadero border crossing is one of the most active ones in Peru. In 2016, it ranked fourth in the country's movement through immigration offices, with around 700,000 people cleared. Of this total, 450,000 persons were of Peruvian nationality and 250,000 were foreigners. These figures, which have been more or less constant since 2010, involve the completion of about 2,000 daily immigration processes, only as far as the crossing of people is concerned.

Local border traffic should be added, which gives rise to an intense trade activity with different degrees of informality, consisting in the transport of goods in non-motor vehicles across the bridge, and in truck loading and unloading operations on both sides of the border.

As for the international transport of cargo, the highest traffic through border customs in Peru takes place at the Desaguadero border crossing, which accounts for 80.6% of the total movement of goods that cross the country's land borders. In 2016, exports from Peru to Bolivia through this border crossing amounted to US\$325.38 million FOB, accounting for 58% of total Peruvian exports to Bolivia that year (US\$562.4 million FOB). The top ten products exported were baby diapers, polymers of ethylene, perfumes, fibers for yarn, baked goods, cement, silicones, petroleum bitumen, cleaning products, and seats.

Bolivian exports to Peru through Desaguadero during the same period amounted to US\$289.73

million FOB, the top ten products being oilcake and other residues resulting from the extraction of soybean oil, bean flour, liquefied petroleum gas, propane, beans, milk, oilseeds and crude oilseed oil, gold ore, and peanuts. It is worth noting that almost all the shipments have the Peruvian territory as their final destination, which is currently evident because Bolivian cargo shipments in the nearby ports of Ilo and Matarani are almost non-existent.

The share of the Bolivian border department of La Paz in the total exports to Peru via Desaguadero reached an FOB value of US\$18 million in 2016, which accounts for only 6.21% of the total exports through the border crossing. This indicates that approximately 94% of the flows of goods that enter Peru from Bolivia through Desaguadero come from departments not bordering Peru, such as Oruro (tin and its derivatives), Cochabamba (natural gas), Santa Cruz de la Sierra (soybean oilcake, soybean oil, natural gas), Chuquisaca (natural gas, beans) and, occasionally, other products from third countries.

This situation reflects the importance of the new CEBAF to consolidate the significant flows of goods that currently take place between both countries through Desaguadero. When the CEBAF becomes operational, it will speed up and boost the transport of cargo by road, thus improving trade at the regional level. This will be the result not only of the enhancement of controls and the reduction of transit operations and customs clearance times, but also of the possibility of providing attractive conditions for the future establishment of a multimodal logistics platform associated with the border crossing in both countries and for the flows of cargo exports originating in the departments of the interior of Bolivia that use the Peruvian ports of the region as an outlet.



In this regard, a first step has been taken with the recent agreement between the Port Services Administration-Bolivia (Administración de Servicios Portuarios-Bolivia - ASP-B) and the National Ports Company Enterprise (Empresa Nacional de Puertos - ENAPU) of Peru, which signed a cooperation agreement to reroute about of 60,000 tons of export cargo to the port of Ilo. Additionally, as part of the COSIPLAN Project Portfolio, progress is being made in the execution of the project to expand and rehabilitate the 187-km long Juliaca-Puno-Desaguadero road, involving an investment of almost US\$422 million. The main objective of these investments is to improve the integration of southern Peru with the department of La Paz, thus generating significant savings in transport costs and increasing safety and security, as well as to boost tourism in the Cusco-Puno-La Paz hub.

### Towards a Deep Integration

The Desaguadero CEBAF project is a corollary of Decision 459 of the Andean Community, issued in 1999, which established the “Community Policy for Border Integration and Development,” one of whose objectives was to facilitate the free movement of people, goods, capital and services through the border crossings of the member countries. A High Level Working Group on Border Integration and Development was created in the Andean Community, coordinated by the Ministries of Foreign Affairs of the member countries. The General Secretariat of the Andean Community was established as its Technical Secretariat, with the mandate to coordinate and propose the programs and action plans necessary for the implementation of the policy mentioned above.

The High Level Working Group would have the support of the binational mechanisms in place in the member countries as well as of the Andean Regional Advisory Group, coordinated by the Inter-American Development Bank (IDB) and the Andean Development Corporation (CAF). Decision 502 of 2005 provided for the creation of CEBAFs in the Andean Community, and its member countries were authorized to establish and regulate them through Specific Agreements that should take into account the particular characteristics of each CEBAF.

That same year, the “Bolivia-Peru Specific Agreement concerning the Desaguadero CEBAF” was signed, which established the basis for its regulation and operation, resulting in the creation of the Desaguadero CEBAF Board of Administrators, a binational, autonomous and permanent body responsible for the administrative and operational coordination of the CEBAF. This board is made up of the heads of each of the institutions that provide basic services, and the administrative functions are entrusted to an Administrative Management Unit in each module of the CEBAF.

Among the main agreements signed on that occasion, the integrated border control modality was decided, which means that verification and supervision of compliance with the legal conditions for entry and exit are jointly carried out by officials from both countries in the facilities of the CEBAF. In addition, the new bridge over the Desaguadero River —“Puente Nuevo International Bridge”— was established as the border crossing authorized by both countries for the movement of people, luggage, goods, and vehicles.

In 2013, integrated cargo control began, involving a binational commission made up of officials from Peru’s Tax Administration National Superintendency (Superintendencia Nacional de Administración Tributaria - SUNAT) and Bolivia’s National Customs Authority, which receives and analyzes the international cargo manifests in a coordinated manner and records the information online. In this way, the import and export customs transit procedures are carried out jointly 365 days a year in the facilities of the border checkpoint in Carancas, Peru, and in the Puente Nuevo border checkpoint, in Bolivia, where officials from both countries oversee operations. The work protocol adopted includes side-by-side operations, the correlative numbering of entry and exit manifests, and the daily comparison of information.

In 2014, the new complex construction works began with a US\$30 million budget co-financed by the IDB and the Peruvian government through SUNAT and the Public Treasury. The civil works were in charge of company Consorcio Binacional Sur (Consorcio CASA Hidalgo).■



## Autopista del Sol Expressway: Improvement and Rehabilitation of the Sullana – Aguas Verdes Section (Including Tumbes Bypass)



# Road Investments Strengthen the Ties between Peru and Ecuador

The increase in the capacity of the Northern International Expressway will improve road connection between northern Peru and southern Ecuador, providing continuity to the significant flows of people and goods that currently travel along it and enhancing the competitiveness, traffic smoothness and safety in the main integration corridor between both countries.

The main purpose of this project is to improve road transport service in the so-called Northern International Expressway, which forms part of the Pan-American Highway in its section from the city of Sullana, department of Piura, to the border with Ecuador. The improvement of its passability and the increase in its capacity reduce travel times between destinations, lowering logistics costs and providing adequate safety conditions for the international transport of cargo through the Aguas Verdes-Huaquillas border crossing, the main trading point between both countries.

This structured project, whose estimated completion date is 2018, involves a total investment of US\$666 million and is made up of three road projects: Upgrade of Sullana – Tumbes – Turn-off to the International Bypass Bridge to a Four-lane Road, Rehabilitation and Construction of Bridges along the Sullana – Tumbes – Turn-Off

to the International Bridge Road, and Construction of Tumbes Bypass.

### Peru – Ecuador Integration Road Corridor

Within the framework of the Peru-Ecuador Binational Plan, the governments of both countries have been carrying out various actions of a multisectoral nature, including improvements in the road network and border control facilities. These works in the border area seek to strengthen trade integration between populated centers located at the border and increase tourist and trade flows between both countries. In this regard, the Piura-Guayaquil Road Hub has been identified as the main one of the five binational road integration hubs.

This road hub for integration purposes is articulated in Peru by the Northern

**US\$ 666.3**

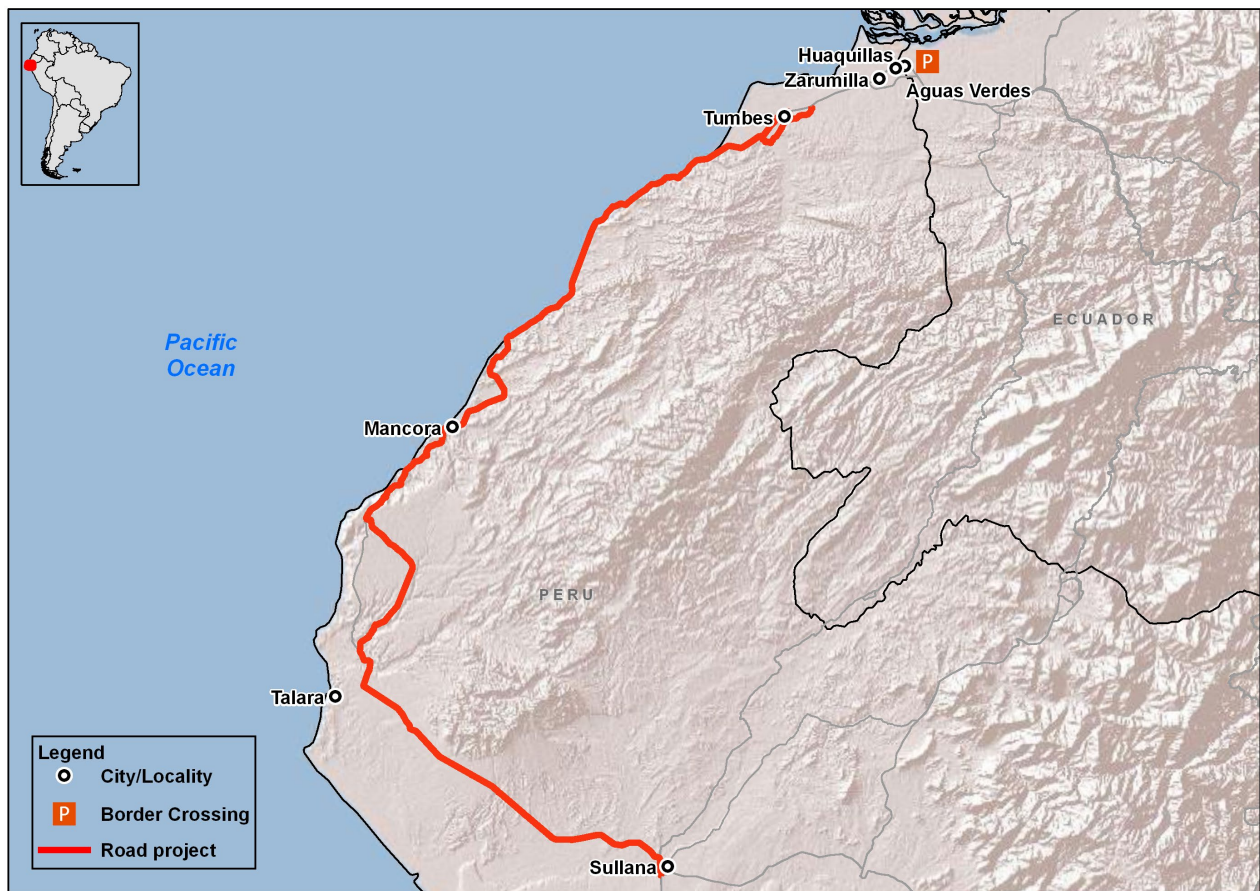
million estimated  
investment

**441 km**

of roads

**42**

road bridges



International Expressway, which includes the following sections: Piura-Sullana (35.5 km), Sullana-Talara (83.2 km), Talara-Máncora (80.5 km), Máncora-Zorritos (72.5 km), Zorritos-Tumbes (34 km), Tumbes-Zarumilla/Aguas Verdes (19 km), and Aguas Verdes-Huaquillas (13 km), from where it enters the Ecuadorian territory with the Huaquillas-Machala (74.6 km) and Machala-Guayaquil (185 km) sections.

According to estimations, since the Peace Deals the volume of foreign trade along this international road link has tripled, while the

annual traffic of vehicles has increased five times. The Zarumilla/Aguas Verdes-Huaquillas section is the one with the highest volume of road traffic between both countries, currently having an estimated traffic flow of about 1,400 vehicles per day, 40% of which are cargo vehicles.

Within Peru, this structured project is very significant, as it is located in the most dynamic section of the Northern Pan-American Highway, the densest road corridor in Peru. This road section is articulated as a continuation of the





Autopista del Sol Expressway, which is 475 km long, an important logistics road hub that, through paved trunk Route PE-1N, links the major cities and production and industrial centers of the Trujillo-Chiclayo-Piura-Sullana section, where the main development hubs in northern Peru are located.

### Foreign Trade and Movement of People through Immigration

Foreign trade between Peru and Ecuador is one of the most important among the countries that make up the Andean Community of Nations (CAN), and accounts for about 40% of Peru's total foreign trade with the other CAN countries. In 2016, foreign trade operations between both countries reached a total FOB value of US\$1.743 billion. Of this total, 37% —about US\$652 million— were exports from Peru, accounting for around 2% of its total exports that year, the main products being animal feed, refined copper, cleaning products, plastic products, refined oil products, eggs, baked and bakery products, flours and pellets, grapes, and medicines.

Ecuadorian exports to Peru amounted to US\$1.091 billion in 2016, which accounted for about 6.5% of the total exports by the country that year, the top ten products being crude oil (accounting for 70% of the total export amount), wood panels, crustaceans, processed fish, animal feed, fresh fish, iron, plastic products, paper, and refrigerating machines.

As for international cargo transportation, exports from Peru to Ecuador through the Aguas Verdes-Huaquillas CEBAF amounted to US\$294 million FOB, which accounts for 45% of total Peruvian exports to Ecuador that year (US\$652 million FOB). The main goods carried were animal feed, cleaning products, coffee, hatching eggs,

printed products, onions, shallots, beans, and asparagus.

Ecuadorian exports to Peru through Aguas Verdes-Huaquillas in 2016 amounted to US\$132 million FOB, accounting for 12% of total exports from Ecuador to Peru that year. The top ten products were animal feed, gas stoves, fresh and processed fish (mackerel, dogfish and other sharks), hatching prawns and frozen prawns, paper, baked goods, and footwear.

The Aguas Verdes-Huaquillas CEBAF started operations in 2011. It is made up of two twin buildings, one in each country, where more than 100 officials from both countries perform coordinated tasks of immigration, customs and phytosanitary controls 24 hours a day, 365 days a year. The complex, fully equipped, also has complementary facilities for the control of weights and measures and of cargo vehicles, kennels for drug detection dogs, laboratories, a food court, etc.

The movement of passengers, vehicles and cargo is authorized. In 2016, this CEBAF ranked 4th in the country in terms of people going through immigration, with approximately 522,000 persons recorded. Of this total, about 291,000 were foreigners and 230,000 were Peruvian nationals. This high level of movement involves the completion of 1,400 immigration processes per day. Added to this, local border traffic and customs operations are estimated at 300 trucks per day on average.

### Investments in Road Infrastructure to Strengthen Integration

Works in the Northern International Expressway project involve an investment of US\$472 million, and consist of the rehabilitation





and improvement of the current road along a 277-km stretch and of the increase in capacity through the upgrade to four lanes in the sections with greater traffic (about 100 km between Sullana and Máncora). They also include the construction of 63 km of four-lane bypasses in Sullana, Máncora and Tumbes, and of 18 km of two-lane bypasses in Los Órganos, Cancas and Zorritos, as well as road interchanges, pedestrian bridges, signage and complementary works. In addition, the project involves the rehabilitation and construction of more than 100 road bridges, some of which were affected by El Niño coastal phenomenon, which occurred in February and March 2017.

Since 2010, the road is under a performance-based road maintenance contract, which includes regular maintenance, emergency care services and information gathering tasks. The 9-km long turn-off to the International Bridge-Border with Ecuador section was completed in 2009 as a four-lane road at the wearing course level. At present, the Ministry of Transport and Communications and PROINVERSIÓN are carrying out the basic studies for the concession of the road project, estimated to be granted in 2018.

Within the framework of the National Bridges Program (PROPUNTES), 42 bridges of the Northern International Expressway along the Piura-Tumbes-Border with Ecuador section are being rehabilitated, involving a total investment of US\$139 million. So far, works in Las Monjas (30 m.), Caleta Grau (30 m.), Manuela (50 m.), Canoas (50 m.), Piura Road Interchange (40 m.) and Canal Dren (10 m.) bridges have been completed. Works in Pasamayito (200 m.), Héroes del Cenepa, El Abejal and Pontón 1217 bridges are in execution, while final studies for the Bocapán and Tumbes bridges are approved.

Under the Reconstruction Program for roads affected by El Niño coastal phenomenon, the technical records for 19 bridges are being prepared (10 final bridges and 9 replacement bridges), and commencement of works is scheduled for late 2017.

Originally, project Construction of Tumbes Bypass was included as a component of the "Sullana-Border with Ecuador Northern International Expressway" concession, but later on, considering the negative impacts of the El Niño coastal phenomenon, it was decided that the project would be implemented as a public works project within the framework of the Roads and Bridges Reconstruction Program. The project involves an US\$55 million investment and consists of the construction of 18.65 km of four lanes, two for each direction of travel with a median strip, the road being 7.20 m wide with 3-m wide shoulders on each side, as well as the construction of two road interchanges, two grade-separated junctions and two bridges. Project implementation is estimated for the 2019-2020 period.■

## Itaipu – Asunción – Yacyretá 500-kV Transmission Line



# Electricity Interconnection to Improve Access to Power Production

In 2018, with the completion of the Yacyretá-Ayolas-Villa Hayes interconnection works, Paraguay will double its power grid in 500 kV, which will provide stability and security to its National Interconnected System, also ensuring access to its total share of the production of electric power in the Yacyretá Binational Hydroelectric Plant.

Structured project Itaipu – Asunción – Yacyretá 500-kV Transmission Line, with a total investment of US\$852 million, is the second project with the highest investment in API 2022 and consists of two individual projects: completed project 500-kV Transmission Line (Yacyretá – Villa Hayes), involving US\$555 million investment, and Yacyretá – Ayolas – Villa Hayes 500 kV Transmission Line, involving a US\$297 million investment and currently at the execution stage.

The project is financed by the Inter-American Development Bank (IDB), the Development Bank of Latin America (CAF), the European Investment Bank (EIB), the European Community, and by counterpart funds from Paraguay's National Electricity Administration (Administración Nacional de Electricidad – ANDE).

### Project Progress

In 2008, the project was included in the Works Master Plan 2012–2021 of Paraguay's ANDE. In October 2011, the IDB and the EIB approved the project's eligibility to be co-financed (Electric Transmission Program for ANDE – Phase II), and in October 2012, the project obtained a favorable feasibility opinion from the Public Investment System Bureau (Dirección del Sistema de Inversión Pública – DSIP).

That same year, six public consultations were held with the objective of providing general information of a technical and environmental nature and to seek the opinion of various stakeholders, such as local governments, public institutions, production unions, NGOs and other civil society actors. In May 2013, an addendum

**US\$ 852**

million estimated  
investment

**621 km**

of transmission lines

**792**

transmission towers



to the 500-kV Transmission Line (Yaciretá - Villa Hayes) project was submitted to modify the original alignment. In November the terms and conditions were approved by Ministry of Finance Decree No. 883/2013, and loan agreements were signed with the IDB, the EIB and CAF.

Finally, in 2015 Paraguayan company Consorcio de Ingeniería Electromecánica (CIE) and Equatorial Guinean company Somagec were awarded the contract for the execution of the works, overseen by consortium Cointec-Electroconsult Consortium, under the supervision of ANDE, and a 24-month term was

established for the execution of the two components of the project.

- **Component 1:** "Construction of the Yaciretá - Villa Hayes 500 kV Transmission Line." The works are divided into two lots: Lot No. 1: Construction of the 2nd 500 kV Yaciretá - Ayolas transmission line (16 km) and construction of the 500 kV Ayolas - Paraguari transmission line (V20) (157 km); and Lot No. 2: Construction of the 500 kV Paraguari - Villa Hayes transmission line (189.9 km).

- **Component 2:** "Upgrade of Ayolas and Villa





Hayes Substations to 500/220 kV,” also divided into two lots: Lot No. 3: Upgrade of the 500kV Ayolas Substation; and Lot No. 4: Upgrade of the 500/220 kV Villa Hayes Substation.

At present, the project is at the execution stage and advancing according to the established schedule, and its completion is expected for May 2018.

### Energy Security and Reliable Electricity Supply

This new infrastructure is an approximately 363-km long, 500-kV transmission line supported by 792 single circuit transmission towers with an average height of 47 meters, to which 26 km of the existing double circuit transmission towers of the 500-kV Itaipú-Villa Hayes transmission line must be added. The nominal transmission capacity will be 2,215 MVA.

In addition to the laying of the network, works include the upgrade of the Ayolas Substation with the provision and assembly of two 500 kV transmission line positions as well as the upgrade of the Villa Hayes Substation through the assembly of a third bank of single-phase autotransformers of 500kV/220 kV-600 MVA, with its respective 220 kV maneuvering equipment, and the provision and assembly of two new 500 kV transmission line positions (transformer and transmission line).

The alignment of the transmission line starts at the Binational Hydroelectric Plant of Yacyretá, crosses the Paraná river to the substation in the small town of Ayolas (Misiones department), located in front of the Yacyretá island, downstream of the dam. From there it runs parallel to the already existing 220-kV line in the vicinity of the city of Paraguari (Paraguari

department). At this point, it turns east until it reaches the alignment of the 500-kV Itaipú-Villa Hayes transmission line. The last section runs parallel to this line to the substation located in the city of Villa Hayes (Presidente Hayes department), on the right bank of the Paraguay river, about 17 km upstream from the city of Asunción.

In the 2015–2016 period, Paraguay had a supply of 54,682 GWh from the binational hydroelectric power plants on the Paraná river, i.e. Itaipú, shared with Brazil, and Yacyretá, shared with Argentina. Of such total, about 41,127 GWh (75%) were exported, Brazil being the main recipient with 82% and Argentina with 12%. Regarding domestic consumption, 43% supplies the residential areas, which are responsible for seasonal energy demand or peak hours. This demand has been increasing in recent years, and may lead to critical conditions in the summer months, causing power failures or low voltage supply.

Completion of this strategic project will substantially improve power supply security in Paraguay in terms of future demand, and will enhance quality of service and reliability of power supply to Asunción, which accounts for more than 50% of electricity consumption in the country. This new infrastructure will correct undervoltage issues and reduce the high technical losses in power transmission, which reach 10% in peak hours.

In addition, the increase in the capacity of the system will allow the export of a larger share to Argentina through the 220kV interconnection in place between the towns of Clorinda (Argentina) and Guarambaré (Paraguay). As a complement to the project, the need to make regulatory adjustments has been identified.





### **Itaipú – Villa Hayes: The First Completed Transmission Line**

The project included the construction and operation of the 500-kV transmission line running from the right bank substation, located in the area of Itaipú, to the substation in Villa Hayes, a city located near Asunción, in addition to the upgrade of the Villa Hayes substation (500 kV yard and 500/220 kV transformers). The line has been fully operational since 2013.

The original project dates back to 2011, and its construction, which took 20 months, was carried out by Itaipú Binacional as the executing agency. Its financing (US\$555 million) came from the MERCOSUR Structural Convergence Fund (FOCEM) and included contributions from ANDE.

The transmission line runs along 350 km, crossing the eastern region of Paraguay from east to west, and covers areas of four departments and twenty municipalities. Works included the installation of 758 transmission towers and the crossing of the 650-meters wide Paraguay river with four towers, two of which were 111 meters high.■



## Nueva Palmira Beltway, Upgrade of the Direct Influence Road Network and Port Access Roads System



# Investments in Roads and Approaches Promote the Sustainable Expansion of the Port

The consolidation of the port of Nueva Palmira as the main port for bulk shipments of the country and as the hub port of the Paraguay-Paraná waterway has exponentially increased port operations, which has had an impact on the daily dynamics of the city and its inhabitants. The new approach roads, whose works started recently, will prevent truck traffic from passing through urban streets and will bring order to the port entrance, improving the operation and safety conditions of the terminal. The project also includes the upgrade and/or improvement of the surface of the roads directly involved in cargo transport to the port.

Since the boom of soybean production in the Plata river basin and the operation of the Paraguay-Paraná waterway, there has been an unprecedented increase in exports of agricultural products from the region. This has greatly stimulated the flows associated with the oilseed and bulk complex of the MERCOSUR countries, as well as those related to the supply of inputs for agriculture as well as fuels.

The city of Nueva Palmira and its port, strategically located on the Uruguay river, about 10 km upstream from the mouth of the Paraná

Guazú river —the main branch of the Paraná river and one of the accesses to the Paraguay-Paraná waterway—, have become a fundamental link of the regional logistics chain, experiencing an exponential growth in exports from the national and regional agriculture and forestry sectors through its docks in the last decade. Since last year, this has been complemented by the movement of increasing volumes of iron ore coming from Bolivia and Brazil through the waterway and by the shipment of fertilizers and fuels in the opposite direction. This growth in bulk cargo movement and in the activities of its



# 10 million

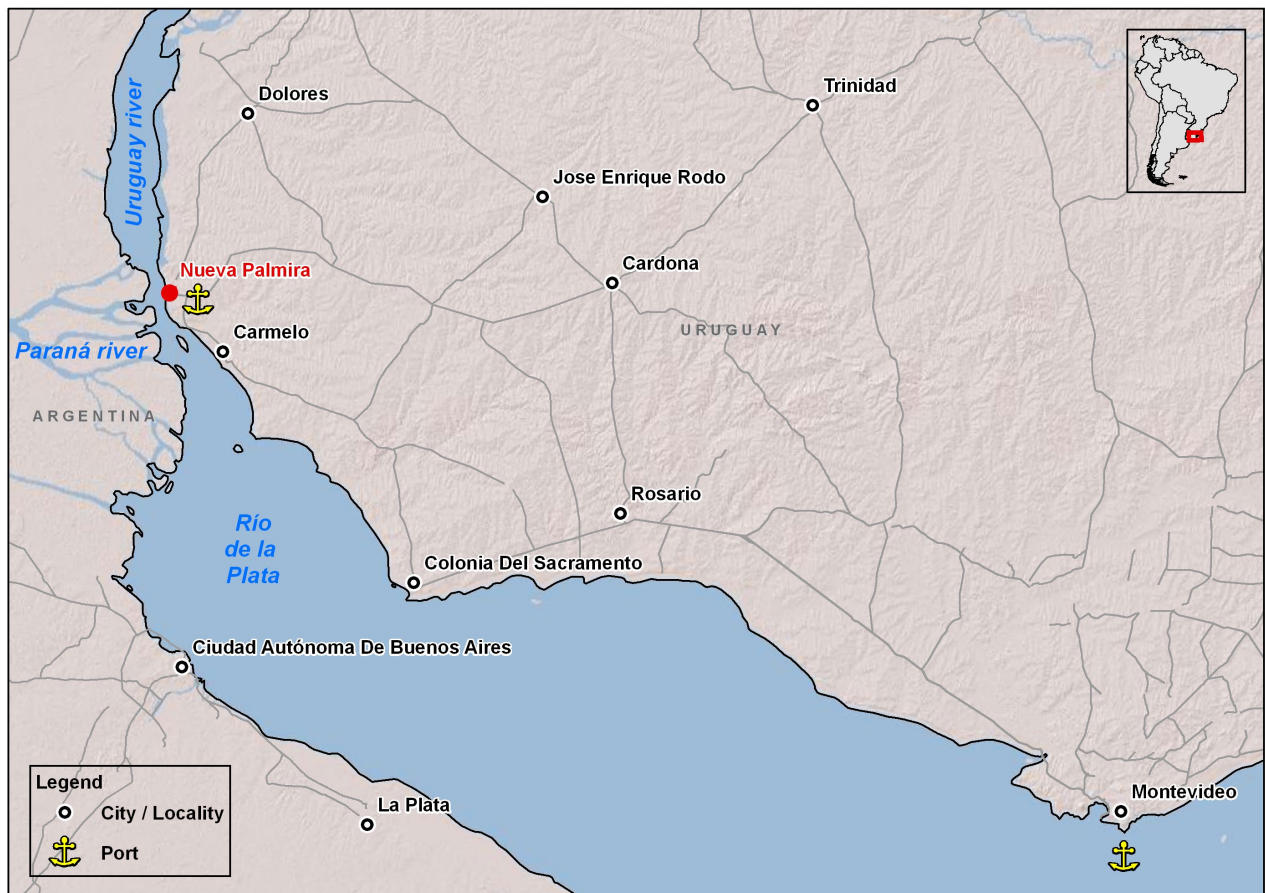
tons handled in 2016

# US\$ 1.021

billion in foreign trade operations

# 55%

urban employment specialized in activities related to this agricultural port complex



associated logistics platform has been partly to the expense of the urban and coastal areas of Nueva Palmira, causing the sprawling of the city to the north, away from the logistics and port activities area.

The increase in heavy vehicle traffic on the urban streets and in the surroundings of Nueva Palmira has altered the everyday activities of the city and its inhabitants and caused pollution problems and conflicts over the use of the urban area. Furthermore, traffic congestion on the road approaches to the port area hinders

operations at the different terminals and causes delays in the entrance to port. These waiting times may exceed the necessary operational time of trucks, and transport becomes more expensive and the use of capital inefficient. This leads to extra charges that affect the efficiency of the regional logistics chain and reduce competitiveness in the global value chain.

This structured project aims at creating a direct road connection for the entry into and exit from the port, along with the redesign of the alignment of the urban streets. This will connect the road freight transport flows coming from the



north along Routes 24 and 21 with those on Route 12, which links the port with Montevideo, thus avoiding the entry and traffic of heavy vehicles in the city. The initial works involved a total investment of almost US\$80 million, and their completion is estimated for mid-2020. Works began in September this year, within the framework of the first public-private partnership (PPP) contract signed for road works. The contractor, in addition to the upgrade of the roads and the construction of the Nueva Palmira beltway, will be in charge of maintenance for 22 years and will receive an annual availability payment if the roads reach the level of service required.

### Paraguay-Paraná Waterway Port

The Paraguay-Paraná waterway has an approximate length of 3,300 km of navigable waters and is the main outlet for agricultural exports from Argentina, Bolivia, Paraguay, Uruguay and part of Brazil. This river route is used for carrying cargo from the ports of origin located along the whole waterway to the deep water ports located on its lower section and the Plata river, where transshipment to seagoing vessels takes place.

The transport of agricultural bulk cargo to the ports of exit is mostly carried out in shallow draft barge trains pushed by towboats that, together, can carry up to 50,000 tons per trip. As for these shipments, 80% of the trips involve exports, the main products being vegetable oils, soybean, corn, wheat, cereals, fruits, forestry products, and minerals. Upstream trips involve mainly fuels, fertilizers, agrochemicals, and containerized goods.

The port of Nueva Palmira is the site of kilometer zero of the Paraguay-Paraná waterway,

and is the main agricultural and forestry bulk products export port in Uruguay. As a whole, the three terminals currently operating in the area—one is state-owned and the other two are private—handle 70% of the country's grain production. In recent years, the port's capacity for operating with seagoing vessels and the establishment of two free-trade zones has turned it as a hub port for the reception, storage and transshipment of agricultural and mineral bulk cargo originating in the whole Plata basin and having destination markets in America, China and Europe. The port has also become an important cargo operator for the forestry sector and is a prominent point of embarkation of eucalyptus pulp and roundwood coming from the industrial hub established on the banks of the Uruguay river and its surroundings and bound for Europe.

In 2016, at the Nueva Palmira customs, trade operations amounted to US\$1.021 billion, of which 82% (about US\$843 million) involved exports, 10% (US\$105 million) involved imports, 5% involved goods in transit (US\$55 million), and 2% (US\$18 million) involved the temporary admission of goods for inward processing.

In 2016, cargo handled at the port terminals, apart from transshipments, reached a total of 7,295,884 tons, 50% of which involved hub cargo. This cargo is not of Uruguayan origin and is transshipped in the port as well as on the water through loading and unloading operations. In terms of the tons handled, the main products exported were soybean, cellulose, wheat, malt, fertilizers, barley and citrus. Hub cargo, in order of importance, involved soybeans, cement, wheat, soya pellets, rice and corn, and recently, iron ore. In previous years, automobiles, other minerals and coal have also been significant hub cargo.





## From the Port City to Spatial Planning

As mentioned above, in the last decade port activity grew steadily due to the increase in exports of grains as well as of pulp and roundwood. This has created important economic benefits for the city, which is closely linked to the activities of the port and its associated logistics platform.

At present, 55% of urban employment is specialized in activities related to this agricultural port complex. This occurs through direct employment in the public port and private terminals, as well as in cargo transport companies, logistics operators, and other related services such as technical and professional consulting firms, maintenance, warehouses, cleaning, security, etc. Direct employment at the terminals is estimated to involve about 500 people in both permanent and temporary jobs, including stevedores, machine drivers, mooring service providers, pilots, and technical and administrative staff.

The rapid expansion of activities in the port and its associated logistics platform has led to negative externalities that concern mainly the operation of the terminals, the transport of cargo and the growth in new tertiary and logistics activities without prior planning in the city.

Among the main problems of this expansion is the growth of the port area, which has extended to part of the city and its coastal beaches, with the ensuing loss of public and recreational spaces, as well as the decline in the quality of river water and coasts near the port terminals, with fuels or other polluting materials left by the barges and ships. Although the new zoning guidelines will involve sound land use planning, over the last ten years grain storage

silos were located adjacent to the city and in unsuitable areas, which affected residential areas and tourist development.

Another important problem is air pollution and its harmful effects on human health. As a result of the increase in dust emissions due to truck traffic and grain loading and unloading operations, there has been a significant increase in airborne particulate matter in residential areas. This places at risk the health of vulnerable groups such as children, the elderly and persons with chronic respiratory diseases, in addition to affecting port workers.

Faced with this problem, the Departmental Board of Colonia approved the development of the Local Program for Territorial Planning and Sustainable Development of Nueva Palmira. This Program will organize future building development in the city, regulating particular areas for the development of logistic activities and port complementary functions. In this regard, urban protected areas, city protection areas, areas where logistics activities are conditioned, port services and logistics areas, city services and logistics areas, free-trade zones, and areas for port operations only have been designated.

This spatial and land use planning will prevent the negative impacts of port activities and its logistics chain from reaching the urban space, which in turn conditions such activities. The harmonization of activities will promote the integration of the two spaces in a common project. Thus, the city can become sustainably integrated with the value system and position itself as a provider of the inputs and services required by the agricultural port logistics complex, while the port ceases to be a mere business project to become a source of local





development for the city of Nueva Palmira and its surroundings.

### Road Works to Support Sustainable Port Development

As part of the actions to mitigate the negative externalities caused by the growth of port and logistics activities, in 2012 a diversion for heavy traffic was built north of the city, from Route 21 to the entrance to the port. This diversion was seen as a temporary solution and was built on pre-existing streets, complemented by roads on public lands. Likewise, an area for trucks waiting for pre-shipment was established, located about 300 m away from the port complex, which can be accessed without passing through urban streets. Trucks wait in authorized places for such purpose, generally close to areas with silos or warehouses and then, when their assigned turn comes up, they are taken to the pre-shipment area and called from the terminals. This system, developed and maintained with the participation of public and private actors (the National Port Administration, the Ministry of Transport and Public Works, port operators and carriers), has been in operation since 2013 and has organized and significantly improved operations, reducing the negative impacts mentioned above.

In 2015, the first circuit provided for within the framework of the public-private partnership contracts that incorporate various sections of the national road network was put out to tender. This included the rehabilitation and maintenance of a 179-km section of Route 21 Corridor, between Nueva Palmira and Route 2, and the Nueva Palmira bypass, between Route 12 and Route 21 and along Route 24 up to its junction with Route 3, was included in the works budget. By the end of that year, the works were granted

in concession to an international consortium and commenced in September 2017.

The main road works involve the building of a bypass road around the city of Nueva Palmira, involving a total length of 8.5 km of new construction, which joins Route 21 to the north and the existing port to the south, thus becoming the new approach to the port. Works include the construction of a new bridge over the Arroyo stream, the construction of a junction with Route 12 and a roundabout on Route 21, as well as the upgrade of existing urban streets for direct access to the port. They also incorporate the rehabilitation of part of Route 24; a long, 60-km section of it was already resurfaced with whitetopping, a technique that will be used for its improvement to its junction with Route 3. This route is the main corridor for forestry cargo bound for the pulp mill located in Fray Bentos and for grain transport to the port of Nueva Palmira.





The bypass will boost the important flows of agricultural cargo along the agricultural production corridor of Route 21 towards the port, the most important one in the country in terms of grain production for export. The construction of the junction with Route 12 will also stimulate cargo flows coming from Montevideo. This will result in a considerable reduction in waiting times for port access, thus enhancing the performance of the regional logistics chain associated with the port.■





## Infante Rivarola – Cañada Oruro Border Crossing



# Bolivia and Paraguay: Modern Facilities to Integrate their Economies

With the implementation of the new Infante Rivarola–Cañada Oruro Integrated Control Area, Bolivia and Paraguay make progress in their physical integration and strengthen joint controls along their extensive border. The new Integrated Control Area will operate 24 hours a day, 365 days a year, dealing with immigration, customs and phytosanitary control processes.

The project consists in the implementation of an Integrated Control Area on the Paraguay–Bolivia border with a single facility located in the Paraguayan territory, which will speed up immigration and cargo transport controls. This infrastructure is part of the investments that have been made in recent years to strengthen the Santa Cruz de La Sierra–Asunción and Tarija–Asunción hubs, including road improvement and rehabilitation works.

The Integrated Control Area, where both countries' agencies concerned with borders perform joint tasks, has a sector to carry out immigration, customs, police and phytosanitary controls. In addition to the building infrastructure, officials have IT and communications equipment that will allow operations 24 hour a day all year long. Cargo integrated controls will reduce waiting times and the time it takes to go through all the formalities, which will enable customs officers to control and inspect a greater number of shipments.

### Coordinated Controls to Speed Up Processes

The facilities of the Integrated Control Area are located at a place called Mayor Infante Rivarola, in the Boquerón department, Paraguay, in the region known as Gran Chaco, 500 m away from the international border, on a paved road that about 80 km away connects with National Route 9 or Transchaco ("running across Gran Chaco"). This trunk road is fully paved and links western Paraguay with Asunción. Access to the Integrated Control Area on the Bolivian side is through National Route 11, which connects with the city of Tarija.

The new center has a platform for performing controls and a parking area for the inspection and retention of cargo, an administrative building with housing facilities for the delegations of Bolivia and Paraguay, a dining room, service areas and other equipment for performing all border control activities. In

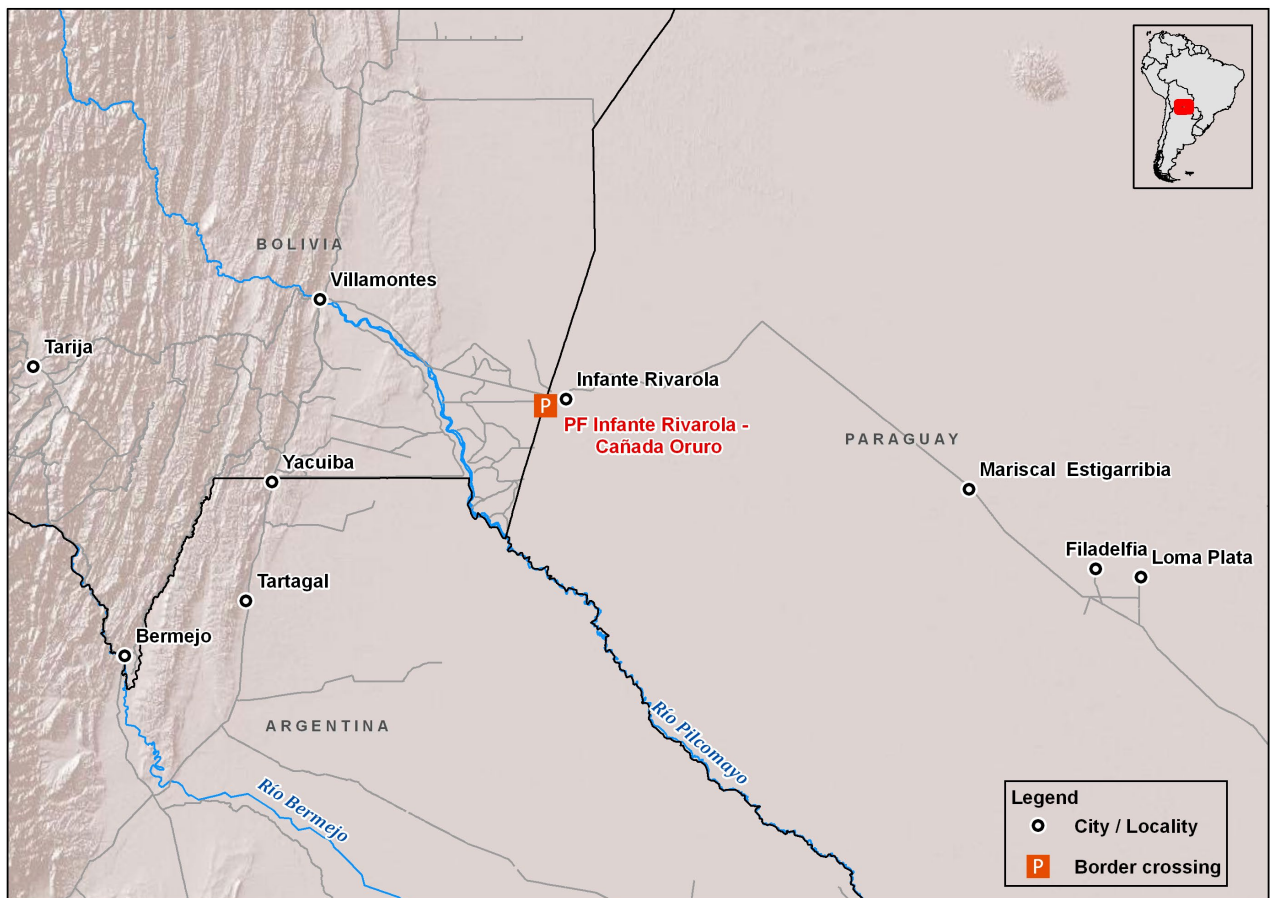


**US\$ 1.9**

million estimated  
investment

**50,000**

immigration clearing  
processes per year



addition, it has a phytosanitary lab, an emergency power system, and a drinking water intake.

Electricity comes from the city of Mariscal Estigarribia, located 224 km away. On the Bolivian side, control functions are performed by the National Customs Administration, the National Immigration Service, the National Agricultural Health and Food Safety Service, and the National Police, while on the Paraguay side, they are performed by the General Immigration Directorate, the National Customs Directorate, the National Plant and Seed Quality and

Health Service, and the National Police. At present, controls are carried out in a coordinated, "side by side" way, but it is expected that integrated control mechanisms be established in the near future, which will speed up the movement of people and goods without the need to duplicate entry and exit records.

### The Border Area

The territory of the Paraguayan department of Boquerón is characterized by large natural areas and extensive establishments dedicated to agriculture and livestock raising. Its population



is very low (approximately 60,000 inhabitants) and has a basic road infrastructure network that connects it with the eastern region of the country and the capital city. The most important cities near the border are Mariscal Estigarribia (224 km) and Filadelfia (361 km), both on National Route 9 or “Transchaco.” These two cities are important at the regional level, and together contribute 16% of the economic activity of the whole western region of Paraguay, which includes the three largest departments in the country —Boquerón, Alto Paraguay and Presidente Hayes—, covering more than 60% of the national territory. This region has the lowest population density in the country, with 0.8 inhabitants per km<sup>2</sup> on average.

On the Bolivian side, the new border center is located in the department of Tarija, the country’s main gas exporter, which also has important wood and agricultural production areas. Among the main cities near the border are Villamontes (123 km), Yacuiba (217 km) and Tarija (246 km), located in the department of Tarija, and the city of Boyuibe (221 km) in the department of Santa Cruz de la Sierra. As for the infrastructure network, in Bolivia this border crossing is part of the so-called North-South Corridor (Yacuiba-Villamontes-Boyuibe-Santa Cruz de la Sierra-Cotoca-Trinidad-Puerto Ustárez), which is structured through National Route 9. This 1,600-km long road links the departments in the central area of Bolivia, such as Beni, Santa Cruz de La Sierra, Chuquisaca and Tarija. By the city of Villamontes, this corridor connects with National Route 11, which links it with the new Integrated Control Area on the border.

## Foreign Trade and People Going through Immigration

At present, about 50,000 people go through immigration in this Integrated Control Area every year, 50% entering into and 50% departing from both countries. This border center ranks second in importance among the border checkpoints on the Bolivia-Paraguay border, the one ranking first being the Boyuibe (Santa Cruz de la Sierra department, Bolivia)-Fortín Villazón (Boquerón department, Paraguay) border crossing, located about 90 km away to the north.

Regarding foreign trade by road, there are important flows in the region, and they mainly cross the border through the Boyuibe-Fortín Villazón checkpoint, across which in 2015 cargo movement amounted to more than 50,000 tons, with operations for about US\$20 million. This border crossing is the main point of trade by road between both countries, accounting for around 70% of total exports from Bolivia to Paraguay that year.

## Road Projects that Enhance Connectivity

Additionally, within the COSIPLAN Project Portfolio, there are projects, both completed and at the execution stage, that will improve connection between the cities and production centers in the Tarija and Santa Cruz de la Sierra departments and the Paraguayan Chaco region as well as the capital city of Asunción, and which converge in the facilities of the Integrated Control Area.

One of such projects is the paving of National Route 11 between Villamontes and the border point called Hito BR 94 (120 km) in Bolivia, which was financed by CAF and is already completed. The other project involves the improvement





and rehabilitation of National Route 9 or “Transchaco” in Paraguay along the Infante Rivarola-Estancia La Patria and Estancia La Patria-Mariscal Estigarribia-Asunción sections. Works on the Infante Rivarola-Estancia La Patria stretch were financed by CAF and are already completed, with the road section being operational. Works along the Estancia La Patria-Mariscal Estigarribia-Asunción section are underway, soon to be completed. Completion of these projects will facilitate the export of Bolivian products from mining, gas and agricultural production areas to regional and international markets through Peru and Brazil. These products include mainly gas, fuels, mineral oils, oilseeds and products derived from the processing thereof, aggregates, and construction materials.

In the case of Paraguay, the new connections will facilitate the integration of its lagging western region into the national economy, and will also connect Asunción and Tarija (1,012 km), providing an attractive outlet for products potentially substituting Bolivian imports, such as chemicals, plastic products, manufactures, foodstuff and textiles. In addition, it secures an efficient road connection for the provision of its main imported products: liquefied petroleum gas, liquid fuels and agrochemicals coming from the production centers located in the department of Tarija.

## Background to the Bilateral Relations

The purpose of both countries to strengthen their trade relationship and to make headway in the integration of their border communities has already been formalized a long time ago with the signing of Cooperation Agreements between Paraguay’s and Bolivia’s Customs Authorities in La Paz, Bolivia, on July 30, 1996, and in Asunción,

Paraguay, on March 11, 2002. More recently, on April 21, 2005, the Agreement on Cooperation and Mutual assistance in Customs Matters between the Bolivian and Paraguayan Customs Authorities was signed in La Paz, authorizing both institutions to establish Integrated Control Areas. This agreement was registered within the Latin American Integration Association (ALADI) as the XXV Additional Protocol to Bolivia – MERCOSUR Economic Complementation Agreement No. 36.

In 2010, both countries agreed to the installation of a border center with integrated controls at the Infante Rivarola-Cañada Oruro border crossing, which would operate in a single facility located in the Paraguayan territory. On that occasion, the creation of a Binational Technical Group was also agreed upon to promote physical connectivity projects between both countries. That same year, Paraguay’s Ministry of Public Works and Communications began the construction of the new center, wholly financed by the government of Paraguay, which amounted to US\$1.9 million.

In 2015, at the bilateral technical meeting held in the city of Tarija, Bolivia, within the framework of the XXV Additional Protocol to Bolivia – MERCOSUR Economic Complementation Agreement No. 36, the “Operational Regulations for the Cañada Oruro-Infante Rivarola Integrated Control Area” were approved, and the first tests for the implementation of the International Customs Transit IT System and the System for the Exchange of Information in the Customs Records (INDIRA) between Paraguay’s and Bolivia’s Customs were performed.■



## Northeastern Argentina Gas Pipeline



# Energy Integration for the Development of the Population and the Industries

With the construction of the Northeastern Argentina Gas Pipeline, the country will provide natural gas to four provinces that currently lack gas supply, thus benefiting more than 3.4 million people. The works include the laying of trunk pipelines, spur lines, above-ground infrastructure and facilities to increase the gas flows currently received from Bolivia through an interconnection with the Juana Azurduy Gas Pipeline.

Works involve the construction of a 1,500 km-long trunk gas pipeline plus 1,500 km of distribution (spur) pipelines, in addition to gas compressor stations and above-ground facilities that will supply natural gas to the provinces of Salta, Formosa, Chaco and Santa Fe. The project also involves a future extension to the provinces of Corrientes and Misiones.

This structured project ranks fourth in terms of investment among the projects included in API, as it amounts to US\$1.870 billion for Stages I and II, currently at the execution stage. Completion of the project is estimated for December 2018.

### Secure and Reliable Gas Supply for Six Argentine Provinces

The project involves the construction of six

24-inch diameter trunk gas pipelines along 1,480 km and three spur lines of different diameters, between 4 and 10 inches, with a total length of 1,515 km. Furthermore, the project includes the construction and equipment of eight gas compressor stations and 165 above-ground facilities consisting of valves; separator, measuring, and compressor stations; and related infrastructure.

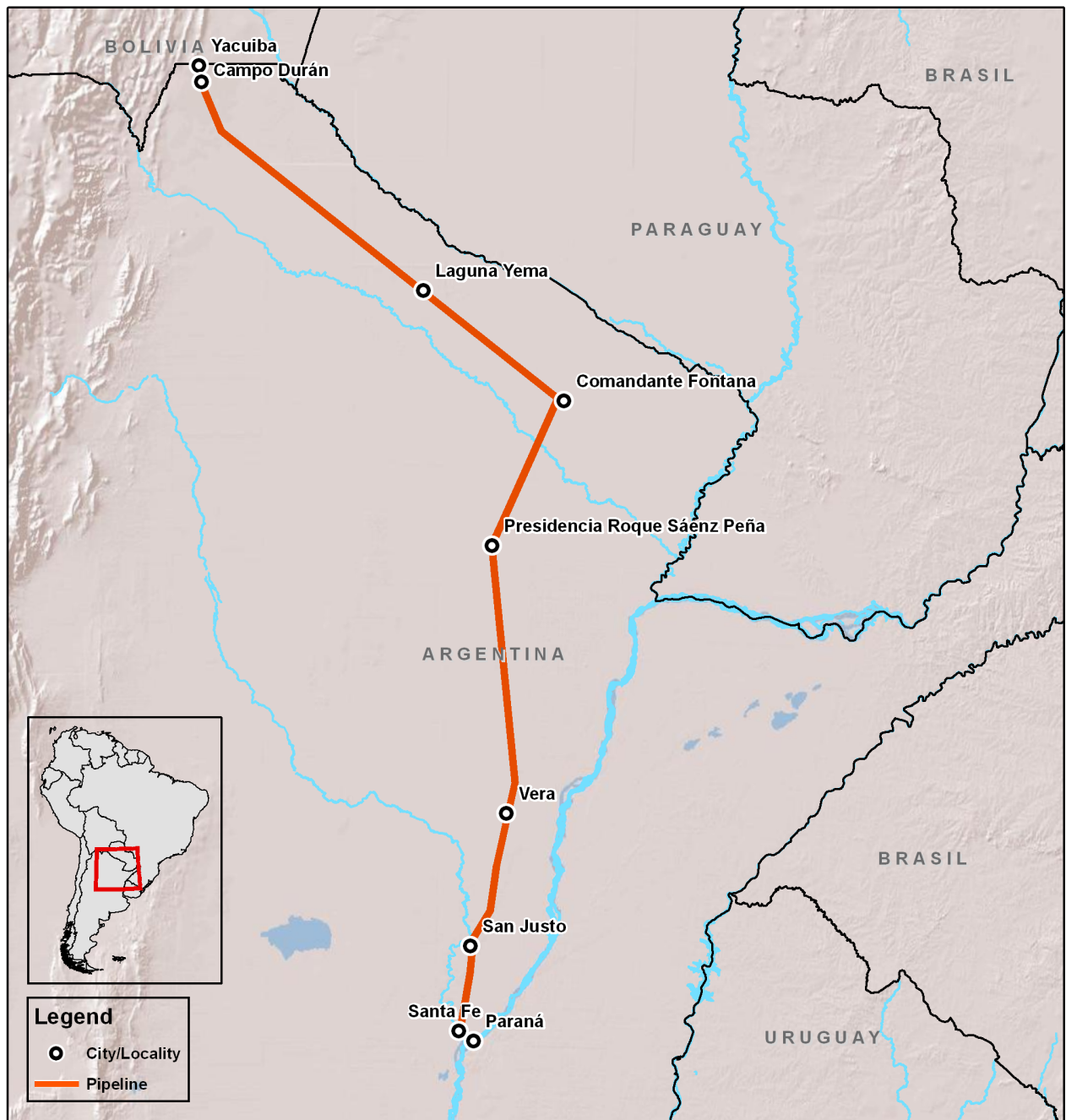
The works are divided into three stages. Stages I and II involve the works from the interconnection with the Juana Azurduy International Gas Pipeline in the village of Campo Durán, province of Salta, through the territories of the provinces of Salta, Formosa, Chaco and Santa Fe, to the city of Santa Fe. Stage III consists in the laying of pipes from the city of Corrientes to the province of Misiones.

**1,508 km**  
of trunk gas pipelines

**1,533 km**  
of spur lines

**US\$ 1.870**  
billion estimated investment

**169**  
regulator stations





Stage	Description	Length (km)
I	Salta Trunk Pipeline	230
I	Western Formosa Trunk Pipeline	303
I	Southern Santa Fe Trunk Pipeline	265
I	Eastern Formosa Trunk Pipeline	280
I	Chaco Trunk Pipeline	215
I	Northern Santa Fe Trunk Pipeline	215
II	Formosa Spur Lines	466
II	Chaco Spur Lines	615
II	Santa Fe Spur Lines	452
III	Corrientes-Misiones Trunk Pipelines	354
III	Corrientes-Misiones Spur Lines	801

The project has made significant progress: more than 90% of the pipes have been laid and above-ground facilities tasks have begun, including the measuring and regulator stations. In addition, the works related to the Santa Fe and Western Formosa spur lines are soon to be completed, and Stages I and II are scheduled to be completed in late 2018. Subsequently, Stage III is expected to start with the laying of pipes and the construction of compressor stations and control systems in the provinces of Corrientes and Misiones.

Even though at present the installed transportation capacity is adequate in terms of the volumes demanded by the domestic market,

there are large areas of the country that still do not have gas supply. This new interconnection will allow the injection of the necessary volumes for industrial and agribusiness, electricity generation, residential and transport use in more than 160 locations, with an estimated demand for 378,000 new connections to the network.

In this regard, the increase in transportation capacity will be of about 11.2 million m<sup>3</sup> per day, which, added to the complementary works, will provide the necessary predictability conditions to supply the national demand. Furthermore, it will ensure the future development of the main urban, industrial and agribusiness centers in the northeast of the country, which currently lack supply or have it at very low levels.

## Gas Figures in Argentina

Annually, Argentina consumes 74 million toe (tons of oil equivalent) of energy, including primary and secondary energy. Of this total, 51% (about 43 million toe) is gas consumption, which reveals the current importance of this fuel in the national energy matrix. Taking into account that more than a third of such gas quantity is used to produce electric energy to supply industries and large cities, it is essential to have infrastructure allowing a secure and reliable supply that can meet seasonal demands and/or possible failures in other electricity production systems affected by weather conditions or extreme events.

In 2016, net natural gas supply in Argentina was 54,232 million m<sup>3</sup>, 42,959 million m<sup>3</sup> of which (80%) came from national production and 11,273 million m<sup>3</sup> (20%) were imported.

Currently, losses due to consumption at gas deposits, venting or retention in processing plants amount to 15% of the total, for which the supply available is about 43,570 million m<sup>3</sup>. Of





this total, about 34% goes to electricity production, 29% to the industrial sector, 24% to the residential sector, and the remaining 13% is for other uses, such as its export.

At present, Argentina's national gas production does not cover the volumes demanded by the domestic market or the export commitments assumed with Brazil and Uruguay. As a result, there is a need to import gas from Bolivia and Chile through gas pipelines located in the north of the country, in addition to the purchase of Liquefied Natural Gas (LNG). In 2016, the procurement of this fuel brought to the country in LNG carriers totaled 69 shipments, accounting for 4,990-million m<sup>3</sup> in volume and an amount close to US\$1.000 billion.

Bolivia is the main seller of gas to Argentina through the Juana Azurduy International Gas Pipeline. In 2016, gas sales reached about 5,700 million m<sup>3</sup> for a total amount of US\$746 million, which accounts for 92% of the total value of goods exported from Bolivia. The Juana Azurduy pipeline is 48 km long, 35 of which are in the Argentine territory, and transports more than 15 million m<sup>3</sup> a day from deposits located in the Bolivian department of Santa Cruz de la Sierra to the village of Campo Durán in the province of Salta, where they are injected into the Northern Trunk Gas Pipeline.

This gas is used to supply the central area of Argentina, where the main agribusiness production centers and the most important cities in the country are located. The contract in force, signed in 2007 between Bolivia's Gas Natural YPFB and Argentina's ENARSA S.A., establishes the supply of volumes with an increasing trend until reaching 27.7 million m<sup>3</sup> per day in winter months in 2026.

Over the last years, with the gradual decline in production in the Northern Basin, imports of gas from Bolivia have increased. The start-up of the Northeastern Argentina Gas Pipeline will increase the volumes currently transported from the Bolivian gas pipelines, and replace more expensive fuels in the future, such as LNG shipments or the fuel oil used in thermal power stations.

### Argentina and Bolivia and their Energy Integration

The background to this project dates back to 2003, when the Federal Agreement for the Launch of the Northeastern Argentina Gas Pipeline was signed between the National Government and the provinces of Corrientes, Chaco, Entre Ríos, Formosa, Misiones, Salta and Santa Fe. That same year, the presidents of Argentina and Bolivia signed a Joint Declaration on energy integration between both countries in the city of Montevideo, and created for this purpose the Technical Commission of Energy Integration.

On January 31, 2004, this commission met for the first time in La Paz, which laid the regulatory and legal foundations that enabled the project to be implemented. During that year, the Additional Protocol to the Partial Scope Agreement on Energy Integration between Argentina and Bolivia for the Supply of Natural Gas from the Republic of Bolivia to the Northeastern Argentina Gas Pipeline was signed in order to move forward in the preparation of a bilateral agreement that would make the gas pipeline construction project feasible. At the same time, Argentine state-owned company ENARSA S.A. was established through the enactment Law No. 25,943, which empowered



it to provide the public service of transporting and distributing natural gas throughout the country.

On June 29, 2006, the Framework Agreement between Bolivia and Argentina for the Sale of Natural Gas and the Implementation of Energy Integration Projects was signed in the city of Hurlingham, province of Buenos Aires. In such agreement, the gas volumes and prices for the Northeastern Argentina Gas Pipeline were established. The following year, the concession for the operation of this gas pipeline for 35 years was granted to ENARSA S.A., including the responsibility for its construction, operation, and maintenance, and the provision of gas transport and marketing services. In 2010, modifications to the original Yacuiba (Bolivia)-Coronda (Santa Fe, Argentina) alignment were approved, and the provinces of Corrientes and Misiones were added to the project.

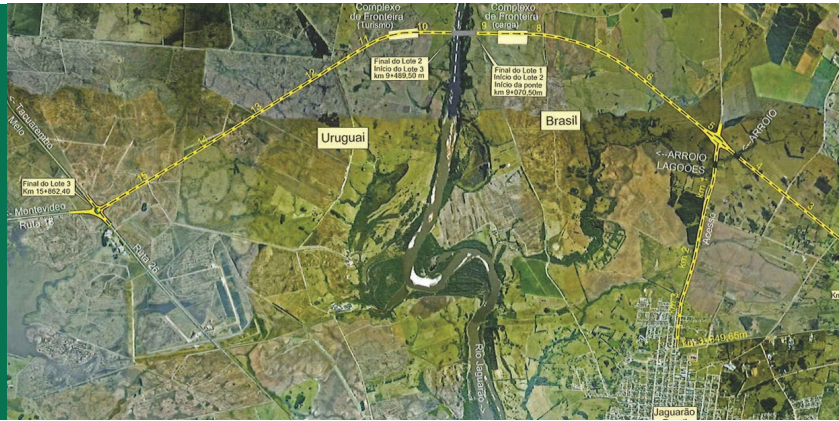
Finally, between 2012 and 2014, ENARSA S.A. issued a call for tenders for the construction of the Northeastern Argentina Gas Pipeline in three stages, including the works and the supply of pipes and professional services. Nine contracts for the works were awarded. At present, Stages I and II are at the execution stage.■







## Construction of the Jaguarão – Río Branco International Bridge



# A New Bridge to Boost Trade in MERCOSUR

The construction of the new international bridge between Brazil and Uruguay will improve connectivity along the Montevideo–Porto Alegre Corridor, the main trade road between both countries and one of the most important in MERCOSUR. The new bridge will divert the traffic that currently goes along the Chuy–Chuí commercial road, thus preventing heavy vehicle traffic on the Rio Grande–Pelotas Brazilian section and protecting natural reserves and tourism.

The main objective of this API structured project is to improve the international movement of cargo and passengers between Montevideo, the capital of Uruguay, and Porto Alegre, the capital of the Brazilian state of Rio Grande do Sul, one of the most important land trade routes in MERCOSUR, accounting for 60% of total foreign trade between Brazil and Uruguay.

These significant flows run along two road corridors in Uruguay (Routes 8 and 9) linking Montevideo and Porto Alegre through the Río Branco–Jaguarão and the Chuy–Chuí border crossings, respectively. In Brazil, these flows go along Route BR-116, which connects the city of Pelotas, in the state of Rio Grande do Sul, with the main capital cities of the southeastern states, such as Porto Alegre, Curitiba and São Paulo.

The new bridge over the Yaguarón/Jaguarão

river will replace International Bridge Barón de Mauá, a national monument in Uruguay and cultural heritage in MERCOSUR, whose opening dates back to 1930. Over the last years, its capacity has become too small for the increased traffic of heavy goods vehicles, and congestion puts its structure seriously at risk, so much so that, on some occasions, truck traffic has been temporarily suspended. In 2017, works were carried out to ensure the traffic of trucks, but more important works will be required to guarantee its structural integrity.

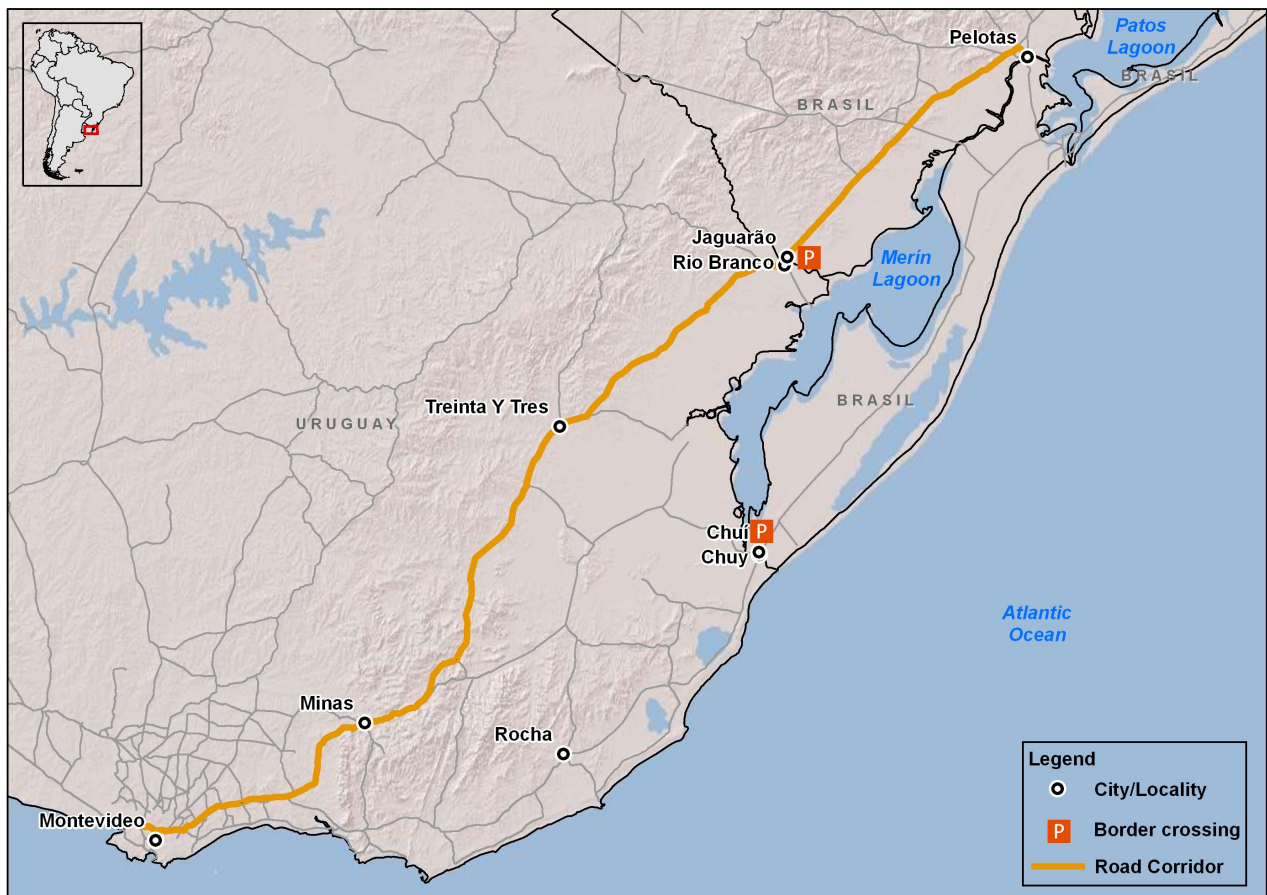
The construction of new infrastructure will relieve traffic congestion on the old bridge, thus improving the road connection all along the Montevideo–Porto Alegre corridor, mainly between the city of Río Branco, located in the Uruguayan department of Cerro Largo, and the Brazilian city of Jaguarão, in the Brazilian state of

# US\$ 93.5

million estimated  
investment

# More than 400

thousand tons cross the bridge  
every year



Rio Grande do Sul, thus encouraging the economic integration of the areas of influence through greater trade activity and a broader cultural exchange.

In addition to these benefits, the increase in the capacity of border road infrastructure will attract approximately 75% of the heavy truck traffic and 50% of the small vehicle traffic that currently goes along the Chuí-Chuí commercial road.

The deviation of such flows to the new bridge will prevent the movement of cargo across the

Taim Ecological Station and the protected areas of the Merin-Dos Patos lake system, as well as across the road section between the Brazilian cities of Pelotas and Rio Grande (Road BR-392/RS), thus leaving the Chuí-Rio Grande coastal road to passenger and tourist traffic.

## Uruguay-Brazil Trade Integration

In 2016, foreign trade between Uruguay and Brazil reached a total amount US\$2.662 billion FOB, 46% of which (about US\$1.240 billion) were exports from Uruguay, with dairy products (milk powder and cheese) being the main goods ex-



ported to the Brazilian market. Other important goods were malt, plastic products, meat, pesticides and rice, the latter totaling more than US\$100 million. The main products shipped from Brazil were vehicles, trucks, buses, oil and, to a lesser extent, yerba mate, sugar and pork, totaling US\$1.423 billion FOB.

Trade through land borders accounts for 71% of total bilateral trade, and in 2016 it involved 1.6 million tons for an amount of US\$1.888 billion FOB. These important trade flows crossed the border mainly through the Río Branco-Jaguarão Integrated Control Area and the Chuy-Chuí border crossing. In 2016, trade across the customs offices located in these two places accounted for 83% of the bilateral trade by land, involving US\$1.552 billion FOB, which represented 60% of total bilateral trade that same year.

The Río Branco-Jaguarão Integrated Control Area is the main point of exit of Uruguayan exports by land to Brazil, ranking third in 2016 in terms of the country's customs movements, after Montevideo and Nueva Palmira. Cargo movements through this area, both exports and imports, reached 432 thousand tons for US\$624 million FOB.

## Border Economy

The economies of the border territories are devoted to agricultural production, the industrial sector being poorly represented, except for some agribusinesses involved in the production of rice, in forestry and in livestock raising. In recent years, these agribusinesses have experienced an important growth in the region, and are integrated into global value chains and highly competitive. Their inputs come mainly from Montevideo, Porto Alegre or São

Paulo, the share of the local business sector in this supply chain being small.

Trade between cities and towns is greatly developed and closely linked to the border and its flows. The services sector involves mainly jobs in the public sector and employments to meet the demands of the agricultural sector, the share of tourism being small. It is expected that the improvement in connectivity and the boost in border activities will bring an increase in the production and commercial activities of the region, favoring the development of local suppliers and services. Also expected is the consolidation in both countries of trade relations between companies and production or services sectors related to agribusiness, commerce, tourism and business services, favoring complementarity to add value to products and services.

## Trade by Road

Regarding the transport of international cargo by road, there are two major consolidated corridors linking Montevideo with the states of Rio Grande do Sul and São Paulo. Route 8 corridor starts in Montevideo, passes through the cities of Minas and Treinta y Tres, and ends at the Jaguarão-Río Branco border crossing. It connects with Route BR-293 towards Pelotas, from where it continues on Route BR-116 to the cities of Porto Alegre, Curitiba, Lages and São Paulo. Route 9 corridor starts in Montevideo and passes through Rocha to arrive at the Chuy-Chuí border crossing, where it connects with Route BR-471 to Rio Grande and Pelotas. In this city, it is linked to Route BR-116, which goes to Porto Alegre, Curitiba, Lages and São Paulo.

The increase in the vehicular capacity that the new bridge will entail, along with the





modernization of customs and immigration facilities in the Río Branco-Jaguarão Integrated Control Area, will enable traffic continuity. This will prevent the high number of stops as well as traffic congestion from taking place, making cargo transport more efficient through the corridor made up of Routes 8, 17, 18 and 26 in Uruguay, and the one involving Routes BR-293 and BR 116 in Brazil. These improvements, together with the 50 km reduction in the Montevideo-Porto Alegre section, are expected to make this a more attractive alternative to the Chuy-Chuí road.

2015, the call for tenders for the works was issued, but it was declared void twice. The environmental feasibility and other studies for the project, involving a total investment estimated at US\$93.5 million, are completed. A new tender is planned to be launched in 2018.■

## The New Bridge

This extra-dorsal pre-stressed bridge will be built with concrete and steel, and will be 419 m long and 17.75 m wide. It will have two lanes for each direction of travel, two 2.5-m wide shoulders and two 1.5-m wide pedestrian pathways. Its approaches will be 12.2-km long up to Route BR-116 on the Brazilian side and 6.4-km long up to Route 26 in Uruguay.

As for the border complexes, twin buildings will be built on both sides of the border to perform integrated controls. Cargo inspection will be carried out on the Brazilian side and immigration control on the Uruguayan side. According to estimations, at present approximately 8,640 trucks go through the border crossing every year, which involves about 23 customs procedures on average per day.

In 2010, within the framework of a meeting of the Joint Uruguayan-Brazilian Commission for the Development of the Merín Lake Basin, which was held in Montevideo, the technical and economic feasibility study for the new bridge was approved, together with the project to remodel the existing, historic bridge. In

## Argentina – Uruguay – Brazil Railway Corridor



# Freight Trains, an Efficient Mode of Transport to Increase Production

With the rehabilitation of three branches, railway transport in Uruguay will become an interesting alternative for the transport of cargo in the Montevideo-Rivera hub and to the ports of Salto, Paysandú, and Fray Bentos, on the Uruguay river. The investments involved will support the increasing demand for logistics infrastructure associated with the expansion of the agricultural, livestock and forestry sectors, the main exporting complexes of the country.

This API project, which involves works in Uruguay and in Brazil, seeks to improve the physical integration of the MERCOSUR countries through the modernization of the rail corridors linking Montevideo, the capital of Uruguay, with the Brazilian rail network in Rivera and the Argentine one in Salto Grande.

In addition to this international connection, railway modernization will expand cargo transport capacity between Montevideo and the central and northern areas of Uruguay, as well as improve the efficiency and competitiveness of the logistics platform associated with the significant agroforestry production in the departments of Salto, Paysandú, Soriano and Rivera bound for the port of Fray Bentos, located on the banks of the Uruguay river.

This structured project involves a total investment of US\$367.2 million and is made up of

four individual projects: Rehabilitation of the Rivera – Santana do Livramento – Cacequi Railway Section, the only project on the Brazilian territory, which was completed in 2012; Rehabilitation of the Montevideo – Rivera Railway; Rehabilitation and Improvement of the Piedra Sola – Salto Grande Railway Corridor; and Rehabilitation of the Algorta – Fray Bentos Railway Branch Line. The last three projects are at the execution stage, with the exception of the Algorta-Fray Bentos section, whose implementation modality is being redefined.

### Rail Transport in Uruguay

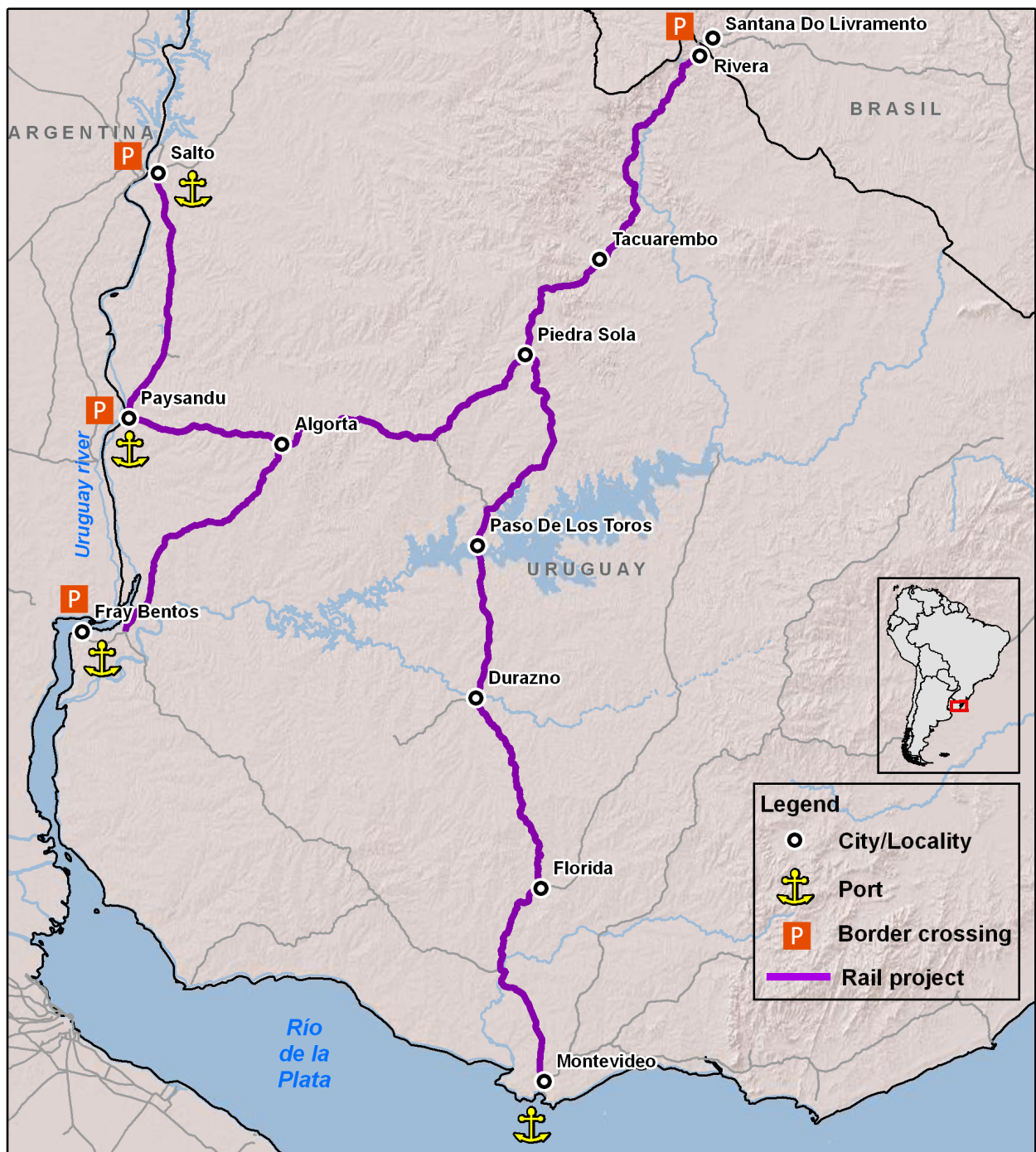
Over the last ten years, transport of cargo by rail in Uruguay has experienced a significant reduction in terms of the volumes historically carried, which fell from 1.3 million tons in 2007 to 800 thousand tons in 2016, involving products such as rice, barley, cement, clinker and lime.

US\$ 376

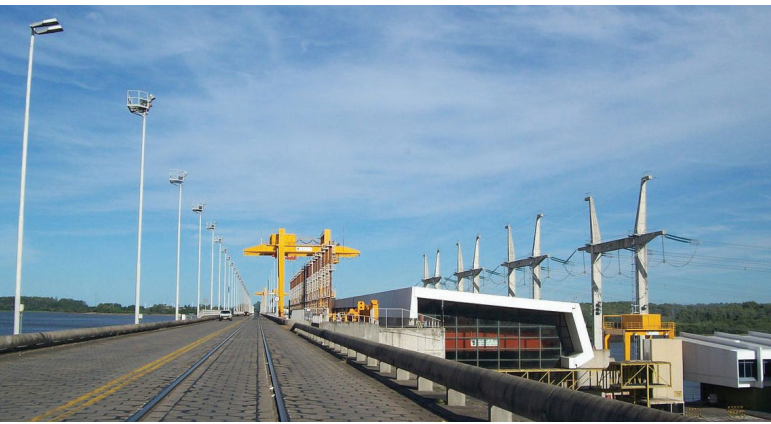
million estimated investment

896 km

of rail tracks to be rehabilitated







However, there are other products whose share in rail transport has increased, such as fuels, wood and containers.

Taking into account that during the same ten-year period the production of grains and wood experienced an exponential growth in the region, it becomes clear that there is a preference for road transportation to carry these products to the ports of exit.

This project seeks to enhance the flow of regional production through the diversification of the transport matrix, in which road transport currently predominates. This mode of transport, in spite of being the one that creates more jobs, may present efficiency losses vis-à-vis railways, especially for products integrated in global value chains, which demand high levels of competitiveness, low transport costs and an agile logistics chain.

In this regard, it is a well-known fact that railways have the capacity to carry large volumes of cargo with high energy efficiency, mainly in medium and long distance trips; are safer than road transportation (with a lower rate of accidents and theft); have a lesser impact on the environment; reduce freight costs, thus increasing competitiveness; and involve more work for logistics operators and providers of goods and services located in their area of influence.

The rail network involved consists of three sections, the projects related to which are part of the COSIPLAN Portfolio. The first one joins the port of Montevideo with the dry port of Rivera, an important trade point as there is a connection with the Brazilian rail network. The second branch line is connected to this trunk line in the village of Piedra Sola, from where it

runs west to the port of Paysandú, and from here north to the city of Salto and the Salto Grande dam, a border crossing with Argentina on the Uruguay river. The third branch line links Algorta and the forestry production areas located in the departments of Paysandú and Salto with the port of Fray Bentos, the main port of exit for pulp and wood to export markets.

### Montevideo-Rivera Railway

The project seeks to enhance the level of service in some sections of this important trunk rail network, particularly the state of the tracks, and speed and safety for the transport of cargo between Montevideo and the capital cities of the departments of Canelones, Florida, Durazno, Tacuarembó and Rivera, as well as its connection with the Brazilian rail network in the city of Santana do Livramento. Improvements will allow up to 18 tons axle load, which might be increased to 22 tons on each axle to cater for future demand by reinforcing engineering works.

Rehabilitation works involve replacing the current rails, the size of which is 30 and 40 kg/m, with 50 kg/m rails; replacing the unsuitable railroad ties; and cleaning the ballast bed and adding ballast material until there is a minimum of 15 cm of pure ballast below the ties. In the future, this will enable better maintenance of the track geometry using machines.

The first stage, which required an investment of US\$60 million financed by the government, is already completed. It involved the rehabilitation of a 422 km section between the village of Pintado, in the department of Florida, and the city of Rivera, in the Rivera department. Works consisted of the replacement of a third of the railroad ties in the Pintado-Chamberlain section



and the substitution of rails and ties between Chamberlain and Rivera.

The second stage, involving the replacement of rails between Pintado and Chamberlain as well as the replacement of approximately 100 thousand ties all along the section, started in 2013 with a total committed investment of US\$74.9 million, US\$50.1 million of which were financed by the MERCOSUR Structural Convergence Fund (FOCEM) and the remaining US\$24.8 million by the government. Since May 2017, works on the Pintado-Paso de los Toros section have been suspended because new investments are being analyzed to upgrade the line to a higher standard and to modify the alignment in the Montevideo-Paso de los Toros section.

### Piedra Sola-Salto Grande Railway Section

The project concerns the rehabilitation of about 333 km of tracks of the Artigas line in the Piedra Sola-Tres Árboles (62 km), Tres Árboles-Salto (256 km), and Salto-Salto Grande (15 km) sections, to ensure Class 3 tracks according to ALAF (Latin American Railway Association) Standard 5-026, which involves a speed of 40 km/h and a load of 20 tons per axle. The main products carried by this line are citrus, cement, limestone, rice, barley, and grain.

The project was granted in concession in 2015 and is at the execution stage, involving an investment of US\$127.3 million: US\$83.5 million contributed by FOCEM and US\$43.8 million contributed by the government. Works are expected to be completed by December 2019.

### Algorta-Fray Bentos Branch Line

This project consists in the reconditioning of a 141 km section that runs along the most important forestry and grain production area in the country and connects the village of Algorta, in the Paysandú department, with the ports of Fray Bentos and Montevideo. The goods that are bound to be carried along this section include both roundwood and processed wood for the construction industry, rice, fertilizers, soybean, and fuels.

Works involve the refurbishment of tracks through the installment of new rails and the replacement of ties along the whole section, as well as the reinforcement and substitution of bridges. In 2016, the State Railway Administration (AFE) issued a call for tenders for the rehabilitation and maintenance of this branch line for 30 years under an availability payment-based public-private partnership. This public-private proposal has been recognized as one of the top five financial projects in Latin America. Investments are estimated at US\$100 million, and completion is expected for March 2020. ■

## Optimization of the Cristo Redentor Border Crossing System



# Infrastructure and Technology in the Main Connection between MERCOSUR and Chile

The optimization of the main border crossing shared by Argentina and Chile will improve border services, speeding up immigration processes and customs procedures. The projects, which were the result of the Binational Study for the Optimization of the Cristo Redentor System Border Crossing, involve infrastructure works as well as operational and technological improvements.

The project aims at optimizing the infrastructure of border complexes and management stations as well as technological and operational aspects at the Cristo Redentor System Border Crossing, a high-mountain border infrastructure shared by Argentina and Chile and located 3,200 meter high in the Andes.

The project also seeks to improve efficiency by developing a comprehensive solution to

vehicular congestion in the border crossing, a problem that arose in the last years due to an increasing demand for running across it and to weather phenomena that have forced closure of the border crossing during the winter.

As part of the analyses made, the Binational Study for the Optimization of the Cristo

Redentor System Border Crossing was prepared, which identified and developed an operational and physical comprehensive solution that would enhance the efficiency of border controls. The study was financed by the Fund for the Financing of Technical Cooperation for Initiatives for Regional Infrastructure Integration of the Inter-American Development Bank (IDB).

Such study assessed all aspects that have an impact on the movement of goods and people between both countries, as well as infrastructure and operational alternatives. In addition, staged solutions for the short-, mid- and long-term were devised taking into account the works and individual projects implemented by Chile and Argentina, which are currently at different progress stages.



**US\$ 1.016**

billion estimated investment

**8,000**

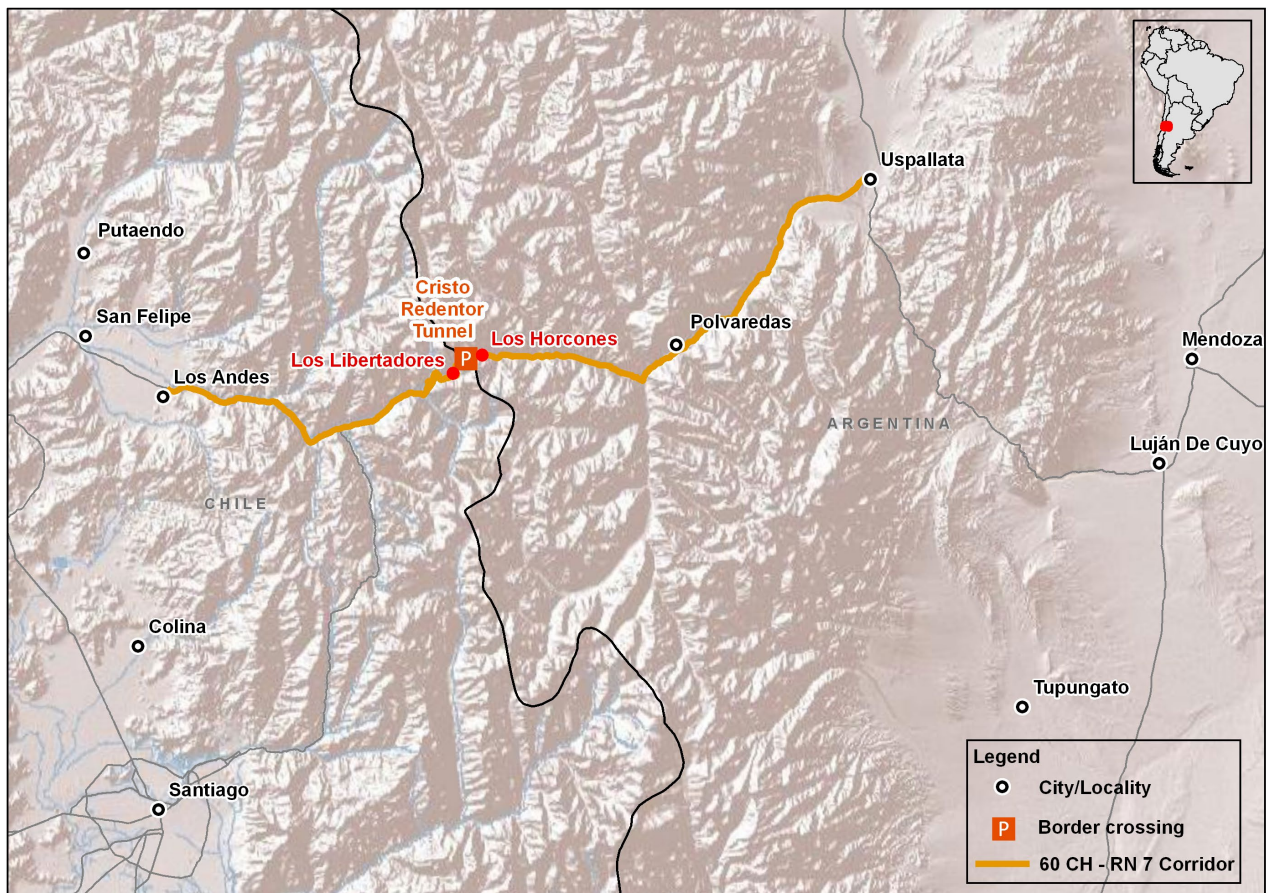
immigration processes a day

**3 million**

passengers a year

**4.3 million**

tons a year



This API structured project is made up of five individual projects for a total investment of US\$1.016 billion: Integrated Freight Control Center at Uspallata, Passenger Control Center at Los Horcones, New Los Libertadores Border Complex, Rehabilitation of the Cristo Redentor Tunnel and Caracoles, and Binational Management Control System at the Cristo Redentor Border Crossing.

### People Going through Immigration and Improvements in Border Service

The Cristo Redentor System Border Crossing is

the most active one between Argentina and Chile. In 2016, movements through this border crossing amounted to 869,753 vehicles and a total of 2,922,150 passengers. Vehicular and passenger flows from both countries were equivalent, i.e. 50% in each direction of travel.

Even though cargo traffic amounts have remained constant, the movement of vehicles and passengers has practically doubled since 2005, with an increase of about 8% per year over the last ten years. At present, this involves the control of around 2,800 vehicles and 8,000 immigrations processes a day. These numbers



are even higher when taking into account that movements are restricted with the closure of the border crossing due to extreme weather conditions, which may take 30 to 45 days a year depending on how severe winter is.

In order to mitigate this situation, progress has been made with some speed-up measures and with the definition of the logistics needs of each service for the operation of integrated controls at their respective complexes. A first stage of the project involves provisional improvements using mobile units to expand the capacity of the facilities, and at the second stage, the final control facilities will be implemented as well as roads that would enhance the approach to the different Integrated Control Areas.

Some important components of this project are the operational measures for carrying out border control functions, the model for the movement of people and vehicles in the border control area, the location of each checkpoint (different ones for the control of passengers and of cargo), the infrastructure investment plan according to each control alternative and its solution, the estimated operation and maintenance costs, and the guidelines for a contingency plan to be approved by the countries involved.

## Trade between Argentina and Chile

Trade relations between Argentina and Chile are among the most significant ones between Southern Cone countries, and their bilateral trade ranks fourth in terms of importance behind the bilateral trade of both Argentina and Chile with China, Brazil and the United States. This is evidenced by the significant flows of goods and services between both countries, which in 2016 reached approximately US\$3.352 billion

FOB. About US\$827 million of such total (24.7%) involved exports from Chile, accounting for 1.4% of the country's total exports that year. The top ten products exported by Chile were natural gas, fish, fruits, processed tomatoes, iron, refined copper, mechanical spare parts, paper, plastics, and fertilizers.

In 2016, Argentina's exports to Chile amounted to US\$2.584 billion, accounting for 4.3% of total Argentine exports that year. The top ten products were delivery trucks, meat, balanced feed, soybean oil, corn, sugar, wood pulp, textiles, and beauty products.

As for the international transport of cargo, the Cristo Redentor System border crossing is the main route for trade by land between Argentina and Chile and one of the most important in MERCOSUR. Structured by National Route 7, it involves a large share of foreign trade between both countries and is the place where significant cargo traffic from Brazil, Paraguay and Uruguay bound for Chile and overseas markets —through the shipment of the goods at the Chilean ports of Valparaíso, San Antonio and Quinteros— converges.

In 2016, goods that went through the customs office at this border crossing totaled 4.3 million tons, 3.1 million of which (74%) entered Chile, while the remaining 26% were Chilean exports to Argentina and other MERCOSUR countries. This cargo tonnage is carried by trucks, and accounts for 10.3% of total Chilean exports and 18.4% of total Chilean imports through land customs offices.

## One-Stop Cargo Control Center in Uspallata

The comprehensive solution resulting from the





Binational Study on cargo transport involves the implementation of an Integrated Control Area in a single facility for the integrated control of cargo in the city of Uspallata, in addition to the inspection of truck cabins in Los Libertadores, Chile.

The Integrated Control Area in Uspallata project involves all the works inside the facility established by Argentina's Federal Administration of Public Revenue (Administración Federal de Ingresos Públicos - AFIP), namely: the administration building, the cargo inspection bay, the place in which the scanner is located, and the area for the goods seized, as well as the works that began in 2016, consisting of new truck entry and exit controls, the reorganization of movements, and the lighting of the facility. Restrooms for officials and for the public and a multipurpose area will also be added.

The main benefits of this project include a reduction in the average time taken by the inspection processes as well as a reduction in the time taken for clearance for transit and for empty trucks due to the existence of differentiated channels. There are also significant improvements in the quality of the services provided to carriers and their cargo, greater predictability for logistics planning, and an increase in the competitiveness of exports because of the reduction of overall transport costs.

### Los Horcones Passenger Control Center

To solve control overloads and improve service to passengers, the solution found in the Bilateral Study involves essential building works to cater for the increasing immigration processes. The proposal includes the consolidation and

improvement of the main building for passenger vehicle control, the installation of control booths, the construction of housing for officials, and the enhancement of the overall facilities. The main advantages that this project will bring about concern the reduction in average times as a result of the improvement of controls and of a control infrastructure capable of meeting the high demand for immigration processes without delays or queues; a dramatic increase in the quality of the control service due to the availability of appropriate premises, services, information signs, and tourist information centers; different channels for passengers traveling by bus and the other passengers; and a reduction in overall costs.

### New Los Libertadores Border Complex

This project involves the construction of a new border complex 300 meters northwest of the facilities of the current control center. The new infrastructure will have civil works and facilities necessary to carry out control and clearance of persons, vehicles, goods and baggage, and will seek to offer a better service as well as comfort and security for users and officials. The area to be constructed is 32,000 m<sup>2</sup>.

The new complex is at the execution stage under concession agreements, involves an investment estimated at US\$88 million, and is expected to become operational in the first half of 2020.

### Rehabilitation of the Cristo Redentor and Caracoles Tunnels

The main tunnel, which dates from 1980, is approximately 3,100 meter long and has two roads, one for each direction of traffic. The Caracoles tunnel, an old rail tunnel in the





Trans-Andean Railway, has a single track, and its capacity is further restricted because of its limited width. The Caracoles tunnel is used for different operations, i.e. as a service tunnel, as an alternative in emergency cases, when the main tunnel is under repair, and occasionally as a complementary road to increase cargo capacity, thus ensuring service continuity.

The restructuring of both tunnels involves an investment estimated at US\$370 million, and currently the studies are underway with IDB non-reimbursable funds. The project seeks to transform this connectivity into an integrated system of tunnels, in accordance with the current international design guidelines, with special focus on its traffic capacity and road safety. The changing of the original function of the Caracoles tunnel involves the transformation of this old rail connection into an additional road, increasing its structure gauge and connecting it to the Cristo Redentor Tunnel through interconnection passages for evacuation in emergency cases.

As for the approach road, the Argentine government will make a series of investments in National Route 7 amounting to almost US\$500 million. In addition, construction of the Palmira bypass will start on the same road, in the province of Mendoza, with the purpose of preventing trucks from passing through the city of Palmira. Both sets of works will be financed by the IDB.

### **Binational Management Control System at the Cristo Redentor Border Crossing**

Also as part of the comprehensive solution proposed in the Binational Study, it is deemed necessary to implement a control management system enabling interaction with the IT systems

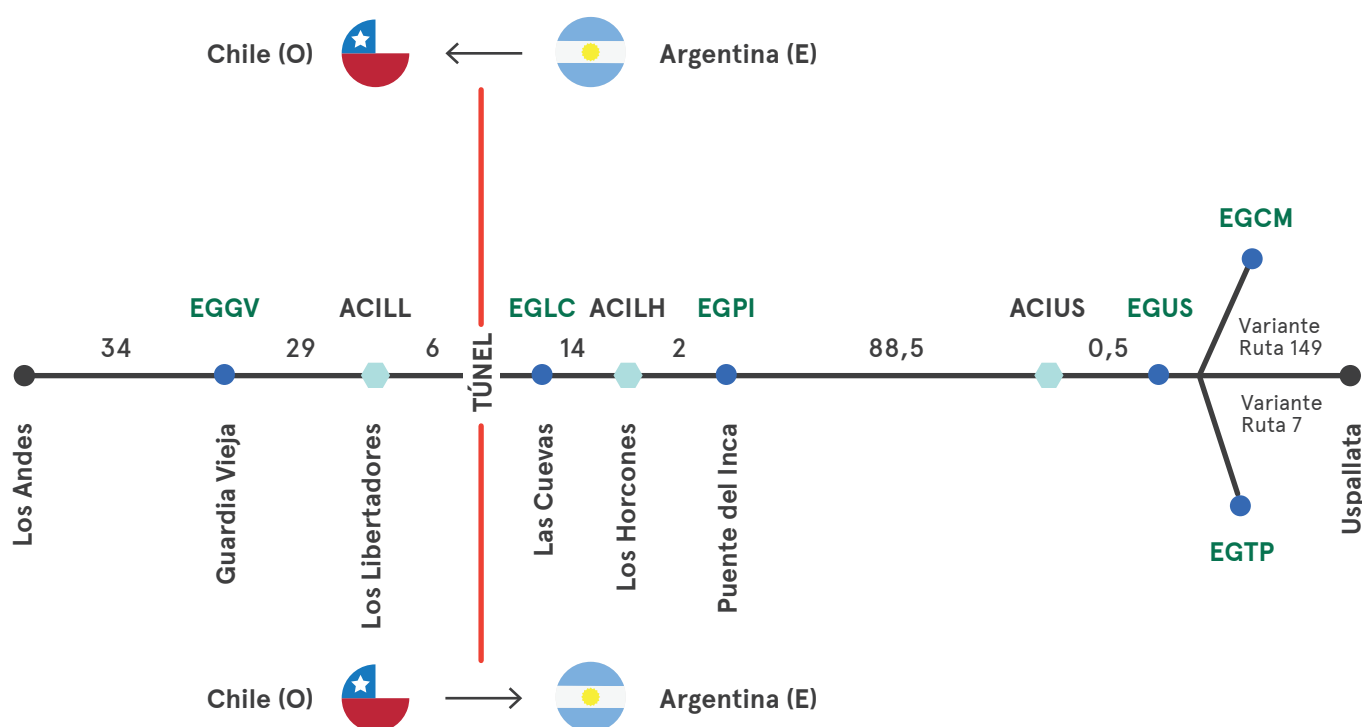
in place in each of the border complexes and management stations. The system will be supported by cutting-edge technological solutions to enable real-time management of the whole road corridor, whose approaches were preliminary planned to be located in Uspallata (Argentina) and Guardia Vieja (Chile).

Some of the main benefits expected from the implementation of the management control system include the possibility of tracking the freight trucks that were authorized to follow their journey ensuring that there are no subsequent violations to the controls performed in the Area of Integrated Control; having precise knowledge of exactly what vehicles are traveling along a given section of the System; and verifying that all the relevant border-crossing procedures have been carried out before users leave the road corridor. In addition, the system seeks to forecast the flow of vehicles that will arrive at each control complex and generate statistical, management and quality information for decision making by the border complex coordinators and the control institutions.

The project is currently at the pre-execution stage and is estimated to be completed in the second half of 2018. ■



## Preliminary Diagram of the Cristo Redentor Border Crossing Management Control System



**BINATIONAL STUDY FOR THE OPTIMIZATION OF THE CRISTO REDENTOR SYSTEM BORDER CROSSING.**  
**SERMAN y Asociados consulting firm, 2011. IDB Technical Cooperation under IIRSA (ATN/OC-10620-RG)**

- EGGV** Guardia Vieja Management Station
- ACILL** Los Libertadores Integrated Control Area
- EGLC** Las Cuevas Management Station
- ACILH** Los Horcones Integrated Control Area
- EGPI** Puente del Inca Management Station
- ACIUS** Uspallata Integrated Control Area
- EGUS** Uspallata Management Station
- EGCM** Corredor Minero Management Station
- EGTP** Heavy Goods Vehicles Management Station

- Management Station
- ⬡ Control Complex
- Populated centers at the ends of the Cristo Redentor Corridor
- | International Border
- # In kilometres

## Porto Velho – Peruvian Coast Connection



# A Bridge Connecting Strategic Territories

With the progress in the construction of the bridge over the Madeira river, Brazil provides a fundamental link to strengthen physical integration with Peru. The new road continuity will improve the region's economy by reducing travel times, and will encourage trade between border cities in both countries as well as turn the ports in southern Peru into a close and attractive alternative for Brazilian exports bound for Pacific markets.

The main purpose of this structured project is to consolidate the regional and international infrastructure networks in the region by improving the connection of cities and production centers in the states of Acre, Rondônia, and Mato Grosso, in Brazil, with important cities in southeastern Peru—in the departments of Madre de Dios, Cusco, Apurímac, Ayacucho, and Ica— and with the port terminals located on the Pacific coast.

This connection is the main road link between Brazil and Peru, and crosses extensive natural areas containing a great socio-cultural, economic, productive and environmental diversity. The development of this vast region, and especially the distant territories of the eastern slopes of the Andes in the Amazon basin, has historically been outside the focus of attention of the major cities, being relegated

in terms of the provision of infrastructure and services.

### A Project that Facilitates Regional Traffic

Over the last decades, the opening of the large economies of Asia, in addition to the boom in world trade by sea and the growing demand of raw materials, has put these territories that were previously regarded as marginal in a strategic geopolitical position, as they are potential suppliers of the main inputs required by global markets, such as minerals, bulk and agricultural products, fuels and food.

In this regard, completion of the Bridge over the Madeira River in Abunã (BR-364/RO) project will strengthen the increasing flows of goods and people along the Central Interoceanic Highway and its continuation in the Brazilian territory by

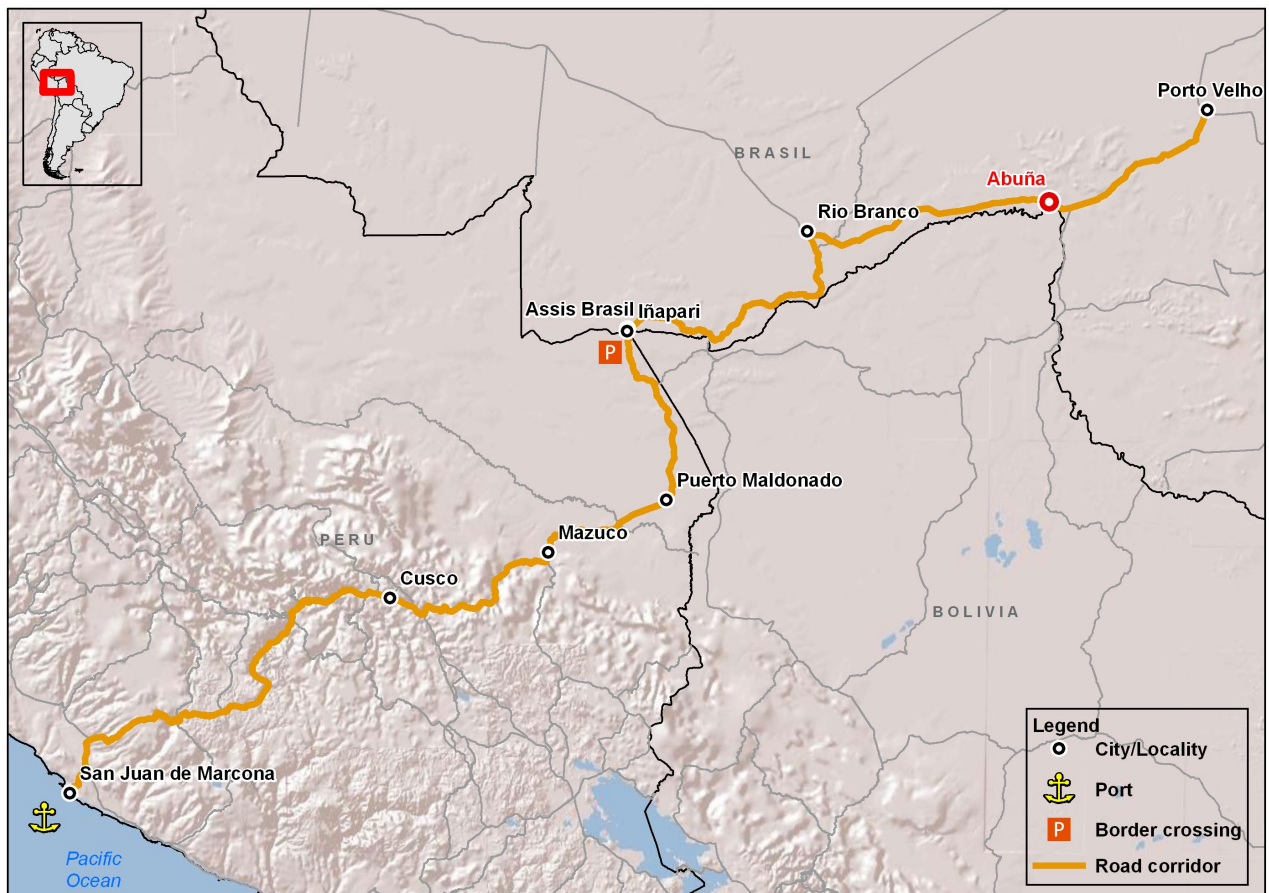


# 2,250 km

of roads in the road corridor

# US\$ 48

million estimated investment



facilitating the movement of goods and people along a 2,250 km corridor of paved roads between the cities of Porto Velho, Brazil, and San Juan Marcona, Peru. This connectivity is supplemented by a bypass towards the Ilo-Matarani port system, located on the seacoast of the departments of Arequipa and Moquegua

The project works include the construction of the road bridge and its approaches, and involves an investment estimated at US\$48 million. The bridge is 1,084 m long and 14.45 m wide, the navigable channel is 170 m wide, and the clearance below the bridge for ships to pass is

19.5 m. The road approach to the bridge is 3.84 km long. This investment is financed with public, national government funds, and the National Department of Transport Infrastructure –under the Brazilian Ministry of Transport, Ports and Civil Aviation– is responsible for the execution of the works.

The project dates back to 2010, when it was included in the second phase of Brazilian Growth Acceleration Program. In 2013, the contract for the works was tendered and awarded under the Differentiated Regime of Government Contracts, and construction began



the following year. At present, after some delays caused by the swelling of the Madeira river that forced to stop construction, progress of the works under contract is 53%, with 75% progress in infrastructure, 35% progress in the substructure, and 15% progress in the superstructure. Completion is estimated for the second half of 2018

### A Long Route Linking Distant Regions

The corridor starts in Porto Velho, the capital of the state of Rondônia, along paved Route BR-364 up to Rio Branco, the capital of the state of Acre. In the middle of this 512-km long section, the Madeira river is crossed in the Abunã district (at present, it is necessary to cross the river using a draft boat). From Rio Branco, the corridor follows along 343 km of paved Route BR-317 up to the Iñapari-Assis Brasil border crossing, where it crosses the Acre river and enters the Peruvian territory in the town of Iñapari.

In the Peruvian territory, the corridor forms part of the Southern Interoceanic Highway, including a 393 km section of Route PE-30C that links Iñapari, Puerto Maldonado and Mazuco. In the town of Mazuco, there are two turnoffs. One leads to Route PE-3S, passing by the cities of Cusco, Abancay, and Nazca up to San Juan de Marcona, located in the coastal department of ICA (1,034 km). The other turnoff leads to Route PE-34B, passing by the cities of Juliaca, Puno, and Arequipa, up to the port of Matarani, located on the Pacific coast of the department of Arequipa (756 km).

The Iñapari-Assis Brasil border crossing is the point where most trade by road between Peru and Brazil takes place, with cargo movements in 2016 reaching almost US\$10 million. The main

products exported from Peru include garlic, onions, grapes, shallots, seeds for sowing, plastic furniture, Portland cement, and textile manufactures, amounting to US\$1.8 million FOB, coming from the production centers in Arequipa, Ica and Tacna, and bound for the cities of Rio Branco and Porto Velho.

Exports from Brazil in 2016 amounted to US\$16 million FOB and involved mainly graders and levelers, welding electrodes, vegetable oils, corn, oilseeds, footwear, and light equipment. As for the movement of people that year, there were about 65,000 immigration processes, 60% involving Peruvian nationals and 40% involving foreigners.

### Ports as Logistics Hubs in the Region

Regarding the movement of cargo by sea, Peruvian ports handle mostly bulk cargo, and are used for the shipment of minerals, hydrocarbons, raw materials, and products from the fishing industry of the Peruvian coast bound for ports in Asia and North America. The main export products are raw and industrialized iron, copper, soya and its by-products, fish and fish meal, gas, and agricultural and forestry products. As for imports, they involve mostly fuels, fertilizers, vehicles, machinery, and containerized cargo. In 2016, the Ilo-Matarani port system handled more than 11 million metric tons of total cargo, with a contained throughput of 508,315 TEU (33,279) containers.

These ports handle increasing quantities of solid bulk cargo, break bulk cargo, and containerized goods, and over the last years have become one of the best alternatives for cargo bound for markets on the Pacific, including Bolivian cargo coming from the departments of La Paz and Cochabamba, as well as Brazilian





cargo coming from the states of Acre and Rondônia.

The port of Porto Velho is located on the Madeira river, the main tributary of the Amazon river, and focuses mainly on agricultural bulk cargo, fuels, petrochemical products, and supplies for agriculture, and serves the states of Acre, Rondônia, Amazonas, and Mato Grosso.

This port city has become the most important cargo hub in the region on account of the different modes of transport that converge in it: the road, river and air modes and the possibility of carrying cargo in long-haul vessels along the Madeira river waterway. There are at least three major shipping lines connecting Porto Velho with Manaus, Itacoatiara and Belem. With a clear exporting nature, upstream shipments include mainly agricultural supplies, fertilizers, fuels, semi-trailer vehicles, trucks, containers, and construction materials. Most downstream shipments involve soybean, corn, sugar, minerals, and semi-trailer vehicles with general cargo.

### Access to International Markets

As for land transport, significant flows of goods and services run along the Central Interoceanic Highway. The opening of this road to traffic in 2011 helped break the geographical isolation of the Madre de Dios department, which became integrated with more economically developed areas, such as the Cusco-Juliaca-Puno hub, which led to an unprecedented dynamism in commercial, trade, production and tourism activities in the region.

This infrastructure has also created meaningful cross-border synergies with regard

to small and medium-sized undertakings for which the new connection means an opportunity to extend their business to previously inaccessible markets. Furthermore, international trade between populated centers in Peru and Brazil has become active, involving cereals, garlic, onions, cement, iron, and construction materials among the most important products. As for passenger transport, two companies provide this service from Cusco to Rio Branco and São Paulo.

The main opportunity opened up by this corridor for Peru is to increase its exports of fuels, fertilizers, cement, iron, and foodstuff produced in the Andean region to a potential market of more than eight million inhabitants in Brazil, where there is a growing demand driven by the development of agriculture in the region and by the establishment of Porto Velho as a regional cargo hub for road, river and air transport networks.

As for Brazil, this corridor will bring new alternatives to its logistics platform, as the country will have an appropriate road network for the international transport of goods linking important agricultural production areas with the dedicated bulk ports on the Peruvian Pacific coast, an attractive option for shipping products from the states of Acre, Rondônia, and Mato Grosso to Asian markets without going through the Panama canal.■










## Additional Data on Individual Projects within API 2022

### Structured and Individual Projects Included

#### Paíta – Tarapoto – Yurimaguas Road, Ports and Waterways

US\$310.5 million – Peru

\*US\$ million










Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
AMA16	TARAPOTO – YURIMAGUAS ROAD	PE	Road		231.7
AMA24	PAITA PORT	PE	Sea		176.7
AMA25	PAITA – TARAPOTO ROAD	PE	Road		273.6
AMA40	IMPROVEMENT OF NAVIGATION CONDITIONS ON THE HUALLAGA RIVER WATERWAY, BETWEEN YURIMAGUAS AND THE CONFLUENCE WITH MARAÑÓN RIVER	PE	River		33.0
AMA41	IMPROVEMENT OF NAVIGATION CONDITIONS ON THE MARAÑÓN RIVER WATERWAY, BETWEEN SARAMIRIZA AND THE CONFLUENCE WITH UCAYALI RIVER	PE	River		11.0
AMA56	MODERNIZATION OF IQUITOS PORT	PE	River		39.6
AMA102	CONSTRUCTION OF NEW YURIMAGUAS PORT	PE	River		50.3

Note: The total investment amount does not include the investments estimated for the projects completed before the creation of API. These projects are: **AMA16**: TARAPOTO – YURIMAGUAS ROAD and **AMA25**: PAITA – TARAPOTO ROAD.

#### Callao – La Oroya – Pucallpa Road, Ports and Waterways

US\$2.6726 billion – Peru

\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
AMA26	IMPROVEMENT OF TINGO MARÍA – PUCALLPA ROAD	PE	Road		438.4
AMA31	MODERNIZATION OF EL CALLAO PORT (NEW CONTAINER DOCK)	PE	Sea		704.8
AMA32	LIMA – RICARDO PALMA EXPRESSWAY	PE	Road		200.0
AMA43	IMPROVEMENT OF NAVIGATION CONDITIONS ON THE UCAYALI RIVER WATERWAY, BETWEEN PUCALLPA AND THE CONFLUENCE WITH MARAÑÓN RIVER	PE	River		19.0
AMA63	IIRSA CENTER, SECTION 2: RICARDO PALMA – LA OROYA – TURN OFF TO CERRO DE PASCO / LA OROYA – HUANCAYO	PE	Road		127.2
AMA64	IIRSA CENTER, SECTION 3: TURN-OFF TO CERRO DE PASCO – TINGO MARÍA	PE	Road		624.8
AMA66	EL CALLAO MULTI-PURPOSE NORTHERN TERMINAL	PE	Sea		390.2
AMA67	EL CALLAO MINERAL SHIPPING TERMINAL	PE	Sea		113.2
AMA104	CONSTRUCTION OF NEW PUCALLPA PORT	PE	River		55.0

## Caracas – Bogotá – Buenaventura / Quito Road Corridor

US\$2.8257 billion – Colombia, Ecuador, Venezuela

\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
AND05	BOGOTÁ – CÚCUTA ROAD CORRIDOR	CO	Road		875.7
AND07	BOGOTÁ – BUENAVENTURA ROAD CORRIDOR	CO	Road		1,950.0

## Colombia – Ecuador Border Interconnection

US\$319.1 million – Colombia, Ecuador

\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
AND31	BINATIONAL BORDER SERVICE CENTER (CEBAF) AT SAN MIGUEL	CO – EC	Border crossings		0.0
AND79	IMPROVEMENT AND PAVING OF THE MOCOA – SANTA ANA – SAN MIGUEL ROAD SECTION	CO	Road		210.4
AND82	IMPLEMENTATION OF THE BINATIONAL BORDER SERVICE CENTER (CEBAF) AT THE TULCÁN – IPIALES (RUMICHACA) BORDER CROSSING	CO – EC	Border crossings		104.7
AND91	CONSTRUCTION OF THE NEW INTERNATIONAL RUMICHACA BRIDGE AND IMPROVEMENT OF THE EXISTING BRIDGE	CO – EC	Road		4.1

## Desaguadero Binational Border Service Center (CEBAF)

US\$29.9 million – Bolivia, Peru

\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
AND47	DESAGUADERO BINATIONAL BORDER SERVICE CENTER (CEBAF)	BO – PE	Border crossings		29.9

## Autopista del Sol Expressway: Improvement and Rehabilitation of the Sullana – Aguas Verdes Section

US\$666.3 million – Peru



\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
AND99	UPGRADE OF SULLANA – TUMBES – TURN-OFF TO THE INTERNATIONAL BYPASS ROAD TO A FOUR-LANE ROAD	PE	Road		472.4
AND100	REHABILITATION AND CONSTRUCTION OF BRIDGES ALONG THE SULLANA – TUMBES – TURN-OFF TO THE INTERNATIONAL BYPASS ROAD	PE	Road		13.1
AND101	CONSTRUCTION OF TUMBES BYPASS	PE	Road		54.9

## Itaipú – Asunción – Yacyreta 500-kV Transmission Line

US\$852.0 million – Paraguay


\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
CAP67	500-KV TRANSMISSION LINE (ITAIPU – VILLA HAYES)	PY	Energy Interconnection		555.0
CAP68	500-KV TRANSMISSION LINE (YACYRETÁ – VILLA HAYES)	PY	Energy Interconnection		297.0

## Nueva Palmira Beltway, Upgrade of the Direct Influence Road Network and Port Access Roads System

US\$15.0 million – Uruguay

\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
HPP97	NUEVA PALMIRA BELTWAY, UPGRADE OF THE DIRECT INFLUENCE ROAD NETWORK AND PORT ACCESS ROADS SYSTEM	UY	Road		15.0

## Infante Rivarola – Cañada Oruro Border Crossing

US\$1.9 million – Bolivia, Paraguay

\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
IOC09	INFANTE RIVAROLA – CAÑADA ORURO BORDER CROSSING	BO – PY	Border crossings		1.9

## Northeastern Argentina Gas Pipeline

US\$ 1.87 billion – Argentina


\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
MCC68	NORTHEASTERN ARGENTINA GAS PIPELINE	AR	Energy Interconnection		1,870.0

## Construction of the Jaguarão – Río Branco International Bridge

US\$93.5 million – Brazil, Uruguay

\*US\$ million





Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
MCC22	CONSTRUCTION OF THE JAGUARÃO – RÍO BRANCO INTERNATIONAL BRIDGE	BR – UY	Road		93.5



## Argentina Uruguay – Brazil Railway Corridor

US\$367.2 million – Argentina, Brazil, Uruguay






\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
HPP65	REHABILITATION AND IMPROVEMENT OF THE PIEDRA SOLA – SALTO GRANDE RAILWAY CORRIDOR	UY	Rail		127.3
HPP120	REHABILITATION OF THE ALGORTA – FRAY BENTOS RAILWAY BRANCH LINE	UY	Rail		100.0
MCC30	REHABILITATION OF THE MONTEVIDEO – RIVERA RAILWAY	UY	Rail		134.9
MCC115	REHABILITATION OF THE RIVERA – SANTANA DO LIVRAMENTO – CACEQUI RAILWAY SECTION	BR – UY	Rail		5.0

## Optimization of the Cristo Redentor Border Crossing System

US\$1.016 billion – Argentina, Chile


\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
MCC151	INTEGRATED FREIGHT CONTROL CENTER AT USPALLATA (CRISTO REDENTOR SYSTEM OPTIMIZATION)	AR	Border crossings		90.0
MCC152	PASSENGER CONTROL CENTER AT LOS HORCONES (CRISTO REDENTOR SYSTEM OPTIMIZATION)	AR	Border crossings		80.0
MCC153	NEW LOS LIBERTADORES BORDER COMPLEX (CRISTO REDENTOR SYSTEM OPTIMIZATION)	CH	Border crossings		76.0
MCC154	REHABILITATION OF THE CRISTO REDENTOR TUNNEL AND CARACOLAS (CRISTO REDENTOR SYSTEM OPTIMIZATION)	AR – CH	Road		770.0
MCC155	BINATIONAL MANAGEMENT CONTROL SYSTEM AT THE CRISTO REDENTOR BORDER CROSSING (CRISTO REDENTOR SYSTEM OPTIMIZATION)	AR – CH	Border crossings		0.0

## Porto Velho – Peruvian Coast Connection

US\$48.0 million – Brazil, Peru

\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
PBB64	BRIDGE OVER THE MADEIRA RIVER IN ABUNÃ (BR-364/RO)	BR	Road		48.0



Profiling



Pre-execution



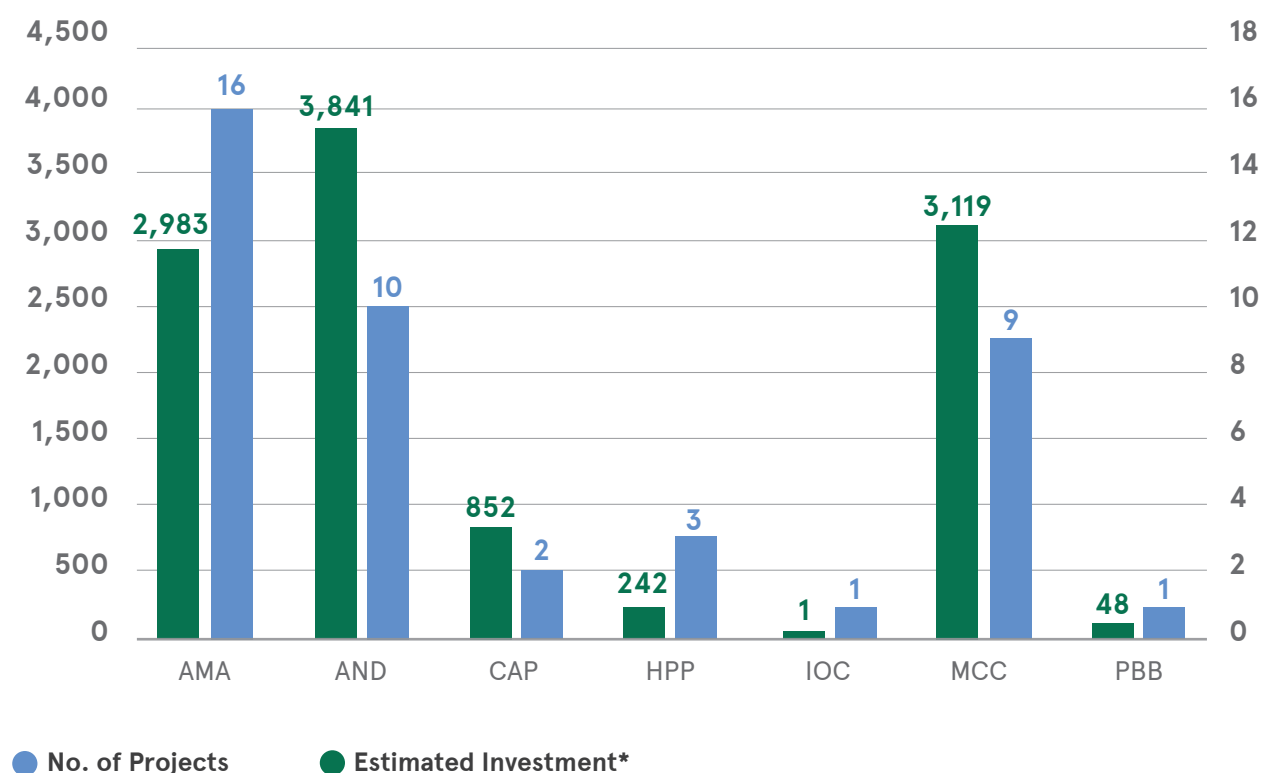
Execution



Completed

## Individual Projects by Hub

\*US\$ million



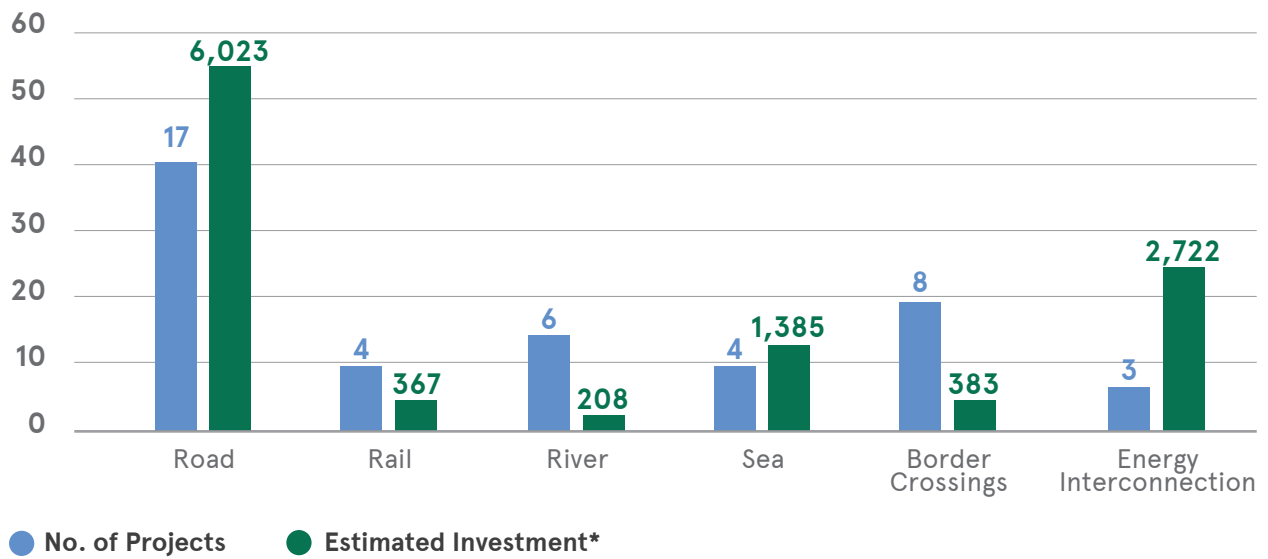
## Individual Projects by Country

\*US\$ million

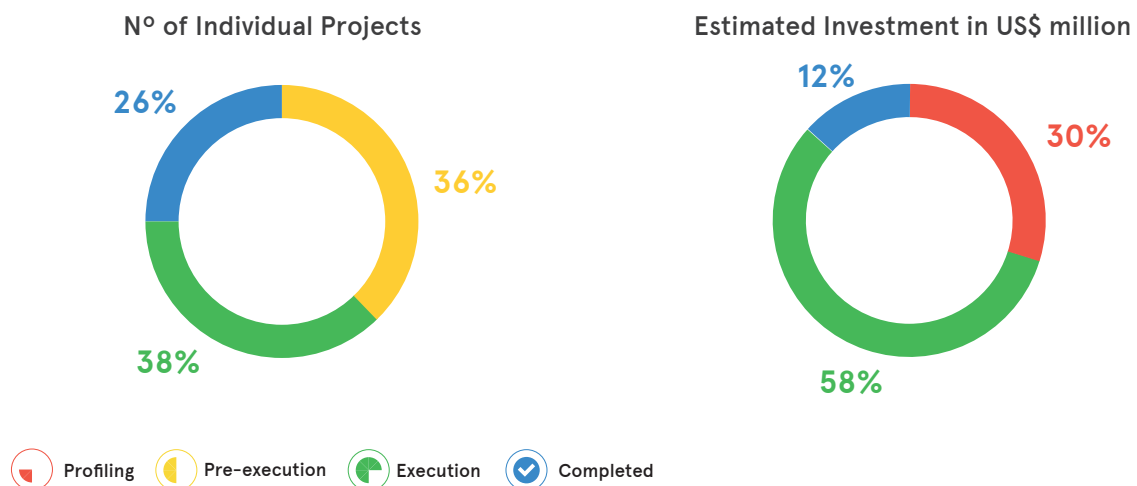
Countries	No. of Projects	% of Projects	Estimated Investment*	% of Investment
ARGENTINA	5	9.8	2,810.0	23.2
BOLIVIA	2	3.9	31.8	0.3
BRASIL	3	5.9	146.5	1.2
CHILE	3	5.9	846.0	7.0
COLOMBIA	6	11.8	3,144.9	26.0
ECUADOR	3	5.9	108.8	0.9
PARAGUAY	3	5.9	853.9	7.1
PERÚ	20	39.2	3,679.4	30.4
URUGUAY	6	11.8	475.7	3.9

## Individual Projects by Subsectors

\*US\$ million

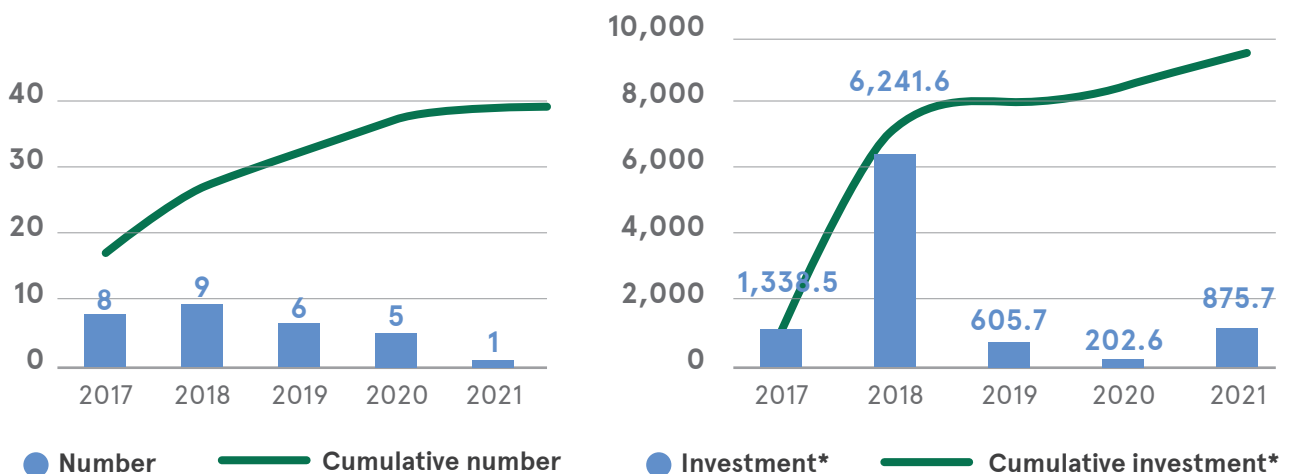


## Individual Projects and Their Stage



## Estimated Date of Completion of API Individual Projects

\*US\$ million





## Completed Individual Projects

\*US\$ million

Code	Name of Individual Projects	API	Subsector	Countries	Ejecuted Investment*
AMA16	TARAPOTO - YURIMAGUAS ROAD	1	Road	PE	231.7
AMA24	PAITA PORT	1	Sea	PE	176.7
AMA25	PAITA - TARAPOTO ROAD	1	Road	PE	273.6
AMA102	CONSTRUCTION OF NEW YURIMAGUAS PORT	1	River	PE	50.3
AMA66	EL CALLAO MULTI-PURPOSE NORTHERN TERMINAL	2	Sea	PE	390.2
AMA67	EL CALLAO MINERAL SHIPPING TERMINAL	2	Sea	PE	113.2
AND31	MODERNIZATION OF EL CALLAO PORT (NEW CONTAINER DOCK)	5	Border crossings	CO - EC	0.0
AND91	CONSTRUCTION OF THE NEW INTERNATIONAL RUMICHACA BRIDGE AND IMPROVEMENT OF THE EXISTING BRIDGE	5	Road	CO - EC	4.1
CAP67	500-KV TRANSMISSION LINE (ITAIPU - VILLA HAYES)	13	Energy Interconnection	PY	555.0
IOC09	INFANTE RIVAROLA - CAÑADA ORURO BORDER CROSSING	23	Border crossings	BO - PY	1.9
MCC115	REHABILITATION OF THE RIVERA - SANTANA DO LIVRAMENTO - CACEQUI RAILWAY SECTION	28	Rail	BR - UY	5.0
<b>TOTAL</b>					<b>1,296.4</b>

Note: The total investment amount does not include the investments estimated for the projects completed before the creation of API. These projects are: AMA16: TARAPOTO - YURIMAGUAS ROAD and AMA25: PAITA - TARAPOTO ROAD.

## Source of Financing of the Individual Projects

\*US\$ million

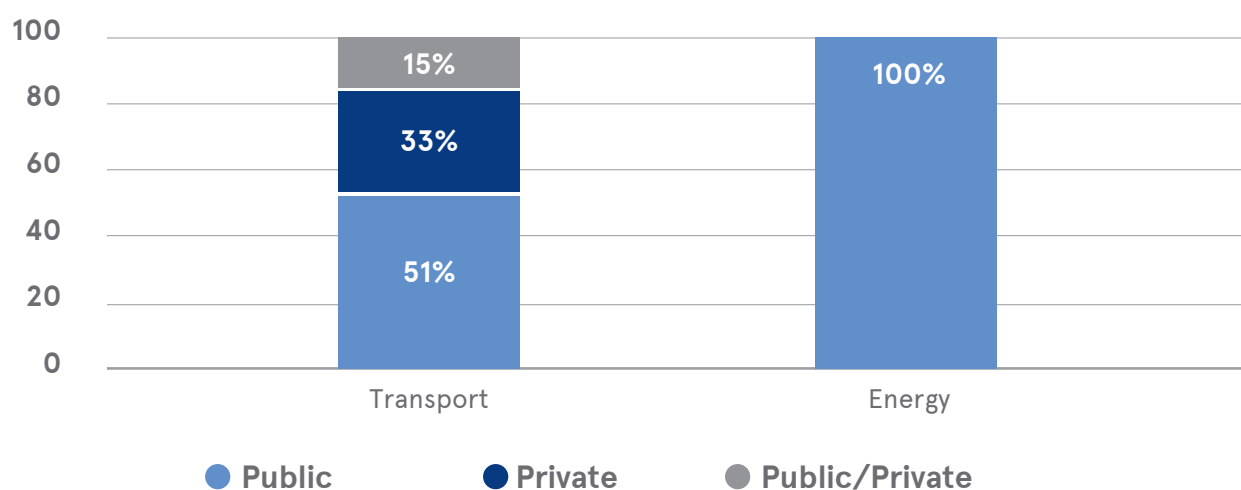
Source	Estimated Investment*	Ejecuted Investment*
To be defined	112.5	
IDB	1,254.8	
Binational	81.0	
FOCEM	533.6	400.0
Private	2,900.8	735.4
National Treasury	6,125.4	161.0
Miscellaneous	79.7	
<b>TOTAL</b>	<b>11,087.8</b>	<b>1,296.4</b>

## Type of Financing of the Individual Projects

\*US\$ million











Type of Financing	No. of Projects	% of Projects	Estimated Investment*	% of Investment
Private	13	31	2,531.2	23
Public	23	55	7,854.7	71
Public/Private	6	14	701.8	6
<b>TOTAL</b>	<b>42</b>	<b>100</b>	<b>11,087.8</b>	<b>100</b>

## Type of Financing of the Individual Projects by Sector



## The Ten Individual Projects with the Highest Estimated Investment

\*US\$ million

Code	Name	Type of Financing	Stage	Estimated Investment*	Countries	Estimated Completion Date
AND07	BOGOTÁ - BUENAVENTURA ROAD CORRIDOR	Public		1,950.0	CO	August 2018
MCC68	NORTHEASTERN ARGENTINA GAS PIPELINE	Public		1,870.0	AR	December 2018
AND05	BOGOTÁ - CÚCUTA ROAD CORRIDOR	Public		875.7	CO	December 2021
MCC154	REHABILITATION OF THE CRISTO REDENTOR TUNNEL AND CARACOLES (CRISTO REDENTOR SYSTEM OPTIMIZATION)	Public		770.0	AR - CH	December 2018
AMA31	MODERNIZATION OF EL CALLAO PORT (NEW CONTAINER DOCK)	Private		704.8	PE	March 2018
AMA64	IIRSA CENTER, SECTION 3: TURN-OFF TO CERRO DE PASCO - TINGO MARÍA	Private		624.8	PE	December 2018
CAP67	500-KV TRANSMISSION LINE (ITAIPU - VILLA HAYES)	Public		555.0	PY	October 2013
AND99	UPGRADE OF SULLANA - TUMBES - TURN-OFF TO THE INTERNATIONAL BYPASS ROAD TO A FOUR-LANE ROAD	Public-Private		472.4	PE	ND
AMA26	IMPROVEMENT OF TINGO MARÍA - PUCALLPA ROAD	Public		438.4	PE	December 2017
AMA66	EL CALLAO MULTI-PURPOSE NORTHERN TERMINAL	Private		390.2	PE	May 2016
TOTAL				8,651.3		

 Profiling
  Pre-execution
  Execution
  Completed











# The Vision of Integration for the Next Decade

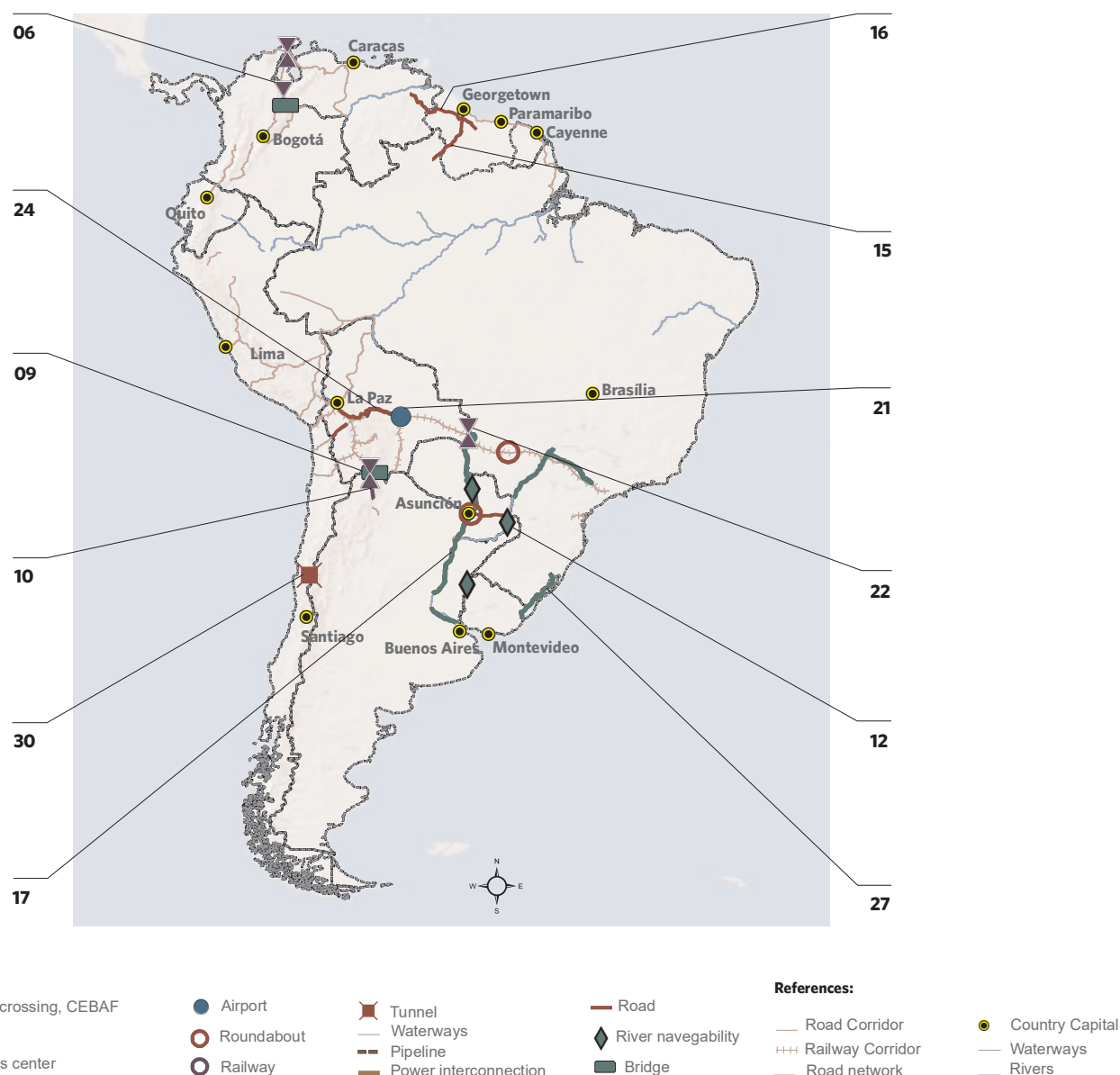
**A**s a result of the API review and update, the countries identified twelve connectivities from the 31 projects prioritized in 2011, their maximum execution term being scheduled for 2027. These structured projects include 35 works or individual projects that involve an investment estimated at US\$12.009 billion.

Although these projects will not be completed in 2022 —the initial date of completion for API projects—, the governments have reaffirmed their priority and committed themselves to take the necessary actions to implement them during the next decade. Unlike the projects in API 2022, these 12 projects require completing pending studies, defining the financing mechanism and sources available, and consolidating inter-institutional agreements at the national, binational and multinational level. For this to come true, it will be necessary to monitor in detail the progress of each initiative undertaken during the entire project life cycle.

The following pages analyze these connections, supply information on their rationale as well as on the progress attained in the last year and provide details on the main aspects of the individual projects that make up this group of connectivities.



## Map of API Projects 2027



### LEGEND

**06.** Colombia - Venezuela Border Crossings Connectivity System

**09.** Territorial Development for Border Integration and Connectivity in Salvador Mazza - Yacuiba

**10.** Territorial Development for Border Integration and Connectivity in La Quiaca - Villazón

**12.** Foz do Iguaçu - Ciudad del Este - Asunción - Clorinda Road Connection

**15.** Boa Vista - Bonfim - Lethem - Linden - Georgetown Road

**16.** Routes Interconnecting Venezuela (Ciudad Guayana) - Guyana (Georgetown) - Suriname (South Drain - Apura - Zanderij - Moengo - Albina), Including Construction of the Bridge over the Corentyne River

**17.** Improvement of Navigation Conditions on the Rivers of the Plata Basin

**21.** Passenger and Cargo Hub Airport for South America (Viru Viru, Santa Cruz, International Hub Airport)

**22.** Improvement of Road Connectivity in the Central Inter-oceanic Hub













**24.** Bioceanic Railway Corridor for Integration (Bolivian Section)

**27.** Multimodal Transportation in the Laguna Merín and Lagoa Dos Patos System

**30.** Agua Negra Binational Tunnel

## Structured projects within API 2027

\*US\$ million

API	Name	Hub	Countries	Stage	Estimated Investment*	Number of Individual Projects
6	COLOMBIA - VENEZUELA BORDER CROSSINGS CONNECTIVITY SYSTEM	AND	CO - VE		16.0	3
9	TERRITORIAL DEVELOPMENT FOR BORDER INTEGRATION AND CONNECTIVITY IN SALVADOR MAZZA - YACUIBA	CAP	AR - BO		45.0	1
10	TERRITORIAL DEVELOPMENT FOR BORDER INTEGRATION AND CONNECTIVITY IN LA QUIACA - VILLAZÓN	CAP	AR - BO		15.0	1
12	FOZ DO IGUAÇU - CIUDAD DEL ESTE - ASUNCIÓN - CLORINDA ROAD CONNECTION	CAP	AR - BR - PY		1,156.8	3
15	BOA VISTA - BONFIM - LETHEM - LINDEN - GEORGETOWN ROAD	GUY	BR - GU		250.0	3
16	ROUTES INTERCONNECTING VENEZUELA (CIUDAD GUAYANA) - GUYANA (GEORGETOWN) - SURINAME (SOUTH DRAIN - APURA - ZANDERIJ - MOENGO - ALBINA), INCLUDING CONSTRUCTION OF THE BRIDGE OVER THE CORENTYNE RIVER	GUY	GU - SU - VE		301.8	2
17	IMPROVEMENT OF NAVIGATION CONDITIONS ON THE RIVERS OF THE PLATA BASIN	HPP	AR - BO - BR PY - UY		1,170.2	10
21	PASSENGER AND CARGO HUB AIRPORT FOR SOUTH AMERICA (VIRU VIRU, SANTA CRUZ, INTERNATIONAL HUB AIRPORT)	IOC	BO		20.0	1
22	IMPROVEMENT OF ROAD CONNECTIVITY IN THE CENTRAL INTEROCEANIC HUB	IOC	BO - BR		413.5	4
24	BIOCEANIC RAILWAY CORRIDOR FOR INTEGRATION (BOLIVIAN SECTION)	IOC	BO		7,000.0	1
27	MULTIMODAL TRANSPORTATION IN THE LAGUNA MERÍN AND LAGOA DOS PATOS SYSTEM	MCC	BR - UY		20.8	5
30	AGUA NEGRA BINATIONAL TUNNEL	MCC	AR - CH		1,600.0	1
TOTAL					12,009.2	

 Profiling
 Pre-execution
 Execution
 Completed

# Integration Priority Project Agenda 2027



12

Structured projects  
made up of

35

Individual projects



## Estimated Investment

US\$ million

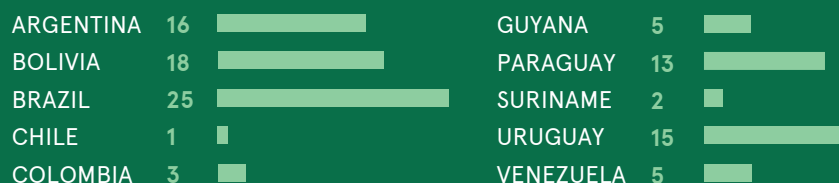
# 12,009.2



2  
Nationals  
5.7

18  
Binationals  
51.4

15  
Multinationals  
42.9



### Projects by Stages

● No. of projects ● US\$ million



Profiling

3

46.5



Pre-execution

15

10,446.7



Execution

12

1,383.5



Completed

5

148.8

### Projects by Sector

### Projects by Type of Financing



Transport

35

12,025.5



Public

29

3,831.8



Private

3

891.6

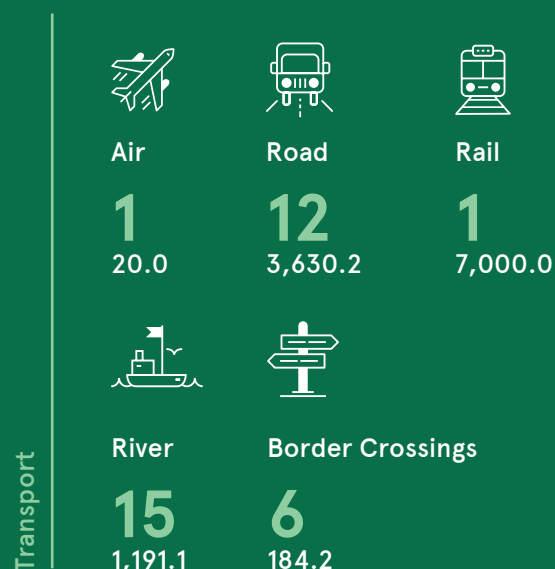


Public/private

3

7,302.1

### Projects by Subsector



## Colombia – Venezuela Border Crossings Connectivity System



### COLOMBIA – VENEZUELA

Subsectors: Border crossings, road

Estimated Investment: US\$16,000,000

Type of financing: Public-private

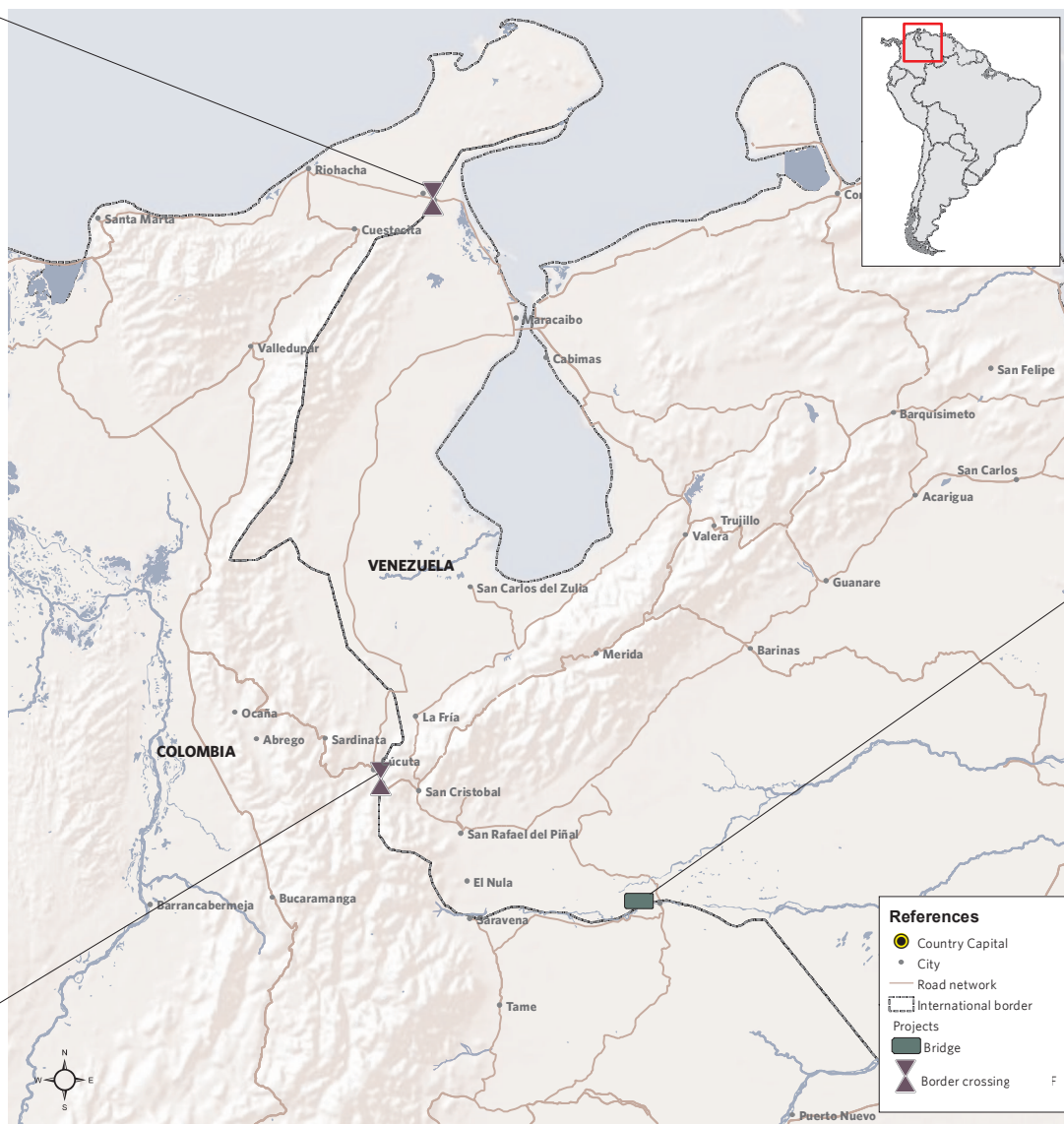
Project stage: Execution

Life cycle stage and number of projects:

• Execution: 2

• Completed: 1

02



13

81

### LEGEND

02. Binational Border Service Center (CEBAF) at Paraguachón

13. Improvement of José Antonio Páez Bridge

81. Construction of the Tienditas Border Crossing

This structured project is designed to address existing problems, missing links and bottlenecks in the most important border crossings between Colombia and Venezuela, which concentrate the largest international trade flows by road in the Andean Hub. The improvement of efficiency in border processes is intended to strengthen trade and social integration between Venezuela and Colombia.

The project includes the design of a development plan to implement the actions and infrastructure works involved.

Complementary actions include the design of programs to improve the quality of life of the people affected by the border crossing activities, which can involve an overall reduction in transportation costs. If this cost reduction is transferred to prices, what follows are benefits for the consumers of the products traded, more competitive national products, and greater transparency and quality in the controls to ensure coherence of tax, sanitary and security policies.

The challenges to this structured project are basically institutional, as great convergence efforts are required to implement integrated controls in the entire land connection system between Colombia and Venezuela.

The border crossings included in this project are:

**1. Binational Border Service Center (CEBAF) at Paraguachón:** This border crossing between La Guajira and Zulia represents an alternative for trade between both countries, particularly between the urban centers in the north of Colombia and the western region of Venezuela. At present, there is a new infrastructure of Venezuela's Customs and Tax Administration Integrated National Service six kilometers away from the border in Guarero, and a binational commission was created at the initiative of the Presidential Commission for Integration and Border Affairs to assess the implementation of a single CEBAF on such premises. The road connecting the northern region of Venezuela and Colombia requires adapting the border crossing at Paraguachón to the requirements laid down in the Andean Community of Nations' agreements.

Implementing the CEBAF in that area involves the construction of infrastructure to provide integrated services for the control of people, baggage, goods and vehicles, in addition to providing complementary facilitation and user services.

## **2. Construction of the Tienditas Border Crossing:**

In 2013, a decision was made to build a new border crossing in the Tienditas-Río Táchira-Villa del Rosario corridor located between the current Simón Bolívar and Francisco de Paula Santander bridge in Cúcuta. It was agreed that each country would finance 50% of the project and the Venezuelan government was commissioned with the task. In general terms, the Colombian government is designing a strategy to define the administrative arrangements and sources of financing not only for the infrastructure works, but also for their operation, sustainability and technological upgrade for the main border crossings

## **3. Improvement of José Antonio Páez Bridge:**




This project is intended to ensure a fluid connection in the city of Arauca and to regularize the border crossing. This border crossing will enable foreign trade goods that are delivered to the hinterland and the western-south region to reduce transportation costs and time. The project was completed in 2005.



## Colombia – Venezuela Border Crossings Connectivity System

### Individual Projects

\*US\$ million

Code	Name	Group	Stage	Estimated Investment*	Countries	Estimated Date of Completion
AND02	BINATIONAL BORDER SERVICE CENTER (CEBAF) AT PARAGUACHÓN	1		2.0	VE	ND
AND13	IMPROVEMENT OF JOSÉ ANTONIO PÁEZ BRIDGE	3		1.3	CO	ND
AND81	CONSTRUCTION OF THE TIENDITAS BORDER CROSSING	2		14.0	CO - VE	31/12/17



Profiling



Pre-execution



Execution



Completed

### STRUCTURED PROJECT TECHNICAL SPECIFICATIONS:

- Construction of a binational border service center with four facilities
- Improvement of a 167.1-m long bridge
- Improvement of a border crossing

### THIS YEAR'S MAJOR DEVELOPMENTS:

The construction of the **José Antonio Páez Bridge** has been completed; the only element pending to start operating is the reestablishment of the general conditions of the border crossing.



## Territorial Development for Border Integration and Connectivity in Salvador Mazza – Yacuiba



### ARGENTINA – BOLIVIA

Subsector: Border Crossings

Estimated Investment: US\$45,000,000

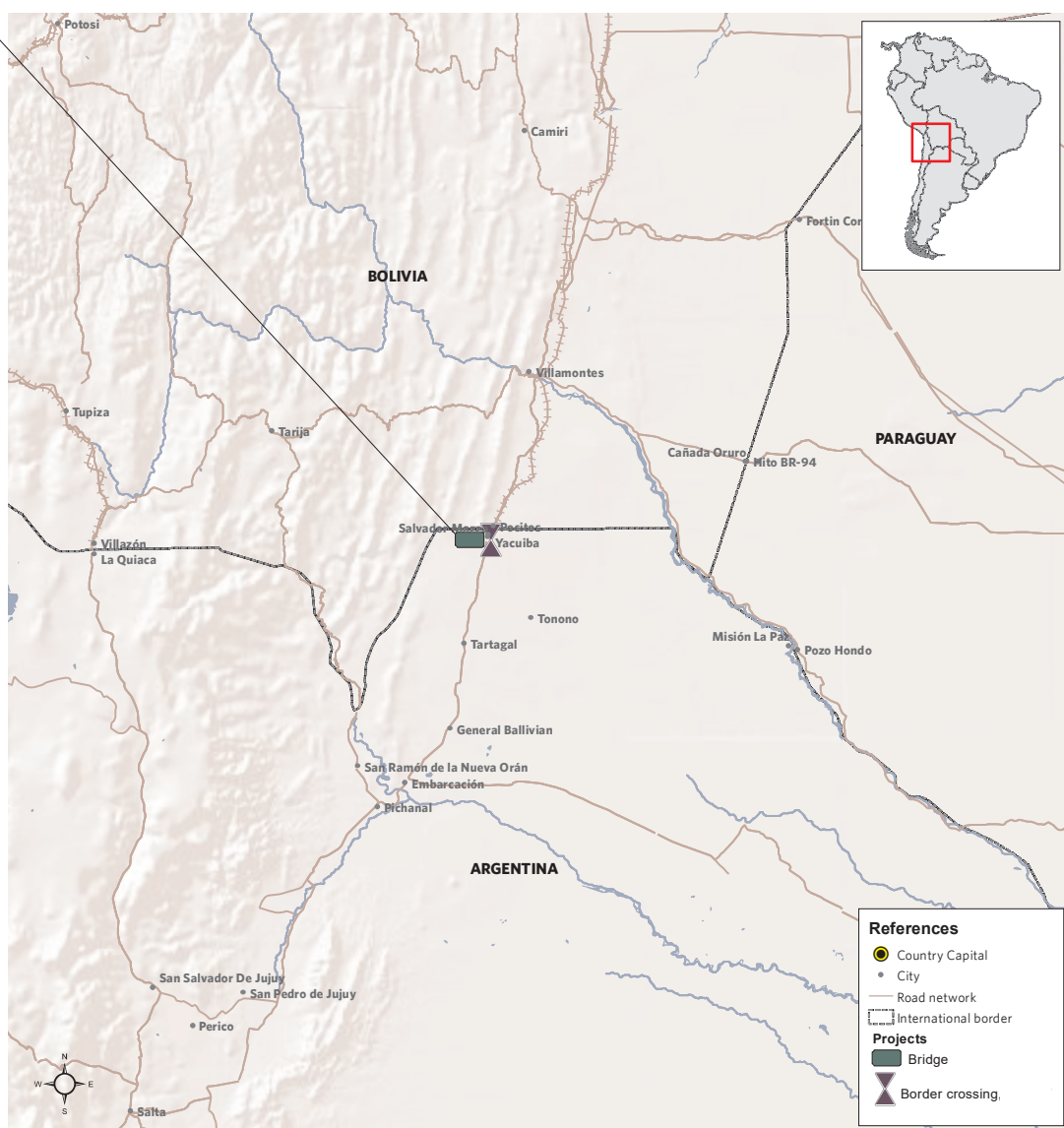
Type of Financing: Public

Project Stage: Pre-execution

Life cycle stage and number of projects:

- Pre-execution: 1

10



### LEGEND

10. Territorial Development for Border Integration and Connectivity in Salvador Mazza – Yacuiba



This structured project consolidates the regional networks and favors cross-border synergies between Argentina and Bolivia. Connectivity consists in the construction of a new bridge between the two border locations and seeks to come up with a solution to the existing serious difficulties at the border crossing between both countries and to ensure the smooth flow of international freight and passenger traffic as well as of pedestrians

The problem is that the current bridge is an urban road used for both local border traffic and international traffic. The great commercial activity in the area causes an important flow of people crossing the border and traffic of vehicles, particularly trucks, leading to delays and restrictions at peak hours.

The border crossing forms part of the main road corridor between Argentina and Bolivia made up of National Road No. 34 in Argentina and Road No. 9 of the federal road network in Bolivia, connecting the province of Salta (Argentina) to the departments in the south-eastern region of Bolivia, especially Santa Cruz de la Sierra, from where the only consolidated road corridor in Bolivia to Cochabamba and La Paz starts.

#### STRUCTURED PROJECT TECHNICAL SPECIFICATIONS:

- Construction of a 30-m long bridge
- Construction of a 24.8-ha border center
- Construction of 9.7 km of approach roads

#### Individual Projects

\*US\$ million

Code	Name	Group	Stage	Estimated Investment*	Countries	Estimated Date of Completion
CAP10	TERRITORIAL DEVELOPMENT FOR BORDER INTEGRATION AND CONNECTIVITY IN SALVADOR MAZZA - YACUIBA	2		45.0	AR - BO	12/31/2019



Profiling



Pre-execution



Execution



Completed

## Territorial Development for Border Integration and Connectivity in La Quiaca – Villazón



### ARGENTINA – BOLIVIA

Subsector: Border Crossings

Estimated investment: US\$15,000,000

Type of financing: Public

Project stage: Pre-execution

Life cycle stage and number of projects:

• Pre-execution: 1

81



### LEGEND

81. Territorial Development for Border Integration and Connectivity in La Quiaca – Villazón

The objective of this structured project is to solve the lack of efficient connectivity in the region, as the existing infrastructure has become a gridlock. The purpose is to turn the area into an integration hub, ordering traffic flows in the border cities, thus preventing international freight trucks from entering them.

The border cities have grown in a disorderly manner around the existing border crossing infrastructure. As a result, traffic conditions on the bridge and the use of the facilities and services in this sector have been completely exceeded by the flow of heavy goods vehicles, light vehicles and pedestrians, for which reason the physical capacity of the bridge has gradually become limited. At present, heavy goods traffic runs through the cities, causing serious inconveniences (deterioration of the road network, pollution, etc.) that in January and February reach a remarkable saturation level, which is reflected in the delays to complete paperwork and control procedures.

On top of this situation, the local traffic of the neighboring cities has increased considerably at the pace of the population growth in the cities.


The implementation of this project will result in a smoother connection between the countries and shorter wait times on both sides of the border for freight and passenger traffic. Alleviating vehicular and pedestrian traffic are the two objectives behind the design of a new bridge, to be built within the framework of an integrated system of decentralized services and infrastructure, creating a linear exclusion area between the present complex and the new bridge.

#### STRUCTURED PROJECT TECHNICAL SPECIFICATIONS:

- The construction of a bridge and a border service center

### Individual Projects

\*US\$ million

Code	Name	Group	Stage	Estimated Investment*	Countries	Estimated Date of Completion
CAP81	TERRITORIAL DEVELOPMENT FOR BORDER INTEGRATION AND CONNECTIVITY IN LA QUIACA - VILLAZÓN	2		15.0	AR - BO	12/31/2021

 Profiling
  Pre-execution
  Execution
  Completed



## Foz Do Iguaçu – Ciudad del Este – Asunción – Clorinda Road Connection



### ARGENTINA – BRAZIL – PARAGUAY

Subsectors: Road, Border Crossings

Estimated Investment: US\$1,156,806,392

Type of Financing: Public-private

Project Stage: Pre-execution

Life cycle stage and number of projects:

• Pre-Execution: 2

• Execution: 1



### LEGEND

07. Optimization of the Clorinda – Asunción Node

14. New Puerto Presidente Franco – Porto Meira Bridge, with a Paraguay – Brazil Integrated Control Area

18. Concession for the Improvement of Routes No. 2 and 7 (Asunción – Ciudad del Este)

This structured project is fundamental to boost the economic activities carried out in the capital of Paraguay that then go through the so-called Triple Frontier (Foz do Iguaçu, Ciudad del Este, Puerto Iguazú) up to the city of Clorinda, in Argentina. It therefore strengthens networks that are regional in scope and is instrumental in fostering regional connectivity and logistics and production integration to improve the quality of life of the population in the countries involved.

This project is made up of three individual projects, located between Asunción and the border area in Foz do Iguaçu, Brazil.

The first project is intended to find a solution to the road crossing in Clorinda-Metropolitan area of Asunción. Although the present bridge, known as San Ignacio de Loyola, is large enough for the traffic commuting today, there is some




concern over the frequent congestion observed at both ends.

The second project aims at building a second international bridge over the Paraná river between Foz do Iguaçu/Porto Meira (Brazil) and Puerto Presidente Franco (Paraguay), to improve the connection between both countries. This project includes the new bridge as well as a border crossing with integrated controls. The idea is to promote urban planning in border cities and improve transport systems and border controls.

The third project is to grant the two roads in concession, as they feature the greatest vehicular traffic in Paraguay and are located between Asunción and Ciudad del Este. These roads form part of the Asunción-Paranaguá corridor and will facilitate international trade between Brazil and Paraguay.

### Individual Projects

\*US\$ million

Code	Name	Group	Stage	Estimated Investment*	Countries	Estimated Date of Completion
CAP07	OPTIMIZATION OF THE CLORINDA - ASUNCIÓN NODE	1		106.2	AR - PY	12/31/2020
CAP14	NEW PUERTO PRESIDENTE FRANCO - PORTO MEIRA BRIDGE, WITH A PARAGUAY - BRAZIL INTEGRATED CONTROL AREA	3		173.0	BR - PY	12/31/2023
CAP18	CONCESSION FOR THE IMPROVEMENT OF ROUTES No. 2 AND 7 (ASUNCIÓN - CIUDAD DEL ESTE)	3		877.6	PY	12/31/2020

 Profiling  Pre-execution  Execution  Completed

### STRUCTURED PROJECT TECHNICAL SPECIFICATIONS:

- Upgrade of a road interchange
- Construction of a 760-m long bridge
- Improvement of two routes along 280 km

### THIS YEAR'S MAJOR DEVELOPMENTS:

Regarding the **Concession for the Improvement of Routes No. 2 and 7 (Asunción - Ciudad del Este)** project, during 2016 the final design was made and the land to be expropriated have already been acquired. In the first half of 2017, the works to upgrade to four lanes with bypasses around different cities were already given in concession, and the works to pave 170 km from San Lorenzo to Caaguazú at km 183 have already started. The total investment amount is US\$507.6 million, involving completion in 30 months and operation over 30 years, under a public-private partnership scheme.

The contract for the 140 km section given in concession to company Tapé Porá, from km 183 to km 323 in Ciudad del Este, was extended for an additional period of 30 years. In the first months of 2017, the works to upgrade the first 30 km to four lanes up to the turn-off to Route 6 were started. Investment is estimated at US\$130 million, and the works are scheduled to be completed by the end of 2018. The approach road works to the second bridge, with an estimated cost of US\$240 million, are in the process of awarding the contract, but today it is suspended until the commencement of the main works in the second bridge over the Paraná river.

## Boa Vista – Bonfim – Lethem – Linden – Georgetown Road



### BRAZIL – GUYANA

Subsector: Road

Estimated Investment: US\$250,000,000

Type of Financing: Public

Project Stage: Execution

Life cycle stage and number of projects:

• Pre-execution: 1

• Completed: 2



### LEGEND

09. Lethem – Linden Road

42. Boa Vista – Bonfim Road

43. Linden – Georgetown Road



This project connects the city of Boa Vista (Brazil) with the capital city of Guyana (Georgetown) and will be the most important north-south connection in Guyana, which needs to create synergies with the efforts to implement east-western connections between Venezuela, Guyana and Suriname.

Paving of the Lethem-Linden section will contribute to the connectivity between Brazil and Guyana, as this road is the only connection between both countries. The section between Boa Vista and Bonfim (Brazil) and between Linden and Georgetown (Guyana), in addition to the bridge connecting Bonfim and Lethem, have already been completed.

Complementarily, the project is expected to make this road more attractive as this will become the shortest alternative between Manaus and the Caribbean, reducing by 800 km




the distance that the goods have to travel to reach the Caribbean, the USA, Europe and Asia. In addition, complementary actions are identified in relation to the preservation of the environment and the development of topics related to the production integration and logistics. As for the environment, it is important to take into account that the road runs across environmentally sensitive areas such as rainforests and the Rupununi savannah. Concerning production integration and logistics, more detailed studies are necessary to identify opportunities derived from the paving of this stretch.

#### STRUCTURED PROJECT TECHNICAL SPECIFICATIONS:

- Paving of 646.7 km of roads

#### Individual Projects

\*US\$ million

Code	Name	Group	Stage	Estimated Investment*	Countries	Estimated Date of Completion
GUY09	LETHEM - LINDEN ROAD	2		250.0	GU	10/31/2022
GUY42	BOA VISTA - BONFIM ROAD	2		15.0	BR	ND
GUY43	LINDEN - GEORGETOWN ROAD	2		0.0	GU	06/30/1970

 Profiling
  Pre-execution
  Execution
  Completed

## Routes Interconnecting Venezuela (Ciudad Guayana) – Guyana (Georgetown) – Suriname (South Drain – Apura – Zanderij – Moengo – Albina), including construction of the bridge over the Corentyne River

GUY

### GUYANA – SURINAME – VENEZUELA

Subsector: Road

Estimated Investment: US\$301,800,000

Type of Financing: Public-private

Project Stage: Pre-execution

Life cycle stage and number of projects:

- Profiling: 1
- Pre-execution: 1



### LEGEND

18. Routes interconnecting Venezuela (Ciudad Guayana) – Guyana (Georgetown) – Suriname (Apura – Zanderij – Paramaribo)

24. Construction of the Bridge over the Corentyne River

This structured project is made up of two complementary individual projects for the development of a road corridor along the coastal axis stretching from Ciudad Guayana, in Venezuela, to Paramaribo, in Suriname. The project will help link the markets in the eastern region of Venezuela with those in the Republics of Guyana and Suriname, which will also be connected with the state of Amapá through French Guiana.

Additionally, such regions will have access to the Venezuelan market through the existing road system in this country and, consequently, to the Andean markets. Furthermore, the project will provide interconnection with its area of influence in Brazil (state of Roraima and Manaus Free Trade Zone) via the Manaus-Boa Vista-Santa Elena de Uairén-Puerto Ordaz existing road corridor. Therefore, this project will have an enormous impact on regional integration and on building synergies for the development at borders.

The individual projects that make up this structured project are: i) the construction of a paved road from San Martín de Turumbán, located in the state of Bolívar in Venezuela, up to Paramaribo, through Linden and Georgetown; and ii) the construction of a bridge over the Corentyne river. At present, there is no land connection along the coastal axis between Venezuela and Guyana, and international trade between Guyana and Suriname is made through a ferry that becomes a bottleneck for goods travelling long distances.

#### STRUCTURED PROJECT TECHNICAL SPECIFICATIONS:

- Construction of a road corridor
- Construction of a bridge

#### Individual Projects

\*US\$ million

Code	Name	Group	Stage	Estimated Investment*	Countries	Estimated Date of Completion
GUY18	ROUTES INTERCONNECTING VENEZUELA (CIUDAD GUAYANA) - GUYANA (GEORGETOWN) - SURINAME (APURA - ZANDERIJ - PARAMARIBO)	3		300.8	GU - SU - VE	09/30/2018
GUY24	CONSTRUCTION OF THE BRIDGE OVER THE CORENTYNE RIVER	3		1.0	GU - SU	ND

Profiling
 Pre-execution
 Execution
 Completed



# Improvement of navigation conditions on the rivers of The Plata Basin

HPP

## ARGENTINA – BOLIVIA – BRAZIL – PARAGUAY – URUGUAY

Subsector: River

Estimated Investment: US\$1,170,248,216

Type of Financing: Public

Project Stage: Execution

Life cycle stage and number of projects:

- Profiling: 2
- Pre-execution: 3
- Execution: 5



The Plata Basin covers a total area of nearly 3.1 million km<sup>2</sup>, which is one of the most potentially wealthy regions in the planet on account of its diverse climatic conditions, mining resources, agricultural capability, and energy, industrial and communication possibilities.

The improvement of the navigation conditions on the waterways fed by the basin will result in a significant reduction in the cost of transport for both inter- and extra-regional trade, which will contribute to economically integrating the region and strengthening its sustainable development. This will enhance the competitiveness of regional products, mainly of those produced in the areas farthest away from the seaports.

As a secondary effect, the project will help reduce the number of trucks on the highways, lowering the number of accidents, limiting exhaust and greenhouse gas pollution, improving road surface durability, and bringing down road maintenance costs.

In this context, the waterway allows soybean and fuel produced in Brazil to reach Argentina and, similarly, Argentine wheat to reach the Brazilian market. It also enables Paraguayan products to reach São Paulo and the Santos port.

Complementary actions are needed to ensure the preservation of the environment and the tapping of any opportunities for logistics and production development. With regard to the environment, the project affects environmentally sensitive areas such as the wetland known as Pantanal, a large floodplain seasonably covered by the Paraguay river waters and made up of unaltered ecosystems and a rich biodiversity.











## LEGEND

- 07. Improvement of the Navigation Conditions on the Paraguay River (between Apa and Corumbá)
- 09. Improvement of the Navigation Conditions on the Paraguay River (Asunción – Apa)
- 19. Improvement of the Navigation Conditions on the Tietê River
- 42. Binational Project for the Improvement of Navigation Conditions on the Paraguay River, from Confluencia to Asunción
- 44. Deepening of the Fairway in the Paraná River from Confluencia to the Plata River
- 72. Binational Project for the Improvement of Navigation Conditions on the Alto Paraná River
- 88. Binational Project for the Improvement of Navigation Conditions on the Uruguay River
- 106. System for Water-Level Prediction in the Paraguay River (Apa – Asunción)
- 108. Improvement of the Navigation Conditions on the Alto Paraná River (Upstream of Saltos del Guairá)
- 122. Rehabilitation and Maintenance of the Tamengo Canal

## Improvement of navigation conditions on the rivers of The Plata Basin

### Individual Projects

\*US\$ million

Code	Name	Group	Stage	Estimated Investment*	Countries	Estimated Date of Completion
HPP07	IMPROVEMENT OF NAVIGATION CONDITIONS ON THE PARAGUAY RIVER (BETWEEN APA AND CORUMBÁ)	1		39.0	BO - BR - PY	05/31/2018
HPP09	IMPROVEMENT OF NAVIGATION CONDITIONS ON THE PARAGUAY RIVER (ASUNCIÓN - APA)	1		110.0	PY	12/31/2017
HPP19	IMPROVEMENT OF NAVIGATION CONDITIONS ON THE TIETÊ RIVER	2		800.0	BR	01/31/2021
HPP42	BINATIONAL PROJECT FOR THE IMPROVEMENT OF NAVIGATION CONDITIONS ON THE PARAGUAY RIVER, FROM CONFLUENCIA TO ASUNCIÓN	3		45.5	AR - PY	12/31/2017
HPP44	DEEPENING OF THE FAIRWAY IN THE PARANÁ RIVER FROM CONFLUENCIA TO THE PLATA RIVER	3		110.3	AR	12/31/2017
HPP72	BINATIONAL PROJECT FOR THE IMPROVEMENT OF NAVIGATION CONDITIONS ON THE ALTO PARANÁ RIVER	4		0.0	AR - PY	ND
HPP88	BINATIONAL PROJECT FOR THE IMPROVEMENT OF NAVIGATION CONDITIONS ON THE URUGUAY RIVER	5		40.0	AR - UY	07/31/2020
HPP106	SYSTEM FOR WATER LEVEL PREDICTION IN THE PARAGUAY RIVER (APA - ASUNCIÓN)	1		0.0	BO - PY	ND
HPP108	IMPROVEMENT OF NAVIGATION CONDITIONS ON THE ALTO PARANÁ RIVER (UPSTREAM OF SALTOS DEL GUAIRÁ)	2		15.0	BR	12/31/2018
HPP122	REHABILITATION AND MAINTENANCE OF THE TAMENGO CANAL	1		10.5	BO	06/30/2018



Profiling



Pre-execution



Execution



Completed



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## STRUCTURED PROJECT TECHNICAL SPECIFICATIONS:

- Improvement of navigation conditions on approximately 4,708.3 km of waterways

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## THIS YEAR'S MAJOR DEVELOPMENTS:

Regarding the Improvement of the **Navigation Conditions on the Paraguay River (between Apa and Corumbá)** project, the Brazilian government is performing some studies, as imposed by the Judiciary. The Paraguayan Apa-Asunción section is currently subject to dredging and maintenance works in some critical rocky areas.

Concerning the **Improvement of the Navigation Conditions on the Paraguay River (Asunción - Apa)** project, it is in execution with dredging works to open some critical waterways are currently underway. Works are estimated to be completed in the second half of 2017.

The **Binational Project for the Improvement of Navigation Conditions on the Paraguay River, from Confluencia to Asunción** was moved to the profiling stage, considering that the Argentine government is presently negotiating the concession contract for dredging works and installation of signs and markers. Therefore, definitions will emerge as a result of these measures.

The **Binational Project for the Improvement of Navigation Conditions on the Uruguay River** has made 15% progress, as the first half of the works has been completed. The first stage of the dredging of critical passages between km 0 and km 187.1 as well as of the Concepción del Uruguay port were entrusted to public entities –Argentina's National Road Directorate and Uruguay's National Port Administration. The dredging of Montaña and Casablanca hard-bed passages was put out for tender and awarded to company Jan de Nul. Both passages are expected to be completely dredged by February 2017. Another tender was put out for the dredging of the other passages, from km 0 to km 203.6; the quotes were opened in March 2017, but the tender was declared void; therefore, a second tender will be called.

## Passenger and Cargo Hub Airport for South America (Viru Viru, Santa Cruz, International Hub Airport)

HPP

### BOLIVIA

Subsector: Air

Estimated Investment: US\$20,000,000

Type of Financing: Public

Project Stage: Pre-execution

Life cycle stage and number of projects

• Pre-execution: 1

78



### LEGEND

78. Passenger and Cargo Hub Airport for South America (Viru Viru, Santa Cruz, International Hub Airport)


The purpose of this structured project is to establish a regional passenger and cargo hub airport for domestic and international flights, ensuring adequate, efficient and safe handling of cargo as an element for the local and regional economic development. The project is important as it will encourage exports of agribusiness products from its area of influence and boost imports of inputs.

The Viru Viru Airport is located in the Bolivian city of Santa Cruz de la Sierra. As it is at the

geographic midpoint of South America, the airport is expected to become an air cargo and passenger hub for the interconnection of the entire Central Interoceanic Hub. The airport is also expected to allow air transport of passengers and cargo from any place in South America to other continents and vice versa, centralizing operations in an airport that complies with national and international aviation standards. Thanks to its near sea level location, airplanes will be able to operate at full payload.

## Individual Projects

\*US\$ million

Code	Name	Group	Stage	Estimated Investment*	Countries	Estimated Date of Completion
IOC78	PASSENGER AND CARGO HUB AIRPORT FOR SOUTH AMERICA (VIRU VIRU, SANTA CRUZ, INTERNATIONAL HUB AIRPORT)	3		20.0	BO	ND

 Profiling
  Pre-execution
  Execution
  Completed

### STRUCTURED PROJECT TECHNICAL SPECIFICATIONS:

- Expansion of one freight and passenger airport

### THIS YEAR'S MAJOR DEVELOPMENTS:

At present, a revision is being made of the Terms of Reference to call for international tender for consultancy services to conduct the Pre-investment Strategic Study and Technical Design for the Viru Viru International Airport.



## Improvement of road connectivity in the Central Interoceanic Hub

IOC

### BOLIVIA - BRAZIL

Subsectors: Road, Border Crossings

Estimated Investment: US\$413,500,000

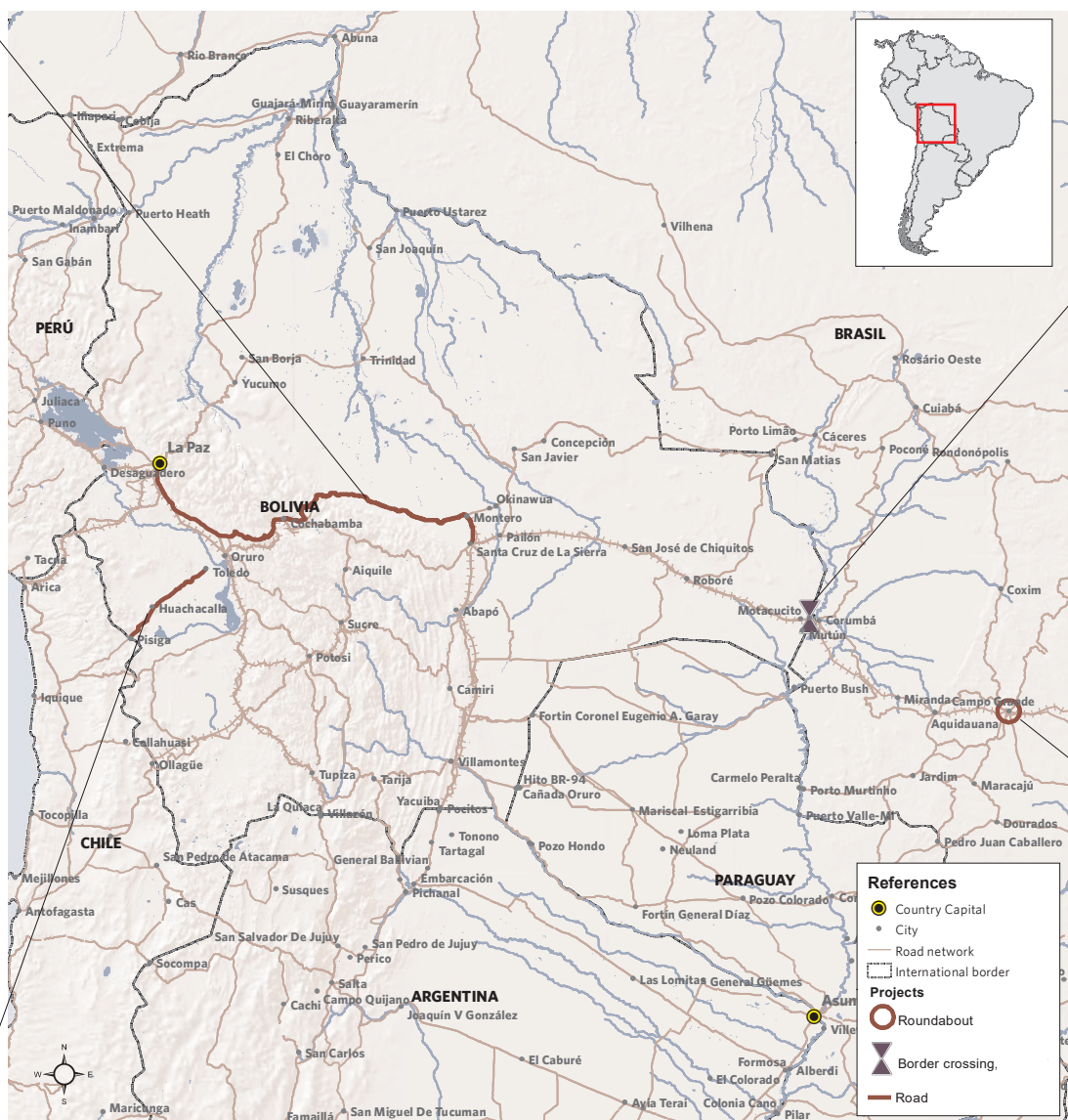
Type of Financing: Public

Project Stage: Execution

Life cycle stage and number of projects:

- Execution: 2
- Completed: 2

80



25

14

32

### LEGEND

14. Campo Grande Bypass

25. Puerto Suárez - Corumbá Integrated Control Area

32. Toledo - Pisiga Road

80. Upgrade of La Paz - Santa Cruz Route to a Four-lane Road

The purpose of this project is to link the western region of Bolivia with Peru and Chile on the west and with Brazil on the east, through the states of Mato Grosso do Sul and São Paulo to the port of Santos. Furthermore, it enables the integration of Bolivia with Paraguay, Argentina and Uruguay through the Tamengo canal and the Paraguay-Paraná waterway.

The simultaneous implementation of the individual projects is highly important, as enhanced road connectivity in the Central Interoceanic Hub will impact on 98% of the trade between Brazil and Bolivia.

This structured project is made up of four individual projects located in the Central Interoceanic Hub and intended to facilitate long-distance trade. Three of them involve roads, and one is related to a border crossing between Bolivia and Brazil. The road projects are i) Upgrade of La Paz – Santa Cruz Route to a Four-lane Road; ii) Campo Grande Bypass; and iii) Toledo – Pisiga Road. The fourth project is the Puerto Suárez – Corumbá Border Crossing project.





- The **Upgrade of La Paz – Santa Cruz Route to a Four-lane Road** project forms part of a corridor that will join the departments of La Paz, Oruro, Cochabamba, and Santa

Cruz with four-lane, paved, first-category roads, facilitating trade and reducing the number of accidents. This corridor provides a link with Peru and Chile on the west and with Brazil on the east, in the Bolivian town and port of Puerto Quijarro, which is a point of connection with the Paraguay-Paraná waterway through the Tamengo canal and, consequently, with Uruguay and Paraguay. ite vincularse con Uruguay y Paraguay.

- The **Toledo – Pisiga Road** project aims at supplementing Bolivia's articulation with the Chilean port of Iquique, and its completion will also contribute to improving the competitiveness of important mining areas in Bolivia. Its works were completed this year.
- The **Puerto Suárez (Bolivia)–Corumbá (Brazil)** Integrated Control Area needs improved infrastructure and harmonization of the Bolivian and Brazilian transport system.
- Finally, the purpose of the **Campo Grande Bypass** is to ensure a smoother and safer traffic flow in the city of Campo Grande, characterized by congestion caused by long-distance, light- and heavy-duty vehicles.

## Individual Projects

\*US\$ million

Code	Name	Group	Stage	Estimated Investment*	Countries	Estimated Date of Completion
IOC14	CAMPO GRANDE BYPASS	2		12.0	BR	12/30/2018
IOC25	PUERTO SUÁREZ – CORUMBÁ INTEGRATED CONTROL AREA	3		2.0	BO – BR	06/30/2015
IOC32	TOLEDO – PISIGA ROAD	5		130.5	BO	12/31/2016
IOC80	UPGRADE OF LA PAZ – SANTA CRUZ ROUTE TO A FOUR-LANE ROAD	5		269.0	BO	12/31/2025

 Profiling
  Pre-execution
  Execution
  Completed

## STRUCTURED PROJECT TECHNICAL SPECIFICATIONS

- Construction of a 46.1-km ring road
- Improvement of a border crossing
- Paving of 232 km of roads
- Upgrade to four lanes along 789 km of roads

## THIS YEAR'S MAJOR DEVELOPMENTS:

The **Toledo – Pisiga Road** project was completed this year.

## Bioceanic Railway Corridor for Integration (Bolivian Section)



### BOLIVIA

Subsector: Rail

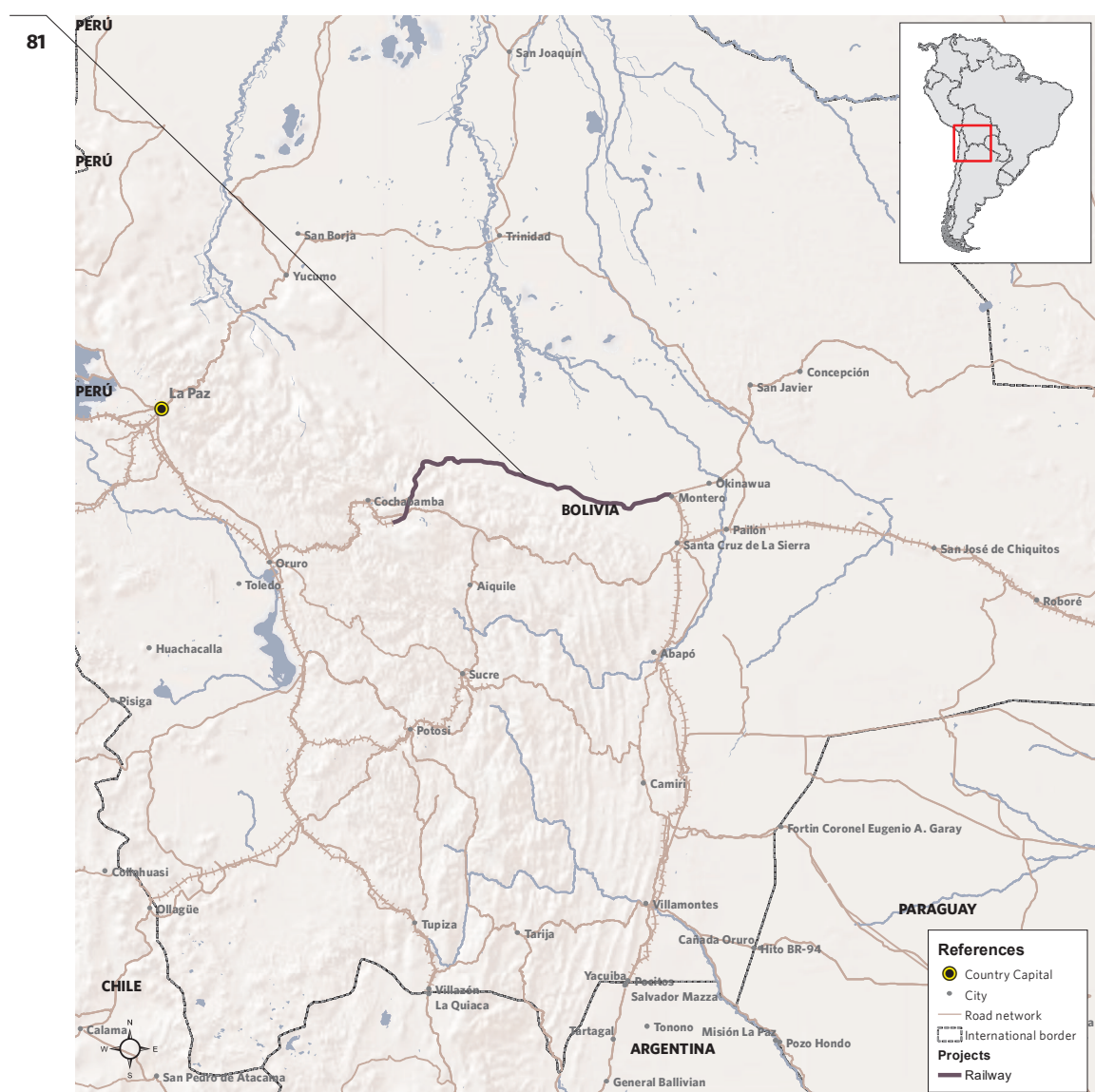
Estimated Investment: US\$7,000,000,000

Type of Financing: Public-private

Project Stage: Pre-execution

Life cycle stage and number of projects:

- Pre-execution: 1



### LEGEND

81. Bioceanic Railway Corridor for Integration (Bolivian Section)



This structured project will ensure an interconnection for Brazil, Chile, Peru and Bolivia in the central area of South America, facilitating trade among such countries as well as exports to overseas markets. The Bioceanic Railway Corridor, spanning 4,000 km from the port of Santos, in Brazil, to the port of Arica, in Chile, will link rail networks.


The section in Bolivia is critical, since at present the two rail networks in the country, the Andean and the Eastern ones, are not interconnected. This approximately 500-km long missing link in Bolivian territory, which equals 6% of the total length of the Central Bioceanic Railway Corridor, is an obstacle to uninterrupted traffic along the entire corridor; moreover, the road sections are not able to efficiently handle

the forecasted freight volumes. Goods traffic forecasts provide sufficient reasons to define a project for the upgrade and harmonization of the carrying capacity throughout the Bolivian territory.

The proposal seeks to make investments: i) to improve existing infrastructure (change of rails, replacement of railroad ties and others); and ii) build an interconnection through the most favorable alternative considering the technical, operational, environmental, economic and social aspects involved. Therefore, the objective is to attain interoperability (same gauge and bearing capacity) at the regional level.

Individual Project

\*US\$ million

Code	Name	Group	Stage	Estimated Investment*	Countries	Estimated Date of Completion
IOC81	BIOCEANIC RAILWAY CORRIDOR FOR INTEGRATION (BOLIVIAN SECTION)	5		7,000.0	BO	07/31/2024

Note: The estimated investment amount includes the purchase of rolling stock for its definitive alignment.



STRUCTURED PROJECT TECHNICAL SPECIFICATIONS:

- Rehabilitation and construction of 1,894-km of rails
- Provision of rolling stock for the final alignment

THIS YEAR’S MAJOR DEVELOPMENTS:

In the last year, conversations were held with German and Swiss parties interested in financing the project and with representatives of Brazil, Peru, Paraguay and Uruguay interested in participating in this connectivity.

Four working groups were created (financial and regulatory frameworks, technical and strategic specifications) with participants from Peru, Brazil, Paraguay and Bolivia to meet on a monthly basis. Regarding the Bolivian corridor, the 150-km of the Montero-Bulo Bulo section, included in the central section, is already underway. The Bulo Bulo-Villa Tunari section is currently at the pre-investment management stage. In relation to the Villa Tunari-Oruro section, the pre-investment costs and sources of financing are being assessed.

In addition to the Bolivian section, the Paraguayan section is under study. The latter might extend from Roboré to Carmelo Peralta port. A pre-investment study is being conducted on the Peruvian section to analyze three possible alignments: a) from Hito IV to Ilo Port, b) from Desaguadero to Ilo Port, and c) from Desaguadero to Matarani Port.

## Multimodal Transportation in the Laguna Merín and Lagoa Dos Patos System



### BRAZIL – URUGUAY

Subsector: River

Estimated Investment: US\$20,825,000

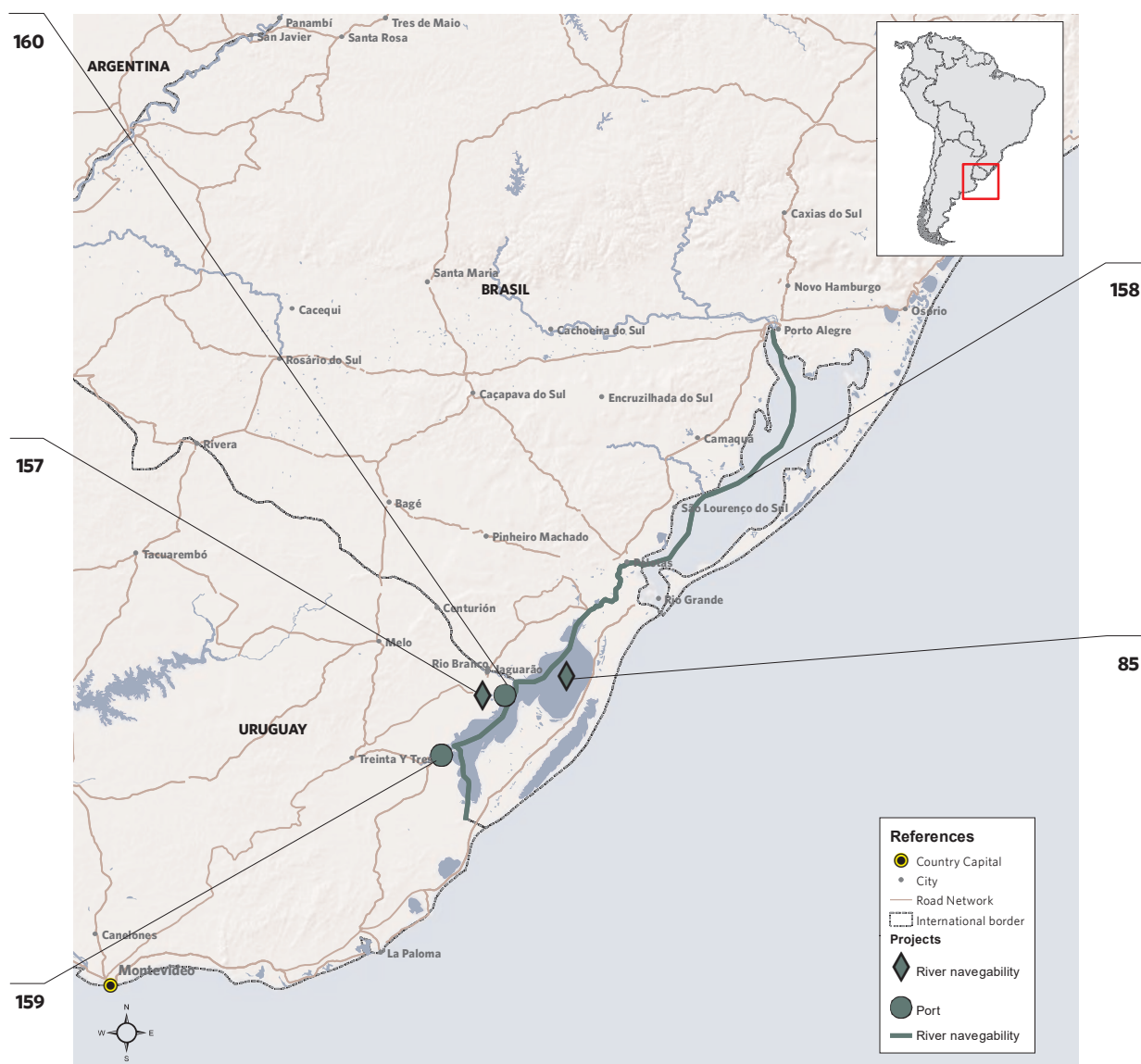
Type of Financing: Public-private

Project Stage: Execution

Life cycle stage and number of projects:

• Pre-execution: 2

• Execution: 3



### LEGEND

85. Dredging of Mirim Lake

157. Dredging of the Tacuarí River

158. Dredging of and Installation of Signs, Markers and Aids to Navigation on the Mirim Lake - Dos Patos Lake System

159. La Charqueada Port Terminal and Dredging of the Cebollati River

160. Port Terminal and Dredging of Tacuarí

This project will improve connectivity between the eastern region of Uruguay and the southern area of Brazil by enabling unobstructed navigation on the Merín and Dos Patos lake system. The restoration of navigation activities will help carry greater cargo volumes, reduce freight and infrastructure maintenance costs, and alleviate bottlenecks at border crossings. It will also mitigate the environmental impact caused by greenhouse gas emissions and noise pollution, and reduce the number of road accidents.

In Uruguay, the area of influence of the project comprises the Merín lake and its tributaries, particularly the Yaguarón (or Jaguarão), Cebollatí and Tacuarí rivers. In Brazil, it encompasses the same lake ("Mirim" in Portuguese) and its tributaries –particularly the Jaguarão river—; São Gonçalo channel and its tributaries; the approach channels to the port of Rio Grande; the Lagoa dos Patos lake and its tributaries; the Guaíba river; and the Taquari,






Jacuí, dos Sinos, Gravataí, Caí, and Camaquã rivers, covering a total area of 997 km.

The project aims at revitalizing river and lake transport along the waterway formed by the Merín and dos Patos lakes and their tributaries. The purpose is to have efficient, safe, regular and adequate freight and passenger transportation services to meet the current requirements of trade, economic development, and environmental preservation.

The project consists in carrying out dredging works; installing aids to navigation and signs and markers along the navigable waterways of both countries; jointly conducting cartographic and hydrographic surveys on the Merín lake; and building ports in the Uruguayan territory. Since the project is concerned with a waterway shared by two countries, actions associated with immigration, customs and sanitary regulations, among others, are needed, which will be carried out jointly by the relevant national and binational entities.

## Individual Projects

\*US\$ million

Code	Name	Group	Stage	Estimated Investment*	Countries	Estimated Date of Completion
MCC85	DREDGING OF MIRIM LAKE	2		2.9	BR	12/31/2018
MCC157	DREDGING OF THE TACUARÍ RIVER	2		1.4	BR	12/31/2018
MCC158	DREDGING OF AND INSTALLATION OF SIGNS, MARKERS AND AIDS TO NAVIGATION ON THE MIRIM LAKE - DOS PATOS LAKE SYSTEM	2		2.6	BR	06/30/2019
MCC159	LA CHARQUEADA PORT TERMINAL AND DREDGING OF THE CEBOLLATI RIVER	2		7.0	UY	01/31/2018
MCC160	PORT TERMINAL AND DREDGING OF TACUARÍ	2		7.0	UY	01/31/2018

 Profiling
  Pre-execution
  Execution
  Completed

## STRUCTURED PROJECT TECHNICAL SPECIFICATIONS:

- Dredging works, upgrade of corridors and complementary works in two lakes and their tributaries (including dredging, the installation of signs and markers and aids to navigation in navigable waterways, and cartographic and hydrographic surveys)
- Construction of two river port terminals
- Dredging of 903,000 m<sup>3</sup> of material



## Agua Negra Binational Tunnel



### ARGENTINA – CHILE

Subsector: Road

Estimated Investment: US\$1,600,000,000

Type of Financing: Public

Project Stage: Pre-execution

Life cycle stage and number of projects

• Pre-execution: 1

110



### LEGEND

110. Agua Negra Binational Tunnel

This project consists in the construction of a double tunnel at the Agua Negra border crossing, on the border between Chile and Argentina, to serve as an alternative to the Cristo Redentor System. Given its geographical location, this is an important regional integration point, as it provides a further connection from the central area of Argentina to the area of influence of the Coquimbo port in Chile, which will encourage tourism and international trade among all the countries that make up the MERCOSUR-Chile Hub.


At the bilateral level, this project was analyzed within the framework of a joint technical group and, later, by the Agua Negra Binational Tunnel Body, created pursuant to the Maipú Treaty

signed by Argentina and Chile in 2009. Moreover, in February 2015, the Second Complementary Protocol to such Treaty, concerned with the Agua Negra Tunnel binational project, was approved by Law No. 27,124.

The project consists in constructing two semi-parallel tunnels, hosting four lanes for two-way vehicular traffic of 13.9 km in length at an average altitude of 3,800 meters above sea level, which will connect the province of San Juan (Argentina) and the Coquimbo region (Chile) through the Andes range.

## Individual Projects

\*US\$ million

Code	Name	Group	Stage	Estimated Investment*	Countries	Estimated Date of Completion
MCC110	AGUA NEGRA BINATIONAL TUNNEL	4		1,600.0	AR - CH	12/31/2027

 Profiling
  Pre-execution
  Execution
  Completed

### STRUCTURED PROJECT TECHNICAL SPECIFICATIONS:

- Two parallel tunnels, one for each direction of travel, running along 13.9 km

### THIS YEAR'S MAJOR DEVELOPMENTS:

According to the execution schedule, the prequalification of the participating consortia was made. The call for bids is estimated to be issued in November 2017, to receive the offers until May 2018. The winning bidder would be confirmed in February 2019, and the contract would be signed in March that year. The executive project design would take about a year and the works are estimated to start in 2020 to be completed approximately in 2027.




## Aggregated Data on Individual Projects within API 2027

### Structured Projects and Individual Projects Included in Them

#### Colombia – Venezuela Border Crossings Connectivity System

US\$16.0 million – Colombia, Venezuela

\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
AND02	BINATIONAL BORDER SERVICE CENTER (CEBAF) AT PARAGUACHÓN	VE	Border Crossings		2.0
AND13	IMPROVEMENT OF JOSÉ ANTONIO PÁEZ BRIDGE	CO	Road		1.3
AND81	CONSTRUCTION OF THE TIENDITAS BORDER CROSSING	CO - VE	Border Crossings		14.0

Note: The total investment amount does not include the investments estimated for project AND13 – IMPROVEMENT OF JOSÉ ANTONIO PÁEZ BRIDGE, which was completed before the creation of API.

#### Territorial Development for Border Integration and Connectivity in Salvador Mazza – Yacuiba

US\$45.0 million – Argentina, Bolivia

\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
CAP10	TERRITORIAL DEVELOPMENT FOR BORDER INTEGRATION AND CONNECTIVITY IN SALVADOR MAZZA – YACUIBA	AR - BO	Border Crossings		45.0

#### Territorial Development for Border Integration and Connectivity in La Quiaca – Villazón

US\$15.0 million – Argentina, Bolivia




\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
CAP81	TERRITORIAL DEVELOPMENT FOR BORDER INTEGRATION AND CONNECTIVITY IN LA QUIACA – VILLAZÓN	AR - BO	Border Crossings		15.0

#### Foz do Iguaçu – Ciudad del Este – Asunción – Clorinda Road Connection

US\$1.1568 billion – Argentina, Brazil, Paraguay

\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
CAP07	OPTIMIZATION OF THE CLORINDA – ASUNCIÓN NODE	AR - PY	Border Crossings		106.2
CAP14	NEW PUERTO PRESIDENTE FRANCO – PORTO MEIRA BRIDGE, WITH A PARAGUAY – BRAZIL INTEGRATED CONTROL AREA	BR - PY	Road		173.0
CAP18	CONCESSION FOR THE IMPROVEMENT OF ROUTES NO. 2 AND 7 (ASUNCIÓN – CIUDAD DEL ESTE)	PY	Road		877.6



**Boa Vista – Bonfim – Lethem – Linden – Georgetown Road**

US\$250.0 million – Brazil, Guyana

\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
GUY09	LETHEM – LINDEN ROAD	GU	Road		250.0
GUY42	BOA VISTA – BONFIM ROAD	BR	Road		15.0
GUY43	LINDEN – GEORGETOWN ROAD	GU	Road		0.0

Note: The total investment amount does not include the investments estimated for the project GUY42 – BOA VISTA – BONFIM ROAD, which was completed before the creation of API.

**Routes Interconnecting Venezuela (Ciudad Guayana) – Guyana (Georgetown) – Suriname (South Drain – Apura – Zanderij – Moengo – Albina), including Construction of the Bridge over the Corentyne River**

US\$301.8 million – Guyana, Suriname, Venezuela

\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
GUY18	ROUTES INTERCONNECTING VENEZUELA (CIUDAD GUAYANA) – GUYANA (GEORGETOWN) – SURINAME (APURA – ZANDERIJ – PARAMARIBO)	GU – SU – VE	Road		300.8
GUY24	CONSTRUCTION OF THE BRIDGE OVER THE CORENTYNE RIVER	GU – SU	Road		1.0

**Improvement of the Navigation Conditions on the Rivers of the Plata Basin**

US\$1.1702 billion – Argentina, Bolivia, Brazil, Paraguay, Uruguay


\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
HPP07	IMPROVEMENT OF NAVIGATION CONDITIONS ON THE PARAGUAY RIVER (BETWEEN APA AND CORUMBÁ)	BO – BR – PY	River		39.0
HPP09	IMPROVEMENT OF NAVIGATION CONDITIONS ON THE PARAGUAY RIVER (ASUNCIÓN – APA)	PY	River		110.0
HPP19	SYSTEM FOR WATER LEVEL PREDICTION IN THE PARAGUAY RIVER (APA – ASUNCIÓN)	BR	River		800.0
HPP42	IMPROVEMENT OF NAVIGATION CONDITIONS ON THE ALTO PARANÁ RIVER (UPSTREAM OF SALTOS DEL GUAIRÁ)	AR – PY	River		45.5
HPP44	REHABILITATION AND MAINTENANCE OF THE TAMENGO CANAL	AR	River		110.3
HPP72	IMPROVEMENT OF NAVIGATION CONDITIONS ON THE TIETÊ RIVER	AR – PY	River		0.0
HPP88	BINATIONAL PROJECT FOR THE IMPROVEMENT OF NAVIGATION CONDITIONS ON THE PARAGUAY RIVER, FROM CONFLUENCIA TO ASUNCIÓN	AR – UY	River		40.0
HPP106	DEEPENING OF THE FAIRWAY IN THE PARANÁ RIVER FROM CONFLUENCIA TO THE PLATA RIVER	BO – PY	River		0.0
HPP108	BINATIONAL PROJECT FOR THE IMPROVEMENT OF NAVIGATION CONDITIONS ON THE ALTO PARANÁ RIVER	BR	River		15.0
HPP122	BINATIONAL PROJECT FOR THE IMPROVEMENT OF NAVIGATION CONDITIONS ON THE URUGUAY RIVER	BO	River		10.5

## Passenger and Cargo Hub Airport for South America (Viru Viru, Santa Cruz, International Hub Airport)

US\$20.0 million – Bolivia





\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
IOC78	PASSENGER AND CARGO HUB AIRPORT FOR SOUTH AMERICA (VIRU VIRU, SANTA CRUZ, INTERNATIONAL HUB AIRPORT)	BO	Air		20.0

## Improvement of Road Connectivity in the Central Interoceanic Hub

US\$413.5 million – Bolivia, Brazil


\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
IOC14	CAMPO GRANDE BYPASS	BR	Road		12.0
IOC25	PUERTO SUÁREZ – CORUMBÁ INTEGRATED CONTROL AREA	BO – BR	Border Crossings		2.0
IOC32	TOLEDO – PISIGA ROAD	BO	Road		130.5
IOC80	UPGRADE OF LA PAZ – SANTA CRUZ ROUTE TO A FOUR-LANE ROAD	BO	Road		269.0

## Bioceanic Railway Corridor for Integration (Bolivian Section)

US\$7 billion – Bolivia






\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
IOC81	BIOCEANIC RAILWAY CORRIDOR FOR INTEGRATION (BOLIVIAN SECTION)	BO	Rail		7,000.0

## Multimodal Transportation in the Laguna Merín and Lagoa Dos Patos System

US\$20.9 million – Brazil, Uruguay


\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
MCC85	DREDGING OF THE TACUARÍ RIVER	BR	River		2.9
MCC157	DREDGING OF AND INSTALLATION OF SIGNS, MARKERS AND AIDS TO NAVIGATION ON THE MIRIM LAKE – DOS PATOS LAKE SYSTEM	BR	River		1.4
MCC158	LA CHARQUEADA PORT TERMINAL AND DREDGING OF THE CEBOLLATI RIVER	UY	River		2.6
MCC159	PORT TERMINAL AND DREDGING OF TACUARÍ	UY	River		7.0
MCC160	DREDGING OF MIRIM LAKE	BR	River		7.0

## Agua Negra Binational Tunnel

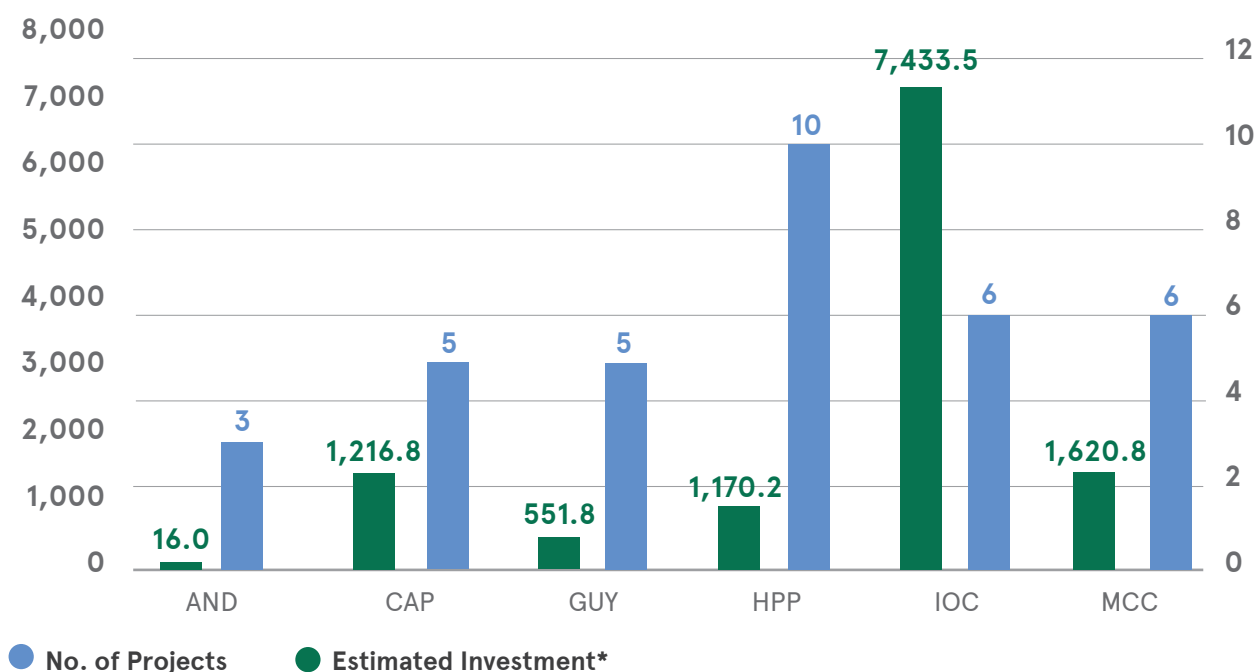
US\$1.6 billion – Argentina, Chile

\*US\$ million

Code	Name of Individual Projects	Countries	Subsector	Stage	Estimated Investment*
MCC110	AGUA NEGRA BINATIONAL TUNNEL	AR - CH	Road		1,600.0

## Individual Projects by Hub

\*US\$ million



## Individual Projects by Country

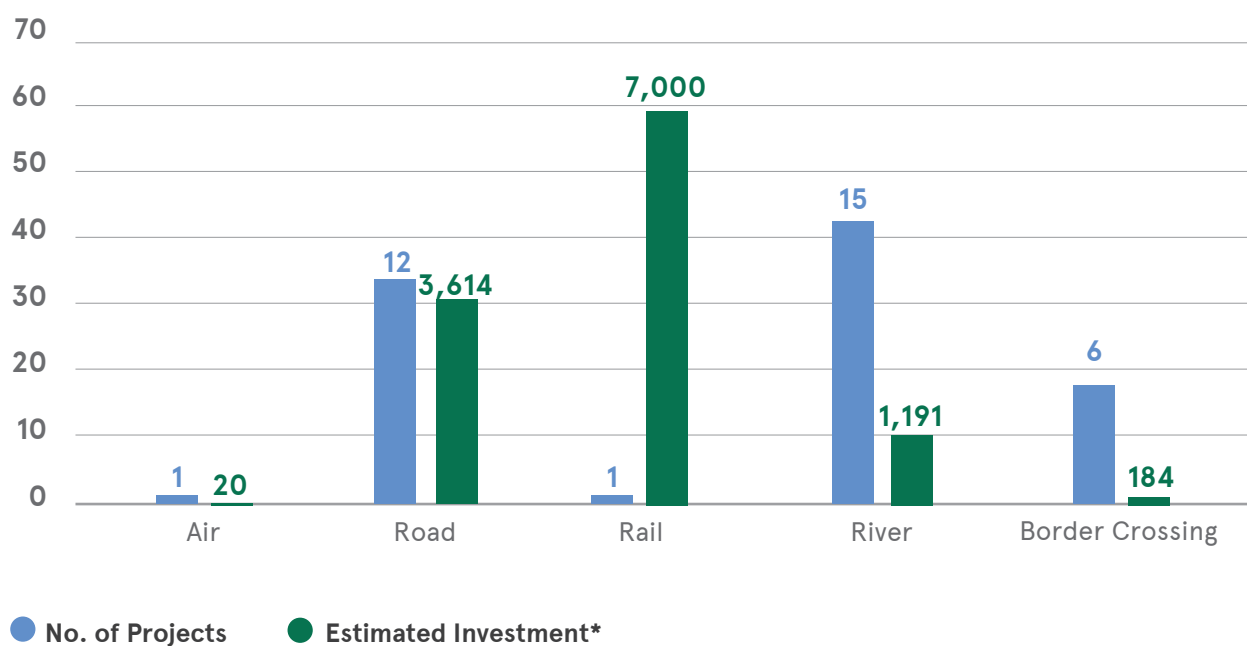
\*US\$ million

Countries	No. of Projects	% of Projects	Estimated Investment*	% of Investment
ARGENTINA	8	15.7	1,962.0	13.3
BOLIVIA	10	19.6	7,531.0	51.1
BRAZIL	10	19.6	1,047.8	7.1
CHILE	1	2.0	1,600.0	10.9
COLOMBIA	2	3.9	14.0	0.1
GUYANA	4	7.8	551.8	3.7
PARAGUAY	8	15.7	1,351.3	9.2
SURINAME	2	3.9	301.8	2.0
URUGUAY	3	5.9	54.0	0.4
VENEZUELA	3	5.9	316.8	2.2



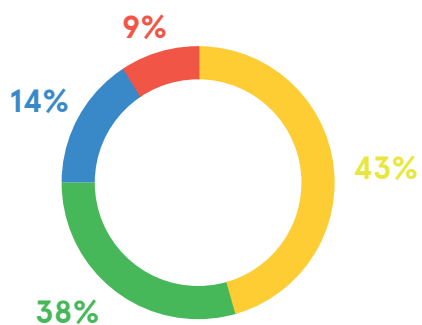
## Individual Projects – Subsectors

\*US\$ million

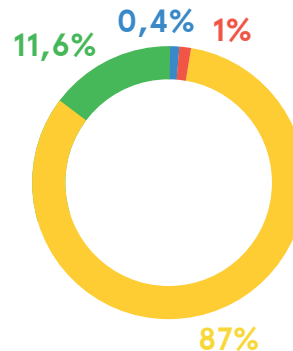


## Individual Project Stages

No. of Individual Projects



Estimated Investment in US\$ million



## Individual Projects Completed

\*US\$ million

Code	Name	API	Subsector	Countries	Ejecuted Investment*
AND13	IMPROVEMENT OF JOSÉ ANTONIO PÁEZ BRIDGE	6	Road	CO	1.3
GUY42	BOA VISTA - BONFIM ROAD	15	Road	BR	15.0
GUY43	LINDEN - GEORGETOWN ROAD	15	Road	GU	0.0
IOC25	PUERTO SUÁREZ - CORUMBÁ INTEGRATED CONTROL AREA	22	Border crossings	BO - BR	2.0
IOC32	TOLEDO - PISIGA ROAD	22	Road	BO	130.5
<b>TOTAL</b>					<b>132.5</b>

Note: The total investment amount does not include the investments estimated for the projects AND13 – IMPROVEMENT OF JOSÉ ANTONIO PÁEZ BRIDGE and GUY42 – BOA VISTA - BONFIM ROAD, as they were completed before the creation of API.

## Source of Financing of the Individual Projects

\*US\$ million

Source	Estimated Investment*	Ejecuted Investment*
To be defined	713.0	
Private banks	8.0	
IDB	1.0	
CAF	388.3	118.5
FONPLATA	1.2	
Private	891.6	
National Treasury	2,651.1	14.0
Provincial Treasury	355.0	
Miscellaneous	7,000.0	
<b>TOTAL</b>	<b>12,009.2</b>	<b>132.5</b>











## Type of Financing of the Individual Projects

\*US\$ million

Type of Financing	No. of Projects	% of Projects	Estimated Investment*	% of Investment
Private	3	9	891.6	7
Public	29	83	3,816.8	32
Public/Private	3	9	7,300.8	61
<b>TOTAL</b>	<b>35</b>	<b>100</b>	<b>12,009.2</b>	<b>100</b>

## The Ten Individual Projects with the Highest Estimated Investment

\*US\$ million

Code	Name	Type of Financing	Stage	Estimated Investment*	Countries	Estimated Date of Completion
IOC81	BIOCEANIC RAILWAY CORRIDOR FOR INTEGRATION (BOLIVIAN SECTION)	Public-Private		7,000.0	BO	July 24
MCC110	AGUA NEGRA BINATIONAL TUNNEL	Public		1,600.0	AR - CH	December 22
CAP18	CONCESSION FOR THE IMPROVEMENT OF ROUTES NO. 2 AND 7 (ASUNCIÓN - CIUDAD DEL ESTE)	Private		877.6	PY	December 20
HPP19	IMPROVEMENT OF THE NAVIGATION CONDITIONS ON THE TIETÉ RIVER	Public		800.0	BR	April 18
GUY18	ROUTES INTERCONNECTING VENEZUELA (CIUDAD GUAYANA) - GUYANA (GEORGETOWN) - SURINAME (APURA - ZANDERIJ - PARAMARIBO)	Public-Private		300.8	GU - SU - VE	September 18
IOC80	UPGRADE OF LA PAZ - SANTA CRUZ ROUTE TO A FOUR-LANE ROAD	Public		269.0	BO	August 16
GUY09	LETHEM - LINDEN ROAD	Public		250.0	GU	October 22
CAP14	NEW PUERTO PRESIDENTE FRANCO - PORTO MEIRA BRIDGE, WITH A PARAGUAY - BRAZIL INTEGRATED CONTROL AREA	Public		173.0	BR - PY	December 23
HPP44	DEEPENING OF THE FAIRWAY IN THE PARANÁ RIVER FROM CONFLUENCIA TO THE PLATA RIVER	Public		110.3	AR	December 17
HPP09	IMPROVEMENT OF NAVIGATION CONDITIONS ON THE PARAGUAY RIVER (ASUNCIÓN - APA)	Public		110.0	PY	December 17
TOTAL				11,490.7		



Profiling



Pre-execution



Execution



Completed







# Territorial Planning

The work undertaken by IIRSA between 2000 and 2010 and by COSIPLAN since 2011 has focused from the start on infrastructure project planning as a key component of South American territorial development.

**The distinctive feature of this process has been infrastructure planning in the transportation, energy and communications sectors with a regional perspective.**

With a focus on the territory, its objectives are to enhance the competitiveness and complementarity of the economies of the region, contribute to reducing regional disparities and social inequality, and improve life expectancy and quality of life in every country and in the region as a whole.

In order to frame infrastructure planning, theoretical and practical tools linking the territory and infrastructure were used, in particular, the Indicative Territorial Planning Methodology, the tool that led to the creation of an Integration Infrastructure Project Portfolio. This methodology is based on the identification of the Integration and Development Hubs, which organize the South American territory and structure the Portfolio.

In the COSIPLAN website there is a section especially devoted to the Integration and Development Hubs,<sup>1</sup> which contains infographics regarding their socioeconomic and environmental characterization as well as geo-referenced maps using the Google Maps platform.

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1. [cosiplan.org/ejes](http://cosiplan.org/ejes)



## Integration and Development Hubs



*An Integration and Development Hub is a multinational territorial space involving specific natural resources, human settlements, production areas and logistics services. Linked by transportation, energy and communications infrastructure, it facilitates the flow of goods and services, people, and information within its own territory as well as from/to the rest of the world.*

The Hubs and their areas of influence have been defined considering the following characteristics:

- **Geographical coverage of countries and regions.** The Hubs group territories that allow the presence and participation of all twelve South American countries in the physical integration process. Their area of influence covers regions with different population densities, including the main population concentrations.

- **Identification of both existing and potential trade flows.** The Hubs are areas that contain the main intra-regional trade flows (following historical trade patterns), enabled by the infrastructure in place, and that also consider the production potential of the regional spaces.

- **Investments in the areas of influence of the Hubs.** Account has been taken of the volume of the investments recently made, of those being disbursed, and also of the funds planned to be invested in the short run within the area of influence of each Hub.

- **Interest and participation of the local population and the production sectors** in territorial development, logistics projects, and infrastructure.

- **Social and environmental sustainability.**

In light of the diversity of ecosystems in each region, forest reserves, highly fragile ecological areas, as well as the rights and opportunities of local population have been identified.

Once the geographic area of the Hubs was established following the above-mentioned criteria, a key aspect was the link between them and infrastructure. On the basis of the economic, social and environmental characterization of the area of influence of the Hubs, a direct coordination of the projects and the territory is sought through the Indicative Territorial Planning Methodology.

Ten Integration and Development Hubs,<sup>2</sup> with areas of influence that may be superimposed on one another, have been defined.

2. The Indicative Territorial Planning Methodology has not been applied to the Southern Andean Hub yet.



## The Indicative Territorial Planning Methodology

*The development of the Indicative Territorial Planning Methodology<sup>3</sup> was inspired by the conviction that investments and projects have a substantial impact on the economy and the environment of the region and contribute to increasing social development, while creating new economic opportunities for the local population.*

The process of application of the Indicative Territorial Planning Methodology began with the launch of IIRSA. This work was carried out at the meetings of the Executive Technical Groups (GTEs) in a participative working environment that involved the twelve South American countries, and it took place in two phases.

The first stage of the application of the Indicative Territorial Planning Methodology took place during 2003 and 2004, and resulted in the set up and structuring of the Project Portfolio with a regional vision integrating the national visions.

**The COSIPLAN Project Portfolio is a set of high-impact works for the integration and socioeconomic development of the region.**

It is made up of transport, energy and communications projects that promote regional connectivity and create sustainable economic and social development in South America.

This planning process was performed in two phases. In the first phase, based on the concept of synergies, Project Groups, their Anchor Projects, Hinge Projects and strategic functions were defined for each Hub.

### Project Groups

A Project Group is a set of interdependent projects in a given geoeconomic space having synergetic effects upon sustainable development. A Project Group enables the

capitalization of the benefits of a set of investments, which are greater than the aggregate effects of its individual component projects. The process is territory-based and takes into account the location of projects, their relationships with the prevailing or potential economic activities, and related environmental and social aspects.

### Strategic Functions

The effects of a Project Group constitute its strategic function, i.e. its common objective or main benefits for both the integration and the regional development of the geoeconomic spaces involved. The strategic function has to do with the direct linkage of the Project Group to the specific territorial aspects of its area of influence and to the strategic vision of the pertinent Hub.

### Anchor Projects

An anchor project gives meaning to the grouping of projects and makes synergies viable. It is identified as the bottleneck or missing link in the infrastructure network hindering the optimum use of the combined effects of the Group for the sake of economic and social development. It is not necessarily the largest-sized project or the one with the highest estimated investment amount.

### Hinge Projects

A hinge project articulates two or more Hubs, plays a role in more than one Hub, or articulates two or more Project Groups within one Hub.

3. [cosiplan.org/mpti](http://cosiplan.org/mpti)





The second phase consisted in defining a structure of factors of analysis to grasp the attributes of each Project Group in terms of their impact on regional integration and development and the feasibility conditions for implementation. On the basis of these two dimensions, an assessment was conducted in order to establish investment priorities.

The second stage of the application of the Indicative Territorial Planning Methodology (2005–2010) was launched in 2006 with the approval of an action plan designed to take a qualitative leap forward in the Project Portfolio and the territorial planning process, with the following objectives:

- Coordinate and incorporate economic, social and environmental development initiatives and policies into the Integration and Development Hubs that are complementary to the integration infrastructure projects identified;
- Enhance the technical support of the Portfolio Project Groups by gaining greater knowledge about the economic, social and environmental situation of the territory and the likely impact of the infrastructure projects on sustainable development (potential for production integration, socio-environmental impacts, etc.);
- Improve the capacity for formulating, preparing and assessing integration projects in order to strengthen their inherent quality.

In this regard, training workshops on physical integration topics targeted for the national teams were held,<sup>4</sup> and non-reimbursable funds for pre-investment studies were created.<sup>5</sup> Likewise, new territorial planning methodologies<sup>6</sup> and analytical tools<sup>7</sup> were developed, particularly the following: the Production Integration and Logistics (IPrLg) Methodology<sup>8</sup>, the Strategic Environmental and Social Evaluation (EASE) Methodology<sup>9</sup>, and the Project Portfolio Database (at present, the COSIPLAN Project Information System – SIP).

**With the creation of COSIPLAN, this work is given continuity and the use and dissemination of these tools and methodologies are broadened. One of the objectives of the Strategic Action Plan (PAE) 2012–2022 is to improve, disseminate and implement Territorial Planning methodologies and tools.**

Currently, the activities underway make further progress and new instruments are introduced to strengthen and enrich the South American infrastructure sustainable planning process, such as the Integration Territorial Programs<sup>10</sup>, the Methodology for the Incorporation of Disaster Risk Management in Regional Integration Infrastructure Projects<sup>11</sup>, the COSIPLAN Project Information System (SIP)<sup>12</sup>, and the COSIPLAN Geo-referenced Information System (GIS)<sup>13</sup>.

4. Training Workshops on Physical Integration: (i) Course on Integration and Development of Regional Infrastructure in South America, October 2008 ([cosiplan.org/Event/Detail?Id=122](http://cosiplan.org/Event/Detail?Id=122)); and (ii) Training Workshop on Integration and Development of South American Regional Infrastructure, September 2009 ([cosiplan.org/Event/Detail?Id=136](http://cosiplan.org/Event/Detail?Id=136)).

5. The IDB, CAF and FONPLATA earmarked specific line items for pre-investment studies for physical integration projects, with special emphasis on the Portfolio projects.

6. These methodologies aim at incorporating environmental, social, production integration, logistics, disaster risk management, legal and regulatory aspects, among others, to the project planning process.

7. These methodologies aim at incorporating environmental, social, production integration, logistics, disaster risk management, legal and regulatory aspects, among others, to the project planning process.

8. [cosiplan.org/iprlg](http://cosiplan.org/iprlg)

9. [cosiplan.org/ease](http://cosiplan.org/ease)

10. [cosiplan.org/pti](http://cosiplan.org/pti)

11. [cosiplan.org/grd](http://cosiplan.org/grd)

12. [cosiplan.org/sip](http://cosiplan.org/sip)

13. [cosiplan.org/sig](http://cosiplan.org/sig)



Both the methodologies and the tools mentioned are incorporated into the PAE. The COSIPLAN annual work plans include activities to work on the enhancement and application of each of them.

### **Integration Territorial Programs**

The objective of the PTIs is to identify and implement a set of actions complementing the API projects in order to leverage their impact on the development of the territories involved, taking into account economic, social and environmental aspects. en el desarrollo de los territorios involucrados

### **Strategic Environmental and Social Evaluation Methodology**

The purpose of this methodology is to identify any complementary action that might enhance –from a social, environmental and cultural point of view– the positive effects of projects and minimize their negative impact. The unit of analysis of this methodology is the area of influence of the Portfolio Project Groups or the API projects.

### **Production Integration and Logistics Methodology**

The objective of this methodology is to assess the potential for production integration and for the development of logistics in the area of influence of a Project Group or of an API project. Its final outcome helps articulate a set of actions within the framework of a logic of interdependent relations in order to leverage the impact of infrastructure on the development of these activities.

### **Methodology for the Incorporation of Disaster Risk Management**

The objective of this methodology is to prevent or reduce the effects of natural disasters (earthquakes, tsunamis, floods, and volcanic eruptions) affecting South American infrastructure, and to devise plans for connectivity and public infrastructure recovery.

## The COSIPLAN Project Information System



*The Project Information System (SIP) is the tool to support integration infrastructure planning and analysis containing systematized information on the COSIPLAN projects. This instrument enables the user to access the information on each project file (general data, scope, cost and financing, status, etc.) and create reports based on the query criteria selected.*

With the aim of consolidating the Project Portfolio, the PAE provides for the continuous update of the projects included in the Portfolio. One of the key tools for this update and to ensure project information quality as well as its dissemination is the COSIPLAN Project Information System.

The information in each project file is kept updated by one responsible person per country or countries, depending on the geographical scope of each project<sup>14</sup>. The annual progress reports are drafted on the basis of the information uploaded on to the system.

The SIP is made up of three components connected online since 2013 to both access and upload the information.

**1. COSIPLAN Project Portfolio Database.** It contains the files of each Portfolio project (known as “individual projects” for the purposes of the system) with general information organized into modules. This database enables the user to make queries and create reports based on the query criteria selected. Each project file is kept updated by one responsible person per country or countries, depending on the geographical scope of the project.

**2. API Project Database.** This contains the files of the 31 API structured projects. The information in these files is organized similarly to the data in the individual project files. Both the structured and individual project files are linked to one another. Furthermore, this database includes a series of reports on the Agenda.

### 3. Continuous Monitoring System (CMS).

The CMS is a module in the project files, created on the basis of the Methodology for Scheduling the Life Cycle of Projects, a tool that follows up on the progress of the projects throughout their life cycle. This module controls the progress of each COSIPLAN Portfolio project as well as of the API structured projects by monitoring the individual projects that make them up.

The number of visits to the SIP between October 2016 and 2017 exceeded **50,000**, with total users amounting to almost 40,000. The countries that make up UNASUR are the ones that most frequently visit the system, the leading country being Peru, followed by Argentina. Spain and the United States are among the ten countries producing the greatest number of queries.

### SIP Evolution

The first version of this system was built in **2004**. Between **2007** and **2010**, important improvements were introduced to this IT tool and regular reviews to ensure information consistency in each file were conducted.

Between **2011** and **2013**, two components were added on occasion of the set-up of the Integration Priority Project Agenda (API): a module consolidating the information about the API projects, and a Continuous Monitoring System (CMS) for such projects.

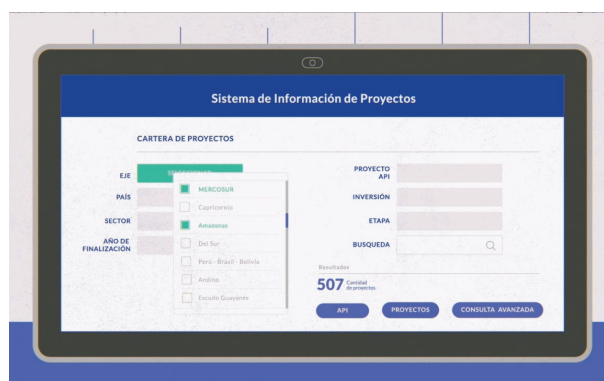
<sup>14</sup>. National, binational or multinational projects.



In **2014** and **2015**, the countries carried out specific actions intended to enhance the quality and standardization of the project data, and to better communicate their progress and outcomes. This resulted in the following actions: (i) organization of the information fields in the project files; (ii) specific descriptors by sector, subsector and type of works; (iii) results indicators for the projects already completed; (iv) application of the Continuous Monitoring System (CMS) to all the Portfolio projects; and (v) API progress indicators.

In addition, an advanced search option with new search filters was created, including a new criteria selection methodology. Some information fields in the project files were improved, and new fields were added. Several reports were enhanced and created. The charts were modified, and the API Structured Projects CMS was opened to public access.

In **2016** and **2017**, the need for users to become easily acquainted with the system and planning concepts was addressed. To this end,



the home page was redesigned to make it more modern, including dynamic visualizations and infographics of the Portfolio and API projects. Furthermore, geo-referenced files were created in Google Earth for each Portfolio and API project, which were in turn included in the project files to help users locate the projects easily. Also, a video was shot presenting the objective of the SIP as well as its main features and functionalities.

## The Life Cycle Scheduling Methodology

*With the purpose of recording the status and progress over time of the API projects, the Life Cycle Scheduling Methodology for the API individual projects –which is the methodology on which the CMS is based– was developed between 2012 and 2013.*

**The Life Cycle Scheduling Methodology** is based on the four project life cycle stages agreed upon by the countries in 2008: profiling, pre-execution, execution and completed.

Given the technical characteristics of the projects and the works involved, the pre-execution

and execution stages of a project are the ones that take up most of the time in the project life cycle. This is why both stages were further broken down, in order to see the progress of a project more accurately.

## Project Life Cycle Scheduling

Individual projects stages and sub-stages										
Profiling 0%	Pre-execution 30%					Execution 65%				Completed 5%
0%	6%	12%	18%	24%	30%	50%	65%	80%	95%	100%
Initial status	Resources for studies	Studies underway	Studies approved	Permits granted	Resources for works	First quarter of works	Second quarter of works	Third quarter of works	Fourth quarter of works	Works handed over

· **Profiling.** This is the starting point in the project life cycle.

· **Pre-execution.** Normally, this stage involves studies (pre-feasibility, feasibility and investment), permits of various kinds (environmental, jurisdictional and others), and resource mobilization from various sources to finance the works and other actions that precede the execution of the physical works. Five main milestones are identified:

- Resources for studies. This sub-stage starts with the formalities required to secure the financial resources needed to carry out the studies, and is deemed completed when such resources are actually available and all the institutional arrangements for the studies to begin (e.g. awarding them through tender processes) have been made.

- Studies underway. This sub-stage is deemed to start when any pre-execution study has been launched, and the project will be recorded as such until completion of the study representing the highest level of complexity required by the project concerned.

- Studies approved. Once the studies have been completed, the project passes on to this sub-stage, and will remain at it until the studies are approved by the relevant authorities.

- Permits granted. After the studies are approved, the project must comply with

institutional requirements and regulations, which take the form of permits and authorizations that may be of different nature and impose different requirements and deadlines. Thus, for example, different kinds of environmental licenses for engineering works and installation of the work site may be required. Furthermore, submitting the background information required for a permit to be granted may demand some degree of interaction with the studies conducted in the previous sub-stage. This sub-stage will be deemed completed when all permits have been granted or all the institutional formalities required by the project have been carried out.

- Resources for works. This sub-stage involves securing the financial resources needed to carry out the works and actions proposed in the project. It will be deemed completed when the project has been allocated the financial resources for executing the works and the required institutional formalities for such purpose have been carried out.

· **Execution.** This stage has been broken down into quarters of works according to the time frames involved, the costs required or progress milestones, depending on the project concerned.

· **Completed.** A project is deemed completed when the finished works have been handed over to the relevant authorities, and are open and functioning.■

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[www.cosiplan.org](http://www.cosiplan.org)

COSIPLAN Project Information System

[www.cosiplan.org/proyectos](http://www.cosiplan.org/proyectos)

## Acronyms and Abbreviations

<b>ACE 36</b>	Economic Complementation Agreement N° 36 Bolivia – MERCOSUR
<b>ACI</b>	Integrated Control Area
<b>ACIUS</b>	Uspallata Integrated Control Area
<b>AFE</b>	Administración de Ferrocarriles del Estado
<b>AFIP</b>	Administración Federal de Ingresos Públicos
<b>ALADI</b>	Latin American Integration Association
<b>AMA</b>	Amazon Hub
<b>AND</b>	Andean Hub
<b>ANDE</b>	Administración Nacional de Electricidad
<b>ANI</b>	Agencia Nacional de Infraestructura
<b>API</b>	Integration Priority Project Agenda
<b>AR</b>	Argentina
<b>ASP-B</b>	Administración de Servicios Portuarios-Bolivia
<b>BEI</b>	European Investment Bank
<b>BID</b>	Inter-American Development Bank
<b>BO</b>	Bolivia
<b>BR</b>	Brazil
<b>CAF</b>	Development Bank of Latin America
<b>CAN</b>	Andean Community of Nations
<b>CAP</b>	Capricorn Hub
<b>CCT</b>	Technical Coordination Committee
<b>CEBAF</b>	Binational Border Service Center
<b>CENAF</b>	Centro Nacional de Atención de Frontera
<b>CH</b>	Chile
<b>CIE</b>	Consorcio de Ingeniería Electromecánica
<b>CO</b>	Colombia
<b>COPAM</b>	Concesionario Puertos Amazonas S.A.
<b>COSIPLAN</b>	South American Infrastructure and Planning Council
<b>DEVIANDES</b>	Consorcio Desarrollo Vial de los Andes
<b>DIGESA</b>	Dirección General de Sanidad Ambiental
<b>DNIT</b>	Departamento Nacional de Infraestructura de Transporte
<b>DSIP</b>	Dirección del Sistema de Inversión Pública
<b>EASE</b>	Strategic Environmental and Social Evaluation
<b>EC</b>	Ecuador
<b>ENAPU</b>	Empresa Nacional de Puertos
<b>FOCEM</b>	Fondo para la Convergencia Estructural del MERCOSUR
<b>FONPLATA</b>	Fund for the Development of the River Plate Basin
<b>GNEA</b>	Northeastern Argentina Gas Pipeline
<b>GNL</b>	Liquefied Natural Gas
<b>GPS</b>	Global Positioning System
<b>GRD</b>	Disaster Risk Management

<b>GTE</b>	Executive Technical Group
<b>GU</b>	Guyana
<b>GUY</b>	Guianese Shield Hub
<b>HPP</b>	Paraguay-Paraná Waterway Hub
<b>IIRSA</b>	Initiative for the Integration of South American Regional Infrastructure
<b>INDIRA</b>	Sistema de Intercambio de Información de los Registros Aduaneros
<b>INRENA</b>	Instituto Nacional de Recursos Naturales
<b>IOC</b>	Central Interoceanic Hub
<b>IPRLG</b>	Production Integration and Logistics
<b>MCC</b>	MERCOSUR-Chile Hub
<b>MERCOSUR</b>	Common Market of the South
<b>NEA</b>	Región Noreste de Argentina
<b>NOA</b>	Región Noroeste de Argentina
<b>PAE</b>	Strategic Action Plan 2012-2022
<b>PAC</b>	Growth Acceleration Program
<b>GDP</b>	Gross Domestic Product
<b>PBB</b>	Peru-Brazil-Bolivia Hub
<b>PCV</b>	Project Life Cycle Scheduling
<b>PPP</b>	Public-Private Participation
<b>PROPUESTAS</b>	Programa Nacional de Puentes
<b>PTI</b>	Integration Territorial Programs
<b>PY</b>	Paraguay
<b>RN</b>	National Route
<b>SCG</b>	Management Control System
<b>SENASA</b>	Servicio Nacional de Sanidad Agropecuaria
<b>SENASAG</b>	Servicio Nacional de Sanidad Agropecuaria e Inocuidad Alimentaria
<b>SIG</b>	Geographic Information System
<b>SIGE</b>	Strategic Management Information System
<b>SIP</b>	COSIPLAN Project Information System
<b>CMS</b>	Continuous Monitoring System
<b>SUNAT</b>	Superintendencia Nacional de Administración Tributaria
<b>TOE</b>	Tonne of Oil Equivalent
<b>TM</b>	Metric tonnes
<b>TPE</b>	Terminales Portuarios Euroandinos
<b>UA</b>	Administrative Units
<b>UNASUR</b>	Union of South American Nations
<b>UY</b>	Uruguay
<b>VE</b>	Venezuela
<b>YPFB</b>	Yacimientos Petrolíferos Fiscales Bolivianos





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