Analysis of the Potential of IIRSA Projects for Production Integration and Development of Value-Added Logistics Services (IPrLg)

Application to Group of Projects 5 – Central Interoceanic Hub

Connections of the Hub to the Pacific: Ilo / Matarani - Desaguadero - La Paz + Arica - La Paz + Iquique - Oruro - Cochabamba - Santa Cruz

Executive Summary - November 2009

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Introduction

Within the framework of the training in and application of the methodology for the analysis of the potential for production integration (IPr) and for development of value-added logistics services (SLVAs), developed by the Initiative for the Integration of Regional Infrastructure in South America (IIRSA), experts from the Governments of Bolivia, Chile and Peru were asked to carry out a pilot application of such methodology to Project Group 5 (GP-5) of the Central Interoceanic Hub.

Between December 2008 and June 2009, the expert teams worked on the characterization of the area of influence that is positively impacted by IIRSA projects, identified the sectors with potential for production integration, and interviewed key actors from the selected sectors, on the basis of which they prepared their conclusions.

This document is a summary of the report on the work conducted, the conclusions drawn in relation to the potential for IPr and SLVAs development, and the recommendations for an indicative action plan aimed at promoting IPr and the development of SLVAs.

1. The Area of Influence

The area of influence encompasses 1,224,000 square kilometers, has 12,223,000 inhabitants and comprises the departments of La Paz, Oruro, Cochabamba, Beni, Chuquisaca, Santa Cruz and the northern area of the department of Potosí, in Bolivia, the Arica and Parinacota Region and the Tarapacá Region, in Chile, and the departments of Tacna, Moquegua, Puno and Arequipa, in Peru (Figur).

Figure 1 - Central Interoceanic Hub Project Group 5 Area of Influence

The Bolivian portion of the area of influence accounts for 93% of the territory of Bolivia, includes the country's three major cities —La Paz, Santa Cruz de la Sierra and Cochabamba— and comprises the Andean and Sub-Andean zones as well as the lowlands or plains, each one of them presenting clearly differentiated geographies and climates. This portion of the territory generates 86% of the national GDP.

The Chilean portion of the area of influence is the arid zone located in the northernmost part of Chile, representing 7.8% of the Chilean territory, a little less than 3% of the country's total population and 3.5% of the national GDP. Its main cities are Iquique and Arica, where almost 98% of the population in this Chilean area is concentrated. Iquique and Arica are also important ports. Arica, in particular, is the main port for Bolivian foreign trade.

The Peruvian part of the area of influence accounts for 13% of the territory of Peru, 10% of its population, and 11% of the national GDP. Its major cities are the department capital cities of Arequipa, Tacna, Puno and Juliaca. This Peruvian area contains the ports of Ilo and Matarani.

2. Characterization of the Area of Influence

2.1 Economic Activity

The area of influence produces some US$20.5 billion annually, with the Peruvian portion contributing 53% of the total production, the Bolivian portion (which represents almost the entire territory of the country), 29%, and the Chilean portion, 17%. The services sector is the largest contributor to the GDP of the area of influence (38%), followed by manufactures (23%), with a significant contribution of the Peruvian part, particularly the department of Arequipa; mining (22%), which is practiced in the entire area of influence, and finally agriculture (16%), which is especially concentrated in the Peruvian departments of Arequipa and Puno, and in the department of Santa Cruz, Bolivia.

The Bolivian portion is a producer and exporter of natural gas, minerals and soybean. The main natural gas fields are located in Chuquisaca. Mining operations are found in Oruro and Potosí. Santa Cruz is the largest contributor to the Bolivian GDP, and concentrates a large share of the production of soybean. Forestry is found in Beni, Santa Cruz, La Paz and Cochabamba. Livestock-raising and dairy production are concentrated in Beni, Santa Cruz and Cochabamba, while sugar cane plantations are located in Santa Cruz, La Paz and Beni. In addition, there is cotton production in Santa Cruz, cocoa is grown in La Paz, and Beni is a major exporter of the so-called "Brazil nuts." The manufacturing industry has not attained major development; it is mainly domestic-market oriented and concentrated in Santa Cruz, La Paz and Cochabamba.

The Chilean region of the area of influence is mainly characterized by its mining activity and the Iquique and Arica ports operations. These ports act as trade hinges connecting the region to the rest of Chile and its neighbors, and as the exit door to the Asia-Pacific region. The Iquique port receives a major influx of vehicles and consumer goods, which, via the free trade zone, are distributed to the countries in the region, generating an important economic activity. Through this port, Chile exports copper, and fish meal and oil, among other products, and imports fuel, fertilizers and chemical products in general. Major cargo movements though the Arica port include soybean meal, timber, oil, sugar, sunflower cake, mining products and edible products of Bolivian origin. This port also

receives imports of wheat, corn and industrial products having Bolivia as their final destination.

The Peruvian part of the area of influence contributes 21% of the mining sector's GDP and 15% of the agricultural sector's GDP of Peru. Both sectors are the largest economic drivers of the area's economy. The largest activity is concentrated in Arequipa, where there is mining of copper, gold, silver, lead and zinc, and production of garlic, alfalfa, onion, sour cherry, sweet lemon, grain sorghum, carrots, tangelo and elderberry. Moquegua's leading activity is silver, gold and copper mining. It contains plantations of olive, avocado and fruit trees. In the hilly region there is cattle and sheep farming, while the coastal area has important salt deposits. Puno grows crops such as potato, beans, barley and quinoa, and is the country's largest sheep and camelid wool producer. Tourism is an economically significant activity, principally in the areas of Puno and Lake Titicaca. Tacna has important open-pit copper extraction operations. Agriculture is devoted to the production of vine, sugar cane, potato, cotton, wheat, alfalfa, garlic, and fruit trees. Olive tree crops have gained impetus in recent years, yielding 53% of the country's olives. Other crops include flour corn and oregano.

2.2 Infrastructure

The road backbone of the area of influence is made up, from east to west, of route F4, starting in Puerto Suárez, in the Bolivia-Brazil border, passing though Santa Cruz and Cochabamba and reaching up to its junction with route F1 in Carcollo (40 km north of Oruro), covering a total span of approximately 1,300 km, of which 285 are gravel and the rest, paved. In Carcollo, the route branches out into three ramifications:

- The southernmost one reaches Oruro through route F1 and continues by route F12 to Pisiga, on the Chilean border. In Chile, from Colchane, it descends the Andean ranges along 163 km by route 15 CH, past Huara, up to the intersection with Northern Longitudinal Route 5 and, from there, it reaches the city and port of Iquique. A stretch of 100 kilometers of this route is in a hardly acceptable or bad state of conservation;
- The central branch reaches up to Patacamaya through route F1 (89 paved kilometers), continues along route F4 entering Chile through the Tambo Quemado/Chungará border crossing (189 paved kilometers). From Chungará, it descends the Andean ranges along 192 km by route 11 CH until reaching Northern Longitudinal Route 5 at a very short distance from Arica. A stretch of 116 km of this 196-km long route is in a hardly acceptable or bad state of conservation;
- The north-bound branch runs 284 km along paved route F1, reaches the Peruvian border at Desaguadero, past Patacamaya and Río Seco (17 km from La Paz). From this point there are highways to the port of Ilo past Moquegua, to Tacna, providing connection with the Chilean border, or to Arequipa, going past Puno and Juliaca and ending in Lima.

The Bolivian rail system is made up of two networks that are not interconnected. The Andean network spans 2,272 kilometers (half of which are non-operational), linking the departments of La Paz, Oruro, Potosí, Chuquisaca and Cochabamba. It has connections with the neighboring countries' railroads that reach the ports of Matarani, in Peru, Arica and Antofagasta, in Chile, and Rosario and Buenos Aires, in Argentina. The Eastern network is 1,424 kilometers long (89% of them are operational), joining the departments of Chuquisaca, Tarija and Santa Cruz and the border crossings to Argentina and Brazil, in Yacuiba and Corumbá, respectively.

There is a 457-kilometer long railway linking Arica and La Paz. The Chilean 206-km stretch is undergoing rehabilitation works expected to be completed by 2011.

The rail network of Peru has an extension of 2,020 km and its infrastructure is composed of two main systems: the Central Railway (Ferrocarril Central) and the Southern Railway (Ferrocarril del Sur), covering the departments of Arequipa, Puno and Cusco. Three rail systems operate within the area under analysis: the Southern Railway, the Southern Peru rail and the Tacna-Arica line. Southern Peru is completely privately-owned.

The maritime ports in the area of influence are Iquique, Arica, Matarani and Ilo, with annual cargo movements of 2.7, 1.6, 3.3 and 0.4 million tons, respectively. Iquique is the main port in the area of influence in terms of containerized cargo movement (263 thousand TEU), while Matarani is principally a bulk port, with imports of grains, fertilizers, bulk coal, sulfuric acid and vehicles, and exports of bulk mineral concentrates, copper cathodes, fish meal, and soybean meal.

In addition, the area of influence features free trade zones, industrial parks and "special treatment primary customs zones" intended to foster investment, encourage exports and generate employment in Ilo, Matarani, Tacna, Arica and Iquique.

There are also three important projects for the implementation of logistics platforms: one in Oruro (Bolivia), another one in Arica (Chile), and the third one in Arequipa (Peru). These projects are at the study phase, with different degrees of progress.

3. Economic Sectors Considered in the Analysis

Taking into account their current or potential importance for the economic integration of the three countries in the area of influence, the following sectors were preliminarily identified for fieldwork purposes:

- Providers of mining services and supplies;
- Logistics and services platform for international trade;
- Sugar-biscuits;
- Cotton-yarn;
- Scrap-wires;
- Soybean-balanced animal feed;
- Leather and manufactures thereof;
- Milk and dairy products;
- Wood-furniture;
- Spices and olives;
- Jewelry.

From the characterization of the selected economic sectors and, most importantly, from the interviewees' responses, it is concluded that there is no clear-cut relationship linking the group of projects with the potential for production integration and the development of value-added logistics services. On the contrary, this relationship is complex and has to do with a series of factors.

The interviews held with the key economic actors evidenced that most of the integration hypothesis that had been formulated were not verified, to wit:

- The sector that groups the providers of mining services and supplies is at an incipient, little-developed stage;
- The sugar exported by Bolivia to Peru is not included in production processes; instead, it is used for direct consumption;
- The cotton produced by Bolivia does not meet the quality standards required to be used in Peruvian manufacture due to genetic and technological restrictions;
- The soybean-balanced animal feed chain is important, but the main processing plants are located in the central area of the Peruvian territory, outside the area of influence; a similar situation has been verified in the leather chain;
- The milk and dairy products chain is practically reduced to a single Peruvian processing firm, which is partially supplied by Bolivia and suffers from serious restrictions in terms of productivity and quality;
- No production integration was detected in the jewelry sector.

Production integration is confirmed in the wood and furniture sector, but only limited to a single factory in Arica that faces difficulties in expanding its scale, reaching new markets and improving its supplier network.

Production integration between Peru and Chile is confirmed in the spices and olives industry, which is at a scale expansion stage with upstream integration, due to the existing consolidated relationship with the production chain suppliers.

Although the Bolivian scrap-Peruvian wire production chain may appear to be marginal in relation to total regional trade, the flow of products associated with this chain shares the transport and border crossing infrastructures with a much larger number of products. Hence, the completion of the projects within the group under analysis will have a bearing on the overall trade dynamics and on this sector in particular. The dynamism of this sector depends on the demand generated by the construction sector in Bolivia and, perhaps, in Chile's northern region.

4. Impact of the Group of Projects, Recommendations and Indicative Action Plan

To assess the impact of the group of projects on the potential for production integration and development of value-added logistics services, we identified coherently articulated sets of projects, economic activities, business opportunities and obstacles, on the basis of which it is possible to identify a succession of interconnected events triggering a demand that should give rise to investment-attracting business opportunities.

Today, the greatest degree of production integration in the area of influence is between Bolivia and Peru, with the former basically playing the role of a low value-added primary product supplier, and the latter playing the "processor" or value-adding role.

Between Peru and Chile, production integration is limited to very specific sectors (spices and olives) and related to the activities of few concerns located in border surroundings, near Tacna and Arica. This axis (Tacna-Arica) concentrates a significant flow of trade and persons, which would facilitate integration processes. In fact, in the case of olives, there are companies operating on both sides of the border.

Within the area of influence, production integration of Bolivia and Chile is weak, and there exists little integration potential in the wood and furniture sector.

However, Chile's participation in this integration process is more related to the development of value-added logistics services. The measures recommended to be adopted in order to enhance the flow of goods and leverage the development of the Arica logistics platform would obviously also benefit any production integration process involving the three countries.

To foster the incipient production integration process between Chilean service providers and Peruvian mining concerns, and in view of the strong growth of mining in the south of Peru, it is suggested that a promotion campaign be launched in Peru, taking advantage of the well-established Chilean export development institutions and resources.

Another recommendation is to capitalize on the experience gained by Chilean development institutions in relation to supplier development, with a view to improving the quality of agribusiness raw materials in the olive, *Capsicum* pepper and Bolivian fine wood processing sectors, among others, thus intensifying the integration processes detected.

To this effect, it is imperative to recommend all parties involved to endeavor to materialize the works that have been categorized as IIRSA's portfolio projects, thus showing their clear vocation for integration.

All the sectors mentioned are users, to a greater or lesser extent, of the infrastructures included in the project group. The most demanded projects are the rehabilitation of the El Sillar section and of route 7, Santa Cruz-Cochabamba, as well as the Desaguadero binational border service center (CEBAF, in Spanish), included in project group 8 of the Andean Hub. Ranking second are the Aiquile-Santa Cruz railway, the rehabilitation of the Puno-Juliaca road (also belonging to project group 8 of the Andean Hub) and the rehabilitation of the Juliaca-Santa Lucía section (project group 1 of the Peru-Brazil-Bolivia Hub).

We may then assume that the development of these infrastructures will impact positively on the integration processes. However, there are other factors weighing more heavily that inhibit the integration processes, as explained below.

With the exception of soybean, Bolivia is not Peru's main supplier in the above-described chains; therefore, we may suppose that potential might exist for a larger share of Bolivian raw materials in Peruvian industrial processes. From an analysis of the reasons for the limited share of Bolivian raw materials in the Peruvian industry, it appears that quality and conformance to specifications are the main problems.

On the other hand, the improvement of the Bolivian tertiary road infrastructure would impact positively on the wood, leather, cotton, dairy products and soybean and other grains sectors, rendering them more competitive. This is most likely to result in increased market shares, which will require investments aimed at expanding production, and this, in turn, will demand more and better infrastructure.

Thus, we can configure a set made up of the above-mentioned IIRSA projects, the obstacles associated with poor quality and yields, and the expansion and improvement of the tertiary road network and rural electrification in Bolivia, which would act as follows:

- Tertiary road network improvements, expanded rural electrification, implementation of a regulatory framework and producer training for improved land and agrochemical use, genetic and technological improvements in cotton planting and milk production, and training in foreign trade regulatory requirements in the sectors identified would result in enhanced yield and quality of Bolivian production, leveraging the production integration between these countries.

- The greater flow of Bolivian raw materials to Peru derived from these improvements might result in an increased demand for the use of the El Sillar section, route 7 (connecting Santa Cruz and Cochabamba), the Desaguadero border crossing, and the Aiquile-Santa Cruz railway, among other infrastructure projects. The timely completion of these investments will favor the above-mentioned economic sectors, thus feeding the production integration-infrastructure virtuous circle.

It is worth noting that the sequence of actions and events that would trigger a greater share of Bolivian raw materials in the Peruvian industry may occur on an incremental basis as investments are made, since the infrastructures involved (tertiary road network, rural electrification, grain silos) are dividable.

The development of value-added logistics services basically depends on the effective completion of the Arica and Oruro projects. The former, intended to support port operations, will offer storage spaces, import and export consolidation and deconsolidation services, and handling of goods in transit, and the latter will serve as a break-of-bulk point for Bolivian imports and exports, facilitating goods transportation to the Pacific and optimizing product supply and distribution in Bolivia.

These projects may have a positive impact on Bolivian —and potentially Brazilian— import and export transportation efficiency via the port of Arica, facilitating merchandise flow planning, timely consolidating shipments in one or the other direction, and reducing wait times at terminals. Enhanced transport efficiency is more than likely to increase the demand for and, hence, the use of the main infrastructure to have access to the Pacific ocean.

Regardless of the potential development of a logistics platform in Arica, today it is necessary to implement complementary infrastructure and management-improvement projects to ensure the smooth circulation of goods to and from Bolivia. Such complementary projects are likely to favor the development of the logistics platform and, eventually, leverage production integration. Examples of this type of projects include telecommunications integration and improvements in the infrastructure, equipment and staffing of border crossings between Chile and Bolivia, the creation of outer harbors lending operational support to the ports of Arica and Iquique, and improved port access ways and road conditions.