



Analysis of the Productive Integration Potential and Development of Value Added Logistics Services in the IIRSA Projects (IPrLg)

Revised Methodological Guide

Marcel Barceló Koser
Rinaldo Barcia Fonseca

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INICIATIVA PARA LA INTEGRACION DE LA INFRAESTRUCTURA
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Prepared by the Institute for the Integration of Latin America and the Caribbean (IDB/INTAL) within the framework of IIRSA Initiative.

The opinions expressed herein are those of the authors and do not necessarily reflect the position of the IDB/INTAL, the governments and the institutions participating in IIRSA.

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In the case of quotations, please indicate the source

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ABBREVIATIONS AND ACRONYMS

<i>EID</i>	Integration and Development Hub (<i>Eje de Integración y Desarrollo</i> , in Spanish)
<i>GP</i>	Project Group (<i>Grupo de Proyectos</i> , in Spanish)
<i>IIRSA</i>	Initiative for the Integration of Regional Infrastructure in South America
<i>IPr</i>	Production Integration (<i>Integración Productiva</i> , in Spanish)
<i>SLVAs</i>	Value-Added Logistics Services (<i>Servicios Logísticos de Valor Agregado</i> , in Spanish)

1. INTRODUCTION

In 2006, within the framework of the Initiative for the Integration of Regional Infrastructure in South America (IIRSA), two methodologies aimed at identifying projects and actions complementary to the infrastructure projects that make up IIRSA's Project Portfolio were designed. These methodologies —the Methodology for the Evaluation of the Production Integration Potential of IIRSA's Integration and Development Hubs [Pacheco, López, 2006], and the Methodology for the Promotion of the Development of Value-Added Logistics Services (SLVAs) in IIRSA's Hubs [ALG, Farromeque, 2006]— were partially applied to the Asunción-Paranaguá and Valparaíso-Buenos Aires Project Groups (GPs), in the case of the production integration methodology, and to the La Paz-Tacna-Lima GP in the case of the methodology for the development of logistics services.

The development of these two methodologies proved that it was necessary to approach the analysis of production integration and logistics issues from an integrated perspective. The integration of both methodologies and the complementation of aspects relevant for IIRSA, partially covered by the instruments already mentioned, would enhance data collection and consultation to different actors, creating significant potential for a structured dialogue.

The consolidated methodology, developed in 2007 by Marelía Martínez Rivas, Carola Venot de Suárez, José Enrique Pérez Fiaño and João Furtado, was applied to Capricorn Hub's GP-3 and to Central Interoceanic Hub's GP-5. For these implementations, national teams were set up in the countries involved and their members were trained by international consultants. As a result of such implementations, it was possible to identify additional changes to the methodology to better adjust it to the information available and to the real capabilities of the national teams that may apply it in the future. This document contains the results of this latest adaptation of the methodology.

2. OBJECTIVE OF THE METHODOLOGY

The methodology offers the procedures necessary to conduct the assessment of the potential for production integration and development of value-added logistics services in the area of influence of a project group within an Integration and Development Hub (EID).

More specifically, the methodology presented here seeks to:

- a) identify the potential of IIRSA's GPs for contributing to production integration (IPr) in their area of influence;
- b) identify the potential for the development and diversification of logistics services that add value to the production of the area of influence;
- c) formulate and test hypotheses concerning the potential for IPr and for developing logistics services that may arise from IIRSA's GPs;
- d) identify obstacles, difficulties and problems that hinder the production integration and/or logistics development processes;
- e) identify investment opportunities that might be tapped by the public or the private sector;
- f) identify possible infrastructure projects, complementary to one or more projects included in an IIRSA's GP, that may enhance the efficiency of the impact of

- infrastructure on the IPr and value-added logistics services (SLVAs) development processes;
- g) incorporate structured consultation with the private sector into the analysis, thus enabling the creation of a mechanism to facilitate dialogue in the area of influence of IIRSA's GPs.

3. STRUCTURE OF THE METHODOLOGY

The methodology is based on three pillars that clearly mark three stages in its implementation:

The collection of secondary information that allows the formulation of hypotheses about the potential of the projects within an IIRSA's GP for:

- contributing to production integration;
- contributing to the development of value-added logistics services.

The validation or adjustment of the hypotheses proposed through consultations with the actors involved, such as:

- public, private and public-private institutions having interests in the area of influence;
- trade union associations and companies operating in the area of influence of the GP.

The analysis of the information collected and the coordination of infrastructure projects, the removal of obstacles and the realization of business opportunities, within the framework of a logic of interdependent relations that gives meaning to a set of actions aimed at promoting the development of IPr and SLVAs.

The methodology consists of four steps:

- Step I: Definition and characterization of the area of influence;
- Step II: Preparation, implementation and analysis of the field work;
- Step III: Projects and actions proposed and assessment of their impact on the development of the area of influence;
- Step IV: Recommendations for an indicative action plan.

This document offers a description of these steps as well as clarifications on their application.

In order to ensure a better understanding of this document, it is supplemented by "A Guide for the Drafting of the Final Report," which is an example of the output of applying the methodology. The contents of the Guide are organized according to the four steps mentioned above, and illustrate each step with tables, figures, maps and texts that help understand the scope of the methodology.

In general terms, the methodology indicates the following for each step:

- Objectives pursued;
- Phases included in the application;
- Expected outcomes.

4. GLOSSARY

To ease the reading and thorough understanding of this document, it is important to define the meaning and scope of some terms used in this methodology.

Regional production integration.¹ Regional production integration can be defined as the process of gaining greater production specialization by the countries that become integrated. Production integration takes place through the creation and strengthening of backward and/or forward linkages in the production chains that have links located in two or more countries of the region. The implementation of infrastructure that increases or facilitates contact among countries may foster production integration since it brings economic spaces closer, reduces the physical barriers to trade, and increases the size of the markets. Production linkages are permanent commercial relationships established between two or more production units located in different countries and specialized in different stages of a production chain that generates a product family.

Value-added logistics services (SLVAs). A set of operations that add commercial value without altering the nature of the product and that exceed transport and storage; for example, cargo consolidation and deconsolidation, labeling, classification, quality control, assembly, disassembly, splitting, packaging and conditioning, order picking, document preparation, etc.

We talk of SLVAs when these operations are not inherent to the production chain (dedicated logistics) but are applied to different product families that share infrastructure and services (diversified logistics).

The term “dedicated logistics” refers to raw materials, semi-finished products and even to finished products, of mineral (iron, coal, aluminum, cement, etc.) or vegetable origin (soybean, cereals, wood, etc.), that are transported as bulk or semi-bulk cargo and subject to a dedicated logistic treatment, the structure of the production chain being relatively simple, with few actors along it and few integrations with other chains. In this case, the chain fully coincides with the logistic group, regardless of whether multiple producers or processors of a product are involved in the same corridor.

What counts for diversified logistics is that the logistics function is independent of production and is a business of interest for specialized operators. There are many examples of this, notably —due to their complexity— the chains associated with the sectors

¹ In general, the literature refers to production integration as a tool for competitiveness based on the complementarity of the specializations of different companies or economic operators through the integration of the production processes. For the purposes of this methodology, it is of particular interest that different stages of the production processes take place in different countries linked by infrastructure projects included in IIRSA’s Portfolio.

of textiles and footwear, motor vehicles, food and perishables in general, chemical products, mass consumption and household products, and paper, among others.

Trade facilitation. The development of a consistent, transparent and predictable environment for conducting international trade operations through simplified formalities and procedures, physical infrastructure standardization and improvement, the use of technology and the harmonization of rules and regulations.

Logistics infrastructure with a regional vocation.² In the context of the implementation of this methodology, this expression refers to infrastructure related to a project group that may be used for the transportation and storage of and the provision of value-added logistics services to goods that are produced, consumed or transported at the regional level. Included in this definition are, for instance, distribution centers for the storage of products to be consumed in different countries, or warehouses that support consolidation and deconsolidation operations at border crossings. Conversely, an urban distribution center to supply a city or metropolitan region or a logistic activities area for a port mostly dealing with import and export operations of a single country are not considered logistics infrastructure with a regional vocation.

² This methodology may be used to assess the potential for SLVAs development associated with the implementation of infrastructure projects in a single country or to serve a single market. However, in the context of its application to IIRSA's project groups in which several national teams are involved, only services and infrastructure with a regional vocation will be considered.

5. METHODOLOGY

Step I: Definition and Characterization of the Area of Influence

Objectives of this step:

Define and characterize the area of influence of the GP under analysis, seeking to delimit its territory and to identify its main socio-demographic, economic and logistic characteristics. The definition of the area of influence and the understanding of its production structure and its functional relationships are the technical foundations for conceptually building the production and logistics structure of the area, as well as for selecting the production and logistics chains to be analyzed in order to determine their IPr and SLVAs development potential.

Phases included:

I.1 Definition of the area of influence;

I.2 General characterization of the area;

I.3 Analysis of the production network and its breakdown into production and logistics chains.

Phase I.1 Definition of the Area of Influence

The user must define the area of influence taking into account elements associated with the economic network around the projects that make up the GP under analysis, the network of cities and its characteristics, the functional relations existing between different portions of the area, and the area accessibility, among others. This definition of the area of influence, however, is a preliminary one. The interviews described in Step II may yield detailed information about, for instance, the functional links existing in the production sector, possibly leading to an adjustment of the area as defined in this step.

It is recommended to address the definition of the area of influence on the basis of the classical approach to networks or systems of cities, which allows the identification of the most functionally important production and consumption centers as the starting point for building up a network of flows of cargo and people that make up an interrelated territorial space; the space that results from this set of interactions is the area of influence.

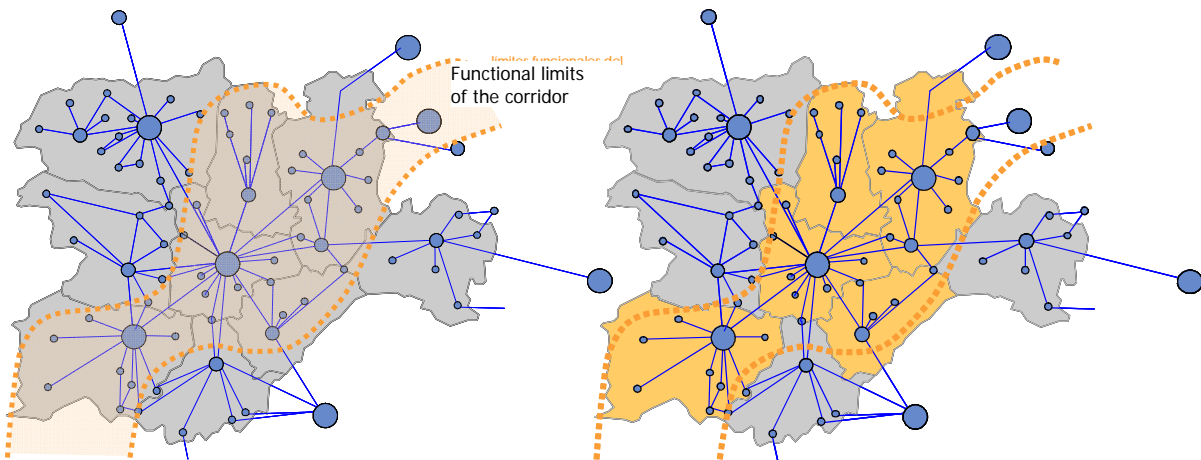
This first approach to the functional organization of the territory —this system of cities and production centers— will be based on secondary information; therefore, changes are likely to be detected later when conducting the interviews.

It is recommended to establish a radius around the GP (80-150km, depending on the relative importance of the projects involved). The different cities or production centers within this area, which in theory are served by the GP, should be identified and their ex-ante specific weight or hierarchy should be determined. Population or spatial extent data may be used to establish such hierarchy, but data related to the production sector are preferred, such as the value of industrial output, the number of industries, freight volumes, and the production sectors.³

³ The resulting hierarchy of the centers may be supplemented with quantitative information about the flows of freight among cities and production centers, which can be obtained from various sources. The charting of these flows will allow the identification of the functional relationships among the different cities and/or production centers, which makes it possible to establish the territorial scope of such relationships and, therefore, the functional and spatial expression of the project group.

Finally, the user must establish the “minimum cohesion” criterion, generally determined by the “minimum volume” that delimits the territorial scope of the integrated network. This criterion may vary according to the particular conditions of each GP, but the most usual measure is to remove the links in which the volume observed between two centers is less than 10% of the average flow observed in all the relationships studied, with the exception of specialized flows from and to production centers that are heavily dependent on a specific market or specific transportation facilities (such as a port terminal for exports).

The figure below illustrates a classical example of the organization of a system of cities and its territorial expression.⁴



These concepts should be accompanied by a practical criterion related to the way in which the information available to characterize the area is organized and aggregated. In most cases, this information is published at the administrative-territorial level, such as municipalities, departments or states.

Thus, the area of influence will be defined by the whole of these administrative-territorial divisions that includes the network of cities and consumption and production centers, as shown in the figure at the right.

⁴ The collection of information to conduct the functional-territorial analysis should focus on the cities with the greatest demographic or institutional weight, by means of searches in information centers of public or private institutions (chambers of commerce, industrial chambers, etc.), and even through preliminary interviews (see Phase 1.3) with the officials in charge of these institutions, in order to obtain the necessary data as soon as possible. This preliminary information will serve for a first identification of the organizations that should be more thoroughly interviewed during the next steps of the methodology.

Phase I.2 General Characterization of the Area

The characterization of the area of influence should comprise at least the aspects stated in the table below. The data should refer to the geographical or administrative divisions that make up the area.

Type of information	Data
Socio-demographic	Total, urban and rural population
Economic	Total GDP and GDP by sector of economic activity
Quality of life	Human Development Index, poverty indicators
Economic infrastructure and services	Existing infrastructure: transportation, energy, telecommunications, distribution centers, logistics platforms, free trade zones
Production characteristics	Production sectors in the area of influence (main agricultural, industrial and mining production activities)
Markets	Destination markets (local, regional and international, by products or groups of products and by country) for local production
Institutions, leading companies, actors	Representative public and private institutions, leading industries and companies, key actors

Note: As far as practicable, information should be specific to the area. It is up to the user to select the topics relevant to the GP under study.

The analysis of this information will result in a general characterization of the production activities in the area of influence. In principle, this information will also enable the identification, in each national portion of the area of influence, of production chain links that could create linkages that integrate more than one country.

Based on this information, maps or charts should be prepared to graphically illustrate the spatial links between production sectors and the GP.

Phase I.3 Analysis of the Production Network and its Breakdown into Production and Logistics Chains

This phase consists in analyzing and understanding the functional dynamics of the production network on the basis of the secondary information gathered and of the user's own knowledge and experience. Preliminary interviews⁵ with producers associations and sources from the public sector may yield qualitative and/or quantitative information that will help understand the existing production network.⁶

⁵ It is proposed that this initial information gathering in Step I be supplemented with exploratory interviews so that the user gains a broader view thanks to the contributions made by interlocutors having a direct interest in the activities carried out in the area, whether they are from the public sector, such as planning agencies, or from the private sector, such as business associations. These interviews do not need to be as structured as those proposed for the field work (Step II) or to cover all sectors, but must give the user a greater knowledge and understanding of the area of influence, mainly of those aspects that are outside his/her field of specialization.

⁶ These associations generally have disaggregated information about the production sectors they comprise as well as about the subsectors into which these sectors are divided, and even have statistical data on production and (domestic, import/export) marketing volumes.

Once the production network is described, it is broken down in order to identify the presence of production and logistics chains that, due to their actual or potential IPr or logistic development, may be subject to a more in-depth analysis in terms of production integration and SLVAs development.

Task 1. Identification of the Essential Links of the Production Network

Here, the main economic activities and their products, their destination markets (local, regional, domestic, international) and the origin of their main inputs (local, regional, domestic, international) should be objectively described. This is the basis for mapping the existing production and logistics chains and for selecting those that will be subject to the hypotheses referred to below.

Task 2. Breakdown of the Production Network: Identification of Production and Logistics Chains

Production chains. The quantitative and qualitative information collected, duly processed, may allow (or at least give leads for) the identification of links of production chains located in a country and integrated with production chains located in the area of influence of a different country or countries.

In order to identify production chains or parts of them and subsequently select those to be subject to a more in-depth analysis, it is convenient to use the following procedures:

Since what is of interest here is IPr, it is necessary to examine the flow of *intermediate goods* and *capital goods*⁷ between the two countries, i.e. exports originating in the portion of the area of influence of the GP located in one country and whose destination is the portion of the area of influence located in the other country. In principle, these products cross the border to become integrated into some production chain in the other country.

Work with products the trade flow of which is constant (as opposed to occasional), revealing production integration processes that already exist and are more or less consolidated.

Work with products the trade flow of which is more important in terms of value.

Identify products the trade flow of which, though modest, shows a clear potential for production integration, and select some of them.

Due to their nature, the most readily accessible sources of information that enable the organization of data to follow the procedures described above are export and import statistics, where information is not broken down by province, department or any other administrative or political division.⁸ For this reason, in order to identify the production chains having some degree of integration it will be necessary to:

⁷ Intermediate goods are goods that become integrated into the production process, such as inputs, raw materials, parts, supplies and components. Capital goods include machinery, equipment and transport equipment that support production.

⁸ A possible source of foreign trade data classified at the 8-digit level of the MERCOSUR Common Nomenclature is ALADI (www.aladi.org).

- verify whether exports of a given product to the neighboring country mostly take place in provinces or departments included in the area of influence and, vice versa, whether imports of a product from the neighboring country become integrated into a production chain located in provinces or departments of the area of influence;
- identify the production chains into which products from the area of influence in neighboring countries become integrated.

If in the exploratory interviews that may be conducted these issues cannot be elucidated, such issues should be taken as hypotheses to be confirmed or refuted during the field work.

Thus, the chains or chain links selected to be analyzed for production integration potential *will not necessarily* coincide with the most economically relevant sectors detected in the area of influence. The final decision about the chains or links to be analyzed is up to the user, who should take into account criteria such as trade flow value and volume, production integration capability, future potential of a sector currently having little activity, etc.

Logistics chains. For the purposes of identifying logistics chains and subsequently selecting the ones to be included in the questionnaire and subject to a more in-depth analysis, it is convenient to use the following procedures:

Even though it may be possible to identify the development potential of SLVAs “with no regional vocation,” attention should always be focused on logistics infrastructure with a regional vocation. The meaning of “regional vocation” has been explained above (see page 5).

Try to identify, on the basis of the characterization of the area of influence performed before and of the exploratory interviews, whether there are projects in a more or less advanced stage (at least in the study phase), concrete actions, clear opportunities, etc., of a public, private or public-private nature, in the field of logistics with a regional vocation that may help solve existing restriction to SLVAs development, reduce transport or logistics services costs, or add value along the logistics chains involved. The presence of such projects or actions and mainly the data and information that support them may serve as a sufficiently sound basis for the user to draft comments on the potential for SLVAs development.

If, on the contrary, there are no projects or actions of the kind mentioned above and, therefore, there are no data or information conveniently organized to detect the potential for SLVAs development, it will be necessary to work with trade data slightly different from those used to identify chains or chain links to be included in the analysis of the potential for production integration.

In order to formulate hypotheses on the potential for SLVAs development, it will be necessary to analyze *all* the flows of *all* the goods. “All the flows” means import and export trade flows among the countries of the area of influence and goods in transit through the area whose origin or destination is extra-regional and that use the infrastructure included in

the GP under consideration.⁹ “All the goods” means the aggregate of consumer goods, intermediate goods and capital goods, i.e. not the aggregate of only intermediate and capital goods as used for the IPr potential analysis.

The data to be gathered are related to the value and volume of all the flows and all the goods. Some of these data may be obtained from foreign trade statistics supplied by customs, but they must be supplemented with statistical data about the flows of freight, which are usually less readily available, and with interviews with logistics operators, freight carriers, importers, customs agents, etc.

Using these data, charts can be created to break down the flows and preliminarily identify logistic groups. The composition, direction and intensity of these flows will provide leads about the potential for SLVAs development, which, in turn, will facilitate the drafting of objective questions for the questionnaire.

Task 3. Summary

Finally, the user should make a summary to determine the main aspects of the production and logistics characterization of the area of influence of the GP.

Scope	Tasks involved in the analysis of the production network
IPr Analysis	Identification of the most dynamic activities, existing production integration, sectors that would potentially become integrated after investment in infrastructure Potential for strengthening the existing economic structure
Logistics Chains (SLVAs)	Identification of sectors having similar logistic patterns: <ul style="list-style-type: none"> • Relative unit weight of the goods and unitization practices and types • Relative value of the goods • Types of goods: solid or liquid bulk goods, general cargo (containerized or loose) • Storage density • Present (or potential) use of warehouse and distribution centers • Delivery times • Length of the trip • Transportation mode, type and size of vehicles used • Location of the market (national or international) and use or lack of use of international facilities for functional reasons or to fulfill foreign trade formalities
	Summary

The logistics breakdown should be adjusted to the specific production and consumption conditions of each corridor; therefore, a combination of aggregated chains (e.g. Chemicals or Textiles) and very disaggregated chains (e.g. Paints or Buttons) in the same physical space can be expected.

⁹ In many cases, goods in transit may be much more sizeable than those involved in binational trade relative to total cargo, and perhaps of greater added value.

Outputs of Step I

- Map of the area of influence
- General characterization of the area of influence of the GP
- Production and/or logistics breakdown

Step II: Preparation, Implementation and Analysis of the Field Work

Objectives of this step:

Prepare the contents of the interviews and plan the field work to gather primary information for a more detailed analysis of the production and logistics chains identified in Step I.

Phases included:

II.1 Formulation of hypotheses

II.2 Field work planning and interview guides or questionnaires preparation

II.3 Implementation of the field work, collection of primary information

II.4 Structure of the production chains and/or logistics chains

II.5 Possible changes in the production network dynamics and in the logistics system

Phase II.1 Formulation of Hypotheses

In this phase, the user should formulate hypotheses concerning:

- a) the existing production integration, and the process of and potential for IPr in the selected chains as a consequence of the implementation of the projects in the GP; and
- b) the potential for SLVAs development.

Task 1. Hypotheses on the Process of and Potential for IPr

The hypotheses are the assumptions sought to be validated, refuted or adjusted according to the information provided by the interviewees.

Basically, two types of hypotheses may be formulated: hypotheses concerning the actual presence of an integrated production chain in the area of influence, and hypotheses regarding the potential future development of the production chain integration.

In the preceding step, based on secondary information and the user's own knowledge, production chains having an assumed degree of integration were identified in the area of influence. These are hypotheses of the first type. Validating these hypotheses involves verifying whether the links of the identified chains belong to the area of influence, that is, whether the companies, processes or economic operators that make up the links of the chains conduct their activities within the area of influence. In addition, for production integration to be understood in the sense of the definition provided in this methodology, production chains must have links in different countries.

If one of these hypotheses is confirmed, then the user must explore with the interviewees what the future development of the chain integration could be.

In this regard, the following scenarios (or hypotheses) may be presented to the interviewees:

- Hypothesis 1) Possible expansion of scale. It is assumed that the production potential of the area will be increased due to the use of the available

- capacity of factors of production and to the revealed vocation of the area of influence.
- Hypothesis 2) Production intensification. It is assumed that, in addition to the expansion of scale (Hypothesis 1), production integration can be achieved because the technological and production platform available becomes more productive.
- Hypothesis 3) Upstream integration. It is assumed that, in addition to the greater productivity of the existing technological and production platform (Hypothesis 2), production integration is accomplished upstream the production chain.
- Hypothesis 4) Downstream integration. As in Hypothesis 3, it is assumed that there is a greater production integration resulting from a greater specialization along the chain, but this time downstream such chain.
- Hypothesis 5) Upstream and downstream integration. This last hypothesis suggests that integration takes place upstream and downstream the production chain.

Task 2. Hypotheses on the Potential for SLVAs Development

As mentioned when dealing with the breakdown of the production network and the identification of logistics chains (Task 2 of Phase I.3), the existence of projects involving logistics platforms with a regional vocation is a good indication to formulate a hypothesis on the potential for SLVAs development. In this case, the user should explore with the interviewees how advanced the project is, and whether it is only a remote idea or there are objective reasons that justify its implementation. The likely impact of the projects included in the GP on the feasibility or execution of the project should also be assessed.

If there are no such projects, the hypotheses on SLVAs development should be formulated based on the analysis of the flows of all the goods and the breakdown and identification of logistics chains conducted in the previous step. In order to validate, refute or adjust a hypothesis on SLVAs development, it is important to know the opinion of freight carriers, logistics operators, customs agents, importers and distributors of consumer products, port and air cargo terminal management officials, etc.

Phase II.2 Field Work Planning and Interview Guides or Questionnaires Preparation

Planning seeks to ensure that in the subsequent phases there is enough information available to conduct the analysis. The user should be clearly aware of the key aspects to be validated/confirmed during the interviews.

The questionnaire or interview guide should contain a series of questions aimed at:

- gaining knowledge about the arrangement and activities of particular production and logistics chains;
- assessing the prospects of IPr and SLVAs development;
- identifying problems, obstacles and difficulties;
- identifying public or private investment opportunities.

Task 1. Preparation of Questionnaires and Identification of Interviewees

The user should design the interviews to be conducted and adjust the applicable tools (questionnaires) depending on the type of contact to be made (open, structured or in-depth interview).

All the issues addressed in Step II must be taken into account in the questionnaires or interview guides.

The user should determine the primary sources of information. Data collection should be basically conducted through interviews with experts and relevant economic agents. This process is iterative regarding the questionnaire design, as more or less detailed, operational or strategic questions should be prepared depending on the agents and the information level.

The interviews should be made with experts, representative actors, and researchers with recognized expertise in the field of regional economy, as well as with qualified economic agents. Below there is a non-exhaustive list of the types of actors, entities or agencies to be consulted that can be used for reference purposes:

Private, from the production sector:

Industrial

- Industrial chambers
- Sectoral associations

Commercial

- Chambers of commerce
- Export associations, commodities exchanges

Transport and logistics

- Federations of land freight forwarders
- Private railway operators
- Associations of logistics operators
- Companies that provide logistics, transport and other services
- Free trade zones

Energy, telecommunications and other services

- Companies that provide energy-related services
- Fixed and mobile telephony
- Broadband and other services

Anchor companies or companies of strategic importance for regional development

Governmental

- Ministry or secretariat of industry
- Ministry or secretariat of foreign and domestic trade
- Ministry or secretariat of agriculture
- Ministry or secretariat of transport
- Customs agencies, ministry of foreign affairs
- State-owned railway companies, port authorities
- Embassies and trade representation offices abroad

- COMISEC (Sectoral Commission for MERCOSUR), CAN, IIRSA country representatives

The user should prepare an adjusted list of the institutions and individuals to be contacted, including the issues to be addressed in each case, which will be refined as the interviews are conducted and during the initial contact with public agencies, associations and chambers representing the different industrial and business activities.

Phase II.3 Implementation of the Field Work, Collection of Primary Information

During the interviews, the user should adapt the information gathering techniques according to the interlocutor's characteristics. As a general rule, it is recommended to first explain the goals of the interview, clearly specifying the information required, and then let the interviewee express his/her views and contribute the data of which he/she is more aware. In this way, it will be possible to identify the issues that the interviewee deems more important and about which he/she is more knowledgeable. Then the interview can be more precise, specifically focused on the items on the interview guide that were not addressed or that need to be elaborated on.

In addition to gathering data about the structure and size of the chains and validating or refuting IPr and SLVAs development hypotheses, the following issues should be dealt with in the interviews: identification of problems, obstacles and difficulties; identification of public or private investment opportunities, and identification of projects that are complementary to IIRSA's Portfolio projects.

Task 1. Identification of the Actors Involved in the Chains and their Territorial Location

In the case of production chains, the information contributed by the interviewees should be used to corroborate that the chain links are located in the area of influence. The data to be collected should deal, for instance, with the companies, trade unions, producer groups or regions that produce raw materials, inputs, intermediate products or capital goods in a country covered by the area of influence; the companies that market, store or consolidate such goods or products and export them to the other country; and the companies, trade unions, producer groups or regions that process, consume or use the goods or products as inputs within the area of influence in the country of destination.

The markets for a product family engaged in trade flow from one country to another may be scattered throughout the country of destination. Hence, it is important to verify that a substantial portion of such product group exports is processed, consumed or used as input within the area of influence in the country of destination.

In the case of logistics chains, the aim is that interviewees contribute data to identify the flows of the different logistic groups, their transit times, stock levels, origin and destination, break bulk points, collection and distribution centers, and consumer markets.

In the event that there are projects involving logistics infrastructure with a regional vocation, information should be collected on the project progress status, location and size, accesses, services to be provided, companies, investors and agencies involved, etc.

Task 2. Identification of Problems, Obstacles and Difficulties

In the interviews, the user must seek to identify the elements that hinder or may hinder the process of IPr or SLVAs development. Specifically, interviewees should be asked to:

- identify whether there are aspects that constrain the development of the area of influence in spite of the implementation of infrastructure projects;
- determine to what extent such aspects limit development;
- identify the actions to be taken in order to solve the problems detected.

The table below lists, in broad terms and by way of example, a series of factors that may negatively interfere with the development of production institutions in the region as well as with the attraction and retention of new private investments, thus adversely affecting IPr or SLVAs development.

Environmental Factors			
Political/Legal	Environmental and cultural	Institutional	Economic/commercial/financial
Land tenure Legal certainty Tax policies Foreign trade regulations Labor law and policies	Sensitive environmental aspects Energy requirements Attitude towards foreign investment	Institutional efficiency Bureaucracy Transparency Incentives/restrictions regarding the startup of new businesses	Exchange rate and capital repatriation policy Macroeconomic context Tariff barriers Technical barriers
Production Factors			
Inputs	Labor		
Availability Cost Quality	Availability Skills/quality Cost		

Task 3. Identification of Public or Private Investment Opportunities

In the interviews, the user must ask the interviewees to identify (public or private) investment opportunities such as investments associated with the production chains selected, the production of logistics services, or infrastructure building.

Task 4. Identification of Projects Complementary to IIRSA's Portfolio Projects

The questionnaire or guide must ask the interviewees to identify infrastructure projects that are complementary to the projects included in IIRSA's Portfolio for the GP in question. The complementary projects of greater interest are those with a relatively low cost, a relatively rapid implementation timeline, and capable of enhancing the effective impact of infrastructure on the IPr and SLVAs development processes.

Phase II.4 Structure of the Production Chains and/or the Logistics Chains¹⁰

Task 1. Structure and Dimensions of the Chains

First, the structure and arrangement of the production and logistics chains that were advanced as hypotheses should be validated.

Then, diagrams should be drawn to show two levels of the chain:

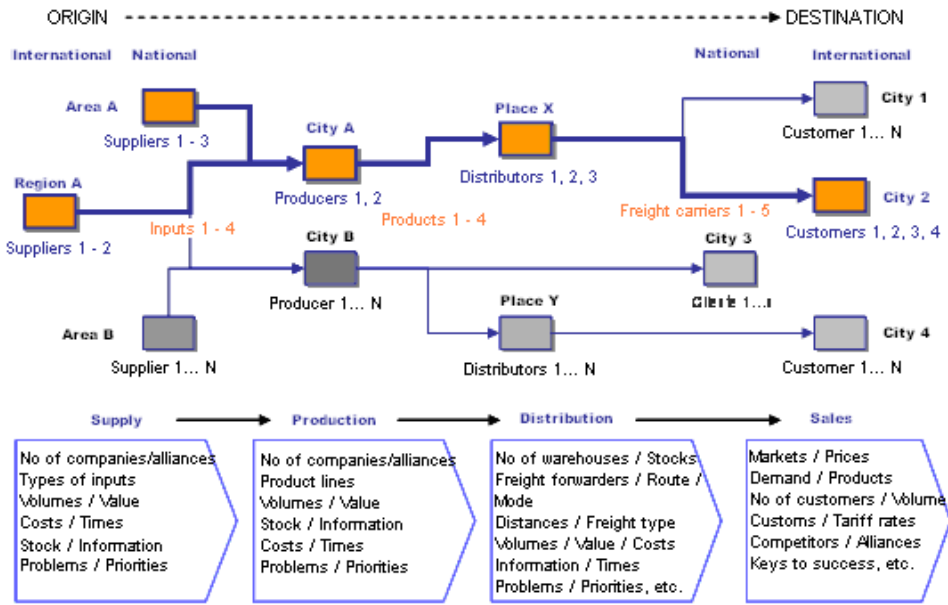
- identification of the main participants;
- structural dimensions describing the number of phases and companies in the chain.

The horizontal structure refers to the number of tiers along the chain, from its origin to the final consumer market, i.e. all the phases with participants carrying out similar activities: suppliers, producers, distributors, buyers, consumers. Such structure may be long or short. The vertical structure refers to the number of participants in each tier or level, i.e. the number of suppliers or buyers. As a result, the chains may show very different types and configurations, some having a very complex structure with multiple stages and agents, and others, a much simpler one.

Finally, the last structural dimension is the position of the focal company along the chain: production, distribution, wholesale, etc. For analyzing logistics chains, it is important to identify the points of the structure where the production process is, or could potentially be, unconcentrated or distributed among several agents; an example of this are agroindustrial cooperatives where each agent packs the product but labeling and packaging are performed by a third party that serves several producers. This will enable the identification of specific projects or incentives to be encouraged and showing potential for SLVAs development.

¹⁰ The results obtained may lead to redefining the area of influence. If, for example, the interviews reveal that, contrary to what was thought, an imported product is *not* intended to become part of a production chain located in the area of influence, it may be necessary to adjust the boundaries of the area of influence to account for this information.

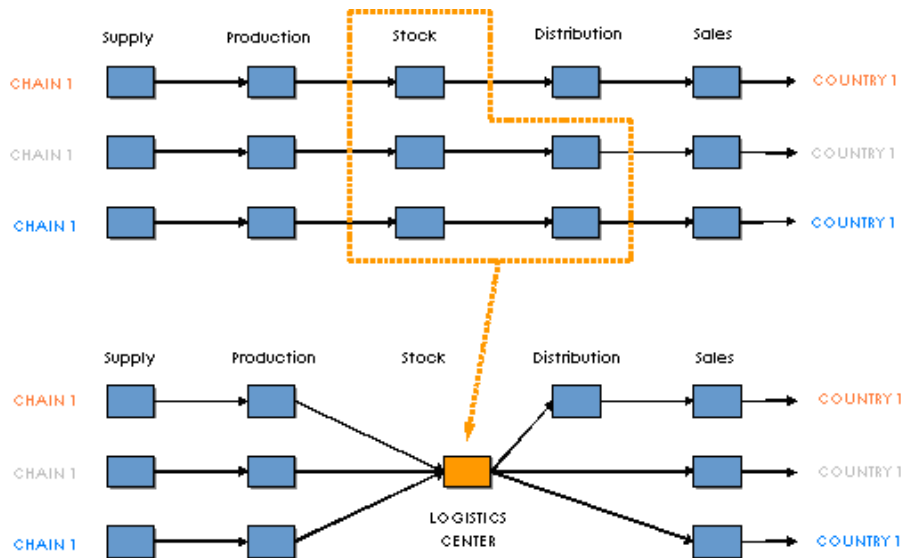
Analysis of the Potential of IIRSA Projects for Production Integration and Development of Value-Added Logistics Services



Task 2. Identification of Logistic Complementarity and Possible Centralization

It is possible that many of the chains identified have relatively complementary characteristics, activities and processes (same regional destination markets, similar product lines, same means of transport, geographical proximity of its members, analogous hired services, similar resources consumed, equivalent formalities and documents, comparable information used, etc.), which would determine a potential for sharing resources, centralizing activities and synchronizing operations. This may be accomplished through the creation of multipurpose logistics centers for shared use, as illustrated in the figure below:

Logistic complementarity and possible centralization:



When conducting the analysis, differences that are not as evident may be encountered regarding the requirements of the markets: size of deliveries, time involved in meeting orders, unique products or products with differentiated formats, quality, price sensitivity. This may lead to a mismatch between a chain and its market, which calls for an adjustment of the logistics chain.

Phase II.5 Possible Changes in the Production Network Dynamics and in the Logistics System

Considering that the projects included in IIRSA's Portfolio and the complementary projects identified will be implemented, taking into account the obstacles to IPr and SLVAs development and the possible ways to overcome them, and assuming that some of the business opportunities indicated are realized, the interviewee is expected to give his/her own view on the possible changes in the dynamics of the production network and in the logistics systems.

To this end, the interviewee must be asked about the likelihood for any of the five IPr hypotheses proposed in Phase II.1 Formulation of Hypotheses to become a fact, as well as about the likelihood for SLVAs to develop.

It is important to relate the likelihood for any of these hypotheses to prove true to the implementation of projects, removal of obstacles or realization of business opportunities. Such relationships can reveal the presence of conditioning factors, i.e. the hypothesis under analysis would not come true if any of these conditions were not met (implementation of a project, removal of an obstacle or realization of a business opportunity).

Outputs of Phase II

- Hypotheses on the potential for IPr and SLVAs development
- Interview guides or questionnaires
- Actors involved in the production and logistics chains identified
- Problems, obstacles and difficulties identified
- Public or private investment opportunities identified
- Complementary projects
- Structure and dimensions of the (production and/or logistics) chains
- Confirmation of hypotheses concerning changes in the production and logistics dynamics

Step III: Projects and Actions Proposed and Assessment of their Impact on the Development of the Area of Influence

Objectives of this step:

Systematically organize the contributions, ideas and suggestions gathered during the interviews as well as the user's own contributions; define a set of projects, actions and business opportunities to strengthen IPr and SLVAs development in the area of influence of the GP; and assess the potential benefits to and impacts on the development of the area of influence, in terms of both production and logistics, that may derive from the set of projects and actions proposed.

Phases included:

III.1 Compilation and classification of the projects and actions proposed;

III.2 Combination of actions, complementary projects and business opportunities;

III.3 Assessment of the impacts of the set of projects and actions on IPr and SLVAs development.

Phase III.1 Compilation and Classification of the Projects and Actions Proposed

The user should first compile and classify all the proposals gathered and then select a set or group of projects and actions that are directly related to IPr and SLVAs development (Phase III.2).

In general terms, the projects and actions proposed are of two types:

- a) actions and/or projects aimed at promoting the emergence of a new supply of services or infrastructure; and
- b) actions and/or projects aimed at solving problems or difficulties and removing obstacles that hinder production integration and/or the development of logistics services.

Task 1. Compilation and Classification of the Projects and Actions Proposed

Taking into account the proposals and ideas put forward and the comments made by the interviewees, the user should systematically organize the information, identifying classification criteria and grouping ideas and proposals that, though put forth in different manners, are intended to solve the same problem or find an identical solution. This is the time when the user will also include his/her own proposals.

In this organization, it is important to classify the projects and actions depending on whether they are likely to be implemented in the short, medium or long term; verify if they are driven by public or private initiative; identify those that fall within the purview of the agencies responsible for applying this methodology and those that should be proposed to other public institutions that are extraneous to the use of the methodology; distinguish the ones having an immediate impact on IPr and SLVAs development from those with an influence in the longer term, etc.

The main body of the recommended action plan will consist of projects and actions driven by the public sector. They may be identified as follows:

- a) traditional public investment;
- b) investments in a public-private partnership;
- c) actions of concern to the government aimed at solving existing restrictions;
- d) governmental intervention required to develop creative solutions to structural restrictions faced by the private sector.

The user of the methodology should determine, on the basis of the institutional organization of his/her country, the actions and proposals that may be implemented by the agency that is conducting the assessment and the ones that will remain as recommendations subject to the monitoring action of the agency promoting the infrastructure-related GPs.

The following table shows one possible classification of the proposals according to their type.

Type	Description
Infrastructure	Aspects to be included in projects belonging to the group
	Logistics platforms, both multipurpose and intended to support ports, airports, border crossings
	Binational border service centers (CEBAFs) and integrated control at border crossings
Logistics services	Regulatory actions that promote the development of logistics services (3PL, 4PL)
	Freight control
	Promotion of online freight exchange services
	Programs to support research and development, innovation
	New vehicle-related information and communication technologies (vehicular NICTs) incentive rules
Trade and transport facilitation	Simplification of formalities
	Actions to eliminate technical and trade barriers
	Single window, cargo community systems
	Harmonization of rules and procedures for border crossings, ports, airports
	Modification of rules on multimodality
	Intermodality incentive actions
	Compliance with international safety standards (SAFE, CSI, BASC, C-TPAT, 24h rule, ISPS and others)
	Small service operators' access to credit
	Actions to remove restrictions on capital repatriation
Labor	Development of long-, mid- and short-term HR training programs
	Modification of labor rules
	Skilled HR attraction incentives
Marketing and production development	Quality certification
	Modification of policies and rules
	Tax incentives
	Marketing mechanisms for SMEs
	Land tenure regularization

Phase III.2 Combination of Actions, Complementary Projects and Business Opportunities

In the preceding step and in Phase III.1 the results of the field work were organized and a list of the obstacles and difficulties, business opportunities and complementary infrastructure projects was drawn up.

In order to turn this list of obstacles, business opportunities and complementary projects into a more practical and practicable, awareness-raising and guiding input for both

the public and private sectors, it is necessary to try to make up a realistic and coherently articulated set combining:

- a) infrastructure projects within IIRSA's Portfolio and/or projects complementary to them as identified by the interviewees;
- b) the obstacles to be addressed for the production integration process to make progress; and
- c) the business opportunities that emerge as the infrastructure projects are implemented and the obstacles, restrictions and bottlenecks are overcome.

To make progress in this regard, it is suggested to follow the path indicated below:

- Make up a set of the infrastructure projects (belonging to IIRSA's Portfolio or complementary to them) having a more immediate bearing —both from the functional and regional perspectives— on the current or potential production integration process of one or more production chains, and a timeframe for implementation in the short or medium term (not more than five years), the nearest possible to the timeframes usually considered by the private sector.
- Establish a relationship between this set of infrastructure projects and the obstacles and difficulties that have a negative impact on the production integration process of the production chain(s), on the one hand, and the business opportunities that emerge or could emerge as a result of implementing infrastructure and of solving the restrictions identified, on the other.
- Sort all the elements of the resulting set (infrastructure projects, solutions to difficulties, and business opportunities), trying to establish desirable timeframes for implementation.

The resulting set should be, in essence, a succession of interconnected events. The economic reasoning behind this succession of events is that the new demands create new business opportunities, which, in turn, may give rise to private investments. These opportunities, supported by timely investments of an adequate amount, increase the efficiency of the set of components. Thus, for instance, when production in the area grows, a greater demand for transportation services is created, bringing about new investment needs that are business opportunities for the private sector. This process may generate a virtuous circle of demand and investment.¹¹

Phase III.3 Assessment of the Impacts of the Set of Projects and Actions on IPr and SLVAs Development

The aim is to assess the potential benefits to and impacts on the development of the area of influence, in terms of both production and logistics, that may derive from the set of projects and actions proposed.

¹¹ It is important to note that the implementation of specific infrastructure and the development of transport and logistics services are assumed to be subject to execution in stages. In other words, it is supposed that it is possible to invest in infrastructure and in service development to meet the demand as it increases. It is evident, however, that some infrastructure investments are indivisible and, therefore, this adjustment of demand and investment cannot be easily made over time.

The aspects that may be subject to assessment are summarized in the following table:

Aspects subject to assessment	Aspects to be assessed
Identification of the potential contribution to IPr	<ul style="list-style-type: none"> • Factors limiting production development • Potential of the proposed set for contributing to IPr in the area of influence • Projects and actions complementary to the GPs to be implemented to maximize results
Identification of the potential contribution to SLVAs development	<ul style="list-style-type: none"> • Factors limiting logistics performance • Relative contribution of the GP to the solution of the problems detected • Logistic projects and actions complementary to the GP in the area of influence to optimize logistics development

Outputs of Step III

- Organized and classified projects and actions proposed
- Set(s) of projects, actions and business opportunities that make up a network that is interdependent with IPr and SLVAs development
- Assessment of the contribution of the projects and actions proposed to the development of the area of influence

Step IV: Recommendations for an Indicative Action Plan

Objectives of this step:

Organize the set of projects and actions selected in Step III in a coherent way and based on their priority.

The user will be able to distinguish the actions and projects that may be directly implemented by the agencies or institutions responsible for applying this methodology from those that should be recommended to other agencies, the Government in general or the group of IIRSA representatives.

Outputs of Step IV

- Recommendations for an action plan