Latin America/Caribbean and Asia/Pacific
Economics and Business Association

An initiative of the Inter-American Development Bank and the Asian Development Bank Institute

Fifth LAEBA Annual Meeting
Singapore – July 15th, 2009

Trade Logistics and Physical Integration in LAC

Pablo Guerrero

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Trade logistics and physical integration in Latin America and the Caribbean

Pablo Guerrero

Singapore, July 2009

- **This Panel will address issues regarding the need to enhance connectivity to deepen regional integration, with particular attention to trade logistics**
  - Trade logistics in LAC shows a weak performance when compared not just with developed countries but with other developing regions
  - Physical integration to facilitate intra-regional trade - even though with some progress, has proved to be difficult to consolidate
    - Due to diverse reasons, like the limitations imposed by geography, the complex international nature of the projects, and financial restrictions in the countries

- **In this presentation, the following issues will be approached:**
  - LAC's logistics performance and challenges
    - Review of recent indicators
  - LAC's physical integration: progress achieved and the challenges ahead
    - In South America (IIRSA initiative) and in Southern Mexico, Central America and Colombia (Mesoamerica Project)
  - The challenges the Region faces to improve its connectivity and regional integration, particularly in the trade logistics area
    - The agenda the IDB is focusing on in these areas

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What are the main strengths and weaknesses concerning trade logistics in LAC?

LOGISTCS PERFORMANCE IN LATIN AMERICA

- **Performance indicators**
- **Assessment of the regional performance**

What are the main achievements in regional physical integration?

LAC's REGIONAL INITIATIVES FOR PHYSICAL INTEGRATION

- **IIRSA, the South American initiative**
- **The Mesoamerica Plan**

What are the challenges in trade logistics to facilitate regional integration?

REGIONAL AGENDA TO ADAVANCE THE INTEGRATION PROCESS

- **The regional agenda**
- **IDB's contribution**

Economic output and international trade in LAC generated a strong pressure on the regional logistics systems

LAC between 1998 and 2007:

GDP GROWTH

3%

INTERNATIONAL TRADE GROWTH

6%

MARITIME CONTAINER TERMINALS GROWTH

9%

- New liberal commercial policies and globalization of supply chains
- Restructuring of the production model
- Lower integration in the productive sector (outsourcing)

- Freight containerization
- Empty containers' flow
- Increased transshipment and new liner routes' configuration

International trade in LAC accounted for 30% of GDP in 1998 and 41% in 2007

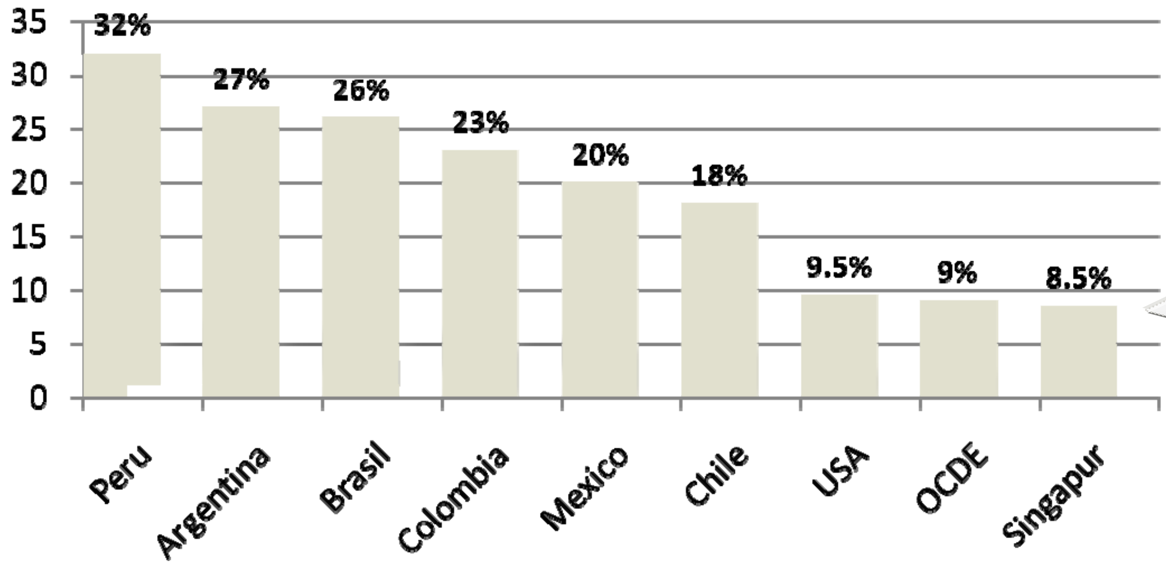
Considering several indicators is likely to be the best approach to assess LAC's logistics performance

- The logistic performance of a country can be measured in several ways:
  - **Macro approach**, based on the national accounts
    - Logistics cost as a percentage of GDP
  - **Micro approach**, based on firms´ surveys
    - Logistics cost as a percentage of sales value
  - **Perception indicators**, based on surveys to qualified stakeholders
    - Less accurate, but easier to obtain and allow to correlate results with other country-level indicators
- This approach presents advantages and disadvantages, since it is an extremely complex measurement:
  - *"The logistics of international shipments is a complex combination of services and procedures involving many public and private operations that does not lend itself easily to measurement"* (1)
  - *"There is no statistical indicator that proxies the performance of the entire supply chain, or even a major part of it"* (1)

(1) Measuring Global Connections - 2006

Logistics costs, measured as a percentage of GDP, reflect the relevance of trade logistics in countries competitiveness

Logistics costs as a % of GDP:



- The estimation of logistic costs as % of GDP demands multiple assumptions
- The analysis of LAC inventory costs yields similar conclusions

LAC's inventory costs

Source: Kogan & Guasch, 2006

LAC logistics costs double - at least - those of OECD countries

The database compiled in *Doing Business* includes a category named *"Commerce across the borders"* that depicts indicators relevant for trade logistics performance assessment

Region	Export			Import		
	Documents (Number)	*Time (Days)*	*Cost (US$ container)*	*Documents (Number)*	*Time (Days)*	*Cost (US$ container)*
Far East and the Pacific	6.9	23.9	884.8	9.3	25.9	1,037
East Europe and Middle Asia	7.4	29.2	1,450.2	10	37.1	1,589
LAC	**7.3**	**22.2**	**1,067.5**	**9.5**	**27.9**	**1,225**
Middle East and Northern Africa	7.1	27.1	923.9	10.3	35.4	1,182
OCDE	4.8	10.5	811	5.9	12.2	882
South Asia	8.1	34.4	1,236.0	12.5	41.5	1,494
Sub-Saharan Africa	8.2	40	1,561.1	12.2	51.5	1,946

Difference between LAC and OECD countries performance, while other developing regions exhibit better results.

Source: Doing Business Report, 2007. Adapted from "Latin America: High Logistics Costs and Poor Infrastructure for Merchandise Transportation" Copenhagen Consensus – Consulta de San Jose - 2007

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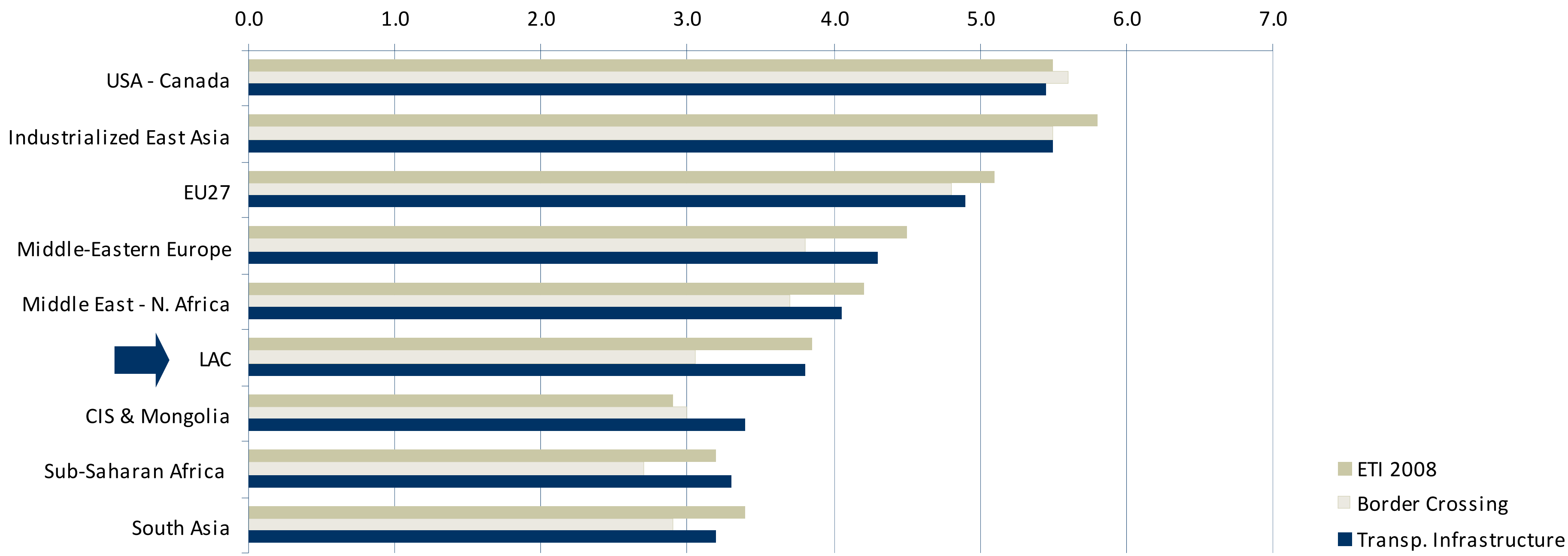
The *Global Enabling Trade Report* allows the comparison of LAC with other regions of the world, confirming a weak performance, particularly in managing trade at the borders

World Economic Forum - GETR 2008



ETI Values by country

- WEF with the support of international institutions and multilateral organizations
- 10 pillars, four sub-indexes, summarized in the Enabling Trade Index 2008 (ETI 08)
- Based on interviews (perception) and data

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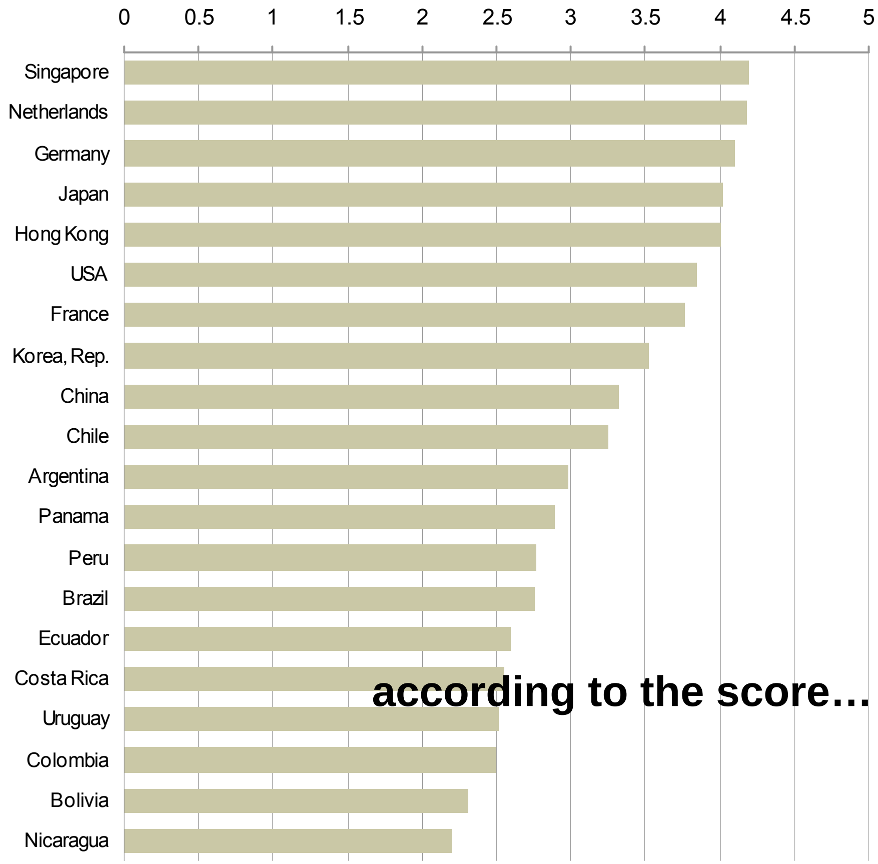
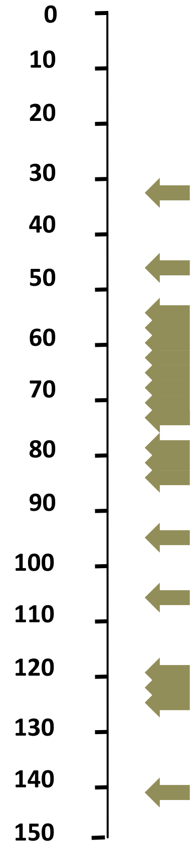
The Logistics Perception Index measures countries' trade logistics performance

LAC countries position in the LPI ranking



according to the score…



- Relevant **correlation with governance indicators**: corruption control (0.54), governance effectiveness (0.57), rule of law (0.54)

LPI values per country

- Partial **correlation with infrastructure indicators** less conclusive: infrastructure quality (0.48), port infrastructure (0.42), roads infrastructure (0.12), airport infrastructure quality (0.01)

… and ranking position

A 150 countries logistics index allows for its correlation with other indicators at the country level

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The diverse indicators concur in a common message: a considerable gap exists between LAC's logistics performance and developed countries, and even with East Asia emergent countries

- Logistics costs, measured as a % of GDP, are 50% to 100% higher in LAC than in the OECD countries
  - The estimate of inventory costs – one of the key determinants of logistics costs – exhibits a similar proportion
  - Logistics costs measured at the firm level, even when they are hardly expandable to the whole economy, show a gap of the same magnitude
- The *Global Enabling Trade Report* indicates that LAC's performance is below that of US and Canada, Western Europe countries (EU27), Central and Eastern Europe countries, the Middle East and the Northern African countries
- Relatively low LAC countries position in the LPI – the most specific logistics indicator
  - With the exception of two, all countries in the region are below the rank of 50, in a 150 countries universe

Logistics performance indicators may be subject to a myriad of observations partly because inaccuracies, biases or lack of representativeness, but the message is clear and consistent, there is ample room for improvement in LAC

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- IDB's contribution

LAC has gone through a long-lasting process of commercial and political integration, that has encouraged physical integration initiatives to assure the connectivity of the infrastructure networks

South American exports – U$S billions

Region/Country	95-96	03-04	06-07
South America	32.2 *25%*	37.8 *18%*	77.2 *21%*
USA	31.5 *24%*	52.2 *25%*	80.0 *21%*
Mexico	1.4 *1%*	6.6 *3%*	9.8 *3%*
EU (25)	29.7 *23%*	42.6 *21%*	74.5 *20%*
China	2.5 *2%*	11.5 *6%*	25.0 *7%*
Others	33.0 *25%*	57.0 *27%*	106.8 *29%*
TOTAL	**103.3** *100%*	**207.7** *100%*	**373.3** *100%*

Two-year median. Source: CINDES

- Several attempts to integrate trading blocks (Mercosur, CAN, MCCA) which faced political and economic challenges
- Commercial integration has yielded relevant results; although **intra-regional trade has decreased in relative terms**, due to a substantial growth in absolute terms and the diversification of trade destinations.

Two initiatives have taken on this challenge: IIRSA in South America, and the Mesoamerican Plan in Colombia, Central America and Southern Mexico

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The Initiative for the Integration of Regional Infrastructure in South America – IIRSA aims at promoting physical integration

I . I . R . S . A

- Originated in the year 2000 in order to advance their physical integration
- It is an institutional mechanism for intergovernmental coordination
- Incorporates novel methodological approaches, developing a strategic vision to align the regional portfolio
- **Identifying corridors of integration and development, that organize the portfolio**
  - The projects are linked to key initiatives, unleashing potential synergies
  - The initiative emphasizes monitoring and evaluation procedures
- IIRSA also allowed to identify **key processes for integration** that require normative harmonization
  - **e.g, regulations in the transport or energy markets, TICs, and border crossing management**

Incorporating innovative methodological criteria and institutional mechanisms

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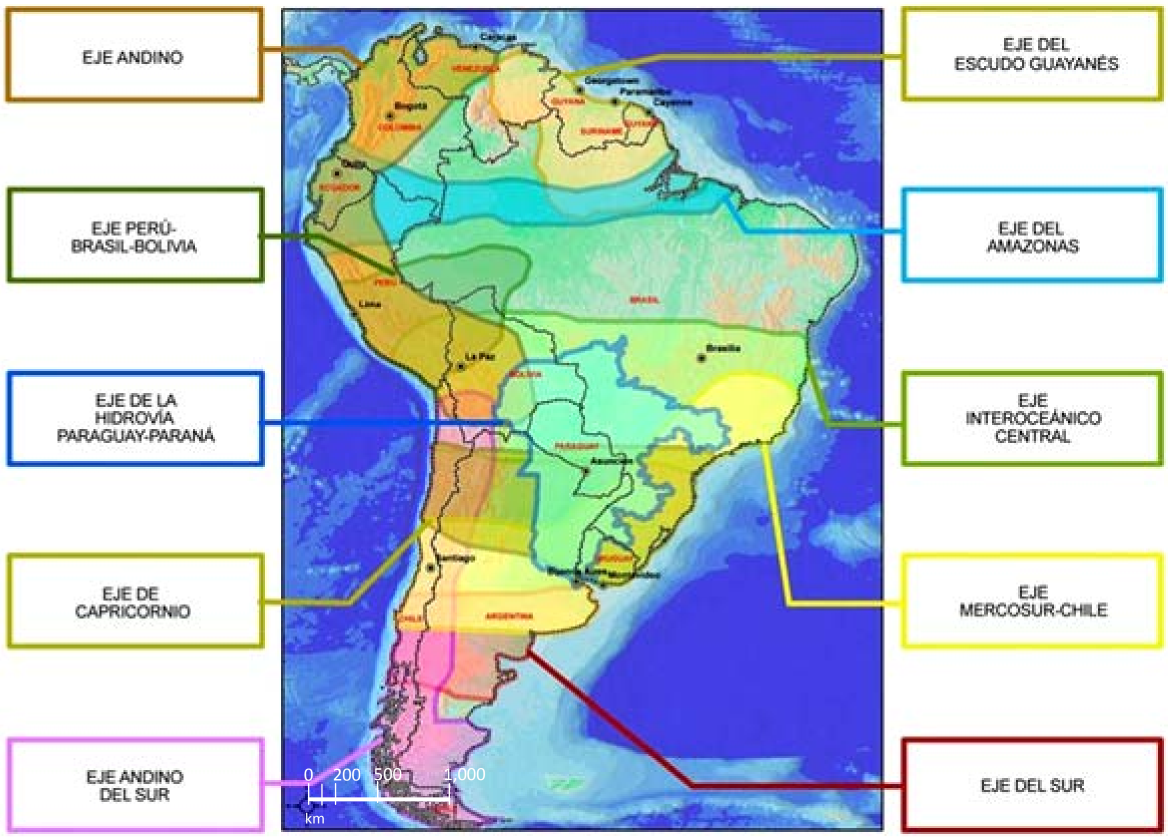
IIRSA has identified ten development integration axis: *corridors* framing a large investment portfolio

I.I.R.S.A



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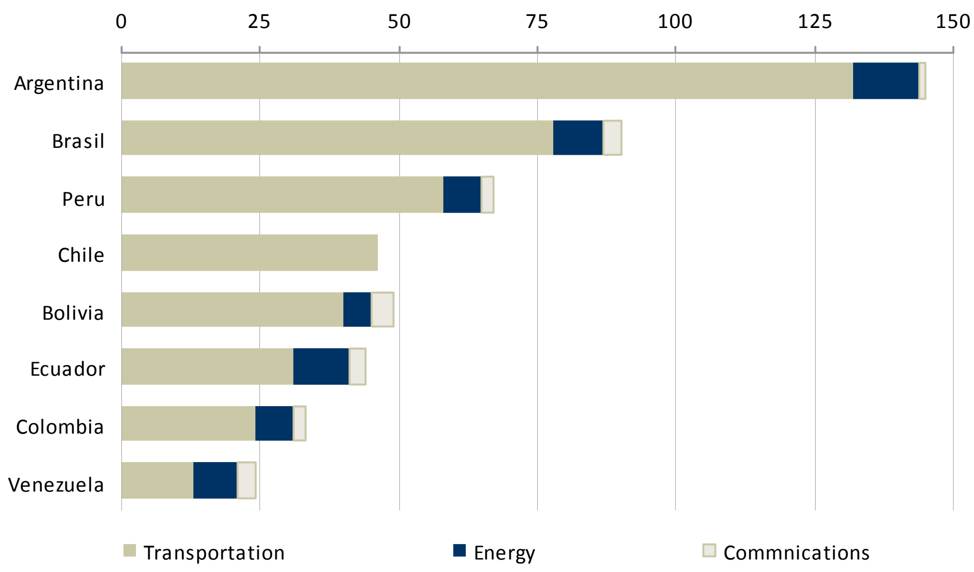
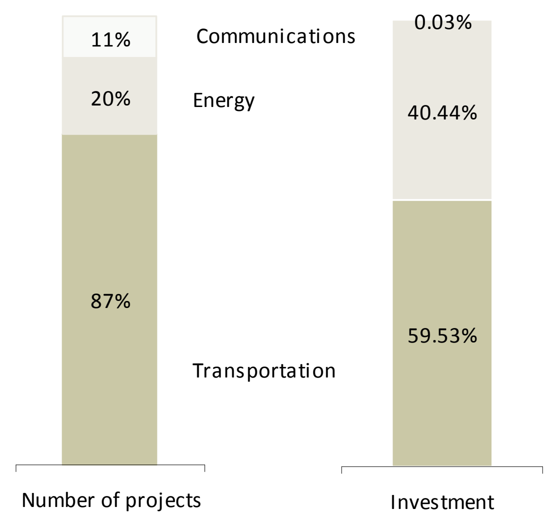
IIRSA's portfolio includes more than 500 investment projects, most of them related to the transport sector

- IIRSA’s portfolio by the end of 2008 included 514 infrastructure projects, (organized in 47 groups), **totaling US$69 billon**
- The multilateral institutions backing IIRSA (IDB, CAF and FONPLATA) support more than 25% of the total investment demanded by the 247 projects already finished or in progress (US$ 9.729 million)





IIRSA’s project portfolio

70% of IIRSA's portfolio is showing progress, based on public and private financing

- A sub-set of the investment portfolio - 31 projects - are considered as having "**implementation consensus**" (AIC), being executed in a fast track process in order to have them completed by 2010
  - The AIC map gives a picture of the physical integration priorities

AIC map   *AIC completed project*

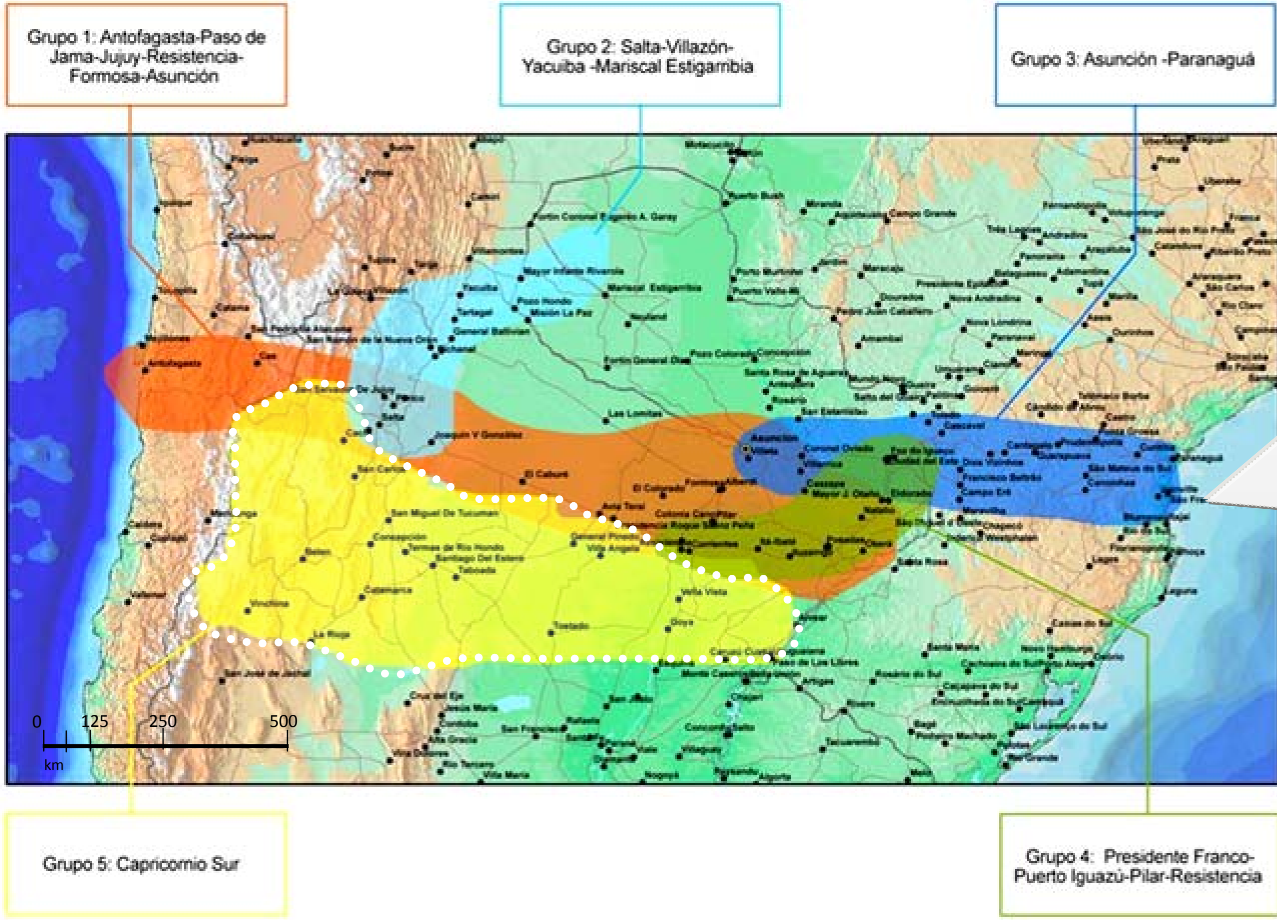
Almost 70% of the portfolio shows substantial progress

Project status	Projects (#)	US$ MM	%
Completed *	190	7.506	10%
In execution *	29	30.728	38%
In preparation	28	17.383	20%

*Financing structure of projects **

Financing	Projects (#)	US$ MM	%
Public	190	17,641	46%
PPP	29	52.2	35%
Private	28	6.6	19%
TOTAL	**247**	**38,234**	*100%*

Capricorn Axis: example of integration and development axis



- Comprises **five groups of projects**, including 78 initiatives located in five countries
- Projects include:
  - border crossings, highways, bridges
  - ports, multi-modal freight transfer centers,
  - railways, electric transmission lines, hydroelectric generation

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Border crossings' and trade facilitation analysis: example of an integration process

- Border crossings in South America have developed a high level of activity
  - **there are more than 100 border crossings in South America**
  - some crossings have more than 1,000 trucks per day, mainly in the Southern Cone
  - critical segments in the logistics chain (risk for increasing delays and costs)
- IIRSA carried on a detailed **border crossing analysis**, defining a typology
  - a systematic analysis of infrastructure, control processes, public and private stakeholders, documentation, information systems, and control mechanisms
  - aiming at the adoption of best practices in integrated border management
  - generated a series of recommendations to be financed by the initiative
- Border crossings are relevant not only for the main trade corridors: they are also of great interest for **border towns and its population**

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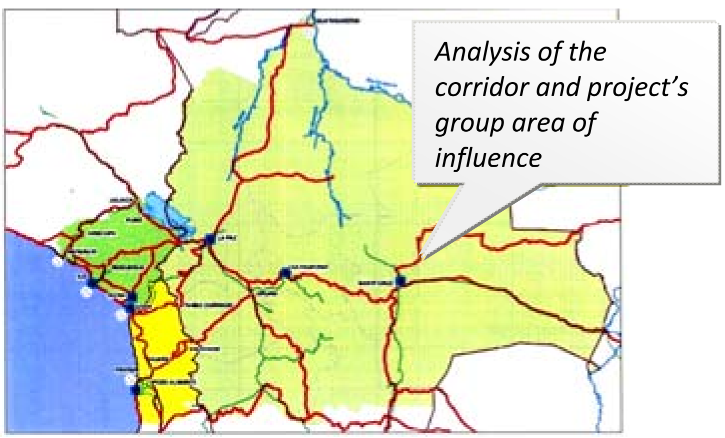
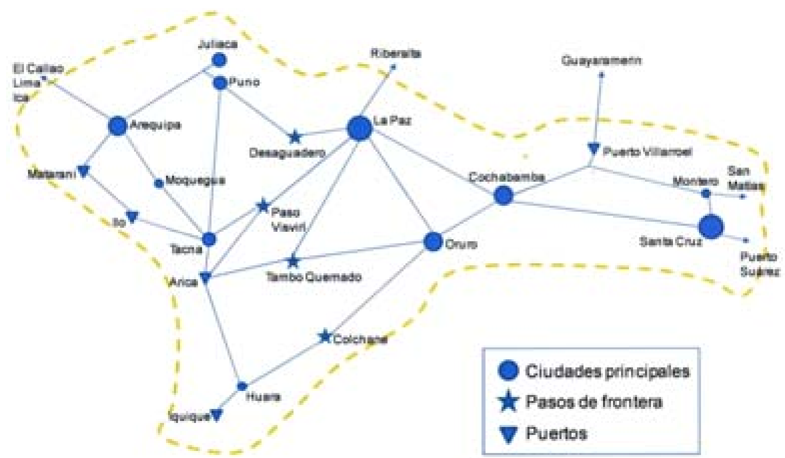
IIRSA has developed several methodologies and information systems…

- IIRSA has deepened the development of methodologies for integration projects: economic assessment of transnational projects, strategic environmental assessment, **productive and logistic integration**, and development of digital maps and GIS
- Productive integration (linkages, clusters) and the development of logistic services of high added value stream-lined in a single methodology:
  - **The potential of productive integration**: physical barriers removal will facilitate physical and financial integration, extending the scale of production and markets, promoting competitiveness and taking advantage of agglomeration economies
  - **The potential of logistic services development**: they will allow to add value to IIRSA projects and to improve local and regional competitiveness





… emphasizing the analysis of productive integration and value-added logistics projects

- The methodologies are based on mapping the productive and logistic chains, and on interviews to qualified stakeholders at different levels
- They also include training courses for local officials and for project preparation

Group 5 IP-Lg. Chile's exports from the port of Arica

País	Exportaciones año 2008 (USD FOB)	% Sobre el total regional
Bolivia	29.714.698	20,33
Perú	22.890.021	15,66
China	22.223.216	15,21
Estados Unidos de Norteamérica	14.778.204	10,11
Alemania	13.098.052	8,96
Brasil	11.838.498	8,10
Japón	6.486.686	4,44
Colombia	3.485.384	2,38
Italia	2.569.778	1,76
Malasia	2.228.739	1,53
Total 10	**129.313.279**	**88,48**
Total Regional	**146.146.622**	**100,00**

Fuente: Dirección General de Relaciones Económicas Internacionales, DIRECON 2009

Group 5 IP-Lg. Data on Chilean and Peruvian exports on the area of influence

Glosa resumida	Exportaciones año 2008 (USD FOB)	% el total exportado
Aceites combustibles destilados (gasoil, diesel oil).	27.538.810	92,68
Materias minerales naturales activadas.	808.525	2,72
Tractores de carretera para semirremolques, con motor diesel de potencia superior a 200 hp.	232.108	0,78
Motoniveladoras.	208.000	0,70
Camiones para transporte de mercancías, con motor de émbolo (pistón), de encendido por compresión (diesel o semi-diesel), con capacidad de carga útil superior a 2000 kilos.	98.803	0,33
Cargadores frontales.	65.500	0,22
Semirremolques planos.	63.580	0,21
Los demás chicles y gomas de mascar.	54.270	0,18
Las demás fibras sintéticas discontinuas, cardadas, peinadas o transformadas de otro modo para la hilatura.	41.947	0,14
Topadoras frontales («bulldozers»), de oruga.	38.000	0,13
Total 10	**29.149.554**	**98,10**
Total Regional exportado a Bolivia	**29.714.698**	**100,00**

Fuente: Dirección General de Relaciones Económicas Internacionales. DIRECON 2009

Rubro	Valor FOB (US$)	Peso Neto (tn)	US$/Tn
Minerales metalíferos	1,201,379,750	701,602	1,712
Cobre y sus manufacturas	528,455,289	74,080	7,134
Harina de Pescado	81,947,693	88,104	930
Lana y pelo fin u ordinario	65,018,613	5,921	10,981
fundición, hierro y acero	33,684,486	48,200	699
Prendas y accesorios de puntos	25,509,200	499	51,121
Café	19,595,508	8,650	2,265
Preparación de hortalizas, frutas	10,717,946	6,301	1,701
Químicos (derivados de la industria de cobre)	10,490,783	22,640	463
Hortalizas, plantas frescas	10,213,077	8,149	1,253
Pieles y cueros	9,107,966	1,971	4,621
Resto	73,902,491	104,406	
Total Arequipa	**2,070,022,802**	**1,070,523**	**82,881**

The Mesoamerica Project – MP is aimed at the regional development from southern Mexico to Colombia, coordinating regional integration projects

- In 2001 the Puebla Panamá Plan started combining a strategy for the modernization of Central America with a development agenda for southern Mexico. It looked not just for integration, but for regional sustainable development
  - Continued as MP, currently nine countries from México-Belize to Colombia
- There are strong synergies in the integration projects, particularly in the smaller countries, where infrastructure has been one of the traditional bottlenecks
- The MP includes a trade facilitation activity lead by SIECA (Central America Economic Integration Agency) oriented towards commercial integration
- It also includes ambitious social and territorial development initiatives

The initiative comprises a portfolio of +100 projects and US$ 8 billon in infrastructure investment..

PROYECTO Integración y Desarrollo MESOAMÉRICA

- Integration of the regional **energy market**
- Development of 13,000 km of **highways**
  - Pacific and Atlantic corridors
  - Implementing common technical road standards (currently lacking)

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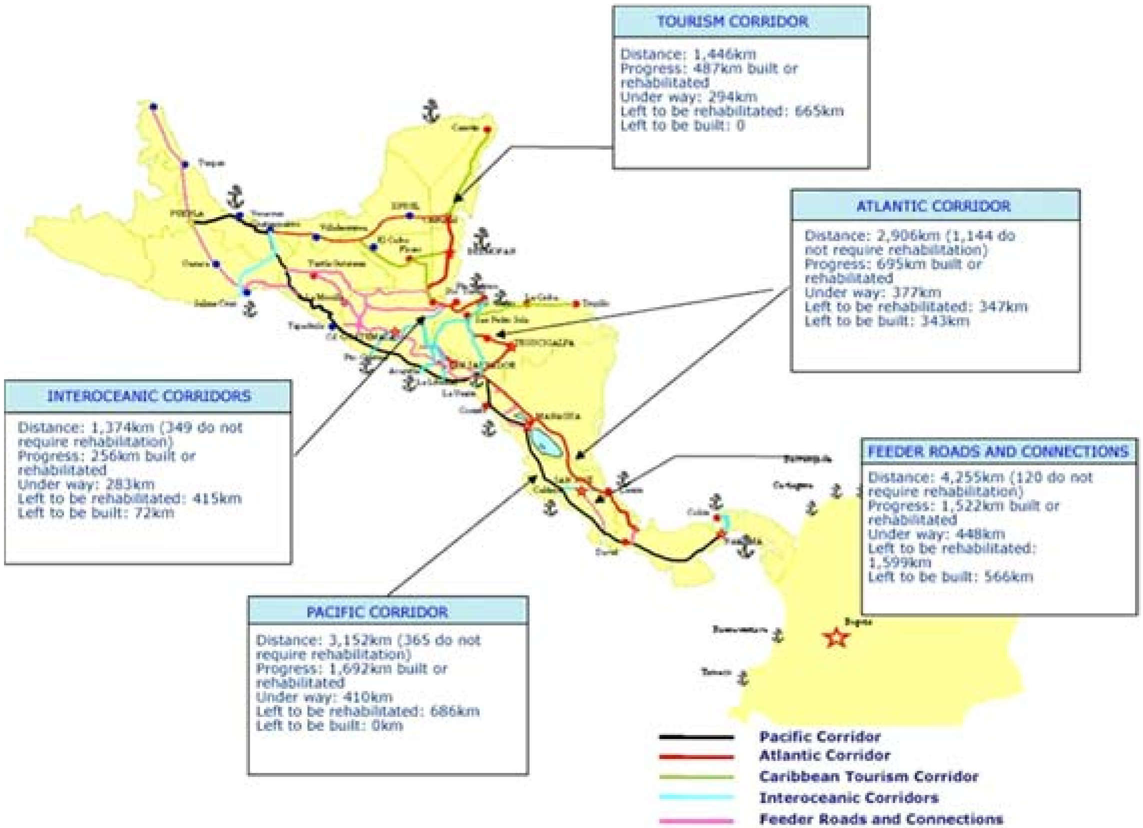
…with trade facilitation being one of the centers of attention

PROYECTO Integración y Desarrollo MESOAMÉRICA

- Border crossings and customs' facilities modernization
- Mesoamerican International Road Network (**five corridors**)
- Mesoamerican Process for international cargo transportation



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What are the main achievements in regional physical integration?	LAC's REGIONAL INITIATIVES FOR PHYSICAL INTEGRATION	IIRSA, the South American initiative The Mesoamerica Plan
What are the challenges in trade logistics to facilitate regional integration?	**REGIONAL AGENDA TO ADAVANCE THE INTEGRATION PROCESS**	**The regional agenda** **IDB's contribution**

The logistics gap is the result of low performance of the multiple components participating in the logistics chain, presenting great heterogeneity across LAC countries

- The logistics components that appear weaker in LAC are:
  - **Border crossing services**, including inspection processes (mostly in ports and border crossings) and IT systems integration
  - **Transport infrastructure** (mostly roads and highways)
  - **Land transportation services** (mostly trucking) and logistics operators
- **Performance across countries is uneven**: facing different problems, including demand-related obstacles (like freight imbalances or seasonality) and the way each one has managed to organize the factors determining the logistics service supply
- **High heterogeneity within countries** (particularly in large countries) with some regions lagging behind
- **SMES logistics performance is weaker than larger firms**, not only because economies of scale, but to cultural and managerial reasons
- **Room to improve** logistics operators' performance and to modernize the trucking industry

A recent IDB survey of projects showed that ports and logistics, highways and electricity generation are the most important for country growth according to infrastructure professionals in LAC.

CG-LA Infrastructure - Survey Results for Key Issues of Integration, Infrastructure & IIRSA in the Context of the Financial Crisis - 2008

The agenda includes actions at national and regional level, demanding program and project coordination

- **In trade logistics**
  - The provision of basic infrastructure, particularly the road network
  - Improve services and regulations that facilitate PPPs, like in ports and railroads
  - Improve services delivered by the State, like customs management, border crossings, and security
  - Support logistic management development SMEs, operators and intermediaries
  - Implement institutional organization for high quality logistics

IDB's agenda

- **In physical integration**
  - Agendas between countries, including integration and "axis-based" infrastructure development criteria, prioritizing projects of greater impact
  - Develop financial mechanisms
- **In the areas where both agendas converge**
  - Emphasize the key processes for integration, as it is the case of border crossings, the regulation and harmonization in the diverse transport modes
  - Continue developing the agenda for productive integration and logistic services, supporting national and sub-national organizations

IDB contributes in several ways to trade logistics and physical integration in the Region

- **Regional coordination**
  - As an efficient vehicle for policy, projects and regional coordination
- **Institutional strengthening**
  - The Bank has developed skill in strengthen institutional capacity – a clear deficit – for countries and sub-national entities as well
- **Coordination of thematic agendas**
  - Subjects tend to converge, and the coordination of the different agendas is a major value added:
    - State modernization and private sector development
    - Joint approach considering territorial planning, spatial economics and transport planning
- **Knowledge**
  - To aid decision making processes and dissemination of initiatives within client countries
- **Financing**
  - Public and private investment, coordinating with other lenders

Thank you!

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The inventories size allows to evaluate the performance of the transport system: the less reliable it is, the larger the inventories and the logistic costs will be

Inventory level in Latin America: ratio with US inventories (mean)

Country	Raw material	Finished products
Chile	2.17	1.76
Venezuela	2.82	1.63
Peru	4.19	1.65
Bolivia	4.20	2.74
Colombia	2.22	1.38
Ecuador	5.06	2.57
Mexico	1.58	1.46
Brazil	2.98	1.98

- *Studies carried on in 2001 (when interest rates were relatively high) showed that incremental inventory - due to the weaknesses of the logistics system – represented around 2% of GDP*
- *Inventory value is in the range of 15% of GDP in OECD countries, and around twice in Latin America and the Caribbean*

Based on Guasch and Kogan, 2006

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Logistics perception indicators show that LAC lags well behind developed countries

EXAMPLES	LPI GENERAL	CUSTOMS	INFRAS-TRUCTURE	INTERNATL. SHIPMENTS	LOGISTICS COMPET.	TRACKING & TRACING	DOMESTIC LOGISTICS COSTS	TIMELINESS
Argentina	45	51	47	49	44	46	93	46
Brazil	61	74	49	74	49	65	126	72
Chile	32	24	34	34	35	37	114	44
Colombia	82	116	85	75	86	71	81	86
Mexico	56	60	53	53	57	48	101	51
Peru	59	49	57	54	60	67	59	80
USA	14	19	7	20	13	10	144	19
Spain	26	30	24	23	24	22	107	29

Position in the LPI General ranking and its seven sub-indexes

The *Enabling Trade Index* allows the identification of the most fragile components in the trade facilitation performance

Country	ETI08	Customs efficiency	Exp Imp processes efficiency	Customs transparency	Transport infrastructure	Transport services	TICs
ARGENTINA	78	60	69	96	80	51	49
BOLIVIA	94	93	80	75	93	85	101
BRASIL	80	73	61	58	91	42	56
CHILE	27	17	30	18	45	38	45
COLOMBIA	75	37	73	55	83	67	63
COSTA RICA	44	65	53	42	68	88	52
ECUADOR	96	118	87	108	89	87	75
EL SALVADOR	55	72	64	49	94	68	73
GUATEMALA	54	19	81	63	84	84	72
HONDURAS	64	77	77	74	70	105	90
MEXICO	65	63	76	57	87	55	58
NICARAGUA	67	85	65	73	96	107	100
PANAMA	46	41	20	67	26	57	70
PARAGUAY	83	64	83	95	101	100	94
PERU	69	113	55	50	92	69	77
R DOMINICANA	63	50	47	78	73	109	66
URUGUAY	56	75	79	28	61	83	51
VENEZUELA	115	112	106	115	95	91	57

AIC's 31 consensus projects

First completed project: Arce River bridge, linking Bolivia and Brazil (2006)

IDB's vision for trade logistics infrastructure improvement in LAC

Priority action areas	*Typical sectors and problems*	*Priorities for low-middle income countries*	*Priorities for high-middle income countries*
Basic infrastructure development	***Trunk highways, rural roads. maintenance***	▸ Basic infrastructure (main and rural roads) ▸ Roads maintenance	▸ Increase capacity ▸ By passes in urban areas ▸ Access to ports
Transport services and regulation	***Ports, railways***	▸ First generation reforms ▸ Increase operational efficiency	▸ Second generation reforms ▸ Regulations adjustment. ▸ Increase investment, PPPs
Services provided by the State	***Customs, border crossings***	▸ Customs procedures ▸ Dispatch time ▸ Domestic security	▸ Integrated control ▸ Unified paperless inspection ▸ Increase security, corruption
Private sector development support	***SMES, transport and logistics operators, logistics parks, HR***	▸ Transport operators and freight forwarders professionalization ▸ Access to technology ▸ Finance	▸ HR development ▸ Logistics platforms, regional hubs ▸ Logistics outsourcing ▸ 3PL development
Institutional strengthening	***Logistics councils and freight transport observatories***	▸ Strengthening and coordination of government offices ▸ Training	▸ Coordination among areas and jurisdictions ▸ Private sector participation ▸ Public officials training

IDB's agenda emphasizes the need of public agencies involvement, training and analysis

IDB