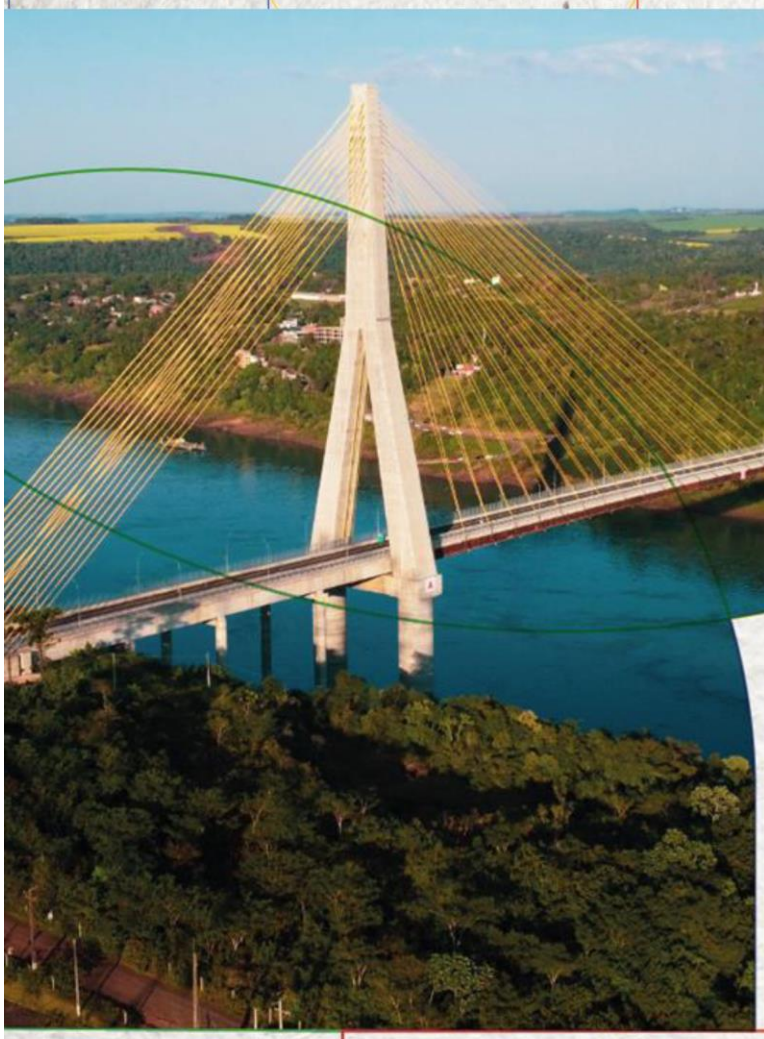

Subcommittee on South American **Integration and Development**

October 30

2023

Activity Report (June to September 2023)

MINISTRY OF PLANNING AND BUDGET

GOVERNO FEDERAL

BRASIL

UNIÃO E RECONSTRUÇÃO

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Summary

List of Acronyms

AC	Acre
ACE	Acordo de Complementação Econômica / Economic Complementation Agreement
ALADI	Associação Latino-Americana de Integração / Latin American Integration Association
ALALC	Associação Latino-Americana de Livre Comércio / Latin American Free Trade Association
AM	Amazonas
AP	Amapa
API	Agenda Prioritária de Investimentos / Priority Investment Agenda
ARG	Argentina
BID	Banco Interamericano de Desenvolvimento / Inter-American Development Bank
BNDES	Banco Nacional de Desenvolvimento Econômico e Social / National Bank for Economic and Social Development
BOL	Bolivia
CAF	Corporação Andina de Fomento / Andean Development Corporation
CAMEX	Câmara de Comércio Exterior / Chamber of Foreign Trade
CCR	Convênio de Créditos Recíprocos / Reciprocal Credit Agreement
CCT	Comitê de Coordenação Técnica do COSIPLAN / COSIPLAN Technical Coordination Committee
CDB	Banco de Desenvolvimento do Caribe / Caribbean Development Bank
CEPAL	Comissão Econômica para a América Latina e Caribe / Economic Commission for Latin America and the Caribbean
CHI	Chile
CIM	Comitê Interministerial para a Mudança do Clima / Interministerial Committee on Climate Change
CNDI	Conselho Nacional de Desenvolvimento Industrial / National Council for Industrial Development
CNI	Confederação Nacional da Indústria / National Industry Confederation
COFIEX	Comissão de Financiamentos Externos / External Financing Committee
COSIPLAN	Conselho Sul-Americano de Infraestrutura e Planejamento / South American Infrastructure and Planning Council
EMBRAPA	Empresa Brasileira de Pesquisa Agropecuária / Brazilian Agricultural Research Corporation
FOCEM	Fundo de Convergência Estrutural do Mercosul / Mercosur Structural Convergence Fund
FONPLATA	Fundo Financeiro para o Desenvolvimento da Bacia do Prata / Financial Fund for the Development of the River Plate Basin
GUY	Guiana
IBGE	Instituto Brasileiro de Geografia e Estatística / Brazilian Institute of Geography and Statistics
IIRSA	Iniciativa para a Integração da Infraestrutura Regional da América do Sul / Initiative for the Integration of Regional Infrastructure in South America
ILAT	Aliança para a Integração e Desenvolvimento da América Latina e do Caribe / Alliance for the Integration and Development of Latin America and the Caribbean
IPEA	Instituto de Pesquisa Econômica Aplicada / Institute for Applied Economic Research
MA	Maranhão
MDIC	Ministério do Desenvolvimento, Indústria, Comércio e Serviços / Ministry of Development, Industry, Trade and Services
MDR	Ministério do Desenvolvimento Regional / Ministry of Regional Development

MERCOSUL / MERCOSUR	Southern Common Market
MPO	Ministério do Planejamento e Orçamento / Ministry of Planning and Budget
MRE	Ministério das Relações Exteriores / Ministry of Foreign Affairs
MS	Mato Grosso do Sul
MT	Mato Grosso
PA	Para
PAC	Plano de Aceleração do Crescimento / Growth Acceleration Plan
PR	Parana
PY	Paraguay
RO	Rondonia
RR	Roraima
RS	Rio Grande do Sul
SC	Santa Catarina
SIDSA	South American Integration and Development Subcommittee
SIN	Sistema Interligado Nacional / National Interconnected System
SP	Sao Paulo
UF (State)	Federation Unit
UNASUL	União das Nações Sul-Americanas/ Union of South American Nations
URF	Unidade da Receita Federal / Federal Revenue Unit
VPL	Valor Presente Líquido / Net Present Value

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Introduction

The Subcommittee on South American Integration and Development submits its Activity Report to the Ministerial Governance Committee of the Ministry of Planning and Budget (MPO), in accordance with the Brasilia Consensus, dated May 30, 2023, and Subcommittee Action Plan, set out on June 13, 2023. The collegiate body was created within the framework of the MPO's governance structure by virtue of the Resolution CMG no. 1, dated June 5, 2023.

The re-creation of the MPO, after four years under the umbrella of the then Ministry of Economy, allows the Ministry to revive challenging agendas, such as South American integration. This partial report represents a first but firm step towards giving the issue the attention it deserves.

On the occasion of the Brasilia Consensus, President Lula reaffirmed the need in Brazil to revitalize its relations with the continent's neighbors. The message prompted the formation of the Subcommittee on South American Integration and Development within the MPO. The work presented here is the result of an intense process of active listening with sub-national entities and partners at Esplanade. This process allows us to realistically show some of the challenges and potential of regional integration.

The task is not trivial. Brazil has 16,900 kilometers of borders with ten other nations. This borderland strip includes 588 Brazilian municipalities, 33 of which are twin cities[1] and four are triple borders, as well as dozens of points of contact with neighboring countries, in territories where cultures and social relations flow beyond the formal limits of customs posts. At the same time, of the almost 17,000 kilometers, around 9,000 are demarcated by rivers, lakes and canals. For two centuries, the integration of regional infrastructure has taken a back seat. Due to a combination of factors, the historical priority was to demarcate the boundaries, without, however, uniting the countries.

With 201 years of history as a sovereign country, Brazil has only 15 international bridges and six official international ferry crossings.

However, South American economic and social integration is a reality that should not be limited to the network of connections and routes linking the Atlantic Ocean to the Pacific or the Caribbean Sea. This is not just an infrastructure issue, materialized in bridges, highways or train lines. Millions of people live in these areas. The growing population of the border territory demands more attention from the political decision-making center. We need to synchronize the state agenda, historically prioritized with an

[1] As defined by Ministry of Regional Development (MDR), twin cities are "municipalities that are cut by the border line, dry or rivers, articulated or not by infrastructure works, and that present great potential for economic, social and cultural integration with the city of the neighboring country". The Ordinance MDR no. 2.507, dated October 5, 2021 lists the Brazilian cities that fall into this category.

eye on the Atlantic, with the reality of the populations that depend on integration with our neighbors.

Although the integration of economic infrastructure should be seen as a first-rate strategy, capable of overcoming the obstacles that prevent the interconnection of South American societies and economies, there are huge challenges. Above all, they include better use of river basins, multimodal connections, interoceanic networks, energy integration and environmental preservation. The greatest difficulties lie in making physical transport, energy and communications connections in areas that have high mountain ranges, deserts and regions of great biodiversity, rich archaeological heritage, national parks and indigenous reserves. Concern must prevail about minimizing negative socio-environmental and heritage externalities, strengthening the local productive structure through sustainable projects capable of generating formal jobs and income for the population around the integration routes and their areas of influence.

As you will see in chapter 2, five different Routes of Integration and South American Development shape the organization of the Report: 1) The Guiana Island Route, which includes the entire states of Amapa and Roraima and parts of Amazonas and Para, linked to Guyana, French Guiana, Suriname and Venezuela; 2) The Manta-Manaus Multimodal Route, covering the entire state of Amazonas and parts of Roraima, Para and Amapa, linked by river to Colombia, Peru and Ecuador; 3) Quadrante Rondon Route, comprising the states of Acre and Rondonia and the entire Western portion of Mato Grosso, connected to Bolivia and Peru; 4) Capricorn Route, from the states of Mato Grosso do Sul, Parana and Santa Catarina, connected by multiple routes to Paraguay, Argentina and Chile; and 5) Porto Alegre - Coquimbo Route, covering Rio Grande do Sul, integrated with Argentina, Uruguay and Chile.

Figure 1 - Selected South American Integration and Development Routes

Created by the author. Source: SIDSA.

These five complementary routes bring Brazil closer to and integrate it with the other South American nations, and can extend to the Pacific Ocean and the Caribbean. The proposal put forward in this report is for this set of initiatives to constitute a network of South American Integration and Development Routes, forming a vast web of connections that will foster and boost the Brazilian economy's relations with neighboring countries and even with the emerging markets of Asia Pacific. Currently, the great advantages that Brazil has - soil quality, thanks to the development and improvement guaranteed by EMBRAPA; irrigation structures and the dense mechanization of production; regular rainfall rates; production capacity; business participation; credit lines; associated services; among others - are diluted by the loss of time and resources caused by the lack of adequate infrastructure. In other words, the current production shipping way has an impact on the competitiveness of exported products.

In the same vein, the expansion of cabotage lines along the South American Pacific could also boost and increase intra-regional trade. A key factor in consolidating the port infrastructure of the South American Pacific for export flows is the need for investment in transhipment infrastructure and port adaptations for bulk, containerized and refrigerated cargo in Chilean and Peruvian ports. Another key factor is progress in digitalization and customs facilitation at border crossings, which should receive great

attention from national and sub-national governments.

The aim of the Subcommittee on South American Integration and Development, in seeking to recognize the current state of regional integration, is to shed light on the potential and challenges of this process. The lists of demands and projects presented by the states and listed here are not exhaustive, but they provide a more organized view of the obstacles to integration and development. The Subcommittee believes that several of these problems have received sparse and insufficient treatment in the complex web of federal bureaucracy. It also seemed to the Collegiate that the federal government, in conjunction with state governments and other sub-national entities, could play a leading role in formulating structured solutions, addressing issues that recur along the various routes that lead us to the West.

With the likely preparation of the National Long-Term Plan, there is an effective opportunity to develop an articulated relationship between this proposal and the plan, which could eventually propose a portfolio of projects, including the prospects for South American physical and productive integration.

The work is divided into three parts, in addition to this introduction. The first chapter discusses the political and institutional background of infrastructure integration in South America; briefly reviews the economic literature on the subject; discusses new global and national economic axes, portraying the increased importance of the economic dynamics of Asia-Pacific and Western Brazil; recalls academic approaches to geographical space, and contextualizes the subject in the light of the MPO's historical and current competencies, detailing the Subcommittee's work.

The second chapter presents and analyzes the five South American Integration and Development Routes considered by the working group. This section looks at the evolution of foreign trade in goods between 2000 and 2022 for eleven Brazilian states that border South American neighbors. In general, it can be seen that over the last few decades there have been significant changes both in the list of exports and in the volume of sales from these states, as well as in the list of the main purchasing countries. Despite the changes in the profile of exports and the main destinations of sales, the outlets and supply routes were maintained, as were the Federal Revenue Units (URF) used to clear foreign sales and purchases.

In most cases, the main goods traded changed, as did the partners in this trade, while the routes used to transport production continued to be concentrated, in logistical terms, in the Atlantic ports of the South and Southeast. Chapter two also seeks to list the different bottlenecks to integration pointed out by the eleven bordering states, as well as presenting a series of proposals and recommendations for potential solutions for a new agenda.

The second section of this report also presents a set of projects included in the New PAC that have the potential to contribute to regional integration. The selection of projects was not intended to be

definitive. The criteria and methodology for the South American Integration and Development Routes will be expanded in the course of the discussions that will follow the publication of this Report. In order to identify New PAC projects with regional integration potential, a number of filters were carried out: 1) projects in the eleven border states; 2) projects in the airports, railroads, highways, waterways, information highways and innovation and research sub-areas; 3) the potential for multimodal interconnections between projects along the Routes; and 4) the location of the reference municipalities for the projects, linked to border dynamics. Based on these criteria, of the more than 9,000 projects in the New PAC, around 100 with the potential to contribute to regional integration were selected. Following the guidelines of the Brasilia Consensus, it is necessary to improve this selection and obtain a priority list of projects. It is in this context that the opportunities to include the Northeast in the perspective of South American integration are incorporated. This may be possible through better coordination between the projects planned for the Central-West, North and Northeast regions.

The third chapter presents five concrete proposals. Three of them deal with the institutionalization of South American regional infrastructure governance: International Governance Mechanism, a new COSIPLAN; National Governance Mechanism, a new Interministerial Commission to deal with the issue; and Subnational Governance Mechanism, with working groups for each of the South American Integration and Development Routes. The other two are: Monitoring Mechanism and Financing Mechanism. These proposals should be read taking into account the need to adopt a collaborative and transversal agenda, sharing competencies with various state actors, in a process of cooperation without which it will be difficult to overcome structural problems in a reasonable time.

This work is preliminary, non-conclusive and non-binding in nature. It is considered essential to continue and deepen studies based on the discussions presented here. It is hoped that the knowledge consolidated in this report will enable a qualified resumption of the debate on the integration of regional infrastructure and will contribute as technical input to support government decision-making on the subject.

1. South American Regional Integration

1.1 Political and institutional background

Even before 1500, South America already had a complex network of pre-Inca roads used for the transportation of products and the movement of people. It was the so called *Qhapaq Ñan*, established as a network formed by an ingenious system of roads. The routes had retaining walls, canals, culverts and stone fences for thousands of kilometers. The link to Brazil was via the Peabiru route, which connected the southern coast of Peru and the Atlantic Ocean. These roads formed the most important transcontinental route in South America, passing through the current territories of Bolivia, Paraguay, Mato Grosso do Sul, Parana, and São Paulo (BARROS, SEVERO & CARNEIRO, 2022).

Since the beginning of the 20th century, scholars of Brazilian geopolitics have considered the Midwest to play a fundamental role in national integration, both because it is an area of interconnection between the Amazon and Plata basins, and because of its projection into South America and its location between the Pacific and Atlantic oceans. The former territory of Mato Grosso gained prominence for its ability to attract neighboring countries to the Atlantic ports and, at the same time, for being a projection platform towards the Pacific. As early as the 1930s, the area between the present-day cities of Corumba-MS, Campo Grande-MS and Ponta Porã-MS was seen as a future "Mediterranean Saints" because of its political and economic importance (TRAVASSOS, 1935).

Formulations continued to emerge throughout the 20th century about the importance of this central area for the South American integration process. At the same time as suffering from the confinement of the interior and the remoteness of the oceans, the South American Mediterranean countries and spaces - including Central-West Brazil, Bolivia and Paraguay - have enormous potential to play the role of production interconnection platform and regional and bioceanic trade, with the possibility of becoming logistics centers and producers in regional chains.

From the standpoint of institutions, the issue of regional integration has several milestones in recent history, including: a) the political and economic project of CEPAL (UN Economic Commission for Latin America and the Caribbean), which began in the 1950s and resulted in ALALC (Latin American Free Trade Association) in the 1960s; b) the initiative of ALADI (Latin American Integration Association) and, c) the cooperation projects between Brazil and Argentina in the 1980s, led by presidents José Sarney and Raúl Alfonsín, which engendered Mercosur. Whatever the starting point, there is a common obstacle to these projects: the lack of integration infrastructure.

Since the first decades of the 20th century, infrastructure integration projects have been carried out in South America. Although sporadically, the milestones were some railroads that connected Bolivia with Argentina, Chile and Peru. In the 1950s, Brazil extended its railroad network from Santos-SP, through the current territory of Mato Grosso do Sul, reaching Corumba and covering another 600 kilometers to Santa Cruz de la Sierra, in the Bolivian interior.

One of the largest binational infrastructure projects in South America recently celebrated its half-century anniversary. Signed in 1973, the Itaipu Treaty provided for cooperation between Brazil and Paraguay for the construction of a hydroelectric plant. A few years later, in 1980, the creation of ALADI allowed for greater pragmatism in integration projects and opened the way for rapprochement between Brazil and Argentina, which resulted in the 1991 Treaty of Asunción, the terms of which can be found in ALADI's Economic Complementation Agreement (ACE) No. 18. This gave rise to the Southern Common Market (Mercosur). In the same context, Brasilia and Buenos Aires began cooperating on nuclear energy for peaceful purposes.

Mercosur, in turn, allowed for increased integration of intra-regional trade flows in the 1990s by benefiting from the economic policy adopted by Brazil and Argentina. Brazil became Argentina's main trading partner and the bilateral trade agenda was focused on manufactured goods. The bloc's success as a lever for regional integration and as a driving force for the international integration of member countries is undeniable. However, the Real crisis in 1999 and the Argentine crisis that began in 2001, which led to the end of the parity regime between the dollar and the Argentine peso, posed new challenges for integration.

Although intra-regional trade accounts for just under 20% of Brazil's trade with the world, South America has established itself as a key market for Brazilian products with higher added value. The South American neighbors represent less than 2% of total world imports, but buy more than 35% of all the products with high and medium-high technological intensity exported by the Brazilian economy South America's neighbors account for less than 2% of total world imports, but buy more than 35% of all products with high and medium-high technological intensity exported by the Brazilian economy (CARNEIRO, 2022). Brazil is also an important consumer market for manufactured goods produced by its South American neighbors. South American regional integration, therefore, must be understood as a common priority agenda for the recovery and for boosting the regional industrial network.

The diversification of companies is also robust. Recent report by the Ministry of Development, Industry, Trade and Services (MDIC, 2023) on "export companies profile" highlights that Latin America was the region chosen by exporting companies as the preferred destination for their products in 2020:

15,195 companies (approximately 61% of all exporters in the country) sold to the region. Intraregional trade also represents a privileged space for small and medium-sized enterprises (SMEs), which benefit from shorter distances, cultural proximity, payments in local currencies, lower complexity and relative cost of procedures and a border ecosystem that is favorable to the exchange of goods and services.

1.2 From political and trade integration to physical integration

In the early 2000s, the South American integration project gained more momentum. The First Summit of South American Presidents, held in Brasilia between August 31 and September 1, 2000, demonstrated the importance of infrastructure as a basis for deepening regional integration with the launch of the Initiative for the Integration of South American Regional Infrastructure (IIRSA). IIRSA projects were grouped into ten axes: 1) Andean Axis; 2) Southern Andean Axis; 3) Paraguay - Parana Waterway Axis; 4) Capricorn Axis; 5) Amazon Axis; 6) Guiana Shield Axis; 7) Southern Axis; 8) Central Interoceanic Axis; 9) Mercosur - Chile Axis; and 10) Peru - Brazil - Bolivia Axis.

On the one hand, one of IIRSA's main legacies for the contemporary integration agenda was the formulation of the bioceanic corridor projects linking the Atlantic and the Pacific; on the other hand, the initiative's most obvious limitations were the lack of multimodal projects, with road transport predominating, the low intensity of multinational projects and the dispersion of efforts in proposals that had little consequence for regional integration, with exclusively national actions prevailing.

Despite being presented as a project of the South American governments, IIRSA was first formulated by the Inter-American Development Bank (IDB) and the then Corporación Andina de Fomento, now the Development Bank of Latin America (CAF), organizations that continued as part of the technical coordination of the projects together with the Financial Fund for the Development of the River Plate Basin (FONPLATA). The three institutions - IDB, CAF and FONPLATA - were also potential financiers of the projects. There was not enough political or economic governance from all the South American states in view of the scale of the axes and projects. Despite aiming for integration, management was politically disintegrated. The political weight of the multilateral banks for IIRSA was therefore greater than that of the countries in the region.

The creation of the Union of South American Nations (UNASUR) in 2008 was the result of concerted efforts between the states of South America and the different integration agreements in the region (especially Mercosur and the Andean Community) to enable shared governance of regional problems. With the creation of UNASUR, space was opened up for various regional cooperation initiatives in public policies, such as the South American Health Council, the South American Defense Council and the

Infrastructure and Planning Council (COSIPLAN), which in 2009 incorporated IIRSA as its technical secretariat, favoring the idea of continuity. Through these initiatives, the countries of the region took political control of the infrastructure integration agenda. However, the financial bottleneck remained, which was not overcome with the participation of the IDB, CAF and FONPLATA. National governments earmarked US$ 27 billion for IIRSA portfolio projects and private investors US$ 11 billion; IDB, CAF and FONPLATA together earmarked around US$ 2.4 billion (COSIPLAN, 2017). In addition, the resources of these financial institutions were concentrated in projects that had a limited impact on integration. Considering COSIPLAN's portfolio, it is also possible to identify the relatively modest participation of regional multilateral development banks in project financing (around 5% of the total): Table 1 - COSIPLAN project portfolio by type of financing

Table 1 - COSIPLAN's project portfolio by type of financing

Funding Source	Project No.	Investment Forecast	Actual Investment	% Actual / Forecast
National Treasury	322	70,374.50	27,026.40	38%
Private	86	43,609.90	11,459.20	26%
To be defined	72	40,431.00	170.00	0%
BID	36	5,716.60	1,211.00	21%
CAF	32	4,265.10	1,154.80	27%
Multiple	20	13,159.40	2,748.00	21%
State treasury	17	1,875.00	200.00	11%
Binational	12	9,639.80	1,408.80	15%
FOCEM	10	819.00	419.30	51%
Multiple - Public	10	3,611.80	-	0%
FONPLATA	6	298.90	-	0%
To be defined - public	6	328.00	-	0%
To be defined - private	6	1,149.70	388.00	34%
Private banks	4	108.00	75.30	0%
European Union	4	179.50	68.50	42%
World Bank	3	172.50	-	40%
JBIC	3	185.90	67.20	0%
BNDES	2	157.10	2,100.00	43%
Municipal Treasury	2	2,100.00	-	100%
Multiple - private	2	719.90	48,496.50	0%
Total		198,901.60	27,026.40	24%

Source: COSIPLAN – Agenda de Projetos Prioritários – 2017 [Priority Projects Agenda]. Prepared by: SIDSA

For the total estimated investments, the IDB, CAF and FONPLATA, the three regional banks that made up the COSIPLAN Technical Coordination Committee, were responsible for financing just over 5% of the total, according to the table above. When the investments made are analyzed, the sum of the financing from the three banks is less than 5%. Among other factors, the low quality of the projects

presented and the lack of priority for regional integration projects by the countries would have contributed to the low commitment of the regional multilateral banks to financing South American integration projects. From a political standpoint, IIRSA made it possible to put the importance of infrastructure integration at the forefront and to promote the creation of a South American market for goods and services. However, neither IIRSA nor COSIPLAN were able to guarantee the implementation of most of the proposed projects. Funding was insufficient, as was the priority given by the region's governments to works, actions and projects. Financing infrastructure integration works remains a major challenge for South American countries. It is necessary to achieve the necessary scale of resources in a financially sustainable way, without the South American states losing the political capacity to define the integration agenda and their development project.

The intensification of competition for the world market has renewed the importance of infrastructure and logistics projects. China, the United States and the European Union are all prioritizing the renovation and construction of domestic and international infrastructure on their political agendas. Foreign interest in investing in South American infrastructure, however, should not diminish the importance and responsibility of South American states in rebuilding an integration agenda, not only in the different modes of transportation, but also in energy and digital networks. Among the modes of transport, it is worth highlighting the deficiency in airport integration, which becomes an obstacle to the movement of people and even hinders the promotion of business and tourism within the region, as well as creating obstacles for postal integration that could leverage intra-regional retail trade.

Recent years have seen a reduction in the level of institutionalization in intra-regional relations and in the level of commitment to the integration agenda. The foreign policy adopted by Brazil from 2023 onwards brings the issue of South American integration to the fore and seeks to mobilize its neighbors once again to adopt a program of shared prosperity. South America will always be politically and economically fundamental for Brazil, and the opposite is true. The geographical realities and historical processes of the region lead to this bond. Furthermore, the economic, political, social and cultural integration of the peoples of Latin America is a constitutional mandate, expressed in the sole paragraph of Article 4 of the 1988 Constitution (Magna Carta). Given Brazil's weight in the region, it is up to the country to seek conciliation between the others and to be a stabilizing and development factor for its neighbors.

1.3 Socio-economic evidence on regional integration

The importance of IIRSA and the continent's physical integration initiatives is documented in the economic literature. Moreira (2011) investigates the role of infrastructure projects in the IIRSA portfolio

for territorial integration, the integration of goods and the expansion of the flow of people in South America. The article highlights the importance of infrastructure for regional integration from the point of view of transportation costs, which is directly in line with the points made by the states at the Subcommittee meetings. Quantitatively, the author points out that the flow of trade is significantly sensitive to changes in transportation costs: increases of 10 percentage points in transportation costs reduce trade volumes by approximately 20% - and this correlation worsens as dependence on road transportation increases.

The Mato Grosso do Sul Bioceanic Corridor has also been studied. Abrita et al (2023) identify that integration in the region has the capacity to reduce product flow times, transportation costs, storage and inventory. It also provides greater efficiency in the production flow process and increases the added value of exported products. In a complementary way, when studying data on macroeconomic variables in the region, Constantino et al (2019) indicate that the accumulated real growth of local GDP grew by 530%, with positive evidence of regional economic development compared to its peers. This growth hides the existence of great heterogeneity in the development process of the municipalities participating in the corridor.

With regard to road integration in the Amazon, based on the Acre Interoceanic Highway, Vilella et al (2020) identify that approximately 45% of the projects have the prospect of economic losses, with a negative Net Present Value (NPV), even without incorporating the social and environmental externalities of their construction. In addition to environmental externalities and the financial impact, Oliveira et al (2019) study the social externalities of the impact of the interoceanic highway in Acre on the lives of small producers. The authors identify, based on interviews with families who mostly work in agriculture, that small producers have not shown any income growth that differs from their peers in Latin America. Those who benefited from the reduction in transportation costs were large-scale producers, with a reduction in the cost of transporting products.

This evidence plays a fundamental role in the process of updating IIRSA/COSIPLAN's project portfolio, as it illustrates the need for an ex-ante evaluation program when deciding on new projects. In addition, it is necessary to design an evaluation and monitoring program for the projects to be implemented so that it is possible to measure not only the financial impact of each project, but also the socio-economic impact from an ex-post evaluation. The benefits and proposed operationalization of this issue will be discussed in Chapter 3.

1.4 New global and national economic axes

Over the last few decades, Southeast Asia's economic and commercial importance has grown significantly on the global stage and the most dynamic axis of the world economy has shifted from the North Atlantic to the Asia-Pacific region. At least since the 1970s, the economic growth and technological advances of the economies of Southeast Asia, the massive flows of trade in goods, services and investments, the establishment of international trade agreements and partnerships and the geographical displacement of economic and productive activities have given greater relevance to the Asia-Pacific region.

Over the last two decades, the productive, financial and trade dimensions of China and Southeast Asia have boosted global demand for food, raw materials and basic inputs. These changes in the global economy have also caused transformations in Brazil. Asia's strong economic dynamism has exerted an undeniable attraction for national exporters. According to Comex Stat, in 2000, less than 2% of Brazil's exports went to China, totaling just over US$ 1 billion. By 2022, the Asian country will have acquired 27% of Brazil's total sales abroad, equivalent to almost 90 billion dollars.

This dynamic - combined with government policies for the spatial deconcentration of Brazil's economy and population, the internal displacement of rural producers, the research and development processes of the Brazilian Agricultural Research Corporation (EMBRAPA) and technological developments - has allowed the Cerrado and other biomes to become highly productive. Some states have become central players in the expansion of the agricultural frontier (EMBRAPA, 2020). Brazil is moving westwards in demographics and economy, especially in the export sector. Agricultural dynamism in parts of Brazil's western frontier transcends national boundaries, entering a number of provinces in neighboring countries. Some economies, such as Argentina and Paraguay, are also being impacted by growing demand from Asia-Pacific.

Brazilian agricultural production has undergone a major geospatial reconfiguration. This is due, among other factors, to the advance of productive areas towards the west of the national territory and, consequently, the growing distance of agricultural crops from traditional Atlantic ports. At the same time, this westward march of production brings Brazilian products closer to the logistical alternatives available on the Pacific coast, similar to what happened twenty years ago with grain production in the Midwest and the multimodal routes in the Amazon. The flow of national production through the ports of the South and Southeast regions of Brazil (especially Santos-SP and Paranagua-PR) has gained the support of logistical alternatives in the Arco Norte ports, activating structures such as Porto Velho-RO, Manaus-AM, Itacoatiara-AM, Santarem-PA, Miritituba-PA, Barcarena-PA, Vila do Conde-PA, Porto de Santana-AP and

Itaqui-MA, among others.

1.5 New geographical concepts

Brazil's Midwest plays a fundamental role in national integration, as it is an area of interconnection between the Amazon and Plata basins and its projection into South America, between the Pacific and Atlantic oceans. According to Mario Travassos, in his book *Projeção Continental do Brasil* (Travassos, 1935), the former territory of Mato Grosso would be, at the same time, a platform for Brazilian projection towards the Pacific and for attracting neighbors to the Atlantic Ocean. Travassos proposed the construction of bioceanic routes, including rail integration between Santos-SP and Corumba-MS, which would extend throughout Bolivian territory via Santa Cruz de la Sierra to the Pacific coast.

Throughout the last century, formulations continued to emerge about the importance of this region as a "welding" space, which included Paraguay, Bolivia and the Brazilian states of Mato Grosso, Mato Grosso do Sul and Rondônia (GUTIERREZ, 1946). The Mediterranean countries and territories of South America are located in the "continental heartland". These spaces, while suffering from the confinement of the interior and the remoteness of the oceans due to their geographical position, have enormous potential to play the role of a bioceanic production and trade interconnection platform, becoming logistics and production centers (PADULA, 2013).

Of course, it will be necessary to analyze the feasibility of crossing the Andes for each type of cargo, on each of the Routes. Among the most important variables and points needed for these analyses are: the topographical profile of the road; the construction of comparative tables in relation to traditional routes across the Atlantic; the impacts of the loss of power of trucks and combustion traction vehicles, as a function of the gain in ground elevation (m/km); the angulation due to the variation in relief, the mapping of maximum ramps and critical points; the average volume of cargo tonnage; the type of product transported; the scalability and added value of the goods traded; the existence of a regional economic dynamic that allows the road to be used in both directions (return freight); the time and cost of transhipment; connectivity along the route and the integration of customs procedures (BARROS, SEVERO, RIBEIRO & CARNEIRO, 2021).

In recent decades, Brazil's so-called "articulating states" have gained prominence, consisting of all the non-Atlantic Federation Units that form the border strip between Brazil and its South American neighbors. Mato Grosso, Mato Grosso do Sul, Rondonia, Acre and Roraima are key territories for overcoming the geographical antagonisms that divide South America.

These five Mediterranean states have experienced intense transformations in terms of their population, production and foreign trade.

In 2000, the sum of exports from the five articulating states, according to Comex Stat, totaled around US$ 2.3 billion, equivalent to just 2.5% of total Brazilian sales. In 2022, these same five states, taken together, reached an impressive US$ 43.4 billion in foreign sales, representing 13% of national exports. In the same period, per capita exports from the linking states grew an average of 14 times, from US$ 335 to US$ 4,590. Between 2000 and 2022, Brazil's per capita exports grew threefold, from US$ 551 to US$ 1,647. Separately, the expansive dynamics of the five states are even more striking, as shown in the table below:

Table 2 -Evolution of exports from the "articulating states" (US$ million)

Year	Acre	Mato Grosso	Mato Grosso do Sul	Rondonia	Roraima	Brazil
2000	3	1,756	430	101	4	93461
2001	10	2306	782	93	7	95915
2002	6	2920	625	119	10	97859
2003	8	3477	792	155	6	115779
2004	12	4797	997	206	8	147381
2005	17	6200	1716	304	13	177725
2006	26	6285	1457	446	22	199729
2007	25	7258	1830	643	23	225574
2008	30	10613	2843	788	21	266098
2009	21	11485	2578	533	17	207063
2010	28	11353	3877	570	15	269005
2011	22	14430	4995	627	20	330030
2012	12	17654	5319	1008	19	305859
2013	14	19864	6564	1306	10	292136
2014	9	18257	6446	1319	24	273107
2015	20	16117	5842	1207	14	230628
2016	15	15350	4964	1069	18	218907
2017	26	17583	5713	1293	49	256680
2018	46	19153	6712	1456	19	270258
2019	38	19696	6002	1493	181	253127
2020	38	20616	6584	1551	223	236534
2021	53	23384	7447	1822	364	303288
2022	54	32418	8191	2344	426	334463

Source: Comex Stat. Prepared by: SIDSA

In recent years there has also been a sharp increase in the participation of the five articulating states in Brazil's trade surplus. Between 2000 and 2010, they accounted for 15.5% of Brazil's trade surplus with the world, especially due to the export strength of Mato Grosso and Mato Grosso do Sul. Between 2011 and 2022, the relative share of this group reached an impressive 54%. This result is quite significant, considering that the five states in question account for less than 5% of Brazil's population and GDP.

1.6 The MPO's role in South American integration

Historically, the Ministry of Planning and Budget has acted as the Brazilian representative of the COSIPLAN Coordinating Committee, until its activities came to a halt in 2018. This representation was in line with the portfolio's participation profile since IIRSA's institutional breakthrough. The Decree dated September 17, 2001, which created the "Interministerial Commission for the Integration of Regional Infrastructure in South America, with the purpose of articulating government actions in this area", already designated the then Ministry of Planning, Budget and Management as President of the Commission.

The organizational dynamics of Brazilian action at COSIPLAN involved coordinating meetings attended by representatives of multiple bodies at Esplanade, both direct and indirect. In this role, it promoted Brazilian discussions on the reports of the sectoral groups, the analysis of work plans and the definition of priority projects to make up the Priority Investment Agenda (API) from a Brazilian perspective. More specifically, this involved analyzing sources of funding for project portfolios, evaluating resources for studies and executive projects, as well as allowing operations of thematic groups and analyzing management problems in projects involving two or more countries. The COSIPLAN Coordinating Committee worked as the executive body for planning and monitoring the actions set out in the Strategic Action Plan. The record of your meetings can be accessed here.

Currently, under the terms of Decree No. 11.353 of January 1, 2023, which recreated the Ministry of Planning and Budget, five of the MPO's six competencies can be directly or indirectly related to the issue of regional integration:

- Preparation of subsidies for the planning and formulation of long-term public policies aimed at national development (art. 1, I);
- Evaluation of the socio-economic impacts regarding the federal government policies and programs and preparation of special studies for policy reformulation (art. 1, II);
- Preparation, monitoring and evaluation of the multi-annual investment plan and annual budgets (art. 1, IV);
- Enabling new sources of funding for government plans; (art. 1, V); and
- Formulation of guidelines, monitoring and evaluation of external financing of public projects with multilateral organizations and government agencies (art. 1, VI)

The work of the Subcommittee on South American Integration and Development, therefore, is not only justified by the current legal competencies of the Ministry, but also fulfills the function of reviving an issue that historically was led by the Ministry. Analyzing possible regional integration routes not only serves international trade purposes. An activity of such complexity that it requires institutional coordination with sub-national entities; harmonization of national planning with industry, regional and state planning; budget predictability for projects prioritized by the Union; evidence of the positive impact of public programs and policies, through ex-ante analyses and ex-post evaluations; and intelligent use of

new sources of resources, both national and external, since it is unrealistic for all projects to be supported by the Federal Government's budget.

In four months of work, the Subcommittee held more than 20 meetings, accumulating more than 60 hours of talks with leaders of state governments, technicians and representatives of ministries, authorities from public bodies, leaders of private institutions and leading scholars on the subject of South American regional integration. The Subcommittee's executive secretariat met with the Ministry of Foreign Affairs, the Ministry of Transport, the Ministry of Mines and Energy, the Ministry of Communications, the Ministry of Integration and Regional Development and the Ministry of Tourism. There have also been preliminary meetings of the Subcommittee's executive secretariat with representatives of the Economic Commission for Latin America and the Caribbean (CEPAL), the National Bank for Economic and Social Development (BNDES), the Development Bank of Latin America (CAF), the Inter-American Development Bank (IDB), the National Health Surveillance Agency (ANVISA), the International Agricultural Surveillance Agency (VIGIAGRO), the Federal Revenue Service, the Federal Police and the National Historical and Artistic Heritage Institute (IPHAN).

The high-level engagement of the state governments involved in this exercise, with high-quality presentations, highlights the need for the federal government to once again prioritize federative articulation and contribute to the structuring of the South American integration agenda, promoting the growing involvement of sub-national entities. After all, the populations of the border states are the ones most directly affected by the integration processes and have an essential role to play in formulating demands and offering solutions that promote development and improve living conditions. The figure below is complemented by a more detailed list in the appendix to this report, with the respective links to the minutes.

Figure 2 - Summary of SIDSA meetings

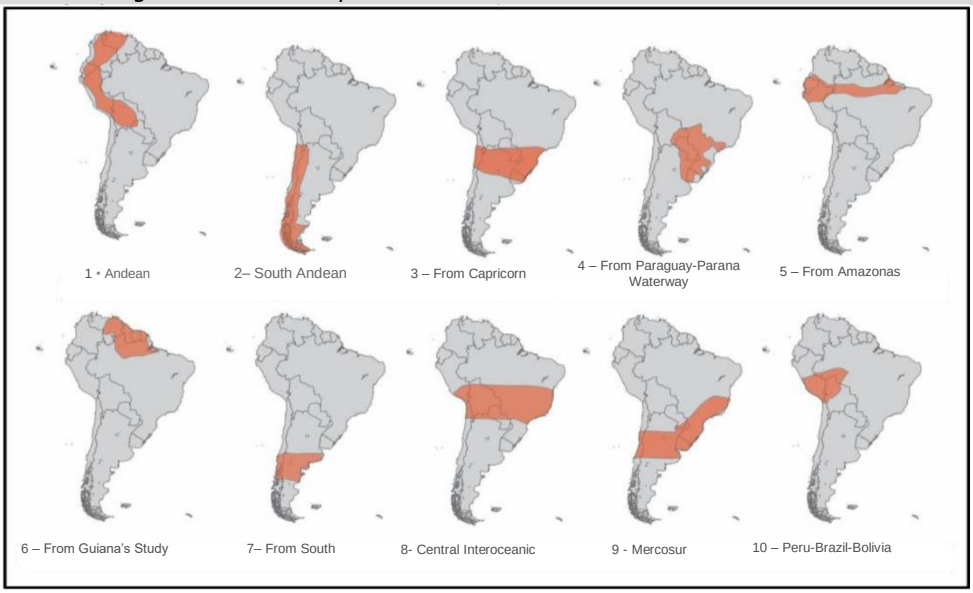
Source: SIDSA. Created by the author.

2. South American Integration and Development Routes

This chapter looks at the five South American Integration and Development Routes. This part of the work took into account information presented by representatives of the eleven Brazilian states that border neighboring countries, in meetings at the MPO, as well as information shared by each State Secretariat for Planning, Development or International Relations. It is necessary to thank for, very emphatically, the commitment of the state governments of Acre, Amapa, Amazonas, Mato Grosso, Mato Grosso do Sul, Para, Parana, Rio Grande do Sul, Rondonia, Roraima and Santa Catarina to the activities of the Subcommittee on South American Integration and Development.

From the Subcommittee meetings, obstacles and potentialities were identified for each of the eleven states, with an emphasis on the challenges related to the planning and execution of works, projects, physical infrastructure integration initiatives (or not), as well as the debate on the need for progress in the institutionalization of international, national and sub-national governance of regional integration. The discussions were wide-ranging, including regulatory and phytosanitary issues, as well as environmental and property protection, and so on. The geographical sections adopted for the proposal of five Routes were derived from the original categorization used within the framework of IIRSA/COSIPLAN, whose proposal contained ten Axes, as shown in Figure 3.

Figure 3 - IIRSA/COSIPLAN Integration and Development Axes



Source: IPEA, 2022.

The Subcommittee's work considered five routes, which cover seven of the ten original integration and development axes of the IIRSA/COSIPLAN. Three of the axes initially proposed by IIRSA/COSIPLAN

were not considered because they were geographically outside Brazil[2]. Based on the debates between MPO officials and representatives of the state governments, as well as the private sector of the eleven Brazilian states considered, the section that will be presented is based on the following South American Integration and Development Routes: 1) The Guiana Island Route, which includes the entire states of Amapa and Roraima and parts of Amazonas and Para, bordering Guyana, French Guiana, Suriname and Venezuela; 2) The Manta-Manaus Multimodal Route, covering the entire state of Amazonas and parts of Roraima, Para and Amapa, connected by river to Colombia, Peru and Ecuador; 3) The Quadrante Rondon Route, formed by the states of Acre and Rondônia, through the entire western portion of Mato Grosso, with connections via Bolivia and Peru; 4) The Capricorn Route, from the states of Mato Grosso do Sul, Parana and Santa Catarina, connected by multiple routes to Paraguay, Argentina and Chile; 5) The Porto Alegre - Coquimbo Route, covering Rio Grande do Sul, integrated with Argentina, Uruguay and Chile.

Figure 4 - South American Integration and Development Route Network proposed by the MPO Subcommittee

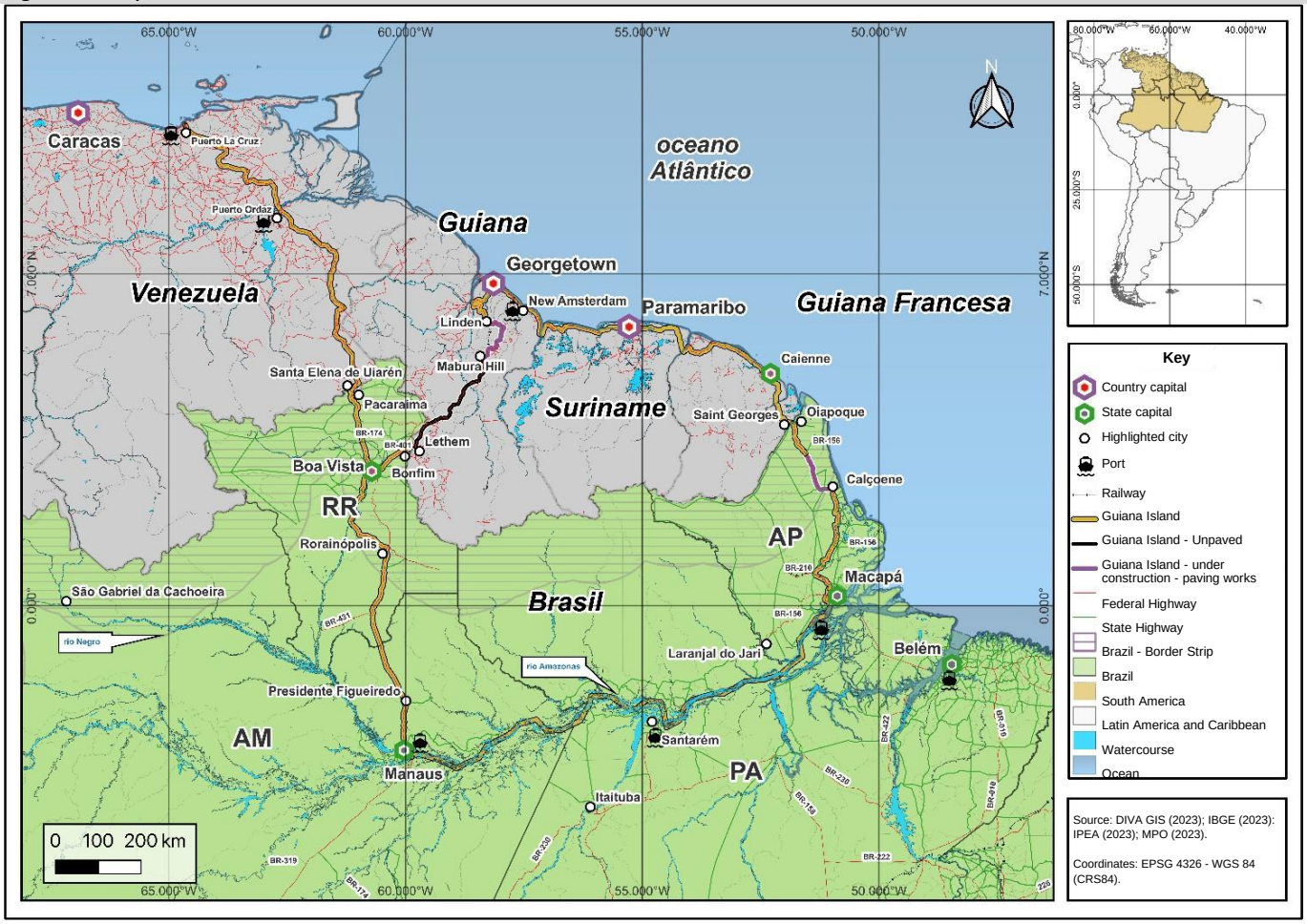
Created by the author. Source: SIDSA

[2] 1- Andean; 2- South Andean; and 7- From South.

Route 1 – Guyana Island

Photo: Caíque Rodrigues/G1

Figure 5 - Guyana Island Route



Created by the author. Source: SIDSA.

The Guyana Island Route includes the entire states of Amapa and Roraima and parts of the territory of Amazonas and Para, bordering Guyana, French Guiana, Suriname, and Venezuela. Marked by multimodality, the Route's main interconnecting routes are:

a) BR-174, connecting Manaus-AM to Boa Vista-RR and Pacaraima-RR, in the border with Santa Elena de Uairen, in Venezuela;
b) Troncal 10, Venezuelan highway that goes to the Caribbean region;
c) BR-401, connecting Boa Vista-RR to Bonfim-RR, on the border with Lethem, Guyana (the International Bridge over the Tacutu River was inaugurated in 2009 by President Lula);
d) the guyanese highway between Lethem-GUY and Georgetown-GUY (the stretch between Linden and Mabura Hill is being paved);
e) Negro river and Branco river, connecting Manaus-AM to Caracarai-RR;
f) the Amazonas river, connecting Manaus-AM to Itacoatiara-AM, Santarem-PA, and Macapa-AP;
g) BR-156, connecting Laranjal do Jari-AP, Macapa-AP and Oiapoque-AP, on the border with French Guiana; and
h) the Trans-Guiana Highway, which runs along part of the North American coastline, linking Cayenne in French Guiana with Paramaribo in Suriname and Georgetown in Guyana.

Guiana Island is also made up of the Orinoco River and the Casiquiare Canal, a natural channel that connects Venezuela's main river body with the Negro River. This route has strategic interconnection

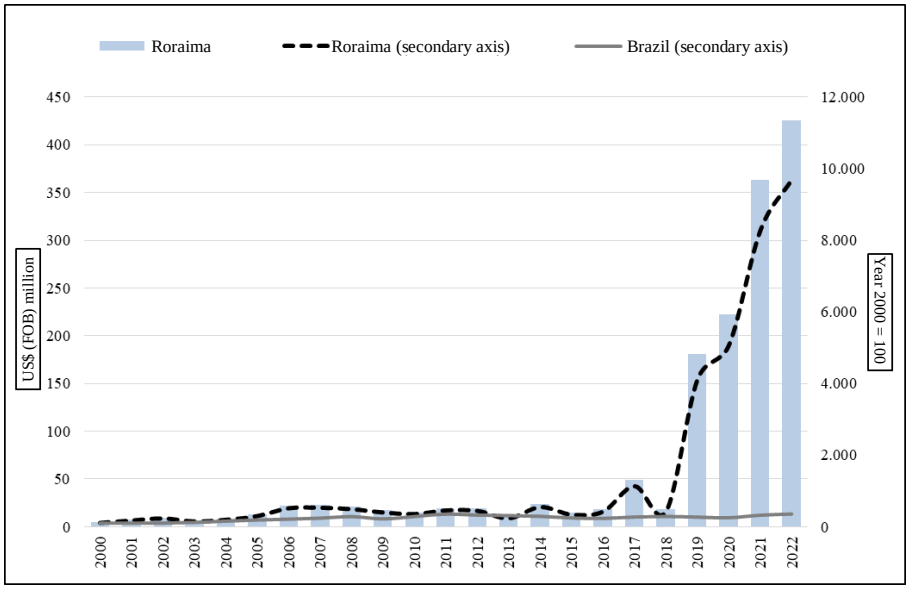
points with two others, such as the Quadrante Rondon Route, from the waterways between Itacoatiara-AM and Porto Velho-RO, via the Madeira River waterway, or via the BR-319 highway; and the Manta-Manaus Multimodal Route, via the Solimões River, from the border city of Tabatinga-AM.

2.1.1 Roraima

Between 2000 and 2022, Roraima's exports multiplied 96 times in real terms, from US$ 4.4 million to over US$ 425 million. During this period, the state's sales to Venezuela, its main partner with 65% of the total, jumped from US$ 3.6 million to US$ 274.9 million, concentrated on food products. Exports to Guyana in 2022 totaled US$11.6 million, with the majority of outflows registered at the Bonfim-RR customs office. A few years ago, Roraima didn't even export to the neighboring country.

Roraima's productive sector has been showing strong economic dynamism with an increased export profile, especially since 2018. Some exceptional geopolitical factors contributed to this result, such as the economic sanctions suffered by Venezuela, which are now being relaxed; and the breakdown of political-diplomatic relations and the closure of the border between Colombia and Venezuela - both of which have now been re-established by the respective governments. This context added to Roraima's productive initiative and ended up favoring an increase in trade flows between the Brazilian Amazonian state and its main consumer market.

Chart 1 - Roraima's exports 2000-2022, in US$ (FOB) million, at 2022 prices (left axis) and exports from Roraima and Brazil (secondary axis, index 100).



Source: Comex Stat-MDIC. Prepared by: SIDSA.

In recent years, there has been an intense transformation in Roraima's exports. In 2000, wood and wood products accounted for 88% of the total sold abroad; in 2022, these products amounted to just 0.3%. The share of soy went from non-existent to 35.2%. There has also been an expansion in exports of

food products, mostly destined to supply the Venezuelan economy.

Roraima's imports, meanwhile, showed more modest growth. Between 2000 and 2022, the state of Roraima multiplied the value of its foreign purchases sixfold, from US$ 6.3 million to US$ 39.8 million. The peak occurred in 2021, when the state acquired US$63.7 million from abroad. These imports were concentrated in products such as steam boilers, fertilizers, air-conditioning machines and tires. The use of part of the imported inputs by Roraima's productive sector indicates the beginning of a process of mechanization of the state's production, aimed both at the domestic market and abroad.

Roraima – Points to note

BR-174, Roraima's only link with the rest of Brazil, needs to be repaired, both on the stretch between Manaus-AM and Boa Vista-RR and on the stretch between Boa Vista-RR and Pacaraima-RR. Improving this route tends to stimulate intra-regional trade in that part of the South American Amazon and increase the sophistication of the goods exported by the state. BR-401, between Boa Vista-RR and Bonfim-RR, is in good condition and there are already Free Trade Areas in Boa Vista-RR and Bonfim-RR, implemented in 2008. The binational bridge over the Tacutu River between Brazil and Guyana was inaugurated in 2009 by President Lula. It is understood by the state government that it is necessary to set up a Dry Port in the Boa Vista-RR region.

The road between the towns of Lethem-GUI and Linden-GUI is unpaved and permanently subject to flooding. This project had already been in IIRSA's project portfolio for almost two decades. Currently, the 230-kilometer stretch between Linden and Mabura Hill, with dozens of small bridges and the Essequibo River crossing, is being built by Queiroz Galvão with funding from the Caribbean Development Bank (CDB).

The Tucurui hydroelectric power line (a project included in the New PAC) needs to be completed in order to interconnect Roraima, which is currently the only Brazilian state disconnected from the National Interconnected System (SIN). Despite the potential to promote the use of solar energy, taking advantage of the vertical incidence of the sun on the equator, all the energy used in the state depends on thermoelectric plants powered by fuel oil and natural gas. The Tucurui line, on the Tocantins River, only reaches as far as Manaus-AM, and the Guri hydroelectric line, on the Caroni River in Venezuela, stopped being used in 2019. Recently, the federal government announced measures to accelerate solutions on both fronts, advancing the agenda of creating a South American energy market.[3]

It is worth considering the possibility of promoting water transportation between Caracarai-RR and Manaus- AM, via the Branco River and the Negro River, in order to guarantee another alternate connection between Roraima and Amazonas, helping to unblock the cargo flow via BR-174.

[3] In August 2023, President Lula authorized the transmission line between Manaus-AM and Boa Vista-RR, more than 700 kilometers long. In addition, President Lula signed a decree allowing Brazil to buy energy from Venezuela again.

The need to increase the presence of Brazilian federal and state agencies in the border regions in various thematic areas (trade, production, investment, security, health surveillance and agricultural control) was put forward. It would also be crucial to promote the training of customs brokers and foreign trade administrators to work in these regions further away from the capital.

Part of Roraima's logistical challenge lies in the need to expand its containerized cargo and storage capacity, modernizing the fleet with refrigerated trucks, adapting outlets and loading stations, and avoiding the breakdown of the cold chain. It is also important to make progress in establishing integrated border control areas, especially to facilitate the transit of cargo and digital certification.

Trade between Roraima and Guyana could increase even more due to the exponential growth of the neighboring economy as a result of recent oil discoveries and exploration. Guyana is an associate member of Mercosur and has accompanied the bloc's most recent meetings. As a connecting point between Venezuela and Guyana, Roraima is able to project itself into the Caribbean Community (Caricom). The state government considers the Mercosur-Caricom Free Trade Agreement, the Brazil-Guyana Bilateral Agreement for cargo and passengers, as well as updating the terms of the Partial Economic Complementation Agreement between Brazil and Suriname to be priorities.

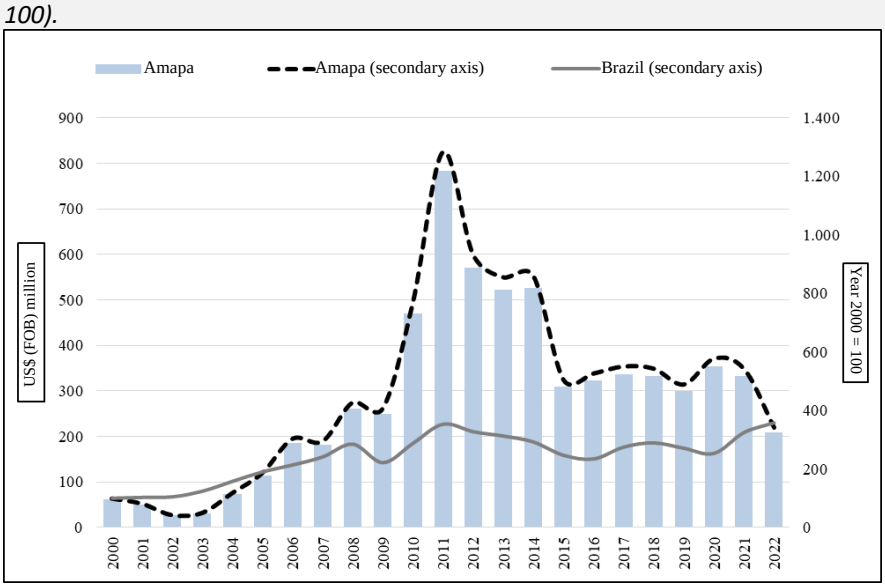
There are seven Roraima infrastructure projects in the New PAC linked to regional integration. The main initiatives are on BR-174, in the municipalities of Rorainopolis-RR and Pacaraima-RR, on the border with Venezuela; on BR-401, to Normandia-RR, another Roraima town bordering Guyana; and the construction of viaducts on BR-432, in Vila Nova Paraiso, in Caracarai-RR. Also noteworthy are the fiber-optic infovia from the north to the south of the state and the Boa Vista-RR airport concession. In the 2000s, the IIRSA/COSIPLAN portfolio carried out projects such as the rehabilitation of highways between Caracas and Manaus-AM; the fiber-optic connection from Caracas to northern Brazil; and improvements to the BR-401 highway, from Boa Vista-RR to Bonfim-RR.

2.1.2. Amapa

Despite its strategic location, extensive international border and the infrastructure of the port of Santana-AP, the state does not have robust trade relations with its neighbors, French Guiana and Suriname. In 2022, of the amount exported by Amapa - US$ 200 million - half was made up of a single product, gold, sold essentially to Canada, only by air, with customs clearance carried out at the URF at Guarulhos-SP airport. In turn, only 1% of Amapa's foreign sales went to French Guiana. Amapa exported around US$ 2.2 million worth of various final consumer goods to this country, via the URF in Oiapoque-AP, such as fruit, wooden furniture, mineral water, flour, beans, sand, coffee, beer, bricks, footwear, deodorants, cookies and comforters, among others. Part of these products originate in the economy of Para. Sales to Suriname in 2022, on the other hand, didn't even reach US$17,000.

In recent years, the port of Santana-AP, located near the mouth of the Amazon River, has been increasingly used by other Brazilian states. Between 2000 and 2011, the cargo exported by this URF was solely from Amapa, with an annual average of US$ 50 million. In 2015, most of the goods shipped through the port of Santana-AP came from the state of Para. In 2019, however, sales of products from Mato Grosso stood out. In 2022, products from Mato Grosso accounted for 66% of the US$ 435 million shipped through this port structure. For this reason, the state of Amapa has considered the Ferrogrão project to be relevant, as it transports part of the production from the Center-West to the North, as far as the Tapajós River, a tributary of the Amazon River, before heading by sea to the main consumer markets.

Chart 2 - Exports from Amapa 2000-2022, in US$ (FOB) million, at 2022 prices (left axis) and exports from Amapa and Brazil (secondary axis, index 100).



Source: Comex Stat-MDIC. Prepared by: SIDSA.

Amapa has also increased its imports. In 2000, the state bought US$48 million from abroad and, by 2022, this amount had reached US$722 million. The expansion in recent years has been mainly due to foreign purchases of mineral fuels. The result is partly explained by tax breaks for companies that set up branches in the state. In 2000, 70% of Amapa's imports consisted of mineral fuels; by 2022, this share had reached 95% of the total. Two decades ago, the main supplier to the Amapa economy was Venezuela, which sold US$16.3 million worth of diesel oil, almost 50% of the total fuel purchased. In 2022, Amapa imported US$ 680 million in diesel oil and other gasoline from the United States. Currently, of all Amapa's foreign purchases, the United States accounts for more than 92%. Logistics have also changed. In 2000, all the mineral fuels purchased by Amapa entered Brazil through the URF in Macapa-AP; currently 96% of the mineral fuels purchased abroad enter in the state through Maceió-AL. The port of Santos-SP accounts for the remaining 4%.

Amapa has 700 kilometers of border with French Guiana and 50% of its municipalities are on the

border strip[4] and occupies the same geomorphological space as the Guiana Shield, with natural, mineral and cultural factors that bring it closer to Guyana, French Guiana, Suriname and Venezuela. There are successful spaces for sub-national governance and cooperation in full operation between Amapa and French Guiana, such as the Oiapoque River Council, which brings together demands from four border municipalities, the Cross-Border Health Surveillance Program, the proposal for a laboratory to analyze pathogens in the Guiana Shield, the Intercultural School on the Border and the State Committee for Refugees and Migrants. Despite having made progress in bilateral talks, Amapa requires greater involvement and support from the federal government.

Finally, of all Brazil's eleven border states, Amapa is one of the only ones that has territorial boundaries with a country whose population has greater purchasing power than the average Brazilian consumers. In this way, there would be room to adopt programs that promote the supply of the French Guiana market with services and goods, such as meat, fish, clothing, cleaning and construction materials produced by the economy of Amapa or Para.

Amapa – Points to note

Amapa has projects included in the New PAC that seek to break the state's isolation by promoting its integration with Guiana Island and the connection with Para. The initiatives are spread along the BR-156 highway, starting with the bridge that will connect Laranjal do Jari-AP and Almeirim-PA, in Para, and moving on to Oiapoque-AP, a municipality bordering Saint-Georges-de- l'Oyapock, in French Guiana. Also included were some waterway terminals (IP4) in cities such as Laranjal do Jari-AP, Amapa-AP, Oiapoque-AP and Santana-AP, as well as the Macapa-AP airport concession.

The Tucurui transmission line only goes as far north as the town of Calçoene-AP, so the almost 30,000 inhabitants of Oiapoque-AP have to use thermoelectric generation sources (70% of the total) and a solar farm (30%). The state government is demanding the expansion of the line to Oiapoque-AP. On the other hand, the border town has connectivity infrastructure based on French fiber optics. The state's proposal is to bring energy to the north of Macapa-AP and connectivity to the south of Oiapoque-AP.

1 [4] According to Paragraph 2 of Article 20 of the 1988 Federal Constitution, the strip up to one hundred and fifty kilometers wide along the land borders is known as the Border Strip and is considered essential for the defense of the national territory. Currently, the law that regulates the region designated as the Border Strip is the Law 6.634, 1979. On its official website, the IBGE has maps and lists of the municipalities that make up the Border Strip.: https://www.ibge.gov.br/geociencias/organizacao-do-territorio/estrutura-territorial/24073-municipios-da-faixa-de-fronteira.html

The state of Amapa is working with the Ministry of Foreign Affairs (MRE), the Ministry of Ports and Airports and the Civil House on a request to sign the TIR (International Road Transport) Convention, the international transit system necessary for Brazilian trucks to enter French Guiana. Cargo is currently transhipped at the border, which only operates 8 hours a day. It is worth noting that a visa is required to enter French Guiana, making it difficult for people to do business and move around. There is no reciprocity on Brazilian side.

In addition to Amapa being affected by the "Amazon factor", which refers to higher prices compared to the other units of the Federation, other factors discourage greater integration of the state with French Guiana: the need for a visa for Brazilians to enter the neighboring territory, issued only in Brasilia; and the charging of vehicle insurance for Brazilians to enter. These are some of the reasons why only a few dozen Brazilian vehicles cross the Franco-Brazilian bridge each year. This set of restrictions means that the binational bridge operates almost unidirectionally.

The state government intends to turn Santana-AP into the "Port of the Guianas", with the possibility of receiving European cargo. French Guiana is currently supplied with consumer goods by France, via small boats from the Caribbean islands of Guadeloupe and Martinique. The port of Cayenne does not have enough draft to berth large ships. Depending on the logistics, it could be cheaper for France to use the infrastructure of the port of Santana-AP to supply Cayenne via a refurbished BR-156.

In the 2000s, the IIRSA/COSIPLAN portfolio carried out projects such as the improvement of the BR-156 highway between Ferreira Gomes-AP and Oiapoque-AP, and the binational bridge over the Oiapoque River, linking Brazil with French Guiana. Work on the bridge was completed in 2012, but the road was only inaugurated in 2017.

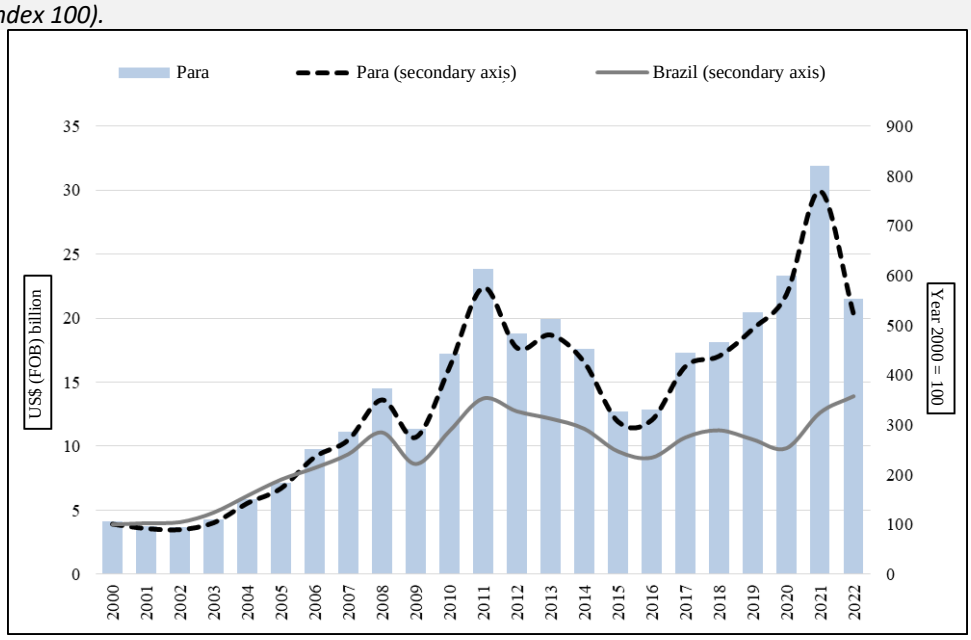
2.1.3 Para

Between 2000 and 2022, exports from Para multiplied more than fivefold, jumping from US$ 4.1 billion to US$ 21.5 billion. In 2022, the state of Para was the main exporter in the North and the seventh in the country. This was despite the fact that the amount exported by the state showed a considerable drop compared to 2021, when sales reached US$31.9 billion. Para's main economic activity continues to be mining, especially exports of iron ore and its concentrates, which between 2010 and 2022 had an average annual share of 58% of the total. China (74.2%) and Malaysia (8.2%), both via São Luis-MA, are the main destinations for iron ore exports from Para.

Despite the predominance of the mineral sector in Para's foreign sales, some important changes in the export list are already noticeable. The fall in the relative share of raw aluminum and kaolin and other clays are examples of these changes. On the other hand, exports from the agricultural sector in

Para, especially soybeans, frozen beef and corn, have been gaining in scale and relative weight in the total number of goods sold abroad.

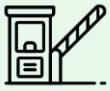
Chart 3 - Exports from Para 2000-2022, in US$ (FOB) million, at 2022 prices (left axis) and exports from Para and Brazil (secondary axis, index 100).



Source: Comex Stat-MDIC. Prepared by: SIDSA.

Imports from Para, on the other hand, grew almost sixfold, jumping from US$ 470 million to US$ 2.7 billion. Oil and its derivatives (coal and coke) continue to be important inputs purchased by Para. In 2022, more than 70% of Para's imports of petroleum oils were of North American origin, registered almost exclusively at customs in Belem-PA. In the same year, the United States also supplied 100% of Para's imports of caustic soda (sodium hydroxide), as well as being the state's main supplier of petroleum coke. In the case of coal, 100% of the raw material is imported from Colombia and registered by customs in Belem-PA and São Luis-MA.

Para – Points to note



Despite having extensive international borders with Guyana and Suriname, the state of Para has no population centers near these borders, which are formed by parks and indigenous reserves. The state has sparse trade relations with neighboring countries. The land and river routes for trade between Para and neighboring countries pass through the Amazon, Roraima or Amapa. For this reason, the cities of Para along the Amazon River, such as Santarem-PA, Oriximina-PA, Obidos-PA and Almeirim-PA, among others, are gaining in importance.

The Para projects included in the New PAC have an indirect impact on the regional integration process. Some of the initiatives were selected by identifying construction sites in the Lower Amazon region, which forms the border between Para and Guyana and Suriname. These are mainly waterway or port projects on the Amazon and Tapajos rivers.

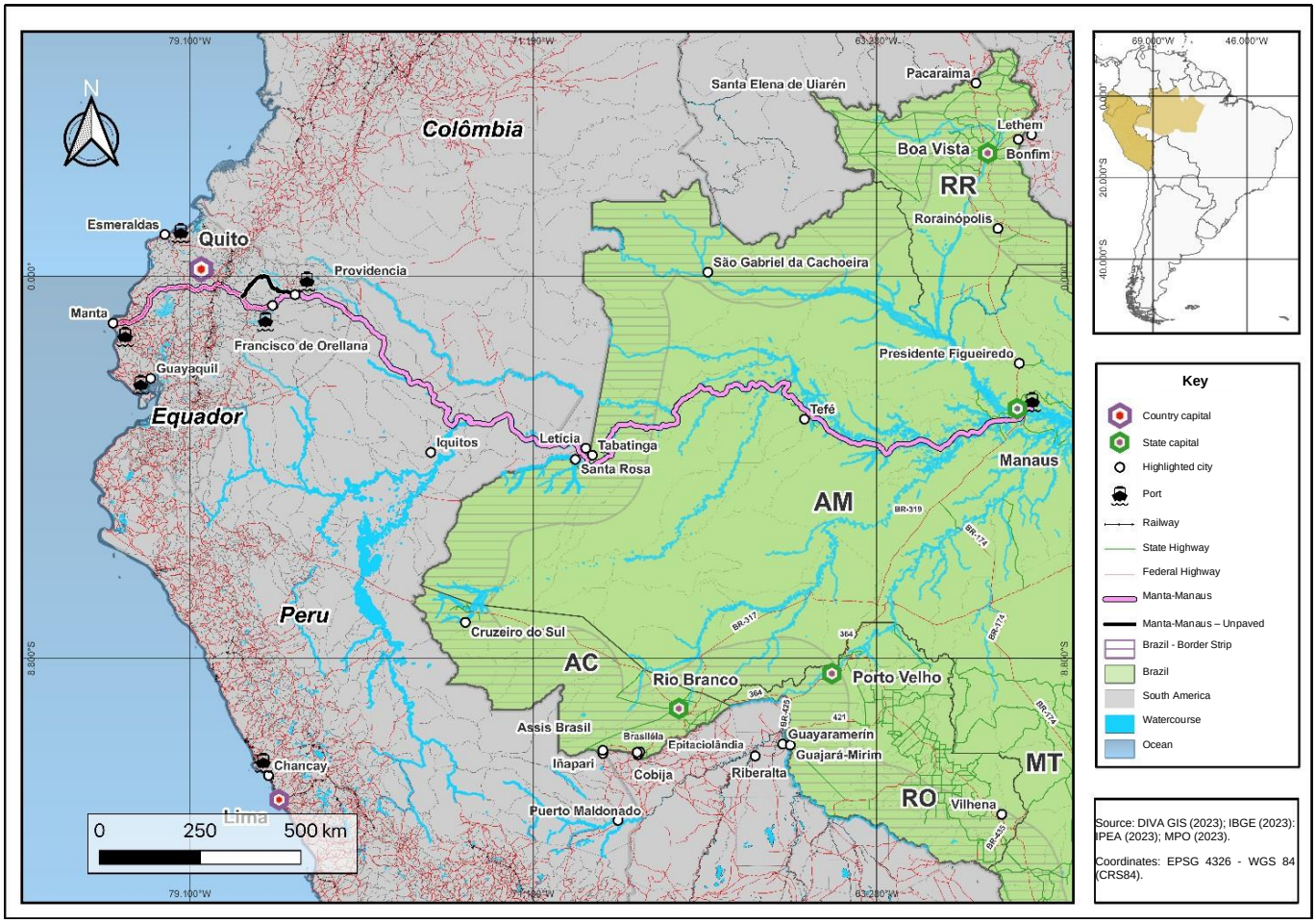
In recent years, Santarem-PA has become an important entry point for fertilizers, not only for Para but above all for Mato Grosso. While in 2000, this port structure brought in US$2.5 million to Brazil, in 2022 the amount was around US$800 million. More than 60% of these fertilizers were destined for the Mato Grosso economy. Santarem-PA also stands out as one of Brazil's largest manioc producers and has rice and soybean crops. The state government considers it opportune to set up an Industrial District in this municipality.

The government of Para has invested in paving and upgrading state highways, such as the stretch between Oriximina-PA (PA-439) and Alenquer (PA-427). Equally important are the stretches between Santarem/Uruara (PA-370) and Obidos/Oriximina (PA-254); Monte Alegre (PA-423) and Obidos (PA-437), as well as the concrete bridges over the Caracuru River in Almeirim (PA-473), over the Curua-Una River (Santarem-PA) and over the Tutui River (Uruara-PA).

Figure 2 - Manta-Manaus Multimodal Route

Photo: Portal Amazônia

Figure 6 - Manta-Manaus Multimodal Route



Source: SIDSA

Marked by multimodality (connection by sea, waterway, road and air), the Manta-Manaus Route presents itself as an alternative to the Panama Canal. It is made up of the Brazilian states of Amazonas, Para and Amapa, as well as three neighboring countries: Colombia, Ecuador and Peru. It is connected to two other routes: to the north, with the Guiana Island Route, via BR-174 highway and BR-156.It is connected to two other routes: to the north, with the Guiana Island Route, via BR-174 and BR-156. To the south, with the Quadrante Rondon Route, via the Madeira Waterway or BR-319, still unpaved in the "middle stretch". The centrality of Manaus-AM further expands the dimension of this route, since the Amazonian capital is connected by waterway to Bolivia, Colombia, Peru and Venezuela, as well as maintaining links with the states of Roraima, Para, Amapa, Rondonia and Acre.

The Manta-Manaus Route connects the Manaus Industrial Estate with the port of Manta, on the Pacific Ocean in Ecuador. On the waterway, the Route passes through the city of Tabatinga-AM, located on the left bank of the Solimoes River, on the triple border with the cities of Leticia, in Colombia, and Santa Rosa, in Peru. The route then continues by ferry across the Napo River, initially through Peruvian territory, navigable as far as the Ecuadorian towns of Puerto Providencia or, with greater difficulty, Francisco de Orellana. With its shallow draft, this river can only accommodate small vessels and can use

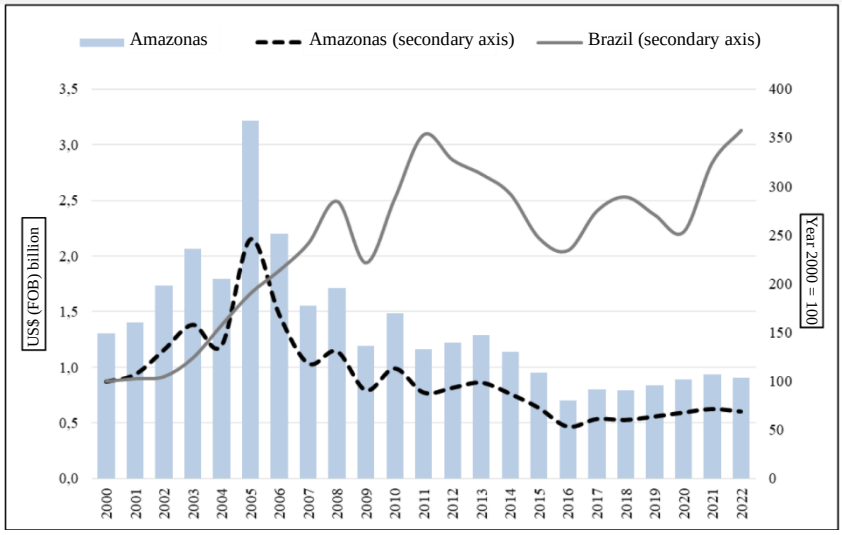
the port terminals of Iquitos-PER or even Tabatinga-AM as a transhipment unit. From the town of Puerto Providencia-ECU, the route follows 760 kilometers of roads in good condition all the way to the Ecuadorian coast.

This multimodal network can boost the regional economy and local productive sectors by connecting remote Amazonian areas with large consumption and distribution centers. In addition, it is estimated that the Manta-Manaus route would take between 31 and 35 days to travel between the capital of Amazonas and the dynamic markets of Asia, as opposed to the 50 or 60 days of the current Panama Canal route, and at a lower cost.

2.1.4 Amazonas

The dynamics of the Manaus Free Trade Zone establish a historically deficit condition for Amazonas' foreign trade. In 2022, the state exported US$ 903 million and imported US$ 14.1 billion. Another relevant point in the state's economic structure is that it buys higher value-added and technologically intensive goods from Asian partners and sells intermediate products or final consumer goods to its South American neighbors. Since 2000, the weight of South America as a purchasing region for the Amazonian economy has remained at around 55% of the total. Three countries - Colombia, Venezuela and Argentina together - account for 40%. Currently, 66% of Amazonas exports to South America are made up of preparations for making drinks, motorcycles and malt extracts. Television sets, stereos, razor blades, tires, pens and pocket lighters account for another 15%.

Chart 4 - Exports from Amazonas 2000-2022, in US$ (FOB) million, at 2022 prices (left axis) and exports from Amazonas and Brazil (secondary axis, index 100).



Source: Comex Stat-MDIC. Prepared by: SIDSA.

With regard to Amazonian imports, the Manaus Free Trade Zone's production model requires the state to import goods with higher added value and high technological intensity, such as processors, controllers, converters, logic circuits, amplifiers, parts of telephone sets and digital memories, among others. These purchases are mainly made in Asia Pacific countries such as China, Vietnam, South Korea

and Taiwan. More than 40% of the state's imports entered Brazil by plane, through Eduardo Gomes Airport in Manaus-AM. Another 49% were registered at the URF in the port of the state capital.

Amazonas – Points to note

Between Manaus-AM and Boa Vista-RR, BR-174 is in poor condition. Between Manaus-AM and Porto Velho-RO, the BR-319 highway is largely unpaved. Furthermore, on the overland route to Rondonia, in order to access the BR-319 highway, it is necessary to cross by ferry from Manaus (AM) to Careiro da Varzea-AM. Despite the condition of these roads, it is possible to drive from the capital of Amazonas to Bolivia, Guyana, Peru and Venezuela.

Despite the limited transport infrastructure and regulatory adversities, 45% of Amazonas exports to South America in 2022 were made by road. Of particular note are the URFs of Pacaraima-RR, on the border with Venezuela; Corumba-MS, on the border with Bolivia; Foz do Iguaçu-PR, on the border with Paraguay and Argentina; and Sao Borja-RS, on the border with Argentina. The potential for integration from Manaus-AM can be further expanded by improving the multiple access routes to South America through sustainable logistics options.

Recently, large deposits of potash fertilizers were discovered in the cities of Itacoatiara-AM and Itapiranga-AM, recognized by the National Mining Agency (ANM). The location of the two cities represents energy and logistical advantages, as they are situated close to the Tucurui transmission lines and on the banks of the Amazon River, in the area where the three Arco Norte Integration and Development Routes converge. The Novo Remanso Port Terminal, in Itacoatiara-AM, has been gaining prominence as a transshipment unit for imported fertilizers and grain exports.

In addition to the investments in physical infrastructure needed to better articulate the Amazon region, with the construction of new port facilities, dredging of riverbeds, maintenance, signaling, recovery and clearing of waterways, it is essential to promote the progress of agreements that facilitate and stimulate inland navigation and South American integration, especially within the framework of the Amazon Cooperation Treaty Organization (OTCA). Amazonas has the second largest shipbuilding center in Brazil, and is a leading producer of ferries, boats and pushers for trains. Among the projects listed by the state government as priorities are the Alto Solimoes Port Complex, the Alto Solimoes Science and Technology Park (PACTAS) and the Rio Negro Port Complex.

Tabatinga-AM, 1,100 kilometers west of Manaus-AM, it has a Free Trade Area, set up in 1990, with IPI reductions for the industrialization of local raw materials. The state government and the Superintendence of the Manaus Free Trade Zone (Suframa) are demanding the adaptation and improvement of the city's port, which currently lacks the structures required by the Federal Revenue Service. There is a working group within the Receita Federal (Brazilian Internal Revenue department) and the Amazonian Parliament for the permanent customs clearance of the port of Tabatinga-AM. In addition, the port is located in an area affected by sediments that compromise its structure, requiring high maintenance and dredging costs.

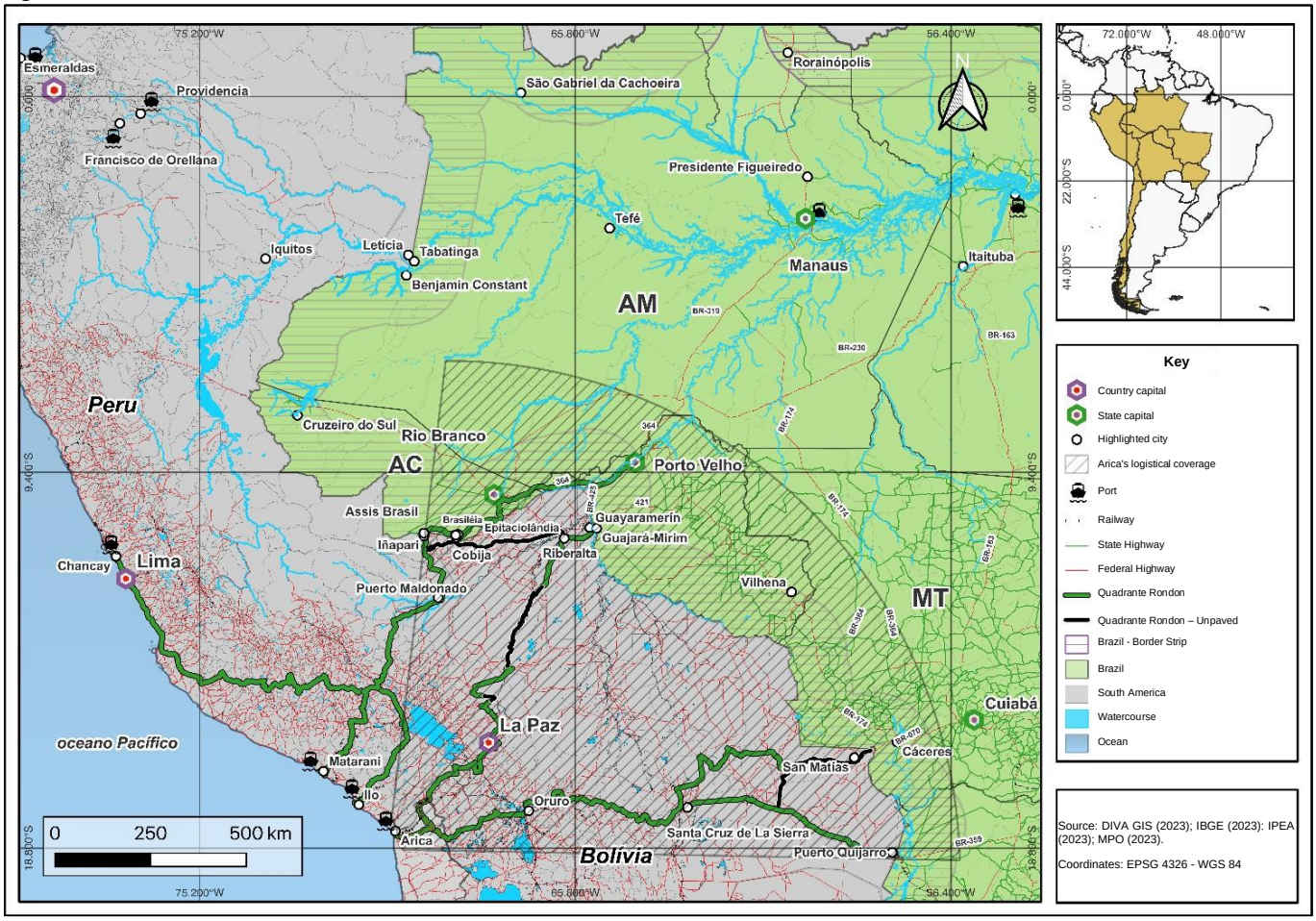
Amazonas has dozens of projects included in the New PAC. Seven of them were considered to be

directly related to regional integration. These are works on BR-174, which connects Manaus-AM with Roraima, Guyana and Venezuela, passing through the municipality of Presidente Figueiredo-AM; the airports of Manaus-AM, Tabatinga-AM and São Gabriel da Cachoeira-AM; and the more than 1,100 kilometers of optical fiber along the Solimões River, connecting the cities of Tefe-AM, Tabatinga-AM and Atalaia do Norte-AM.

Route 3 - Quadrante Rondon

Photo: Daiane Mendonça

Figure 7 - Quadrante Rondon Route



Source: SIDSA.

The Quadrante Rondon Route covers three Brazilian states directly: Acre, Rondônia and western Mato Grosso, and could have a future influence on the economy of part of Amazonas. The so-called "Interoceanic Highway" or "Pacific Highway", which is paved for almost 2,400 kilometers, begins in Porto Velho-RO, on the BR-364 highway, and runs all the way to the coast of Peru. The road passes over the Abunã bridge over the Madeira River, which was inaugurated in 2021, enters Acre and follows the BR-317 highway to the border towns of Brasileia-AC and Epitaciolândia-AC, which border Bolivia, and Assis Brasil-AC, which borders Peru.

In Peruvian territory, the "Pacific Highway" crosses the cities of Iñapari, Puerto Maldonado, Urcos, Cusco, Abancay and Nazca. The route between Porto Velho-RO and the ports of Matarani-PER and Ilo-PER represents great potential for exporting Brazilian products and importing goods that can supply part of the demand from states in the North and Center-West regions of Brazil. There is also room for multimodality in transportation in the region, due to the river potential of integrating Porto Velho-RO, Itacoatiara-AM, Manaus-AM, Santana-AP, Belem-PA, Tabatinga-AM and Caracarai-RR, among other Amazonian cities. Thus, the Quadrante Rondon Route is connected to two others: the Guiana Island Route and the Manta-Manaus Multimodal Route.

One of the crucial themes of the Quadrante Rondon Route is the need for greater involvement from Bolivia, which has had active borders with the cities of Corumba-MS, Caceres-MT and Guajara-Mirim-RO for at least a century. In addition, the country is about to join Mercosur. In 1955, in an episode that reaffirmed the importance of integrating regional infrastructure, the presidents of Brazil and Bolivia inaugurated the railroad between Santa Cruz de la Sierra-BOL and Corumba-MS. The railroad was financed by the Brazilian government and connected the Bolivian interior to the port of Santos-SP. Currently, more than US$ 20 million worth of urea imports from Bolivia enter Corumba-MS by rail.

The name of the Quadrante Rondon Route is a double reference. Firstly, it considers a quadrant centered on the port city of Arica in Chile, with logistical influence extending to the Brazilian border cities of Assis Brasil-AC, Brasileia-AC, Epitaciolandia-AC, Guajara-Mirim-RO, Caceres-MT, and Corumba-MS. Secondly, the name of this Route is intended to pay homage to the great humanist explorer and intrepid backwoodsman Marechal Candido Rondon, whose efforts towards national integration were remarkable.

2.1.5. Acre

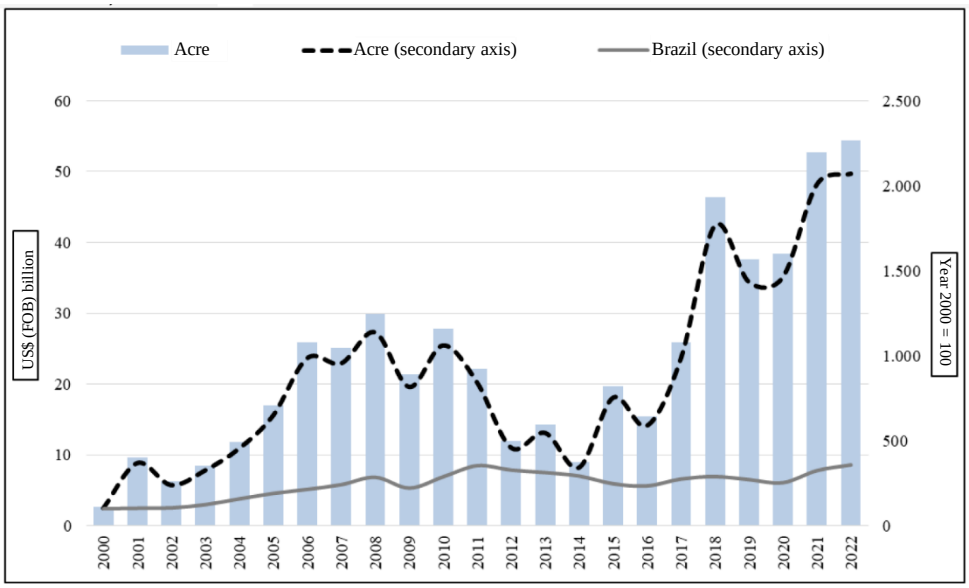
Compared to the eleven states considered, Acre still has a low volume of foreign trade. Historical difficulties in terms of physical infrastructure have restricted connections with other Brazilian states and limited Acre's exportable supply. Even so, its foreign sales grew 20 times compared to 2000, reaching US$ 54.4 million in 2022, an all-time record. Acre is one of the few Brazilian states that has had two border neighbors among its top five buyers since 2010. Together, Bolivia and Peru accounted for almost 25% of total Acre exports in 2022. Acre's trade with Bolivia and Peru only gained relevance in 2004 and 2010, respectively, after the inauguration of the binational bridges and the paving of the Peruvian stretch to Cusco in 2010, and the construction of the Billinghurst Bridge in Puerto Maldonado in 2011. These works on Peruvian territory are part of the portfolio of projects completed by IIRSA/COSIPLAN.

It should be noted that before the inauguration of the Brasileia-AC bridge with Bolivia in 2004 and the Assis Brasil-AC bridge with Peru in 2006, Acre did not regularly export to its two neighbors. In 2022, 17% of the state's sales left the country through Assis Brasil-AC, on the border with Peru. It is hoped that, in the coming years, Acre and adjacent states will benefit from alternative routes to the traditional Atlantic ports, both for intra-regional exports and for those destined for Asia Pacific markets. Today, the largest outbound sales of goods from Acre are still made through the URF at the port of Manaus-AM (41%), accessed from Porto Velho-RO via the Madeira Waterway.

Timber has historically been one of Acre's main export products. This group of goods accounted for more than 85% of the total sold by the state in 2002. However, after 2012, its relative weight has fallen to 32% today. Brazil nuts, meat and edible offal, corn and, more recently, soybeans have gained prominence. In

2022, just behind wood (32%), came soybeans (26%) and Brazil nuts (17%). Meat and edible offal and corn together account for 15%.

Chart 5 - Exports from Acre 2000-2022, in US$ (FOB) million, at 2022 prices (left axis) and exports from Acre and Brazil (secondary axis, index 100).



Source: Comex Stat-MDIC. Prepared by: SIDSA.

In the period considered, between 2000 and 2022, Acre's imports fell from US$ 9.8 million to US$ 5.2 million. The highest amount of foreign purchases from Acre occurred in 2014, as an immediate reflection of the flooding of the Madeira River and the consequent interruption of traffic on stretches of the BR-364 highway. On that occasion, more than half of the state's purchases came from Peru (49%) and Bolivia (4.4%). Currently, almost two thirds of Acre's imports enter Brazil through the URFs of Macapa-AP, Santos-SP and Rio Grande-RS. Only 6% of purchases enter through the border crossings of Assis Brasil-AC and Epitaciolandia-AC, with shipments of onions, hides, cement and wood.

Acre – Points to note

Acre is the only Brazilian state that crosses only one country to reach the Pacific Ocean, Peru. The neighboring country is receiving considerable Chinese investment in the Chancay megaport, which will become an important logistical alternative for extra-regional and intra-regional exports and imports from Acre, Rondonia and even Amazonas and Mato Grosso.

Other Brazilian states may start to consider transporting their production via Acre. As the flow of cargo along the "Pacific Highway" intensifies and customs and regulatory difficulties are eased, it will become more feasible to expand intra-regional trade along this route, including exports to markets in Asia Pacific, via the ports of Ilo (Moquegua department), Matarani (Arequipa department) and Chancay (Lima department).

With regard to foreign trade, the state government proposes a number of points: partnership with the company that manages the port of Chancay and with the Peruvian and Chinese governments; implementation of the Export Processing Zone (ZPE), installed in the city of Senador Guiomard-AC; air connection between Cruzeiro do Sul-AC and Pucallpa-PER; installation of dry ports in the Alto Acre region; implementation of the Free Trade Area in Assis Brasil-AC; adoption of the Special Border Trade Regime (REFRONT) in Epitaciolandia-AC, Brasileia-AC and Cobija-BOL; Customs Cooperation Agreement between Brazil and Peru; integration of Acre's tax system into the SISCOMEX System; structuring of the Food Analysis Laboratory and Laboratory specializing in wood classification; implementation of international flights between Peruvian cities and the states of Acre and Rondônia; and modernization of the criteria adopted for granting international credits to small municipalities. It is also necessary to revise the transportation quotas for trucks on the Brazil-Peru route; to appoint an agricultural inspector in the municipality of Assis Brasil-AC and to structure the customs offices in the border towns with Peru and Bolivia.

It wasn't until 2021, with the inauguration of the Abunã bridge over the Madeira River in Rondonia, that Acre was able to physically integrate with the rest of the Brazilian territory via the BR-364 highway, without the need for barges. Even so, several stretches of the highway are in poor condition, both from Rio Branco-AC to Porto Velho-RO and from Rio Branco-AC to Cruzeiro do Sul-AC.

BR-317, which is of strategic importance to the region, also needs maintenance. The road connects Acre to the border with Bolivia, where the cities of Brasileia-AC and Epitaciolandia-AC are integrated with Bolivia's Cobija (Pando department) via the Wilson Pinheiro Binational Bridge. The same highway, 110 kilometers later, connects the city of Assis Brasil-AC with the Peruvian city of Iñapari (department of Madre de Dios), via the Brazil-Peru Integration Bridge. Assis Brasil-AC is located 3,800 kilometers from the port of Santos-SP, 1,800 kilometers from the port of Chancay- PER and less than 1,200 kilometers from the ports in Ilo-PER and Matarani-PER.

As in many of Brazil's border areas, Acre has an insufficient number of skilled workers for customs clearance, and it is recommended that professionals be trained in this area. There is also a low number of civil servants at the customs offices in Assis Brasil-AC, Brasileia-AC and Epitaciolandia-AC, such as IRS officials, Vigiagro inspectors and ANVISA agents.

It is considered appropriate to revisit the planning of the development model for the Amacro region, an acronym for Amazonas, Acre and Rondonia. Currently called the Abunã Madeira Sustainable Development Zone, it involves 32 Brazilian municipalities in the south of Amazonas, the east of Acre and the north and west of Rondonia. The big challenge is to avoid the negative externalities of agricultural expansion and reinforce the conscious use of the land, curbing the various illegal activities and stimulating the bioeconomy, such as natural food production and artisanal fishing.

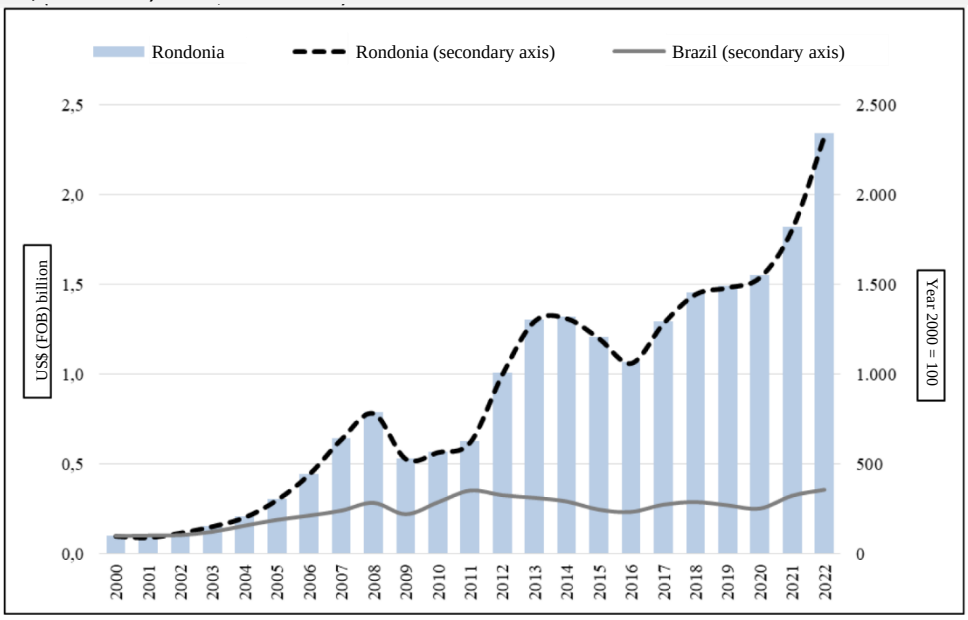
2.1.6. Rondonia

Between 2000 and 2022, Rondonia multiplied its exports by more than 20 times. During this period, Rondonia's foreign sales increased from US$ 100 million to US$ 2.3 billion. At the same time, there was strong diversification in the destination of exports. At the start of the period, the state sold products to 41 countries, rising to 105 nations by 2022.

The state of Rondonia has been consolidating its position as an important economy in the northern region of Brazil. In the last two decades there has been an undeniable advance in the production and export of agricultural goods, especially in the southernmost part of the state. These geo-economic transformations become even more evident when comparing Rondonia's exports in the early 2000s with the most recent period. In 2000, legal and registered sales of timber accounted for almost 93% of the state's total exports, while meat and soy exports combined accounted for just 1.1%. Today, the share of wood sales has fallen to 3.5%, while meat and soy exports total 81%. Sales of soybeans, frozen or chilled beef and corn, among other products, have been growing at a strong pace.

Currently, of the 52 municipalities in Rondonia, the city of Vilhena-RO is the most responsible for the state's foreign sales, followed by the capital Porto Velho-RO and the cities of Rolim de Moura-RO and Cerejeiras-RO. In 2022, Vilhena-RO, located on the border between Rondonia and Mato Grosso, exported US$ 638.8 million, indicating strong dynamism.

Chart 6 - Exports from Rondonia 2000-2022, in US$ (FOB) million, at 2022 prices (left axis) and exports from Rondonia and Brazil (secondary axis, index 100).



Source: Comex Stat-MDIC. Prepared by: SIDSA.

Rondonia's imports also grew significantly. Foreign purchases jumped from US$76 million in 2000 to US$719 million in 2022. The amount imported was multiplied by more than nine times over the period. Asia has emerged as the largest supplier of products demanded by Rondonia. Between 2000 and 2022, Asian markets will increase from 2% to almost 60% of the state's imports. In 2022, Rondonia's main foreign purchase was potassium fertilizers, reaching US$24.7 million. In the same year, more than 63% of fertilizer purchases, in its various forms, were acquired in Israel and were recorded as entering Brazil via the UFR of Manaus-AM and Santarem-PA.

Rondonia – Points to note

Rondonia is undergoing profound economic changes. Some regions have established themselves as one of the main productive spaces in the new expansion of Brazil's agricultural frontier. The state has positioned itself among the country's leading meat and soy producers. The regions of Ji-Parana-RO, Cacoal-RO and Vilhena-RO stand out, all located along the BR-364 highway. The biggest destination for sales from Rondonia is China and the main outlets are the ports of Manaus-AM and Santos-SP. Cotton, corn and coffee exports are also booming.

The South American consumer market for Rondonia's meat has been growing in recent years, albeit at a much slower pace than the Chinese market. In 2022, Chile was the second largest buyer, with exit registrations made almost exclusively through customs in São Borja-RS and Dionisio Cerqueira-SC. In the case of Peru, half of the meat exports were registered at the Assis Brasil-AC border crossing with Iñapari; the rest were made through ports in the southern region.

There is great multimodal logistics potential in Rondonia. BR-364, an important national integration highway, crosses the entire state. This access route from Rondonia to Acre, Bolivia, Peru and the Pacific Ocean was made more dynamic with the inauguration of the Abunã bridge in 2021. The state also benefits from other alternatives, from Porto Velho-RO: the Madeira Waterway, to Itacoatiara-AM, and BR-425, which connects Nova Mamore-RO to Guajara-Mirim-RO. There are two other road options from Porto Velho-RO: the BR-319 to Manaus-AM, an option considered in times of severe drought on the Madeira River, and the connection with the BR-230, the Transamazon highway, which passes through the cities of Humaita-AM, Itaituba-PA, Altamira-PA and Maraba-PA.

There are ten Rondonia projects included in the New PAC that are directly related to South American integration. Highlights include the duplication of the BR-364 highway, from Vilhena-RO to Porto Velho-RO; the bridges on the BR-425 highway, in Nova Mamore-RO, and the improvement of the conditions of this road; and the construction of the binational bridge over the Mamore River, in Guajara-Mirim-RO, on the border with Guayaramerin, in the department of Beni, in Bolivia.

The state government is demanding the paving of the Expresso Porto highway, connecting the BR-364 highway to the bulk port; the dredging, signaling and bathymetry of the Madeira Waterway; and the construction of a waterway terminal (IP4) in the municipality of Costa Marques-RO, on the Guapore River, on the border with Bolivia. In addition, it was suggested that the airports of Porto Velho-RO, Ariquemes-RO, Guajara-Mirim-RO and Costa Marques-RO be structured, as well as the renovation and expansion of the airport units of Ji-Parana-RO, Cacoal-RO and Vilhena-RO. Using the border town of Costa Marques-RO, already connected to the BR-364 by the BR-429, the state could start importing mineral salt from Bolivia, as well as exporting limestone from Rondonia. Costa Marques is home to the Royal Fort Principe da Beira, the largest Portuguese military building outside Europe, built in 1775 on the banks of the Guapore River.

Different IIRSA/COSIPLAN portfolios already included the construction of the international bridge between Guajara-Mirim-RO and Guayaramerin-BOL and the continuation of the BR-364 highway from Cruzeiro do Sul-AC to the border with Peru, in the direction of the city of Pucallpa-PER. Some other IIRSA/COSIPLAN projects in Rondonia have been completed, such as improving the navigability of the Solimões-Amazonas system; the road connection between Rio Branco-AC and Cruzeiro do Sul-AC, via BR-364; the binational bridge over the Acre River, between Assis Brasil-AC and Iñapari-PER; and the transmission lines for the Santo Antonio and Jirau hydroelectric plants, near Porto Velho- RO.

Work is needed on the "middle stretch" of the BR-319 (between km 250 and km 655), between Porto Velho-RO and Manaus-AM, and on the BR-421, between Nova Mamore-RO and Ariquemes-RO. Paving this last highway could help to reactivate the dynamism of Guajara-Mirim-RO, a city that has already had a regulated Free Trade Area since 1993 and which in the next few years will have a binational bridge with Bolivia. The commitment to build this bridge had already been provided for in the 1903 Treaty of Petropolis and reaffirmed on a number of occasions, such as the 1966 Additional Protocol and the 1971 Agreement.

Another of Rondonia's potentials is the bioeconomy. It is possible to increase the scale, expand exports and diversify the destinations of sales of Amazonian fish processed by meatpacking plants in the state. The production of tambaqui and pirarucu in the Jamari Valley stands out, especially in

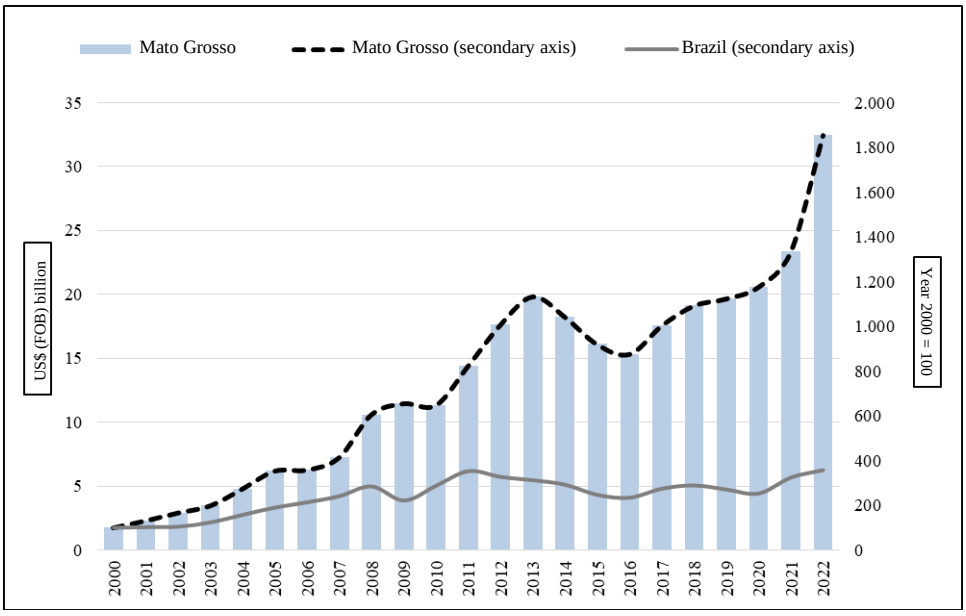
Ariquemes-RO, the "Capital of Tambaqui". A similar dynamic could occur with the increase in cocoa production and foreign sales, especially in Jaru-RO and surrounding areas, with the creation of associative spaces. Recently, the first Center for Bioeconomy and Conservation in the Amazon was set up in Porto Velho-RO.

2.1.7 Mato Grosso

Between 2000 and 2022, Mato Grosso became an important supplier to the world and jumped from 10th to 4th place among Brazil's main exporting states. The state's foreign sales grew more than 18 times in the period, from US$ 1.7 billion to more than US$ 32 billion, reaching an all-time high. In 2022, the soy complex, corn, beef and cotton accounted for almost 95% of the state's total sales. Over the period in question, the relative weight of Asian markets in Mato Grosso's sales increased from 15% to 60%, to the detriment of European partners. China is the state's biggest buyer, with 34% of the total. Despite this, Mato Grosso continues to transport around 60% of its production through the ports of Santos-SP and Paranagua-PR.

Nine cities in Mato Grosso each exported more than US$ 1 billion in 2022. These are: Rondonopolis-MT, Sorriso-MT, Sinop-MT, Primavera do Leste-MT, Querencia-MT, Campo Verde-MT, Campo Novo do Parecis-MT, Nova Mutum-MT, and Sapezal-MT. The sum of exports from these nine cities in Mato Grosso totaled US$ 15.6 billion, which is more than the foreign sales of twenty Federation Units (FUs) last year.

Chart 7 -- Exports from Mato Grosso 2000-2022, in US$ (FOB) million, at 2022 prices (left axis) and exports from Mato Grosso and Brazil (secondary axis, index 100



Source: Comex Stat-MDIC. Prepared by: SIDSA.

In the same period, Mato Grosso's imports grew more than 60 times, from US$ 158 million in 2000 to US$ 5.8 billion in 2022. The increase is mainly due to foreign purchases of fertilizers, which accounted for more than 80% of the total. The state's fertilizer imports came from Canada, Russia, China and the United States, countries bordering the Pacific Ocean; however, they entered Brazil mainly through the Santos-SP and Paranagua-PR URFs.

Mato Grosso – Points to note

One of the biggest challenges facing Mato Grosso's economy in the coming years will be the diversification of its production and export structure. The scenario of continuous and accelerated expansion of commodity sales creates an extraordinarily favorable condition for the state to promote public policies to add value to its production by applying the high volume of accumulated capital. The greater development of the agro-industrial sector in Mato Grosso could be the first stage of an industrialization driven by growing links with South American markets, facilitated by the state's geographical location and the South American Integration and Development Routes.

Mato Grosso is increasingly using the Arco Norte ports (above the 16th parallel) for shipping grains. As an alternative to Santos-SP and Paranagua-PR, currently the most used route for exports has been the BR-163 highway, passing through the cities of Nobres-MT, Nova Mutum-MT, Lucas do Rio Verde-MT, Sorriso-MT, Sinop-MT and Colider-MT until it reaches the banks of the Tapajos River, at the port of Miritituba, in Itaituba-PA. In less than two decades, the route became a key route for the Brazilian Midwest, activating multiple Amazonian ports. Betting on multimodality, the New PAC also includes the Ferrogrão project (EF-170). With a route almost parallel to that of the BR-163 highway, the railroad is facing critical comments from environmental agencies.

The consolidation of logistical alternatives that bring some regions of Mato Grosso closer to the ports of southern Peru and northern Chile could facilitate the entry of products from the Center-West and northern Brazil to South American markets and, in some cases, stimulate exports to Asia-Pacific. In 2023, the state government signed a service order to start work on the infrastructure of the Export Processing Zone (EPZ) in Caceres-MT. Bolivia's entry into Mercosur could promote the economic activity in the region.

The increase in cargo and passenger flows across this border, however, will also depend on improvements to the BR-070 highway, which starts in Brasilia-DF and continues to Caceres-MT, passing through Barra do Garças-MT and Cuiaba-MT. In Bolivian territory, adjustments will have to be made to Route 10, between San Matias-BOL and Colonia Pirai-BOL. In December 2007, the presidents of Brazil, Bolivia and Chile signed the La Paz Declaration, with the aim of creating a bioceanic corridor between the ports of Arica-CHI and Iquique-CHI, the towns of La Paz-BOL, Oruro-BOL, Cochabamba-BOL and Santa Cruz de la Sierra-BOL and the states of Mato Grosso do Sul and São Paulo.

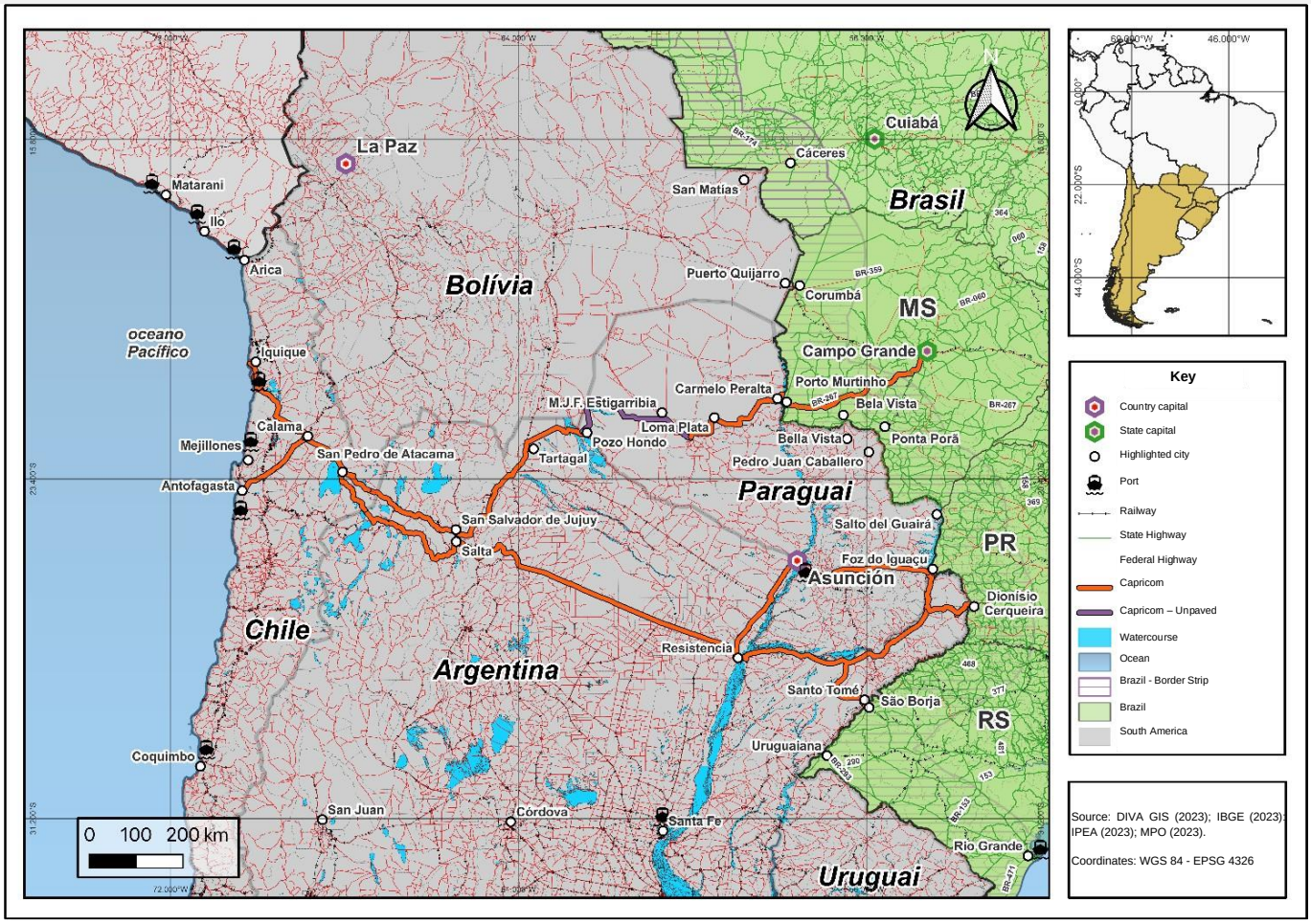
In a scenario where part of Mato Grosso's exports gradually use the logistical alternatives of the South American Pacific, via the Quadrante Rondon Route, the new options will gradually gain sufficient scale for the establishment of continuous routes from the Chilean and Peruvian coasts to Asia-Pacific. This movement will also intensify cabotage shipping along the Pacific coast, promoting the circular economy.

Throughout the 2000s, IIRSA/COSIPLAN completed the Corumba-MS ring road in Mato Grosso; the integrated control area between Corumba-MS and Puerto Quijarro in Bolivia; the border crossing between Caceres-MT and San Matias in Bolivia; and the paving of the San Matias-BOL border crossing.

Route 4 – Capricorn

Photo: Toninho Ruiz

Figure 8 - Capricorn Route



Source: SIDSA.

The Capricorn Route covers the states of Mato Grosso do Sul, Parana and Santa Catarina, and can even extend its influence to the northwest of Rio Grande do Sul. This route links up with two other Integration and Development Routes: the Porto Alegre - Coquimbo to the south and the Quadrante Rondon to the north. In addition, the Capricorn Route, which begins in Santos-SP and Paranagua- PR, has different routes that pass through Brazilian border towns. Despite being at different latitudes, the roads from Porto Murtinho-MS, Foz do Iguaçu-PR, Dionisio Cerqueira-SC and even São Borja-RS converge on the Argentine cities of Salta and Jujuy before crossing the Andes, via the Paso de Jama or the Paso de Sico, towards the Chilean ports of Antofagasta, Mejillones, Iquique and Arica, on the Pacific.

In Mato Grosso do Sul, this route is called the Bioceanic Route or the Bioceanic Road Corridor from Porto Murtinho to the ports of northern Chile. This route connects territories that have historically been excluded from the development process: the Center-West of Brazil, the Chaco of Paraguay, the northwest of Argentina and the north of Chile. The Porto Murtinho Corridor was institutionalized with the Presidential Declaration of Asunción in 2015, when a Working Group was established, which has been active ever since thanks to the governance model adopted with neighboring countries, sub-national

governments and local players from the most diverse political parties.

In 2017, the countries' commitment to the Porto Murtinho-MS Bioceanic Highway was reaffirmed with the Brasilia Presidential Declaration. From 2019 to 2022, a period in which economic disintegration and regional political fragmentation deepened (BARROS; SAMURIO; GONÇALVES, 2022), This Corridor has proved to be a resilient project, despite the paralysis of UNASUR and COSIPLAN. It is the only project with two presidential declarations. In September 2023, the Parliamentary Front in defense of the Bioceanic Route was also created in the Legislative Assembly of Mato Grosso do Sul, an event attended by the Minister of Planning and Budget, Simone Tebet.

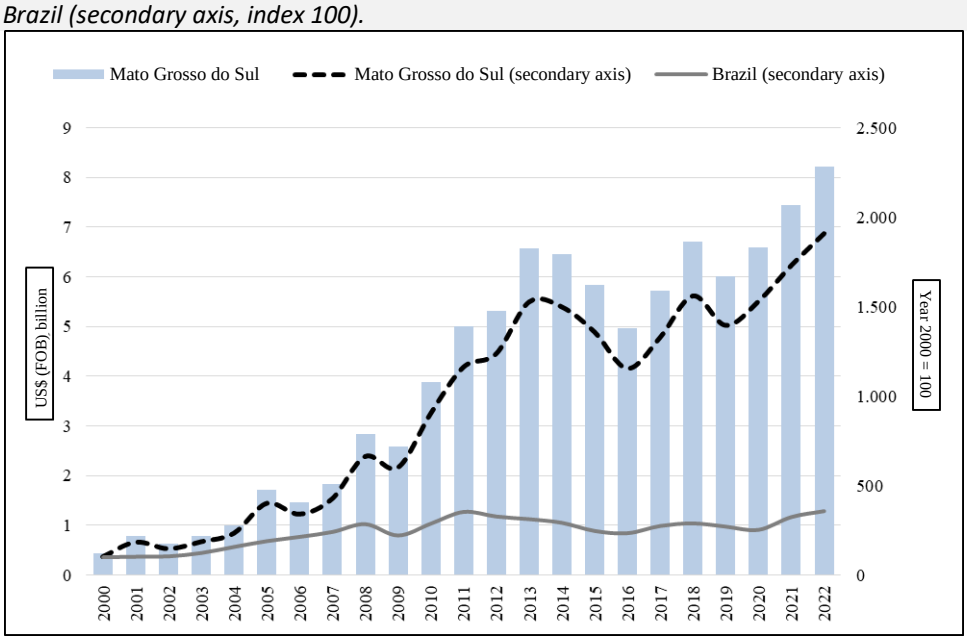
2.1.8 Mato Grosso do Sul

Mato Grosso do Sul's exports have grown rapidly in recent years, rising from US$ 430 million in 2000 to US$ 8.2 billion in 2022. Over the period, foreign sales increased 19-fold. Last year, China alone accounted for more than 35% of the state's total exports, which is a huge leap from its weight in 2000 of just 0.8%.

The exports of the economy of Mato Grosso do Sul are highly concentrated in five types of products, which in 2022 totaled more than 90%: the soy complex, meat and edible offal, cellulose, corn and cane sugar. There is a huge weight of Asian economies as the main buyers from the state. In the case of soybeans, the Asian share is 90%; corn, 56%; frozen beef, 54%; and cellulose, 53%.

In 2022, 10% of Mato Grosso do Sul's exports were destined for South American economies. Its biggest regional partner is Argentina, to which it has been selling soybeans and iron ore via the Paraguay River Waterway from Corumba-MS and Porto Murtinho-MS. Other regional markets that buy goods from Mato Grosso do Sul are Chile, which buys beef through customs in São Borja-RS and Dionisio Cerqueira-SC, and Venezuela, which buys soybean oil through the Pacaraima-RR border crossing.

Chart 8 - Exports from Mato Grosso do Sul 2000-2022, in US$ (FOB) million, at 2022 prices (left axis) and exports from Mato Grosso do Sul and Brazil (secondary axis, index 100).



Source: Comex Stat-MDIC. Prepared by: SIDSA.

In the case of imports from Mato Grosso do Sul, Bolivian natural gas stands out, with US$ 1.4 billion in 2022, registered by the URF in Corumba-MS. It is also worth noting that the state's fertilizer purchases grew more than 190 times between 2000 and 2022, jumping to US$860 million. The main markets supplying fertilizers to Mato Grosso do Sul were Canada, Russia and China, all of which border the Pacific Ocean. Even so, more than 90% of the entries into national territory came through the port of Paranagua-PR.

Mato Grosso do Sul – Points to note

From Porto Murtinho-MS, the Bioceanic Highway Corridor will cross via an international bridge to Carmelo Peralta-PAR. From there, the highway will continue to Loma Plata-PAR, Marechal Estigarribia-PAR and Pozo Hondo-PAR, the latter on the border with Argentina, with the town of Misión La Paz-ARG. In northwestern Argentina, the route goes from Tartagal-ARG to the cities of Salta-ARG and Jujuy- ARG, where the roads from Mato Grosso do Sul, Parana, Santa Catarina and even Rio Grande do Sul converge. In the direction of Calama-CHI, the highways head for the Paso de Sico (via Salta) or the Paso de Jama (via Jujuy), before continuing on to the port cities of Antofagasta-CHI, Mejillones-CHI, Tocopilla-CHI, Iquique-CHI and Arica-CHI.

The work on the international bridge over the Paraguay River, financed by Itaipu Binacional and scheduled for completion in 2025, will connect Mato Grosso do Sul and other adjacent states to the Paraguayan Chaco region (Alto Paraguay and Boquerón departments), northwest Argentina (Salta and Jujuy provinces) and northern Chile (Antofagasta and Tarapaca regions). A tender was recently announced for the construction of the accesses to the bridge, a project included in the New PAC.

Mato Grosso do Sul's path to the Pacific has continued to advance despite the changes of governments in the region, thanks to the governance model adopted jointly with neighboring countries, thanks to the commitment of sub-national governments, the state and municipalities, and thanks to the involvement and unity of actors and leaders from different political parties. Although some sections of the Porto Murtinho-MS Corridor are included in the IIRSA/COSIPLAN portfolio, the project has only made progress with its own governance model. COSIPLAN is mentioned in the 2015 Declaration of Asunción, but not in the 2017 Declaration of Brasilia, which indicates that it has lost its ability to deal with regional infrastructure issues, especially those with a sub-national dimension.

Porto Murtinho-MS occupies a privileged geographical position on the Paraguay Waterway. Soybeans and iron ore, the latter coming from Corumba-MS and Ladario-MS, are already passing along the city's banks in convoys of river barges. With the binational bridge, Porto Murtinho-MS could be elevated to the status of a multimodal logistics hub, boosted by state and regional sales and purchase flows. The state government is working to internationalize the city's airport, set up an Export Processing Zone (EPZ), draw up a Master Development Plan and build an additional lane on the BR-267 between Jardim-MS and Porto Murtinho-MS.

In July 2023, the first Commercial Office of Chile's Tarapaca Region Development Corporation opened in Campo Grande-MS. The initiative aims to boost negotiations between Brazilian and Chilean companies to make better use of the Bioceanic Route. Provided there is sufficient scale, port adaptations and encouragement for cabotage shipping on the Pacific coast of South America, the Corridor will allow products to leave and arrive in the state of Mato Grosso do Sul, the Midwest and parts of the Northern region with lower logistical costs and less transit time.

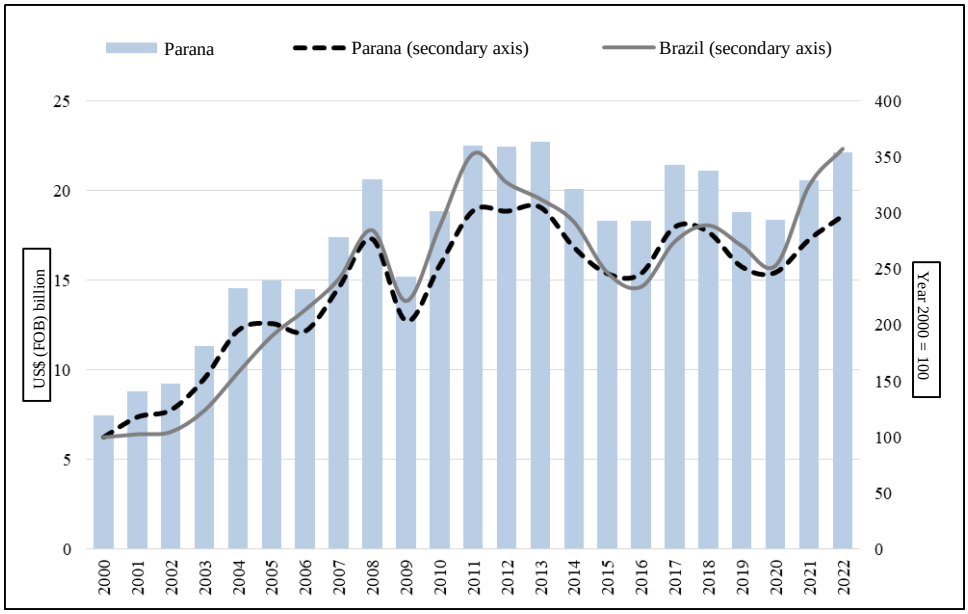
2.1.9 Parana

In just over 20 years, Parana has profoundly changed the destinations of its exports, diversifying the composition of buyers. China's share increased rapidly, becoming the main destination for the state's foreign sales, while the relative shares of historically consolidated trading partners fell. South America was Parana's second largest buyer in 2022, with US$ 4.5 billion (20% of the total), second only to Asia, which acquired 34%.

One of the striking features of Parana's economy is its degree of complexity, which is reflected in the wide variety of exports. Since 2000, the list of goods sold abroad has diversified. That year, car exports, for example, accounted for 13% of the total. Although they grew in absolute terms, they totaled less than 2.5% in 2022, thanks to the increase in the share of other goods, such as the soy complex, poultry meat, sugars, corn and wood. In 2022, more than 60% of the state's foreign sales were shipped via the port of Paranagua-PR. Another 25% left the country through the URF of São Francisco do Sul-SC, Santos-SP, Itajai-

SC e São Borja-RS. When considering exports to South America, São Borja-RS, Uruguaiana-RS, Foz do Iguaçu-PR and Corumba-MS stand out.

Chart 9 - Exports from Parana 2000-2022, in US$ (FOB) million, at 2022 prices (left axis) and exports from Parana and Brazil (secondary axis, index 100).



Source: Comex Stat-MDIC. Prepared by: SIDSA.

On the other hand, imports from Parana multiplied almost threefold between 2000 and 2022, a growth similar to that of Brazilian imports in the period. The leap experienced by Parana's foreign purchases was from US$ 8 billion in 2000 to over US$ 22 billion in 2022. Last year, Parana was the fourth largest importer in Brazil. China stands out as the main source of the state's imports, accounting for 26% of the total, increasingly strengthening its presence. Noteworthy is the growth in fertilizer purchases from Parana, in absolute and percentage terms. In 2022, imports of agricultural correctives reached US$ 3.5 billion. In recent years, these fertilizers have been increasingly sourced from countries bordering the Pacific Ocean, such as China, Russia and Canada (via the port of Vancouver). Around 75% of everything that Parana imported from around the world was registered at the customs office in the port of Paranagua-PR.

Parana – Points to note

It is important to improve the access roads to the western region of Parana, especially to the three country border. Among the main initiatives are the duplication of the BR-277 highway, on the stretch between the cities of Cascavel-PR and Foz do Iguaçu-PR; the reactivation of the international bridge in Capanema-PR, on the border with the Argentine city of Comandante Andresito; and the activation of a new 24-hour freight customs office in Capanema-PR.

There are plans for the Nova Ferroeste, which already connects Guarapuava-PR and Cascavel-PR, to reach Guaira-PR and connect with Maracaju-MS, a city located 380 kilometers from Porto Murtinho-MS. There are also plans for a branch line between Cascavel-PR and Foz do Iguaçu-PR, which would be interconnected with Paraguay in the future. By reaching Maracaju-MS, the port of Paranagua-PR would be connected to the Porto Murtinho-MS Corridor. The New Ferroeste, included in the New PAC, is currently undergoing environmental licensing by IBAMA. About 15 years ago, this rail project was already planned under IIRSA/COSIPLAN.

The runway at Foz do Iguaçu-PR Airport is the third longest in Brazil. With this, the city has great potential to intensify its international air connections. Foz do Iguaçu-PR has a developed tourist center and a robust hotel infrastructure, which attracts tourists from all over the world. Recently, the city's airport began operating direct flights to Argentina, Chile, Peru and Uruguay. The three country border, made up of Foz do Iguaçu-PR, Puerto Iguazú-ARG and Ciudad del Este-PAR, has approximately 700,000 inhabitants.

The Itaipu Binacional company has become an additional source of funding for regional integration projects, most notably the Integration Bridge between Foz do Iguaçu-PR and Presidente Franco-PAR. The benefits have been extended not only to the 399 municipalities of Parana, but also along the Brazilian border with Paraguay, benefiting Mato Grosso do Sul, especially the binational bridge under construction between Porto Murtinho-MS and Carmelo Peralta-PAR.

Despite providing for a modern single-header system, as a model for Brazil's other borders, the state points to the lack of personnel and equipment for the Federal Police and the Federal Highway Police in the structure of the new binational bridge at Foz do Iguaçu-PR. The state government has also expressed the need for coordinated management of the Brazil-Paraguay Border in other parts of the state: Santa Helena-PR and Puerto Indio-PY; Guaira-PR and Salto del Guayra- PR.

Other Parana projects included in the New PAC were the accesses to BR-277, the new international bridge at Foz do Iguaçu-PR; the restoration of the Ayrton Senna bridge and the Guaira-PR bypass, on the border with Novo Mundo-MS and Salto del Guaira, in Paraguay; the duplication of the BR-163 highway between Marechal Rondon-PR and Cascavel-PR and between Cascavel-PR and Marmelandia-PR, facilitating the connection with the west of Santa Catarina; and the concession of the Foz do Iguaçu-PR airport.

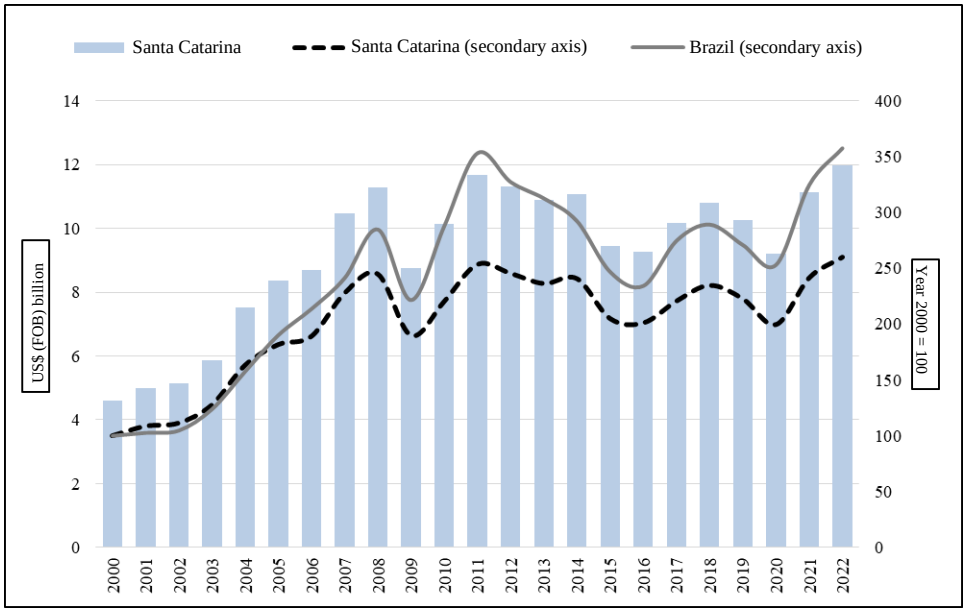
2.1.10 Santa Catarina

Santa Catarina's exports grew from US$ 4.6 billion in 2000 to almost US$ 12 billion in 2022. The diversification of the state's foreign sales, both of manufactured and semi-manufactured products and commodities, indicates its degree of economic development. The state's exports include a wide variety of products, from electric motors to animal proteins produced by large cooperatives.

Among the main destinations for sales from Santa Catarina in 2022 are the United States, China and South American countries such as Argentina, Chile and Paraguay. Over the period analyzed, most of the state's exports were shipped through the ports of Itajai-SC and São Francisco do Sul-SC. In the case of Santa Catarina's foreign sales to South America, most of the shipments were made via São Borja-RS, Uruguaiana-RS and Dionisio Cerqueira-SC, indicating high use of road transport.

Chart 10 - Exports from Santa Catarina 2000-2022, in US$ (FOB) million, at 2022 prices (left axis) and exports from Santa Catarina and Brazil (secondary axis, index 100).

Source: Comex Stat-MDIC. Prepared by: SIDSA.



In turn, between 2000 and 2022, Santa Catarina's imports grew from US$ 1.7 billion to almost US$ 29 billion. Last year, Santa Catarina was the second largest importing state in Brazil, behind São Paulo. The expansive dynamics of foreign purchases led the state to accumulate a trade deficit of 17 billion dollars in 2022. China is the largest supplier to Santa Catarina's economy, accounting for 40% of the total. South American partners include Chile, which supplies copper via the port of São Francisco do Sul-SC, and fresh fish via São Borja-RS. Santa Catarina is the Brazilian state with the strongest trade relations with the Chilean economy. Argentina sells passenger cars to the state, via Uruguaiana-RS.

Santa Catarina – Points to note

The economic relations that the state of Santa Catarina maintains with South American countries could be strengthened with the progress of regional integration. The state already has a well-developed port infrastructure, with five ports: São Francisco do Sul, Itajai, Itapoa, Imbituba, and Navegantes (with New PAC projects in the first four). The logistical facilitation to be created by the South American Integration and Development Routes could bring the state even closer to South American markets via non-maritime routes.

It is possible to exploit the great potential offered by BR-163, on the western border, and BR-282, which cuts through Santa Catarina from east to west. In addition, the BR-285 starts in Ararangua-SC, on the coast of Santa Catarina, and crosses the whole of Rio Grande do Sul, in the direction of São Borja-RS. These three federal highways have been included in the New PAC, as has the bridge in Itapiranga- SC, which will facilitate freight and passenger traffic to São Borja-RS. It's worth noting that the paving of the strategic BR-282 highway is a long-standing project in the IIRSA/COSIPLAN portfolio. .

The government of Santa Catarina presented projects necessary for the socio-economic development of the state and some of these works were included in the New PAC. The most important initiatives for regional integration are linked to the municipality of Dionisio Cerqueira-SC, on the border with Argentina. In 2022, 72% of the US$ 372 million exported through customs in Dionisio Cerqueira-SC came from other states, such as Mato Grosso do Sul, Parana, São Paulo, Goias and Rondonia. The construction of a dry port and an airport in the city should further boost its importance and use.

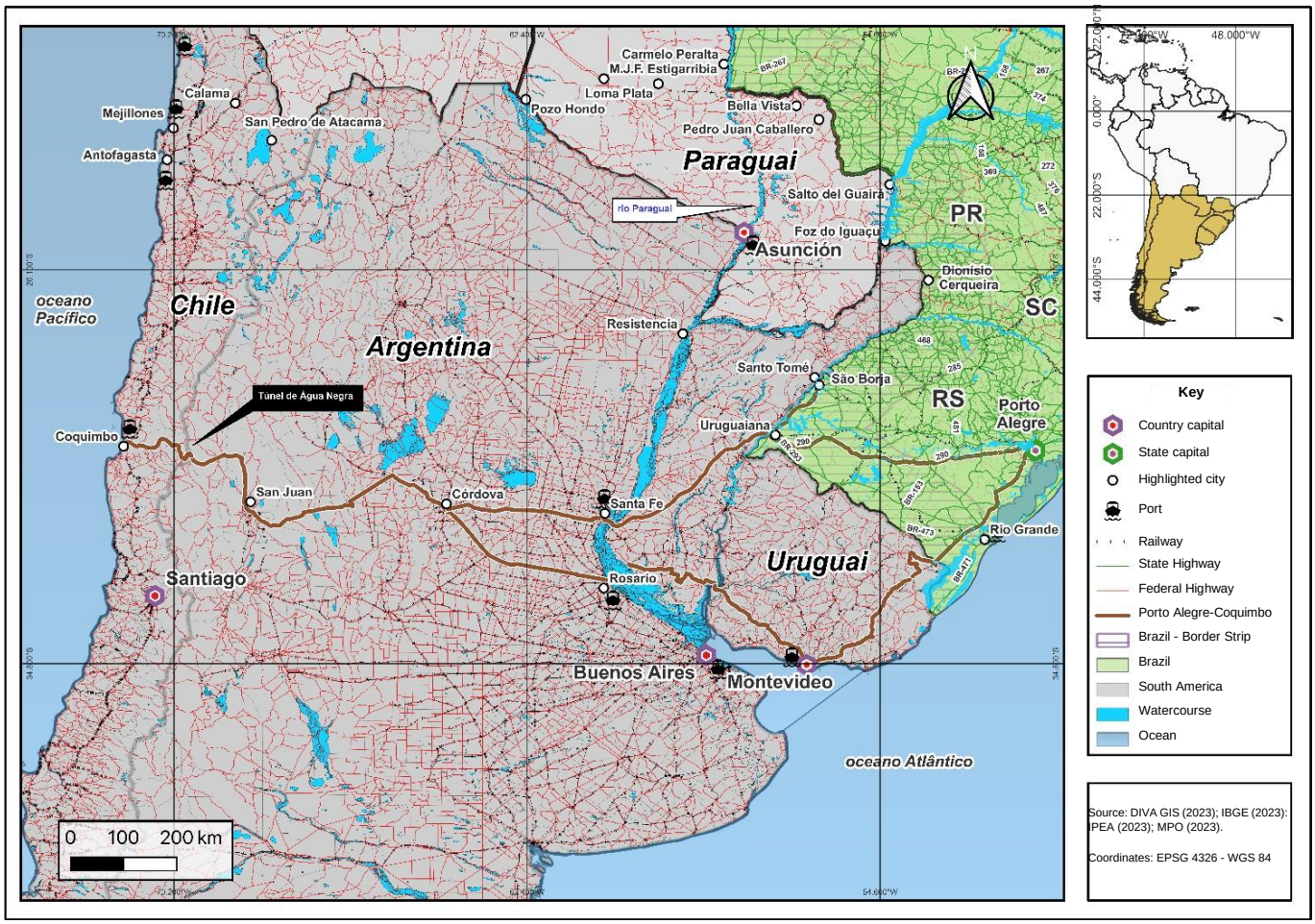
The state of Santa Catarina was also included in the New PAC, with the study of new concessions for the Ferrovia do Frango (EF-487/499), which is over 860 kilometers long and integrates the state in an east-west direction. The planned railroad will link the Santa Catarina port of Itajai-SC to the border town of Dionisio Cerqueira-SC. In 2022, US$10 billion left Brazil through the Itajai-SC port structure. Of this amount, more than 27% was chicken meat; around 40% of these goods were destined for Asian markets.

Due to specific natural conditions and also port infrastructure works, the ports of Argentina and Uruguay do not have the same favorable conditions of winds, tides, currents, waves, ship maneuverability, visibility and draft as the port of Imbituba-SC, for example, the southernmost port in Santa Catarina. The state government is willing to work for further improvements that can contribute to its use by neighboring countries as a "Mercosur Port". The network of highways that connects the Santa Catarina coast with Argentina reinforces this possibility.

Route 5 – Porto Alegre – Coquimbo

Photo: RBS TV

Figure 9 – Porto Alegre – Coquimbo Route



Source: SIDSA.

Interactions between Rio Grande do Sul and its two neighbors, Argentina and Uruguay, are long-standing and well-established. It was in the territorial limits of Rio Grande do Sul that Brazil's main connections with the countries of South America were consolidated, with a greater density and complexity of economic relations and a greater supply of physical infrastructure. It should be noted that 11 of the 33 twin cities that Brazil has with other South American nations are in Rio Grande do Sul. In addition, Uruguaiana-RS has historically been the main exit point for Brazilian products by land. In 2022, however, for the first time, São Borja-RS took first place nationally, with 29% of the total. Together, these two Rio Grande do Sul border towns accounted for 57% of Brazil's US$ 20.1 billion in exports by road last year.

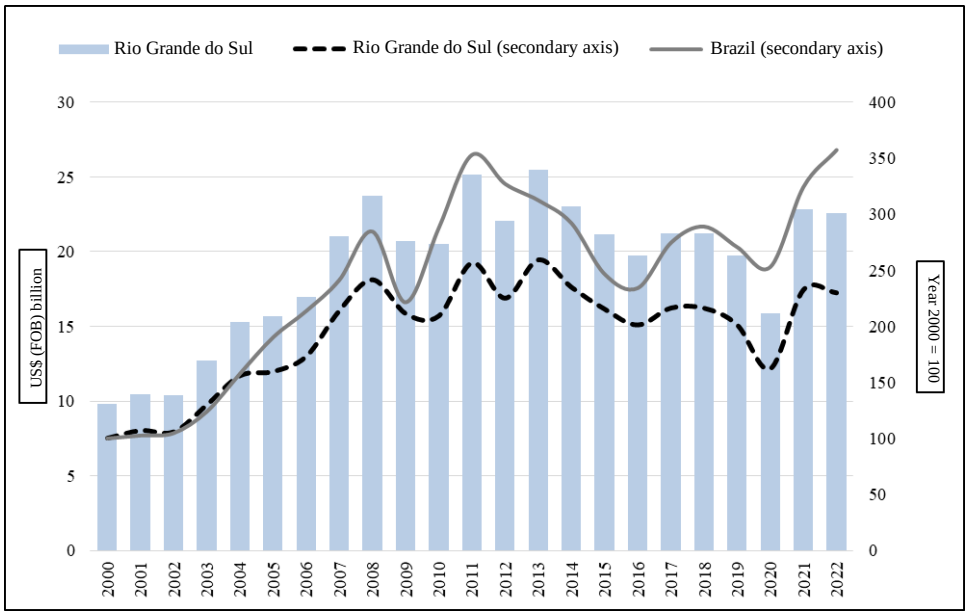
2.1.11 Rio Grande do Sul

A look at Rio Grande do Sul's exports between 2000 and 2022 reveals major changes. At the start of the period, 33% of the state's foreign sales were made up of footwear and tobacco, essentially destined for the United States. Today, 25% of the state's exports are soy and derivatives, destined for China. These

sales have multiplied sixfold since 2000, exceeding $5.5 billion. At the same time, just over two decades ago, half of Rio Grande do Sul's exports went to the United States and the European Union, while only 13% went to Asia. Currently, the United States and Europe together account for 25%, while Asian markets account for over 35%.

Despite the changes in the list of exports and trading partners, there have been no major changes in the outgoing URF of Rio Grande do Sul's foreign sales. Since 2000, the port of Rio Grande has accounted for more than 65% of the total number of products shipped from Rio Grande do Sul to the world.

Chart 11 - Exports from Rio Grande do Sul 2000-2022, in US$ (FOB) million, at 2022 prices (left axis) and exports from Rio Grande do Sul and Brazil (secondary axis, index 100).



Source: Comex Stat-MDIC. Prepared by: SIDSA.

Rio Grande do Sul's imports more than doubled between 2000 and 2022. Of particular note are state purchases of crude petroleum oils, diesel-powered motor vehicles and agricultural correctives. Argentina is the main supplier of goods to Rio Grande do Sul, with 45% of sales concentrated in diesel cars. In turn, the state's fertilizer purchases in 2022 came from countries bordering the Pacific Ocean and, even so, more than 80% entered Brazil through the port of Rio Grande.

Rio Grande do Sul – Points to note

Rio Grande do Sul has prioritized the search for energy efficiency and the diversification of supply sources. In recent years, the construction of the Vaca Muerta gas pipeline in Argentina has gained prominence, as has the possibility of its extension to Brazil, crossing the border in Uruguaiana-RS. From there, the network would continue on to Porto Alegre-RS, passing through the Triunfo-RS Petrochemical Complex. More than a decade ago, this work was already part of the IIRSA/COSIPLAN's project portfolio .

The state has the Mercosur Waterway, with more than 1,850 navigable kilometers. This waterway system covers more than 300 Brazilian municipalities and is made up of the Jacui, Taquari, Sinos, Gravatai and Jaguarão rivers, which connect to the Patos Lagoon and, via the São Gonçalo canal, to the Mirim Lagoon on the border with Uruguay. The New PAC includes a number of projects related to this waterway, especially in the cities of Rio Grande-RS, Pelotas-RS, Santa Vitória do Palmar-RS and São Jose do Norte-RS. The initiatives include the implementation of a ship traffic management system and the internal paving of the port of Rio Grande, as well as dredging, signaling and a waterway monitoring plan.

The state government sees a number of projects as crucial to increasing the flow of cargo between Rio Grande do Sul and Argentina, speeding up customs procedures. Among the initiatives are: a) the construction of a binational bridge between Tiradentes do Sul-RS and El Soberbio, in Argentina (with a demand for funding from the Mercosur Structural Convergence Fund);
-Focem); b) widening of BR-468, between Tiradentes do Sul-RS and Palmeira das Missões-RS; c) solution of the concession agreement for the operation of the customs office on the binational bridge between São Borja-RS and Santo Tome-ARG; d) improvement of the rules for paying freight to Argentina; and e) revitalization of the binational bridge in Uruguaiana-RS.

There is the possibility of establishing an innovative initiative to promote greater integration of regional air transport, through shared use or binational facilities of Rivera Airport in Uruguay, a twin city with Santana do Livramento-RS. Progress on the proposal depends on coordination involving the Federal Revenue Service, the Federal Police and Itamaraty. The success of the experiment could be replicated in other twin cities in Brazil with neighboring countries.

Rio Grande do Sul has been awarded 18 clear regional integration projects in the New PAC. These are the following works or initiatives: Uruguaiana Airport; Dredging and Signaling of the Mirim Lagoon; Waterway Monitoring Plan for the Mirim Lagoon; Concession contract for stretches of the BR-116 and BR-392 highways; Construction of the binational bridge over the Uruguay River in Porto Xavier-RS; Construction of a bridge over the Ibicui River, between Uruguaiana-RS and Itaqui-RS; Construction of a binational bridge in Jaguarão-RS, on the Brazil-Uruguay border; Construction of a bridge between São Jose do Norte-RS and Rio Grande-RS; Duplication of BR-116, from Porto Alegre-RS to Pelotas-RS; Duplication of BR-290, between Porto Alegre-RS and Pantano Grande-RS; Restoration of the binational bridge between Uruguaiana-RS and Passo de Los Libres-ARG; Construction of the accesses to the 2nd Bridge over the Guaiba River, in Porto Alegre-RS; Implementation of the ship traffic management system in Rio Grande-RS; Internal paving of the new port of Rio Grande-RS; Duplication of BR-285, in Passo Fundo-RS; Adjustment of the Urban Crossing of Ijui-RS, on BR-285; Adjustment of BR-285/RS, in São Jose dos Ausentes-RS; and EMBRAPA Pecuária Sul, in Bage-RS.

3. Proposals

In light of the above, the Subcommittee believes that regional integration initiatives - provided they are planned according to local potential and carried out with fiscal responsibility - can not only promote economic integration between South American countries, but also boost new logistical alternatives via the Pacific Ocean and the Caribbean, optimizing the flow of trade. Other benefits can be associated with this, such as fostering cultural integration, increasing trade in services between the neighbors, developing research networks, promoting tourism and strengthening cooperation in the fight against crime, among others. The issue of integration should be seen as an opportunity, not a problem, for Brazil.

Several successful sub-national initiatives have been presented throughout this report. Despite the initiatives implemented by each sub-national entity, the states were unanimous in emphasizing a dual role of governance to be played by the Union: a) "inwards", with the understanding that there are various demands presented in a dispersed manner to the federal government by the sub-national entities, with the opportunity to provide rationality and replicable solution models for problems that recur along the border; and b) "outwards", being the promoter of propositional agendas with South American neighbors (several states are talking directly with the national governments of neighboring countries, a situation that can generate imbalances in negotiations).

The federal government's commitment to managing this issue should be to harmonize the way it responds to specific requests from North to South; to disseminate good practices among the states; and to give a sense of cooperation and complementarity to the South American Integration and Development Routes, dispelling mistaken perceptions that they compete with each other.

The Subcommittee recognizes that the issue of South American integration encompasses the competencies of different ministries, autonomous bodies and other direct and indirect public administration bodies. The vast capillarity of the issue justifies coordination efforts, to be the subject of dialog with all the actors involved. The proposals presented below, therefore, represent initial paths of action and collaboration between the MPO and other federal government bodies and sub-national entities, taking into account the limits of competence of other institutional arrangements. The MPO does not aim to be the sole driver of new initiatives at federal level.

3.1 International Governance Mechanism - a revitalized COSIPLAN

As reported in Chapter 1, IIRSA and COSIPLAN promoted infrastructure integration as one of the priorities on the South American agenda. The selection of priority projects, however, did not follow clear criteria, so that dozens of projects with little to do with the topic were integrated into the portfolio. The choice was made unilaterally by each country, which resulted in little emphasis on transnational initiatives and, consequently, a low level of engagement by one government in relation to the other's projects. Thus, the COSIPLAN portfolio resulted in a repository of national choices without a firm indication of the funding source.

During his speech at the Brasilia Consensus on May 30, 2023, President Lula suggested that his peers consider, among other proposals, updating "the portfolio of projects of the South American Council for Infrastructure and Planning (COSIPLAN), reinforcing multimodality and prioritizing those with a high impact on physical and digital integration, especially in border regions". This suggestion aims to address some of the main criticisms leveled at COSIPLAN's old portfolio: national projects, focused on highways, and not necessarily in or for the benefit of the border region.

The Subcommittee believes, in line with the presidential statement, that the reactivation of a South American governance mechanism, addressed for managing a common portfolio of infrastructure integration projects, would be beneficial. Brazil's participation and the formation of its position in this mechanism may result from domestic coordination through a collegiate body to be recreated, the basic lines of which are mentioned below.

3.2 National Governance Mechanism - "a CIM" for South American regional integration

The Union's role in a national, international and multi-level issue must be carried out through appropriate governance instruments that can address the vast capillarity of the issues being discussed without giving rise to new bureaucratic obstacles. In this sense, the states received by the MPO noted that, in order to deal with specific issues on the regional integration agenda, it would be necessary to schedule meetings with various ministries in Brasilia. There was also an unequivocal position in favor of a "single window" instrument to which the various requests regarding the South American Integration and Development Routes could be directed. The topics covered included budget, regulation (air, road, rail, environment, property), physical infrastructure, administration/operations, foreign relations, trade promotion, among others. There is currently no body that can act as a focal point for such a vast array of connected demands.

The natural opposition to the creation of new governance instruments leads to the problem of overlap: could other collegiate bodies address the issues presented? The Subcommittee thinks it is not so. At the national level, the Chamber of Foreign Trade (CAMEX) would not have the competence to monitor national issues with international repercussions (such as national logistical works to facilitate regional integration, the establishment of dry ports, demands for civil servants, among others). For its part, the National Industrial Development Council (CNDI) was created to shape the design of a new industrial policy, and the issues dealt with there are cross-cutting in nature, while the problems listed by the states are specific, although replicable.

Thus, it is understood that there is room for the creation of a bureaucratically light forum, capable of meeting on two levels:

a) the first, permanent level, with a monitoring and internal deliberation profile, would be made up of the different ministries that already have relations with the individual states, in order to promote synergy and convergence of the various policies related to regional integration;

b) The second level, of a temporary nature, would take the form of thematic technical groups able to address problems repeatedly addressed by the states (e.g., the operation of customs, transportation quotas between countries, phytosanitary agreements, binational airports in twin cities, among others). These groups would include representatives from the states and would be formed at their request, whenever a particular problem was considered replicable in a given number of sub-national entities.

The proposal here would be similar to the one for the Interministerial Committee on Climate Change (CIM), currently governed by the Decree no. 11.550, dated June 5, 2023. The inspiration is no coincidence: just like regional integration, the issue of climate change draws on the expertise of more than a dozen federal and sub-national bodies, and demands political conciliation for Brazilian representation in international negotiations. In this way, a "CIM" for South American regional integration could, for example, be formed from temporary groups to address specific problems, such as those presented below:

	Brazil has 33 twin cities with South American neighbors. Is it feasible to design a standard agreement for local telephone calls with neighbors, eliminating international tariffs within a virtually single geographical space?
	How can the delivery of infrastructure works that connect countries be aligned, avoiding situations in which only one side's projects are prioritized?
	How can unilateral restrictions imposed by neighboring countries on Brazilian vehicles crossing the border in cargo transport operations be addressed?
	Are there opportunities for South American regulatory harmonization on railway issues?
	Can airports in border cities be subject to binational regimes, eliminating international tariffs and lowering logistical costs for movements that are, in practice, national?
	Can the assignment of federal civil servants (federal revenue auditors, federal police officers, federal highway police officers, Vigiagro agents, etc.) take into account criteria that reduce the shortage in South American border regions?
	Is it possible to devise strategies to standardize customs processes in order to reduce waiting times at the South American border and logistics costs?

It should be noted that these problems have been experienced by states for many years, but they have been dealt with individually and sparsely, without due consideration of the integration context. Benefits are also expected for the Union, as the grouping of repetitive cases would allow for a more comprehensive view of the challenges and would favor less punctual and more structured responses.

3.3 Subnational Governance Mechanism - Working Groups for each Route

It is also suggested that, for each of the South American Integration and Development Routes, Working Groups be set up - by means of a joint presidential declaration - comprising thematic tables that include important issues such as socio-environmental issues, the challenges of cross-border security, and so on. The Mato Grosso do Sul Bioceanic Corridor Working Group was set up on the basis of the 2015 Asunción Declaration and the 2017 Brasilia Declaration reaffirmed this commitment. It is the only project that has two presidential declarations and in which sub-national actors participate, in addition to national government representatives through the figure of the National Coordinator.

It is essential to establish a space for harmonious and positive dialog, with broad participation from different actors and groups in civil society. As it is a space where representatives of sub-national governments from Brazil and border countries are present, creating a permanent dialog, a positive agenda is generated for bilateral relations at the state level.

We remember how the Bioceanic Road Corridor Working Group from Mato Grosso do Sul to the ports of northern Chile managed to ensure proper governance, involvement and active participation of various actors who were absent from the spaces of IIRSA/COSIPLAN. The governance model adopted in Mato Grosso do Sul has proved to be efficient for the purposes of the actors directly involved in the corridor, as well as being a model that has been improved when discussing issues such as social and environmental development. It is a participatory space that has been active since 2015, whose governance model does not overlap between project developers and potential funders.

The Working Groups of each Route could be organized around thematic tables, involving issues such as infrastructure, transport, logistics, production, trade, simplification of customs procedures, universities and tourism, and so on. The direct participation of representatives of the federal government and sub-national entities can streamline the identification of local demands and their relationship with regional and national plans. The dynamic of the meetings also makes it less complex to deal with bottlenecks and difficulties. Both the composition of the actors participating in the Working Group and its organization are in line with the guidelines indicated by the President of the Republic to prioritize high-impact projects for physical and digital integration, especially in border regions.

IPEA studies on the Bioceanic Road Corridor, Porto Murtinho-MS Route, show the progress made so far and point to ways to improve governance, such as the creation of tables on Social and Environmental Development and Border Security, as well as the adoption of a gender and indigenous peoples perspective. It is also possible to create websites for the corridor's Working Groups to preserve the collection of documents and to serve as an institutional repository containing the contact details of representatives and other information.

Other proposals to ensure the smooth running of the routes are to promote the advantages of the corridor for the development of the regions and South American regional integration, through business missions, with a focus on small and medium-sized enterprises, publicizing the corridor's website on the official website of state agencies or regional trade associations; and improving the institutional design of the corridor to include a governmental committee (which is currently the National Coordinator), an advisory council (with sub-national authorities and regional agencies or associations) and a support mechanism (working tables), the definition of a committee to control and monitor the commitments made (carried out by institutes and universities), joint coordination at the tables and a secretariat to

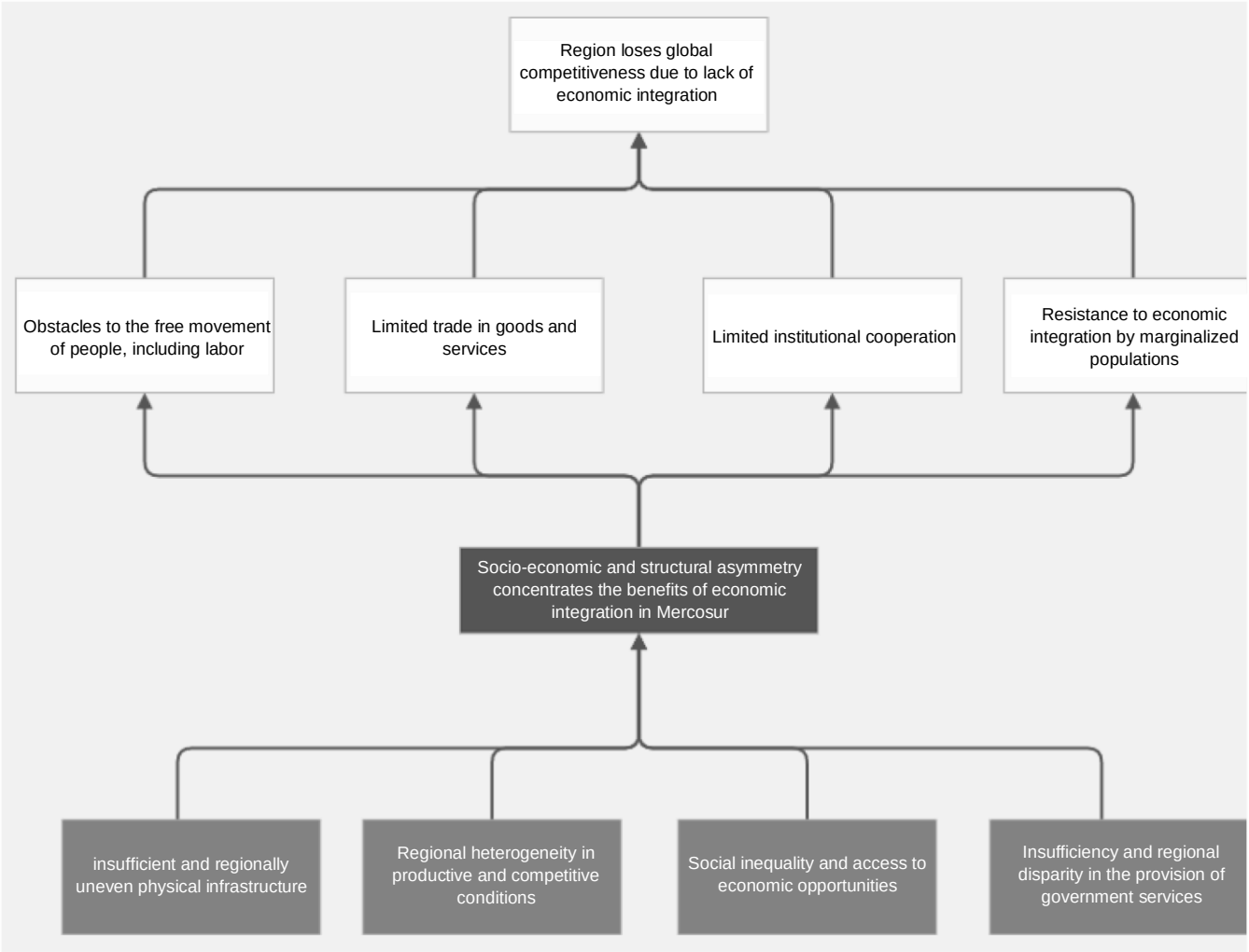
manage the activities of the Working Group.

The experience of the Bioceanic Road Corridor Working Group could be replicated in other integration axes, to set the necessary spaces and mechanisms to ensure lasting, sustainable governance, with the participation of authorities and representatives from the states through which the Routes will pass.

3.4 Assessment Mechanisms

Also, in the context of selecting infrastructure works, ex-ante evaluations should also be considered. The MPO can play an important role in qualifying public spending in this new stage of updating the project portfolio, through ex-ante evaluations supported by a Program Theory[5], with indicators that are measurable over time, specific to the problem studied, attributable to the policy and relevant. In order to illustrate what an ex-ante evaluation would look like for the South American Integration and Development Routes projects, the following model is proposed:

[5] Program Theory consists of an explicit impact narrative about the expected consequences of a public action on a socio-economic problem. The literature defines an ex-ante evaluation as beginning with the definition of concepts and alignments in order to diagnose the problem. The problem to be addressed is characterized by an undesired social dimension, its causes, the population affected and its quantification.



Through this model, it is possible to define criteria for selecting projects, such as: 1. General alignment criteria, to assess the potential of projects to contribute to mitigating the consequences of problems; and 2. Specific alignment criteria, applicable on a customized basis to groups of projects that want to assess the potential of projects to contribute to mitigating the causes of the problem. Questions to be answered in selection processes using the general alignment criteria could be:

a) Does the project directly benefit areas of greater relative socio-economic vulnerability?

b) Does the project show evidence of impact in evaluation and monitoring indicators?

c) Does the project have a positive economic return?

In the case of specific alignment criteria, you might ask:

a) Does the project prioritize areas with the worst infrastructure, as measured by a multi-criteria indicator?

Questions such as those elaborated above can be addressed with academically robust indicators, such as those presented in Appendix B - Proposed indicators for evaluating and monitoring the project portfolio.

3.5 Financing Mechanisms

The Brazilian government has been proposing improvements in the governance of the Regional Development Banks. Examples of initiatives include FONPLATA's new Constitutive Agreement, which allows new countries to join the Bank; and IDB Invest's new business model, which provides for greater leverage of resources. In addition to proposing improvements in the governance of these institutions, the MPO represents the Brazilian government on the boards of the main regional banks (IDB, CAF, FONPLATA and BDC), accompanying the discussion and implementation of projects in borrowing countries.

With regard to projects carried out in Brazil, the MPO is promoting reform in the External Financing Commission – COFIEX. This Commission, which also includes representatives from the Ministries of Finance and Foreign Affairs, is responsible for approving the preparation of projects funded by any multilateral development banks, since these financings require guarantees from the Union. In addition to providing for greater agility and transparency in the process of submitting projects, the reform of COFIEX is intended to contribute to greater alignment of approved projects with the priorities of the federal government.

Through the new project selection criteria being studied by COFIEX, it is possible to establish incentives for states and municipalities, especially those located in border regions, to present projects aimed at South American integration. Within the framework of the Mercosur Structural Convergence Fund (Focem), for example, the National Technical Unit of Focem in Brazil has established that projects to be financed with non-refundable resources from the fund must be carried out in municipalities located in the Border Strip (a region that includes municipalities up to 150 kilometers from the border) with the Mercosur States Parties.

Recently, Itaipu Binacional has shown itself to be an important additional source of funding for South American integration projects, in particular the Integration Bridge between Foz do Iguaçu-PR and Presidente Franco-PAR, whose construction work has been completed, and the bridge between Porto Murtinho-MS and Carmelo Peralta-PAR. In the first half of the year, the Itaipu More than Energy Program was launched, through which it expanded its operations, in partnership with Caixa Econômica Federal, to finance sustainable development actions in the 399 municipalities of Parana and in 34 municipalities in Mato Grosso do Sul. Given the company's capacity to finance projects in the region, it would be possible to explore new forms of financing for logistical integration bottlenecks.

With regard to financing from the National Bank for Economic and Social Development (BNDES), the proposal for the bank to resume financing exports of engineering services - a modality that has been suspended since 2016 - brings a positive outlook for infrastructure projects in South America, updated

with stricter governance criteria. The reform of Export Credit Insurance and the resumption of counter-guarantee instruments such as the ALADI Reciprocal Credit and Payment Agreement (CCR) could also contribute as additional financial solutions in the region. Finally, the resumption of the Working Group on Financing Mechanisms and Guarantees of the new COSIPLAN could prioritize the joint action of development banks and solutions involving public-private partnerships for the financing and execution of projects.

Despite the low participation of regional development banks in financing South American integration projects, it is essential to highlight the participation of the IDB, CAF and FONPLATA in the COSIPLAN Technical Coordination Committee (CCT), which acted as the council's executive secretariat. The CCT was responsible for the annual consolidation of COSIPLAN's Project Portfolio and Agenda of Priority Projects, as well as for all the material available on the Council's website (iirsa.org/cosiplan.org). The CCT's technical work was carried out at the Institute for the Integration of Latin America and the Caribbean - INTAL, linked to the IDB. In 2020, at a time when COSIPLAN had already suspended its activities, the three banks that made up the CCT launched the Alliance for the Integration and Development of Latin America and the Caribbean (ILAT), aimed at offering technical and financial support for integration projects in the region. ILAT does not have a country mandate and has not presented any relevant results to date.

In order to effectively mobilize financing instruments for South American integration projects, it is recommended that the twelve South American countries, as shareholders in the regional development banks, prioritize the South American integration agenda. This can happen either through coordination between the countries as shareholders in these institutions, or by setting internal priorities in their actions as borrowers to carry out development projects aimed at integration.

4. Appendices

Appendix A – Table of sessions of the MPO Subcommittee

Theme	Presenters	Body	Date	Minutes
Background to Infrastructure Integration	Pedro Silva Barros	IPEA	20/6	Link
Background to Infrastructure Integration	Aline Contti Castro Raphael Padula	MDIC/UFPB MCTI/UFRJ	29/6	Link
Guiana Island Route	Rafael Fraia Ivan Gonzalo	Roraima's Secretary of Planning and Budget Representative of the Federation of Industries of Roraima	5/7	Link
Biocenic Corridors	Min. João Carlos Parkinson	MRE	11/7	Link
Background to Infrastructure Integration	Adriana Brandt Leandro Freitas Couto	Fundação Araucária SRI/PR	18/7	Link
Capricorn Route	Jayme Verruck	Mato Grosso do Sul's Secretary for the Environment, Development, ST&I	25/7	Link
Quadrante Rondon Route	Ricardo Brandão	Acre's Secretary of Planning	9/8	Link
Quadrante Rondon Route	César Miranda	Secretary of Economic Development of Mato Grosso	11/8	Link
Rota Manta-Manaus	Luiz Frederico Aguiar Cisnea Menezes Basílio	Executive Assistant Superintendent Director of the Amazonas Secretariat for Economic Development, C&TI	16/8	Link
Route Porto Alegre- Coquimbo	Danielle Calazans	Secretary of Planning, Governance and Management of Rio Grande do Sul	23/8	Link
Logistical advantages of the Bioceanic Corridors	Cícero Rodrigues Filho	INFRA S.A.	29/8	Link
Quadrante Rondon Route	Avenilson Trindade	Deputy Secretary of Economic Development of Rondônia	31/8	Link
Guiana Island Route	Lucas Abrahão	Secretary for International Relations and Foreign Trade of the State of Amapa	12/9	Link
Capricorn Route	Guto Silva	Secretary of Planning of Parana	18/9	Link
Capricorn Route	Edgard Usuy	Secretary of Planning of Santa Catarina	19/9	Link
Guyana Island Route	Maria do Socorro	Deputy Secretary of Planning of Para	26/9	Link

Appendix B - Proposed indicators for evaluating and monitoring the project portfolio

Multiple indicators can be used to coordinate a process of evaluating and monitoring the updating of the project portfolio in the light of regional integration and socio-economic development. It should be noted that any indicator analyzed in isolation has little capacity to elucidate the evolution of regional development. Indicators must be studied in an orderly manner and grouped together in order to fully understand the evolution of economic and social trends.

In the macroeconomic sphere, the following can be listed: (i) GDP, (ii) GDP per capita, (iii) level of local employment, (iv) size of firms, (v) number of generated jobs, (vi) gross value added by industries, and

(vii) trade balance ratio on local GDP. In the microeconomic sphere, the following can be mentioned: (i) travel time to transport production, (ii) transportation costs, (iii) distance traveled, (iv) volume of intra-regional credit, (v) breakdown of local trade by economic sector, (vi) percentage of roads paved, (vii) minutes spent in traffic, and (viii) road quality index.

The construction of indicators must be in line with the goals set out in the PLPPA 2024-2027. For example, the following general objective stands out in relation to road transport: “Program 3106: To offer a sustainable, integrated, high-quality, fluid, efficient, modern, safe and accessible road transport system, with a view to improving the mobility of people and goods, reducing logistics costs and increasing competitiveness." Five specific objectives are associated with this general objective:

Specific Goals

- Maintain the federal highway network in a roadworthy and safe condition;
- Upgrade and expand the federal highway network with public funds;
- Assign highways using improved, modern and sustainable mechanisms;
- Expand, with private resources, the capacity of the federal highway network granted;
- Reduce bureaucracy in road freight transport.

Therefore, the construction of evaluation and monitoring indicators not only makes it possible to optimize resources in favor of more effective projects, but also to provide support for the PPA indicators themselves, which are developed with a view to meeting specific objectives (such as those mentioned above). Based on the economic literature, four other specific indicators are proposed for evaluating and monitoring projects with regard to the geographical and sectoral concentration of production. Where $Ej\ i$ represents the i industry employment level in the j region, and $EBR\ i$ represents the i industry

employment level in Brazil.

$$PR_{i,j} = \frac{E_j^i}{E_{BR}^i}$$

Relative Participation Index (PR) - captures the importance of a sector in a specific region to the country's production

$$HHm_{i,j} = \frac{E_j^i}{E_{BR}^i} - \frac{E_j^i}{E_{BR}}$$

Hirscham-Herfindahl Index (HHm) - used to measure the level of inequality, which measures the relevance of a productive sector in a given geographical region vis-à-vis the rest of the country.

$$QL_{i,j} = \frac{\frac{E_j^i}{E_{BR}^i}}{\frac{E_j}{E_{BR}^i}}$$

Locality Quotient (LQ) - an indicator of the degree of specialization of production in a given region vis-à-vis the rest of the country.

$$ICC_j^i = \alpha * QL_j^i + \beta * HHm_j^i + \gamma * PR_j^i$$

Production Composition Concentration Index - represented by the linear combination of the three previous indicators (LQ, HHm, and PR).

Appendix C – State Trade Flow Comparison 2000-2020 (%)

Acre

Exp Products	2000
Timber and derivatives	66.0
Leather and derivatives	21.0
Granite	3.5
Brazil nut	2.5
Fuels and lubricants	20

Exp Products	2022
Timber	32.5
Soybean grains	26.5
Brazil nut 1	6.0
Meat and edible offals	10.0
Corn	6.0

Imp. Products	2000
Engine parts	83.0
Wheat flour	5.0
X-ray devices	1.5
Pipes and profiles	1.5
Whole milk	1.5

Imp. Products	2022
Helicopters	22.0
X-ray machine parts and accessories	155
Tanning products	11.0
Glass insulators	9.5
Chromium sulphate	7.5

Exp **Partners**	2000
Argentina	57.5
China	11.0
United States	8.5
Bolivia	4.0
Hong Kong	3.0

Exp **Partners**	2022
Peru	16.0
The Netherlands	10.0
United States	8.5
Bolivia	8.0
Hong Kong	7.5

Imp. Partners	2000
Spain	90.0
Argentina	7.0
India	1.5
Japan	0.5
Bolivia	0.5

Imp. Partners	2022
United States	41.5
Turkey	11.0
Russia	9.5
Italy	6.5
China	6.0

Exp Customs	2000
Foz do Iguaçu-PR	54.5
Rio Grande- RS	19.0
Manaus Port -PR	6.0
Viracopos International Airport - SP	3.5
Brasileia-AC	3.5

Exp Customs	2022
Manaus Port -AM	41.5
Assis Brasil-AC	17.5
Manaus Port -PR	17.0
Santos Port -SP	9.00
Santarem-PA	6.00

Imp Customs	2000
Manaus Port -AM	90.0
Foz do Iguaçu-PR	7.0
Suape Port -PE	1.5
Rio Branco-AC	0.5
Brasileia-AC	0.5

Imp Customs	2022
Macapa-AP	22.5
Santos Port -SP	18.0
Rio Grande- RS	17.5
Guararapes International Airport - PE	15.5
Manaus Port -AM	6.0

Amapá

Exp Products	2000
Firewood	59.0
Chromium Ore	26.0
Palm hearts	8.0
Ores of niobium, tantalum, vanadium or zirconium	3.5
Manganese ore	3.4

Exp Products	2022
Gold	50.0
Firewood	28.0
Iron ore	7.0
Fruit pulps	3.5
Soybean	3.0

Imp. Products	2000
Gas oil	70.0
Engine parts	5.0
Cologne	4.0
Paper towels	1.2
Motherboards	1.0

Imp. Products	2022
Gas oil and other mineral fuels	95.0

Exp **Partners**	2000
Japan	31.0
Norway	26.0
Sweden	23.0
Spain	9.0
United States	3.0

Exp **Partners**	2022
Canada	44.0
Portugal	12.0
Japan	8.5
China	8.0
Denmark	6.0

Imp. Partners	2000
Venezuela	34.0
Saudi Arabia	9.0
Trinidad and Tobago	8.0
Kuwait	7.5
Finland	6.0

Imp. Partners	2022
United States	89.0
Russia	4.0
Spain	3.0
China	1.5
Hong Kong	1.0

Exp Customs	2000
Santana Port -AP	88.0
Belem Port -PA	5.0
Fortaleza Port -CE	2.0

Exp Customs	2022
Guarulhos International Airport - SP	50.0
Santana Port -AP	36.0
Belem-PA	13.0
Oiapoque-AP	1.00

Imp Customs	2000
Macapa-AP	90.0
Belem-PA	8.5
Foz do Iguaçu-PR	1.0
Viracopos International Airport - SP	0.4
Rio de Janeiro Port -RJ	0.1

Imp Customs	2022
Maceio - AL	88.5
Santos Port -SP	8.5
ALF- Belem-PA	2.0
Itajai-SC	0.2
São Francisco do Sul Port -SC	0.1

Amazonas

Exp Products	2000
Food preparations for making drinks	37.0
Television receivers	20.0
Motorcycles	7.0
Automatic machines	5.0
Electronic lamps, tubes and valves	3.0

Exp Products	2022
Food preparations for making drinks	21.0
Motorcycles	16.0
Ferroalloys	9.0
Gold	7.0
Malt extracts	5.0

Imp. Products	2000
Electronic integrated circuits	12.0
Electronic integrated circuit parts	89
Petroleum oils	8.4
Electronic lamps, tubes and valves	83
Machinery and mechanical appliances	3.4

Imp. Products	2022
Electronic integrated circuits	21.0
Electronic integrated circuit parts	67
Petroleum oils	6.5
Electrical devices for telephony	5.5
Platinum and its various forms	54

Exp **Partners**	2000
Argentina	37.0
Australia	19.0
Colombia	7.0
United States	6.8
Venezuela	6.5

Exp **Partners**	2022
Colombia	16.0
Venezuela	12.0
Argentina	12.0
China	10.0
United States	9.0

Imp. Partners	2000
Japan	19.0
United States	17.0
South Korea	13.0
Malaysia	6.0
China	5.6

Imp. Partners	2022
China	40.0
United States	17.0
Vietnam	8.0
South Korea	9.0
Taiwan	6.0

Exp Customs	2000
Manaus Port -AM	61.0
Santos Port -SP	13.0
Guarulhos International Airport - SP	6.0
Pacaraima RR	5.0
Suape Port -PE	4.0

Exp Customs	2022
Manaus Port -AM	44.0
Eduardo Gomes Airport -AM	15.0
Pacaraima RR	12.0
Santos Port -SP	9.00
Corumba - MT	7.00

Imp Customs	2000
Manaus Port -AM	68.0
Eduardo Gomes Airport -AM	31.0
Viracopos International Airport - SP	0.3
Santos Port -SP	0.3
Manaus Port -PR	0.2

Imp Customs	2022
Manaus Port -AM	49.0
Eduardo Gomes Airport -AM	41.0
São Francisco do Sul Port -SC	3.8
Santos Port -SP	3.7
Salvador - BA	1.1

Mato Grosso

Exp Products	2000
Soybeans and derivatives	82.5
Timber and derivatives	7.5
Meat and edible offals	6.5
Cotton and derivatives	1.5
Leather and derivatives	1.0

Exp Products	2022
Soybeans and derivatives	58.0
Corn kernels	20.1
Frozen meat of bovine animals	7.9
Cotton not carded or combed, simply threshed	7.1
Gold in other raw forms, for non-monetary use	2.0

Imp. Partners	2000
Fertilizers	56.0
Steel/iron products	8.0
Airplanes and other aerial vehicles	6.0
Sunflower oil	4.0
Sowing corn	3.0

Imp. Partners	2022
Fertilizers	81.5
Insecticides, rodenticides, fungicides and herbicides	100
Natural gas	2.0
Airplanes and other aerial vehicles	1.5
Cotton pickers	1.0

Exp **Partners**	2000
The Netherlands	32.0
Germany	8.0
United Kingdom	7.5
Iran	5.0
Italy	5.0

Exp **Partners**	2022
China	34.5
Spain	5.0
Thailand	4.5
Iran	4.0
Vietnam	3.5

Imp. Partners	2000
Israel	20.0
United States	12.5
Russia	11.5
Argentina	11.0
Italy	11.0

Imp. Partners	2022
China	19.0
Canada	15.0
Russia	14.5
United States	11.0
Israel	7.0

Exp Customs	2000
Paranagua Port -PR	30.0
Santos Port -SP	29.0
Manaus Port -AM	17.0
Vitoria Port -ES	9.5
São Francisco do Sul Port -SC	9.0

Exp Customs	2022
Santos Port -SP	52.0
Belem-PA	17.5
Manaus Port -PR	7.5
Manaus Port -AM	5.50
Santarem Port -PA	5.00

Imp Customs	2000
Manaus Port -PR	50.0
Santos Port -SP	15.5
Manaus Port -AM	7.5
Foz do Iguaçu-PR	3.5
Uruguaiana	3.0

Imp Customs	2022
Santos Port -SP	40.0
Manaus Port -PR	24.5
Santarem-PA	8.5
Belem-PA	6.5
São Francisco do Sul Port -SC	5.5

Mato Grosso do Sul

Exp Products	2000
Soybeans and derivatives	41.5
Meat and edible offals	29.5
Iron ore	7.0
Timber and derivatives	4.0
Sugar	2.0

Exp Products	2022
Soybean	37.0
Meat and edible offals	19.0
Cellulose	18.5
Corn	11.5
Sugarcane	4.5

Imp. Partners	2000
Natural gas	67.5
Meat and edible offals	11.0
Fabrics and derivatives	3.0
Fertilizers	1.5
Textile machinery 1.5	

Imp. Partners	2022
Natural gas	43.5
Fertilizers	26.0
Refined copper cathodes and their elements	6.0
Fabrics and derivatives	3.5
Textured strands	2.0

Exp **Partners**	2000
The Netherlands	12.0
France	10.0
Argentina	9.0
United Kingdom	7.0
Hong Kong	6.5

Exp **Partners**	2022
China	35.5
United States	7.0
The Netherlands	5.0
Japan	5.0
Iran	4.5

Imp. Partners	2000
Bolivia	68.0
Paraguay	15.0
Germany	2.5
United States	2.0
France 2.0	

Imp. Partners	2022
Bolivia	44.5
China	14.5
Canada	6.5
United States	6.0
Russia	6.0

Exp Customs	2000
Santos Port -SP	41.0
Corumba - MS	17.0
São Francisco do Sul Port -SC	13.5
Paranagua Port -PR	11.0
Itajai-SC	9.0

Exp Customs	2022
Paranagua Port -PR	41.5
Santos Port -SP	31.0
São Francisco do Sul Port -SC	11.5
ARF- Porto Murtinho-MS	2.00
Imbituba -SC	2.00

Imp Customs	2000
Corumba - MS	68.5
Ponta Pora - MS	13.0
Paranagua Port -PR	7.0
Viracopos International Airport - SP	3.5
Guarulhos International Airport - SP	1.5

Imp Customs	2022
Corumba - MS	45.0
Paranagua Port -PR	28.5
Santos Port -SP	13.5
São Francisco do Sul Port -SC	6.0
Foz do Iguaçu-PR	2.0

Pará

Exp Products	2000
Iron ore and concentrates	28.0
Raw aluminum	22.0
Timber	12.0
Artificial corundum	7.0
Kaolin and other clays	6.0

Exp Products	2022
Iron ore and concentrates	39.0
Artificial corundum	9.0
Copper ore and concentrates	8.0
Soybean	6.5
Frozen Bovine Meat	2.8

Imp. Partners	2000
Petroleum	16.0
Oil gas	8.0
Petroleum coke	8.0
Wheat	7.0
Sodium hydroxide	6.0

Imp. Partners	2022
Fertilizers in their various forms	25.4
Petroleum	19.0
Sodium hydroxide	14.0
Coal	7.4
Petroleum coke	5.0

Exp **Partners**	2000
Japan	22.0
United States	17.0
The Netherlands	9.0
Belgium	9.0
France	5.0

Exp **Partners**	2022
China	51.0
Malaysia	5.0
Japan	5.0
United States	4.0
Norway	3.0

Imp. Partners	2000
United States	34.0
Venezuela	19.0
Germany	8.0
Argentina	7.0
United Kingdom	3.0

Imp. Partners	2022
United States	42.0
Russia	12.0
Colombia	8.0
China	7.0
Spain	3.0

Exp Customs	2000
Barcarena-PA	33.0
São Luis Port - MA	31.0
Belem Port -PA	18.0
Monte Dourado-PA	9.0
Santarem-PA	5.0

Exp Customs	2022
Sao Luis - MA	69.0
Belem-PA	27.0
Santarem-PA	1.8
Santos Port -SP	1.70
Guarulhos International Airport - SP	0.30

Imp Customs	2000
Belem Port -PA	48.0
Barcarena-PA	23.0
Belem-PA	5.0
Monte Dourado-PA	5.0
Belem International Airport - PA	5.0

Imp Customs	2022
Customs Belem-PA	75.0
Santarem-PA	11.0
Santos Port -SP	4.0
Customs Fortaleza -CE	3.0
Vitoria Port -ES	2.0

Paraná

Exp Products	2000
Soybeans and derivatives	34.0
Passenger cars	13.0
Timber	10.0
Poultry meat and edible offals	5.0
Sugarcane	3.0

Exp Products	2022
Soybeans and derivatives	26.0
Poultry meat and edible offals	16.0
Sugarcane	5.0
Corn	3.5
Chemical wood pulp	3.4

Imp. Partners	2000
Vehicle and car parts and accessories	16.5
Crude petroleum oils	13.0
Fertilizers in their various forms	7.0
Electrical devices for telephony	4.3
Soy beans	2.9

Imp. Partners	2022
Fertilizers in their various forms	16.0
Petrol oil, refined	12.5
Insecticides, herbicides and similar products	7.5
Vehicle parts and accessories	5.2
Diodes, transistors and similar devices	4.3

Exp **Partners**	2000
United States	50.0
Argentina 3	0.0
Mexico	16.0
Chile	3.0
Uruguay	1.0

Exp **Partners**	2022
China	16.0
United States	8.0
Argentina	7.0
Mexico	4.0
India	3.0

Imp. Partners	2000
Argentina	19.0
Germany	16.0
United States	11.0
France	6.0
Nigeria	5.0

Imp. Partners	2022
China	26.0
United States	12.0
Argentina	4.7
India	4.2
Germany	4.2

Exp Customs	2000
Paranagua Port -PR	66.0
Sao Francisco do Sul-SC	8.0
Foz do Iguaçu-PR	5.3
Santos Port -SP	5.3
Itajai-SC	4.8

Exp Customs	2022
Paranagua Port -PR	62.0
Sao Francisco do Sul-SC	10.0
Itajai-SC	5.5
Sao Borja-RS	4.60
Santos Port -SP	4.00

Imp Customs	2000
Paranagua Port -PR	53.0
Sao Francisco do Sul-SC	15.0
Afonso Pena International Airport	11.0
Foz do Iguaçu-PR	7.0
Santos Port -SP	4.0

Imp Customs	2022
Paranagua Port -PR	75.0
Sao Francisco do Sul-SC	6.8
Santos Port -SP	4.3
Customs Curitiba-PR	4.1
Foz do Iguaçu-PR	4.0

Rio Grande do Sul

Exp Products	2000
Shoes	20.0
Tobacco	12.0
Soybeans and derivatives	9.5
Ethylene polymers	5.0
Hides and skins	4.5

Exp Products	2022
Soybeans and derivatives	25.0
Tobacco	9.0
Poultry meat and edible offals	6.5
Chemical wood pulp	5.5
Wheat	4.0

Imp. Partners	2000
Petroleum oils, crude and refined	34.8
Fertilizers in their various forms	6.2
Hides and skins	3.2
Cars, parts and accessories	3.4
Wheat and a mixture of wheat and rye	1.7

Imp. Partners	2022
Petroleum oils, crude and refined	26.6
Fertilizers in their various forms	22.0
Passenger cars, goods vehicles, parts and accessories	13.2
Electronic integrated circuits	1.2

Exp **Partners**	2000
United States	27.0
Argentina	11.0
China	4.0
United Kingdom	3.5
Italy	3.5

Exp **Partners**	2022
China	21.0
United States	9.5
Argentina	5.5
Belgium	3.0
India	2.8

Imp. Partners	2000
Argentina	31.0
United States	12.0
Algeria	9.1
Germany	5.1
Nigeria	4.8

Imp. Partners	2022
Argentina	17.1
United States	16.7
China	13.0
Russia	8.0
Algeria	4.4

Exp Customs	2000
Rio Grande- RS	63.0
Itajai-SC	2.7
Sao Francisco do Sul-SC	1.5
Paranagua Port -PR	1.0
Imbituba -SC	1.0

Exp Customs	2022
Rio Grande Port - RS	63.0
Itajai-SC	11.0
São Francisco do Sul Port - SC	30
Paranagua Port -PR	2.80
Santos Port -SP	2.00

Imp Customs	2000
Porto Alegre - RS	36.0
Rio Grande- RS	34.0
Salgado Filho Airport - RS	7.3
Uruguaiana-RS	7.6
Santos Port -SP	4.0

Imp Customs	2022
Rio Grande- RS	38.0
Porto Alegre - RS	23.0
Uruguaiana-RS	11.0
Santos Port -SP	9.0
Itajai-SC	3.0

Rondônia

Exp Products	2000
Timber and derivatives	92.5
Meat and edible offals	2.0
Granite	2.0
Coffee	1.5
Gravel and crushed stone	0.5

Exp Products	2022
Soybeans and derivatives	44.0
Meat and edible offals	37.5
Corn	7.5
Tin	3.5
Timber and derivatives	3.0

Imp. Partners	2000
Engine components	90.5
Wheat flour	2.5
Civil construction machinery	2.0
Iron/steel chain	0.5
Bovine breeders	0.5

Imp. Partners	2022
Fabrics and derivatives	5.0
Fertilizers	4.0
Garlic	3.5
Wheat flour	2.5
Plastic components	2.0

Exp **Partners**	2000
United States	20.0
China	17.0
Hong Kong	11.0
Argentina	1.5
Italy	5.5

Exp **Partners**	2022
China	16.0
Spain	7.5
The Netherlands	7.5
Turkey	5.9
United States	5.5

Imp. Partners	2000
Finland	90.5
Argentina	2.5
Italy	2.0
United States	1.5
China	1.0

Imp. Partners	2022
China	44.5
Argentina	9.0
United States	4.0
Israel	3.0
Colombia	3.0

Exp Customs	2000
Paranagua Port -PR	72.5
Foz do Iguaçu-PR	6.5
Santana do Livramento-RS	5.0
Santos Port -SP	4.5
Sao Francisco do Sul-SC	4.0

Exp Customs	2022
Manaus Port -AM	33.5
Santos Port -SP	27.5
Santarem-PA	16.0
Paranagua Port -PR	6.50
ALF- Belem-PA	5.00

Imp Customs	2000
Manaus Port -AM	96.0
Foz do Iguaçu-PR	2.5
Paranagua Port -PR	0.5
Porto Velho- RO	0.5
Guajara -Mirim	0.2

Imp Customs	2022
Santos Port -SP	29.0
Rio de Janeiro Port -RJ	14.5
Itajai-SC	13.5
Foz do Iguaçu-PR	9.5
São Francisco do Sul Port -SC	7.5

Roraima

Exp Products	2000
Timber and derivatives	88.0
Cement	5.0
Fuels and lubricants	3.5
Non-industrial diamonds	3.0
iron/steel doors and windows	0.2

Exp Products	2022
Soybeans and derivatives	35.0
Meat, sausage, and edible offals	17.0
margarine	11.0
sugar	8.5
Mine ore	3.0

Imp. Partners	2000
Cement	38.5
Fertilizers	35.0
Insecticides	7.0
Asphalts	7.0
Glass	3.5

Imp. Partners	2022
Fertilizers	36.5
Boilers	23.5
Engine components	13.0
Air conditioning units	3.5
seeds for sowing	3.5

Exp **Partners**	2000
Venezuela	81.0
China	11.0
Hong Kong	1.5
Trinidad and Tobago	0.2
Venezuela	81.0

Exp **Partners**	2022
Venezuela	64.5
Russia	7.5
Spain	6.5
China	6.0
Turkey	5.9

Imp. Partners	2000
Venezuela	88.5
Cuba	7.0
USA	2.0
Canada	1.5
Guiana	0.5

Imp. Partners	2022
Israel	27.0
Sweden	23.5
Finland	16.5
China	2.0
Spain	8.0

Exp Customs	2000
Pacaraima RR	81.0
Paranagua Port -PR	12.0
Boa Vista -RR	3.5
Guarulhos International Airport - SP	2.0
Rio de Janeiro Airport -RJ	1.0

Exp Customs	2022
Pacaraima RR	64.5
Manaus Port -AM	29.5
Bomfim-RR	5.5
Guarulhos International Airport -SP	0.03
Paranagua Port -PR	0.01

Imp Customs	2000
Pacaraima RR	88.0
Boa Vista -RR	7.0
Viracopos International Airport -SP	2.0
Eduardo Gomes Airport -AM	1.5
Rio Grande- RS	

Imp Customs	2022
Manaus Port -AM	74.0
ALF- Belem-PA	16.5
Guarulhos International Airport -SP	3.5
São Francisco do Sul Port -SC	1.5
Pacaraima RR	1.5

Santa Catarina

Exp Products	2000
Poultry meat and edible offals	15.7
Air or vacuum pumps	10.0
other furniture and parts of air or vacuum pumps	8.0
Bed linen, table linen and similar	5.9
Tiles and slabs	4.2

Exp Products	2022
Poultry meat and edible offals	16.1
Pork meat	11.2
Electric motors and generators	5.9
Soybean grains	5.4
Engine parts	4.6

Imp. Partners	2000
Automobiles	4.1
Cotton	4.7
Wheat and a mixture of wheat and rye	3.9
Machinery and electric appliances	3.2
Corn kernels	1.9

Imp. Partners	2022
Refined copper and copper alloys	4.2
Diodes, transistors and similar devices	3.0
Nitrogen fertilizers	2.9
Flat-rolled iron products	2.6
Ethylene polymers	2.1

Exp **Partners**	2000
United States	25.0
Argentina	11.0
Germany	8.0
United Kingdom	5.0
Japan	4.0

Exp **Partners**	2022
United States	18.0
China	14.0
Argentina	7.0
Chile	5.0
Mexico	4.0

Imp. Partners	2000
Argentina	16.0
United States	16.0
Germany	9.0
Italy	8.0
Paraguay	6.0

Imp. Partners	2022
China	40.0
Chile	7.0
United States	6.0
Argentina	6.0
Germany	4.0

Exp Customs	2000
Sao Francisco do Sul-SC	38.0
Itajai-SC	34.0
Uruguaiana-RS	9.0
Paranagua Port -PR	8.0
Foz do Iguaçu-PR	2.0

Exp Customs	2022
Itajai-SC	44.0
Sao Francisco do Sul-SC	26.0
Paranagua Port -PR	8.0
Customs - Uruguaiana-RS	
Irf. Sao Borja-RS	3.00

Imp Customs	2000
Itajai-SC	43.0
Sao Francisco do Sul-SC	16.0
Foz do Iguaçu-PR	7.0
Uruguaiana-RS	6.0
Santos Port -SP	5.0

Imp Customs	2022
Itajai-SC	48.0
Sao Francisco do Sul-SC	16.0
Santos Port -SP	4.0
Guarulhos International Airport - SP	4.0
IRF- Imbituba -SC	3.0

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