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THE MATO GROSSO DO SUL POSITION AND THE CONTINENTAL PROJECTION OF BRAZIL: THE BIOCEANIC CORRIDORS AND INFRASTRUCTURE PROJECTS

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ABSTRACT

The article aims to present the geographical (political and economic) importance of Mato Grosso do Sul (MS) for the connection of Brazil with its South American neighbors and particularly in the construction of Bioceanic Corridors. Thus, in addition to being a geopolitical platform (for projecting influence), it is argued that MS has enormous productive and logistical potential within the scope of South American integration. Still, with the objective of contributing to public policies, a mapping of the main infrastructure projects that can improve the integration of the MS with neighboring countries is presented. It's given an emphasis to those that are part of the bioceanic road corridor, and how these projects should be viewed from a broader set and structuring of projects and investments, notably those of a multimodal nature. For this reason, it's also presented some relevant rail and river transport projects – waterways and ports – even North-South sense. The methodology used involves the bibliographic review of authors of Brazilian geopolitics, databases and documents on South American physical integration, especially from UNASUR and IIRSA, documents from government agencies (BNDES, for example), and news published by the government of Mato Grosso do Sul or by the local press.

Keywords: Bioceanic Corridor. Mato Grosso do Sul. Regional Integration. South America.

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INTRODUCTION

On December 21, 2015, within Mercosur, through the "Declaration of Asunción on Bioceanic Corridors,"[3] the then presidents of Argentina, Brazil, Chile, and Paraguay, expressed the search for the completion of the road corridor that would have as its path Campo Grande – Porto Murtinho (MS/Brazil) – Carmelo Peralta – Mariscal Estigarribia – Pozo Hondo (Paraguay) - Misión La Paz – Tartagal – Jujuy - Salta (Argentina) – Sico – Jama – Puertos de Antofagasta – Mejillones – Iquique (Chile).As can be seen, Mato Grosso do Sul (from now on MS) has a strategic position on this route, corresponding to almost 2.4 thousand km. On August 22, 2019, in Mato Grosso do Sul, the Working Group reached its eighth meeting. In other words, regardless of the government's views on more open or closed integration, or the crises and paralysis of regional institutions such as UNASUR, the Working Group continues to develop its activities, and the Corridor and MS are showing their importance. If in the 2015 document mentioned above, the Corridor is conceived as vital in bringing Mercosur and the Pacific Alliance together, in the speech of the Minister of Foreign Affairs of Brazil Ernesto Araújo in 2019, it appears as a fundamental element in an open integration process.[4]

The central argument is that the particular geographic position of Mato Grosso do Sul grants it strategic and economic value, revealing its potential to act both as a connection platform and projection of influence from Brazil to its neighbors and formation of bioceanic corridors (Atlantic-Pacific). Thus, MS can act as a logistic hubin commerce and/or as a production center in the production chains between South American countries. Also, between these and the federative units of Brazil. However, MS and South America need to carry out several infrastructure works

[3] Document available on the Itamaraty website (Brazil – Ministry of Foreign Affairs) at http://www.itamaraty.gov.br/images/ed_integracao/DeclaracionBioceanicos_PT.pdf

[4] Itamaraty (Brazil - Ministry of Foreign Affairs), "Intervention by Minister Ernesto Araújo in the VIII Meeting of the Bioceanic Highway Corridor," available at http://www. itamaraty.gov.br/pt-BR/discursos-artigos-e-entrevistas-categoria/ministro-das-relacoes-exteriores-discursos/20764-intervencao-do-ministro-ernesto-araujo-na-viii-reuniao-do-corredor-rodoviario-bioceanico-campo-grande-ms-em-22-de-agosto-de-2019

addressed here to play such a role. They enable the improvement of the connection between Brazil and its neighbors, especially MS with Paraguay, Argentina, Bolivia, Chile, and Uruguay, reaching ports on the Atlantic and Pacific coasts. Aiming to contribute to public policies and for MS to exercise this role, here is presented a mapping of the main road works that integrate the MS with neighboring countries highlights those parts of the bioceanic corridor. It is noteworthy that such works must be seen from a broader and more structuring set of works and investments, notably those of a multimodal nature. Therefore, we also present works referring to other modes that form or connect to the bioceanic corridor.

It is also noteworthy that, although presented in a fragmented way, the works must be seen as a set and within a broader intermodal articulation, as they form a larger structuring project that leads to the connection of Brazil and MS with the South American countries. In this sense, it is more desirable that the works are seen as a sequence or a structuring set of investments in infrastructure that allow the connection of Brazil and MS over long distances and markets. They enhance the commercial and productive scale and thus enable advances in chains of greater added value and the provision of logistical services and intermodal connections. This structuring concept is part of the documents of the Infrastructure and Planning Council (COSIPLAN) of UNASUR from 2010 onwards (beginning of its operation).

The database of IIRSA (Initiative for the Integration of the Regional Infrastructure of South America), the technical body of UNASUR's COSIPLAN, was the primary source used to identify potential works and their current status. This database is considered comprehensive and updated, with a constant flow of information and updates by government representatives.

The organization of the text begins with a section explaining the geographical importance of MS in the integration of Brazil with its neighbors, using Brazilian geopolitical military thinking. The same section addresses the importance of bioceanic corridors connecting the Atlantic and Pacific coasts in South America. It presents, in particular, examples of cost advantages of the Bioceanic Road Corridor passing through Porto Murtinho (MS) – based on data from EPL (Planning and Logistics Company) studies. Then, we present the works, divided into four sections. Section 2 presents road works as our primary object. Section 3 contains the railway works, with emphasis on bioceanic corridors. Section

4 presents waterway improvement works, mentioning at the end works to adapt or build river ports. It is noteworthy that some multimodal works appear in different sections. Although many of the works are in neighboring countries and seem far from MS, the structuring look and the set or sequence of works allow us to see their importance in trade over longer distances. It is worthy of mention that this study does not include or address environmental issues, regulations, and border crossing projects (customs), due to space and scope limitations. However, there may be occasional mentions referring to them.

THE GEOGRAPHICAL IMPORTANCE OF MS, LA PLATA BASIN, AND BIOCEANIC CORRIDORS

The importance of the Brazilian Central West and Mato Grosso do Sul appears decisively in military thought and the work of Brazilian geopoliticians. The then Captain Mário Travassos, in his book *A projeção Continental do Brasil* of 1931, highlights the importance of the geographic position area of MS. He addressed the integration of the national territory in a coordinated way, and even subordinate, to the projection of Brazil towards neighboring countries reaching the Pacific coast.

Travassos identifies a geographic duality in Brazil, a country at the same time maritime-Atlantic and South American continental, bordering almost all of its countries – except Chile and Ecuador and without direct contact with the Pacific coast. Such a position, combined with political factors, would have geopolitical implications and on the projection strategy of the Brazilian State. In the author's view, the Central West plays a fundamental role in integrating "longitudinal Brazil" and its South American projection. It is located in the interconnection area between the Amazon Basin and the La Plata Basin, close to Bolivia that connects these areas and the Pacific and the Atlantic through the Paso de Santa Rosa. Within the Central West, Mato Grosso, at the time of the writing, encompassing the territories of current Mato Grosso do Sul and Mato Grosso, has a strategic position, in the words of the author:

> "Mato Grosso is thus the great corner of our territory in the heart of the continental mass, where the most serious problems arising from the competition between the La Plata and the

> Amazon intersect and where the Atlantic finds one of the deepest and most accurate points of application for its antagonism towards the Pacific" (TRAVASSOS, 1931, p. 203).

Brazilian La Plata, where the Central West is located and therefore the MS in the continental geographic division of Travassos, stands out for its ability to attract the Mediterranean countries of South America (Bolivia and Paraguay) to Brazilian ports, where Mato Grosso do Sul "extends the territories of São Paulo and Paraná, and represents its penetration force" (TRAVASSOS, 1931, p.129). We can interpret that it would be at the same time a projection platform for the Pacific through the South American central area and an attraction platform for the Atlantic.

> "The importance of Mato Grosso, due to its geographical position, is such that it can define the continental policy of Brazil (…). is thus, from the point of view of our continental policy, a true miniature of Brazil itself, an expressive symbol of our political interests on the continent" (TRAVASSOS, 1931, pp. 205; 209).

Faced with this situation, and considering the then Argentine communications policy that interconnected with its neighbors, Travassos proposed the construction of bioceanic routes integrating Brazilian Atlantic ports with Pacific ports. He included the rail integration between Santos and Corumbá continuing through the Bolivian territory, the road connection (bridge) between Brazil and Paraguay, and the use of Amazonian waterways, combined with works in the north-south direction of different modes of transport.

Another prominent Brazilian geopolitical, General Golbery do Couto e Silva (1965), highlights the role of the Central West (Mato Grosso do Sul, Mato Grosso, and Rondônia) as part of the "continental united area" of South America – together with Paraguay and Bolivia – which would be the strategic geopolitical region for terrestrial integration among the other geopolitical regions of the continent – Amazon, La Plata-Patagonia, Southeastern Brazil, Atlantic, Pacific, Northeastern Brazil.

The Mediterranean countries and spaces of South America, involving the Central West of Brazil, Paraguay, and Bolivia, are located in the central area of the continent. At the same time that they suffer from the confinement of the interior and the distance from the oceans, their geographical position gives them the enormous potential to play the role of interconnection platform for production and regional and bioceanic trade. It reveals the potential to become logistical centers and producers in regional chains with high added value. Thus, for economic and geopolitical reasons, including access to regional markets, it is urgent to build an infrastructure that gives them access to other regions of the continent, especially to the coasts of the Atlantic and Pacific oceans, and consequently to international markets.

As highlighted by Travassos, Mato Grosso do Sul has a strategic position both in central terms in South America and considering access to the La Plata Basin and the Pacific coast, access to the Paraguay-Paraná and La Plata waterways, and the proximity to crossing points through the mountain ranges, bordering Bolivia and Paraguay.

The La Plata Basin (about 3.2 million km²) is a strategic area in the southern part and the second-largest subregion on the South American continent, behind the Amazon Basin (about 7 million km²). It has the largest waterway in South America, including the Paraná, Paraguay, Uruguay, and La Plata basins, interconnecting the continent's interior with the Atlantic coast. Five South American countries participate in the La Plata Basin: Argentina, Bolivia, Brazil, Paraguay, and Uruguay. However, we can also add Chile as an area where its influence extends. Thus, the area is involved and attracted by the Atlantic and Pacific oceans. Also, with easy access and the possibility of improvement and use with small interventions, it is one of the regions with the most significant potential wealth in South America and the planet due to its climate diversity, mineral resources, energy potential, agricultural capacity, water resources (including tap water), and industrial, communication, transport, and trade potentials.[5]

[5] The La Plata Basin is one of the largest freshwater reservoirs on the planet, containing the Guarani Aquifer, the second largest on the continent. It has extensive areas of forest and pasture, mineral abundance, and fertile soils. The subregion has agricultural and industrial areas, some of the largest hydroelectric plants in Latin America and the world – such as Itaipu, Yacyretá, and Salto Grande –, and extensive road and river transport networks. Its hydroelectric potential is also noteworthy, more than half of which is located on the Paraná River, with an extension of 4 thousand km. Its rivers have enormous hydroelectric potential that has not yet been used. Examples are the hydroelectric projects under study at Garabí

The improvement of the navigability in the La Plata Basin means improving the navigability of its rivers and looking at its river ports and connectivity with other modes in a broad and intermodal way. It includes looking at its participation in connection with the Atlantic and the Pacific – also involving road and rail bioceanic corridors. Thus, improving navigability can reduce transport costs (increase competitiveness), promoting trade and the formation of intra-regional and extra-regional production chains with more excellent added value. This is especially important for more isolated areas of seaports in the interior of the continent. Furthermore, the improvement in navigability in the La Plata Basin opens up the possibility of greater use of the waterway modal (cheaper and less polluting, with a lower cost of implementation and maintenance of the roads), to the detriment of road transport. This sense requires returning to what is established in the 1969 La Plata Basin Treaty.[6]

The main arguments about the positive impacts of interoceanic connections are summarized below. First, the most general argument favoring interoceanic corridors considers the positive relationship between infrastructure supply and development, given the scarcity of integration infrastructure between countries in the region. The offer of infrastructure reduces production costs and, at the same time, generates gains of scale by providing the reach of larger markets. It also impacts the cost of production and the economic feasibility of moving towards production with greater added value and technological intensity (which requires more sophisticated, more expensive, but larger-scale machines).

(1,500 MW), on the Uruguay River, and Corpus (3,400 MW), on the Paraná River; in addition to the expansion of the quotas of Itaipú (another 1,400 MW) and Yaciretá (another 1,000 MW). The use of the hydroelectric potential conceived in conjunction with the construction of locks and other interventions in the Basin would provide waterway navigation and the articulation between the interior of the continent and the Atlantic. It has abundant resources in the fertile plains of the Argentine pampas, including minerals and growing agricultural production (especially cattle and soybeans) in the central area of the continent, especially in Paraguay and in the Brazilian Central West. Bolivia concentrates essential minerals and resources inside the La Plata region, such as lithium, tin, natural gas, oil, zinc, tungsten, antimony, silver, iron, manganese, lead, gold, wood hydroelectric energy.

[6] The Treaty states that the objective of the participating countries is to promote their development, use of resources, and joint physical integration in their areas of direct and indirect influence. Many of the rivers set boundaries and are shared by countries. There are several agreements between countries for the joint use and management of specific rivers, like the Agreement on River Transport through the Paraguay-Paraná Waterway. A broad vision is needed, looking at the needs of all countries and the improvement of all rivers, connecting the entire area of the La Plata region. The same is valid for using its resources and forming production chains, with particular attention to hydroelectric resources with the construction of locks.

Second, in a continent in which countries have their national economies and territories historically disjointed from each other and facing outside the region, with a flawed system of intraregional interconnection infrastructure, the parallel bioceanic roads, when crossing territories of different countries, would promote integration between their economies and markets, being a favorable agent for integration and the increase of intraregional trade between the countries involved. It can even promote integration and better national-territorial occupation of the countries involved, which still lack infrastructure.

Third, the interoceanic corridors would allow for integration and more accessible, faster, and more efficient access to interior spaces (hinterland), countries (Bolivia and Paraguay), and Mediterranean regions (such as the Brazilian Central West, including MS), concerning the others countries in the region, to the Atlantic and Pacific coasts and, consequently, to international trade, which would give greater development possibilities to the economies of these countries and regions, driven by their exports to continental and global markets. Furthermore, interoceanic connections would provide more efficient access to international markets to coastal countries due to greater ease of access to opposite banks. From the point of view of the Pacific coast countries, there is particular enthusiasm concerning interoceanic routes, seeing them as an opportunity to act as logistic service centers between Asia and the Brazilian Central West and Mercosur (SANTA GADEA, 2012, p. 176). The experience of integrating the US territory in the 19th century (COSTA, 2013) inspired some arguments in favor of bioceanic connections. Such integration provided significant protection and an increasingly integrated captive market for the expansion of its nascent industries.

Without a doubt, bioceanic connections, crossing the continent from one coast to another, interconnecting countries, and giving greater access to extra-regional markets can fundamentally contribute to the physical integration and development of the countries and inland areas of South America. However, they demand active policies that focus on their internal development and the creation of higher value-added chains. The facilitation of flows and cost reduction provided by the interoceanic corridors, if not accompanied by a set of policies and the establishment of rules of origin, can favor concentrating forces and, therefore, contribute to the increase of regional and global asymmetries. Such corridors can function as export corridors for natural resources and low-value goods

and as import corridors for industrial goods with higher added value and technological intensity from other countries and continents. They can also serve for the political penetration of powers outside the region, seeking to access, influence, and control territories and strategic resources of countries in the region, including in its interior, emphasizing the resources of the Amazon and the La Plata Basin.

Concerning cost and transport time advantages, the Brazilian state-owned Empresa de Planejamento e Logística (EPL), which participates in the Bioceanic Corridor meetings, carried out a series of studies on the corridor's positive impacts, regarding impacts on trade and cost reduction. The analysis considered the transport mainly by containers and focused on products chosen from the existing trade flows in Brazil's Central West and North regions.[7] As potential products captured for export from Brazil, the company identified meats, processed and refrigerated foods, cellulose, cars, trucks and buses, shoes, and clothing. For imports: electronic products, fertilizers, salt, fish, dairy products, processed foods, and wines and oils. The Corridor's potential connection markets mainly cover Asia, Oceania, and the West Coast of the Americas (including North America).

The study presented by EPL points to a reduction in freight for the transport of meat from Campo Grande (MS) both to Asia and within South America. The study reveals that the cost of freight on the Campo Grande – Santos route (1,089 km by road), Santos-Panama Canal-Shanghai (24,156 km by sea) is equivalent to US$ 281.85/t. With the construction of the Campo Grande – Antofagasta (2,524 km by road), Antofagasta – Shanghai (18,677 km by sea) Corridor, the freight cost would be US$ 253.85/t. In other words, it would represent a reduction in freight of 9.85%, in addition to a reduction in the total distance covered. It concludes: "Based on the estimates of meat exports from the Central West and North, the gains from the operationalization of the Corridor could reach more than R$ 100 million per year with cost reductions." For the Campo Grande – São Borja (2,362 km) – Santiago (another 1,912 km) road route, the freight cost is equivalent to US$ 229.18/t. Going along the Campo Grande – Port of Antofagasta (2,254 km) – Valparaíso (1,157 km) – Santiago (more 121 km) road route, the value would be US$ 174.14/t. Thus, the Corridor would provide a 24.01% drop in freight costs.

[7] EPL, ESTUDO DE CUSTOS CORREDOR BIOCE NICO.VIII Meeting of the Bioceanic Highway Corridor. Campo Grande, August 21 and 22, 2019.

For wheat departing from San Miguel de Tucumán towards Campo Grande, the road route passing through Foz do Iguaçu and São Paulo has a freight of US$ 187.06/t, in almost 3,400 km. On the other hand, the road route through San Salvador de Jujuy and Porto Murtinho (slightly longer than 3,000 km), provided by the Corridor, would lower freight to US$ 91.49/t, which represents a reduction of 51.09% in value.

As for transporting general cargo and auto parts, the reduction provided by the Corridor would be 6.45% when comparing the São Paulo – São Borja – Córdoba road, just over 2,600 km and with freight of US$ 154.61/t, with São Paulo – Porto Murtinho – Santa Fé – Córdoba. The latter would cost US$ 144.63/t and a distance of 1,685 km by highway and 1,557 km by sea.

Below, we present a table with the summary of freight reduction based on the studies presented by EPL at the Bioceanic Highway Corridor meetings.

Table: Corridor Freight Reduction Summary

Route	Logistics Cost	Variation
São Paulo – Córdoba	US$ 154.61/t	-6.45%
São Paulo – Porto Murtinho – Córdoba	US$ 144.63/t	
Campo Grande – Santos – Shangai	US$ 281.85/t	-9.85%
Campo Grande – Antofagasta – Shangai	US$ 253.85/t	
Campo Grande – São Paulo – Santiago	US$ 229.18/t	-24.01%
Campo Grande – Antofagasta –Santiago	US$ 174.14/t	

San Miguel de Tucumán – São Paulo – Campo Grande	US$ 187.06/t	-51.09%
San Miguel de Tucumán – Campo Grande	US$ 91.49/t	

Source: EPL, 2019.

EPL analyzed the reduction in costs, time, and distance of meat transportation from the Paraguayan Chaco. From there to Santos, the journey has 1,700 km and 34 hours, with another 72 hours of customs time, with freight of US$ 170.75/t. From Paraguayan Chaco to Antofagasta, the journey is 1,540 km, for 25 hours and another 6 hours of customs, and would have a freight of US$ 113.32/t. The Corridor would then generate a 26% reduction in transport time and a potential reduction in the logistical cost of over 30%.

EPL also addressed cellulose exports from MS towards China due to their importance. Currently, by road and sea transport, Três Lagoas (MS) – Santos – China, they travel 753 km by land and 26,720 km by sea to the Port of Nanjing, for US$ 510/t. By rail and sea, the same route, which would travel 897 km by overland rail, is US$ 325/t. With the Bioceanic Corridor, road transport for 2,663 km would leave Três Lagoas, passing through Paraguay and Argentina, until reaching the Port of Antofagasta in Chile, from where it would depart for the port of Nanjing, 19,551 km away, with freight cost in $310/t. Therefore, we can see advantages in terms of costs, which would be even more significant considering the waiting time in Santos, traffic jams, storage, etc.

As for cellulose freight to Argentina, considering only highway options through Foz do Iguaçu and 25t trucks, freight from Três Lagoas to Buenos Aires costs US$ 210/t, taking 2,090 km and 8 hours of journey. The option considering 749 km by road from Três Lagoas to Porto Murtinho and then 2,109 km by waterway to Buenos Aires, with 1-pusher train and barges, would register freight of US$ 166.40/t. By rail (Três Lagoas – Corumbá) and waterway (Corumbá – Buenos Aires), freight would be even lower, at US$ 139.90/t. Thus, we can see a potential for freight reduction of more than 30%.

The main works will be presented below. If carried out, they will enable MS to serve as a projection platform for Brazil in South America, reaching the opposite coastal margins, and at the same time, giving rise

to the use of the MS's logistical and productive potential. In other words, it is the works that contribute to achieving the advantages of transport costs and for MS to exercise its role as a geopolitical platform for projecting Brazil, mentioned above.

ROAD INFRASTRUCTURE WORKS AND THE BIOCEANIC CORRIDOR

MS – PARAGUAY – ARGENTINA - CHILE

Among the road works that can integrate MS into South America, the Bioceanic Atlantic – Pacific Highway Corridor through Paraguay – Argentina – Chile stands out. The Porto Murtinho – Carmelo Peralta International Bridge, over the Paraguay River, is a binational Brazil – Paraguay project, which plays a central role in the corridor. The work does not have an estimated investment or source of financing provided for in the technical file on the IIRSA website.

Currently, Brazilian integration with Paraguayan municipalities is predominantly done by land, through conurbation between cities (the cases of Ponta Porã and Pedro Juan Caballéro, Bela Vista and Bella Vista Norte, and Coronel Sapucaia and Capitán Bado, among others). The international bridge over the Paraguay River between Porto Murtinho and Carmelo Peralta is a strategic project for the states involved and for countries and South American integration. Due to its strategic position on the bioceanic route, its execution can help boost other projects linking the Atlantic and the Pacific (ports of Chile) that pass through MS, Paraguay, and Argentina. The international bridge will position Paraguay on the bioceanic route through the Transchaco highway, foster development for the region, and boost Paraguayan border trade with MS. It is noteworthy that the bridge's construction must include complementary infrastructure (customs) and their respective accesses.

Another international bridge project connecting Brazil and Paraguay is the Porto Presidente Franco – Porto Meira Bridge. With a total estimated investment of US$ 173 million, the project has not started, and its financing would be planned with resources from the Brazilian National Treasury, according to the technical sheet on the IIRSA website.[8]

[8] Available at www.iirsa.org/proyectos/detalle_proyecto.aspx?h=133

Following the path of the bioceanic route over the Porto Murtinho – Carmelo Peralta bridge towards the Pacific, the continuation through Paraguay is given by the nationwide project of paving the Carmelo Peralta – Loma Plata highway (Figure 1). Its status is of complete studies financed by the Paraguayan National Treasury, and the estimated investment is US$ 255.5 million – with private financing negotiated with CAF for the work. COSIPLAN classifies this project as an "anchor project," which can boost other projects, if executed, connecting Chile – Bolivia – Argentina – Paraguay – Brazil. The paving of the road will allow permanent traffic between Mato Grosso do Sul and the Central Chaco area and the development of a territorial fringe that joins the Mennonite Colonies and the Paraguay River. Above all, it enables the Atlantic-Pacific bioceanic connection, connecting Mato Grosso to this route through neighboring countries.

Figure 1: Carmelo Peralta – Loma Plata Highway

Source: IIRSA

Figure 2: Cruce Centinela – Mariscal Estibarribia – Pozo Hondo – Mision La Paz Stretch

Source: IIRSA

Continuing the bioceanic route that departs from MS, the next project is the paving of the Cruce Centinela – Mariscal Estibarribia – Pozo Hondo – Misión La Paz stretch (Figure 2), finished west of the Paraguayan Chaco. Connecting with the Northwest of Argentina requires the construction of a border post and continuing to connect the north of Chile towards the Pacific ports. The end of the stretch is also close to the border with Bolivia. With an estimated investment of US$ 340 million, this project has not started either and has no defined funding source.

Following the Argentine territory, the road paving project for the Tartagal-Misión La Paz – Pozo Hondo stretch (Figure 3) continues the route from MS to the Pacific. Its estimated investment is $160 million. On the IIRSA website, it appears that two smaller sections have been completed.[9]

Figure 3: Tartagal – Misión La Paz – Pozo Hondo Stretch

Source: IIRSA

Figure 4: Sico-Peine – Baquedano Passage

[9] They are Accesses to Paso de Jama (National Highway No. 52 – Empalme National Highway No. 9 – Border with Chile) (Source: IIRSA, at http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=120). Duplication of Highway No. 50 on the Tramo Pichanal-Orán Stretch (Source: IIRSA, at http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=874).

Source: IIRSA

In Chilean territory, the continuation of the bioceanic route requires paving work on the Sico – Peine – Baquedano Passage (Figure 4) towards the ports of Chile, especially Antofagasta. With an estimated investment of US$90 million, the project has not started, and its funding source is not defined.

MS – PARAGUAY – BOLIVIA – CHILE

Alternatively, the integration of MS to the Pacific through Paraguay can also occur through the connection with Bolivia to reach Chile, as the works presented below show.

The project for the construction of the Cañada Oruro – Villamontes – Tarija – Estación Abaroa Highway (Figure 5) crosses the Bolivian territory from east to west, starting in a region close to the border with western Paraguay (also close to Pozo Hondo) and going up to the border with Chile. The work is in progress, with some sections already completed. The estimated investment is US$ 210 million, with the financing of US$ 147 million from CAF and US$ 63 million from the National Treasury. The Villamontes – Cañada Oruro stretch (127 km, investment of US$ 60 million) was part of IIRSA's priority agenda projects.

Figure 5: Cañada Oruro – Villamontes – Tarija – Estación Abaroa Highway

Source: IIRSA, http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=208

The project can promote the interconnection of Bolivia, Central Chaco, and Brazil to the Pacific ports and the main Andean markets, fostering trade between the countries in the group. The Villamontes – Cañada Oruro stretch integrates the southeastern Bolivian region with the western region of Paraguay. The Cañada Oruro – Estación Abaroa project encompasses a strategic zone concerning natural gas reserves, interconnecting Bolivia and Paraguay (Bolivian Chaco and Paraguayan Chaco) to the Pacific ports, enabling the formation of a binational energy hub. The project also presents an opportunity to connect MS to these markets and the Pacific. However, the construction and feasibility of highways through Bolivia may present internal political complications due to political groups organized around multi-country indigenous issues.

Figure 6: Ollagüe–Collahuasi Highway

Source: IIRSA, http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=1449

Figure 7: Cancosa-Iquique Highway

Source: IIRSA, http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=211.

The bioceanic Brazil – Paraguay – Bolivia – Chile connection, specifically to generate a new road connection between Chile (Port of Iquique) and Bolivia (Potosí), includes the project to build the Ollagüe – Collahuasi Highway (Figure 6). It is a Chilean investment, estimated at US$ 12.8 million, not yet started. It starts in Ollague to depart for the Collahuasi mine, and from there, it heads towards Highway/Route 5 and then towards Route A-16, which reaches the Port of Iquique in Chile.

In Chile, Cancosa – Iquique Highway (Figure 7) seeks to improve the connection between the Paso de Apacheta (border with Bolivia) and the port of Iquique, involving the improvement of 229 km of A-963 (43 km), A-97-B (29 km), and A-675 (11 km) highways. The latter joins the already paved A-65 (96 km) highway, and from there, to Highway 5 (3 km) and Highway 16 (47 km) until reaching Iquique. The uninitiated work has an estimated investment of US$ 18.6 million, with financing provided by the National Treasury.

It is worth mentioning and highlighting the stage of some works, completed or in progress (according to information on the IIRSA website) to show the road connection between the MS and the Pacific through Bolivia. In the Santa Cruz – Puerto Suarez – Corumbá road connection, the construction of the Pailón – San José – Puerto Suarez Highway and the Puerto Suarez – Corumbá Integrated Control Area have been completed. The "Axis of the Pacific" Connection (Ilo / Matarini – Desaguadero – La Paz, La Paz-Arica, La Paz-Iquique – Oruro – Cochabamba – Santa Cruz: La Paz – Santa Cruz divided highway) is still in progress. At the MS – Paraguay – Bolivia – Chile Connection, through the Mato Grosso do Sul Border, below Porto Murtinho, the improvement work on the Concepción – Pedro Juan Caballero stretch has been completed. The following are in execution: the rehabilitation of the Colorado – Concepción stretch; the road section Rota 5 Bella Vista–Connection to the Bridge over the Apa River; and the rehabilitation of the Pozo Colorado–Concepción stretch.[10]

HIGHWAYS INTEGRATING MS TO NEIGHBORING COUNTRIES IN THE PARAGUAY-PARANA WATERWAY REGION (NORTH-SOUTH DIRECTION)

[10] Check IIRSA, available at http://www.iirsa.org/proyectos/detalle_proyecto. aspx?h=1251

MS also shows potential for integration with neighboring countries through road works in the region of the La Plata Basin, from North to South. The three works shown on the maps below that are in progress are, respectively, the paving of the Puerto Suárez – Mutún stretch (Figure 8), in Bolivia, the paving of the Concepción – Vallemí highway (Figure 9), and the paving of the Santa Rosa – Capitán Bado road stretch (Figure 10), both in Paraguay. The first, with an estimated investment of US$ 18.8 million, aims to facilitate the transport of minerals coming from Mutun. The maintenance and improvement of the Mutun – Puerto Busch stretch is currently being carried out. The second, with a projected investment of US$ 113 million, is financed by Focem, 93 million, and by the National Treasury, 20 million. The work seeks to economically dynamize commerce and production in the region, connecting the north of Paraguay to MS. In Vallemí, there are the National Cement Industry and limestone deposits, accepting other related investments. The third project, with an estimated investment of US$ 122,500,000, is financed by Fonplata (US$ 98 million) and the rest by the National Treasury. This work interconnects the National Route 11 of Paraguay with the border with Brazil, the Departments of San Pedro and Amambay with the border with Brazil, in the northeast of the Eastern Region with the National Route No. 3 of Paraguay, which is its North-South trunk road.

Figure 8

Source: IIRSA, http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=680 mbito

Figure 9

Source: IIRSA, http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=662

Figure 10

Source: IIRSA, http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=1434

Below, the paving work on the Curuguaty – Villa Ygatimí – Ypejhú highway (Figure 11) in Paraguay, the latter on the border with MS, in the city of Paranhos. The work is not started and, with funding to be defined, has an estimated budget of US$ 77.5 million. Then, the paving of the Cruce Guaraní – Corpus Christi – Pindoty Porá road (Figure 12), also in Paraguay, is being carried out with an investment of US$ 43 million, financed by the National Treasury. The project connects Villa Ygatimí and Pindoty Porá, in the eastern part of Paraguay, with National Route No. 10 and the State Highway MS 160 in Brazil.

Figure 11

Figure 12

Source: IIRSA, http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=1431

Source: IIRSA, http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=1432.

BIOCEANIC RAILWAY CORRIDOR

Due to the capacity, cost, safety, and speed of rail freight transport, the construction of bioceanic corridors of this modality, combined with other modes to integrate the interior of the region, can have a significant impact on the development and intra-regional trade of the countries of South America, and also in their countries' trade with the world. MS shows its capacity to participate and connect with the main bioceanic rail corridors in the region.

PARANAGUÁ – ANTOFAGASTA RAILWAY CORRIDOR

The Paranaguá – Antofagasta Railway Corridor (Figure 13) is a COSIPLAN's priority project, crossing and connecting countries focused on this study – Brazil, Paraguay, Argentina, and Chile. This corridor can

be integrated with MS by constructing the railway stretch from Cascavel (Paraná) to Macaraju, passing through Dourados – a project that is part of the IIRSA/COSIPLAN portfolio.

Figure 13: Paranaguá – Antofagasta Railway Corridor

Source: BNDES, 2011, p. 8.

As the map below shows (Figure 14), the bioceanic railway would integrate transshipment points in the countries involved, giving the possibility of access to the oceans. Furthermore, from the desired intermodality point of view for integrating South American and MS infrastructure, it connects to highways, railways, and waterways in the La Plata Basin.t

Figure 14

Source: BNDES, 2011, p. 9.

From the point of view of trade and production, considering the areas involved, it has the potential to impact the production, export, and import of goods from the soy complex, cereals, sugarcane complex, biofuel, petroleum products, fertilizers, steel, copper, zinc, and container in general (BNDES, 2011, p. 12).

The project for the construction of a railway covering the sections Cascacel/Guaíra/Lapa, in the State of Paraná, and between Dourados/Maracajú, in the State of Mato Grosso do Sul, falls within the group of projects of the Asunción – Paranaguá Interconnection of IIRSA. The work has not started and still does not have technical studies. According to the technical file of the project (CSIPLAN-IIRSA), the length of the stretch:

> "(…) is part of the Ferroeste concession. When completed, it will connect with the North-South Railroad and the Tietê-Paraná Waterway. (…) It creates new logistical possibilities for the supply of inputs at more advantageous cost conditions and the flow of grain crops and other cargo from production centers to the ports of Paraná, especially the one in Paranaguá/PR, connecting the Central West and South regions to Mercosur."[11]

It is also possible to observe that the MS area covered by the work will have both the option of articulation through Porto Murtinho (waterway) and the potential for connection with the ports of Chile (Pacific) through the bioceanic rail corridor.

The Motacucito – Mutún – Porto Busch Railway Connection (Figure 15) is another multimodal project in the Paraguay – Paraná Waterway area, connecting waterways and railways, enabling the integration of MS with South American countries. With a Bolivian national scope, it is part of the group of interconnection projects in Rio Paraguai, Asunción, Corumbá. The uninitiated project is estimated at US$ 203 million and, according to the IIRSA website, attracts interest from China's EximBank. The project involves a railway, another Port Terminal, another River Channel, another

[11] Source: IIRSA, available at http://www.iirsa.org/proyectos/detalle_proyectoaspx?h=1318

Railway, and another Port Terminal (TP-2). Its execution would facilitate the transport of minerals and hydrocarbons from Bolivia.

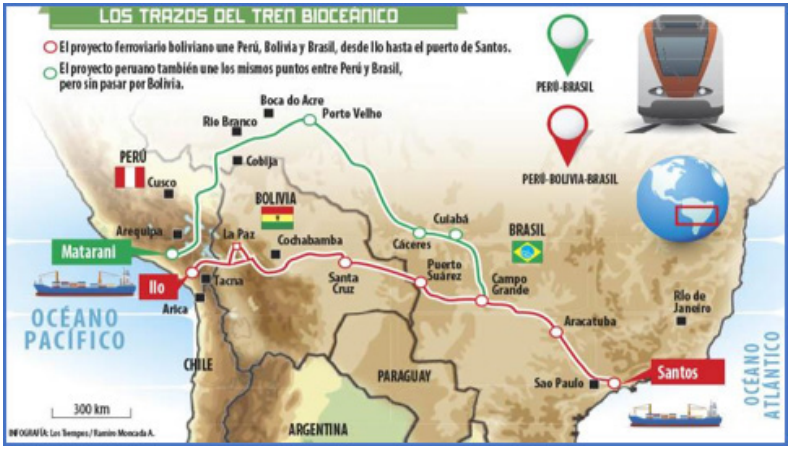
Figure 15

Source: IIRSA, http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=660

CENTRAL BIOCEANIC RAILWAY CORRIDOR

The railway corridor that leaves Santos passes through Corumbá (MS), extending through Bolivian territory to reach the Pacific through Chile, was envisioned by Travassos (1931) and is an essential bioceanic route.

Figure 16: Santos – Corumbá - Pacific Railway Corridor



Source: PARLASUL, available at https://www.parlamentomercosur.org/ innovaportal/v/14429/2/parlasur/parlasul-considera-prioritario-projeto-de-corredor- ferroviario-bioceânico-central.html

Among the projects in the IIRSA/COSIPLAN portfolio is the improvement of the Corumbá-Santos railway section, estimated at US$ 3.7 billion.[12] The project integrates the South American Atlantic coast (Port of Santos) with MS. For its continuity towards the Pacific, different alternatives have already been presented (Figure 16) from Bolivia: to Chile (Port of Arica) or Peru (Port of Ilo). There is also a route that does not pass through Bolivia, interconnecting Brazil directly to Peru and its ports of Matarani and Ilo. The exclusion of Bolivia on the path is due to the difficulties faced in infrastructure works within the Bolivian territory when passing through areas of influence of movements of native peoples, which may eventually block the railways.

In the South American regional context, the following aspects must be considered by the countries involved, with a view to the interoperability of the entire railway network: homogeneous gauge, standardization of rail capacity, and compliance with the rules of the Agreement on Terrestrial International Transport – ATIT. In this sense, countries should be concerned with promoting greater regulatory convergence on issues such as processing prior to the arrival of the cargo at its destination, reduction of document requirements, simplification and acceleration of inspections and customs controls, the possibility of electronic payment, and reciprocal recognition certificates, among other normative aspects.

The road project "Construction of the perimeter avenues and dredging of the Port of Santos" is connected to the bioceanic railway corridor and is in the execution phase, financed by the National Treasury.[13] Also, according to the IIRSA website, the project "Improvement of the

[12] It deals with the rehabilitation of railways. The project proposes to enable the railway to operate trains with up to 32 ton/axle; recover the infrastructure for the safety and operability of the railway. In the description of the work in its technical file available on the IIRSA project database, the following is reported: "In Brazilian territory, the railway is granted to MRS Logística and Rumo América Latina Logística. There is a need for recovery in several stretches, from Santos to Corumbá, with about 1,300 km in length, so the trains operate more safely. It is necessary to recover the railway section between Santos/Bauru/Campo Grande/Corumbá. The project consists of training special works of art; recovery of cuts, embankments, surface, and deep drainage; replacement of TR-50 type rails for TR-68; ballast purge; replacement of deteriorated sleepers; fixation replacement; execution of aluminothermic welding of rails, mechanized leveling of the track; implantation and expansion of crossing yards, etc." (IIRSA).

[13] Source: IIRSA, disponível em http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=225

Corumbá – Campo Grande Railway Section (Pantanal Railway)" has been completed.[14]

The Bolivian stretch of the Bioceanic Integration Railway Corridor has an estimated total investment of US$ 7 billion. It is a project in the study of alternatives phase, after which the engineering study must be carried out. It has financing from IDB for the studies for US$ 6.7 million, and there is no information on the financing of the work.[15] This section corresponds to an internal railway corridor in Bolivia, making it possible to transport cargo and integrating the country from east to west, integrating the country with the ports of the Atlantic and Pacific oceans, and thus international markets outside the region.[16]

IMPROVEMENT OF NAVIGATION IN THE RIVERS OF THE LA PLATA BASIN

Mato Grosso do Sul is endowed with access to the Paraguay and Paraná waterways, which are part of the La Plata Basin, and connect with the Tietê, Uruguay, and La Plata waterways. All the State cargo flows through inland waterways. Through the Paraguay Waterway, the MS takes its cargo to other countries, i.e., through inland navigation on an international route. According to data from the ANTAQ (National Waterway Transport Agency of the Ministry of Transport) Statistics, cargoes originating in MS and destined for Argentina and Uruguay (in exports) are 3.816 million tons and 258 thousand tons, respectively. While 4,000 tons arrive at MS (import) from Paraguay through the Paraguay Waterway, MS can connect to the Atlantic via Santos and Paranaguá. Thus, both Corumbá and Porto Murtinho can connect to Atlantic ports.

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[14] IIRSA, em: http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=226

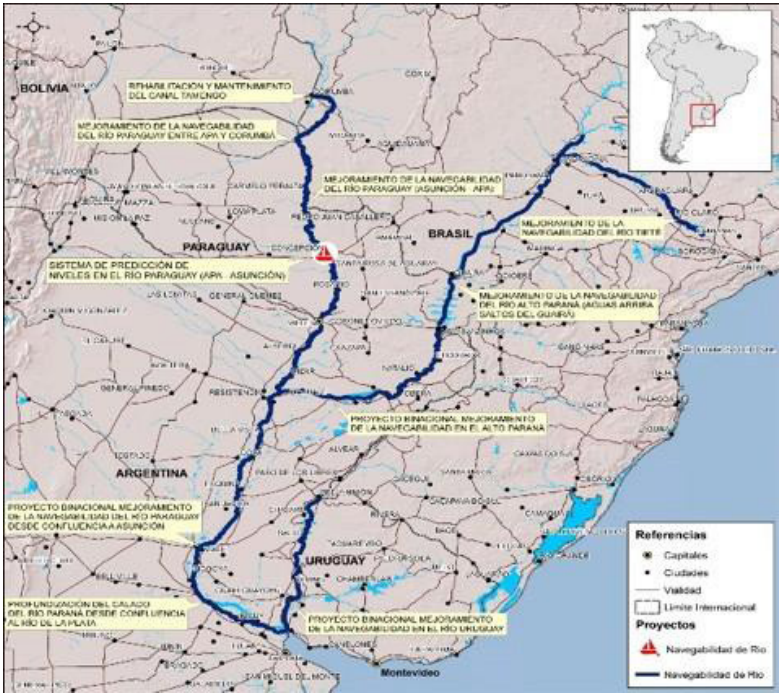
[15] Source: IIRSA, http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=1351

[16] On the IIRSA website (link to the previous note), there is a description provided by the representative of the Bolivian government to the technical file of the project, reproduced in part below: *"En la actualidad el sistema ferroviario boliviano está compuesto por la Red Andina (occidental) ubicada en el altiplano Boliviano con 2.276 km y la Red Oriental ubicada en los Llanos con 1.246 km, actualmente se esta construyendo la interconexión de estas dos redes mediante el Proyecto Ferroviario Montero Bulo Bulo, sus vías mantienen la trocha métrica en toda su extensión, lo cual permite la interconexión con Brasil y Argentina por la parte oriental, y por el área occidental se interconecta con Perú. La capacidad de carga actual no supera las 15 Toneladas Métricas (TM) por eje, lo cual es insuficiente para el volumen que se pretende transportar en el futuro, la evaluación de la actual estructura y superestructura de las redes ferroviarias bolivianas, que se proyecta transportar en los próximos 40 años, permite concluir que se podría aprovechar la infraestructura disponible, siendo imprescindible aumentar y homogenizar la capacidad de carga en todo el tendido ferroviario."*

Due to the mentioned importance of the La Plata Basin and the intermodality, this section will present works on navigability in the waterways that make up the La Plata and connect MS to the countries in the region. In a complementary way, we will talk about river ports.

IMPROVEMENT OF WATERWAYS

Figure 17: Improvement of navigability of the La Plata Basin



Source: IIRSA

The Integration Priority Project Agenda of COSIPLAN includes the structured project to "improve the navigability of the La Plata Basin" (Figure 17), comprising the joint execution of the projects presented below – some are under execution, and others have not yet started, as highlighted.

This project groups a set of smaller projects that must be carried out in a connected and synergistic way, forming a large, high-impact structuring project. Among them are projects of interest and impact in Brazil and specifically in Mato Grosso do Sul, concerning the navigability

and flow of the Paraguay – Paraná Waterway rivers. The projects are as follows:

– Improvement of the navigability of the Paraguay River between Apa and Corumbá;

– Improvement of the navigability of the Paraguay River Asunción – Apa;

– Paraguay River Level Prediction System (Asunción – Apa);

– Rehabilitation and maintenance of the Tamengo Channel;

– Improvement of navigation on the Paraguay River from Confluencia to Asunción;

– Itaipú Binational Transposition Project (Brazil – Paraguay);

– Deepening of the Paraná River draft from Confluencia to La Plata;

– Improvement of the navigability of the Alto Paraná River; (waters above Salto de Guaíra);

– Improvement of the navigability in the Alto Paraná;

– Improvement of the navigability of the Uruguay River; and

– Improvement of the navigability of the Tietê River

The improvement of the navigability of the Paraguay River between Apa and Corumbá involves Brazil, Paraguay, and Bolivia. With an estimated total investment of US$ 39 million and approved public funding, its studies have started. The improvement of the navigability of the Paraguay Asunción – Apa River, in Paraguay, is underway, with an approved investment of US$ 110 million and financing from the World Bank. The work involves dredging a 530 km stretch of river, 26 sand passages, and nine rock passages. The Paraguay River (Asunción – Apa) level prediction system involves Bolivia and Paraguay. The project has not yet started and has no estimated budget (Source: IIRSA).[17]

The rehabilitation and maintenance of the Tamengo Channel on the Paraguay River is part of the Corumbá – Asunción link. The project has an estimated investment of US$ 10.5 million and has not started. The Tamengo System comprises the Cáceres Lagoon, the Tamengo Channel, the Paraguay River, and the Sicurí and Tuyuyú Channels. Its rehabilitation and maintenance promote interconnection and trade between South American

[17] Available at www.iirsa.org/proyectos/detalle_proyecto.aspx?h=668

countries through the Paraguay – Paraná waterway and, exercising a multimodal connection, the Atlantic – Pacific bioceanic corridor.[18]

The improvement of the navigability of the Paraguay River from Confluencia to Asunción is an important way of connecting Mato Grosso – Mato Grosso do Sul – Paraguay – Argentina (Paraguay River – Rio de la Plata) to Buenos Aires (exit to the Atlantic). It is a binational Paraguay-Argentina project estimated at US$ 45.5 million, which has not started and does not foresee a source of funding. The project file points out the need for dredging and marking of critical passages (IIRSA).[19] The deepening of the Paraná River's draft from Confluencia to La Plata, in Argentina, is a project estimated at US$ 110.25 million, under execution with state funding.[20]

The improvement of the navigability of the Alto Paraná River (waters above Salto de Guaíra), of a Brazilian scope, is budgeted at US$ 15 million and is being executed with financing from the National Treasury. This project covers the construction of locks along the Paraná River (2,800 km), where there are four dams for energy use: Itaipu, Porto Primavera (with lock), Jupiá (with lock), and Ilha Solteira. The absence of locks at Itaipu and Ilha Solteira prevents navigation along the entire length. Its

[18] Currently, two private companies have port terminals on the Channel, Central Aguirre Portuaria S.A. (CAPSA) and Gravetal Bolivia S.A. (the latter operating in Arroyo Concepción, a tributary of the Tamengo Channel). According to the project file available on the IIRSA website: "La primera está dedicada al embarque y desembarque de hidrocarburos (Free Port Terminal Company – FPTC), al embarque y desembarque de productos oleaginosos (Aguirre Agro Bolivia S.A. – AABSA) y posee además un frente de muelle con una grúa para contenedores. La segunda Empresa (Gravetal Bolivia S.A.) posee una planta procesadora de oleaginosas y dos frentes de muelle (Tamengo 1 y Tamengo 2)." Additionally, the Empresa Naviera Boliviana (ENABOL) has Pre-Investment Studies for the implementation of a port terminal in Puerto Quijarro (Source: IIRSA, available at http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=1328).

[19] Available at http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=733

[20] Source: IIRSA, http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=735
According to the project's technical file description on the IIRSA website: "Profundización de los canales de navegación mediante el dragado y balizamiento, garantizando así la navegación diurna y nocturna obteniendo menores costos de fletes fluvio-marítimos (…). Obras de redragado y señalización de la vía navegable troncal comprendida entre el kilómetro 584 del Río Paraná, tramo exterior de acceso al Puerto de Santa Fe y las zonas de aguas profundas naturales en el Río de la Plata exterior, hasta la altura del kilómetro 205,3 del Canal Punta Indio por el Canal Ingeniero Emilio Mitre. (…) Se introdujeron mejoras en la vía fluvial concesionada profundizando la misma. Los trabajos de dragado a 34 pies han finalizado. Se encuentra en proceso de estudio la profundización de la vía troncal desde Timbúes al océano a 36 pies. Las tareas de señalización incluyen la instalación de nuevas ayudas para la navegación y mantenimiento de las mismas. Asimismo el mantenimiento es por cobro de peaje, dado que el tramo está concesionado hasta el año 2021."

construction projects aim to complete the Mercosur Waterway, connecting the Central West of Brazil and Paraguay to Argentina and Uruguay. The stretches from the Jupiá to the Itaipu dam, with 685 km, are navigable. Between Jupiá and the Ilha Solteira dam, there is no flow due to the inauguration of the Pereira Barreto channel, which connects the Tietê River to the northern part of the Paraná River Waterway. The binational project of transposition of Itaipú (Brazil-Paraguay) does not have an estimated budget, foreseen financing, or studies (Source: IIRSA).[21]

The improvement of navigability in Alto Paraná is a Paraguay-Argentina bi-national project with foreseen public financing but without an estimated value. The 679 km stretch comprises the confluence with the Paraguay River and the Itaipu Dam. The work involves the dredging of critical passages, beacons, and navigation control.[22]

The improvement of the navigability of the Uruguay River is an Argentina-Uruguay bi-national project, under execution, with an estimated investment of US$ 40 million, through public financing. It aims to improve the depth and beacon for navigation of larger vessels (Source: IIRSA).[23]

Finally, the improvement of the navigability of the Tietê River in Brazil has an estimated investment of US$ 800 million and is underway. This project is linked to a set of investments from the federal government's investment program in Brazil. The Tietê-Paraná waterway system has 2,400 km of waterways, from Piracicaba and Conchas (both in São Paulo) to Goiás and Minas Gerais (in the north) and Mato Grosso do Sul, Paraná, and Paraguay (in the south). It connects five of the largest soy-producing states in the country and is one of the most critical waterways in Mercosur.[24]

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[21] Available at http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=1277

[22] This section is under maintenance by the Argentine government. The planned works are subject to the agreements of the Mixed Paraná River Commission and the Yacyreta Binational Entity (government information on the IIRSA website). Source: IIRSA, http://www.iirsa.org/proyectos/ detalle_proyecto.aspx?h=762

[23] Available at http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=788).

[24] Its description in the project file on the IIRSA website is as follows: "Implement specific improvements throughout the entire São Paulo route, such as the construction of two dams with locks; replacement and expansion of spans and protection of bridge pillars, making 13 interventions that will reduce the journey by up to two hours and reduce transport costs by about 20%; construction of 2 waterway terminals; execution of dredging and canal rectification services in 7 municipalities; improvements in waiting berths and the guide wall of locks in 7 municipalities, in addition to 6 projects for duplicating locks and carrying out works on the Operational Control Center (CCO) for locks." Source: IIRSA, available at http://www.iirsa.org/proyectos/detalle_proyecto.aspx?h=687

RIVER PORTS

Using the project database on the IIRSA website, we can systematize a set of works in river ports that can help connect Mato Grosso do Sul with neighboring countries if they are carried out in conjunction with the works for navigating the Paraguay Waterway rivers - Paraná, or from the La Plata Basin. These are works located in other countries, but which can enhance river trade and MS role, namely:

– Rehabilitation of the Port of Salto del Guairá (Paraguay);
– Expansion of Porto Indio (Paraguay);
– Modernization of the Port of Iguazu (Argentina);
– Optimization of the Port of El Dorado (Argentina);
– Construction of the Port of Kaarendy over the Paraná River (Paraguay);
– Construction of the Port of Encarnación (Paraguay) – project completed;
– Porto Busch (Bolivia) – project completed.

The main MS port terminals on the Paraguay Waterway are:

– Porto Corumbá: located on the right bank of the Paraguay River, km 1,528.8;
– Port of Cimento Itaú Portland S/A: located on the right bank of the Paraguay River, km 1,517, in the municipality of Corumbá;
– Porto Sobramil: located on the right bank of the Paraguay River, km 1,516;
– Port of Ladário: located on the right bank of the Paraguay River, km 1,514.5 in the city of the same name;
– Porto Granel Química: located on the Paraguay River, km 2,763, Ladário (MS);
– Porto Gregório Curvo: located on the left bank of the Paraguay River, in the Porto Esperança district; and
– Porto Murtinho: located on the left bank of the Paraguay River, km 996. Its area of influence encompasses the entire western and southwestern regions of Mato Grosso do Sul.

The ANTAQ Statistical Yearbook[25] reports data from three MS ports: (1) Porto Gregório Curvo (2.478 million ton); (2) Granel Química Ladário (1,220 million ton); and (3) Porto Murtinho Waterway Terminal (439 thousand ton). The representation of handled cargo, market share, and growth show that Iron Ore is the main cargo handled, while the handling of soy cargo stands out with a growth of 175.6%.

In 2015, the state government resumed encouraging the use of the Paraguay River waterway to transport MS ore and grain production to ports in Argentina. It instituted the Program to Stimulate Export or Import by Porto Murtinho (Proeip) and extended these measures to Ladário and Corumbá ports.[26] The Development and Integration Plan for the Frontier Strip / MS 2012 (last available)[27] presents the reactivation work of the Ladário cargo port, the only one with trimodality to serve the region of Corumbá/Ladário[28]. Such work would be the responsibility of the municipal government and would have the state government as a partner. The action provides for the recovery of abandoned equipment. At the same time, this work is in line with other actions and projects in other modes. For example, the inclusion of Ladário in the bioceanic route and implementation of a free trade zone in the region (under the responsibility of the Federal government in partnership with the State), recover of the railway network providing access to the port of Ladário (federal and state governments' responsibility), and construction of the Ladário highway (federal and municipal governments' responsibility). Border municipalities in Bolivia, Corumbá, and Ladário have the largest

[25] Data available at http://web.antaq.gov.br/Anuario/

[26] 6,000 tons of products were handled through the Porto Murtinho port terminal in 2015; 45.6 thousand tons were exported in 2016, 183.8 thousand tons in 2017. 4.8 million tons of ore through the Corumbá Port terminal in 2015; 3.98 million tons in 2016 and 3.88 million tons in 2017. Iron ore and manganese are exported from Vale (Urucum) to Argentine and Uruguayan ports from the capital. Between 2016 and 2018, the Porto Murtinho terminal shipped 23,500 tons of products, including sugar, wheat, and charcoal. On the other hand, the ports of Granel Química (Ladário) and Gregório Curvo (Porto Esperança) exported 12.6 million tons of ore.

[27] Available at http://www.semagro.ms.gov.br/wp-content/uploads/2017/06/Plano-Desenvolvimento-e-Integração-de-Fronteira.pdf

[28] The port of Ladário has the following accesses: road, via the BR-262, which reaches Campo Grande (MS); railroad, by Ferrovia Noroeste S/A, West mesh, former Bauru Regional Superintendence (SR 10), of Rede Ferroviária Federal S.A. (RFFSA); river, by the Paraguay River and its tributaries.

port infrastructure in MS, responsible for 90% of iron ore and manganese production flow from Urucum reserves to international markets.[29]

According to information from ANTAQ's inland navigation statistics[30], the Corumbá facility "has a 200 m pier and a general cargo warehouse, 1,400 m2, for 1,100 ton, out of use, requiring recovery, in addition to an uncovered patio, with 4,000 m2," and it "operates only to support tourism in the region." Concerning the Ladário facility, "it has two different berths, in a 250 m stretch, one for sacks and the other for solid bulk. It has a warehouse of 1,500 m2 with a static capacity of 1,000 tons. It also has an outdoor patio, with 20,000 m2." Such numbers place it as one of the largest river ports in Brazil and the largest port in its Central West region.[31] Also, close to the port of Corumbá, there is the Sobramil ore terminal, with a pier 65 meters long for mooring pushers and barges.

The municipal government of Corumbá manages these ports. As we can see in the list of port terminals at the beginning of this section, they are located on the right bank of the Paraguay River, in Corumbá and Ladário, 6 km away from each other, located in the Mato Grosso Pantanal region in MS. Its area of influence covers northwestern Mato Grosso do Sul, southern Mato Grosso, and southeastern Bolivia.

The general port of Corumbá spent decades abandoned. In 2018, ANTAQ demanded the construction of a boarding terminal and compliance with rules, demanding measures from the Municipal Administration that could significantly impact the city. By decision of ANTAQ, the loading and unloading of people and cargo will have to be submitted to the regular inspection, security, and control procedures required in a passenger and goods terminal. The port agency created by the city to promote the land tenure regularization of the site must implement the waterway terminal. Currently, the movement of people, cargo, and vessels in the port is free. This means that the port will have a restricted area (passenger and cargo platforms), collecting taxes and fees, and ticket sales. Investments of R$ 3.8 million are planned, with funds from the Union, State, and Municipality. Corumbá annually receives more than 30,000 tourists, who will have to pass through the terminal to fish on board or take a tour on the Paraguay

[29] Source: https://www.campograndenews.com.br/economia/estrategica-para-escoar-producao-hidrovia-retoma-investimentos

[30] Available on the ANTAQ website at http://portal.antaq.gov.br/wp-content/uploads/2017/03/Hidrovia-do-Paraguai.pdf

[31] Available on the ANTAQ website at http://antaq.gov.br/Portal/Anuarios/Portuario2002/InformacoesGeraisPortos/Portos/CorumbaLadario.html

River. The project under development at the general port includes the reorganization of the entire coastline, and investments are planned for the revitalization of the area (US$ 1.5 million), with financing from Fonplata.[32]

With a capacity of 500 thousand tons/year of grains, Porto Murtinho has a historic vocation as a commercial warehouse and junction point on the Paraguay Waterway. After its revitalization, as of 2015, it reached its current fully installed capacity in a short period. It currently handles cargoes of soy and steel, which are destined, respectively, to Argentina and Bolivia. Navigating the Paraguay River to Rosário (Argentina), barges transport soy produced in Maracaju, Dourados, and Ponta Porã by the Argentine agro-industrial group Vicentin. This group plans to invest U$ 40 million in the port to operate different cargoes: containers, vehicles, grains, fuel, liquid bulk, cellulose, and fertilizers.[33]

CONCLUSIONS AND FINAL CONSIDERATIONS

The Working Group on the Bioceanic Road Corridor, and the strategic value of the geographical position of MS on this route, transcend and survive the different views on regional integration present in governments of countries in South America. Therefore, the Group created in 2015 came to its VIII Meeting and remains to this day.

The strategic value of MS was referenced in the words of Brazilian geopoliticians such as Mário Travassos and Golbery do Couto e Silva, both for its capacity to connect the national territory and for Brazilian projection and integration with its neighbors. A set of road works (especially the corridor), railway, waterway, and port works was presented here. Taken together, it can effectively connect the different spaces and countries in the region in a multimodal way, and connect them to global markets from the Atlantic and Pacific coasts, giving quick access to hinterland areas and opposite margins. Based on the construction of corridors, the different policies adopted will guide how countries are inserted in global value chains or even in creating higher value-added chains between South American countries. One fact is that the corridor's construction tends to

[32] Source: https://www.campograndenews.com.br/economia/apos-exigencia-construcao-de-terminal-de-embarque-no-porto-e-questionada

[33] Source: http://g1.globo.com/mato-grosso-do-sul/especial-publicitario/governo-do-mato-grosso- do-sul/noticia/2016/10/viabilizado-pelo-estado-terminal-de-porto-murtinho-triplicara- cargas-em-2017.html

reduce transport costs from central Brazil and the continent to markets in North America and Asia.

The central geographic position of MS in South America and the bioceanic corridor, the capacity to connect with other bioceanic corridors, its proximity to a passage through the Andean mountain ranges, and its connection with waterways in the La Plata Basin guarantee MS a fundamental role in the integration of regional infrastructure, and a platform of Brazilian influence. However, the infrastructure projects presented here need to be taken forward. The most viable and efficient way, from a political and economic point of view, is to combine the interest of the national and subnational governments involved, and under a logic of strategic interest, conducting the financing and public and private investments that can contribute to carrying out the works, in a structuring and synergistic way. The Bioceanic Corridor Working Group has been working in this direction.

O MATO GROSSO DO SUL E A PROJEÇÃO CONTINENTAL DO BRASIL: CORREDORES BIOCE NICOS E OBRAS DE INFRAESTRUTURA

RESUMO

O artigo tem como objetivo apresentar a importância geográfica (política e econômica) do Mato Grosso do Sul (MS) para a conexão do Brasil com os vizinhos sul-americanos e particularmente na construção de Corredores Bioceânicos. Assim, além de ser plataforma geopolítica (para projeção de influência), argumenta-se que o MS apresenta enorme potencial produtivo e logístico no âmbito da integração da América do Sul. Ainda, com o objetivo de contribuir para políticas públicas, é apresentado um mapeamento dos principais projetos de infraestrutura que podem melhorar a integração do MS com os países vizinhos, dando destaque para as que fazem parte do corredor rodoviário bioceânico; e sobre como tais obras devem ser encaradas a partir de um conjunto mais amplo e estruturante de obras e investimentos, notadamente as de caráter multimodal. Por isso, também são apresentadas algumas obras relevantes de transporte ferroviário e fluvial – hidrovias e portos – mesmo de sentido Norte-Sul. A metodologia utilizada passa pela revisão bibliográfica de autores de geopolítica brasileira, bancos de dados e documentos sobre integração física sul-americana, especialmente da UNASUL e IIRSA, documentos de agências de governo (BNDES, por exemplo), e notícias veiculadas pelo governo do Mato Grosso do Sul ou pela imprensa local.

Palavras-Chave: Corredor Bioceânico. Mato Grosso do Sul. Integração Regional. América do Sul.

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