

Paper 112

URUGUAY - BRASIL WATERWAY

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The eastern and northeastern Uruguayan boundary connects the country with Brasil. The eastern portion of Uruguay has great strategic importance, due to the vicinity of Brasil. The traffic of merchandises between both countries, directly leads to the necessity of establishing physical connections across the boundary.

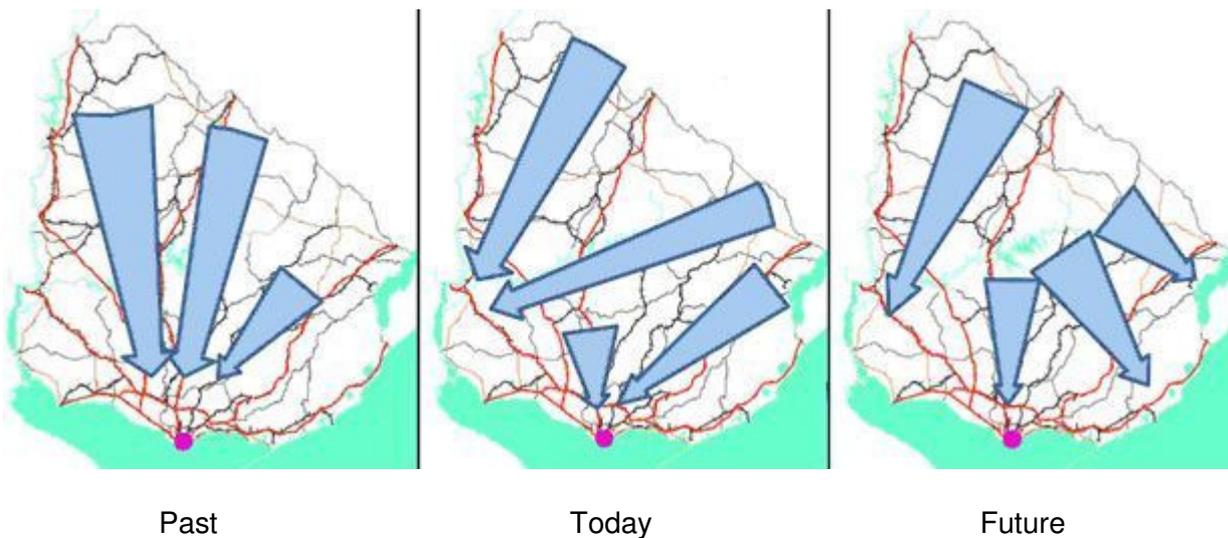
From Uruguayan side, the above mentioned boundary is an area poorly developed and scarcely populated, particularly due to lack of ways for physical integration with its neighbor towards the east. Moreover, the uruguayan territory is the path between Argentina and Brasil which are the leading countries of the continent, and the main trade partners of Uruguay.



Uruguay Brasil Waterway (line blue)
Uruguayan Ports (red stars)

Historically, the import and export cargo was transported by truck or train towards Montevideo city, country capital and main port of Uruguay, port that centralizes most of the movement. In the last decades, due to the increasing quantity of wood chips, logs and different grains, the ports located over the Uruguay River, at the west of the territory start to have a strong paper in the import and mostly export statistics.

Next stage is move cargo currents to the east and in the future, due to Uruguay Brasil Waterway and Deep Water Port, have another ways and possibilities to export and import cargo.



The axis of the eastern region is a waterway formed by the Merin Lagoon (shared between Uruguay and Brasil), together with the De Patos Lagoon (at Brazilian jurisdiction and connected with the Atlantic Ocean), and their respective tributaries. A natural channel named “San Gonzalo” connects both lagoons. A dam was constructed across this channel, to regulate the water levels of the lagoons and to prevent the passage of salt water to Merin Lagoon. This dam has a lock that allows the crossing of ships.

Ecological reasons, besides to economy in freights as well as high volumes of cargo able to be shipped in each single voyage, leads directly towards the employment of said waterway for conveying merchandises in both directions. It should be noticed that today, all named trade is done by trucks.

Now, more than a half of the bilateral Uruguayan – Brazilian commerce crosses the boundary within a narrow corridor at both sides of the Merín Lagoon, being natural clients for a more efficient and cheaper transportation, meaning vessel transportation.



The waterway penetrates the Brazilian territory, and once entered in De Los Patos Lagoon, vessels can immediately reach the ocean port of Río Grande or, following the axis of this lagoon, they can head towards several Brazilian inner ports. At the north extreme of this waterway, the port of Estrela offers its piers with railway connection directly to Sao Paulo, crossing the also very important Brazilian states of Paraná and Santa Catarina.

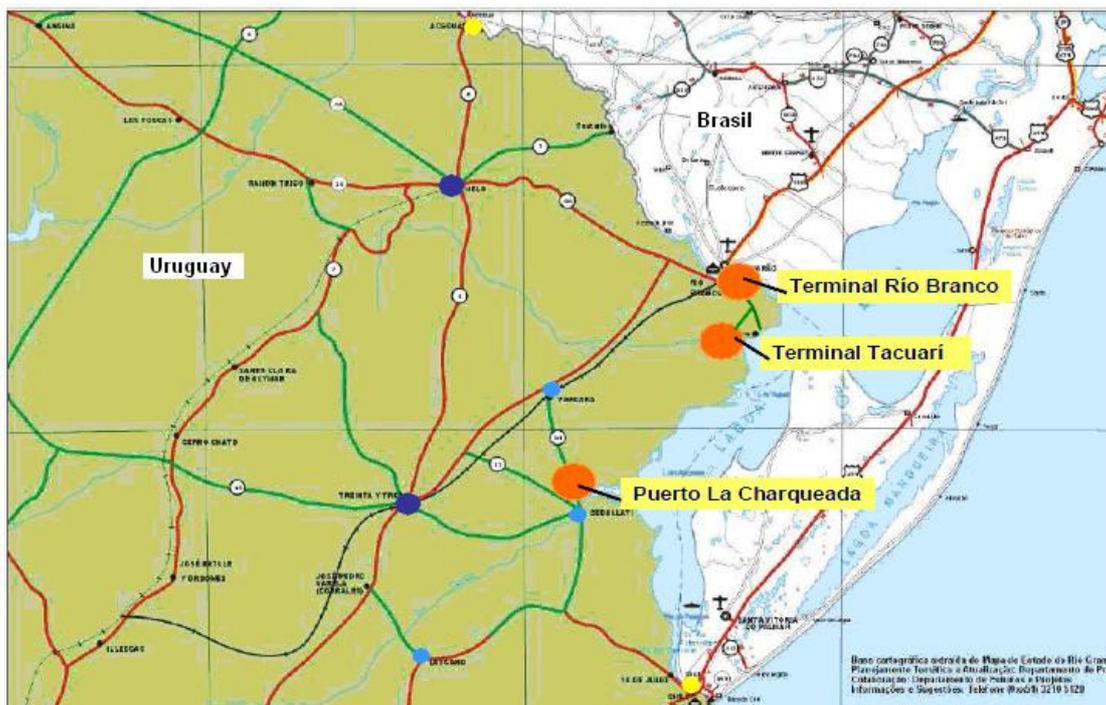
The above described route can be naturally navigated in both directions. The waterway length, considering lagoons and rivers, is about 800 kilometers. It must be considered that a lot of Uruguayan productions with destination to overseas can be cheaply sent to the ocean deep water port of Rio Grande at Brasil, in order to be loaded on big ships serving the international traffics.

A Treaty was signed between both governments to consecrate that waterway officially called “URUGUAY - BRASIL WATERWAY”, with full rights to both flags to navigate these waters.

The heart of the project is to establish at least three ports on the Uruguayan side of the system, since the Brazilian side has already several active ports. These ports are located at the shore of rivers that lead on the Merin Lagoon.

The three ports at the Uruguayan side (that are at different stages of planning, paperwork, procedures and construction), and the rivers where they face are:

- La Charqueada Port, at Cebollatí River
- Tacuarí Terminal, at Tacuarí River
- Rio Branco Terminal, at Yaguaron River.



Uruguayan Ports Locations

Services expected to be given at the ports are: use of piers, mooring and unmooring, ship supplies, collection of garbage and other refused materials, loading and unloading merchandise, storage, land conveying, warehousing and silos, palletizing, etc.; together with industrial operations, particularly dedicated to wood industry but latterly extended to other areas so as to create an industrial zone.

PORTS:

Depending on the port, the piers are basically designed to manage bulk cargo and general cargo, and also containers operations. Others are specifically designed for wooden chips loading, but are modifiable for other cargoes such as clinker in bulk and bagged cement. Attached to the piers, warehouses, silos, patios and conveying equipment are to be built, beside a chipping factory together and chips stowing areas.

La Charqueada Port: Is located at the left side of the Cebollatí River, at 15 nautical miles of distance of the Merin Lagoon. The terminal is basically designed to build two piers, terminal 1 and terminal 2, one for bulk cargo and general cargo, to be extended also to containers operations, and another specifically designed for wooden chips loading, but both modifiable for other cargoes such as clinker in bulk and bagged cement. Attached to the first pier, warehouses, silos, patios and conveying equipment are to be built, whilst a chipping factory together with poles and chips stowing areas, must be erected in the vicinity of the second pier.



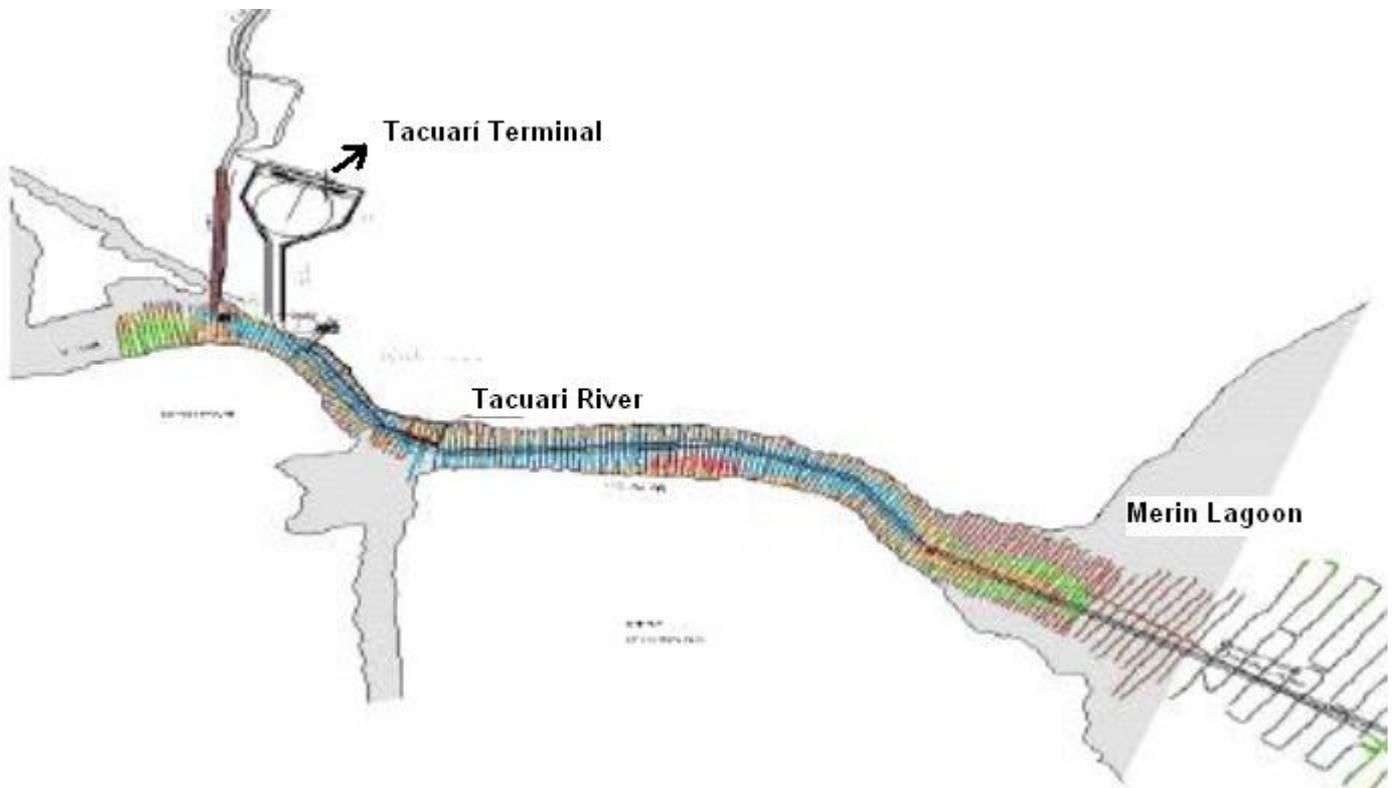
La Charqueada Port: Terminal 1 and Terminal 2 locations (aerial photo)



La Charqueada Port: Terminal 1 and Terminal 2 (artist drawing)

Finally, La Charqueada Port is also conceived as a trigger to activate not only commercial interchange but also industrial parks, business parks, naval industry and tax free zone.

Tacuari Terminal: Is located at the left side of the Tacuari River, near the Merin Lagoon. The terminal is basically designed to work with grains and agricultural cargo.

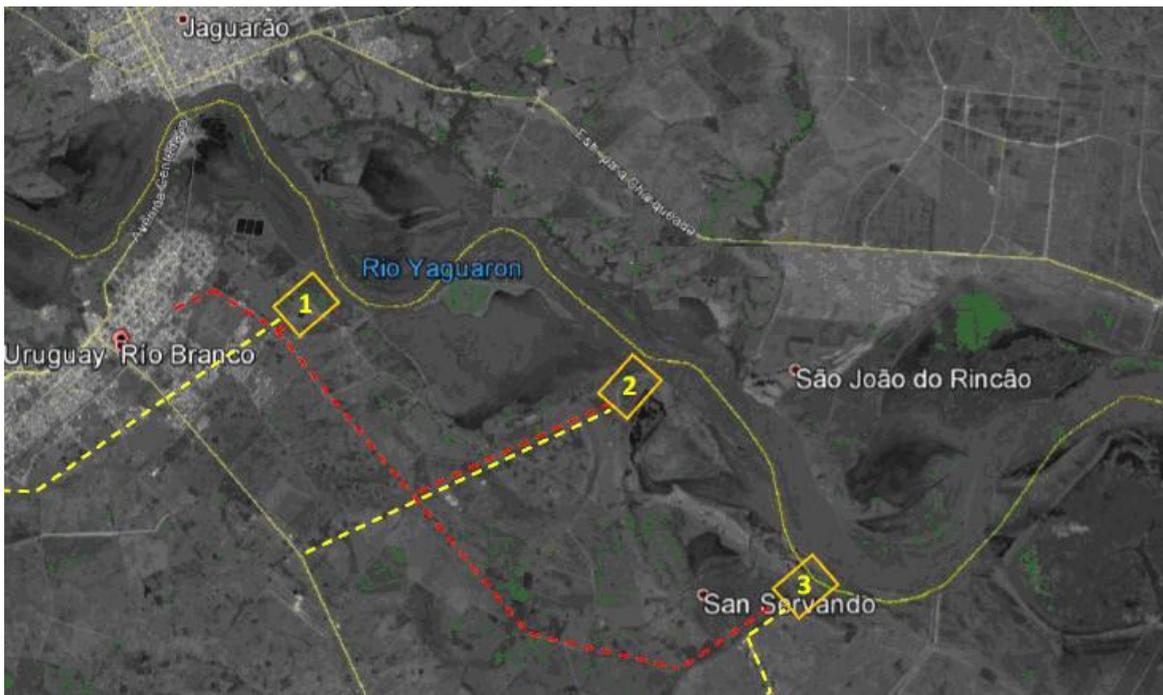


Tacuari Terminal location, next to the river and close to Merin lagoon



Tacuarí Terminal (artist view)

Rio Branco Terminal: Over the right shore of Yaguaron River, there are three possible locations under study. These sites are near the city of Rio Branco – Jaguarao, at the border between Uruguay and Brasil. The distance to the Merin lagoon is around 12 nautical miles.



Rio Branco Terminal (three possible locations).



The merchandises and commodities mainly intended to be operated at the ports are clinker and cement, coal, agricultural grains, rice, wood, woodchips and containers.

The load estimation, at different scenarios, that the three ports can catch on the next years at the Uruguay Brasil Waterway is (in thousand of tones):

Rubro/Sector	Escenario \ Año	2015	2016	2017	2018	2020	2025	2030
A) Clinker	a/Mín		300	450	450	450	450	450
	b/Medio		450	800	800	800	800	800
	c/Máx	130	580	930	930	1300	1300	1600
B) Cemento-cal	a/Mín	45	195	195	195	195	195	195
	b/Medio	195	345	345	345	775	775	775
	c/Máx	195	545	745	745	1175	1175	1525
A+B)	a+a'/Mín	45	495	645	645	645	645	645
	b+b'/Medio	195	795	1145	1145	1575	1575	1575
	a+c'/Máx	195	845	1195	1195	1625	1625	1975
C) Arroz	Mín	160	170	185	200	215	260	300
	Medio	210	220	230	245	285	345	400
	Máx	260	280	300	325	350	430	500
D) Soja y otros granos	Mín	300	315	330	345	380	440	510
	Medio	400	425	450	480	520	610	700
	Máx	500	525	550	580	640	750	860
E) Madera	Mín	800	825	850	875	930	1080	1250
	Medio	1200	1240	1280	1320	1420	1620	1870
	Máx	1500	1445	1490	1535	1620	1880	2340

SHIPS

Ships that will sail the waterway must be similar to those that are operating these days at De Los Patos lagoon.

The vessel type or design ship considered for the project of the piers and channels has the following main characteristics.

- Overall length: 108 meter
- Breadth: 15,50 meter
- Maximum draft: 4,60 meter
- Maximum chip load draft: 3,40 meter
- Minimum Depth: 0 to 2,5 meter, bow and stern
- Weight load: 5.200 tons
- Empty weight: 1.200 tons
- Capacity: 4.000 tons



Vessel type

DREDGING

Some dredging works must be done in the river and vicinities of the ports, in order to achieve at least a depth of 2,5 meters at the zero of local tidal scales. Considering that curves of permanence of rivers and lagoons show an almost permanent water level of one meter over the zero, it can be expected a depth of 3 to 3,5 meters, the year round.

The project considers the opening and maintenance dredging of the rivers and lagoons, signaling and buoyage.

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