

How to improve the management of waterways in the Federal System of Transportation



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ABSTRACT

This study consists of performing an analysis of the Federal System of Transportation, focused on the Waterway Subsystem, and of proposing actions to improve the management of the sector. To do so, we will present the concepts of domain, jurisdiction and navigation, and a proposal on how the Federal Waterway Subsystem could be organized, presenting a list of the federal waterways with the corresponding naming rule. The principle for organizing the Federal Waterway System is listing the inland waterways under the competence of the Federal Government, taking into account the waterways either currently commercially navigable or potentially navigable.

Keywords: Waterway. Federal System of Transportation. Federal Waterway Subsystem.

1. INTRODUCTION

This paper will present an analysis of the Federal System of Transportation focused on the waterway modal, using as a yardstick for comparing the organization of the road modal, and putting forward a proposal for how the federal waterway subsystem could be organized, by presenting a list of federal waterways with the corresponding naming rule.



The issue concerning having or lacking a definition of federal waterways was probably raised before the enactment of Law 5,917, of November 10, 1973, but in carrying out our analysis our focus will be from that date on.

The National Plan for Transportation was approved with the publication of Law 5,917, of November 10, 1973, pursuant to Article 8, Subsection XI, of the Federal Constitution of 1967, which determined it is a matter for the Federal Government to set the National Plan for Transportation.

Article 10 of Law 5,917 sets “the states, territories, the Federal District and cities shall devise and review their Transportation Plans to achieve proper articulation and compatibility between their transportation systems and between those and the Federal Transportation Systems”.

We noticed that the abovementioned Law mentions the existence of a diversity of transportation systems (federal, state, district and municipal). In its annex, however, there are, among others, the concepts of National Transportation System, National Road System, and National Waterway System, as described below:

National Transportation System: What is meant by the expression “National Transportation Plan”, as mentioned in Art. 8, Item XI, of the Federal Constitution, is the set of Fundamental Principles and Standards, listed in Art. 3 of said law, applicable to the National Transportation System as a

whole, aimed to achieve the mentioned objectives (Art. 2), and also the specific set of the transportation infrastructures spelled out in the Descriptive Listing of this law, and the corresponding operational structures, as defined as follows.

The National Transportation System is made up of the association of the National Systems: Road, Railroad, Port, Water and Air; and it encompasses:

- a) transportation infrastructure, which comprises the networks corresponding to the transportation modes abovementioned, including their ancillary and complementary premises;
- b) operational structure, including the array of state means and activities, directly exercised in each transportation mode, and which are necessary and sufficient to the proper use of the infrastructure mentioned in the previous paragraph.

National Road System: it is made up of the association of the **Federal, State** and **Municipal** Road Systems; and it encompasses:

- c) road infrastructure, which comprises the road networks and their ancillary and complementary premise;
- d) operational structure, involving the array of state management activities and means, including oversight,

which work directly on the road transportation mode, and which allow for the proper use of roads.

The roads considered as part of the National Transportation Plan are those which make up the **Federal Road System**, described in this Annex.

National Waterway System: it is made up of the navigable waterways (rivers, lakes and channels), including their ancillary and complementary premises, and of the array of direct state activities and means, for operating waterway navigation, which allow for the proper use of the waterways mentioned for transport purposes.

The navigable waterways entailed in the National Transportation Plan **are the main ones, both in terms of length and traffic**, and they are the ones listed in Section 5.2 below.

From what has been described above, we can note that the Waterway System was not given the same level of consideration for defining the list of waterways pertaining to the **Federal** Waterway System as it was done with the Road System (where the federal roads were defined), and therefore we have only a list of waterways entailed in the **National** Waterway Plan.

Then, the Draft Bill 1,176 of 1995 (No. 18/00 in the Federal Senate), which provides on the National Transportation System, established a better descriptive listing of the Federal Waterway Subsystem (list laid down in Annex IV of said Law), and repealed Law 5,917/1973.

This Draft Bill is in line with Law 5,917/1973, but it sets out a better definition of the differences between the National Transportation System (SNV) and the Federal Transportation System (SFV), as described in the Articles 1, 2, 3 and 5 below:

Art. 1 – This law provides on the National Transportation System (SNV), its makeup, objectives and criteria for its implementation, pursuant to the Subsections XII and XXI of Art. 21 of the Federal Constitution.

Art. 2 – The SNV is made up of the physical and operational infrastructure of the diverse modes of transportation of people and goods, under the jurisdiction of the different entities of the Federation.

§ 1º – As regards the **jurisdiction**, the SNV is made up of the **Federal** Transportation System and the **transportation systems from the States, Federal District and Municipalities**.

§ 2º – As regards the transportation modes, the SNV comprises road, railroad, waterway and air subsystems.

Art. 3 – The **Federal Transportation System (SFV)** is made up of the following subsystems:

I – Federal Road Subsystem;

II – Federal Railroad Subsystem;



III – Federal Waterway Subsystem;

IV – Federal Air Subsystem.

[...]

Art. 5 – Pursuant to current legislation, the Federal Government is mandated to manage the SFV, which encompasses planning, building, maintaining, operating and exploiting the respective components.

It also laid out in Articles 25 to 33 the Federal Waterway Subsystem, as described below:

Art. 25 – The Federal Waterway Subsystem is made up of:

I – waterways;

II – river and sea ports;

III – locks and other mechanisms for raising or lowering to a different level;

IV – interconnection of river basin waterways;

V – facilities, premises and structures for the operation and safety of waterway navigation.

Art. 26 – Annex IV presents the descriptive listing of the current and planned navigable waterways pertaining

to the Federal Waterway Subsystem, according to the basin or river they are located in.

Art. 27 – Annex V presents the descriptive listing of river and sea ports pertaining to the Federal Waterway Subsystem, according to their location; and as for the river ports, the basin or river they are on.

Art. 28 – Annex VI presents the descriptive listing of locks and other mechanisms for raising or lowering to different levels, both actual and planned, pertaining to the Federal Waterway Subsystem, according to the location and the basin or river they are on.

Art. 29 – The use of navigable waters owned by a State or the Federal District, for navigation of federal interest, under Paragraph d of Subsection XII of Art. 21 of the Federal Constitution shall be governed by agreement entered into between the Federal Government and the owner of the navigable waters.

Art. 30 – Any intervention meant to bring about improvements in traffic condition on navigable inland waterways shall comply with the principles and objectives of the National Policy on Water Resources, set by Law 9,433, of January 8, 1997.

Art. 31 – (Vetoed).

Art. 32 – The exploitation of organized ports and port facilities shall comply with the provisions of Law 8,630, of Fe-



bruary 25, 1993, and Law 10,233, of June 5, 2001, regardless of the adopted administrative system.

Art. 33 – The exploitation of waterway crossing along federal roads or railroads shall always be under the responsibility of the Federal Government.

However, the Executive Power vetoed some articles before signing the mentioned Draft Bill into Law 12,379, of January 6, 2011, among them the article, which would repeal Law 5,917. It also repealed the annexes of the Draft Bill, including Annex IV, and it stated as reasons for the vetoes the following arguments:

Annexes I to VII of the Draft Bill contain the descriptive listings of the components of the subsystems making up the subsystems pertaining to the Federal Transportation System (SFV). Notwithstanding the merit of searching for the necessary organization of the list of projects that are part of the PNV, such listing does not reflect the current state of the national transportation planning. In fact, the Annexes have failed to include projects which today are part of the PNV and that are fundamental for the development of the country, some of which are also part of the Growth Acceleration Plan (PAC).

The veto to the Annexes, along with the veto to Art. 45, **allows for maintaining the descriptive listings contained in Law 5,917, of September 10, 1973 as well the laws which updated them, avoiding harming the planning and the investments by the Federal Government in national transportation infrastructure**, and it enables re-studying the matter and the timely submission of a new draft legislation.

As we see it, the veto was correct, as the descriptive listing of the federal waterways contained in its scope comprised waterways enshrined in the domain of states, such as, for example, the Tietê Waterway.

As for the reasons given for the veto, the lack of definition concerning the Federal Waterway System originally featured in the PNV/SNV was still there (Which are the federal waterways?).

Such lack of definition gives rise to consequences, according to Law 10,233, of July 5, 2001, which addresses the restructuring of land and water transportation, the National Transportation System (SNV) is made up of the transportation infrastructure and operational structure of the different means of transportation of people and goods, under the **jurisdiction of the Federal Government, states, Federal District and municipali-**





ties, and that the Federal Government has jurisdiction over the Federal Transportation System.

It also establishes that the National Water Transportation Agency (Antaq) is responsible for exploiting the **Federal** waterway infrastructure and that the scope of operation of the National Transport Infrastructure Department (DNIT) corresponds to the infrastructure of the **Federal** Transportation System, under the jurisdiction of the Ministry of Transportation.

Therefore, the following question arises: Out of the list contained in Law 5,917/1973, which are federal waterways? What is the rule adopted for naming the waterways?

In this regard, we will present below a diversity of concepts, which helped us put forward a suggestion of how the Federal Waterway Subsystem could be organized and a proposal for listing the federal waterways with the corresponding naming rule.

2. NAVIGATION

According to the *DICTIONARY OF PORTUGUESE LANGUAGE, 2003-2015*, navigation means “a trip or transportation on or in sea waters, on the surface of rivers and lakes or in the atmosphere”.

In its turn, the Maritime Authority Standards, Normam 28, of the Brazilian Navy, defines navigation as the “process of planning, monitoring and controlling the movement of a vessel from one point to another safely. To achieve that, the navigator makes use of available in-

formation on cartography, oceanography, meteorology, aids to navigation, remote sensing, positioning systems, existing dangers and others”.

This standard also defines inland navigation as the navigation on navigable inland waterways and on sea areas considered sheltered and can be divided up into two types: I) the one on sheltered waters, such as lakes, lagoons, bay, rivers and channels, where waves considerably large are not regularly seen, which do not pose difficulties to the traffic of crafts; and II) the one on waters partially sheltered, where waves considerably large and/or adverse combinations of environmental factors, such as the wind, currents or tides, can be occasionally experienced, and which hamper the traffic of vessels. (BRAZIL, 2011).

It is important to stress that the purpose of the Navy is to set standards and procedures to ensure safe navigation, and also to safeguard human life on the sea and to prevent environmental pollution by vessels from any country.

As we can see, there is a diversity of concepts and interpretations of what navigation is, but the concept of navigation we will adopt in this work is not the same as the ones described above, as we mean the **navigation service** under the responsibility of the Federal Government, as described in Item “d” of Subsection XII, of Art. 21 of the Federal Constitution: the Federal Government is responsible for exploiting, directly or through authorization, concession or permit **the railroad and water transportation services between Brazilian ports and national borders, or which cross the borders of a State or Territory**.

Therefore, this is the concept we will use in our analysis to define navigation, and whenever we mention the word navigation, of whatever type (inland, coastal, ocean or any other), we mean the **federal** service of waterway transportation.

3. DOMAIN OF WATER (WATER COURSE)

Water is one of the natural elements of the environment, and it falls in the category of diffuse rights, that is, those rights belonging to an undetermined community, and which transcends the traditional classification of private law and public law, and the concept of water domain cannot be determined from the viewpoint of private law (SOUZA, 2009).

Article 20, Subsection III of the Federal Constitution establishes that the Federal Government owns lakes, rivers and any other water flows in lands it owns, or which flow through more than one state, form a common border with other countries, or which flow into or from foreign lands, as well as lands adjacent to rivers systems and river beaches. It also sets in Subsection VIII that the Federal Government owns potential waterpower.

Article 26, Subsection I, establishes that among the properties of the states are the surface or underground waters, flowing, emerging or stored, except in this case, **as set by law**, those generated from public works by the Federal Government.

Also, Article 29 of Decree 24,643, of July 10, 1934, in its Subsection I, Item “e” establishes that public waters

of communal use, as well as their bed, belong to the Federal Government when they form a common border with two or more states; and in its Item “f” when they flow through the lands of two or more states.

Subsection II, Item “a”, sets that public waters of communal use, as well as their bed, belong to the states when they form a common border with two or more municipalities; and in Item “b” when they flow through the territories of two or more municipalities.

Paragraph 1 of Subsection II establishes that the domain of states and municipalities of any currents is limited, the Federal Government has title over industrial exploitation of waters and water power, and over navigation.

That guarantees that even when a river is the property of a state, if the water transportation system is between Brazilian ports and national borders, or cross the borders of a state of territory; such service is under the responsibility of the Federal Government, and it shall exploit it directly or through authorization, concession or permit.

Law 9,433, of January 8, 1997, which set up the National Policy on Water Resources, establishes the National System for **Water Resource Management**, stipulates in its Article 14 that the granting of rights to use water resources will be implemented by an act by a competent authority from the **Federal Executive branch, states or the Federal District**.

Therefore, the concept of domain of a river or water resource is related to the competence over the management of the water resource by the different entities of the Federation.





4. WATERWAY JURISDICTION

Jurisdiction is the power the government has to administer law to a given case, to solve conflicts of interests, and thus to protect the legal order and the authority of the law. Jurisdiction comes from Latin; from “juris” and “dicere”, which means “to speak the law”.

However, the concept we look for is the one spelled out by Law 12,379, of January 6, 2011, which addresses the National Transportation System (SNV), whose Article 2 says the SNV is made up of the **physical and operational infrastructure** of the varied modes of transportation of people and goods, **under the jurisdiction of the different government entities**.

It also establishes that as regards jurisdiction, the SNV is made up of the Federal Transportation System and of the transportation systems of the states, Federal districts and municipalities; and as regards the transportation modes, the SNV comprises the road, railroad, waterway and air subsystems.

In its turn, Article 5 establishes that the **Government is responsible**, pursuant to current law, for managing the Federal **Transportation** System, which encompasses planning, building, maintaining, operating and exploiting the respective components.

Therefore, the concept of jurisdiction is related to the administrative purview of the Federation entity in charge of planning, building, maintaining, operating, and exploiting the physical and operational infrastructure of the waterway.

5. RIVER OR WATERWAY?

From the etymological viewpoint, inland waterway or navigable course are common names for navigable rivers, lakes or lagoons. The waterway uses the available water body to transport people and goods.

The meaning of waterway, according to the **DICIONÁRIO OF PORTUGUESE LANGUAGE 2003-2015** is “a river or sea route, etc., meant for transportation and communication”.

The Maritime Authority Standard, Normam 28, from the Brazilian Navy (BRAZIL, 2011), also features the concepts of navigable course, inland navigable course and waterway as: navigable course is the physical space, either **natural or not**, on the waters of oceans, seas, rivers, lakes and lagoons, used for navigation; inland navigable course is a navigable waterway located within land areas, such as rivers, lakes, lagoons and channels, etc; and waterway is an inland navigable waterway with standard characteristics for certain types of vessels, through engineering works and regulation, featuring signals and devices to aid navigation.

It is worth remembering again that the purpose of the Navy is to set standards and procedures to ensure safe navigation, and also to safeguard human life on the sea and to prevent environmental pollution by vessels from any country.

From the viewpoint of the Federal Government, the interpretation of the concept of waterway cannot be



the same as that of river or even navigable course. The criteria defining waterway is not its intrinsic capacity of allowing navigation. A river or navigable course turn into a waterway through a statement act from the Public Power, which thus expresses a current and future intention of **keeping or providing it** with conditions enabling its use as transportation infrastructure. With that statement act, **a waterway becomes an integral part of the adopted transportation grid**. This way, a river becomes a **federal waterway**, and consequently, becomes part of the network of transport infrastructure (BRAZIL, 1989).

Also note that this concept is the same used for defining federal roads. Please answer the following question: What makes a road a federal or a state road?

The answer to that question is the same for any federal subsystem. What makes a route (road, railroad or waterway) federal is when it is featured in the descriptive listing of the PNV or SNV (statement act) and what makes a route a state route is when it is featured in the State Transportation Plans. Then, we will use this concept to define what a federal waterway is.

Based on the above considerations, we can see the need to improve the federal transportation system, especially the federal waterway subsystem.

6. PROPOSAL

By analyzing the adopted concepts of domain, jurisdiction and navigation, we can say a river is related

to the domain/ management of the water resource just as a waterway is related to jurisdiction/ statement act. In its turn, navigation is linked to a service under the responsibility of the Federal Government, regardless of river domain or jurisdiction over the waterway.

Thus, due to the complexity regarding the federal waterway sector, we will present further a proposal of how the federal waterway subsystem could be organized, by advancing a listing of federal waterways with the corresponding naming rule.

Since the descriptive listing of federal waterways must be a statement act from the federal government, which expresses its current and future intention of keeping or providing the waterway with conditions such as transport infrastructure, it is recommendable such intention be justified and grounded on some criteria.

The initial list we will present at the end of this study will be based on the main results of the study carried out by the Ministry of Transportation called Strategic Waterway Plan (PHE).

Also, we will use as a precondition for making the waterway listing the water courses owned by the Federal Government, thus avoiding conflicts with the use of rivers owned by states, Federal District or municipalities.

It is also noteworthy that the use of rivers owned by the Federal Government as part of a state waterway is valid and cannot be ruled out, as long as: it is not on the list of federal waterways; the stretch of the waterway is within the geopolitical borders of a state

and is featured in its respective transportation system; and also there is the proper articulation between the different concerned entities and bodies of the federation.

We will also present improvements to the text on the Federal Waterway Subsystem, enabling the Federal Government to apply financial resources in the waterway systems of states, Federal District and municipalities, provided it is of relevant interest to the federal navigation service (Paragraph “d” of Subsection XII of Art. 21 of the Federal Constitution).

6.1 PROPOSAL OF WORDING AND ANNEX IV OF LAW 12,379/2011 RELATED TO THE FEDERAL WATERWAYS FEATURED IN THE FEDERAL WATERWAY SUBSYSTEM.

Of the Federal Waterway Subsystem

Art. XX – The Federal Waterway Subsystem encompasses all navigable waterways administered by the Federal Government, either directly or indirectly, in accordance with Articles 5 and 6 of this Law, which will be from now on named as Federal Waterways.

Art. XX – The waterways pertaining to the Federal Waterway Subsystem will be identified by the “HF” initials, followed by 4 (four) digits, as follows:

I – the first two digits indicate the River Basin District (RH) where the waterway is located; and they are:

- a) 01 (one), for the Amazon RH;
- b) 02 (two), for the Tocantins-Araguaia RH;
- c) 03 (three), for the Northeast Atlantic - Western Part RH;
- d) 04 (four) for the Parnaíba RH;
- e) 05 (five) for the Northeast Atlantic - Eastern Part RH;
- f) 06 (six) for the São Francisco RH;
- g) 07 (seven) for the East Atlantic RH;
- h) 08 (eight) for the Paraguay RH;
- i) 09 (nine) for the Paraná RH;
- j) 10 (ten) for the Southeast RH;
- k) 11 (eleven) for the Uruguay RH; and
- l) 12 (twelve) for the South Atlantic RH.

II – the other 2 (two) digits refer to the order in which the waterway is listed in the descriptive listing of the respective river basin district.



Art. XX. – The Federal Waterway Subsystem is made up of:

I – Federal Waterway: made up of the transportation infrastructure, including locks, facilities and structures for its maintenance, operation and for the safety of waterway navigation;

II – rivers and seaports;

Art. XX – Annex IV presents the descriptive listing of federal waterways pertaining to the Federal Waterway Subsystem.

§1º The descriptive listing referred to in the head of this article shall feature the waterways made up only of water courses owned by the Federal Government.

§2º The inclusion of waterways in the descriptive listing mentioned in the head of the article shall be duly justified by the Federal Government, which can adopt technical, economic, geopolitical or any other criteria representing the interest of the Federal Government in pronouncing the navigable or potentially navigable waterway as a federal waterway.

§3º Water courses owned by the Federal Government not contained in the descriptive listing mentioned in the head of the article may be used by states, Federal District and Municipalities as state, district and municipal waterways, as long as they are included in their respective transportation systems and the waterway length is within their lands.

ANNEX IV :

DESCRIPTIVE LISTING OF FEDERAL WATERWAYS

HF	REFERENCE NAME OF THE WATERWAY	WATER BODY	SEGMENT ¹	LENGTH (Km)
AMAZON RIVER BASIN DISTRICT				
0101	Madeira Waterway	Madeira river	From the mouth of Madeira river (AM), on the Amazon river, to Porto Velho (RO), on the Madeira river	1,086
0102	Amazonas/Solimões Waterway	Amazonas and Solimões rivers	From the mouth of Amazon river, on the Atlantic Ocean, to Benjamin Constant (AM), on the Solimões river	3,108
0103	Tapajós/Teles Pires	Tapajós e Teles Pires rivers	From the mouth of river Tapajós (PA), on the Amazon river, to Apicás (MT), on the Teles Pires river.	960
0104	Xingu waterway	Xingu river	From the mouth of river Xingu (PA), on the Amazon river, to São Félix do Xingu (PA), on the Xingu river.	770
TOCANTINS – ARAGUAIA RIVER BASIN DISTRICT				
0201	Araguaia waterway	Araguaia river	From the mouth of river Araguaia, on the Tocantins river, to Baliza (GO), on the Araguaia river.	1,800
0202	Tocantins waterway	Tocantins river	From the mouth of river Tocantins (PA), on the Pará river, to Peixe (TO), on the Tocantins river.	1,700
0203	Guamá/Capim waterway	Guamá and Capim rivers	From Belém (PA), on the Guamá river, to PK 156 (PA), on the Capim river.	156
PARNAÍBA RIVER BASIN DISTRICT				
0401	Parnaíba waterway	Parnaíba river	From the mouth of river Parnaíba (PI), on the Canárias bay, to Santa Filomena (PI), on the Parnaíba river.	1,176
SÃO FRANCISCO RIVER BASIN DISTRICT				
0601	São Francisco waterway	São Francisco river	From Petrolina (PE) / Juazeiro (BA), on the São Francisco river, to Pirapora (MG), on the São Francisco river.	1,371
PARAGUAI RIVER BASIN DISTRICT				
0801	Paraguai waterway	Paraguai river	From the mouth of river Apa (MS), on the Paraguai river, to Cáceres (MT), on the Paraguai river.	
PARANÁ RIVER BASIN DISTRICT				
0901	Paranaíba/Paraná waterway	Paranaíba and Paraná rivers	From Foz do Iguaçu (PR), on the Paraná river to downstream of São Simão dam (GO), on the Paranaíba river.	1,012
ATLÂNTICO SUL RIVER BASIN DISTRICT				
1201	South waterway	Lake Mirim and São Gonçalo Channel	From the mouth of São Gonçalo Channel (RS), on the Patos Lake to the mouth of São Miguel stream (RS), on the Lake Mirim.	250

¹Direction: from downstream to upstream. Approximate length

Art. XX – Annex V presents the descriptive listing of river and seaports pertaining to the Federal Waterway Subsystem, according to their location; and as for the river ports, the basin or river they are on.

Art. XX – The Federal Government may apply financial resources in the waterway systems of states, Federal District and municipalities, provided there is relevant interest for the service of federal navigation, pursuant to Paragraph d of Subsection XII of Art. 21 of the Federal Constitution; by signing a proper instrument between the Federal Government and the entity with jurisdiction over the waterway.

Art. XX – Any intervention on federal waterways shall comply with the principles and goals of the National Policy on Water Resources set by Law 9,433, of January 8, 1997.

7. CONCLUSION

Based on the above considerations, the improvement to the existing law should enhance the management of the federal waterway sector, as it will make clear which waterways the Federal Government will have jurisdiction over, thus allowing for more focus on federal investments, besides distinguishing and consolidating the varied concepts concerning the sector (river, waterway, federal waterway, state waterway, jurisdiction, etc.).

As a result, it will also contribute to an increased involvement from states and municipalities in the water issue, enabling greater expansion and integration of the state and municipal networks with the federal network.

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