

Article citation info: Oulfarsi, S., Inland waterway transport of goods in France: what favorable growth prospects for sustainable development? *Transport & Logistics: the International Journal*, 2016; Volume 16, Issue 40, September 2016, ISSN 2406-1069

INLAND WATERWAY TRANSPORT OF GOODS IN FRANCE: WHAT FAVORABLE GROWTH PROSPECTS FOR SUSTAINABLE DEVELOPMENT?

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Abstract:

The policy in the field of transport is at the crossroads. While, in general, we recognize the fundamental importance of adequate transport facilities to modern societies and economies, concerns about increasing congestion, pollution and accidents is mounting. No considerable change in terms of transport and investment in this area, it is expected to inevitably longer delays and higher costs. The aims of this paper is to make an exploratory analysis of the economic situation of transport in France by putting more light on the river transport as a means of transport more respectful to the environment.

Key words:

Inland waterway transport, transport policy, environment, modal shift

1 INTRODUCTION

This article examines the position of waterways in the transport system in France. It has the potential of inland waterway transport (IWT) compared to other competing modes and its weaknesses and the interest for the government to conduct a future strategy that addresses the prospects for sustainable development. River transport has reached a record level of growth not seen since 30 years: nearly 9% increase in traffic for 2010 alone [9]. Should it be based on this single data to evaluate and determine the place occupied by the river in the transport chain in France?

The answer is obviously no, river transport should be evaluated and analyzed as a whole. Each navigation basin develops its own commercial, technical and regulatory logic [1]. The analysis of this mode, in France, is of particular difficulty due to the specific dynamics of each navigation basin and the divergent performance. It is, in this highly sensitive context that broaden the analysis of the single transport economy, putting the issue of establishment of a mode of transport such as inland waterways in the French economy: what added value?

2 A GEOGRAPHICALLY LIMITED RIVER SYSTEM...

The waterway network is built around independent wide-gauge tracks of each other and interconnected by secondary roads accessible only Freycinet barges. France has two types of networks, network magistrate entrusted to VNF (Voies Navigables de France) and one regional network transferable to a local authority or a group of local authorities. IWT's performance is related to the presence and network characteristics. Indeed, the French waterway network is divided into navigation basins that lack of interconnection between them and are very heterogeneous templates.

In a difficult economic climate, river transport of goods on the Seine basin recorded a strong performance in 2009 with 22 million tonnes transported (+ 0.7%) and 3.92 billion tonne-kilometers performed (+ 2.5%).

In 2015, the traffic resist appears stable at 3,87 billion t-km (-4.2% compared to 2014). The basin of the Seine, with nearly 600 km of wide gauge tracks accounted for nearly 40% of the national river traffic in tonnes and 50% in tonne-km [4].

As is the distribution of traffic by type of goods, the following table shows the nature of goods transported on the basin of the Seine-Oise and its evolution between 2014 and 2015:

Tab 1 Distribution of traffic by type of goods

Type of goods	Tonnage by millions		T-km by millions	
	2015	Evolution 2014-2015	2015	Evolution 2014-2015
Agricultural products	3.89	+ 8.1%	1 167.58	+ 12.9%
Foodstuffs	0.54	+ 3.2%	181.11	+ 7.4%
Mineral fuels	0.48	- 29.4%	138.3	- 33%
Petroleum products	1.31	+52.2%	104.92	+ 56.4%
Minerals and waste	0.64	+2.8%	106.6	-8.9%
Metallurgy products	0.66	+4.6%	204.51	+5.5%
Construction materials	10.98	-4.3%	1 494.48	-10.3%
Fertilizer	0.28	- 5.6%	69.1	-6%
Chemical products	0.21	-74.8%	30.78	-65.4%
Vehicles and various (containers)	1.76	- 8.9%	377.52	-12.3%
Total	20.75	- 3.3%	3 874.89	-4.2%

Source: Interregional direction of the Seine basin

In summary, this axis covers over 20% of the national population. It is a central high value added in inland waterway transport. Construction of the Seine-Nord Europe Canal will

strengthen its position on the national level and enhance its large gauge. An ambitious policy of modernization of the fleet on this axis is to be conducted by public authorities who aim to allow the captive fleet to gain the countries of Northern Europe and to improve the competitiveness of inland shipping and boatmen.

Furthermore, the Rhône - Saône is the most dynamic navigation basins and is based on logic of opening on the Mediterranean. The European map of inland waterways highlights the tremendous way exchanges that could be the Rhône-Saône route from the heart of Europe and the Mediterranean and also Asia. Although the river has significant spare capacity, and despite the development policy of the port facilities in place, the development of river traffic in the Rhone-Saone basin must adapt to meet the particularly strong growth in demand for transport. The Rhône-Saône basin will meet in the future three major challenges: demand for boatmen increasingly important, the necessary adaptation of the shim to meet the specific needs of diverse goods, and finally as any other mode, the basin will cope with rising traffic volumes.

Through this more or less exhaustive analysis of the Rhone-Saone basin, it is appropriate to question about the actions that it will take to accommodate the rapid growth of traffic in the basin at the 2020. Therefore, to catch up the delay, several actions must be taken in particular in the development context and connection between the river and the sea and accelerating the interconnections with the Rhin: links Saône - Rhine and Saône - Moselle.

River transport on the Rhine occupies a market share of 42% in trade in the region with Germany and Benelux [1]. The Rhine has a diversified fleet, which is Europe's most modern. The river can accommodate 4 barge pushed convoys which may contain up to 12 000 t of goods, the equivalent of 600 trucks or 5 trains [17].

The following graph shows the evolution of freight traffic on the river routes in France since 2000 and shows the supremacy of the Seine basin and an inequitable distribution of traffic.

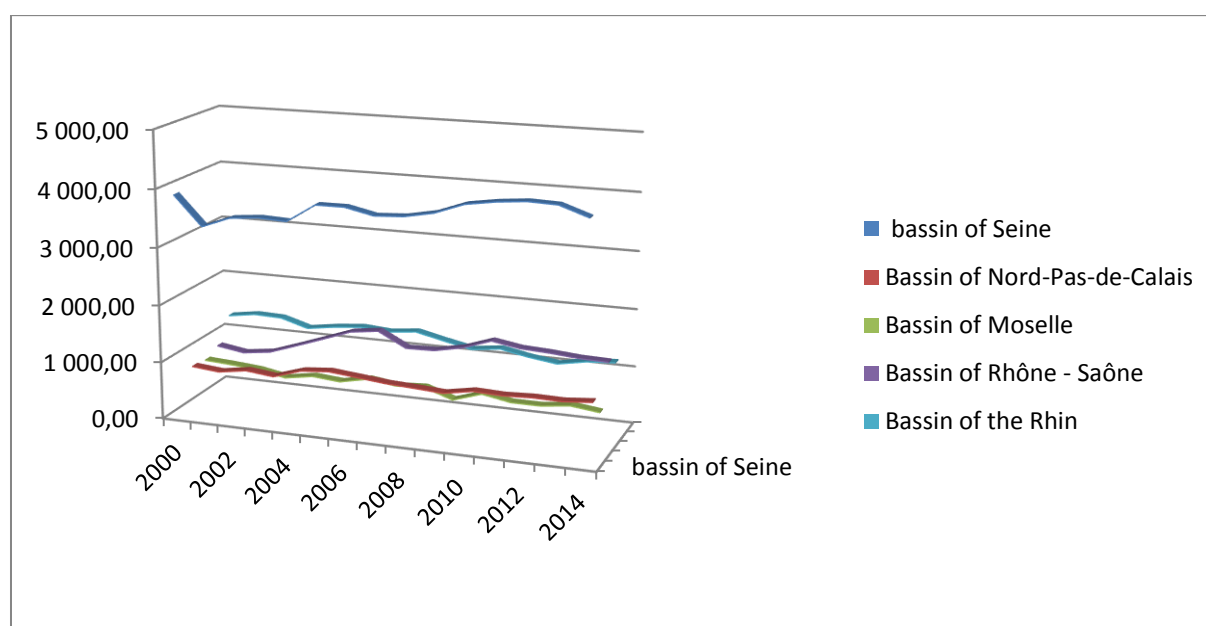


Fig. 1 Evolution of traffic in all axis since 2000

In all presented basins, there is the Freycinet network representing over 60% of the French network. This network plays an extremely important role as it allows to connect the five major basins, including the basin of the Seine and the Rhone, the Seine basin to the Rhine and its tributary the Moselle, the basin of the Seine to the Loire, the Rhone basin to the Rhine and its tributary Moselle. Freycinet network is essential and must be included in any development strategy waterways. However, the network is also a handicap to the expansion of international trade by lack of maintenance, lack of depth guarantee that allows the high-capacity boat passage and also insufficient headroom limiting load boats. Indeed, this lack of coherence and interconnection between the basins is a major geographical boundary which has obvious consequences on the ground. But this geographical limitation necessarily results in a limitation of the traffic generated and calls to the question on the place of inland waterway in transport economy in France.

3 ... IN A FRENCH TRANSPORTATION SYSTEM DOMINATED BY ROAD...

Transport economics is characterized by the dominance of road transport, the statistics prove it. The analysis will focus on the response to two major questions:

- How to explain the dominance of road transport in the transport system?
- What is the place of river transport in this economy? And what are the actions that can be taken to extend and expand its place in this economy? And the contribution of the five basins listed above in the development of this mode?

Despite a real trend to better integration of modes, intermodal being even became a theme of transport policy [8], road transport is the heart of the transport sector and plays a dominant role in the entire cargo system.

The inland freight transport (excluding pipelines) increased regularly since the eighties until 2007. After the fall of 2008 and 2009, it remains broadly at its level of the end for ninety years. With 328.5 billion T-kilometers, he was down in 2014 (- 1.0%).

The inland freight transport is mainly carried by road. The share of non-road modes dropped sharply over the past two decades due to the sharp reduction of rail transport; excluding pipelines, it increased from 19% t-km inland in 1995 and 2000 to 12% in 2014 (table2).

Tab. 2 Evolution of modal split between 2000 and 2014

In Billion T-km	2000	2005	2010	2014
Rail	57.7	40.7	30	32.2
Road	277.4	315	301.2	288.5
Waterway	7.3	7.9	8.1	7.8
Domestic transportation without pipelines	342.3	363.6	339.2	328.5
Pipelines	21.7	20.9	17.6	11.6
Total	364	384.5	356.8	339.6

Source: SOeS

These statistics illustrate perfectly the dominance of road transport especially in short supply. The analysis of the factors behind this profound inequality of traffic and modal split is much more delicate and can be challenged by the agents representatives road dominant fashion. Indeed, the conditions of intermodal competition are not fair, for example, investments in transport infrastructure are distributed as follows: 66.31% (12.6 billion) of transport investments in 2009 are dedicated to road transport, while the river transport has received 200 million euros (1.05% of investments) [15]. This disparity in the distribution of investments to different modes has a direct impact on the factors of modal choice especially in terms of the provision of transport performance.

This may lead us to say that this dominance of road transport especially in short distances is the result of geographical constraints preclude the existence or absence of infrastructure other land modes (rail and waterway) in some parts of France.

4 ...WHOSE RIVER POTENTIAL IS UNDEREXPLOITED.

We have seen that the transport sector is an area where the road has the majority of flows of goods but fell by traffic during the last years. Thus, the growing problems of saturation of roads and railways, to transport safety, the environment and energy savings require a more pro-development and better use of the transport potential by waterway including improving its competitiveness.

To achieve this goal, it is necessary to assert and make known all the potentialities that are unique to the waterways [7]. In addition to the considerable potential of traffic entering the heart of the largest cities, inland waterway transport is the mode of transport that brings economic gains and environmental benefits, which meets the expectations of society, which offers the best environmental performance and finally constitutes an opportunity for urban renewal policies of urban territories.

The reliability of river transport, punctuality, its massiveness, its ecological and economic character, but also its ability to meet massive demand, able (only with the railway) to cope with the exponential growth of trade and serve the objectives Kyoto and the Grenelle environment, mean that we can say that water transport is an economic mode, safe, environmentally friendly and "just in the right time".

If the cost is considered the main advantage of river transport and the main motivator to resort to the waterway, inland waterway transport appears as a huge fashion in terms of energy compared to road. A river convoy generates four times less CO₂ than a truck while being more efficient than road or train in terms of oil equivalent consumed per tonne transported. In addition, river transport emits on average 2.6 times less greenhouse gas emissions than road transport due to the low consumption of river boats. So the shift towards river transport can limit pollution caused by road freight transport in terms of air and noise pollution, gas emissions of greenhouse gases, or risk of accidents.

For several years, there has been a renewed interest in river transport, the development potential is considerable. The road is saturated and the rail having great difficulties to increase its cargo capacity, the waterway appears increasingly as the way forward. A strategy for development of inland waterway transport in France in coordination with the strategy adopted by the European Union is necessary. Inland waterway transport has non-specific aid in this mode such as aid under the Marco Polo program granted to combined transport. It can also

benefit from specific assistance at various levels: aid to outlets, modernization aid and aid for energy saving [16].

The IWT development strategy adopted by the State and VNF has certainly paid off through the spectacular evolution of river traffic and the power of river transport to withstand the crisis. In addition, the funds assigned to the waterways are limited and do not in any way to maintain a satisfactory level of development, as is the case today.

5 CONCLUSION

The limited place occupied by the waterway in the transport system in France is the consequence of the delay of public action for the development of inland waterway transport. Many studies have shown the interest of improving massified modes environmentally friendly in the future. More generally, it should develop and promote inland waterway transport, very late in France compared to European neighbors, with industrial and funding agencies to obtain traffic and resource commitments for fleet renewal. Promote the emergence of integrated multimodal transport chains including river transport, is also an important and necessary development of the waterway. it is desirable to examine the conditions of development of the "river-sea".

It is advisable to note that the strategy may not be fully effective only with the integration of France in Europe through a common transport strategy in environmental and regulatory terms and specifically in the framework deemed alternative to the road. It is essential to highlight the prerequisites analysis of this integration of the French transport policy in European politics especially in terms of modal shift and river transport more precisely.

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