

Reconnecting the river and the metropolis

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Introduction

Is reconnecting the river and the metropolis possible for freight transport, which involves major international flows, carried by water-borne transport up to the last few kilometres, where urban logistics takes over? This paper proposes some possibilities.

Drawing lessons from the rise of containerized traffic on the river Seine

It is interesting to draw some lessons from the rise of containerized traffic on the river Seine, between the port of Le Havre and the Gennevilliers freight terminal. In principle, nothing favoured waterborne transport on this route: compared with direct road transport from the maritime terminal to the end destination, water transport is slow, a problem which is accentuated by the meanders of the Seine. In addition, it is necessary to break the bulk several times and a journey by road is necessary for the last few kilometres from the inland terminal to the end destination. However, since the early years 2000, traffic has been constantly on the increase. This success is explained by the coming together of several conditions which are necessary for the development of this type of transport (Frémont et alii, 2009, 2010). The shipper must offer a door-to-door service, from the port to the warehouse. This means that a transport operator must coordinate all the links and the players in the transport chain (port handling, river transport, handling at the inland terminal, pre-and post-routing by road). This combined transport service is put in place by transport integrators, for example firms such as Logiseine and RSC (River Shuttle Container).

The door-to-door price must be between 10 and 20% lower than the price by road so as to create leverage in favour of combined transport. This lower price can be obtained by consolidating loads on the waterways. Convoys consisting of two barges, each carrying 192 TEUs are possible on the Seine. Everything which tends to increase the cost of land transport, in particular road transport, such as an increase in the price of diesel fuel, a shortage of supply or strengthening of social security legislation, gives a comparative advantage to consolidated transport and, conversely, any reduction in the price of road transport, for example due to an economic crisis, is extremely unfavourable to it.

The frequency of waterway services must be sufficient, and they must be as reliable as road transport, or more so. It is not so much the transport time that counts as the possibility of fitting freight flows into just-in-time production and/or distribution rhythms. Journey time and the time taken to park the containers at the inland terminal give an additional margin for adjusting delivery times.

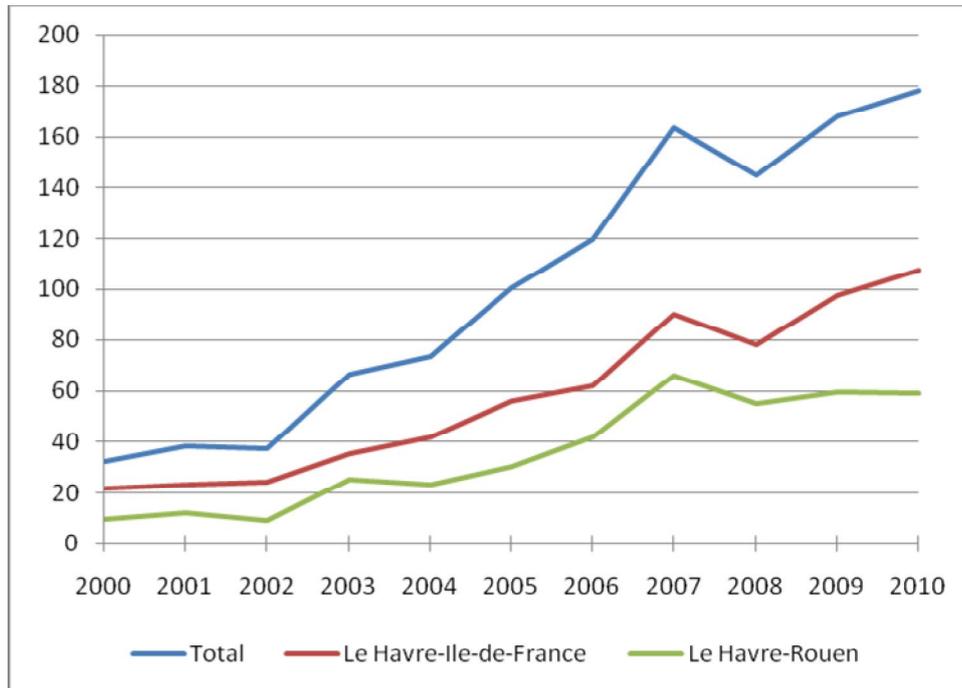
It is also possible to find innovative advantages, such as performing customs clearance of the freight at the river port or even in the warehouses rather than at the sea port. This makes it possible for the shipper to make considerable cash savings. Last, waterborne transport allows shippers and/or transport undertakings to link their corporate name with the concept of sustainable development in the mind of consumers.

The large shipping companies have played a decisive role in the development of containerized river traffic as it was in their interest to do so: transporting containers between Le Havre and the Paris Region, which is the richest hinterland and the nearest to the sea port, so as to fill their very large vessels, reducing the cost of terrestrial transport through the consolidation of hinterland flows in order to increase their market share, which leads to virtuous competition, with each party imitating the other.

The interests of the shipping lines were matched by those of the very large shippers from the mass retail sector. Surveys conducted by the IAU-IF in 2007, 2008 and 2009 at the Gennevilliers and Bonneuil-sur-Marne terminals show that more than 80% of the traffic is from about ten shippers which supply their supermarkets with products from East Asia (Ropital, 2008). These surveys also reveal that the main destination of containers when they leave Gennevilliers is towards the warehouses of these major shippers, which are principally located in the département of Seine-et-Marne which alone accounts for more than half of the full containers (Figure 5). Very long pre- and post-routing by road, 50 kilometres and over, in dense urban zones, is necessary to reach the zones of Sénart and Evry for example from the Gennevilliers terminal. The port of Bonneuil-sur-Marne, which is much better located to serve the East and South of the Ile-de-France, is very little used because the passage through Paris limits the vertical clearance of convoys to the height of two containers, which means that expensive reorganization of the convoys must be conducted at Gennevilliers.

The economic and environmental paradox is complete, as river transport takes place where there is no major congestion problem between Le Havre and the outskirts of Paris, while road transport is necessary in order to cover the last few kilometres within the dense urban area. It also shows that the savings that result from freight consolidation in waterborne transport must be very great if such costly pre- and post-routing by road can be sustained while remaining competitive to direct road transport between Le Havre and the Paris Region. Consequently, combined river-road transport as it is currently organized is also very highly dependent on the spatial disconnection between the river and the metropolis. Under these conditions, in spite of its success, its share must inevitably remain marginal.

Figure 1. Containerized traffic on the la Seine, in thousand TEU (Twenty Foot Equivalent Unit containers)



Source : Voie Navigable de France

Reconnecting the river to metropolitan logistics

Reconnecting the river to metropolitan logistics can be considered at a number of different scales. The first is that of corridors that link the metropolis with the major maritime gateways. These corridors differ completely from the highly deconsolidated nature of road transport. Containerized traffic on the Seine, and even more on the Rhine, provide examples of such corridors. The river routes provide exceptional consolidation, even over short distances.

More complex, and at a more local scale, is the reconnection to the urban area, to move towards the fourth stage of logistical development (Figure 2, 4th stage of logistical development). To achieve this, it is necessary to develop a consolidation/dispersion system for freight flows that is based on the river and which provides a credible alternative to the road. This system cannot be limited to the current market niches and can only become genuinely metropolitan if it also includes manufactured goods and foodstuffs. Apart from the conditions that are apparent in the case of containers, some possibilities may be identified on the basis of the following observation. In the case of combined river-road transport, the only two variables that it is possible to adjust to reduce costs are the size of the river convoys – the larger the convoy, the lower the unit cost for transported goods – and the optimization of pre- and post-routing from the inland terminal in order to minimize the cost of road transport, the

most radical solution being to avoid road transport completely by locating warehouses beside the river.

A very few (one or two) very large terminals in Ile-de-France could provide a waterway and railway hub and offer logistical services from large warehouses. These major terminals would play a national and European role as they would be connected to European freight routes by the dense network of rail and waterway routes. They would be able to redistribute freight at international, regional and local levels, down to the urban distribution scale via secondary terminals. Creating them will require large reserves of land. The existing sites, a vestige of the Industrial Revolution, of Gennevilliers and Bonneuil-sur-Marne for waterborne transport or the rail marshalling yards of Valenton and Le Bourget, are doubtless too small and too integrated within the urban tissue to take on this role. They must of course be kept, with a more regional freight flow management role with good connections to the small number of higher level terminals. The latter will no doubt have to be located in the periphery on the grounds of land availability. Paradoxically, in order to respond to road sprawl, it is necessary for road-rail terminals to move further out from the centre.

There remain the last few kilometres of transport, which put goods on the shelves. The river can still play a role here, as it does for construction materials as very often it passes through the entire urban area. The details of such “urban river” logistics are still largely to be invented, in spite of some experiments in the Netherlands and Paris. It will require innovation in order to load and unload boats containing pallets in dense urban areas, by alternating the use of quays at different times of the day between pedestrians or a freight handling activity, as is done currently by *Ports de Paris* at the Tolbiac site for construction traffic. It will also make it necessary to contain urban pressure on the river at a time when it is becoming extremely attractive.

Figure 2. Towards a reconnection between the river and the city?

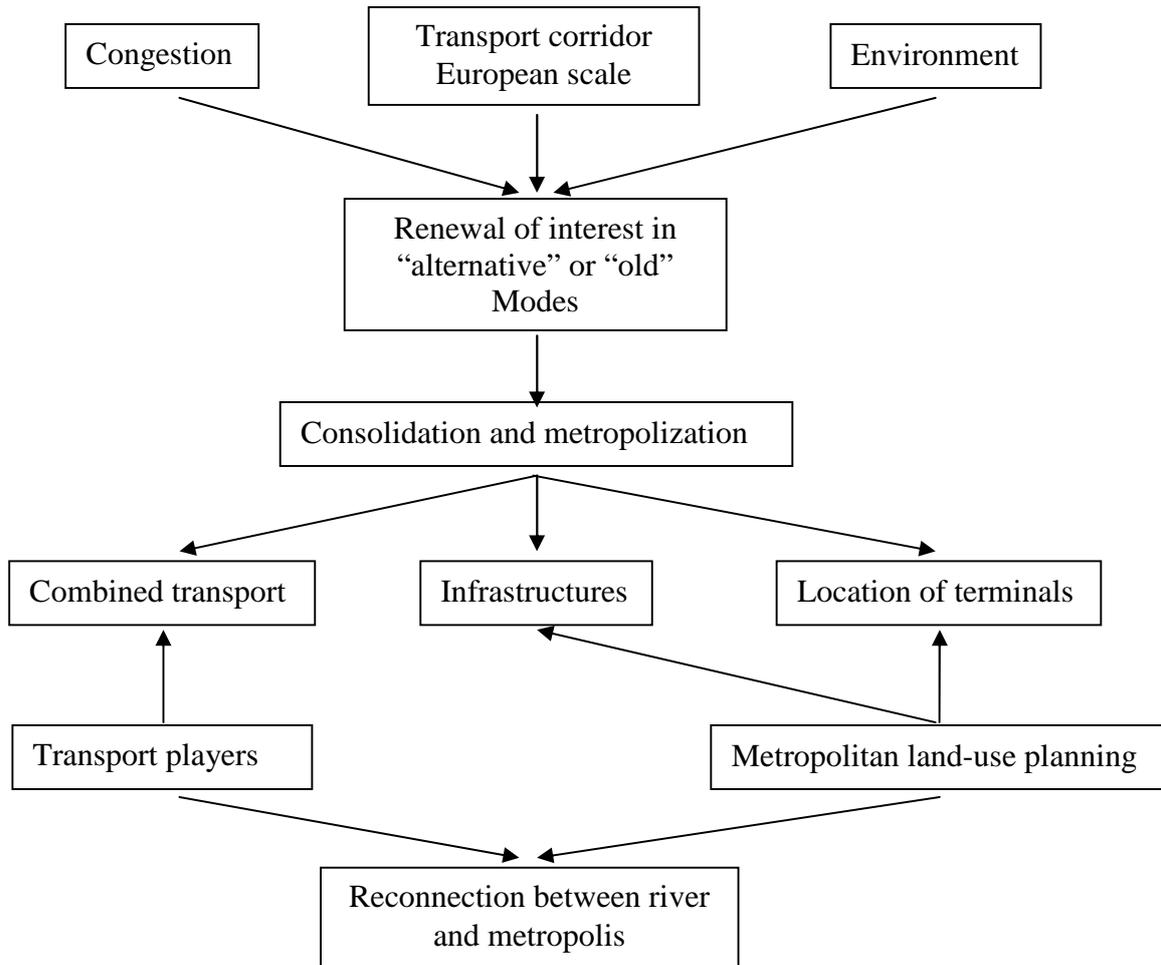
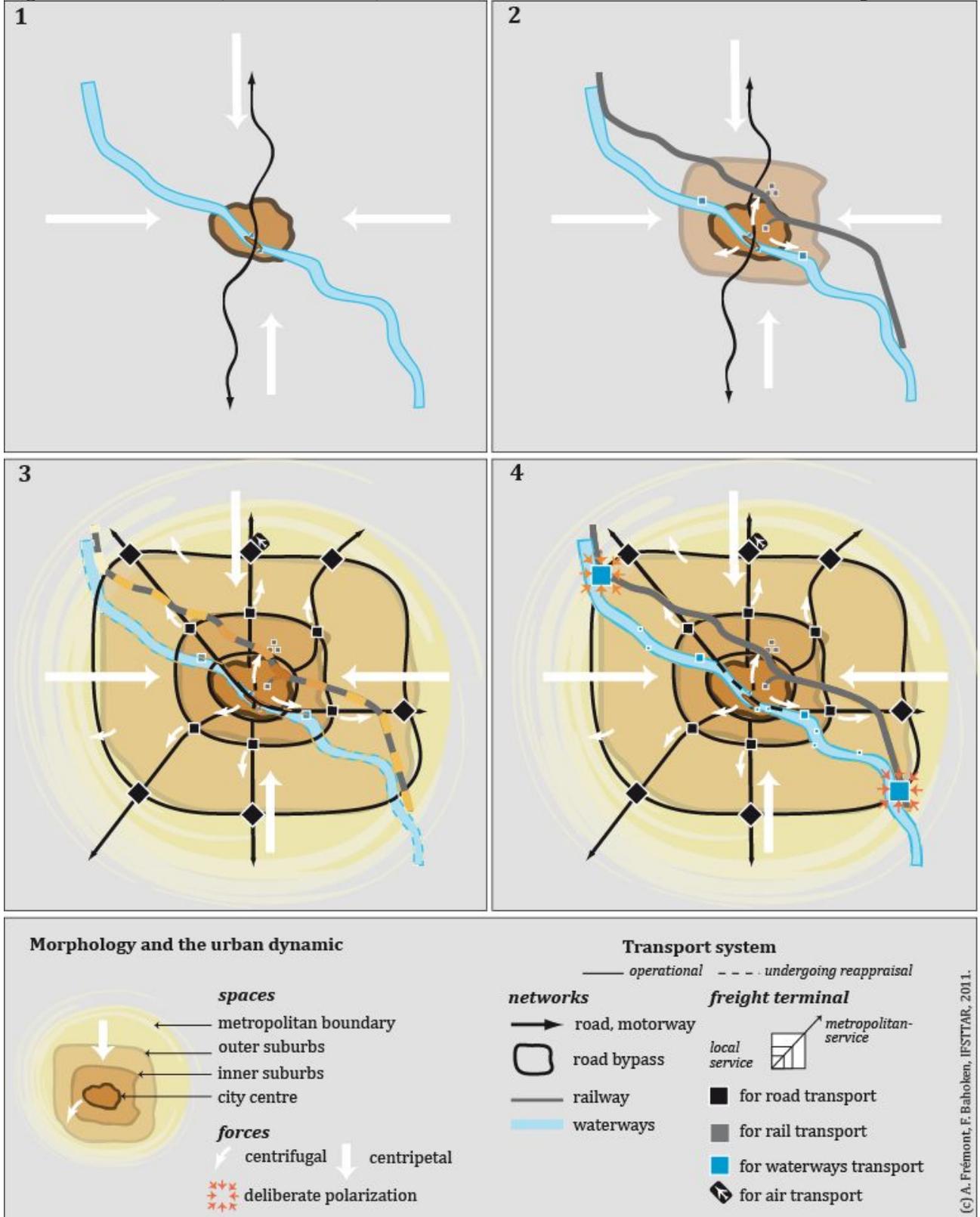


Figure 3. Connection, disconnection, reconnection between the river and the metropolis



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**A comparative study of Paris, Lyon, Lille and Strasbourg with international comparisons.
(2010/2013)**



The urban areas of Paris, Lyon, Lille and Strasbourg each have at least one river port. Can these ports provide a sustainable transport solution to bring freight into their urban areas, as part of the chain that extends from major international flows to urban distribution?

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