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Urban Logistics by Rail and Waterways in France and Japan

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Abstract

This article aims to identify some commonalities and differences in intermodal freight in France and Japan, focusing on urban zones. This comparison puts into perspective two spatial situations linked with land pressure. It helps us identify opportunities for knowledge transfer of best practices for the promotion of modal shift and for land use and planning policies that favor intermodal freight. Research works have been carried out on intermodal logistic policies at national scales. However, in urban areas, the use of intermodal services has specific characteristics. Intermodal services are difficult to implement for last mile deliveries, as waterways and railways are used for high volume flows. Nevertheless, during the last decade, an increasing number of projects including intermodal services for the "mile before last" have been set up.

Keywords: Rail; waterways; intermodal logistics; urban freight; city logistics

1. Introduction

Improving logistics performance both in Japanese and French metropolitan areas is necessary because of the large concentration of population and activities is within a constrained geographical area. In city centres, the large

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amount of coexisting activities leads to many urban freight transport problems including high levels of congestion, environmental impacts, energy consumption and labor shortage.

This article aims at identifying some commonalities and differences in non-road freight transportation operations in France and Japan, focusing on urban areas. This comparison shows that cities in both countries face land pressure. It helps us identify opportunities for knowledge and best practice transfer, in particular for the promotion of modal shift and land use public policies for intermodal freight. Research has been carried out on intermodal logistics policies at national scales. However, in urban areas, the issue of intermodal services is specific. Intermodal services are difficult to implement for last mile deliveries, as waterways and railways are used for high volume flows. However, some experiments in intermodal services for the "mile before last" have been implemented in recent years.

In the global supply chain, rail, shipping and trucking compete, but they are also partners in door-to-door intermodal operations (Horn & Nemoto, 2005). Due to the dominant modal share of the road, which carries 90% of the goods in Paris as well as in Tokyo (in tons), optimizing road transport is at least as important as finding long-lasting and economically viable solutions for railroad, river or maritime services. Modal shift remains nevertheless an interesting option to contribute to environmental objectives, even for local and regional operations.

Private companies do not change their practices as quickly as necessitated by environmental challenges, therefore a public policy for intermodal freight may be necessary. This article looks at some examples of railway and waterway transport services and considers their impacts as well as the need for public investment. Another key element of public policy promoting modal shift is a successful land use policy reserving land for logistics. Transport optimisation has a spatial dimension, as the siting of warehouses and distribution centres directly impacts metropolitan truck traffic (Dablanc & Rakotonarivo, 2010).

Part one of this article focuses on intermodal freight examples in urban areas in France and Japan. Part two looks at public subsidies and other potential forms of public support for developing intermodal freight services. Part three underlines the need for preserving land for intermodal logistics in urban areas.

2. Intermodal Freight Transport in Urban Areas in Japan and France

2.1. Data on multimodal freight in France and Japan

Intermodal transport involves the use of at least two different modes of transport in an integrated manner in a door-to-door transport chain (OECD, 2002). In most cases, it involves the transport of containers, swap-bodies or trailers switching from rail or water to trucks in a single route. Intermodal transport is similar to multimodal transport but puts more emphasis on the connectivity of different transport modes.

For domestic freight in Japan, intermodal transport has often been discussed in relation to the use of railways and roads as well as coastal shipping and roads (Taniguchi & Nemoto, 2008). Coastal shipping, contrary to rail, has kept a very important role in the transportation of goods. Owing to the country's geographical situation, water and sea transportation make up an important share of freight transportation, most of which is not intermodal (Nemoto, Browne, Visser & Castro, 2006). The modal share of coastal shipping increased from 39% in 1950 to 51% in 1975 before declining to 41% in 1999 and 36% in 2006 (in ton-kms). Rail freight decreased dramatically. It represented 52% in 1950 and only 4% in 1999. Since then, its share has remained stable.

In France, trucking is dominant. Rail used to play a significant role but does not anymore. Waterways play a very minor, but stable, role (Fig. 1).

In Japan, long distance rail freight is a healthy niche market. It is used especially for paper, chemicals, other industrial products and foodstuffs. Containers represent two-thirds of the transported goods (in tons). Intermodal rail transport in Japan mostly uses 12-ft containers standardized by Japan Railway.

In France, freight transport by rail has dramatically declined, remaining strong only for some products such as chemicals and raw materials. Intermodal traffic (containers) is not much developed. Many freight stations for single car traffic have been closed.

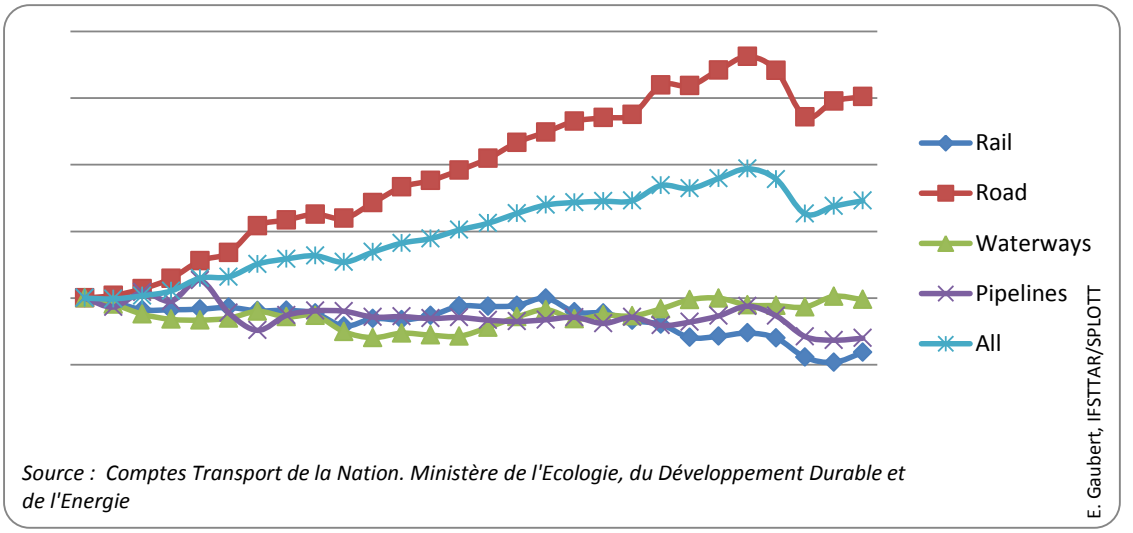

Fig. 1. Evolution of transport modes, France, 1984-2011, base 100 in 1984 (ton-kilometers)

2.2. Examples of intermodal freight transport services in urban areas in Japan and France

2.2.1. Railway city logistics

Here are two examples of rail services for freight in Japan.

Kawasaki City, located south-west of Tokyo, initiated the transport of waste materials using railways in 1995. Waste generated in the fast-growing northern part of the city needed to be carried to Ukishima waste disposing centre at the southern coastal area of the city with an important disposing capacity (900 tons/day). An opportunity for a rail operation emerged as a railway line already connected the northern and southern areas of the city and a freight railway station was located near the Ukishima waste disposal centre. Kawasaki City then planned rail freight transport of waste materials using the main railway line, even though the distance between the two railway stations is only 23 km. Trains carry regular residential waste, large residential waste, incinerated ashes, cans and bottles in containers. Specific containers were developed.

Incinerated ashes were transported by trucks before the rail system was introduced. The number of trucks used for carrying incinerated ashes through the new intermodal operation was reduced to 7 from 14 when using trucking exclusively. A substantial reduction in hazardous gas emissions was achieved. Intermodal freight transport systems are competitive in general for long distance transport over 500 km. However, in the Kawasaki case, the distance using railways is only 23 km.

Reasons of its success are:

a) the railway was existing and was ideally located for the project,
b) the scheme could benefit from subsidies from the Ministry of Environment for the initial investment, and
c) Japan Railway Freight Company was eager to increase activities in its freight stations.

Since mid 2011, a freight transport service by light rail has been initiated by the parcels transport company Yamato from the centre of Kyoto to Arashiyama, a tourist area located 10 km to the west. Traffic congestion around Arashiyama during the autumn season and other peak tourism times is intense. The service uses the Keifuku Electric Railroad, an existing line opened in 1910 and previously used only for passenger transport. It runs once a day in the morning before the busy hour for passengers. The wagons have not been modified and the parcels

are accompanied by one or two persons from Yamato. From Arashiyama station, parcels are delivered by electric bicycles.

In France, new rail services have been implemented in recent years. In Paris, since 2007, 90 Monoprix shops, a retail group with strongholds in urban areas, are being supplied by rail. The operator is Samada, the in-house logistics service provider of Monoprix. From a large distribution centre located 30 km south of Paris in Combs-la-Ville, a train of 16 to 18 cars is sent every evening from Monday to Friday to a renovated rail terminal located inside Paris, very close to the city centre. CNG trucks are used for the final distribution of pallets to the stores. This operation resulted in higher transportation costs but a reduced impact in terms of CO_2.

Fig. 2. Monoprix Samada rail terminal (Paris) (Source: Samada)

A new rail terminal is currently being built in Paris, by Sogaris, a real estate operator specializing in urban logistics. The railway site is Chapelle International, in the 18th arrondissement of Paris. The terminal will have two levels (of 15,000 m² each) and will include areas for logistics operations, assistance and office activities, as well as a research centre for logistics. The project includes a business incubator. On top of the logistics terminal, there will be public facilities such as a school, a sports arena and a community centre. Financial support from the Municipality is expected for this part of the project.

This logistics project is integrated into a global urban planning framework led by the City of Paris. It represents a test to demonstrate that logistics can operate within cities. The building is due to open in 2014.

Fig. 3. Two architect renderings of Chapelle International Project (Source: courtesy of Sogaris)

In the South-West of France near Bordeaux, another short distance rail operation is proving rather successful. The national road (RN) 215 is very congested. As it is the main access to the container terminal of Le Verdon, a rail shuttle has been implemented, over a 80 km distance, benefitting from subsidies from several public authorities, especially the Aquitaine Region which awarded more than 600,000 euros. As the railway infrastructure already exists, very few improvements are necessary. The subsidies are being used for the operation of the line. They also contributed to buying the rolling stock.

2.2.2. Waterway logistics in Japan and France

In Japan, coastal shipping has long been a very important means of domestic freight transport. Nonetheless, its share has decreased over time, representing one third of ton-kms today. Maritime transport specializes in bulk products such as oil, cement, and iron. General cargo is a small part of coastal shipping, though its share is increasing. The government is trying to promote maritime transport for general cargo and containers.

Small traditional operators dominate the market. There are very few newcomers, as the initial investment in ships is costly. The government gives an Eco-Ship Mark (a sort of certification) to shippers that move from road to maritime transport. Subsidies are also available. The use of barges within the Tokyo Bay is also promoted, to alleviate regional road congestion. Plans to use fast ships have not yet been fully implemented due to cost issues.

In France, waterways had been losing market shares since the 1970s. However, against many predictions, barge transport has proved, during the last decade, that it could meet the growing market shares and increased tonnages even in times of economic difficulties. Between 1997 and 2010, waterway traffic in France registered a 30% growth. In 2009, about 60 million tons have been transported on the domestic river system. This recent growth was experienced for both "historic" commodities such as cereal crops (+ 70%) or chemistry (+ 27%), and more recent ones such as containers.

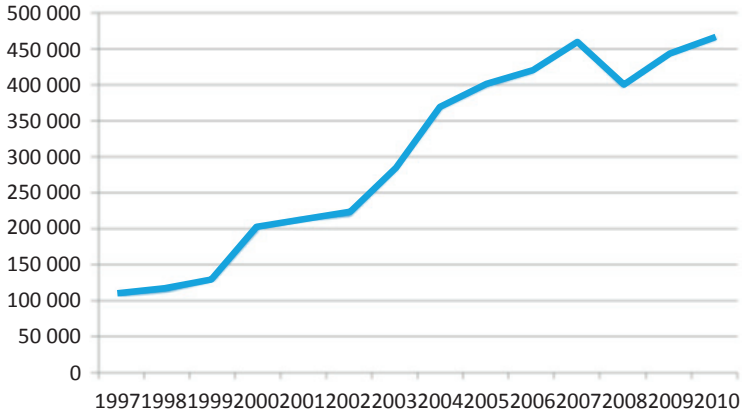

Fig. 4. Evolution of container traffic on French rivers (number of TEUs) (Source: Voies Navigables de France)

In Lyon, the Port of Lyon, located very close to the city centre has a capacity of at least 300,000 TEUs per year. The traffic in 2012 was only 80,000 TEUs, so there is an additional capacity of 220,000 per year. This is also true for other waterways in the country.

2.2.3. Short haul waterway logistics in Japan and France

Inland river shipping used to be dominant for freight transport in urban areas before railways became popular in the 19th century in Japan. Inland river shipping has declined with the development of railways and roads. At the moment, just a small amount of oil, gravel and waste materials are carried by barges and small tankers.

A good example of an intermodal initiative involving inland waterway transport can be seen in the transport of gasoline by small tankers from Kawasaki City, Kanagawa Prefecture to Wako City, Saitama Prefecture via Arakawa River. Wako City is located 31 km upstream from the mouth of Arakawa River. Tanker capacity is about 500 kilolitres. It leaves the oil refinery of Kawasaki City early in the morning (at 3 am) and arrives at a quay in Wako City at 7-8 am. The gasoline is brought to a terminal from the quay by pipeline and then distributed to gas stations by tank lorries to Saitama Prefecture and the northern part of Tokyo.

Another example, supported by the Tokyo Metropolitan Government, is the transport of waste materials by barges from five waste material collection points via Arakawa River and its branch rivers. Two types of transport, bulk and container, are operated.

In France, several services of riverway urban logistic services have emerged these past two years. In October 2010, a barge transporting bulky waste and recycled goods on 20 km in the western part of the Paris region (Hauts-de-Seine department) was inaugurated. Residents from 16 municipalities can benefit from this new and free service. For one or two days, the barge docks at a fixed point. People can bring waste such as wood, electronics, plastics and metals. In 2011, the barge transported almost 300,000 tons of various materials. The reduction in emissions was estimated to be 30% compared to transport by road.

In 2011, the Compagnie Fluviale de Transport, the main riverway operator in France (650 employees and 240 boats) evacuated debris and stones from the Croix Rousse Tunnel works in the centre of Lyon by barge.

This operation can best be understood with some figures:

- The barges carried a total of 6,000 tons/week, i.e. the equivalent of 500 to 600 movements of trucks.
- This represented one loading operation (2,000 tons) everyday, during six hours, three times a week.
- The transport required three hours of navigation including passing a very technical floodgate (Pierre Bénite), unloading the next day in Chasse-sur-Rhône, then navigating back to Lyon.
- The operation led to a reduction of CO_2 emissions, with emissions four times lower than if it had been done by road (a saving of 10,000 litres of gasoline per week, i.e. a total of 400,000 litres during the lifespan of the works).

Since mid 2012, a “warehouse barge” called Vokoli circulates on the Seine river with a fleet of electrically assisted delivery cargocycles on board (see photo below) in order to deliver small and middle-sized parcels up to 10 kg. A delivery service has been initiated in November 2011 to serve various customers in Paris. The floating logistics barge improved the performance of the service. The barge is a Freycinet model, built in 1953 and fully reorganized for transporting not only parcels but also the fully loaded delivery tricycles. Ten stop points (docks) have been set up along the Seine. In every stopover, the electric cargocycles leave the deck. About 4,000 parcels are delivered every day. The main clients of this service are: Raja (office supplies), Wala (cosmetics), Sanofi Aventis (pharmaceuticals), Muji and, more recently, Okaidi, a brand of clothes for children.

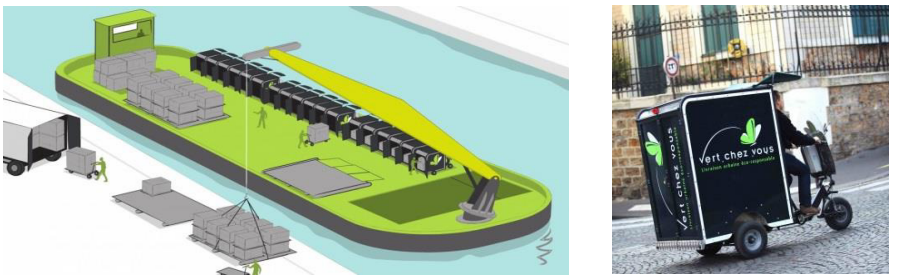

Fig. 5. Vokoli barge on the Seine river and Vokoli cargocycle in a Paris street (Source: courtesy of Vokoli)

Since September 2012, Franprix (an important retailer for grocery products) has been delivering to 80 stores located in Paris by waterway. Final deliveries are made by the transport company Norbert Dentressangle using regular diesel trucks.

A total of 26 containers and 450 pallets are forwarded every day by barge from the port of Bonneuil-sur-Marne to the port of La Bourdonnais, very close to the Eiffel Tower. The distance between these two ports is 20 km. When the service reaches full volume (48 containers daily are expected to be transloaded), it is estimated that 450,000 km made by road every year will be avoided. The CO_2 emissions reduction is estimated at 37%.

Waterway transport has received attention in terms of alleviating road congestion, reducing negative impacts on the environment and, in Japan, as an alternative mode in case of emergency or disaster. However, there are several challenges associated to an urban freight waterway project:

- Total costs including transshipment

- Technical capacity suitable for shipping: depth of water, clearance under bridges and width at gate
- Level of reliability of barge transport due to natural conditions (typhoons in Japan and floods in France)
- Urban insertion of facilities (docks and storage).

These examples show that transporting waste materials and construction materials by waterway can be a good solution, compared with road transport, from an environmental point of view. Waterway is a realistic option for urban freight transport, even over a short distance. Moreover, in Japan, inland shipping can be an alternative mode to road in emergency cases such as major earthquakes. Therefore, there may be a need to build loading/unloading facilities along rivers for emergency cases. In France, using the waterway for manufactured products and foodstuffs has proved innovative and does open new perspectives for urban logistics. However, it remains costly.

We do not have any financial data allowing for an analysis of the business model of these services, compared to road services. According to interviews and what the stakeholders of these experiments have been saying in the press, the main objectives of the clients of these services are to:

- Communicate on a contribution towards environmental preservation,
- Gain experience in intermodal operations and achieve a competitive advantage for the years to come, and
- Avoid congestion.

In many large metropolitan areas in France, road networks are increasingly congested, meaning lost time and decreased productivity for carriers. As road congestion becomes more and more severe in the Paris region, we are observing a renewed interest from shippers, carriers and logistics providers for sites less remote from the heart of the urban core (Diziain, Ripert & Dablanc, 2012). There is also a new interest in non road transport, allowing direct access to Paris and thus avoiding the congested areas. Road network congestion actually represents an opportunity for developing non-road freight transport, including on short-distances, in France. As car traffic has increased on regional roads, the productivity of trucking companies has decreased over the last decades. Even if the cost of using several modes is high, in some cases productivity may be increased by using segments of railway or waterway transport. A truck pricing scheme starting in October 2013 for the use of most of the main roads in the country, may be an additional argument for modal shift.

In Japan, intermodal transport is still focused on long distance and on specific products. However, the examples shown above show that intermodal transport may be convenient when the infrastructure exists and when there is good road access to the rail terminals or ports.

Public authorities may have a key role in promoting modal shift through a comprehensive policy, associating spatial planning measures and subsidies for innovative experiments and for building infrastructure.

3. Public Support and Public-Private Partnerships for Intermodal Freight

3.1. European competition law sets strict boundaries for public subsidies

Since 2007 the European Commission has had a specific intermodal transport policy. The key elements of this policy are: investment in infrastructure (intermodal trans-european networks and intermodal transfer points), technology (intelligent transport systems and satellite based communication systems) and rules and standards (competition rules, work regulation, common pricing policies, interoperable systems and equipment). This policy focuses on long distance transport, however some of its features impact urban freight.

E.U. competition law considers that subsidies are unlawful when they affect texchange between member states of the European Union or when they distort competition by favoring certain companies or productions (art. 87 and 88(3) of the EC Treaty). However, some subsidies which do not exceed a certain amount, can be granted by member states without announcement or prior authorization from the European Commission. These subsidies are called “de minimis” (article 89 of the EC Treaty). De minimis support can be provided by a member state to a company because the amounts are minor. The maximum amount is 200,000 euros (100,000 euros for road transport companies) over a three fiscal year period. In the transport sector, de minimis support cannot be used for

purchasing trucks for long-distance services by third-party carriers. Vehicles for city delivery services can benefit from “de minimis” dispositions.

In 2009, the French Agency for the Environment (Ademe) designed a support program targeted towards « more environment-friendly transport ». For the transport of goods, the targets are the:

- Improvement of the environmental performance of carriers’ logistics organizations,
- Support of voluntary commitment initiatives for the reduction of CO_2 emissions,
- Development of successful city delivery services, and
- Support for modal shift projects.

Ademe also helps with the acquisition of vehicles for urban deliveries. It can grant a maximal help of 30% of overcosts (costs above the ones to buy an equivalent diesel truck) for the acquisition of an electric or CNG powered truck. It can support demonstration and dissemination projects as well as “exemplary” delivery services. This helps a company invest in high performance equipment needed to begin a new service.

3.1.1. Examples of subsidies for freight services in France

The French regions and municipalities as well as the national government can grant subsidies to support innovative and efficient practices of goods transport. The subsidies can go to public institutions as well as private companies.

Ports of Paris has received various grants to carry on studies assessing the potential benefits of river transport services for urban delivery. The subsidy rate is 45 to 50%. Ile-de-France Region (the Paris regional government) also co-finances with Ports of Paris and Réseau Ferré de France a study on a new technical solution for the transshipment from barges towards railway on a specific site that is divided by a highway that needs to be bypassed. In the same way, the preliminary studies made before the implementation of the Monoprix Samada railway service (see above) were financed mainly by the national administration and the Ile-de-France Region. The City of Paris paid for the renovation of the rail terminal.

In France, each of the twenty-two regions signed an investment contract with the State for financing transport infrastructures and other major investments. Such a contract has a duration of seven years. In many regions, these contracts identify investments for intermodal freight infrastructures. For the period 2007-2013, the Ile-de-France contract identifies 460 million euros for investment in intermodal freight infrastructures. For the Nord Pas de Calais Region, the contract includes 135 million euros for waterway infrastructures. In Bourgogne, 47 million euros are invested on improving freight navigation on the Yonne River. In Aquitaine, 40 million euros are exclusively dedicated to modal shift.

Intermodal rail/road transport has been, since the 1970s, an object of major concern for public authorities, which provided great assistance. The state grants operating subsidies based on the number of intermodal container units transhipped within a terminal. The national “axle tax” paid on the basis of the authorized loaded weight, is reduced for the vehicles carrying out pre or post-shipment carriage services within the framework of a rail/road service of transport. This is a rare case of operating subsidies legally authorized by European competition regulation. Subsidies for capital expenditures are easier to implement under European law, but they are more expensive.

In France, various types of support (other than subsidies) exist such as: acquisitions of holding shares in companies to promote efficient real estate strategies (example: Batixia Nord Pas de Calais, a regional investment structure), loans of honor (granted for instance by the association Entreprendre pour le Fluvial to young entrepreneurs, in order to acquire a barge), refundable advance (funds to make an R & D project, refunded in case of success of the project).

For urban intermodal services, additional support is needed due to additional costs, such as land acquisition, urban insertion and landscaping requirements that make prices much higher in urban areas than in non-urban areas. At the same time, volumes of goods may be lower, because urban customers often require small size shipments, which are not as consolidated as they are in non-urban areas (Dablanc, 2007). Subsidizing urban intermodal

transport services is critical to their success, especially in the early stages of their development. However, the European intermodal policy does not focus on cities, which need a specific approach. Specific strategies in terms of subsidies, incentives and other types of supporting policies could usefully contribute to help local and regional policies promote intermodal services in urban areas.

3.2. In Japan: very few public subsidies and incentives

The Japanese Government designed a "Comprehensive Program of Logistics Policies" (CPLP) in 1997 which has been revised over the years. It is a global policy, not only an intermodal policy, however many features address the modal shift challenges.

CPLP 2009-2013 has three objectives:

- To support an efficient global supply chain logistics,
- To achieve a low environmental impact of logistics, and
- To guarantee secure logistics.

The program proposes a wide range of improvements, including strategies related to ITS, to ports and airports and to reverse logistics. Regarding the urban section of freight transport, the program focuses on last mile deliveries and on avoiding congestion generated by truck deliveries and truck traffic.

In Japan there are few direct subsidies for freight logistics services. Urban distribution centres, such as Matenro Staff (Shinjuku district, Tokyo) and Motomachi (Yokohama) have been implemented without any public subsidy by purely private organizations. However, the Government has a subsidy program for dissemination projects: the Green Logistics Partnership Conference. It was established in April 2005 in order to promote logistics approaches where cargo owners and logistics businesses make joint efforts to reduce CO_2 emissions. The Ministry of Economy, Trade and Industry (METI), the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), Japan Institute of Logistics Systems, Japan Federation of Freight Industries and Nippon Keidanren are cooperating in the conference operations. The conference has over 3,100 companies and individuals as members at present. The program supports dissemination projects. Strategies for CO_2 emissions reduction are supported through partnerships between cargo owners and logistics businesses. Most of the supported projects focus on promoting a more rational use of energy through modal shift.

The Minister's special award in 2010 went to a project for modal shift: Makoto Yukata company. A consolidated transport scheme has been introduced in the supply chain, where a train replaces diesel trucks.

3.3. Pilot programs for traffic improvement

In Japan, there are also some examples of subsidies for pilot programs for traffic improvement, but not linked to intermodal transport. In, "Measures for dealing with urban logistics issues in Japan" (Okutani, Kono & Futamata, 2007), the way Japanese government policies promote more efficient and sustainable city logistics is explained. This policy is mostly oriented towards subsidizing pilot programs, with a strong focus on the management of loading/unloading and parking spaces, both on-street and off-street.

4. No Multimodal Logistics Without Logistics Land: How to Deal With Land Pressure Through a Comprehensive Planning Policy

4.1. Multimodal logistics: further and further away from the urban core

The eviction of logistics far from dense urban areas, for the benefit of more valued activities, is a common point between France (Dablanc & Rakotonarivo, 2010) and Japan. In Japan, many sites previously dedicated to rail freight have been transformed into other functions for the past two decades.

4.1.1. Transformation of freight lines into passenger lines

The Japan Railway Construction Transport and Technology Agency has a policy of transforming freight lines into lines for both freight and passengers or into passenger only lines. For example, the Aonami Line (Nagoya Seaside High Speed Railway) from Nagoya to Inaei was transferred in 2004 from freight traffic to passenger traffic. In 2007 the Osaka Higashi Line South Section (Osaka Soto-Kanjo Railway) from Hanaten to Kyuhoji opened. The Osaka Higashi Line North Section, Osaka Soto Kanjo Railway (Shin-Osaka-Hanaten) should be opened by 2018. Osaka Higashi line was previously a freight dedicated line.

4.1.2. Examples of site transformation from freight to other activities in Japan

Shiodome is an area in Minato district in Tokyo adjacent to Shinbashi and Ginza, near Tokyo Bay and the Hamarikyu Gardens. Formerly a railway terminal, Shiodome has been transformed into one of Tokyo's most modern areas. Thirteen skyscrapers have been built and house the headquarters of large companies such as All Nippon Airways, Bandai Visual, Dentsu, Fujitsu, Mitsui Chemicals and Nippon Express.

A total of 31 hectares have been sold and the freight activity moved to Tokyo Freight Terminal, north of Haneda Airport. This main terminal is on the Tokaido freight line, a special line dedicated to freight. A number of companies operate dedicated logistics facilities at the station, including Yamato Transport, Sagawa Express, Nippon Express and Kintetsu World Express. They only operate by road. Only Japan Railway Freight operates rail freight in this terminal.

In the South of the Sendai area, 82 hectares of freight facilities between Taishido and Nagamachi stations have been turned into an urban project carried out by the Urban Renaissance Agency under the project name, "Asuto Nagamachi". This agency's mission is to build and manage long term housing programs.

Many other examples exist. In Saitama, a 48 hectare site in Omyia station from which 25 hectares were dedicated to rail freight transport, has been sold for other purposes. In the same prefecture, in Musashino station a site of 50 hectares has been sold in 2006 to Mitsui Fudosan (real estate developer of Mitsui group). A large-scale shopping centre will be developed. In Osaka, 24 hectares of land dedicated to railway activity in Umeda have been transformed into office and retail buildings. Near Ryuge station, in the southern part of Osaka city, 25 hectares have been sold by JR West.

Other examples of railway sites sold in order to foster other types of development are: Shin-tsurumi (Kanagawa) (42ha), Himeji (Hyogo), Okayama station (Okayama), Kashii (Fukuoka), Higashi-Hiroshima sold in 1997 to the City of Hiroshima.

4.1.3. Examples of site transformation from freight to other activities in France

In the Paris region, as well as in other French regions, many sites which were previously dedicated to multimodal freight have been converted to serve other purposes.

A large terminal in the South-East of Paris formerly dedicated to freight has been turned into an event and exhibitions centre. This transformation is due to the difficulty in maintaining an intermodal rail-road service within the large redevelopment project called Paris- Rive Gauche on the left bank of the Seine. This redevelopment plan, covering 120 hectares, is the most important recent urban project in Paris. Sernam, a parcel transport company owned by the national railway company group (SNCF), has moved to a new location in the eastern suburbs of Paris. After the freight site was closed, rail traffic has been partially transferred to trucking. Other railway freight sites in the south-eastern suburbs of Paris, such as Ivry-sur-Seine, have been closed because of large redevelopment projects.

The example of the Batignolles site in the 17th district of Paris (to the north of the central city) is interesting. This site, which used to process important freight volumes, has been included in the perimeter of an urban planning project mixing housing, offices and retailing. Only one loading/unloading railway platform has been preserved. As there is no more space for storage, only cross-dock operations will be possible. This terminal is now under reconstruction. For the construction works, led by a publicly owned local development corporation, the evacuation

of building wastes will be partially done by train. This was a requirement from the bidding process. Introducing intermodal transport as a compulsory requirement for public work sites seems to be a relevant solution for urban areas.

River sites are also threatened by urban growth. The port of Courbevoie does not receive traffic any more as a result of the construction of an upscale housing building in the nearby neighbourhood. The port of Alfortville is also endangered by the program of a joint development zone and residential project.

4.2. Land use and planning documents

The City of Paris opened the way towards a comprehensive policy taking city logistics into account, through land use control. For example, the city reserved land for multimodal logistics in its 2006 land use master plan.

Most of the Ile-de-France municipalities other than Paris have little awareness of city logistics, nor sufficient financial means to promote them. In other French metropolitan areas, the situation is similar. However, some initiatives have been taken recently.

In a study in 2011, the Urban Community of Lyon identified urban sites of all sizes for city logistics. In the current version of its land use master plan, the Urban Community of Bordeaux specifically targets intermodal sites, such as Hourcade intermodal terminal and port terminals.

In Japan, no land use policy for city logistics has been implemented at this stage. However, maintaining railway freight sites and land for coastal shipping is a major condition to promote modal shift. In the months to come, the Paris experience of land control could provide, if a set of comprehensive measures are supported, a good example for Japan public authorities in charge of freight policy.

5. Conclusion

Policy settings and approaches for multimodal freight in urban areas are different in France and Japan. In France, local authorities, especially at regional and metropolitan levels, are increasingly involved in policies promoting more efficient logistics and they support non-road transport such as railways and waterways. The national government continues to support and promote modal shift. These strategies have contributed to the emergence of riverway and railway solutions in urban areas. Incentives and subsidies are allocated on a case-by-case approach. Another deciding factor for emerging intermodal services is the increasingly severe congestion in urban areas. Through intermodal solutions for transport, private stakeholders try to avoid congestion and also anticipate regulations which could, in the years to come, severely restrict access of trucks to city centres.

On the whole, however, the share of rail and waterway transport for urban freight remains extremely limited, due to its cost and organizational complexities.

In Japan, modal and intermodal policies are still very predominantly centralized at the national government level. Incentives are allocated in the framework of the Green Logistics Policy for dissemination projects. However, very few assessments, after several years, of the awarded projects are available, so it is difficult to know if the modal shift is sustainable in the medium to long term. Even though rail freight transport in Japan is highly efficient, the road infrastructure network has been significantly improved and trucking companies have developed their services. Rail transport has been restricted to a niche market. Several public-private partnerships focus on modal shift, but not specifically in urban areas.

In France and in Europe in general, modal shift is promoted by the European Commission, governments, regions and local authorities, especially by building and modernizing infrastructure. However, as the financial engineering of these projects is complex, they take a very long time to implement. The most successful projects use existing infrastructure.

In its logistics policy, Japan focuses on national competitiveness and security of the supply chain. Among the main tools used for improving global supply chains are Intelligent Transport systems (ITS). Japan is a pioneer in ITS, including in ITS logistics applications.

The successful examples of intermodal transport mentioned above reflect rather particular conditions. Transshipment operations and the change of modes in terminals are expensive. Intermodal transport services relevant in an urban setting can emerge in specific conditions:

- congested road networks,
- existing multimodal infrastructure,
- available terminals in the urban core, and
- relevant siting of industrial activities.

Waste and construction materials appear to be the most transferable types of goods, but manufactured products and foodstuff can also represent a relevant target. The packaging and conditioning of shipments is a key factor for intermodality. Charging rolls or pallets on a barge is more difficult than charging containers or swap-bodies.

Building new multimodal infrastructure would not be sufficient without an active policy towards an efficient siting of industrial activities, close to railway terminals or waterways. Also, improving the road infrastructure network around intermodal terminals is crucial to stimulate intermodal freight transport. Urban planning documents have a major role to play in promoting modal shift, by creating the initial conditions such as a good location and good access, including by road, to intermodal terminals.

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