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## Urban Logistics by Rail and Waterways in France and Japan

Diana Diziain<sup>a\*</sup>, Eiichi Taniguchi<sup>b</sup>, Laetitia Dablanc<sup>c</sup>

<sup>a</sup>Greater Lyon Authority, 20 rue du Lac, 69003, Lyon, France

<sup>b</sup>University of Kyoto, Department of Urban Management, Katsura Campus, Nishikyo-ku, 615-8540, Japan

<sup>c</sup>French Institute of Science and Technology for Transport, Development and Networks, University of Paris-Est, 14-20 boulevard Newton, Cité Descartes 77447 Marne la Vallée, France

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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.

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

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### 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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\* Corresponding author. Tel.: +33 4 78 63 44 66.

E-mail address: [ddiziain@grandlyon.org](mailto:ddiziain@grandlyon.org)

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.

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