

# Dry Port Concept, Intermodal Transport and Environmental Impacts of Hinterland Transport in South-East Finland

Ville Henttu and Olli-Pekka Hilmola

Lappeenranta University of Technology, Department of Industrial Management, Kouvola Unit, Finland, email: [ville.henttu@lut.fi](mailto:ville.henttu@lut.fi), [olli-pekka.hilmola@lut.fi](mailto:olli-pekka.hilmola@lut.fi)

## 1. Introduction

Environmental issues have received increasing attention recently. Transportation sector is one of the major polluting sectors, and it is the only sector that has not yet been able to reduce its emission levels [1]. It is also the only sector with increasing carbon dioxide emission amounts [2]. As one way to prevent this trend EU is trying to increase rail transport by promoting intermodal transportation [3].

Dry port concept is seen as one possibility to decrease emission levels originating from transportation sector. In the concept majority of freight is transported by rail between seaport and inland intermodal terminal, which is called dry port [e.g. 4-6]. Only the final leg of door-to-door transport is accomplished by road. According to numerous scientific articles rail transport is more inexpensive mode of transport than road, especially in terms of environmental friendliness [e.g. 5, 7-9]. The dry port concept is still in its infancy in Finland. Furthermore, domestic transport in Finland is dominated by road transport. Road freight transport accounted for 24,262 mill. tonkms in Finnish domestic transport (year 2009), whereas rail had vol. of 6,141 mill. tonkms, and domestic maritime traffic in turn 2,570 mill. tonkms. [10-12]. Approx. 72 % of freight was transported by road transport, and circa 20 % by rail transport. These amounts have been very similar during last decades (transport has grown in minor scale).

There are only few surveys completed from dry port concept [see e.g. 13], and until this research none from Finnish context. In our survey we focus on South-East Finland. About 320 companies were sent invitation to respond, and 27 of these companies answered to the questionnaire (8.4 %). Main topics of the our questionnaire are dry port concept, intermodal transport, environmental impacts originating from transport and the most important import and export cities and seaports in Finland.

## **2. Results of the Questionnaire Research**

All of the respondent companies can be further divided into three different groups concerning the level of transit traffic: (1) largest group (n=13) consists of logistics companies that do not operate in transit traffic. These companies operate mainly in Finnish domestic transportation, and some of them operate internationally in Finnish export or import; (2) Second group (n=8) consists of companies that operate in domestic and international traffic and transit traffic between Russia. These companies operate in both domestic and transit traffic; (3) Last and third group (n=6) includes companies that are basically transit traffic companies i.e. they focus only at transit traffic and do not operate at Finnish domestic traffic. All of these companies operate transit traffic between Finland and Russia.

Main target companies in this manuscript are the ones that operate only at transit traffic (n=6). In addition, overall results among all of the respondents are introduced in the manuscript. All six transit traffic companies are situated near Port of Kotka or Port of Hamina. Mentioned ports have plans to merge in May 2011 [14]. Geographically Port of Kotka and Port of Hamina are located near to each other. Respondent companies are rather small, if the number of employees is concerned. Most used answer alternative was 1-5 employees, as 6-10 employees was the median and average class. Half of the companies have turnover of over 1 mill. €, and the other half have turnover under it. General cargo is the most common freight category between all the respondents and transit traffic companies.

Only one out of six transit traffic companies have 100 percent road share, while all the other companies use at least one another transport mode besides to road transport. Only two of these companies use air transport with very small share (under 6 %). One transit traffic company uses rail transport as its main transport mode with 80 % modal share. Another company uses both road and sea transport with 50 % shares. In addition, there is one company that has plans to increase its modal share of rail transport from 0 to 20 % in year 2015 and to 30 % in year 2020. Four companies out of six use sea transport. Percentual shares are from 10 to 50 % in sea transport. Three of the transit traffic companies will increase their container traffic.

Dry port concept was discussed with one open question. Respondent companies believe that dry port concept could increase

capacity and efficiency of the whole transportation system. In addition, they think that services at seaport and dry port could become more versatile and inexpensive due to increased competition. Furthermore, dry port concept could ease environmental impacts originating from transport. Finnish companies also believe that following break time regulation of drivers would become easier. Respondents found also disadvantages in the dry port concept. They believe that transportation system becomes more complicated. In addition, companies believe that lead-times will increase. Furthermore, respondents are skeptical about the funding of dry port concept.

Next topic of questionnaire was intermodal transport and environmental impacts occurred from transport. Only two out of six transit traffic companies use intermodal transport in their operations. Majority of transit traffic companies believe that intermodal transport is more complicated than unimodal road transport. Same trend was mentioned earlier in the disadvantages of dry port concept. Small minority of transit traffic companies assume that intermodal transport is more expensive than unimodal transport, although half of the transit traffic companies imagine that intermodal transport is suitable for transit traffic. Majority of respondents believe that using intermodal transport will make controlling of information more complex. Minority of transit companies has changed their strategy towards environmentally friendlier transport, but almost all transit traffic companies have plans to decrease environmental impacts in the near future.

All the respondent companies were asked about their most important Finnish export and import cities and most important Finnish seaports. Cities of Kouvola and Lappeenranta were by far the most important cities among respondent companies. Most important Finnish seaports were ports of Kotka, Hamina and Helsinki, respectively. It has to be noted though that all the respondent companies are situated in South-East Finland, and the nearest ports for these companies are ports of Kotka, Hamina and Helsinki. Furthermore, cities of Kouvola and Lappeenranta are situated near respondent companies.

Finnish transport companies mainly operate at road transport i.e. intermodal transport is used only by some companies. Transit traffic companies follow the same trend. It is however possible, that Finnish

companies will increase the use of intermodal transport, because many respondent companies have plans to decrease their environmental impacts in the near future. Furthermore, respondent companies found many advantages in the dry port concept. However, they found some major disadvantages that could slow the implementation of a dry port network in Finland. Overall it seems that Finnish companies could increase the use of intermodal transport, if it gets more attractive and competitive in comparison with road transport. Intermodal transport is not very competitive transport mode at short distances in Finland, mainly because Finnish rail transport has only one company that organizes rail freight transport. Situation will change, when other and smaller rail freight companies enter rail market.

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