Summary

Multimodal hinterland hubs in the Netherlands. A study of container transhipment terminals in the hinterland of Dutch sea ports

Various regions in the Netherlands, such as Weert, Westland, Flevoland, Deventer-Apeldoorn-Zutphen and the Tiel-Ede-Nieuwegein region are situated at too great a distance from existing container transhipment terminals. Plans are in place for new terminals in these areas. If this expansion is realised, there will exist a largely sufficient national network of regional hinterland container terminals. On the regional level, the container transhipment capacity in the Netherlands is currently sufficient to satisfy demand, and this is also the case in the future when taking into account the planned expansions in 2020 and 2030 that will occur in most regions. However, under conditions of high economic growth and a large-scale shift from road transport to transport via railways and inland waterways, future transhipment capacity will be insufficient in most regions. The European Union's call for such a shift in transport for long distance loads offers opportunities for developing Dutch transhipment terminals into international transport hubs.

Freight transport hubs connect the sea ports of Rotterdam and Amsterdam with the hinterland and serve, in varying degrees, as satellites or gates for these ports. Multimodal hinterland hubs can ensure that a larger percentage of freight is transported by railways and by waterborne. KiM Netherlands Institute for Transport Policy Analysis conducted research focusing on hinterland hubs. The research provided answers to the following questions:

- Are there locations in the Netherlands where new terminals are needed (white spots)?
- How are transhipment services developing with regard to hinterland hubs? (available terminal capacity)?
- Are certain terminals developing into hubs in the continental transport chain?

Port of Rotterdam determining factor in container transport
The primary issue for hinterland hubs is container transhipment terminals. Containers are offloaded in sea ports and put on shuttle trains in a railway terminal or onboard on inland waterway container ship. The freight, which is located close its final destination, is loaded onto trucks at a railway or inland waterway terminal and then transported to the customer. For customer containers that must be transported via the sea the same process occurs, but in reverse order. Depending on its location, a terminal can also serve as an intermodal node for freight flows via rail or inland waterway. When this occurs, such terminals, in addition to serving as final destinations, can also function as a hub in the hinterland network.

Of the Dutch sea ports belonging to the Rijn-Schelde Delta (Rotterdam, Moerdijk, Amsterdam, Vlissingen and Terneuzen), the Port of Rotterdam is the determining factor in the development of container transport to and from the hinterland, as the vast majority of containers are transhipped in this port. Approximately 66% of all containers arriving in Rotterdam remain in the Netherlands, and approximately 43%

within the Randstad. It was estimated that in 2008 some 3.8 million TEU ('twenty feet equivalent unit' container measurement) is transported between Rotterdam and the rest of the Netherlands, with 0.9 million TEU of this total transported via inland waterway, 0.4% TEU by railway, and 2.5 million TEU by road.

Hinterland hubs have a primarily regional service-providing function
Approximately 30% of all business/industrial parks, covering two-thirds of the total available commercial space, have railway and/or inland waterway connections. In total, 89 business/industrial parks, covering a total area of 8,200 hectares, have their own railway and inland waterway connections. For container transport, connections in the form of container terminals are most relevant. In the hinterland, the Netherlands has more than 20 inland waterway container terminals, 4 railway terminals and 6 combined inland waterway and railway terminals (trimodal container terminals). All hinterland container terminals in the Netherlands focus on transport to and from the Port of Rotterdam. The large container terminals in the Netherlands operate regular services with Rotterdam, including the combined inland waterway and railways terminals, such as TCT Venlo and Tilburg, as well as inland waterway terminals, such as those in Den Bosch, Oosterhout, Born, Alphen aan den Rijn and Utrecht, and the railway terminals Coevorden and Veendam. These large and small terminals have a regional catchment function; some 80% of customers are situated within a 25 kilometre catchment area.

The Netherlands has relatively few international hubs for railway or inland water transport in the hinterland. Venlo is developing into such an international hub. The sea ports, namely Rotterdam, have the most international railway and inland waterway links. Rotterdam (RSC Waalhaven) serves as a hub for internationals continental transport. The most important foreign hubs in the hinterland network of Dutch ports are Duisburg, Antwerp (including Willebroek) and Liege. Duisburg is also an international hub.

Strong growth in container transhipment expected
The most important developments for hinterland hubs are the growth of container transhipments in the sea ports and the necessary shift in modes of transport. The Port of Rotterdam expects that container transhipments in Rotterdam will increase threefold, from 10.8 million TEU in 2008 to a maximum of 34.6 million TEU in 2040. For the Tweede Maasvlakte, the objective is that by 2035 a maximum of 35% of all containers will be transported by road, 45% by water and 20% by railway. To achieve this, transport by railway and inland waterway must quadruple in volume. Such development is impossible without the growth of hinterlandhubs in the Netherlands and abroad.

Plans for expanding container transhipment capacity
At present plans are in place that will lead to more hinterland transport via inland waterways and railways. The plans involve new inland waterway container terminals in Alblasserdam, Weert, Tiel, Lelystad and Cuijk, and plans for new railway terminals in Geleen (Chemelot) and Valburg. Expansions are planned in Tilburg (Railport Brabant), Venlo (Railport Venlo) and at the inland waterway terminals in Wanssum, Nijmegen and Born. Planned investments in these new terminals and expansions of existing terminals will increase transhipment capacity from 4.7 million TEU to an estimated 5.6 million TEU.

The organisation of hinterland transport is evolving. Collaborative efforts have led to new concepts (extended gate, container transferia), in which the hinterland hubs function more as entryways for the sea ports, which will especially involve the use of inland waterways as transport modes, and in the case of Venlo, also railway transport. The terminals in these concepts differ from others because they have a supra-regional function for container transport.

'White spots'

There are currently certain locations in the Netherlands that are situated at too great a distance from existing terminals – these locations are called 'white spots'. The areas around Weert and Westland are the most interesting as potential terminal locations. Locations that have average scores in terms of economic potential and container volumes are: Flevoland, Deventer-Apeldoorn-Zutphen and the Tiel-Ede-Nieuwegein region (all have concentrations of logistic activities, or 'logistic hotspots'). Terminal initiatives are underway for all these locations. Doetinchem-Winterswijk also has an average score but is not a logistics 'hotspot'.

The Kop van Noord-Holland region has a logistic 'hotspot', Alkmaar, but a terminal initiative is not underway there. Zuidwest-Friesland, and the border zones Friesland-Groningen and Groningen-Drenthe, and Schouwen-Duiveland, have low economic potential for a new terminal.

If the plans for new terminals are realised, few white spots will remain. The planned expansion will result in a network of regional terminals offering sufficient national coverage.

Sufficient terminal capacity in most regions

The total terminal capacity in the hinterland presently amounts to 4.7 million TEU. On the regional level, terminal capacity is in principle sufficient for current demand. Locally - that is, for a terminal - capacity problems could arise There is currently also sufficient capacity for achieving a shift from road transport to railway and inland waterways, starting from for example a 60% minimum share for railway and inland waterway transport.

The transhipment capacity included in the planned expansions per region is in principle sufficient for satisfying demand until 2020 in the Central Planning Agency's low and high economic growth scenarios. The exception is Zaanstreek.

There will also be sufficient capacity available in most regions in 2030 under low and high growth rates, with again Zaanstreek being the exception. In the high growth scenarios, Friesland, Noord-Overijssel, the Veluwe and all of Noord-Brabant are included as potential regional bottlenecks.

Capacity bottlenecks during major shifts to railway and inland waterway transport

Despite the planned expansions, bottlenecks will nevertheless occur in 2020 if we factor in a large shift from road transport to inland waterway and railway. With for example inland waterways and railways claiming a minimum 60% share of transport in 2020, under low economic growth conditions, bottlenecks will occur in Overijssel, the Veluwe, Greater Zeeland and Zuidoost-Noord-Brabant. Under high economic growth conditions, bottlenecks will also occur in Zaanstreek and Midden-Limburg.

In 2030, under high economic growth conditions, bottlenecks will occur in nearly all regions. In this scenario, the planned initiatives and expansions are in principle no longer sufficient. Improved utilisation, with a 20% capacity gain - for example by offering 24/7 service – will improve the situation somewhat, but not sufficiently.

Opportunities for international hubs
Railways and inland waterway transport claim a relatively large share of the continental transport of bulk goods. The continental transport of containers by rail and water is rather limited in the Netherlands. We categorise continental transport as freight whose origin and destination is in Europe, including short-sea transport to and from the United Kingdom. By 2030, the European Commission wants 30% of road freight transports travelling more than 300 kilometres to be shifted to railways and inland waterways. By 2050 this figure should be more than 50%. These objectives offer opportunities for developing hinterland hubs into international hubs.

Based on various statistical sources, the number of continental containers was estimated at approximately 200,000. RSC Waalhaven, and to a lesser extent Coevorden en Venlo, play an important role in this transport by rail.

International road transport travelling more than 300 kilometres per load that is not stored in containers by Dutch companies amounts to a total of 37 million tonnes (in 2009). Based on the assumption that certain volumes are transported annually to ensure a profitable service, KiM estimates the potential for continental transport by railway or inland waterway to be approximately 9.6 million tonnes annually, with nearly 65% of this total related to road transport to and from Germany, and 25% to road transport to and from France.

The 10 regions with the greatest potential for continental loads are: Rotterdam, Greater West-Brabant, Twente, Zuid-Limburg, the Arnhem and Nijmegen agglomeration, Zuidoost-Noord-Brabant, Noord-Limburg, Midden-Noord-Brabant, Greater Amsterdam and the Achterhoek.
Nearly 60% of the potential for continental transport by railway and inland waterway originates from or to these regions. In all these regions, a container terminal is operational, or can be found in the short-term in a neighbouring region. The transport services offered at these terminals are primarily focused on the transport of sea containers to and from sea ports. These terminals lack quality freight transport services by rail or inland waterway to and from European (continental) destinations.

Uncertainties
The results of this analysis are indicative. Two major uncertainties are in play; namely, future uncertainties and the limited reliability of the data used. In this prognosis, KiM cannot include regional growth differences and regional shifts in choices of transport modes. Information about the capacity and available capacity per terminal is incomplete and limits reliability. Estimates were made where no data was available.