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Working Party on Rail Transport

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Item 9 of the provisional agenda

Role of terminals and logistics centres for intermodal transport

Role of terminals and logistics centres for intermodal transport

Note by the WP.24 informal group of experts

I. Mandate

1. As decided by the Working Party on Intermodal Transport and Logistics at its last session and in line with the road map on future work and operation of the Working Party (ECE/TRANS/WP.24/127, para. 68; ECE/TRANS/WP.24/125, paras. 18–22 and 40–41), the theme for substantive discussion for this session is: Role of terminals and logistics centres for intermodal transport.
2. Discussions on this theme will be held jointly by the Working Party on Intermodal Transport and Logistics (WP.24) and the Working Party on Rail Transport (SC.2).
3. As a basis for discussion, an informal group of experts established by WP.24 has prepared the present document.

II. Definitions and scope of considerations

4. In 2001, the following definitions have been agreed upon by the United Nations Economic for Europe (UNECE), the (then) European Conference of Ministers of Transport (ECMT) and the European Commission (EC):

Terminal: A place equipped for the transshipment and storage for Intermodal Transport Units (ITUs). ITUs are containers, swap bodies and semi-trailers suitable for intermodal transport.

Logistics centre: Geographical grouping of independent companies and bodies which are dealing with freight transport (for example, freight forwarders, shippers, transport operators, customs) and with accompanying services (for example, storage, maintenance and repair), including at least a terminal. In English, also called: "Freight village". In Italian, also called "Interporto".

5. Freight consolidation centres, often operated by express parcel companies or integrators, are also often called "terminals". Such installations are either designed for the distribution or consolidation of freight transport within or close to large industrial complexes or city centres based on pure road transport operations or specialize in air freight consolidation, including air-road transshipments. Such operations cater to specific, time sensitive markets that, with the exception of high-speed postal and parcel rail services, normally could not be handled by intermodal land transport.

III. Type of terminal terminals and logistics centres

6. Terminals and logistics centers are essential components of intermodal transport chains and provide the link between road, rail and inland water transport whereby ITUs are transhipped from one mode to the other without handling the goods themselves. This procedure, both expensive and time consuming, often determines the competitive edge of the total intermodal transport chain compared to uni-modal transport operations and must thus be undertaken in a very efficient, safe, reliable, predictable and transparent manner.

7. A multitude of large and small terminals and logistics centres exist today in many European countries. They provide indispensable transshipment services often complemented by additional services such as temporary storage and other valued added services that make up a full-fledged logistics centre. Terminals and logistics centres and be differentiated by the following categories:

- Bi- or tri-modal operations (road, rail, inland waterways);
- Number and length of rail tracks and berths;
- Type of equipment (gantry cranes, reach stackers);
- Transshipment operations and storage capacity;
- Additional value added services (repair facilities, freight forwarding, Customs services);
- Ownership (private/public, public-private partnership (PPP); rail infrastructure manager, railway undertaking);
- Management/operator (owner, rail infrastructure manager, railway undertaking, dedicated terminal operator).

8. A variety of owner/operator models for terminals and logistics centers exist in Europe. Irrespective of these models, such installations are an own entity in the transport

chain, irrespective of the legal, corporate or financial relations that may exist between the terminal owner, the terminal operator, the rail infrastructure manager, the railway undertakings and the intermodal operators.

9. Unless a private terminal is fully financed, owned and operated by the industry – the following principles would maximize capacity and justify the use of public funds:

- Non-discriminative access;
- Rail-side access for all licensed railway undertakings;
- Road-side access for all road operators;
- Transparent capacity allocation and pricing policy;
- Handling of most ITUs, such as maritime and land containers, high-cube containers, swap bodies and semi-trailers suitable for intermodal transport;
- Operation of international and domestic traffic.

10. However, terminals exist which cater to specific needs only, such as accompanied intermodal transport (RoLa) terminals that provide horizontal loading facilities, whereby complete road vehicles, often accompanied by the drivers, are loaded onto railway wagons and ferries.

11. The size and capacity of a terminal or logistics center is determined by a number of factors that can only partly be influenced in the short run by the terminal operator or owner. Main factors are the location of the terminal within the rail, road and inland waterway network, the size and shape of the real estate available, the length of rail tracks and the number and capabilities of the handling equipment.

12. Most modern terminals and logistics centers have a modular shape, each module consisting of at least the following features:

- Single or double rail links to the main rail network allowing direct access with main-line locomotives;
- Three to five rail tracks with a length of 600 m to 750 m allowing transshipment of complete trains without shunting;
- Rail-mounted gantry cranes;
- Two to three interim storage or buffer lanes;
- One loading and one driving lane for road vehicles;
- Road side access with entry and exit gates;
- Adequate parking space for road vehicles.

13. Such a terminal module should be able to handle at least 120,00–150,000 ITUs per year (rail-in and rail-out operations). However, with sufficient and adequate equipment, personnel, operating hours and computerized handling procedures, such modules may be able to handle two to three times more ITUs.

IV. Functions of terminals and logistics centers

14. Terminals and logistics centers can be broadly distinguished into those providing basic functions, such as transshipment and temporary storage facilities and those offering a full range of additional services, so-called value-added services. These additional services

range from specific (i.e. dangerous cargo) and long-term storage and repair facilities to freight forwarding and Customs services for international transport operations.

15. Terminals that offer such large-scale value-added services are often called logistics centers or freight villages. In Germany they are known under the term “Güterverkehrszentrum, in Italy as “Interporto” and in Spain as “plaza logistica”.

16. There is no clear-cut distinction between simple terminals and full-fledged logistics centers. However the chart below provides an idea about the dividing lines between such installations.



Source: Adapted from KombiConsult

V. Location of terminals and logistics centres

17. There does not exist a notion of the ideal or optimal location for a terminal or a logistics centre. It depends on the physical, logistical, environmental and legal context, variable parameters for each location and for each country. It also depends whether a terminal can be constructed from scratch or whether an existing terminal is to be improved or upgraded.

18. In any case, however, the following factors may need to be taken into account for an optimum location of a terminal or logistics center:

- Availability of space and location (critical for inland waterway access);
- Type of terrain (topography);
- Industry requirements (business driven);
- Size (depending on local/regional considerations, distances and type of terminal operator);
- Suitable access (road, rail, inland waterways);
- Environmental context (sensitive surroundings, acceptable noise levels).

19. An extensive and dense network of terminals and logistics centres has gradually emerged in Europe, particularly in Western Europe along the main European North-South land transport corridors. Their dimension and location vary depending on the markets served. Key conditions for good commercial operation are excellent access to the major

road networks and proximity to production and consumption centres. Also good rail and inland water links are indispensable.

20. Large terminals are usually located close to the centres of industrial and economic zones and, due to environmental and safety reasons, at reasonably fair distances from residential areas. They are generally equipped with large gantry cranes. Smaller terminal may also operate effectively at other, less ideal locations if they cater to targeted shippers providing a steady flow of cargo and intermodal loading units.

VI. Operational aspects

21. Most decisions for an efficient operation of a terminal and logistics centre are business driven and involve numerous measures. Good practices for the operation of terminals and on measures to increase capacity and efficiency exist. They are available from national and international organizations as well as from professional associations in many countries.

22. Such measures need to be shared and accepted by all stakeholders in terminal operations including rail infrastructure managers, railway undertakings, intermodal transport operators, terminal operators, road transport companies and inland water transport operators. Trade unions and municipalities also have an important role to play, particularly with regard to opening hours and use of access roads. Other productivity measures include certification of key performance indicators, such as the container terminal quality indicator standard (CTQI) for the marketing of its services and improved visibility.

VII. Role of Governments

23. In most countries, the private sector invests in the new installation, the upgrading and operation of existing terminal and logistics centres. In several UNECE member countries, Governments promote however the use of intermodal transport by providing financial support for infrastructure investments in terminals and terminal equipment for new and modernization of old equipment as well as capacity enlargement.

24. The main reasons for public support of investments in terminals and logistics centres are that the optimal location for such installations is often situated in areas where land is scarce and costly and adequate access to the main transport networks difficult to achieve. In such cases and without adequate public support, terminals and logistics centres would be installed at locations that would generate negative external effects, such as additional traffic, congestion, noise and air pollution.

25. Such state-aid schemes exist or existed in a number of UNECE member countries, such as Austria, Czech Republic, Germany, Slovakia and Switzerland. Some countries have also provided financial support for terminal operations, sometimes for the start-up phase only (e.g. Belgium and Germany).

26. For detailed information on state-aid schemes in UNECE member countries that promoted intermodal transport, refer to the UNECE online monitoring system (operational by the end of 2011) or to documents ECE/TRANS/WP.24/2011/1, ECE/TRANS/WP.24/2010/7, ECE/TRANS/WP.24/2009/9, ECE/TRANS/WP.24/2009/8, ECE/TRANS/WP.24/2008/5 and addenda (www.unece.org/trans/wp24/welcome.html).

VIII. Role of UNECE

27. In 2002, WP.24 had established a group of experts to consider measures to increase the efficiency of combined transport terminal operations. On the basis of its findings (TRANS/WP.24/2002/4) the Working Party recommended that provisions on terminals contained in the European Agreement on Important International Combined Transport Lines and Related Installations (AGTC) should be reviewed and new provisions should be included.

28. While annex II of the European Agreement on Main International Railway Lines (AGC) refers only to technical characteristics of main international railway lines (ECE/TRANS/63/Rev.1), the AGTC Agreement also contains a list of country terminals important for international combined transport in annex II., Annex IV of the AGTC Agreement also enshrines minimum performance parameters and standards for terminals and so-called intermediate stations (necessary for technical and operational reasons). These minimum standards are reproduced in the annex to this document.

29. Since this list of terminals and its parameters within the AGTC Agreement dates back to the early 1990s, WP.24 recommended updating some of these provisions (TRANS/WP.24/97, paras. 32–33). The recommendations relating to terminals that are still valid today are given below:

(a) Relevant provisions of the AGTC Agreement should differentiate between accompanied and unaccompanied transport.

(b) The AGTC Agreement should contain guidelines on the overall planning and zoning principles concerning combined transport terminals in order to optimize construction and utilization of such terminals.

(c) Terminals in the AGTC Agreement should be categorized to provide information on the types of terminals (i.e. simple terminal, gateway terminal, etc.) and on the facilities offered by such terminals (Customs facilities, dangerous goods, etc.).

(d) Information about the level of information technology available at terminals should be included in the Agreement. This could possibly also be included in the categories of terminals described under point (c).

(e) Security aspects should be elaborated in line with the general discussions on this issue to be undertaken by the Working Party.

(f) Opening and operating hours of combined transport terminals determine largely the level of service available for intermodal transport. This could possibly also be included in the categories of terminals described under point (c). It should be considered to include recommendations on this issue in the AGTC Agreement.

(g) The AGTC Agreement should contain a recommendation that Customs, sanitary, veterinary and phytosanitary controls should, as a general rule, be carried out in terminals in order to reduce further interventions in the transport chain.

IX Possible action to be taken by WP.24 and SC.2

30. WP.24 and SC.2 may subsequently wish to draw up conclusions and reflect on the role of Governments in this field in UNECE member countries.

31. The Working Parties may also wish to reflect on concrete follow-up activities that could be undertaken by WP.24 and SC.2 to support the development of seamless international rail and intermodal transport operations at the pan-European level.

32. Furthermore, WP.24 and SC.2 may wish to review the above recommendations of the WP.24 group of experts and provide guidance and proposals for possible amendments to annex IV on terminals and intermediate stations of the AGTC Agreement.

33. In addition, it could be considered whether the list of important terminals for international combined transport (annex II of the AGTC Agreement) should be maintained and, if yes, updated, possibly on the basis of new criteria.

Annex

European Agreement on Important International Combined Transport Lines and Related Installations (AGTC)¹

Performance parameters of trains and minimum infrastructure standards

D. Minimum standards for terminals

10. For the efficient handling of consignments in terminals the following requirements shall be met:

(a) The period from the latest time of acceptance of goods to the departure of trains, and from the arrival of trains to the availability of wagons ready for the unloading of loading units shall not exceed one hour, unless the wishes of customers regarding the latest time of acceptance or disposal of goods can be complied with by other means.

(b) The waiting periods for road vehicles delivering or collecting loading units shall be as short as possible (20 minutes maximum).

(c) The terminal site shall be selected in such a way that:

- it is easily and quickly accessible by road from the economic centres;
- within the rail network, it is well connected with long-distance lines and, for transport connections with wagon-group traffic, has good access to the fast freight trains of combined transport.

11. The minimum standards for intermediate stations stipulated below shall also relate to terminals.

E. Minimum standards for intermediate stations

12. Stops of trains of combined transport en route, necessary for technical or operational reasons, for example at wagon group exchange or gauge interchange stations, shall at the same time be used for carrying out work which otherwise would require additional stops (i.e. frontier controls, changing of the locomotive).

The infrastructure of such intermediate stations shall comply with the following requirements:

- Sufficient train capacity per day on feeder lines to avoid delays of trains in combined transport;
- The entries and exits to and from the feeder lines shall allow the trains to filter in and out without delay. Their capacity shall be large enough to avoid delays of arriving and/or departing trains of combined transport;
- Sufficient track capacity for the various types of track, as required for the specific work to be carried out in a station, in particular for arrival/departure tracks, train

¹ ECE/TRANS/88/Rev.6, http://unece.org/trans/wp24/agtct_text.html

formation tracks, sorting lines and turn-out tracks, loading tracks and gauge interchange tracks;

- The above-mentioned tracks shall have loading gauges that correspond to those of the railway lines to be used (UIC B or UIC C);
 - The length of track shall be sufficient to accommodate complete trains of combined transport;
 - In the case of electric traction the tracks shall be accessible by electric tractive units (at frontier stations: to electric tractive units of the connecting railway concerned);
 - The capacity for trans-shipment, wagon group exchange, gauge interchange and frontier control shall guarantee that necessary stops can be made as short as possible.
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