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ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

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**ISSUES THAT NEED CONSIDERATION AND REQUIRE DECISIONS BY THE
COMMITTEE**

Supply chain and logistics implications for transport

Logistics challenges and implications for transport, particularly intermodal transport

Note by the secretariat in cooperation with a “virtual expert group”

I. BACKGROUND AND APPROACH

1. The programme of work of the Working Party on Intermodal Transport and Logistics (WP.24) contains the following work element: “Analysis of modern transport chains and logistics that allow for an integration of production and distribution systems providing a rational basis for Governmental decisions on transport demand, modal choice as well as on efficient intermodal transport regulations and infrastructures and taking into account transport safety and security requirements”. As expected output the following is stipulated: “Review of technical and legal issues and development of regional implementation tools and measures based on considerations on the role of Governments in this field” (ECE/TRANS/WP.24/117, annex).

2. Modern supply chain management systems and logistics will become of paramount importance for the competitiveness of economies in the UNECE region. They will fundamentally reshape the way goods are supplied, produced, delivered and returned. Driven by consumer demand and the globalization of production and trade, supply and distribution chains are getting longer. Just-in-time (JIT) and just-in-sequence (JIS) supply, production and distribution systems increasingly require reliable, flexible, fast and efficient transport systems. These systems have a crucial impact on modal choices made by the industry (road, rail, inland water, sea and/or air transport).

3. At its forty-ninth session, the Working Party analyzed the underlying causes and requirements of logistics determining transport demand, transport quality and land use (location of logistics centers and intermodal terminals).¹ It stressed that Governments need to better

¹ Refer to documents ECE/TRANS/WP.24/2008/1; ECE/TRANS/WP.24/2007/3.

understand the requirements of such modern supply and logistics chains, which do not stop at national borders. National transport policies must take account of and respond to these often global challenges and must be coordinated and harmonized at the international level as the impact of transport policy decisions and public financing may otherwise be marginal, ineffective and even counterproductive. If, on the other hand, transport policies provide the appropriate regulatory framework, adequate transport infrastructures and the required skills for private and public actors in this field, they will then be able to provide the basis for efficient, sustainable, safe and secure freight transport and mobility and will ensure a level playing field for all industries involved.

4. The Working Party had felt that it might be able to play a supportive role in this area through an exchange of information and best practices among countries in the UNECE region, by assisting in the development of concepts and indicators to measure these logistical developments and by providing expertise in regulatory or capacity building policies and measures that require an inter-governmental, pan-European approach.

5. With a view to further defining and structuring such activities, the Working Party had invited interested experts to share their know-how and experiences at future sessions of the Working Party and to prepare possibly a list of measures or fields of actions that would allow Governments to influence logistical developments at national and international levels (ECE/TRANS/WP.24/119, paras. 26-34).

II. THE DESIGN AND MANAGEMENT OF FREIGHT AND INTERMODAL TRANSPORT

6. Logistics is "... the process of designing and managing the supply chain in the wider sense. The chain can extend from the delivery of supplies for manufacturing, through the management of materials at the plant, delivery to warehouses and distribution centers, sorting, handling, packaging and final distribution to the point of consumption." This definition, confined to goods and not to services, has been developed in 2001 by the UNECE, ECMT and EC in its "Terminology on Combined Transport". It implies that logistical processes aim at providing goods at least cost and at the place and time required by the customer.

7. While there exist numerous other definitions of logistics, this definition still seems to be of relevance for this paper as it encompasses all important elements of the logistical processes that comprise the total supply chain of goods. Besides administration of the supply chain and the inventory of goods, transport is one of the key elements making up the logistical chain for goods.²

8. Experts agree that efficient logistics systems are and increasingly will become of paramount importance for the competitiveness of European economies. Efficient supply chain management has become a crucial tool for the industry to stay ahead of its competitors and the transport of freight is a very important component of such chains.

² It is estimated that the direct expenditures for logistics and logistical services are in the order of 8-14% of Gross Domestic Product (GDP) in many European countries (France: 10% Germany: 7.8% EU: 13.3%) with an upward trend. They account for between 6-12% of total employment. These figures provide only an order of magnitude as there exist no solid data on the performance of the logistics sector. Also its precise definition and measurement of output and employment are extremely difficult and internationally comparable data do not yet exist.

9. As this document, in line with the mandate and field of competence of the Working Party, deals mainly with the transport aspects of logistics of goods and its interrelationship with intermodal transport, the term **“design and management of freight transport”** is used thereafter. Design and management of freight transport is the planning, organization, control and execution of freight transport operations in a supply chain. This is increasingly undertaken by specialized service providers that often oversee and control the total supply chain from production to final distribution.

10. The rapidly increasing prices for energy have particularly hit the transport component within supply chains. In particular, road transport’s overwhelming dependence on oil and the necessity to mitigate greenhouse gas emissions, has and increasingly will result in further increases in costs for this mode of land transport that, in the short term, will be very difficult to avoid.

11. Supply chain managers look for efficiency gains however not only in terms of costs, but increasingly also in terms of service quality. While road transport often has a leading edge in this field, the rapidly growing traffic, particularly on major European roads, has led to serious capacity and congestion problems, not only in urban areas, but increasingly also on long-haul services and outside traditional peak hours. Coupled with a shortage of qualified drivers and crew members (partly due to new and better enforced regulations on working hours and rest periods in road transport), the supply side of the European transport sector is under considerable pressure. At the same time, it faces the challenge to adjust to the growing demands of supply chain managers for cheap, fast, reliable, flexible and transparent operations.

12. The management of freight transport in general and that of intermodal transport operations are very much linked with each other as the concept of intermodality allows and, indeed, facilitates the movement of goods by those modes of transport that are best suited to the requirements of supply chain managers. The movement of goods in one and the same loading unit (container, etc.) or road vehicle allows flexibility in the use of road, rail and/or inland water transport to respond to speed, availability, congestion, traffic bans or mandatory rest periods – provided that the inherent transshipment costs and times of intermodal transport operations can be kept lower than the gains achieved.

13. Until very recently, supply chains developed on the assumption of unlimited availability of transport capacity and cheap oil. Today, however, globalization of production, transport and trade must be seen in the context of energy (oil) supply problems, limited and often deteriorating transport infrastructures and an increasing importance of sustainability.

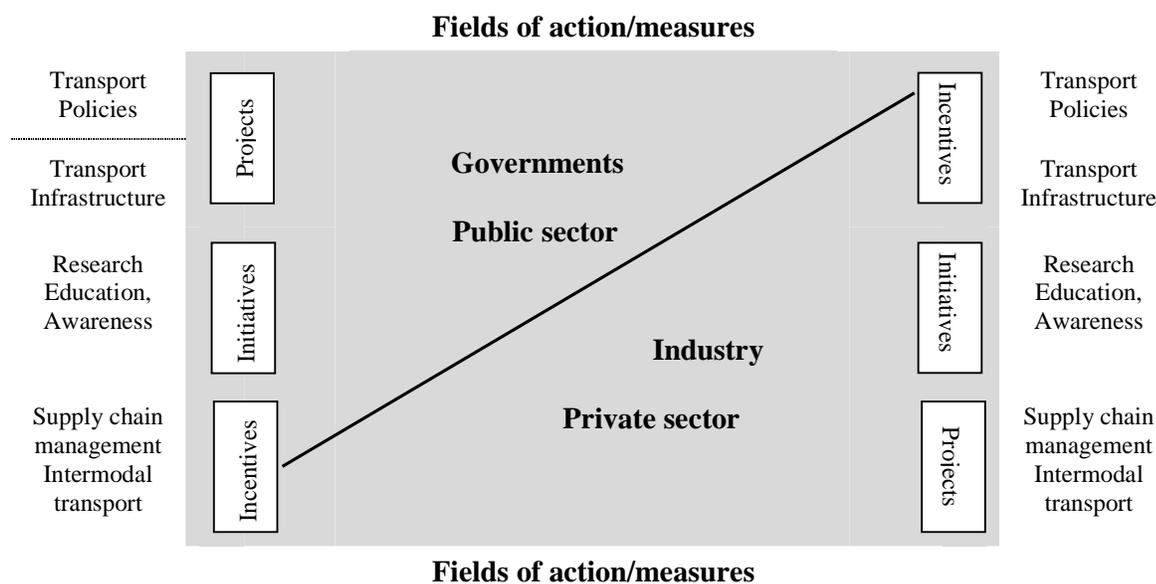
14. Against this background, the predicted increase in European traffic and transport in the order of 30 per cent within the next decade will not be possible unless better logistics and supply chain management systems allow goods to move more rationally and intelligently than in the past. As transport infrastructure will simply not be able to follow the predicted transport increase for ecological and financial reasons, the existing transport infrastructure must be better used, transport volumes may need to be consolidated and intermodal transport solutions must make optimum use of all transport modes and capacities at all places and at all times. This is a challenge for the private sector (supply chain managers, logistics service provider, terminal and transport operators, etc.), but also, and in particular, for Governments.

III. THE ROLE OF GOVERNMENTS IN THE DESIGN AND MANAGEMENT OF FREIGHT TRANSPORT

15. The planning, organization, control and execution of freight transport operations as part of supply chain management is primarily a business activity. The same holds true for the organization of intermodal transport operations. Nevertheless and as already pointed out, Governments have a very important role to play in this field. Logistical processes organized and optimized by the private sectors do not necessarily constitute optimal solutions for the overall economy or the country as a whole. Governments need to set and maintain the institutional framework as well as the rules of the game to ensure that the design and management of freight transport and intermodal transport services are carried out in line with national transport policy objectives and do respect also other economic, social, environmental and spatial policies, rules and regulations set and enforced by public authorities.

16. However, as indicated schematically in the chart below, Governments are not only responsible for the regulatory, administrative and institutional framework. They are also responsible for the provision of adequate infrastructures, such as roads, railway lines and inland waterways, even though the construction and operation of such transport lines can and is already done in some countries through public-private partnerships (PPP). Also, in many UNECE countries ports, terminals and intermodal freight villages are already successfully financed and operated as PPP.

Responsibilities in the design and management of freight transport



Source: Adapted from the German Masterplan for Freight Transport and Logistics

17. In the field of research, education and awareness there is also considerable room for public-private coordination and cooperation. Finally, the design and management of supply chains and intermodal transport operations are, in most countries, a private business activity, even in cases where Governments fully own transport companies, such as railway undertakings and/or logistics service providers. But, there is a clear trend towards further privatization and liberalization of transport and logistics markets in all UNECE member countries.

18. Thus, there are basically three fields of action in the design and management of freight transport that are fully or largely under the responsibility of Governments or public authorities at regional, national or local levels, i.e. transport and infrastructure policies, and research, education and raising of awareness.

A. Transport policies

19. Governments are responsible for the appropriate regulatory, institutional and administrative framework conditions to ensure a level playing field among all actors in freight transport, among all transport modes and transshipment facilities and to allow for non-discriminatory, sustainable, safe and secure freight transport in line with national priorities. This includes also public investment policy instruments as well as transport related taxes and duties that influence the efficiency and cost of freight transport and its competitive edge.

20. Governments are also responsible for the coordination and harmonization of transport policies at the international level. Today's supply chains do not stop at national or sub-regional borders. In fact they are often created to overcome frontiers and make use of comparative advantages of different national economies – and, often, different tax and regulatory systems. The same applies to the design and management of freight transport that is increasingly regionally and even globally oriented as are its actors. National transport policies must be coordinated and harmonized with that of other countries and regions to respond to these challenges.

21. Finally, effective transport policy making requires that Governments at federal, provincial and municipal levels understand and take account of the underlying causes and requirements in the design and management of freight transport that determine transport demand, transport quality, modal choice and land use (location of logistics centers and intermodal terminals). This is of particular importance for Eastern European, Caucasus and Central Asian (EECCA) countries whose economies are now also rapidly integrating into global supply chains and transport logistics processes.

B. Transport infrastructure

22. Governments are responsible for the provision and maintenance of adequate transport infrastructure and for the rules and regulations for their use. In addition to road, rail and inland waterway networks, Governments are responsible for land use planning and for the provision of suitable locations for ports, intermodal terminals, transshipment and distribution centers as well as freight villages.

23. Authority for such spatial decisions is often vested in local or regional authorities that do not always consider sufficiently the “bigger picture”. Thus, central and/or federal authorities, often in coordination with neighboring countries may have to coordinate or even steer local planning and decision making processes in these cases.

C. Research, education and awareness

24. In cooperation and with the support of professional organizations, Governments are also in charge of research activities to better understand the impact of supply chain management and logistics on transport services, transport demands and modal choice. Within the European Union, a large number of research projects in this field are carried out under the authority of the European Commission, some of which have addressed specifically the interrelationship between freight transport logistics and intermodality.

25. Use of intelligent transport systems (ITS) is also promoted by public authorities to respond to ever more sophisticated freight logistics systems and to make optimum use of the limited transport infrastructure. Governments play also an important role in promoting the role of freight logistics and supply chain management and to ensure that professionals in the industry have the necessary know-how and experience to take informed decisions. Another important and often overlooked issue is the perception of the general public about the role of freight transport and logistics for economic development. Public authorities must provide here the necessary information and transparency in line with national and international norms and regulations.

IV. GOVERNMENT ACTION AT NATIONAL AND SUB-REGIONAL LEVELS

26. Governments provide only the appropriate regulatory, financial and educational framework conditions within which the design and management of freight transport is carried out. However, it is important for public authorities to act swiftly with the preparation and implementation of such framework conditions, not only to provide, from the outset, a level playing field for all actors involved and ensure transparency and guidance for the industry, but also to establish a comprehensive and consistent framework that allows all public authorities, including those at local and municipal levels to act in line with the same principles. The latter is particularly important for rational land-use planning and the localization of freight villages and freight distribution centers.

A. Activities at national level

27. Some UNECE member States have already responded to these challenges. They have already or are in the process of identifying, in close cooperation with concerned industry groups and other stakeholders, the role and responsibility of Governments and non-governmental actors in this field. They are also determining appropriate regulatory, financial and educational policy measures that could contribute to more efficient and sustainable freight and intermodal transport systems integrated into modern logistics and supply chains.

28. Germany has, for example, adopted, in early 2008, a Masterplan for Freight Transport and Logistics. This plan was designed to enhance the competitiveness of the logistics industry in Germany and to provide for the optimum design, funding and use of freight transport systems. The plan should also contribute to structural change and sustainable development and should, last but not least, enhance the public perception of the economic significance of freight transport and logistics. The German Masterplan has been prepared through a participatory process with governmental and non-governmental experts from all concerned sectors and identified 27 concrete proposals that should be implemented following a political coordination.³

29. Another example is the logistics plan of Portugal that established in already in 2006 integrated regulatory and planning structures for the development of a network of logistics centers at strategic locations in Portugal. The plan supports logistical activities in the country with a view to making better use of the existing transport network and to promote rail and port hinterland transport. For the Government, the plan is a tool to better legislate and to encourage logistical developments. Construction, financing and operation of the logistics centers are left to the private sector.⁴

³ For more information: <<http://www.bmvbs.de/verkehr/Gueterverkehr-Logistik-,2829/Masterplan.htm>>.

⁴ For details: WP.24 Informal document No. 7 (2007).

B. Activities at sub-regional level

30. At the sub-regional level, in October 2007 a Freight Logistics Action Plan has been adopted by the European Commission as part of a larger freight transport package to enhance the efficiency and sustainability of freight transport including also other issues, such as freight-oriented rail networks, new port policies, motorways of the sea and a European maritime space without borders.

31. The topics put forward in this action plan were based on extensive consultations with stakeholders and cover four broad themes: Innovation, quality, simplification and green transport. Within this framework, the European Commission is developing a road map for the implementation of e-freight that denotes the vision of a paper-free, electronic flow of information accompanying the physical movement of goods. In addition, the freight transport logistics bottleneck exercise is continued with a view to finding practical solutions, including regulatory measures.

32. Other issues addressed in the action plan include performance indicators for freight transport logistics and benchmarking of intermodal terminals. Studies on the harmonization of transport documents and their automation as well as on standards for vehicle weights and dimensions enshrined in Directive 96/53/EC are also planned and should be finalized in 2008. Finally, by the end of 2008 a number of “green corridors” are planned to be identified on which short sea shipping, rail, inland waterways and road transport complement each other to enable environmentally friendly transport solutions.⁵

V. GOVERNMENT ACTIONS AT INTERNATIONAL LEVEL: ACTIVITIES OF THE UNECE WORKING PARTY

33. The responsibilities and measures to be taken by Governments to influence the design and management of freight transport cover a wide field and go very much beyond those usually addressed at the international level by the UNECE Working Party on Intermodal Transport and Logistics. While many of the Governmental responsibilities and measures in this field are not necessarily apt for inter-governmental norms, standards or regulatory measures, an exchange of experiences and best practices among countries at global United Nations or regional UNECE level (covering 56 countries in the pan-European region as well as North-America) may be useful and provide guidance of action at the national level.

34. Also, the above considerations have shown that logistical processes and the design and management of freight transport have an important international dimension that may need to be addressed by consistent and internationally harmonized Government policies. The present programme of work of the Working Party contains already a number of inter-governmental activities that relate directly or indirectly to the design and management of freight transport and its interrelation with intermodal transport. These activities may need to be reviewed and refined in line with the propositions below and might need to be carried out in consultation or cooperation with other UNECE bodies and other competent intergovernmental and non-governmental organizations.

35. The activities briefly described below would fall within the mandate and area of competence of the UNECE Working Party on Intermodal Transport and Logistics (WP.24) and could provide a value-added at the inter-governmental and pan-European level. For some of

⁵ For more information: <http://ec.europa.eu/transport/logistics/freight_logistics_action_plan/action_plan_en.htm>.

these activities, such as on civil liability regimes, specific expert groups may need to be established to address very specific and complex technical and legal issues.

36. In the field of international transport policy and regulatory measures:

- (1) **Monitoring and analysis of national measures** to influence the design and management of freight transport with a view to enhancing the use of intermodal transport and preparation of a tool-box of policy measures and mechanisms that, depending on national circumstances, could be utilized to this end. Relevant ECMT resolutions on combined transport should be taken into account.
- (2) Review and possible amendment of the 2005 **“Model” Action Plans and Partnership Agreements**, including performance parameters for the development of intermodal transport, with logistical requirements, benchmarks and responsibility parameters.
- (3) Analysis of the draft UNCITRAL convention and review **civil liability regimes and provisions for intermodal land transport** in a pan-European context.
- (4) Contribution to the development of **concepts and indicators to measure logistical developments** and to establish benchmarks for the design and management of freight transport, including intermodal transport services, networks and terminals.

37. In the field of international transport infrastructure and performance measures:

- (1) **Review of the existing infrastructure and performance standards in the AGTC Agreement**, including its Protocol on inland water transport with a view to raising interoperability standards and establish benchmarks for an efficient design and management of freight transport and international intermodal transport services. The difficulties and costs in modifying such standards should be taken into account.
- (2) **Review of AGTC minimum standards for terminals** with a view to optimizing transshipment and logistical procedures and inclusion of mechanisms for the optimum location, construction and operation of terminals, freight villages and distribution centers, border-crossing and gauge interchange stations as well as ferry links/ ports.
- (3) Inclusion of **logistical requirements into the AGTC** (also possibly AGR and AGC) to increase capacity and efficiency of **port hinterland transport services**.

38. In the fields of exchange of information on research, education and awareness:

- (1) Exchange of best practices on new **concepts, design, weights and dimensions of intermodal loading** (transport) units taking account of existing weight and dimensional limits enshrined in national, international and sub-regional (European Union) regulations.
- (2) Exchange of best practices in the **preparation and implementation of national logistics action or master plans**.
- (3) Monitor the development of **intelligent transport systems** and preparation of a compendium and check list of such services.

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