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Emerging issues in freight transport and logistics:

National Master Plans on freight transport and logistics

Freight transport and logistics sector – its importance for the national economies and the role of governments and national experience in its development

Note by the secretariat

I. Background

1. This document deliberates on the importance of the logistics sector for the national economies, discusses the role of the governments in freight transport and logistics as well as informs of good practices collected from ECE member countries in preparing freight transport and logistics master plans.
2. WP.24 is invited to review this document in the process of elaboration of a Handbook for national master plans for freight transport and logistics.

II. The importance of the logistics sector for the national economies

3. Trade between different economies can benefit them both as these economies may have different comparative advantages in the production of various tradable commodities. The exchange of these commodities may result in development of goods and services that otherwise could not have been realised. Hence, trade is considered to support economies to grow faster, be innovative, improve productivity and provide higher income and more opportunities for people. In this sense, trade is considered central to economic development supporting human well-being.
4. Trade however can be difficult if it is not facilitated through effective freight transport and logistics, which make the commodities flow between the trading partners.
5. Various institutions measure the performance in freight transport and logistics, which can help understand the sector's importance in trade facilitation or for the economic development of a country.

6. The World Bank's Logistics Performance Index (LPI) analyses countries' performance in freight transport and logistics sector through six dimensions:

1. The efficiency of customs and border management clearance.
2. The quality of trade- and transport-related infrastructure.
3. The ease of arranging competitively priced international shipments.
4. The competence and quality of logistics services.
5. The ability to track and trace consignments.
6. The frequency with which shipments reach consignees within the scheduled or expected delivery time.

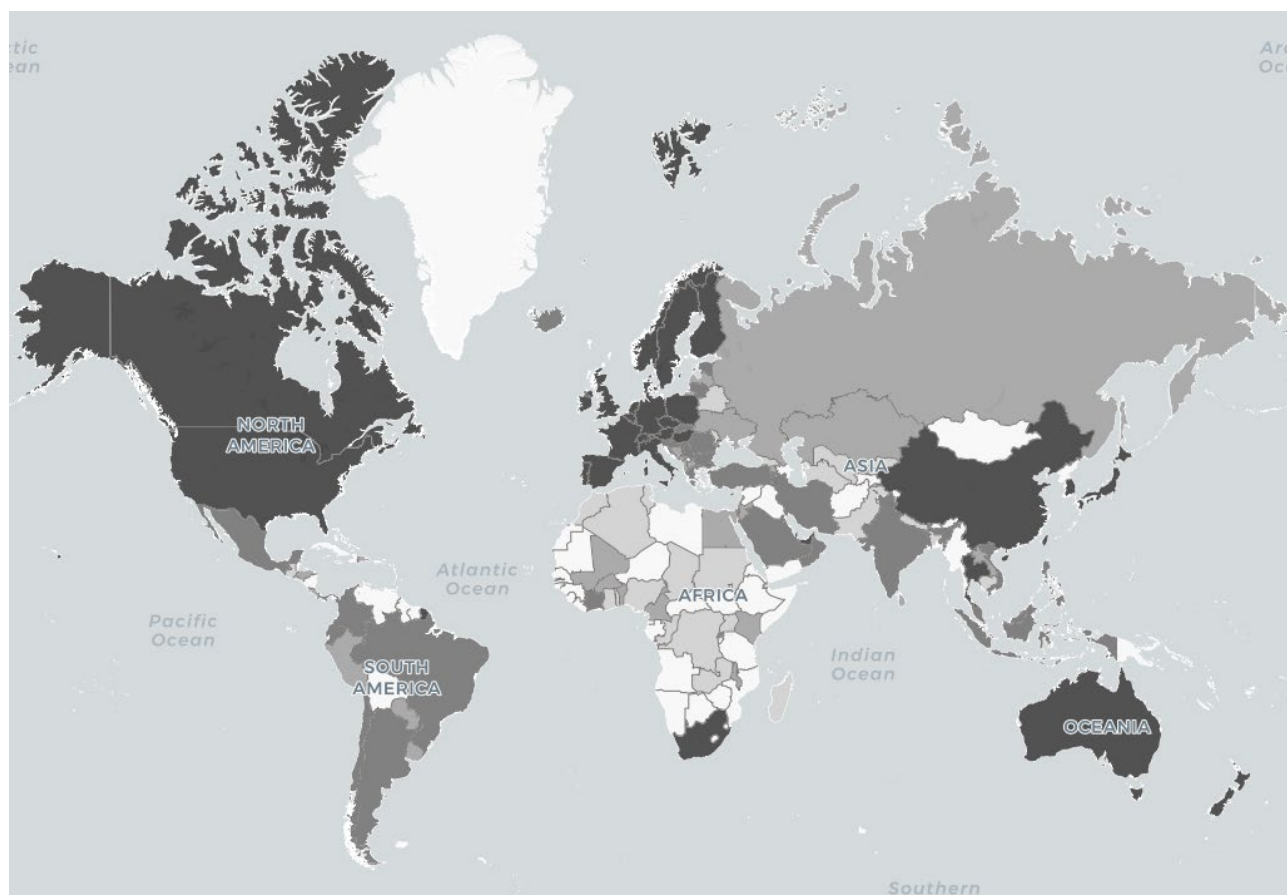
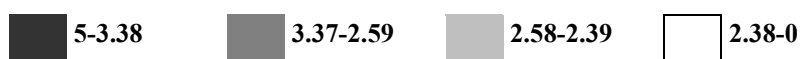
7. When it comes to validating these LPI dimensions, freight forwarders and express carriers are considered best positioned to assess how countries perform. Ultimately, they are the actors directly affecting the choice of shipping routes and gateways, thereby influencing the decisions of firms to locate production, choose suppliers, and select target markets. The opinion of freight forwarders is thus central to the LPI's quality and credibility.

8. Recognizing the importance of measuring container port performance, UNCTAD developed the Liner Shipping Connectivity Index (LSCI) in 2004 to determine countries' positions within global liner shipping networks. The LSCI captures how well countries are connected to global shipping networks based on five components of the maritime transport sector: number of ships, their container-carrying capacity, maximum vessel size, number of services, and number of companies that deploy container ships in a country's ports.

9. Taking the results of LPI measurement by the World Bank of 2018, done for 160 countries worldwide, the top 30 performing countries score above 3.50 on the scale between 0 and 5 (marked in black on the map in Figure 1) with the 10 countries scoring nearly or above 4. The worst 30 performing countries score below 2.40 (marked in white on the map in Figure 1) with 10 countries scoring below 2.15.

10. The higher score in LPI means higher logistics friendliness, thus more ease for freight forwards and shippers to move goods. The countries with higher LPI scores, as the data shows (Figure 2) are also the countries with higher incomes measured as gross national income (GNI) per capita.

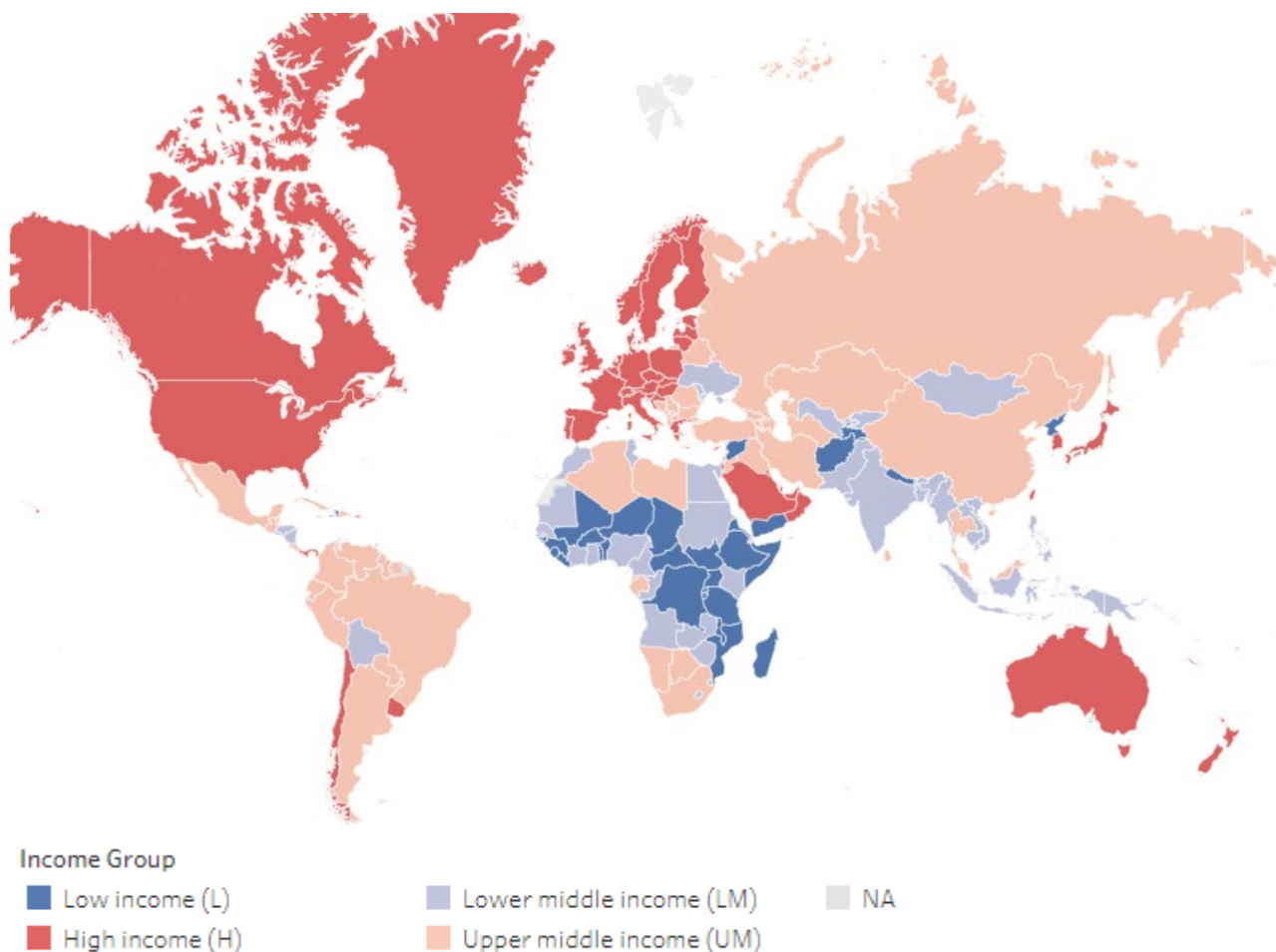
Figure 1
Logistics performance index, 2018*



Source: The World Bank, <https://lpi.worldbank.org/international/global>.

* Disclaimer: This map is for illustrative purposes and does not imply the expression of any opinion on the part of the World Bank and the citing authors, concerning the legal status of any country or territory or concerning the delimitation of frontiers or boundaries.

Figure 2
The World by Income, 2018**



Source***: The World Bank, <https://datatopics.worldbank.org/world-development-indicators/the-world-by-income-and-region.html>.

11. The freight transport and logistics performance is certainly interconnected to the development of national economies and creation of income. This should be a motivation for governments to create conditions and an enabling environment for the development of the sector. The governments have at the same time a role to play to ensure that such a development follows a sustainable path. Section III offers an insight on the role of governments in enabling the development of the sector in a sustainable way.

III. The role of governments in freight transport and logistics

12. Future prosperity requires, amongst other things, that the flow of goods is seamless. This can be only possible if the freight transport and logistics industry is able to organise, coordinate and move these flows in an efficient and optimized way. This should mean fast but safe (for humans, animals and plants health) and secure and at possibly lowest costs for customers and for public at large freight transport operations. The latter requires minimising freight transport and logistics sector externalities.

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*** For further information on the calculation of the income groups, see <https://datatopics.worldbank.org/world-development-indicators/the-world-by-income-and-region.html>.

13. While freight transport and logistics operations are done by public or private entities, governments have an important role to play. On the one hand, their role is to facilitate the operations of the freight transport and logistics entities by providing the necessary, stable conditions and enabling environments for doing business, and to ensure the availability and maintenance of the necessary infrastructure. On the other hand, the governments should also ensure that the business, while facilitating trade, is geared towards high-level objectives such as e.g.:

- addressing climate change;
- minimizing negative impacts on human, animal and plant health;
- promoting decent working conditions; and
- accelerating gender equality.

14. Traditionally high-level objectives and thus fostering the development of quality services and a skilled workforce received less attention than development of infrastructure or facilitation of operations. Nowadays, high-level objectives receive same attention, especially through public interventions and private public dialogue which play an important role in enhancing performance and in establishing sustainable supply chain connections both internationally and domestically.

15. This section discusses the role of the governments in freight transport and logistics with regard to creation of stable conditions and enabling environments for doing business, availability of infrastructure and in achieving the high-level objectives.

1.1 Stable conditions and enabling environments for doing business

16. Governments are responsible to establish and enforce the necessary legislative framework and standards which will form the conditions for the freight transport operations. For doing business, it is important that stable, predictable, transparent and decent working conditions are established by the legislation and international – global and/or regional – standards in force. Such conditions decrease operational risks and disruptions.

17. Government decisions can shape the attractiveness and productivity of the freight transport and logistics as a sector. Skills and workforce gaps directly impact the productivity and standards of service of the industry. Governments play a crucial role in establishing adequate training schemes, educational, certification and vocational programmes, including life-long learning requirements, to professionalize freight transport and logistics workers. The neglect of training in some countries can translate in high turn-over rates and negatively impact the image and attractiveness of the industry, the capital invested and public interest.

1.1.1. Administrative procedures

18. Governments establish rules, regulations and standards, which frame the conditions for the freight transport operations. These rules, regulations and standards and their enforcement and inspection are expected to make freight transport operations safe, secure, efficient, decent and fair in terms of level-playing fields. These can be grouped into:

- (a) regulations for carriage of cargo including such as perishable goods, dangerous goods and livestock, as well as control regulations and procedures (at borders and inland) including medico-sanitary, veterinary and phytosanitary regulations and standards;
- (b) regulations for admission to traffic of vehicles and drivers, and for locomotives and rolling stock;
- (c) insurance regulations;
- (d) contract of carriage regulations;
- (e) regulations for maximum driving times and required rest periods;
- (f) additional driver licensing regulations;

(g) regulations on medical examinations for the compliance of minimum fitness requirements depending on the categories of workers.

19. Many of these regulations and standards can be sourced from United Nations transport and related agreements and conventions including sanitary and phytosanitary conventions, agreements and standards. Depending on the agreement or convention, it may have a global or regional coverage. Among the various conventions and agreements are e.g.:

Border Crossing Facilitation:

- 1975 Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention), entered into force on 20 March 1978.
- 1982 International Convention on the Harmonization of Frontier Controls of Goods, entered into force on 15 October 1985.
- 1972 Customs Convention on Containers, entered into force on 6 December 1975.
- 1954 Customs Convention on the Temporary Importation of Private Road Vehicles, entered into force on 15 December 1957.
- 1956 Customs Convention on the Temporary Importation of Commercial Road Vehicles, entered into force on 8 April 1959.
- 2006 Convention on International Customs Transit Procedures for the Carriage of Goods by Rail under Cover of SMGS Consignment Notes, not yet in force.
- The World Trade Organization Trade Facilitation Agreement (WTO-TFA) entered into force on 22 February 2017.

Driving times and rest period/contract of carriage:

- 1970 European Agreement concerning the Work of Crews of Vehicles engaged in International Road Transport (AETR), entered into force on 5 January 1976.
- 1956 Convention on the Contract for the International Carriage of Goods by Road (CMR), entered into force on 2 July 1961, along with the 1978 Protocol to the CMR and the 2008 Additional Protocol to the CMR concerning the electronic consignment note (e-CMR).

Transport of Dangerous Goods:

- 1957 European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), entered into force on 29 January 1968.
- 2000 European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterway (ADN), entered into force on 28 February 2008.
- Transport of Perishable Foodstuffs:
- 1970 Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for such Carriage (ATP), entered into force on 21 November 1976.

Admission to traffic of vehicles and drivers:

- 1968 Convention on Road Traffic, entered into force on 21 May 1977.
- 1958 Agreement concerning the Adoption of Harmonized Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and /or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these United Nations Prescriptions, entered into force on 20 June 1959.
- 1997 Agreement concerning the Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of Such Inspections, entered into force on 27 January 2001.

- 1998 Agreement concerning the Establishing of Global Technical Regulations for Wheeled Vehicles, Equipment and Parts which can be fitted and/or be used on Wheeled Vehicles, entered into force on 25 August 2000.

Inland water transport regulations:

- Convention relating to the Unification of Certain Rules concerning Collisions in Inland Navigation, entered into force on 13 September 1966.
- Convention on the Registration of Inland Navigation Vessels, entered into force on 24 June 1982.
- Convention on the Measurement of Inland Navigation Vessels, entered into force on 19 April 1975.

Sanitary and phytosanitary conventions, agreements, regulations and standards:

- 1951 International Plant Protection Convention (IPPC) as amended in 1979 and 1997
- 1995 The World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures.
- International Standards for Phytosanitary Measures (ISPMs) as approved by the Commission on Phytosanitary Measures (CPM) of the IPPC.
- Codex Alimentarius and its international standards.
- World Organization for Animal Health (OIE) and its international standards.
- 1992 Convention on Biological Diversity.
- Regional Standards approved by Regional Plant Protection Organizations.¹

20. There are also relevant international maritime and/or aviation legal instruments, among them:

- International Convention for the Safety of Life at Sea (SOLAS).
- International Convention for Safe Containers (CSC).
- International Maritime Dangerous Goods (IMDG) Code and related supplements.
- International Maritime Solid Bulk Cargoes (IMSBC) Code and related supplements.
- Convention on Facilitation of International Maritime Traffic (FAL).
- Code of Safe Practice for Cargo Stowage and Securing (CSS Code).
- Convention on International Civil Aviation.

1.1.2. Education, vocational training and lifelong learning for professionals in the sector of freight transport and logistics

21. Freight transport and logistics, as other transport sectors, or more general any sector of economy, requires skilled and trained workforce for effective and efficient operation and for sustaining international competition. Advanced specialization and technological innovation in freight transport makes the emphasis on the necessary skills even more profound.

22. Governments establish legislation regarding systematic and generally recognized vocational training for specific categories of freight transport and logistics workers that can also include instructors, training officers and other training staff. The neglect of training in some countries is one of the causes of the low status and high turnover of CMV drivers in the industry, which lessens productivity and standards of service. Logistics at the operational level is a labour-intensive industry with many blue-collar workers (e.g., truck drivers,

¹ Regional Plant Protection Organizations page on the International Phytosanitary Portal - www.ippc.int/en/external-cooperation/regional-plant-protection-organizations/.

warehouse operators) and administrative clerks. How well these employees are qualified, trained and retained is a major factor of logistics performance.

23. When systematic and controlled training has become a widespread and generally accepted practice, the exercise of this occupation will depend on reaching an officially recognized level of qualifications that is proven in a final examination and designed to ensure that the trainee has properly assimilated the instruction given to him/her during such training. For this purpose, an adequate training infrastructure, including suitable and sufficient training facilities, is necessary and needs to be created where it does not yet exist. In addition to establishing requirements for the workforce, governments develop within the scope of their training regulations appropriate levels of certification and training for the instructors, training officers and other training staff.

24. Governments also need to cooperate closely with universities, industry associations and unions to shape tailored programmes targeting the training of highly skilled professionals in tertiary education. The skills development system must be responsive to labour market demands.

25. In some cases, the fragmentation and segmentation of freight transport and logistics services poses significant challenges. To prevent it, governments closely collaborate with industry associations and workers' unions to facilitate training, retraining and life-long learning opportunities for small and medium-sized enterprises (SMEs).

1.1.3. Working conditions in the sector of freight transport and logistics

26. Governments play a crucial role in creating and supporting decent working conditions that will increase the quality of jobs and attract new recruits to the jobs in the sector of freight transport and logistics.

27. The International Labour Organization (ILO) has adopted a framework of fundamental principles and rights at work. These are based on 4 principles: freedom of association and effective recognition of the right to collective bargaining (e.g., for the establishment of free and democratic unions); elimination of all forms of forced or obligatory labour; effective abolition of child labour; and the elimination of discrimination in employment and occupation (e.g., equal pay). Also, the ILO has adopted a number of sectoral conventions, instruments and tools with focus on decent work conditions for ports, shipping, inland waterways and road transport.

Fundamental principles and rights at work:

- Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87).
- Right to Organise and Collective Bargaining Convention, 1949 (No. 98).
- Forced Labour Convention, 1930 (No. 29) (and its 2014 Protocol).
- Abolition of Forced Labour Convention, 1957 (No. 105).
- Minimum Age Convention, 1973 (No. 138).
- Worst Forms of Child Labour Convention, 1999 (No. 182).
- Equal Remuneration Convention, 1951 (No. 100).
- Discrimination (Employment and Occupation) Convention, 1958 (No. 111).

Shipping and inland waterways:

- Maritime Labour Convention, 2006 as amended.
- Seafarers' Identity Documents Convention (Revised), 2003, as amended (No. 185).
- *Guidelines for implementing the occupational safety and health provisions of the Maritime Labour Convention, 2006.*

- *Guidelines for port State control officers carrying out inspections under the Maritime Labour Convention, 2006.*
- *Guidelines for flag State inspections under the Maritime Labour Convention, 2006.*
- *Guidelines on the medical examinations of seafarers.*
- *Guidelines on the training of ships' cooks.*
- Hours of Work (Inland Navigation) Recommendation, 1920 (No. 8).

Ports:

- Dock Work Convention, 1973 (No. 137).
- Occupational Safety and Health (Dock Work) Convention, 1979 (No. 152).
- Dock Work Recommendation, 1973 (No. 145).
- Occupational Safety and Health (Dock Work) Recommendation, 1979 (No. 160).
- *Guidelines on training in the port sector.*
- *Code of Practice on safety and health in ports.*
- *Code of Practice on security in ports.*

Road transport:

- Hours of Work and Rest Periods (Road Transport) Convention, 1979 (No. 153).
- Hours of Work and Rest Periods (Road Transport) Recommendation, 1979 (No. 161).
- *Guidelines on the promotion of decent work and road safety in the transport sector.*

Cross-sectoral:

- *IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units.*²

28. Governments also play a role in promoting decent work conditions in the freight transport and logistics sector in procurement, tendering and other forms of contracting e.g., public-private partnerships (PPPs). The ILO's Labour Clauses (Public Contracts) Convention, 1949 (No. 94) (ILO, 1949) and the Labour Clauses (Public Contracts) Recommendation, 1949 (No. 84) (ILO, 1949) aim to remove wages and working conditions from the price competition necessarily involved in public tendering.

1.2. Availability of necessary infrastructure and networks

29. Governments create the necessary conditions and make available the infrastructure that is required, among others, for freight transport. Freight transport and logistics entities can organize and carry out their transport operations more effectively and optimize them, the more options in terms of reliable and internationally connected infrastructure (availability of international networks) and switch points between the various infrastructures they have. In the current world, the operations will not be optimized, especially for intermodal transport, if reliable and high-performance digital infrastructure is not provided.

30. As governments may be providing the infrastructure also through privatization of various transport and logistics infrastructure assets, they need to carefully gauge and analyse the extent and terms and conditions to which they may wish to involve the private in the provision of the infrastructure, regardless the privatization process, e.g. PPPs or blended finance transactions or others.

31. Governments can establish privatization frameworks that are human-centred and put people-first through ensuring broad participation in decision-making, procedural safeguards and monitoring mechanisms for accountability.

² Note: non-binding (soft law) tools are included in *italics*.

32. The ECE Guiding Principles on People-First Public-Private Partnerships (PPPs) in support of the United Nations Sustainable Development Goals can contribute to establishing more predictable enabling conditions and a legal and regulatory framework for PPPs that is desired and serves the high-level objectives discussed in section 1.3.

1.2.1. Road infrastructure

33. Governments need to ensure availability of an adequate road network linking the commercial and goods production centres within and among countries. Such road network, following the good practice available, typically consists of express roads and ordinary roads. The first group of roads is constructed and maintained complying with standards that enable drivers to travel safely at higher design speeds and transporting higher loads. The national system of roads needs to be connected with systems of neighbouring countries. In addition, the roads need to be equipped with ancillary facilities and adequate border crossing facilities preventing delays at border crossings.

34. The source for creating an adequate network of roads for governments in the ECE region is the European Agreement on Main International Traffic Arteries (AGR) of 1975. It establishes a plan for a grid system of reference roads (E-roads) within the European region having a general north-south and west-east orientation, which governments are responsible to implement and effectively operate. The international E-road network also includes intermediate roads located between the reference roads and branch, link and connecting roads. Importantly, it also sets minimum standards for the construction, maintenance and signage of roads forming the E-road network. A similar agreement – Intergovernmental Agreement on the Asian Highway Network – helps countries from the Economic and Social Commission for Asia and the Pacific (ESCAP) region to establish their international road network.

35. In countries with a developed and dense network, such as e.g. in countries with a high-level of implementation of AGR, governments need to be looking for ways to optimize the use of the road network while limiting upgrade and new constructions to sections, where it is absolutely essential to remove bottlenecks. The optimization needs to be considered at the level of infrastructure networks, and solution such as shifting of transport between modes and networks, use of intelligent transport systems (ITS) and telematics need to be applied to better control transport flows.

1.2.2. Rail infrastructure

36. An adequate rail network is essential to offer reliable rail transportation possibilities for both passengers and cargo. For the latter, rail transport operated on medium to longer distances can alleviate burden on the road network and help mitigate environmental damages. To achieve this objective, it is important for the rail network to be connected across national borders.

37. The European Agreement on Main International Railway Lines (AGC) of 1985 serves for governments in the ECE region as a basis to develop international railway traffic within the European region, by laying down a coordinated plan for the development and construction of railway lines adjusted to the requirements of future international traffic. The Agreement defines the "International E-railway network" consisting of railway lines of major international importance which the Contracting Parties intend to develop and effectively operate within the framework of national programmes in accordance with their respective legislations. AGC sets out the technical characteristics of the network and its minimum requirements, such as number of tracks, loading gauge and speed, for both passenger traffic and goods traffic.

38. The development of rail network for freight transport is also addressed in the European Agreement on Important International Combined Transport Lines and Related Installations (AGTC), which lays down a co-ordinated international plan for the ECE region for the development of combined/intermodal transport services and the infrastructure necessary for their operation based on internationally agreed performance parameters and

standards. The AGTC lines correspond to AGC lines to a great extent while AGTC also defines lines and section of lines of importance to combined/intermodal transport.

39. Like for road infrastructure, in countries with a developed and dense rail network, ie. such e.g. with high-level of implementation of AGC and AGTC, governments need to be looking for ways to optimize the use of their rail networks, and upgrade lines or section of lines which face capacity constraints. Optimization should be also done through application of ITS and telematics to better control transport flows.

1.2.3. Waterways infrastructure

40. Inland waterways and coastal routes infrastructure, if properly developed, can provide transportation opportunities, in particular for freight transport, offering economic and ecological advantages. As for rail, the inland waterways and coastal routes can alleviate burden on the road network.

41. The European Agreement on Main Inland Waterways of International Importance (AGN) of 1996 serves for governments as a basis to develop international transport by inland waterways in the European region. AGN lays down a coordinated plan for the development and construction of a network of inland waterways of international importance in the ECE region, based on agreed infrastructure and operational parameters. This network, called E waterway network, consists of inland waterways and coastal routes used by sea-river vessels as well as of ports of international importance situated on these waterways and routes. E waterways are defined by technical characteristics, such as waterway class, draught, bridge clearance and by operational characteristics, such as traffic, navigation period, duration of breaks.

42. The development of waterways infrastructure is also addressed in the Protocol to on Combined Transport on Inland Waterways to the European Agreement on Important International Combined Transport Lines and Related Installations (AGTC) of 1991, of 1997. The Protocol lays down an international plan for the development of combined/intermodal transport services on inland waterways and on certain coastal routes and of their infrastructure necessary for their operation based on internationally agreed performance parameters and standards.

1.2.4. Intermodal terminals

43. Intermodal transport, hence shifting the mayor part of the journey from road to rail, inland waterways or sea with an initial and/or final leg on road as short as possible can be a way to optimization of the transport operation. This however is possible, if adequate infrastructure in terms of intermodal terminals is provided, where the mode change can be performed. Additionally, it is important that sufficient information about the terminal infrastructure and its services is available and that the infrastructure is open to public use in a fair and non-discriminatory way.

44. The already mentioned AGTC and the Protocol on Combined Transport on Inland Waterways to AGTC define the locations of the combined/intermodal transport terminals respectively on rail lines with the possibility to switch to road and on waterways with possibilities to change to road and/or rail.

1.2.5. High-performance digital infrastructure

45. ITS are systems to be installed in vehicles, locomotives and barges and on transport infrastructure to support making optimum and efficient use of the infrastructure as well as of the modes of transport.

46. Governments through transport infrastructure providers work on integrating existing ITS solutions into vehicles and infrastructure and use their capabilities for transport optimization and efficiencies. At the same time, governments support research and

development to further advance ITS in terms of its capabilities and in getting its deployment more cost-efficient.

47. Governments promote the benefits from the application of ITS, among them, increased safety and security, better environmental efficiency, improved solutions for seamless intermodality, better route and delivery planning, etc. At the same time, governments play an even more important role in addressing the challenges with ITS, such as interoperability among systems and data exchange, fraud and violation, privacy and security, increasing gap between developed and developing countries in terms of transport solutions.

1.3. High-level objectives

48. Freight transport and logistics entities by optimizing transport operations can act as catalyst of positive social impact and mitigate externalities for the public at large. Governments need to ensure that the sector contributes to its societies and that its externalities are taken into account when optimization of freight transport operation is done. It is also the role of the governments to enable innovation, research and development in the sector, on the one hand to enable further efficiencies in the sector and, on the other, to decrease the sector externalities through technology and policy progress.

1.3.1. Environmentally friendly and energy efficient transport

49. More traffic can mean more emission of pollutants and CO₂ and more noise and land uptake unless it is organized efficiently. Transport can thus not be developed by simply expanding infrastructure and adding vehicles. The development of transport needs to happen through making transport systems more efficient. This means that transport must consume less energy and become cleaner and quieter.

50. Governments have the responsibility to prevent transport expansion at the costs to the environment. Governments need to regulate and incentivise the freight industry to use low emissions vehicles and operate at times causing least impact on environment and population. Various bonus-malus solutions, assistance programmes for purchase of low emission vehicles or intelligent tolling systems have been introduced with success to make the road transport more efficient.

51. Emission reduction can be also achieved by moving transport to more efficient means of transport – from road to rail and waterways. For this to happen, adequate infrastructure allowing intermodal transport needs to be ensured.

52. Accompanied combined/intermodal transport as a flexible and easily installed system as well as unaccompanied combined/intermodal transport which is able to shift a large volume of transport both serve as useful transport solutions to reduce the environmental impact of freight transport. Governments can encourage the use of combined/intermodal transport by a variety of support measures like financial programmes for operation, terminals and equipment, fiscal or regulatory measures. Governments can also encourage investment into technologies that will further decrease emissions of pollutants and noise both from road and railways.

53. Governments need to work closely with local authorities to redefine city logistics, on the one hand to ensure that goods are delivered where they are consumed, while at the same time decrease the impact from freight deliveries in urban areas.

1.3.2. Innovation, research and development in freight transport and logistics

54. As transport needs especially solutions for optimization and making it more efficient, which is true for developed economies with developed and dense transport infrastructure, such solutions can be only found through innovation research and development.

55. The responsibility of the government is to incentivize research and development in the industry, by the relevant associations as well as at the universities. Government may create funds from which grants supporting innovation and research for new solutions could be given.

56. The innovation may not only address technology but also further policy development, encouraging further system optimization, shift or avoidance especially of empty/low load runs.

1.3.3 Protection of human, animal and plant health

57. Trade in and resulting from it transport of food, animals, plants and plant products and inanimate goods is a critically important part of many national economies of developing and least developed countries, and in particular their SMEs. It is also critical for countries to ensure and protect their food security. While it is evident that earnings from this trade stimulate economic growth and bring well-being and prosperity to rural communities, agricultural sectors and societies, it also represents a potential pathway for the introduction and spread of human, animal and plant pests and diseases, including invasive species and contaminating pests.

58. Therefore, while governments' role is to facilitate trade and the transport of food, animals, plants and plant products and inanimate goods, they have the responsibility to ensure that this is done with reduced risk of introduction and spread of human, animal and plant pests and diseases.

59. doing so, governments should follow international standards and guidance developed by the IPPC, OIE and Codex Alimentarius to assess and manage risks posed by pests and diseases *inter alia* through sound sanitary and phytosanitary import and export systems to ensure safe trade.

60. The benefit of the establishment of sanitary and phytosanitary systems following provisions of the international conventions, agreements and standards, is the application of harmonized technically justified measures by trading partners that increases trust and assurances in safe and agile trade in food, animals, plants and plant products.

61. Governments, and more specifically sanitary and phytosanitary agencies, customs and other border agencies, need to work closely with the transport and logistics operators so that seamless transport of food, animals, plants and plant products and inanimate goods is achieved by the implementation of international standards and good practice in assessing and managing the risks of introduction and spread of pests and diseases.

1.3.4 Decent and sustainable work to reduce inequality and promote growth

62. A decent work framework can ensure the freight transport and logistics sector remains a provider of quality jobs and enhance the sector's image and attractiveness to avoid disruption as well as skills and workforce shortages.

63. The promotion of decent work includes a coordinated approach to achieving four strategic objectives: employment, social protection, social dialogue, and fundamental principles and rights at work, with gender equality and non-discrimination as cross-cutting policy drivers. Decent work has become a universal objective and has been included in major human rights declarations, UN Resolutions and in the United Nation's 2030 Agenda for Sustainable Development (2015).

64. Governments can recognize the freight transport and logistics sector as a strategic area of economic activity through national employment policies and programmes. Governments should work with industry associations and unions in the preparation of the policies and programmes. These can include a range of priorities such as e.g. skills development and professionalization, formalization and the creation of enabling environments, or a just transition to green transport and logistics operations.

65. Robust monitoring and enforcement mechanisms are of critical importance as a number of actors intersect in the regulation and coordination of freight transport and logistics. Governments should allocate appropriate funding to monitoring and inspection to ensure the enforcement of legal provisions related to the conditions of work and protection of workers while engage in their work.

1.3.5 Accelerating gender equality in transport

66. Transport is a male-dominated sector. The lack of participation by women means that the industry is failing to benefit from a fully represented workforce. The gender composition of the workforce or occupational segregation in some transport and logistics sectors has translated in many cases in unequal pay, discrimination, bullying, harassment or violence.

67. Despite recent efforts, female participation in freight transport and logistics still remains low. Yet, technology and digitalization have made increasingly less relevant the traditional perception that transport jobs require physical strength. Diversity brings innovation and different skill sets to industry and the workplace, but in some countries significant barriers remain; e.g., laws that do not allow women to access some transport occupations, including certain freight transport and logistics occupations.

68. Governments have a role to promote enhanced and sustained efforts to combat prejudice and discrimination, unequal pay and stereotyping. Essential to this are government gender-responsive policies, programmes and campaigns that can change the low labour market participation of women in the freight transport and logistics sector. A starting point can include legislative changes and amendments to allow women to access the sector. In addition, governments can promote and fund specific programmes targeting:

- the provision of training opportunities for women for a skills development path or a group of occupations in the sector;
- the development of digital skills for women to pave the way in developing skills that will be in high demand in the industry in the future;
- the effective recognition and implementation of the principles of equal remuneration (“equal pay, for equal work”), non-discrimination;
- the adoption of legislation and policies for maternity/paternity protection and parental leave; workers with family responsibilities should benefit from conditions of effective equality for opportunity and treatment;
- the development of industry strategies and communication campaigns to improve the image of the sector by promoting women participation to counter the image of the sector as male-dominated;
- the adoption of measures to combat violence and harassment in the sector;
- robust inspection and enforcement mechanisms; and
- the improvement of welfare facilities, together with industry and unions, to provide (all) workers decent sanitary facilities at transport and logistics sites.

1.3.6 Shaping responsible business practices to harness the logistics sector full potential

69. While the rise in environmentally and socially responsible freight transport and logistics operations has been the result of governmental regulations and economic considerations, the sector is also changing due to strong signals from the market. As consumers are becoming more aware of where products come from and the conditions under which they were made and transported, and thus are less willing to purchase products manufactured or transported against the principles of sustainable development, investors look closely at social and environmental standards adopted by enterprises in the due diligence process.

70. This means for micro, small and medium sized companies in freight transport and logistics that they have to adopt higher environmental and social standards in order to remain competitive, gain entry to the sector, or simply have access to financing. Yet common basis for review of environmental and social conditions for transport and logistics subcontractors may not be available. If so, governments can help in regulating and ensuring high standards of due diligence in logistics and transport companies by setting up legislative frameworks supporting the due diligence process, and through it contribute to building more sustainable enterprises and enhance the productivity of the sector.

1.4 Strategic geographical location of a country

71. A strategic location is of key importance to countries and regions, which due to its market characteristics may be unable to create the necessary economies of scale for international transport to operate effectively and at competitive costs. Such countries can enjoy the more strategic geographical location for transport, the more they manage to attract international transport corridors on which cargo is moved in high volumes between markets to cross their territories. This is even more important for landlocked countries without access to open seas.

72. Governments have an important role to play in making their countries achieve strategic geographical location. This role goes beyond the creation of conditions for efficient freight transport operations within the country. It focuses on providing good international connectivity through cooperation and coordination with all countries involved in a corridor to ensure that any bottlenecks whether physical or non-physical are minimized for that corridor for it to remain attractive to freight operators along its whole length.

73. In executing their role, governments can especially take advantage of the existing international agreements which set up transport networks and prescribe infrastructural and sometimes operational standards for the networks to meet. Among such agreements are United Nations Agreements such as AGR, AGC, AGTC or AGN briefly described in section 1.2. Governments can also take advantage of the border crossing facilitation agreements listed in section 1.1.1.

74. Governments need to ensure that they implement these agreements to comply with the requirements set therein. They also need to promote the accession to and implementation to these agreements by all countries along the corridors.

75. Governments may further set up programmes, with or without assistance of international organisations, under which they support each other in implementing or further enhancing the implementation of the international agreements or promote application of tested good practices. Such programmes typically result in the elimination of various physical and/or non-physical bottlenecks along the corridors.

IV. Good practices from ECE member countries in preparing national master plans

76. There are differences in freight transport and logistics performance among the ECE member States. There are countries in the region that are leaders in freight transport and logistics. They shape, through their action, the development of the sector. There are other countries, which learning from the good practice available, work on developing their freight transport and logistics sector.

77. The position of a country in freight transport and logistics, is a prerequisite to the development of national master plans. As the positions differ, so differ the focus areas and actions undertaken by countries.

78. The table provide below (Table 1) lists information and countries and the focus area of their national master plans for freight transport and logistics.

Table
Examples of focus areas of selected national master plans for freight transport and logistics

<i>Country</i>	<i>Focus areas of national master plans</i>
Armenia (2011)	<p>Improvement to regulatory framework and oversight capacity</p> <p>Road asset maintenance</p> <p>Expansion of railway network</p> <p>Improvements to urban transport</p> <p>Use of information technology</p> <p>Traffic safety</p> <p>Trade facilitation</p> <p>Transport costs reduction</p>
Austria (2012/2013)	<p>Infrastructure (Rail: Target network 2025+, Road: Infrastructure framework plan, Waterway: Strategy for the Danube region)</p> <p>Road Safety programme</p> <p>Interconnection (ITS-Action Plan)</p> <p>Research/Technology/Development (RTI-Strategy)</p> <p>Environment (Emissions: Euro Standards, Noise: BMVIT/BMK requirements, Spatial planning: ÖROK 2011, Electromobility plan, Modal shift: Target Network 2025+)</p> <p>Internationality (Strategy for the Danube region, Trans-European Networks)</p> <p>Logistics action plan 2013 based on Transport master plan 2012:</p> <p>Education and professional training (improvement of content of teaching for truck drivers and logisticians regarding all means of transport)</p> <p>Support measures to foster innovative technologies and to encourage modal shift</p> <p>Development of new technologies for freight transport and logistics in the framework of a long-term innovation and research planning</p> <p>More efficient use of infrastructure</p> <p>Improvement of communication and cooperation between stakeholders in freight transport</p> <p>Coordination and communication between European countries specially concerning inland waterways and combined/intermodal transport</p> <p>Use of modern technologies and vehicles to improve ecological effects and personal working conditions</p> <p>Revision of Austrian toll system</p>
Azerbaijan (2009)	<p>Adoption of a comprehensive transport infrastructure plan</p> <p>Reform of the transport and logistics curriculum</p> <p>Establishment of a pilot corridor with special economic zones, multimodal cargo facilities, logistics centres</p>

<i>Country</i>	<i>Focus areas of national master plans</i>
	<p>Simplification of customs laws and regulations; improvement of transparency in rules and regulations</p> <p>Promotion of the harmonization of border-crossing procedures, forms and data requirements</p> <p>Development and compilation of logistics performance indicators to assess the success of government policies, laws, and regulations</p>
Belarus (2013)	<p>Logistics development</p> <p>Construction of logistics centres</p> <p>Improvement in transport sustainability</p>
Bulgaria (2010)	<p>Implementation of European transport policy: the Greening Transport Package, Railway transport, Road transport and intelligent transport systems, Waterborne transport, Air transport, Intermodal transport, Urban transport</p> <p>Efficient maintenance, modernisation and development of transport infrastructure</p> <p>Reduction of the transport sector negative impact on the environment and human health</p> <p>Integration of the Bulgarian transport system into the European transport system;</p> <p>Provision of transparent and harmonised competitive business environment of the transport market</p> <p>Financing for transport sector development and performance</p> <p>Efficient capture of EU funds</p> <p>Safety and security of the transport system</p> <p>Provision of high-quality and accessible transport in all regions of the country</p>
Czech Republic (2020)	<p>Advanced Technologies, Research, Development and Innovation</p> <p>Transport impact reduction on public health and the environment</p> <p>Social issues, employment, education and qualifications</p> <p>Rail freight liberalization</p> <p>Development and modernization of multimodal transport centres</p> <p>Investments and strengthening of railway infrastructure</p>
Denmark (2010)	<p>Transport infrastructure optimization</p> <p>Avoid, shift, improve/upgrade approach</p> <p>Urban logistics initiatives</p>
Estonia (2009)	<p>Fuel prices and tax reform</p> <p>Regional and global transport system integration encouraging efficient modes</p> <p>Urban transport planning and policies</p> <p>Vehicle efficiency and emissions policy</p>

<i>Country</i>	<i>Focus areas of national master plans</i>
	Road, rail and marine systems construction standards and changes in the, in anticipation of climate change impacts (sea level rise, and increased frequency and severity of weather events)
	Transport assessment and analysis for integrated planning
Germany (2008/2019)	Transport infrastructure optimization
	Digital infrastructure development
	Avoid, shift, improve/upgrade approach
	Multimodality improvement
	Development of rules and standards for automated and connected driving in connection with Intelligent Transport Systems
	Procurement of electric commercial and delivery vehicles including the related charging infrastructure
	Urban logistics initiatives
	Environmentally friendly and climate-friendly transport
	Programmes for funding alternative drivetrains and fuels
	Good working conditions and good training in the freight transport industry
Greece (2012)	Optimal use of road, traffic and travel data
	Continuity of traffic and freight management ITS services
	ITS road safety and security applications
	Linking the vehicle with the transport infrastructure
	Road safety
	Sustainable mobility
	Development, social cohesion, employability, effectiveness, efficiency of the transport system
Italy (2010)	Modal integration: intermodality and comodality
	Navigable waterways
	Priority intervention areas for logistics platforms
	Outsourcing logistics and the supply chain
	City logistics
	Vehicle renewals
	Telematics platform for freight transport, logistics and environment
	Training in transport and logistics
	Monitoring and impact analysis
	National financial programs to encourage modal shift
Kazakhstan (2009)	Gap assessment in physical infrastructure and transport facilities
	Review of the transport corridors in Central Asia
	Analysis of demographic and economic patterns
Moldova (2012)	Logistics development

<i>Country</i>	<i>Focus areas of national master plans</i>
	Trade facilitation
	Infrastructure improvement and modernization
Norway (2007)	E freight policy
	Cross-sectoral cooperation on intermodal development
	Integration of transport chains
Portugal (2007)	Competitiveness
	Intermodality development
	Logistics promotion
	New investments
Spain (2013)	Improvements to logistic systems and transport services
	Investments into transport
Sweden (2012)	RIS for inland waterways
	TAF/TSI for rail
	ITS Action plan for road
	eMaritime for costal and intercontinental shipping
	SESAR for air
Tajikistan (2009)	Transport Infrastructure Inefficiencies and Deficiencies
	Operational Difficulties
	Institutional Challenges
	Strategic Framework
	Institutional Reforms
	Operational Improvements
	Physical Infrastructure Investments
Turkey (2009)	Traditional freight transport
	Intermodal transport operations
	Potential markets for freight container transport
	Semi-trailers in intermodal transport
	European domestic container
	Promotion of intermodal transport operations and logistics;
	Transport projection for Euro-Asian transport links
	Ro-la operation
Ukraine (2012)	National infrastructure development program and its integration into pan-European logistic system
	Initiatives on trade facilitation
	Investments into inland waterway and railway transport
Uzbekistan (2010)	Institutional reform
	Road financing and sustainability
	Cross-border facilities

<i>Country</i>	<i>Focus areas of national master plans</i>
	Private sector participation
	Road safety
	Rail reform
	Logistics centres

79. Countries, leaders in freight transport and logistics look for ways in optimization and making transport more efficient. They look into better application and development of ITS and telematics to improve efficiencies. They are interested to reshaping urban freight transport and promote and enhance intermodality. They are also very engaged in promoting decent jobs for the sector's workforce.

80. Other countries focus on measures to improve freight transport and logistics by improving legislation and administrative procedures, by expanding and improving road and rail networks, and by creating stable conditions for doing business.
