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Emerging issues in freight transport and logistics:

National Master Plans on freight transport and logistics

Economic Commission for Europe Handbook for national master plans for freight transport and logistics

Submitted by the secretariat

Executive summary

This Handbook for national master plans for freight transport and logistics has been elaborated with the aim to showcase the importance of the freight sector for the national economic development, and more importantly to assist national authorities in charge of freight transport and logistics with potential actions in accompanying the sector development to follow a sustainable path in support of national economic development.

In Chapter 1, the Handbook presents the interconnection between the strength of the freight and logistics sector with the strength of the national economies.

In Chapter 2, the Handbook showcases the role of the national authorities in the sector. More specifically, it discusses the stable conditions and enabling environment that national competent authorities can establish for the sector to prosper. It also discusses the provision of necessary infrastructure to support the development of the sector and the high-level objectives of environmentally and socially-sound sector development that the competent authorities should strive for. It further speaks about the role of the authorities in ensuring international connectivity through cooperation and coordination of actions with authorities of countries sharing the same international transport corridors.

The Chapter 3 of the Handbook presents focus areas of national master plans of various countries from the region of the Economic Commission for Europe (ECE).

The Handbook lists then in Chapter 4 the sets of actions for countries to take in developing the freight transport and logistics sector. The sets are distinguished depending on the sector development reached in countries.

In Chapter 5, the Handbook refers policy measures implemented with success in various countries. They serve as examples of good practices available for implementation of the different actions presented in Chapter 4.

Finally, Chapter 6 provides conclusions and recommendations for consideration by national authorities competent for the sector.

The path to sustainable development of freight transport and logistics sector as presented in this Handbook can be applicable at any times. The transformation of the sector may however be very timely in circumstances such as the aftermath to COVID-19 when governments take various measures to revive national and regional economies.

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CHAPTER 1

The importance of the logistics sector for the national economies

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.

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.

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.

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.

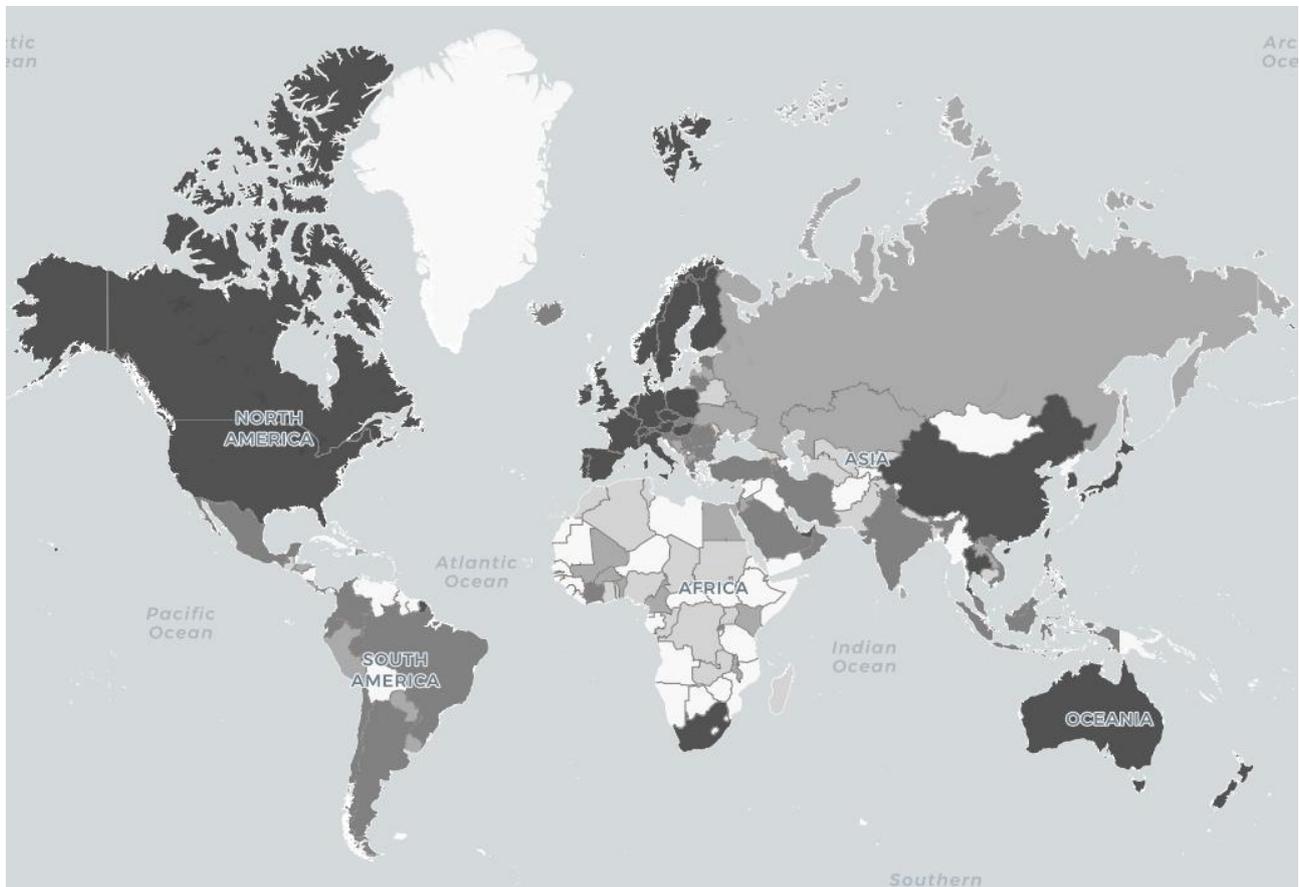
When it comes to validating these LPI dimensions, freight forwarders and express carriers are considered best positioned to assess how countries perform. Ultimately, they are the actors directly affecting the choice of shipping routes and gateways, thereby influencing the decisions of firms to locate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

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.

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.

Figure 1

Title: Logistics performance index, 2018

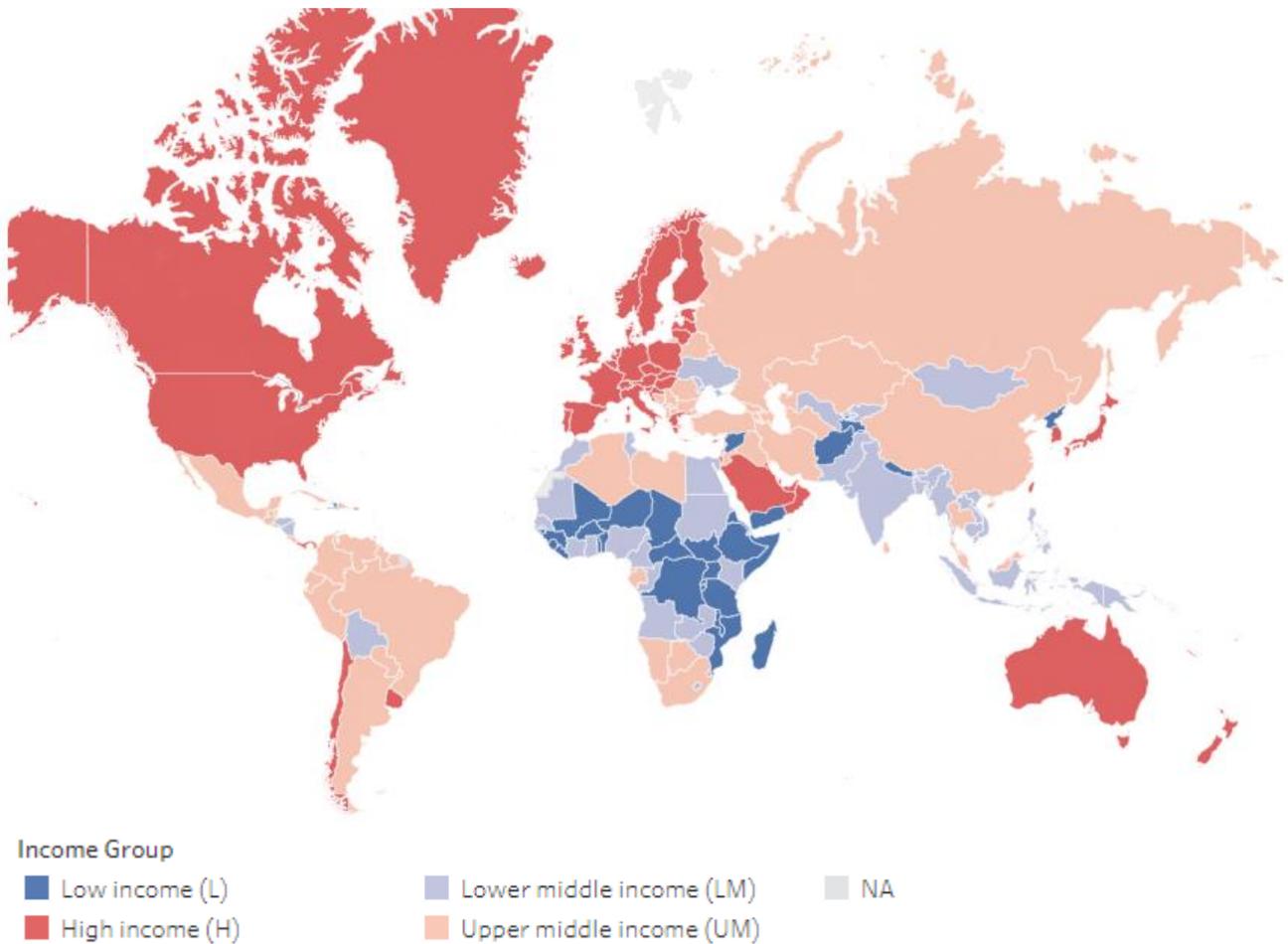


Source: The World Bank, <https://lpi.worldbank.org/international/global>.

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

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 2
Title: The World by Income, 2018



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

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>

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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. Chapter 2 offers an insight on the role of governments in enabling the development of the sector in a sustainable way.

CHAPTER 2:

The role of governments in freight transport and logistics

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.

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.

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.

This chapter 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

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.

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

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.

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 Organizations¹

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

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

- 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

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.

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

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.

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.

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

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.

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	
<ul style="list-style-type: none"> ▶ 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	Ports
<ul style="list-style-type: none"> ▶ Maritime Labour Convention, 2006 as amended ▶ Seafarers' Identity Documents Convention (Revised), 2003, as amended (No. 185) ▶ <i>Guidelines for implementing the occupational safety and health provisions of the Maritime Labour Convention, 2006</i> ▶ <i>Guidelines for port State control officers carrying out inspections under the Maritime Labour Convention, 2006</i> ▶ <i>Guidelines for flag State inspections under the Maritime Labour Convention, 2006</i> ▶ <i>Guidelines on the medical examinations of seafarers</i> ▶ <i>Guidelines on the training of ships' cooks</i> ▶ Hours of Work (Inland Navigation) Recommendation, 1920 (No. 8) 	<ul style="list-style-type: none"> ▶ 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) ▶ <i>Guidelines on training in the port sector</i> ▶ <i>Code of Practice on safety and health in ports</i> ▶ <i>Code of Practice on security in ports</i>
Road transport	Cross-sectoral
<ul style="list-style-type: none"> Hours of Work and Rest Periods (Road Transport) Convention, 1979 (No. 153) Hours of Work and Rest Periods (Road Transport) Recommendation, 1979 (No. 161) <i>Guidelines on the promotion of decent work and road safety in the transport sector</i> 	<ul style="list-style-type: none"> ▶ <i>IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units</i>

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

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

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.

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.

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.

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

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.

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.

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

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.

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.

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.

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

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.

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.

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

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.

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

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.

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.

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

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

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.

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.

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.

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.

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

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.

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.

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

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.

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.

In 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.

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.

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

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.

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).

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.

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

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.

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.

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

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.

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

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.

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.

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.

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.

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.

CHAPTER 3:

Good practices from ECE member countries in preparing national master plans

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.

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.

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

Country	Focus areas of national master plans
Armenia (2011)	<ul style="list-style-type: none"> - Improvement to regulatory framework and oversight capacity - Road asset maintenance - Expansion of railway network - Improvements to urban transport - Use of information technology - Traffic safety - Trade facilitation - Transport costs reduction
Austria (2012/2013)	<ul style="list-style-type: none"> - Infrastructure (Rail: Target network 2025+, Road: Infrastructure framework plan, Waterway: Strategy for the Danube region) - Road Safety programme - Interconnection (ITS-Action Plan) - Research/Technology/Development (RTI-Strategy) - Environment (Emissions: Euro Standards, Noise: BMVIT/BMK requirements, Spatial planning: ÖROK 2011, Electromobility plan, Modal shift: Target Network 2025+) - Internationality (Strategy for the Danube region, Trans-European Networks) <p>Logistics action plan 2013 based on Transport master plan 2012:</p> <ul style="list-style-type: none"> - Education and professional training (improvement of content of teaching for truck drivers and logisticians regarding all means of transport) - Support measures to foster innovative technologies and to encourage modal shift - Development of new technologies for freight transport and logistics in the framework of a long-term innovation and research planning - More efficient use of infrastructure - Improvement of communication and cooperation between stakeholders in freight transport - Coordination and communication between European countries specially concerning inland waterways and combined/intermodal transport

	<ul style="list-style-type: none"> - Use of modern technologies and vehicles to improve ecological effects and personal working conditions - Revision of Austrian toll system
Azerbaijan (2009)	<ul style="list-style-type: none"> - Adoption of a comprehensive transport infrastructure plan - Reform of the transport and logistics curriculum - Establishment of a pilot corridor with special economic zones, multimodal cargo facilities, logistics centres - Simplification of customs laws and regulations; improvement of transparency in rules and regulations - Promotion of the harmonization of border-crossing procedures, forms and data requirements - Development and compilation of logistics performance indicators to assess the success of government policies, laws, and regulations
Belarus (2013)	<ul style="list-style-type: none"> - Logistics development - Construction of logistics centres - Improvement in transport sustainability
Bulgaria (2010)	<ul style="list-style-type: none"> - 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 - Efficient maintenance, modernisation and development of transport infrastructure - Reduction of the transport sector negative impact on the environment and human health - Integration of the Bulgarian transport system into the European transport system; - Provision of transparent and harmonised competitive business environment of the transport market - Financing for transport sector development and performance - Efficient capture of EU funds - Safety and security of the transport system - Provision of high-quality and accessible transport in all regions of the country
Czech Republic (2020)	<ul style="list-style-type: none"> - Advanced Technologies, Research, Development and Innovation - Transport impact reduction on public health and the environment - Social issues, employment, education and qualifications - Rail freight liberalization - Development and modernization of multimodal transport centres - Investments and strengthening of railway infrastructure
Denmark (2010)	<ul style="list-style-type: none"> - Transport infrastructure optimization - Avoid, shift, improve/upgrade approach - Urban logistics initiatives
Estonia (2009)	<ul style="list-style-type: none"> - Fuel prices and tax reform - Regional and global transport system integration encouraging efficient modes - Urban transport planning and policies - Vehicle efficiency and emissions policy - 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)	<ul style="list-style-type: none"> - 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)	<ul style="list-style-type: none"> - 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)	<ul style="list-style-type: none"> - 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)	<ul style="list-style-type: none"> - Gap assessment in physical infrastructure and transport facilities - Review of the transport corridors in Central Asia - Analysis of demographic and economic patterns
Moldova (2012)	<ul style="list-style-type: none"> - Logistics development - Trade facilitation - Infrastructure improvement and modernization
Norway (2007)	<ul style="list-style-type: none"> - E freight policy - Cross-sectoral cooperation on intermodal development - Integration of transport chains
Portugal (2007)	<ul style="list-style-type: none"> - Competitiveness - Intermodality development - Logistics promotion - New investments
Spain (2013)	<ul style="list-style-type: none"> - Improvements to logistic systems and transport services - Investments into transport
Sweden (2012)	<ul style="list-style-type: none"> - RIS for inland waterways

	<ul style="list-style-type: none"> - TAF/TSI for rail - ITS Action plan for road - eMaritime for costal and intercontinental shipping - SESAR for air
Tajikistan (2009)	<ul style="list-style-type: none"> - Transport Infrastructure Inefficiencies and Deficiencies - Operational Difficulties - Institutional Challenges - Strategic Framework - Institutional Reforms - Operational Improvements - Physical Infrastructure Investments
Turkey (2009)	<ul style="list-style-type: none"> - 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)	<ul style="list-style-type: none"> - 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)	<ul style="list-style-type: none"> - Institutional reform - Road financing and sustainability - Cross-border facilities - Private sector participation - Road safety - Rail reform - Logistics centres

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.

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.

CHAPTER 4:

Guidelines for the development of national master plans for freight transport and logistics

The prerequisite for the development of a freight transport and logistics plan, and the preparation of a relevant master plan with specific and focused actions is the country's position in the sector. Countries leaders in freight transport and logistics, are interested in a different set of actions than countries who are building their positions.

For the first group of countries, the focus is to be given to actions on optimization, including optimization between economic, environmental and social dimensions of freight transport and logistics. In doing so, governments in these countries should ensure that they maintain or further improve the conditions for doing business for the industry as well as provide the necessary infrastructure.

For the other countries, the focus is to be given to actions that aim at putting in place stable and good conditions for the industry and delivery of the necessary infrastructure, which is well connected internationally. While doing so, governments in these countries should be looking at high-level objectives, including environmental and social aspects of freight transport and logistics and take actions, which do not undermine in medium to longer term the high-level objectives.

The following actions are recommended:

A. Stable conditions:

Actions in this area should aim at creation of rules, regulations, standards and practices and their enforcement or implementation to make freight transport operations safe, secure, efficient and fair in terms of level-playing field.

Countries building their position in the sector:

- Accede to and implement United Nations transport conventions and trade facilitation conventions such as those listed in Chapter 1, section 1.1.1. to create stable conditions in the sector for the industry to do business and develop;
- Accede to and implement sanitary and phytosanitary conventions, agreements, regulations and standards such as those listed in Chapter 1, section 1.1.1. to minimize the risk of introduction and spread of human, animal and plant pests and diseases due to trade and transport of food, animals, plants and plant products and inanimate goods;
- Ratify and implement the ILO instruments, including fundamental conventions and sectoral instruments and tools as listed in Chapter 1, section 1.1.3.;
- Encourage establishment of freight transport and logistics associations;
- Provide a solid framework that supports the establishment of free and democratic unions and collective bargaining for the sector;
- Work with industry associations and unions to develop vocational training and improved professionalization of the sector;
- Follow international practice and standards to occupational health and safety;
- Start building enabling environments for sustainable transport and logistics enterprises and the promotion of occupational health and safety and decent work in the

sector, inter alia, by acceding to and implementing relevant ILO conventions and applying ILO recommendations and guidance;

- Implement the IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units;
- Increase collaboration between government and transport and trade entities and work towards establishment of a single window facility and trade facilitating schemes.

Countries, leaders in the sector:

- Sustain implementation of the United Nations transport conventions and trade facilitation conventions listed in Chapter 1, section 1.1.1.;
- Sustain implementation of sanitary and phytosanitary conventions, agreements, regulations and standards such as those listed in Chapter 1, section 1.1.1.;
- Sustain implementation of ILO instruments, including fundamental conventions and sectoral instruments and tools as listed in Chapter 1, section 1.1.3.;
- Work with industry associations, vocational schools and universities to establish specialised courses and training possibilities, and for university courses to improve their international profile;
- Monitor the health and safety as well as decent work conditions in the sector and work with industry to further improve them;
- Optimize single window facility;
- Sustain implementation the IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units;

B. Infrastructure and networks:

Actions in the area should aim at delivery of the necessary infrastructure and its further optimization.

Countries building their position in the sector:

- Accede to and implement United Nations transport infrastructure agreements such as AGR, AGC, AGTC, AGN or the Protocol to on Combined Transport on Inland Waterways to AGTC in order to develop and maintain the essential infrastructure;
- Remove missing links;
- Develop infrastructure at major locations for intermodal shift;
- Increase application of ITS for traffic management.

Countries, leaders in the sector:

- Sustain high-level of implementation of United Nations transport infrastructure agreements and further develop them to meet the increasing demand for cargo handling;
- Monitor traffic and upgrade infrastructure bottlenecks;
- Optimize infrastructure networks by better utilization of ITS and telematics by the industry;
- Further develop ITS for infrastructure optimization through supporting relevant research and development;

- Support research and development for mainstreaming ITS solutions;
- Better address ITS challenges such as systems interoperability and data exchange, fraud and violation privacy and security;
- Research on segregating freight transport from passenger transport (dedicated road lanes and rail lines for freight transport);
- Optimize use of infrastructure by further enabling intermodal shift: road to rail and waterways/sea, rail to waterways/sea;
- Create and develop short-sea shipping;
- Adjust and develop infrastructure supporting a new city logistics concept.

C. High-level objectives:

Actions in this area should aim at increasing efficiencies through research and innovation in the sector and at minimizing external costs to human and the environment (social and environmental optimization) from freight transport and logistics.

Countries building their position in the sector:

- Support application of ITS in transport operations;
- Encourage/incentivise use of low emission vehicles;
- Create assistance programme especially for SMEs to use modern, low-emission vehicles;
- Pursue legislative changes and amendments to allow women to access the sector;
- Pursue legislative changes for upping the quality of employment in the sector, or help micro, small and medium enterprises to transition from the informal to the formal economy, where needed;
- Research on best practices on training, skills development and life-long learning to professionalize the sector;
- Follow strategies and international good practices and establish relevant risk management approaches to reduce the introduction and spread of human, animal and plant health pests and diseases.

Countries, leaders in the sector:

- Optimize shippers' operations (with regard to ramp times);
- Optimize transit traffic;
- Optimize transport operations by better utilization of ITS and telematics and through operational research by the industry;
- Support research and development for pollution free (decreased emissions) freight transport and logistics;
- Further develop ITS for transport operations optimization through supporting relevant research and development;
- Research on policies and technologies to enhance capacity and minimize empty/low load runs;
- Rethink city logistics and support research in this area;

- Internalise external costs for supporting environmental and social optimization, including through intelligent tolling systems;
- Enhance environmental, social and safety standards, and where relevant, introduce them into the international conventions and agreements and/or national regulatory framework;
- Promote and encourage industry associations to identify and standardize practices and tools that support responsible business conduct;
- Develop programmes and sectoral strategies to improve the quality of decent jobs and diversity in the sector – this will translate in a better perception of the industry to attract new recruits and avoid shortages;
- Establish and monitor targets for inspection, due diligence and for increasing diversity and women representation in the sector;
- Establish frameworks responsibilities, penalties and redress mechanisms available to transport and logistics chain parties and workers (chain of responsibility);
- Support innovative approaches for fair and human-centred procurement, outsourcing and governance frameworks to manage privatization, including social and environmental safeguards, and monitoring mechanisms;
- Continue to develop and enhance strategies, good practices and relevant risk management approaches to reduce the introduction and spread of human, animal and plant health pests and diseases.

D. Strategic geographical location

Actions in this area should aim at improving cooperation and collaboration between governments along transport corridors to enhance international connectivity (improved operationalization of a corridor)

Countries building their position in the sector:

- Work towards enhanced cooperation and collaboration for supporting effective connectivity along corridors and their increasing operationalization.

Countries, leaders in the sector:

- Sustain high-level cooperation and collaboration for maintaining effective connectivity along corridors;
- Introduce freight transport and logistics vocabulary for transborder communication.

CHAPTER 5:

Policy measures in support of the implementation of the national master plans

Implementation of actions can be more effective if it is taking into consideration the experience made by other countries. To this end, policy measures in support of actions listed in Chapter 4 are presented here. These policy measures can be considered as a good practice available for implementation of the various actions. A non-exhaustive list of measures is provided below.

A. Stable conditions:

Accession to and implementation of United Nations transport conventions and trade facilitation conventions / Sustained implementation of United Nations transport conventions and trade facilitation conventions

Example of measures:

- Adequate transposition of the conventions' provisions into national legislation is the necessary step towards the implementation of the conventions.
- Establishment of heavy goods vehicle centres along main corridors can help prevent fraud by road hauliers in terms of vehicle safety, loading, driver rest time periods. Thanks to such control measures road safety for goods vehicles can be strengthened. Also, the level-playing field for road hauliers is supported.
- Vehicle checks and evaluation of results of the checks – hence strengthened enforcement – can lead to improvements of work conditions in road haulage sector.

Accession to and implementation of the sanitary and phytosanitary conventions, agreements, regulations and standards / Sustained implementation of sanitary and phytosanitary conventions, agreements, regulations and standards

Example of measures:

- Application of international standards, harmonised sanitary and phytosanitary measures and establishment of a strong inter agency and public-private collaboration platform helps enhance the assessment and management of sanitary and phytosanitary risks in the interests of safe trade facilitation.
- Taking reasonable steps to keep cargo transport units (CTUs) and their cargo clean can prevent the spread of pests and diseases through transport supply chains. Clean CTUs are likely to move through borders quicker, easier and cheaper. As a result stakeholders involved could experience: reduced inspections to verify that the CTUs are clean, greater certainty that containerized cargo release will be as expected, and fewer unexpected expenses, such as demurrage charges due to cargo holds or costs associated with having the CTUs quarantined, sealed and treated, cleaned, or re-exported back to origin.
- Following electronic data exchange systems such as the IPPC ePhyto can facilitate multilateral electronic certificate exchanges based upon a single, harmonized communication protocol, eliminating the cost and complexity of multiple bilateral exchange protocols.

Ratification and implementation of the ILO instruments, including fundamental conventions and sectoral instruments and tools / Sustained implementation of the ILO conventions

Example of measures:

- Adequate transposition of the conventions' provisions into national legislation is the necessary step towards the implementation of the conventions. Up-to-date information on ratifications, and the work of the ILO committees and commission can be found in the NORMLEX database (www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:20060:0::NO::).
- The Committee of Experts on the Application of Conventions and Recommendations was set up in 1926 to examine government reports on ratified Conventions. Governments, once a convention was ratified, are required to report regularly on the measures they have taken for its implementation (every three years for fundamental conventions and every six years for the others, although reports may be requested at shorter intervals). In addition, governments are required to submit copies of their reports to employers' and workers' organizations. These organizations may comment on the government reports or send comments directly to the ILO on the application of Conventions.
- Because the principle of freedom of association needed a further supervisory procedure, the ILO set up in 1951 the Committee on Freedom of Association for the purpose of examining complaints of violations of freedom of association. The committee has examined 3,300 cases, of which at least 67 relate to the transport sector.
- The ILO Commission of Inquiry is the highest-level investigative procedure examining allegations to violations of international labour standards. To date, 14 commissions have been established by the ILO, of which 6 include complaints or allegations on violations to representatives in the transport sector.
- In particular relating to the Maritime Labour Convention, 2006, as amended, governments can promote concentrated inspection campaigns within the framework of regional port state memorandum of understandings

Support to establishment of freight transport and logistics associations/Promotion with industry associations of standardized practices and tools that support responsible business conduct;

Example of measures:

- Ensuring that employers have a voice and are represented can be essential for the effective functioning of transport and logistics labour markets and its overall governance structure.
- Creation of association can help create and/or enhance cooperation between enterprises forming such an association and the authorities on the one hand and research institutions on the other hand. Legislative basis facilitating creation of associations should be put in place.
- Launching of public-private partnerships such as Logistics Alliance Germany – can help SMEs connect with logistics partners in foreign countries who, as part of the partnership, can be more trusted for moving cargo efficiently and safely.
- Development of codes of conduct, updated templates and formats for wide industry use, self-assessment forms, identification of best practices and policies serves as a basis to improve and support responsible business conduct.

Creation of a solid framework that supports the establishment of free and democratic unions for the sector

Example of measures:

- Ensuring that workers have a voice and are represented can be essential for the effective functioning of transport and logistics labour markets and its overall governance structure. This includes the removal of obstacles to, and interference with the activities of free and independent trade unions representing transport workers that are contrary to national law or the fundamental principles and rights at work.
- Social dialogue and collective bargaining practices are seen as a key means through which workers and employers and their organizations can establish fair wages and working conditions, and ensure equal opportunities between women and men. It also provides the basis for sound labour relations and for a harmonious and productive transport and logistics industry. Enhancing the inclusiveness of collective bargaining and collective agreements can be seen as a key means for reducing inequality and extending labour protection.

Development of vocational training and improved professionalization of the sector in collaboration with industry associations, unions, vocational schools and universities

Example of measures:

- Introduction by regulatory bodies of a sound skills development framework, including training regulations that reflect the requirements of industry and technology and prescribe periodic re-training should result in raising the skills level and improve the sector's image. Such measure should not only result in laying foundations for good working conditions but also in making the industry develop faster with the work force working effectively with newest technologies and methods and principles of operational research. Within the scope of their training regulations, regulatory bodies should also include the regulation of instructors, training officers and other training staff, persons engaged in the maintenance and repair of vehicles; supervisors, transport managers, contractor account managers and driver recruiters and supply chain intermediaries, including freight forwarders.
- Joint meetings and consultations with industry associations, unions and practitioners on training in the freight sector can help to better design training initiatives as well as assess the ongoing training and redesign it if found ineffective.
- Introduction of internationally recognized courses of study for the basic and further training of national and international management executives in the sector can help to better link the higher education landscapes across the countries. Such measure can help disseminate good practices between countries and lead to overall improvements in the sector by having more qualified managers.
- Availability of freight transport and logistics specialities in secondary and vocational education can help attract young professionals to the industry and can help ensure continues inflow of young professionals the industry needs to develop. The secondary and vocational education training needs to be continuously adapted to market needs and technology change to deliver the necessary results.
- Establishment of educational platforms by sector's associations connecting professionals can facilitate access to training and retraining in the sector.

Implementation of international practice and standards to occupational health and safety

Example of measures:

- Recognition that safety and health are fundamental, and adoption of ILO occupational safety and health conventions and tools, including ILO sectoral instruments and tools is a key first step to ensuring occupational health and safety.
- Introduction of frameworks on safety management systems, that can help to bridge the gap between transport regulation and occupational safety and health legislations is another important step.
- Improvement of welfare facilities, including safe and secure parking, rest areas and decent sanitary facilities (bathrooms and showers) is of paramount importance to improve the attractiveness of the sector.
- Recognition of the central role that free and democratic trade unions play in influencing through social dialogue and collective bargaining compliance with health and safety legislation in the workplace, particularly in transport supply chains where there is fragmentation, a prevalence of non-standard employment or informal livelihoods, helps maintain high level of occupational health and safety.

Creation of enabling environments for sustainable transport and logistics enterprises and the promotion of occupational health and safety and decent work in the sector / Monitoring of the health and safety as well as decent work conditions in the sector and collaboration for further improvements

Example of measures:

- Adoption of working and driving time frameworks (AETR or ILO Convention 153) helps create decent, fair and safe work conditions in the road transport sector.
- Continuous monitoring, inspection and regular evaluation of decent working conditions in the sector by relevant state transport/logistics agencies should lead to availability of evidence base that can be used in discussion with transport and logistics buyers, supply chain parties, industry associations and unions about work conditions and their possible further improvement to make the work in the sector more attractive.
- Strategies to formalize transport undertakings where needed and raising the levels of social security access of the transport and logistics workforce creates the necessary enabling environment to health and safety in the sector.
- Adoption of regulation or programmes encouraging sustainable payment levels and fair contracting of micro, small and medium transport and logistics enterprises is a step to creating decent work in the sector.
- Increased collaboration and inter-agency support and funding between police, transport and labour inspectorates results in improved monitoring of health and safety as well as decent work conditions in the sector.
- Implementation of chain of responsibility principles through legislation or practices results in improved health and safety conditions in the sector.
- Implementation of Port State control system through memoranda of understanding helps create decent, fair and safe work conditions in the maritime sector.

Implementation of the IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units

Example of measures:

- Application of the provisions of the Code of Practice for Packing of Cargo Transport Units helps ensure safe and secure transport of containers due to safe and secure stowage of cargo. It helps in providing relevant training to workers who load or unload

cargo from containers. It also helps prevention of the spread and introduction of human, animal and plant pests and diseases.

Increased collaboration between government and transport and trade entities and work towards establishment of a single window facility and trade facilitating schemes

Example of measures:

- Establishment of an ‘one-stop’ principle for controls such as customs, border, veterinary, phytosanitary, radiological and other inspections decreases the time needed for controls. It also leads to decrease of fees charged. Such a measure is considered as a big contribution to facilitating trade and transport.
- A global system for production and exchange of electronic certification information incorporated into trade single window helps strengthen and simplify trade in food, animals, plants, animal and plant products reducing transaction costs, expediting the clearance of compliant products and eliminating fraud.
- Authorised Economic Operator (AEO) programme can facilitate clearing procedures for known shippers and forwarders. The AEO scheme should be continuously reviewed to ensure its compliance with latest international requirements. Authorities wishing to understand the full benefits of AEO schemes, may learn from the experience of countries with long-standing AEO programmes.

Optimization of a single window facility

Example of measures:

- Full potential of a single window facility can be achieved when all transport documents can be received electronically by all relevant government agencies participating in the facility. The development and/or expansion of the facility is best achieved when coordinated by one entity, typically local custom authority.

B. Infrastructure and networks:

Accession and implementation of the United Nations transport infrastructure agreements such as AGR, AGC, AGTC, AGN or the Protocol to on Combined Transport on Inland Waterways to AGTC in order to develop and maintain the essential infrastructure / Removal of missing links;

Example of measures:

- Creation of a dedicated national fund – e.g. Swiss Rail Infrastructure Fund (RIF) – can help better manage renewal, modernisation and further expansion of infrastructure networks. Such funds should possibly be multi-year ones and supported by performance agreements and targets.

Sustained implementation of United Nations transport infrastructure agreements and their further development to meet the increasing demand for cargo handling/ Traffic monitoring and upgrade of infrastructure bottlenecks;

Example of measures:

- Elaboration of expansion plans agreements and related network usage concepts can help in planning train path usage after the expansion.
- Elaboration of network usage plans can serve as a basis for train path allocations. Such plans are drawn to ensure meeting future demands of both passenger and freight transport as well as to prevent displacing freight transport by expansion of passenger traffic.

Optimization of infrastructure networks by better utilization of ITS and telematics by the industry:

Example of measures:

- Traffic management systems on busy sections can improve traffic fluidity. Equipping road sections with dynamic displays on maximum speed, prohibition of overtaking or lane control signals helps prevent driver behaviours which otherwise could lead to congestions or accidents. Such measure is aimed at enhancing capacity of the section of road by increasing traffic efficiency.
- Intelligent traffic information and control can help redirect long-distance traffic from road sections of elevated traffic or congested roads. The system needs to cover the full transit network and provide full information to vehicle and driver on the best route to destination taking into account predictive information on congestions, flows of traffic, speeds and construction sites, etc.
- Application of artificial intelligence into the instrument inspection via image identification at borders can accelerate control and decrease times necessary for crossing borders.

Development of infrastructure at major locations for intermodal shift/ Monitoring of traffic and upgrade of infrastructure bottlenecks / Optimization of infrastructure use by further enabling intermodal shift

Example of measures:

- Availability of funding for co-financing of construction and upgrade of intermodal terminals/combined transport transshipment facilities and resulting investments by private operators in the terminals infrastructure can help increase capacity of the overall system of freight transport. (E.g. Austrian terminal support programme).
- Availability of funding for construction of new and upgrading of existing private sector combined/intermodal transport terminals.

Research on mainstreaming of ITS

Example of measures:

- Deployment and use of harmonized river information services (RIS) in the industry can help enhancing safety, efficiency and environmental friendliness of inland waterways transport and facilitate its interfaces with other transport modes.

Improvements to ITS interoperability and data exchange, prevention of fraud and violation of privacy and security

Example of measures:

- Government engagement into elaboration of ITS interoperability standards can help increase availability of various compatible ITS solutions, which should help decrease their prices and lead to easier access to these solutions.

Research on segregation of freight transport from passenger transport (dedicated road lanes and rail lines for freight transport)

Example of measures:

- Traffic segregation on busy sections of lines can help reduce pathing conflicts between passenger and freight rail service. Experience show that relatively small-scale investment projects at the busiest sections should lead to gains of additional paths in a range of 10 to 20 per cent. Ex-ante simulations should be conducted to verify if the planned investments can bring the expected results.

- Flexibilization measures by a slight moving of schedules or through adjustments of slots can also help increase pathing capacity. Research and/or simulations of slots adjustments should be conducted to assess possible gains.
- Widening of road network and segregation of heavy trucks from passenger traffic at busiest sections can enhance the capacity of the network. The development of segregated sections for heavy trucks can be explored to be developed as PPP solutions, where relevant, e.g. where heavy trucks are subject to tolls for using the road network.

Creation and development of short-sea shipping

Example of measures:

- Creation of motorways of the sea on selected short high-volume transit corridors – e.g. the European North-South corridor from Scandinavia to Spain/Portugal through Germany and France – can help shift cargo transport away from road haulage on such corridors. Such measure can result in many positive effects such as decrease of congestion, decrease of air and noise pollution from the road traffic, increased road safety.

Infrastructure for supporting new city logistics concepts

Example of measures:

- Availability of funding programmes for the preparation of urban logistics strategies and feasibility studies on concrete individual urban logistics projects and/or funding for concrete individual urban logistics projects.

C. High-level objectives:

Support to application of ITS in transport operations / Optimization to transport operations by better utilization of ITS and telematics and through operational research by the industry

Example of measures:

- Financial support programmes dedicated to SMEs on ITS can help increase the uptake and application of ITS solutions by SMEs.
- Financial support and training programmes to SMEs on operational research can help increase uptake and application of problem-solving techniques and methods such as advanced analytical techniques and methods.
- Digitalization support programmes for SMEs can help the latter to select appropriate software tools for optimization of their business processes. These programmes can also help the SME's workforce to receive required technical training for the use of the tools.

Incentive for use of low emission vehicles / Assistance programme for SMEs to use modern, low-emission vehicles

Example of measures:

- Creation of a premium as a financial support for retrofitting boats with low emissions motors or for purchase of lower-emission or electric vehicles can help SMEs to upgrade or replace their transport fleets. Use of electric vehicles requires availability of the necessary charging infrastructure, without which electric vehicles may not be embraced by the industry.

Legislative changes and amendments to allow women to access the sector/Legislative changes for upping the quality of employment in the sector, or help micro, small and medium enterprises to transition from the informal to the formal economy, where needed

Example of measures:

- Abolishment of laws, regulations, and cultural practices that (i) restrict the types of work in which women can engage, (ii) limit women's freedom of movement, and (iii) permit gender-based workplace discrimination, violence or harassment, is to result in creation of equal conditions for woman and man to access to occupation in the sector.
- Establishment and implementation of laws and policies to promote equal treatment, non-discrimination, maternity/paternity protection and parental leave, and generally opportunity for women to participate in the economic, social, and civil life of society should help attract women to sectors previously male-dominated, including freight transport and logistics sector.
- Facilitation in the transition of workers and economic units to the formal economy through policies and actions that protect informal workers and promote the formalization of workers and enterprises results in decent work conditions in the sector and make the sector more attractive to men and women workers.

Research on best practices on training, skills development and life-long learning to professionalize the sector

Example of measures:

- Creation of collaboration and research platforms for industry associations, unions and practitioners on training in the freight and logistics sector can help to better design training initiatives especially for the life-long learning needed to continuously improve skills level in the sector.

Optimization of shippers' operations

Example of measures:

- Flexible cargo delivery and collection windows at terminals can help optimize transport operation and the use of infrastructure. This flexibility needs to be exercised in the context of existing restriction measures and provision of decent work environment for workers. Relevant simulations may be done before implementation of such measure.
- Creation of visa exception mechanisms which lift the requirement on shippers and forwarders for entry visas can help increase efficiencies in transport operations.

Optimization of transit traffic

Example of measures:

- Longer trains or double-decker cargo trains or standardised high-profile routes (e.g. 4-metre corridor through the Alps²) on selected routes can lead to increasing traffic capacity. Also, multilayer container transport on selected inland waterways in accordance with applicable safety requirements can lead to increasing traffic capacity. Introduction of such measures may require pilot testing and funding support for the tests. In such case, transparent funding guidelines need to be provided.

² More-information on the 4-metre corridor can be found at:
<https://www.bav.admin.ch/bav/en/home/modes-of-transport/railways/expansion-programmes-rail-infrastructure/4-metre-corridor%20.html>

Research and development on ITS for enhancement of transport operations

Example of measures:

- Creation of collaboration platforms linking virtually government officials, academia and industry to discuss policy measures or mechanisms for application of ITS can help accelerate ITS uptake by the industry and can help increase efficiencies in transport operations.
- Development of systems to provide information on the loading condition and automatic identification systems for wagons and containers can facilitate carriage of goods by rail and increase the usage of rail for freight transport.

Research on policies and technologies to enhance capacity and minimize empty/low load runs

Example of measures:

- Provision of funding for pilot projects involving innovative technologies for enhancing capacity can help drive forward innovation. Implementation of pilot projects should speed up the process of technology adaptation to market needs.

Internalization of external costs for supporting environmental and social optimization, including through intelligent tolling systems

Example of measures:

- Internalization of external costs (air pollution, climate change, noise, accidents, congestion) can lead to improved competition between various modes of transport and redirect demand to transport service which is overall most economically optimal. This measure may require international approach so as to limit adverse impact on competitiveness of specific service vis-à-vis international competition.
- Implementation of a toll rate model that is based on weight and emissions but also on the selection of route and time of day (i.e. differential tolling) can help prevent congestion and contribute to a better segregation of traffic. Such a model needs to be legally and technically permissible. Technically it requires automatic toll systems. This measure, when well designed, can help make transport more environmentally friendly. When designing this measure, cost of the toll collection should be taken into account.
- Differentiation of track access charges for wagons depending on their noise emission level can incentivise wagon holders/railways to introduce low-noise freight wagons. This measure would allow to reduce transport noise and the impairment of health it causes, thereby making transport socially more friendly.

Enhancement of environmental, social and safety standards, and where relevant, their introduction into the international conventions and agreements and/or national regulatory framework

Example of measures:

- Review of national regulatory framework can help to understand if it creates fair conditions to operation of the various modes and can help the establishment of fair competition. The review, where relevant, is to be followed by legislative changes to ensure intermodal shift is not hampered by lack of regulatory level-playing field.
- Setting up of higher standards for emissions reduction and noise mitigation together with an enforceable implementation plan can help transition the transport and logistics sector to one that is more sustainable from the environmental point of view. Such measure needs typically to be bundled with assistance programmes for purchase of

low emission vehicles or by supporting innovation that can help mainstream low emission vehicles or technologies. Such measure may also have a positive impact on safety, as fleet replacement to new low emissions vehicles may also mean to vehicles equipped with safety systems such as e.g. electronic stability control (ESP) or driver assistance systems. For that latter to happen, appropriate safety requirements for new vehicles have to be appropriately regulated.

Quality improvements to jobs and diversity in the sector / Availability of diversity targets

Example of measures:

- Transport and logistics workforces do not generally reflect the diversity of the populations, employers, and workers they serve. Therefore, campaigns, programmes or regulatory amendments, or other enhanced and sustained efforts to eliminate prejudice and discrimination in line with equality of employment, opportunity and treatment principles help to diversify employment in the sector.
- Setting up targets to greater gender, ethnic and other diversity helps to gradually increase diversity in the sector. Such targets can aim at employment of women, migrants and refugees (to the extent that they are lawfully entitled to work and while ensuring that they are trained and licensed as necessary under national laws), veterans, older and younger drivers (while avoiding child labour and the interruption of compulsory schooling and ensuring that all CMV drivers are trained and licensed as necessary under national laws) and persons with disabilities (whose capacity for execution of required task, e.g. driving, is not affected).

Establishment of frameworks responsibilities, penalties and redress mechanisms available to transport and logistics chain parties and workers

Example of measures:

- A chain of responsibility gap assessment tool can assist parties with responsibilities in the supply chain to identify, assess and manage risks and obligations they have in the chain. The tool consists of a series of practical questions that help a party to examine its business practices and system controls against known risks and recognized best practices. The application of the tool helps to avoid breaches of relevant legislation in force.

Implementation of strategies and international good practices and establishment of relevant risk management approaches to reduce the introduction and spread of human, animal and plant health pests and diseases / Further improvement of the strategies and risk management approaches

Example of measures – see measures listed in Section A, Stable conditions, under ‘Accession to and implementation of the sanitary and phytosanitary conventions, agreements, regulations and standards / Sustained implementation of sanitary and phytosanitary conventions, agreements, regulations and standards’

Innovative approaches for fair and human-centred procurement, outsourcing and governance frameworks to manage privatization, including social and environmental safeguards, and monitoring mechanisms

Example of measures:

- The application of 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 to manage privatization of transport infrastructure through PPPs.

D. Strategic geographical location

Work towards enhanced cooperation and collaboration for supporting effective connectivity along corridors and their increasing operationalization

Example of measures:

- Harmonized interregional train control systems allow passage of trains without the need of changing locomotives across borders. Implementation of such systems across international corridors results in relieving congestion on the trunk railroads and helps to enhance the corridor capacity.
- Cooperation on transport security should result in making freight transport secure while ensuring that security measure do not create competitive disadvantages among transport and logistics entities from different countries.

Sustained high-level cooperation and collaboration

Example of measures:

- Creation of freight transport and logistics networks of fixed focal points can help increase the effectiveness of communication between partners across countries along international corridors. Such measure can result in a more efficient exchange of views and a faster adoption of joint positions. It can also help any stakeholder to have exert its influence over the common decision.

Availability of freight transport and logistics vocabulary for transborder communication

Example of measures:

- Availability of common vocabulary can help the stakeholders in the sector to communicate more effectively both nationally as well as across borders.

CHAPTER 6:

Conclusions and Recommendations

The performance of the freight transport and logistics sector differs across countries. The sector has also reached a different level of development in different countries. There are countries 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.

The position of a country in the freight transport and logistics sector determines the kind of action the country should take to develop the sector further. Countries, leaders in the sector, are usually interested in action aimed at optimization, including optimization between economic, environmental and social dimensions of freight transport and logistics. This optimization also concerns the delivery of optimal infrastructure for the industry. Countries building their position in the sector need to focus on action aimed at putting in place stable and good conditions for the industry to do business. They also need to make sure that the necessary infrastructure providing international connectivity is available. While doing so, they also need to be integrating high-level objectives in those actions to ensure that economic development of the sector is balanced against environmental and social priorities of the country.

While the specific actions should vary depending on the level of the sector's development in the country, there are four focus areas for the governments to work in:

- Creation and maintenance of stable conditions for the industry in the sector to do business. This encompasses rules, regulations, standards and practices and their enforcement or implementation to make freight transport operations safe, secure, efficient and fair in terms of level-playing field and decent work.
- Delivery of adequate infrastructure and networks. This encompasses both delivery and further optimization of infrastructure, also including through privatization processes, which governments should carefully manage and make them human-centred.
- Achievement of high-level objectives. This concerns efficiencies increase through research and innovation in the sector that is human-centred. This also encompasses minimization of external costs to humans and the environment (social and environmental optimization) from freight transport and logistics.
- Attainment of strategic geographical location. This refers to international connectivity enhancement through increasing operationalization of international corridors.

Should a government be interested in developing the freight transport and logistics sector further, it should analyse and identify possible gaps in any of these four areas and prepare a master plan of action for gap elimination. In this process, experience from other peer countries, analysis of their actions taken, and results achieved, may be very helpful in elaboration of a master plan that is more fit-for-purpose.

At the same time, investments in the development of freight transport and logistics sector are advisable. The sector plays a key role in facilitating trade, thus, the sector indirectly supports economies to grow faster, be innovative, improve productivity and provide higher income and more opportunities for people.

The development of the sector on the basis of a master plan helps to design and manage the development process in a systematic way. Elaboration and implementation of a national master plan for freight transport and logistics is thus highly advisable. The information contained in this Handbook should serve governments as a good basis for the elaboration or

review and enhancement of their national master plans so that development of the sector follows a sustainable path and contributes to a sustainable development of a country and its economy.
