THE WORLD BANK AND IRU

Road Freight Transport Services Reform

Guiding Principles for Practitioners and Policy Makers

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This is not the first attempt at the World Bank to produce guiding principles for road transport services reform; valuable work has been previously done on the subject but not published. The principles provided in this report incorporate the elements that are still relevant and adapt them to today's realities.

The views, findings, interpretations, and conclusions expressed here are those of the authors and do not necessarily reflect the views of the World Bank, IRU or any of their affiliated organizations.

Executive Summary

Cost-effective and high quality transport systems are key to modern logistics. Their role can only be expected to grow even as the global economy goes through profound transformation in terms of how, where and when goods are produced or distributed. In many economies and at many different geographical scales, road transport remains the predominant mode of transport and is an indispensable part of how economic agents interact in space. Consumer expectations and production requirements increasingly require that transport operators provide high-quality services that are also safe and affordable for their clients. However, in many countries logistics performance remains too low to effectively contribute to economic and social development. This is the challenge that this Guide seeks to meet—to offer paths to reforming the sector and making it suited to the needs of a highly connected world.

Road transport services are indispensable in a connected world. Road transport services provide critical connectivity between local, regional and global value chains. Even where services work well, there is hardly any country in the world without potential for improvement with regard to the performance of their road transport services. Any reform effort therefore has to account for the need of the sector to continuously adapt to changes in economic structures and relations. In that regard, the demand and supply for road transport services cannot be decoupled from the general social, economic and environmental context. In fact, transport cannot be regulated on its own except as part of that general context. However, often transport is not recognized at national or regional levels as an important economic sector in itself nor as an industry as such. Hence, one of the objectives of the Guide is to provide guidance in achieving such recognition through effective and appropriate reforms.

Among all the major reforms in transport, reforming road transport services can be the least financially costly for the public sector, because in a vast majority of countries the sector is dominated by the private sector. However, such reforms can have initial political and social costs and as such cannot be simply imposed and automatically implemented and enforced. A holistic approach is needed, one that respects the multidimensional nature of services, as well as diversity and perspectives of key stakeholders.

The Guide is organized in four broad sections. The first three set out the role of road transport in modern economies and the supply chains that characterize them, the principles of reform, and how to gather data and information to conduct a diagnostic and target those reforms. The fourth section offers options and possible paths available to agencies driving the reform process.

There are no off-the-shelf solutions to road transport services reform. There are no replicable, nor 'off-the-shelf' solutions applicable in every country and region of the world in a homogeneous way. Countries and regions are different, with unique histories, traditions, culture, socioeconomic structures and interests which all impact the nature and viability of any reforms. The Guide is therefore based on several core principles for effective reform or modernization of road freight transport services. The principles draw from concrete experience in various countries and regions highlighting the strengths and weaknesses of the potential options.

The objectives of reform should be clear. Any reform effort requires clear objectives: In setting targets for reforms, governments typically set two objectives that can be pursued separately or concurrently, namely: a) to achieve relative improvement compared to the existing situation or b) to benchmark performance, where they compare their own performance against that of a better performer in the region or subregion, or against "ideal cases" as defined by best practices. An important first step in any reform effort is to identify the issues that need to be addressed, prioritize them and design effective interventions. In this regard information is key. Appropriate diagnostic tools are needed to obtain reliable data and to design effective interventions.

In general, areas of reform can be readily apparent, though setting priorities, figuring out how to do the reform and achieving desired results can be difficult. The timing of reforms also has to be carefully considered. Political leaders and other decision makers are usually only keen on reforms when benefits of reforms exceed costs, and notably if reform reduces costs, improves quality, or even rewards certain groups of stakeholders.

Identifying relevant stakeholders is key for ensuring ownership and sustainability of the reform. In any modernization or reform process it is essential to identify the key stakeholders, their mission and role, and how they are structured and related to each other, in order to assess how they will be affected and which influence they may have on the process. The stakeholders should include both those who are directly impacted and those who may be indirectly impacted by reform measures. Both groups can contribute to the success of the reform, if they were properly empowered. In particular, it is important to include nontraditional groups in the consultations. It is therefore useful to identify the main stakeholders of road

transport services and to highlight their main functions within the sector. In this context industry associations are often valuable allies.

Institutions are important for sustainable reforms. Good governance is key to ensure a successful modernization or reform in any economic area including road transport. In addition to political will and commitment, any such change process requires the establishment of a business-enabling environment built on well-functioning institutions, comprehensive laws and regulations that balance costs and benefits, established good practices and transparent and consistent enforcement.

Usually, the governance of the road transport services sector is a competence of the line ministry of transport, which issues regulations and implements them, directly or through specialized agencies. However, the scope of competence of the line ministry may vary from "heavy," more traditional, to "light," modern structures.

Use regional and international frameworks to anchor reforms. Increasingly, transport markets are integrated at the regional level. As a result laws have to be harmonized at regional and international levels. Historically and because of its ubiquity, road transport is one of the areas most regulated at the international level. The laws, norms and standards adopted in international/global fora have been a source of inspiration or replicated at the regional level and have been further transposed in national legislation in the member countries o f those international fora or regional organizations. When properly enforced, these legal instruments lead to harmonization of norms and standards, which result in more open markets: the higher the level of harmonization, the shorter the list of practical reasons to deny market access.

Enforcement is fundamental to success. In many countries, the enforcement of purely road transport regulation is a competence of the national administration/agency in charge of road transport and its regional arms/branches. As such, the administration/agency in charge of road transport is mandated to ensure control and enforcement of the rules related to the access to the profession and markets. They may apply administrative sanctions in case of infringement. To fulfil their role, these agencies must be properly staffed, equipped and empowered.

There are five main dimensions of reform. The stylized reform paths presented by the Guide are organized around five main dimensions of road transport services reform. For each of these dimensions, issues and challenges that most commonly require reforms are presented and potential ways to address them are illustrated.

Market structure: The road transport market remains very specific across history and in most regions. The regulation of access to the transport market has evolved from complete lack of regulation to quantitative restrictions to operate and later to qualitative criteria for access to the profession of transport operator and for obtaining the right to actually carry goods. In some parts of the world it is common to use the word "deregulation" to describe the situation where there are no quantitative restrictions in terms of number of transport operators allowed to carry goods; this does not mean that the sector is not regulated in terms of safety, security or quality of service.

The operator: One of the characteristics of the road transport sector is that it offers players an opportunity for upward mobility: many multimodal transport operators, freight forwarders or logistics services providers have started as road transport operators.

The road transport sector is made of a variety of business models used by the operators to carry out their job. Almost everywhere, the road transport operators are small enterprises acting often as individual or natural persons, known as the "one man/one truck" or "driver-owner" model. In many (but not *only*) developing countries there are few operators acting under a commercial legal status. This can be a source of unfair competition, low tariffs and bad quality and unreliability of the road transport services. Informality is a market disturbing factor, which severely affects the economic viability of the formal sector. However, any reforms to reduce informality have to be balanced against negative social effects as the sector can be a source of livelihood for significant numbers of people.

The driver: The driver is a central component of road transport services, being the ambassador of his company towards the clients, the road users, the control authorities and the competitors.

A professional goods transport driver is a member of the operational staff employed by transport companies. In addition to purely transporting goods, these companies may also be involved in activities that are generally categorized under the term 'physical distribution': managing tasks on behalf of production companies, such as storing finished products; assembly of products; delivery or distribution and factoring. Professional drivers are confronted with various other external elements that are not limited to driving. The driver is a key asset for a road transport company; his capabilities to act economically, timely and to the satisfaction of the clients will considerably influence the image of the company and therefore its positioning on the market.

The vehicle: The vehicle together with the driver and the infrastructure are transport's inextricably linked and interdependent essential components determining the performance of road transport services in terms of safety, cleanliness, accessibility and affordability. If one element is under-performing, the other two will not compensate the consequences on the transport service.

Externalities: It is widely accepted that internalizing external costs of transport is important in order to ensure that prices reflect all the costs associated with transport activities and that they increase in proportion to the costs imposed on society. In road transport it is important to make a distinction between internal and external costs. Internal

costs are those borne directly by transport operators by acquiring, operating and maintaining vehicles and facilities. Most, if not all, direct costs of transport are borne by operators and passed on to users of the transport services. External costs, on the other hand, include the effects of transport services, arising from environmental impacts (air pollution, greenhouse gas emissions, noise), accidents and congestion. The external costs of transport are borne by society as a whole and are often not taken into account by transport operators and users.

Awareness of the full costs of transport can help operators to plan and manage their operations in an as efficient and sustainable manner as possible. With proper internalization, prices of transport will reflect the full cost of services and therefore influence consumption patterns of users. In cases where the "polluter pays" principle is applied these costs can be reflected in transport prices and are therefore paid by users. However, in many cases that principle is neither practicable nor socially acceptable, and therefore other mechanisms have to be found to either reduce the level of external costs or to recover the costs through other means such as taxation. The basic rationale of taxation is to discourage use, making it the most obvious instrument to internalize external costs.

Ultimately, the success of any reform process would depend on the most appropriate mix of tools and paths for each country or regional context. Reforming a sector such as road transport is fraught with risks that need to be well understood. At the same time, the rewards can be significant in terms of economic efficiency, as well as welfare of those directly impacted. Knowledge is increasing on the application of one tool or another, meaning there is growing empirical evidence on what can be done. The Guide uses specific examples that reform champions can use to motivate for and ultimately help in designing and implementing reforms.

List of Acronyms

AAPA	American Association of Port Authorities
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
AETR	European Agreement concerning the Work of Crews of Vehicles engaged in International Road Transport
AMU	Arab Maghreb Union
ARA	Automotive Recyclers Association
ATA	Customs Convention on the Admission Temporaire/Temporary Admission
ATP	Agreement on the International Carriage of Perishable Foodstuffs
CANACAR	Mexican Camara Nacional del Autotransporte de Carga
CARS	Car Allowance Rebate System
CBS	Central Agency for Statistics
CEMAC	Central African Economic and Monetary Community
CEN-SAD	Community of Sahel-Saharan States
CEPGL	Economic Community of the Great Lakes Countries
CFP	Certificat de formation professionelle
CIF	Cost Insurance and Freight
CIS	Commonwealth of Independent States
CMR	Convention on the Contract for the International Carriage of Goods by Road
CMV	Commercial Motor vehicle
CNG	Condensed Natural Gas
CNR	Comité National Routier
CO_2	Carbon Dioxide
COD	Cash on Delivery
COMESA	Common Market for Eastern and Southern Africa
CPC	Certificate of Professional Competence
CRTA	China Road Transport Association
CVUS	Canadian Vehicle Use Study
DKK	Danish Krone
EAC	East African Community
ECCAS	Economic Community of Central African States
ECMT	European Conference of Ministers of Transport
ECOSOC	Economic and Social Council of the United Nations
ECOWAS	Economic Community of West African States
EEC	European Economic Commission
EETS	ECO-Driving Training System
EEU	Eurasian Economic Union
EFTA	European Free Trade Area
ETAC	*European Truck Accident Causation*
EU	European Union
FAMT	Forum of Asian Ministers of Transport
FCFA	franc
FCOS	Formation Continue Obligatoire de Securite
FDTR	Fonds de Développement du Transport Routier
FEE	as in Fee for efficient technology
FIATA	Fédération Internationale des Associations de Transitaires et Assimilés
FIMO	Formation Initiale Minimale Obligatoire
FMCSA	Federal Motor Carrier Safety Administration
FMCSR	Federal Motor Carrier Safety Regulations
FNTR	Fédération Nationale des Transports Routiers
FTC	Federal Trade Commission
GATT	General Agreement on Tariffs and Trade

GDP	Gross Domestic Product
GIE	Groupement d'Intéret Economique
GPS	Global Positioning System
GVM	Gross Vehicle Mass
GVW	Gross Vehicle Weight
HHG	Household Goods
HOS	Hours of Service
IATA	International Air Transport Association
ICC	International Chamber of Commerce
ICCT	International Council on Clean Transportation
ICT	Information Communication technology
IEG	Independent Evaluation Group
IGAD	Intergovernmental Authority on Development
ILO	International Labor Organization
IMDG	International Maritime Dangerous Goods Code
IMF	International Monetary Fund
INSEE	Institut national de la statistique et des études économiques
IOC	Indian Ocean Commission
IRU	International Road Transport Union
ISV	*Imposto Sobre Veículos*
ITF	International Transport Forum
IUC	Union Internationale des *Chemins de fer*
LLDC	landlocked developing country
LPG	Liquid petroleum gas
LTL	Less than truckload
MAD	Moroccan Dirham
MRU	Mano River Union
NAFTA	North American Free Trade Agreement
NGO	Non-governmental Organization
NHTSA	National Highway Transportation Safety Administration
NIS	Israeli Shekel
NIWO	Nationale en Internationale Wegvervoer Organisatie
NMVTIS	National Motor Vehicle Title Information System
OECD	Organization for Economic Cooperation and Development
OHADA	Organisation pour l'Harmonisation du Droit des Affaires en Afrique
OTRE	L'organisation des TPE et PME du transport routier
PETRA	Plan Estratégico de Actuacíon para el Transporte de Mercancías por Carretera
PIMA	Plan para la renovación de la flota profesional de transporte por carretera, de camiones y autobuses
PKM	passenger kilometer
QuARTA	Quantitative Analysis of Road Transport Agreements
REC	Regional Economic Community
RID	Regulations concerning the international carriage of dangerous goods by rail
RMB	Chinese Renminbi
RTMS	Road Transport Management System
SACU	Southern African Customs Union
SADC	Southern Africa Development Community
SADCC	Southern African Development Coordinating Conference
SAFE	SAFE Framework of Standards to Secure and Facilitate Global Trade
SCT	Single Customs Territory
SES	Single Economic Space
SME	small and medium enterprise
SOE	State owned enterprise
TIR	*transports internationaux routiers* (international road transport)
TKM	tonne kilometer
TLF	Fédération des entreprises de Transport et Logistique de France

UEMOA	Union Economique et Monétaire Ouest Africaine
UNECE	United Nations Economic Commission for Europe
UNESCAP	United Nations Economic and Social Commission for Asia and Pacific
UNOSTRA	Union Nationale des Organisations Syndicales des Transporteurs Routiers Automobiles
USDOT	United States Department of Transportation
USSR	Union of Soviet Socialist Republics
VAT	Value Added Tax
VKM	vehicle Kilometers
VOC	Vehicle Operating Costs
WAEMU	West African Economic and Monetary Union
WDC	Weight and Dimension Control Stations
WEF	World Economic Forum
WHO	World Health Organization
WTO	Word Trade Organization

1 Objective of the Guide

In today's economy, the road transport industry is an essential element of modern supply chains. It connects production, distribution and consumption due to the flexibility and capability to provide door-to-door services. It can connect all supply chain actors at the local, national, regional and global levels. Road transport is the dominant mode of transport in many regions of the world, and plays an especially important role in emerging and developing countries that lack alternative inland transport means such as railways or inland waterways. In this context, road transport is often the only available mode for landlocked developing countries (LLDCs) to access regional and global markets.

Cost-effective and high quality transport systems are key elements of efficient logistics, which is a pillar of any modern economy. In most of the developing world, fluidity of cargo and people is almost entirely dependent on road transport. Consumer expectations and production requirements increasingly require that transport operators provide the best services that are the safest and most affordable for their clients. However, in many countries logistics performance remains low and insufficient to effectively contribute to economic and social development. Therefore, any improvement of road transport services could have immediate significant impacts on all other economic sectors. Furthermore, the social contribution of road transport would also be strengthened in terms of employment, living conditions, and social welfare. In turn, these developments would create new markets and generate new trade flows.

It is the responsibility of governments to create an enabling environment for businesses, which includes regulating the road transport market in a comprehensive way. Such regulation has many dimensions, among them driver licensing and behaviour, operators' access to the profession and to the market, vehicles[1] admission in traffic including technical inspection, and weights and dimensions. The challenge for governments is to create a framework that allows the transport industry to thrive while ensuring that societal needs are met in a sustainable way.

In return, the road transport industry is expected to continuously adapt to ensure its long-term success. This adaptation is an important ingredient as governments implement policies and strategies for the development of their countries or regions. Furthermore, with globalization, transport and particularly road transport are key drivers for mobility and trade and indirectly for growth, poverty reduction, and prosperity.

Amongst all the major reforms in transport, reforming road transport services can be the least costly for the public purse, because in a vast majority of countries the sector is private. However, it is always important to acknowledge that reforms can have significant social spillovers. Reforms cannot be simply imposed and automatically implemented and enforced, especially in countries where consultation mechanisms and right of appeal are in place, or where enforcement capacity or willingness are weak. On the other hand, due to its flexibility and dynamism, the road transport industry can adapt quickly and is, in general, very progress oriented. If properly managed, the most efficient investments for change (in decreasing order of costs) are in good infrastructure, good vehicles and well-trained professionals.

These Guiding Principles provide a set of basic instruments and models to effectively reform or modernize the road freight transport. These instruments and models draw from concrete experience in various countries and regions with highlights of the strengths and weaknesses of the feasible options. Clearly, there are no 'off-the-shelf' solutions applicable in every country and region of the world in a homogeneous way. Countries and regions are different; with unique histories, traditions, culture, socioeconomic structures and interests which all impact the nature and viability of any reforms. As such, this document does not offer a step-by-step guidance but rather sets out the principles that should guide a reform process in a country or region.

This guide aims at providing tools and examples to support policy makers in their reform endeavours. It first presents a framework for the diagnostic of the transport sector including common inefficiencies, their causes and effects and instruments for the collection of reliable and useful data as a first step for the identification of the priority reform areas. Subsequent to the diagnostic framework the core elements of road transport services are presented including main challenges, existing standards, recommendations and examples. For more details, several examples and annexes are

[1] For the purpose of this Guide, "vehicle" refers to trucks and other commercial freight vehicles.

provided that cover specific frameworks or tools described in the different sections.

Each example highlighted in this document should be considered from a specific national and/or regional perspective and adapted, where appropriate, to prevailing circumstances. While accepting reasonable national or regional characteristics, due attention should however be paid to the degrees of economic and social integration of countries, at regional or global levels, which may call for harmonized, internationally agreed solutions.

Transport, including road freight movements, is predominantly a service sector pursuit. Hence, demand and supply for these services cannot be decoupled from the general social and economic context. In fact, transport cannot be regulated on its own except as part of that general context. However, often transport is not always recognised at national or regional levels as an important economic sector in itself nor as an industry as such. Therefore, one of the objectives of the principles in this document is to provide guidance in achieving such recognition through effective and appropriate reforms.

In general, areas of reform can be readily apparent, though figuring out how to do reforms and achieve desired results can be difficult. The timing of reforms also has to be carefully considered. Political leaders and other decision makers are usually only keen when benefits of reforms exceed costs, and notably if reform:

- comes in combination with other reforms (e.g., fiscal consolidation, poverty reduction, major infrastructure programs);
- includes compensation for those who will lose as a consequence of changes (and especially so if politics can take credit for that);
- is imposed by the rules of a "club" to which the country wants to become a full member (for example, EU or WTO), or by the circumstances (climate change, economic or financial crisis)
- is well timed in an electoral cycle—either when the decision makers have a lot of political capital to expend or to gain; and
- benefits a group with political power, and costs are distributed across groups with no veto power (road transport services is an area with multiple vested interests, due to the short time frame for return on investment).

Implementation of a reform program is often punctuated by difficult-to-achieve milestones, with one of the first being acceptance by stakeholders. A reform can have significant implications of material, financial, human or political nature. That is why the "theory" in these Guiding Principles is accompanied by practical examples from several countries, as well as by specific models proposed by international or subregional entities.

In setting targets for reforms, Governments typically set two objectives that can be pursued separately or concurrently, namely: a) to achieve relative improvement compared to the existing situation or b) to benchmark performance, where they compare their own performance against that of a better performer in the region or subregion, or against "ideal cases" as defined by best practices.

2 Road Transport and Economic Development and Integration

Figure 1 gives an overview of the existing policy instruments in the transport sector and the related outputs and potential outcomes of using one or several of the instruments. While these Guiding Principles cover most of the elements that are highlighted, they do not discuss physical infrastructure or detailed technology aspects. These are widely covered in other readily available literature and guidance material.

Evolution of Road Transport

The road transport sector has evolved over the 20th century to such an extent that nowadays, in developed economies, its business organization and the services it offers have advanced in sophistication to match the global markets' demands.

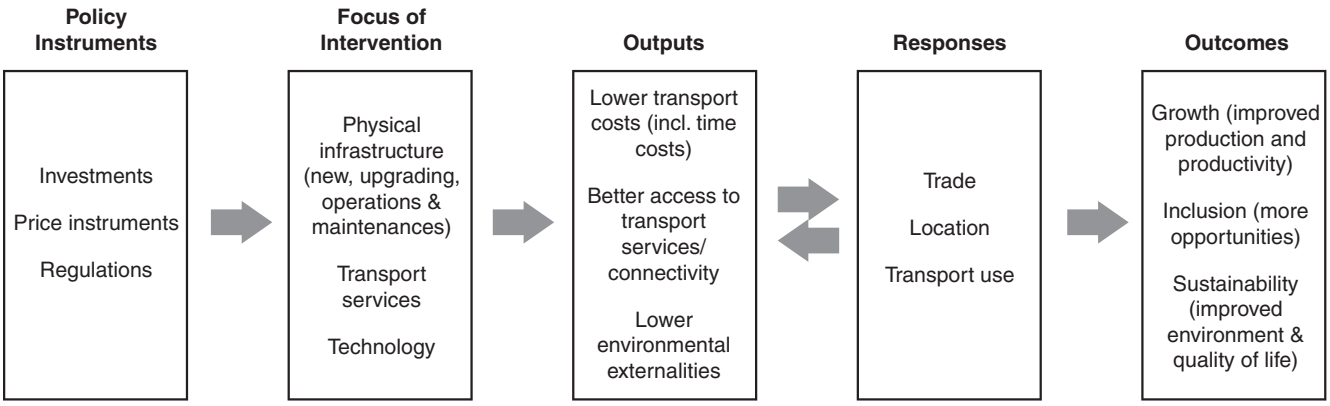
Origin

In the first half of the 20th century, before WWII, international trade was very limited and dominated by maritime exchanges, while domestic trade was essentially local and did not require much movement. Therefore, the road transport sector mainly developed in the form of individual undertakings to serve local markets while the railway network, in particular in North America and Europe, started to develop and expand to serve long-distance international routes as far as goods transport was concerned.

After WWII, the need for reconstruction created a new demand for the international exchange of goods, which in Europe depended on road transport, which had to adapt to the evolution in market exchanges and the need for local movement and long-distance transportation. The flexibility of the road transport sector, its ability to ensure door-to-door transport and its cost effectiveness allowed the sector to gain a significant share of the transport market compared to other modes. Indeed, road transport is a part of most supply chains, at the very least always providing first and last mile connectivity. The evolution was in particular noticed in countries with an important tradition in maritime trade where freight forwarding activities first emerged and transport companies developed as a core element of value-adding logistics services. Today road transport services are a part of assembling and production phases undertaken by logistics providers.

The evolution has consequences on the structure of the sector: the undertakings offering global services are increasingly concentrating their activities on other aspects of

FIGURE 1 Impacts of Transport Policies: The Mechanisms



Source: Based on Berg, et al. (2015).[2]

[2] Berg, C. N., U. Deichmann, Y. Liu and H. Selod (2015) *Transport Policies and Development*, *World Bank Policy Research Working Paper 7366*, Washington, DC: World Bank.

the logistics[3] and spending less and less on purely transport activities. As a result, they often contract with their clients global logistics services including transport, and then subcontract the carriage (physical movement of goods) to road transport companies.

Service provision is often characterized by distinct market segmentation, with big players and freight integrators who contract with clients and subcontractors who handle the physical movement of goods without much added value. In many markets, the road transport sector is consistent with the 80/20 rule: 20 percent of the road transport companies employing more than 10 people each and realizing 80 percent of the turnover, and 80 percent of the companies employing less than 10 people each and realizing only 20 percent of the turnover of the sector.

Own Account Transport

In parallel to the above general evolution, in the 1950s big industries in developed economies, especially those in the chemical, oil and construction business, faced with the atomization of the road transport sector, developed in-house transport capabilities that were integrated within their companies. In contrast to reliance on commercial transport (also designated as "public," "for hire" or "for reward"), own account transport implies that the shippers of goods own their fleets of vehicles and employ their own crews dedicated to transport of their goods.

Own account transportation became very popular in developed economies and led to a decrease in the market share of the commercial road transport sector because through this operating mechanism industrialists were ensured the complete control over their transport activities from the economic, social as well as safety and security perspective. While this was not the most efficient way of moving goods (raw materials or finished products) because the vehicles were often only loaded one way, and vehicles and drivers incurred costs for the company even during periods when there was no freight to carry, industrialists nevertheless preferred own account transportation due to the control it provided them. However, the transport industry responded with the development of professional services by the specialized transport companies, reducing the importance of, and need to resort to, own account transport. Third party-provided services tended to offer more cost efficiency and were reliable.

In recent times, however, a reverse evolution has taken place, especially in emerging economies and in developing countries. Faced with a poorly organized and unreliable road transport sector, some companies often set up their own internal transport services. In some countries such as Ivory Coast, own account transport activity may be larger than the commercial ones in terms of employment, number of companies, and tonnage transported. The shippers in Ivory Coast and other low income countries are mainly importers and manufacturers of raw products like sugar, cereals, but also cement and construction materials. Their production cycles highly depend on the timely supply of basic products, and they therefore look to fully control the road transport component of their logistics chains by developing in-house transport capacity. This practice is not only common to development countries. Own account operators in Greece, who primarily use their vehicles to transport their own goods, account for over 90 percent of the trucking industry.

Another reason why own account transport may become predominant is that in some countries this activity is less strictly regulated than commercial transport. In countries with weak enforcement capacity this may encourage transport operators to register as own account carriers while still performing commercial activities. Such practices are counterproductive, mainly because they can significantly distort competition, with negative impacts on service quality and safety. It can therefore be reasonably expected that through appropriate modernization and reform of the road transport sector, with the improvement of professionalism and efficiency, this type of own account transportation will decrease in favour of commercial transport.

Road Transport Role in Economic Development and Integration

Road transport is a key contributor to economic development and integration. Its flexibility and capabilities make it indispensable to development strategies and integration processes. For example, in the European Union road transport is a main enabler of integration both through well connected infrastructure and by extensive integration of services. In other regions governments, development partners and international financial institutions are increasingly taking into consideration in their Technical Assistance Programs the adjustment/modernization of the transport services sector, without which the objectives of economic development and integration may not be fully attained.

This is a change from the past. Until recently, a vast majority of governments' policies and programs mainly focused on the development of transport infrastructure, while transport operations were not dealt with, as they were considered exclusively a private sector matter and were consequently left out of any intention of reform. However, there is now a recognition that efficient, safe and sustainable road transport also requires a look at the industry's legal and commercial environment. While infrastructure building and development is crucial, the modernization of the road transport services is critical to ensure the efficient use of the infrastructure, thereby adding value to the investments.

[3] The Council of Supply Chain Management Professionals (CSCMP) defines logistics as the process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods including services and related information from the point of origin to the point of consumption to conform to customer requirements.

Road transport also has an important social dimension through the opportunities it offers for entrepreneurship and job creation. The sector has traditionally played a key role in upward mobility as it allowed, for example, professional drivers to become entrepreneurs and create their own business, developing it as a small or medium size company. This upward mobility effect is still very appropriate in developing countries and emerging economies where becoming a carrier or a road transport operator is a step to entrepreneurship.

In general, road transport can create a significant number of jobs. The direct employment consists at a minimum of professional drivers and managers/owners of small companies, and for more robust entities it also consists in administrative and commercial staff as well as technicians and maintenance workers. A recent study in East Africa found that there were 1.2 jobs for each truck on the road. In addition to the direct employment, the sector generates a significant number of indirect jobs and employment. The indirect employment includes various transport related activities such as infrastructure building and maintenance in particular in areas dedicated to road transport services (fuel stations, secured parking, cold chain storage, warehouses and repair/maintenance activities), rescue and emergency services, forwarding and brokerage, vehicle manufacturers and specialized insurance businesses.

While reliable data are often not available to determine exactly the "weight" of the sector in an economy, ILO data suggest that employment in road transport can reach five percent of total employment (Table 1).

Adequate infrastructure ensures the physical connectivity between regions and countries, but road transport services play the key role in effectively connecting people and businesses, and in unlocking economic potential. It is therefore essential that all development policies and strategies include actions to provide cost-effective transport access in order to enhance social and administrative cohesion at country and regional levels.

TABLE 1 Road Passenger and Freight Transport Employment and Share in Total Employment

Country	Year	Employment Road Freight Transport	Employment Passenger Road Transport	Total Employment for Road Transport Workers	Road Transport Percentage of Total Employment
Argentina	2005	n/a	n/a	476,223	5.00
Australia	2009	162,600	81,300	243,900	2.26
Canada	2011	406,111	168,441	574,552	3.34
Chile	2011	182,019	17,717	199,736	2.67
China	2012	n/a	n/a	2,778,125	0.36
EU 28	2011	3,000,000	1,976,600	4,976,600	2.25
Austria	2011	58,700	54,700	113,400	2.75
Belgium	2011	63,100	12,000	75,100	1.68
Bulgaria	2011	48,000	34,200	82,200	2.34
Czech Republic	2011	117,100	62,700	179,800	3.47
Denmark	2011	29,400	27,400	56,800	2.02
Finland	2011	45,300	23,500	68,800	2.81
France	2011	360,400	248,600	609,000	2.38
Germany	2011	386,800	336,100	722,900	1.79
Greece	2011	53,100	54,000	107,100	2.30
Italy	2011	327,800	171,200	499,000	2.02
Netherlands	2011	119,500	69,600	189,100	2.20
Poland	2011	289,400	144,000	433,400	2.73
Portugal	2011	65,200	35,300	100,500	2.04
Romania	2011	97,300	78,200	175,500	1.94
Spain	2011	337,000	179,300	516,300	2.75
Sweden	2011	79,300	68,000	147,300	3.26
United Kingdom	2011	269,300	239,500	508,800	1.63
India	2008	n/a	n/a	5,753,920	1.54
Mexico	2012	1,333,333	666,667	2,000,000	4.04
South Africa	2005	63,500	363,900	427,400	3.35
US	2014	2,422,300	835,750	3,258,050	2.22

Source: International Labour Organization.

3 Diagnostic of the Road Transport Sector

An important first step in any reform effort is to identify the issues that need to be addressed, prioritize them and design effective interventions. In this regard information is key. Appropriate diagnostic tools are needed to obtain reliable data and to design effective interventions. This section outlines the most common issues that negatively affect the efficiency and sustainability of the road transport sector and their underlying causes. It presents the instruments that can be used to assess the scale of a specific issue identified, as well as describe mechanisms developed at international, regional and national levels to assist governments in improving their monitoring of the transport sector.

What Impacts on the Efficiency of the Road Freight Transport Sector?

The road transport sector can suffer from several characteristics that compromise its efficiency and effectiveness, among them, a high level of informality paired with a low level of professionalism, bad condition of vehicles, and weak professional representation resulting in large part from the atomization of the industry.

Informality Due to Inefficient, or Lack of, Regulation

Informality negatively affects the efficiency of road transport services, impacting among others the reliability and predictability of services, road safety and prices. Also, informality reduces revenues to the transport sector.

In many parts of the world and in particular in emerging economies, to further liberalization of the road transport sector without qualitative criteria for entry, and in the absence of transitional and accompanying measures, the road transport market has often been dominated by informal transport operators and sometimes also by intermediaries. These are players that managed to penetrate the freight and commercial distribution markets to an extent where they became a compulsory partner but with little value added and without legal existence. These informal players distort the market by preventing the free and direct interaction between transport operators and shippers. This is for example the case in some countries of Central and Western Africa where "coxers" absorb an important part of the transport price paid by the shipper, without really bringing any additional value to transport services.

Industry Atomization and Poor Representation

One of the common characteristics of the road transport sector throughout the developing world in particular, with few exceptions, is its atomization. The high number of small and medium size operators brings to the sector a flexibility that is increasingly needed in globalized economies. Atomization reinforces individual entrepreneurship which contributes to social upward mobility. However, these small economic entities often encounter difficulties to capitalize themselves, to act as independent economic actors, and to develop profitable and sustainable commercial approaches. These factors could weaken the industry as a whole and jeopardize its ability to provide increasingly sophisticated services. The dispersion of the profession also provides an opening for informal practices, as discussed above, thereby weakening even more the sustainability of the sector.

One of the consequences of the atomization of the road transport sector is the absence of a solid professional representation in most emerging economies. The individual or very small transport operators have managed to create a multitude of small associations, syndicates or trade unions with local coverage and membership. This situation, also influenced by specific local and social aspects (e.g., ethnicity, clans, religion) results in a lack of prominence of the road transport sector in the public-private dialogue. The traditional mission of the professional representation is to promote and defend the interests of the profession for the benefit of all its members, for example in the dialogue and negotiation with the authorities. It implies neutrality and equity towards all members. However, in some countries these small local syndicates/trade unions go beyond their role of representing their members and intervene in market operations, for example by penetrating the freight distribution and imposing freight allocation mechanisms such as *tour de rôle* (queuing system), in which freight is allocated preferentially to the members of the respective syndicate or trade union. Such involvement can distort the market and have a negative effect on the commercial activities that should be performed by the operators on a level playing field.

Skills Shortage

Professional capacity is one of the key factors for efficiency, safety and security of transport operations at all levels. A good driver is the result of a combination of personal skills and training. There are still countries where the professional driving license is obtained without any specific training. But a good driver is not enough for a transport operation to be efficient; adequate infrastructure and vehicle and competent managers are other essential factors. In many countries in the developing world there is no specific training for transport managers; neither are there accredited institutions to provide such training. In addition, a more recent problem in this area is that in many developed countries there is a shortage of truck drivers because the profession is not attractive (wages too low compared to the number of conditions to comply with).

Obsolescence of Fleets

In many developing countries vehicles are obsolete or not properly maintained. They generate relatively high amounts of pollution and are unsafe. In some instances the legislation does not provide for mandatory regular technical inspection; and often, the rules on weights and dimensions are not enforced. This results in inefficient operation (because of frequent breakdowns), high costs and risk for the safety on the roads, as well as a limitation of the access to the market (e.g., the shipper would not allow its just-in-time cargo to be loaded on an unreliable truck).

Identifying Priorities for Reform

There is most likely no country in the world without potential for improvement with regard to the performance of the road transport services. The remedial actions to be taken would depend mainly on the weaknesses faced and their significance, and willingness, commitment and availability of capacity and resources.

Causes and Effects

Policy and decision makers interact with transport operators or their associations, receive feedback from customs and police departments and representatives of the chamber of commerce, or receive complaints from shippers and the population at large (e.g., about high transport prices, congestion, pollution, etc.). Furthermore, national as well as regional and international transport statistics and also specific surveys often indicate the issues and potential weaknesses of the sector. Therefore, decision makers usually have a good knowledge of existing issues to be resolved.

In many instances the symptoms that signal a need for reform include:

- Long delays resulting from unreliable services;
- Unprofessional behaviour of operators and drivers;
- Lack of skills and competence;
- Poor condition of truck fleets; and
- Inconsistent respect of contractual obligations.

The above symptoms have important consequences for road transport users. The main ones are:

- High prices for road transport services;
- High costs for road transport companies;
- Poor road safety and security (e.g., cargo theft);
- Low predictability and reliability of road transport services;
- Low revenues generated by the transport sector;
- Harmful environmental effects; and
- Corrupt practices.

In order to successfully address one or several of the above issues policy makers have to determine their scale and urgency, their underlying causes and the role of the different actors involved. Gathering solid and reliable data is crucial. In some cases the level of detail of the national road transport data collected might be sufficient to set priorities and design effective policy interventions and monitor changes. However, in many cases (and especially in absence of reliable national or regional transport data collection mechanisms) it is useful or even critical to collect primary data. The data can be organized around issues and the key categories of actors that are involved or are affected (Figure 2).

Initial Assessment

A logical process can be followed to diagnose the main issues, prioritize them and design effective interventions (Figure 3).

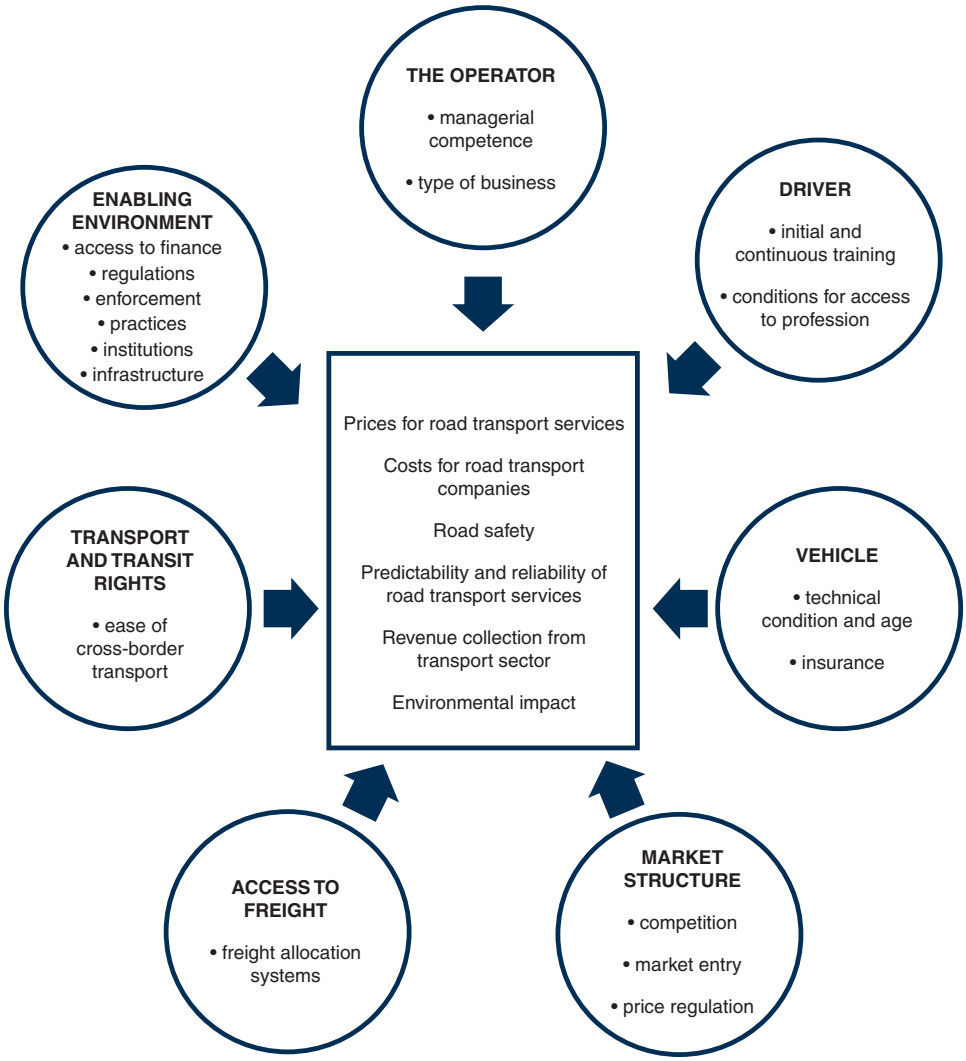
Road Transport Data

In order to carry out an appropriate sectoral diagnostic, various tools have been developed at national, regional and international levels. For an assessment of the road transport sector, a thorough analysis of the available data sources (and their timeliness and quality) on each of these levels should be carried out. It is recommended in the first place to look for national and international road transport statistics and data.

Governments may be faced with a variety of situations as far as diagnostic tools, statistics and data collection are concerned. In many developing countries the lack of reliable and up-to-date data and statistics has been identified as a clear obstacle to development because it impedes decision makers from properly evaluating the situation and assessing the needs. This could render any reform or modernization either inappropriate or insufficient to address the real needs and effectively contribute to progress as data is needed to assess progress towards goals. Indeed some countries may:

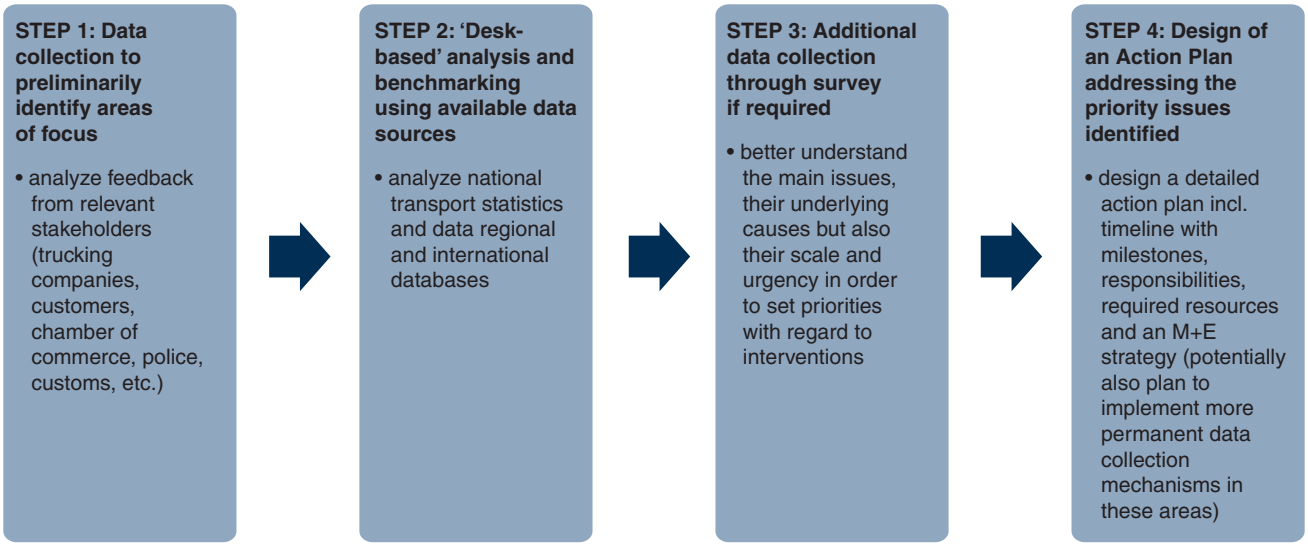
- completely lack appropriate systems for data collection;
- not have a well-functioning National Statistical Office or one that systematically gathers data on the transport sector;
- not have adopted a consolidated approach to economic and sectoral statistics and data collection throughout the various ministries;

FIGURE 2 Issues and Their Main Causes in the Transport Sector



Source: Authors.

FIGURE 3 Steps to Understand and Address the Key Issues in the Transport Sector



Source: Authors.

- lack means to properly collect and consolidate data and develop an appropriate methodology; and
- have a data collection mechanism in place that is outdated and not reliable.

There are several methods through which data can be collected, including: a) international datasets and indicators; b) discussions with operators; c) surveys; d) statutory requirements for operators to supply data; and e) electronic monitoring systems. In general, the preliminary analysis of existing national, regional and international datasets gives good indications on the core issues, their causes and scale. In some cases, governments may decide that this information is sufficient to conduct the necessary analysis and undertake certain remedial interventions. In other cases, governments interested in carrying out a reform may want to collect additional data in order to better understand the scale and urgency of the existing issues and prioritize interventions. Also, the collection of additional data would help to set an accurate baseline in order to measure progress. Therefore, designing a targeted survey to collect data on a specific issue might be the best option depending on the country, the type of issue to be addressed and the available resources. In some countries, the absence or the lack of appropriate legislation, data collection mechanisms and institutions organized at state levels could make the survey the only option to obtain enough data on an issue in order to be able to design a targeted intervention. However, choosing this 'single approach' for a specific issue should not preclude parallel actions aimed at setting up appropriate legislation and permanent data collection mechanisms. The lessons learned and the results obtained from conducting a survey could be as well the starting point for implementing a sustainable framework for collecting road transport data.

International datasets: Almost all the countries in the world are covered in international studies or reports. In general, these global or regional reports evaluate the performance of each country or group of countries, and they provide either a full set of information and data, or a ranking of countries' performance in the area of interest. Consulting those data may contribute to better understanding of where the country stands in terms of its performance.

A few examples of relevant reports or databases that can be accessed by governments envisaging a reform of road transport services are:

- The World Bank's Logistics Performance Index[4] and Doing Business Report;[5]
- The WEF's Global Enabling Trade Report;[6]
- The WHO's Global status report on road safety;[7] and
- OECD's International Road Traffic and Accident Database.[8]

Exchanges with the sector stakeholders: Exchanges with actors in the road transport sector provide governments a good sense of the main issues that affect the efficiency of the sector. Such preliminary analyses could be based on formal and informal feedback received from the industry on an ad hoc basis, or using Delphi techniques, from newspaper articles or reports/comments from other government agencies. While the information is valuable and should contribute to further analysis, reliable and updated data are crucial in order to appreciate the real situation on the ground. Beside information obtained through sustainable data collection mechanisms, additional data is often required in order to understand the underlying causes, prioritize measures and design efficient interventions.

Questionnaires and surveys: The collection of primary data through surveys is often indispensable to fill this gap and gather additional evidence. Figure 4 gives an overview of the actors involved in the road transport sector and their potential roles in primary data collection. The central block in Figure 4 represents data collected from the different government agencies; the right block represents data from the regional and international bodies; and the left block represents data collected from transport associations, shippers and clients.

One of the most widely known international survey instruments on transport is the "Common Questionnaire,"[9] which is the result of a joint initiative and longstanding history of cooperation between the UNECE, Eurostat[10] and the ITF. The Common Questionnaire is not supported by a legal act, but is based on an informal agreement with the participating countries. However, the completeness of the questionnaire varies from country to country. In total, comparable transport data collected through the Common Questionnaire is available for close to 60 countries worldwide.

The Questionnaire harmonizes and standardizes transport data at the international level so as to improve comparability and reduce the workload of national statistical offices. This has resulted in the regular publication of a *multilingual glossary of transport statistics*, which provides globally standardized definitions and concepts both inside the EU and beyond. Box 1 presents the scope of the Common Questionnaire.[11] The full questionnaire is attached as Annex 2.

[4] http://lpi.worldbank.org/

[5] http://www.doingbusiness.org/reports

[6] http://www3.weforum.org/docs/WEF_GlobalEnablingTrade_Report_2014.pdf

[7] http://www.who.int/violence_injury_prevention/road_safety_status/2013/en/

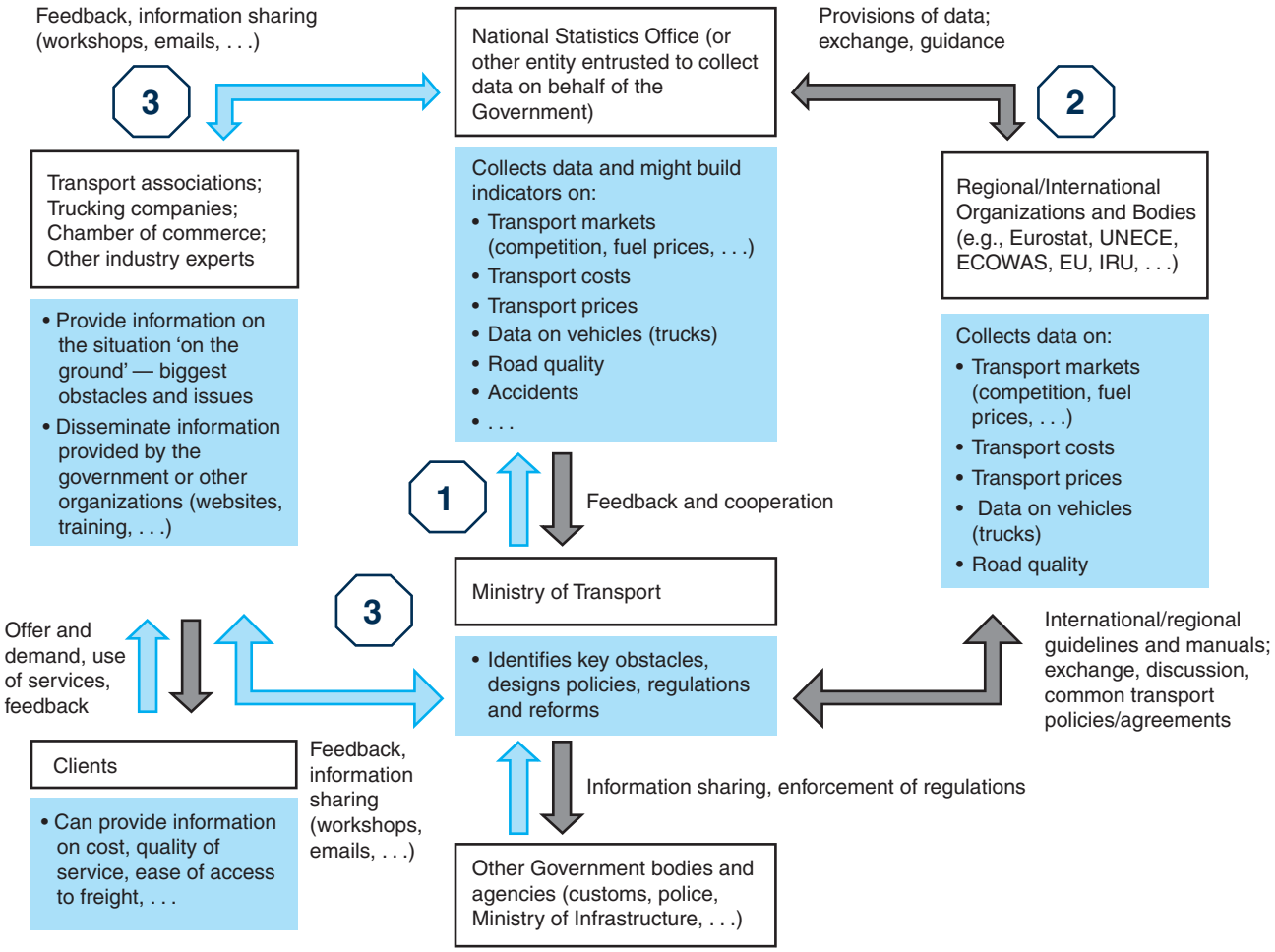
[8] http://internationaltransportforum.org/irtadpublic/about.html

[9] http://ec.europa.eu/eurostat/web/transport/data/database

[10] Eurostat is the statistical office of the European Union, and is situated in Luxembourg. Its task is to provide the European Union with statistics at the European level that enable comparisons between countries and regions.

[11] An example of key data collected through the Common Questionnaire can be downloaded at http://www.internationaltransportforum.org/Pub/pdf/15KeyStat2014.pdf.

FIGURE 4 Overview of Stakeholders and Data Collection Mechanisms



Legend:

1	National Legislation on road statistics and national mechanisms to collect transport data on a regular basis; (two examples are provided below in this section: (1) The Dutch System, (2) The French Comité National Routier)
2	Regional/International systematic data collection—National Statistics Office or other Government entity entrusted to collect and disseminate transport data sends national data to a regional/international body; Examples include: (1) The Common Questionnaire (UNECE/Eurostat/ITF), (2) EU Legislation on transport statistics, (3) Eurostat Road Freight Methodology
3	Single approach/ad hoc data collection to analyse a specific issue in more detail or used due to the lack of systematic data collection; Examples in this chapter: (1) Indonesia questionnaire, (2) Sample questionnaires on different core issues

Source: Authors.

Data collection can be mandatory, for example in the EU and European Free Trade Area (EFTA) countries where it is based on legislation applied by the Member States, or voluntary as in other countries. In the EU the collection of transport statistics[12] by Member States is governed by Regulation 70/2012 of the European Parliament and of the Council of 18 January 2012 on statistical returns in respect to the carriage of goods by road.[13] The objective of the Regulation is to ensure: the availability of comparable, reliable, synchronised, regular and comprehensive statistical data on the scale and development of the carriage of goods by road by means, and on the degree of utilization of

[12] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:032:0001:0018:EN:PDF

[13] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:032:0001:0018:EN:PDF

BOX 1 Scope of the Common Questionnaire

The questionnaire covers seven different transport modes:

- Road,
- Rail,
- Pipeline,
- Inland waterway,
- Sea,
- Air, and
- Intermodal.

It includes seven different dimensions:

- Infrastructure,
- Transport equipment,
- Enterprises, employment,
- Traffic,
- Transport measurement,
- Energy consumption, and
- Accidents.

The questionnaire has three metric types:

- Transport of goods—tons transported and ton-kilometres (TKM)—the most complete dataset;
- Transport of passengers—number of transported passengers and passenger-kilometres (PKM);
- Traffic—Stock of vehicles and vehicle-kilometres (VKM).

Source: Authors' summary based on Common Questionnaire.

vehicles carrying out this transport. For this specific case, the set of data is aimed at supporting the European Commission in carrying out the tasks entrusted to it in the context of a common European transport policy.

Statutory data gathering: An example of an effective system for data collection and management is that of the Netherlands where the Central Agency for Statistics (CBS) is responsible for all data collection, including data on road freight transport. However, until 2009, the execution of this task for the road transport sector was delegated to the Dutch National and International Road Transport Organization (NIWO).

According to section 30 of the Road Haulage Act, holders of an operator's license for road freight transport are obliged to supply the line ministry with particulars about the haulage. The ministry also has the authority to issue rules about the information to be supplied and the way in which it is reported. The Ministerial Decree on Information Supply is a result of section 30. The decree consists of 7 articles (Box 2).

In 2008 Eurostat published two documents describing the road freight statistics methodology. The first one, "Road freight transport methodology. Reference Manual for the implementation of Council Regulation No 1172/98 on statistics on the carriage of goods by road" (Cat. No. KS-RA-07-029-EN-N)[14] presents the relevant legislation and provides, in the Manual, detailed methodological advice and useful guidelines on the design and implementation of road freight statistics surveys.

The second document, "Methodologies used in surveys of road freight transport in EU Member States and candidate countries"[15] summarizes the national characteristics of surveys that were carried out in the reporting countries to produce Eurostat's road freight statistics. The document was integrated in the reference manual for the implementation of Council Regulation No 1172/98 on statistics on the carriage of goods by road, published in the "Methodologies and working papers" collection. It provides an extensive coverage of what is available on road transport statistics methodology.

In general, when collecting data through a survey it is important to consider the priorities for reform. For instance, for transport providers the question could refer to the elements that increase costs, or that limit their capacity to transport bigger volumes of cargo. For transport clients, the questions could refer to the elements that increase prices or affect reliability and predictability. For enforcers, the questions could refer to the elements that present the highest risk to safety, environment, and security. A non-exhaustive list of elements that could be covered in a survey may include: regulations, enforcement, practices, institutions, infrastructure, access to finance, managerial competence, driver (access to profession, qualification, training . . .), vehicle (technical conditions and age, insurance, maintenance . . .), unfair competition (informality), freight allocation systems, transport and transit rights (cross-border transport), access to profession, and access to market. Sample questionnaires are included in Annex 5 with a specific one employed in Indonesia in July and August 2014 reproduced in Annex 6.

Some proven good practices when designing a survey are the following:

- The targets of the survey: Depending on the country's situation, it may be possible to approach all the existing carriers (undertaking or natural person). However, a selective approach could be used to focus the analysis on a specific sample of operators. Also, it is very important to keep in mind the various subcategories of the road freight transport market and their specific characteristics that might require a specific set of questions.

[14] http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-08-009/EN/KS-RA-08-009-EN.PDF

[15] http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-11-015/EN/KS-RA-11-015-EN.PDF

BOX 2 Dutch Ministerial Decree on Road Transport of Goods

Article 1: The license holder for domestic road transport of goods, the license holder for international road transport of goods and the holder of a permission are obliged to submit a statement to the NIWO every year over one or more periods determined by the NIWO and Statistics Netherlands. This statement has to be submitted within 14 days after the end of a period and has to contain information about:

(**a**) the vehicles that have been used
(**b**) the amount of loaded and unloaded kilometers
(**c**) the location of loading and the location of unloading, in case of international transport the country-code has to be included also
(**d**) the distance between the location of loading and the location of unloading
(**e**) the weight of the load
(**f**) the loading capacity
(**g**) the type of transported goods
(**h**) the manifestation of the goods
(**i**) in case of dangerous goods the UN-classification
(**j**) the revenues from transportation

Article 2: The holder of an own account transport permit is obliged to submit a statement to Statistics Netherlands every year over one or more periods to be determined by Statistics Netherlands. This statement is submitted within 14 days of a period and has to include at least the data mentioned in article 1 a–i.

Article 3: The obligations mentioned in Articles 1 and 2 have to comply by submission to the NIWO/Statistics Netherlands for this occasion prepared questionnaires. The submitter declares to have filled it in according to truth and nothing than the truth and has to undersign the questionnaire. It is also possible to use other data carriers that are approved by NIWO/Statistics Netherlands.

Article 4: The licence holder for road transport of goods is obliged to submit data about the market segments in which s/he is active to the Inspector General of Transport within a period determined by the Inspector General of Transport.

Article 5: According to this article, the NIWO is obliged to submit all received data to Statistics Netherlands.

Articles 6 and 7: This article contains administrative provisions (entry into force, publication in Official Journal).

Source: Dutch Ministerial Decree on Road Transport of Goods.

From a general perspective the road freight transport market can be presented as being divided into:

- Local
- National
- Short distance transborder transport
- International (bilateral, multilateral)

This traditional typology does not preclude the existence, within the road transport sector, of various types of transport which constitute by themselves a specific market:

- Full cargo load/Partial load
- Tanker truck transport, subdivided into grains, powder and liquids (themselves also divided into liquid foodstuff/chemicals/petrol/gas)
- Dangerous goods
- Perishable foodstuff
- Live animals
- Refrigerated/controlled temperature transport
- Exceptional transport (overweight/oversized)
- Bulk transport
- Containers

- The drafting of the questionnaire: The best solution is to associate operators and their professional organizations in the drafting of the questionnaire to ensure it addresses the right issues and it is understandable by the operators. Besides length, format, language (clear definition of objectives, language adjusted to type of contributor) and technology used play an important role (online vs. paper version).
- The sample size: Survey designers should clearly define what sample size they are aiming at and if they want to undertake additional steps to make the sample more representative (different regions, different company sizes . . .)
- The cost of the survey: Survey designers should calculate carefully the resources needed for

conducting the survey to obtain robust results that can justify specific interventions and that can build a project baseline.

- The administration mechanisms:
  - Set up of a realistic timeline specifying detailed actions, responsibilities, milestones and deadlines.
  - Use of the professional associations representing the sector for at least dispatching the questionnaire to its members and to assist operators in filling them as well as ensuring the collection of filled in forms.
  - Distribution and collection can be organized at the administration level in regional or local representations.
  - Use of a consulting firm that may organize meetings with trucking companies and individual interviews if funds are available.
  - Use of online questionnaire (compared to a standard paper or word questionnaire). However, even though data analysis might be easier, different obstacles might arise from using an online survey (e.g., loss of data, digital literacy level of the respondents, speed of internet . . .).
- Identification of potential partners: Besides transport associations and consulting companies, transport line ministries should identify other government agencies that should be involved and that could eventually even do this data collection on a regular basis.
- The aggregation and manipulation of the data needs to be properly planned and resourced.
- The validation of the results: In order to ensure the ownership of, and buy into the reform process by the operators and stakeholders, it is important from the beginning to organize validation seminars where all participants can witness not only the results but also help in monitoring implementation.

Electronic means: Transport data can also be gathered through largely electronic means. Transport Canada, the authority in charge of transportation policies and programs, initiated the Canadian Vehicle Use Study (CVUS) to monitor and measure vehicle utilization and efficiency with the aim of better informing transport policies. CVUS was launched in 2011 for light-duty vehicles and in 2013 for heavy-duty vehicles respectively. In April 2015, 80 percent of the Canadian vehicle fleet was covered by the study. CVUS is the first survey that exclusively collects data electronically. It collects data on performance from the engine control unit, geographic coordinates from an integrated GPS and trip-related information (e.g., purpose, passenger details, and fuel purchase) from a touch screen to be entered by the driver. The raw data obtained are weighted to the population totals to produce quarterly and rolling annual average estimates, representative at the provincial level. This information is used to inform policies and regulations on road safety, fuel efficiency, air emissions, traffic congestion and infrastructure planning.

After consent to participate, vehicle owners reply to a short intake questionnaire (online or by phone) that collects vehicle and user characteristics such as number of axles, fuel type and roof height. Data loggers are mailed to the participants that install them in their vehicles. The loggers stay in the vehicle for 21 days. The advantages of this system are that: (a) it collects critical characteristics that are impossible to obtain from the driver (speed, operating temperature, location through GPS, time, fuel use, idling, inactive day time, trips per day), (b) it collects unprecedented quantities of data (second-by-second reporting), (c) less time is spent on data input process leading to 60 day turnaround for analysis, as opposed to 6 months previously, and (d) the information collected is more accurate and coherent through the direct information recording that also reduces the burden of the respondent. The difficulties faced include high variability in activity patterns, recruitment of participants and relatively high costs (total annual cost of the CVUS is around CAD$1.1 million). More information on CVUS can be found on the official website of Transport Canada: http://www.tc.gc.ca/eng/policy/aca-cvus-menu-2294.htm

Institutional Approach to Data Collection

Data collection often starts with, or should include, the public sector. The main public sector stakeholders in road transport services are the regulatory and enforcing authorities. Road transport sector falls under the scope of activity of the transport line ministry which is in charge of administering the sector. Under the supervision of the line minister, a general directorate is typically mandated to administer the inland transport sector which itself disposes of a general directorate for the road transport sector. Details on the various roles and competences of the regulatory authorities are provided below.

The activities carried out by the line ministry cannot be conducted in isolation and require appropriate inter-ministerial coordination and cooperation in particular with:

- Ministry responsible for legal and regulatory aspects;
- Ministry responsible for financial and taxation issues;
- Ministry responsible for economic and trade affairs;
- Ministry responsible for bilateral and international affairs;
- Ministry responsible for control and enforcement;
- Ministry responsible for technical aspects and certification and control purposes;
- Ministry responsible for higher education for training and recognition of diplomas;
- Ministry responsible for social aspects (social rules, retirement, social security. . .);
- Ministry responsible for public works for infrastructure; and
- Ministry responsible for development programs and policies.

BOX 3 The Comité National Routier

The **mission** of the CNR is to:

- Participate in the economic monitoring and follow-up of the market of Common Carriers especially by means of cost analysis, and circulate the information it gathers as well as the economic analyses it carries out.
- Carry out research and socioeconomical surveys related to the carriage of goods market, which are useful to all of the transport professionals.
- Finalize and circulate management tools for the benefit of the haulers.
- Carry out all missions of general interest to the trade.

The Tasks

- The CNR is a technical organization and think thank whose prime mission lies in the observation of the working methods of road haulage of goods markets, whose field of action has steadily increased from the sole domestic carriage under the French flag to all transport operations carried out within Europe.
- Within the scope of the general interest mission, it is entrusted with by the State to both inform and alert the economical spheres and the transport ministry about the observed evolutions.
- Its work is mainly dedicated to companies. Particular attention is paid to small and micro businesses, especially with regard to the observation of the evolution of operations conditions and cost components.
- From the collected data, the CNR reorganizes reference costings for haulage operations and issues indexes which can be used in free negotiations. In this capacity, CNR produces public statistics. This mission is carried out under the aegis of a scientific council that is independent from the trade, which today is chaired by a university professor and made up of several INSEE directors. The scientific council certifies methodologies and guarantees objective results.
- CNR circulates reference indicators needed in the indexation mechanism for the diesel fuel indexation system (Articles L3222—1 and 2 of the Transport Code) and promotes fair tariff adjustment practices.
- It develops calculation and even management tools that aim to help the companies compute their costs in a more accurate manner. These tools are freely available on CNR's website.
- CNR carries out economic analyses, either on its own initiative or upon request of the transport line ministry (e.g., on the impact of the latest regulations or projected developments).
- In the international field, monograph surveys are carried out concerning the nationality of common carriers in the main competitor countries in the EU.

The Board of Directors

The CNR is managed by a board of directors composed of twenty-one members appointed by decree of the line minister for Transport: a) fourteen members appointed on the proposal of the professional organizations representing both Common Carriers and freight forwarders, namely, Fédération Nationale des Transports Routiers (FNTR), Organisation des Transporteurs Routiers Européens (OTRE), Fédération des entreprises de Transport et Logistique de France (TLF) and Union Nationale des Organisations Syndicales des Transporteurs Routiers Automobiles (UNOSTRA) and b) seven qualified persons appointed by the transport line minister.

The Scientific Council

A scientific council operates in conjunction with the board of directors. It approves the methodologies put forward for economic observation and is consulted about the survey programs presented by the board of directors. The scientific council is composed of six members, four chosen by the transport line minister and two appointed by the board of directors.

Appropriate institutional mechanisms are important for the sustainability of data collection and sector diagnostics. In France, the National Road Committee (Comité National Routier,[16] CNR) is a Professional Committee for Economic Development according to the French Law. It is a technical organization established in 1949 to collect information about the road transport sector, including key data on the market for transporting goods: detailed information on costs of operating a vehicle including fuel price statistics, personnel cost, working conditions of drivers and details on vehicles (e.g., yearly km logged, number of operations

[16] Information from http://www.cnr.fr/ used with permission from CNR Director.

per year, load capacity, waiting time to load and discharge). CNR is financed by the transport line ministry but its work is mainly dedicated to companies, with particular attention paid to small and micro businesses, given that 81 percent of the 35,230 Common Carriers employ less than 10 people. The CNR analyses the information collected and informs and alerts the economical spheres and the transport ministry about the evolutions observed.

In addition, the CNR offers guidance and tools to the trucking industry on how to save costs, on fiscal aspects and on how to calculate prices. All data can be downloaded from the website and used by road transport companies and government agencies to build their own transport indicators. An example of cost calculation for a 40 ton long-haul vehicle is presented in Annex 4.

Mapping Relevant Players

In addition to the public sector, any modernization or reform process requires identification of the key stakeholders, their mission and role, and how they are structured and related to each other, in order to establish how they will be affected and which influence they may have on the process. This brief inventory of stakeholders is not exhaustive; it includes the categories that are generally playing directly or indirectly the most significant roles in road transport services and would therefore be impacted by reform measures. At the same time, these categories would most likely be the main contributors to the success of the reform, if they were properly empowered. In particular, it is important to include non-traditional groups in the consultations. As described in the introduction, the evolution of the logistics services is such that logistics services providers in a wide sense are part of a complex chain of actors, who should be included. It is therefore useful to identify the main stakeholders of road transport services and to highlight their main functions within the sector. In this context industry associations are often valuable allies.

Operator associations: It is rather common practice for the private sector, including employees (individuals or trade unions) and employers (road transport operators or professional associations) not to be involved in the decision-making process. Trade unions have a longer tradition in negotiating with the employers but they are mainly involved in social processes related to labor conditions, wages, etc. The predisposition to form associative structures is cultural and may depend on the political regime (if such associations are permitted) or the economic model of the country (socialist, capitalist). Furthermore, in countries where the road transport operators are grouped into several professional associations, very often these compete with each other to the detriment of the collective interest of operators, who should be represented in the dialogue and the decision-making process.

The road transport sector, while characterized by a certain level of individualism, has started to organize itself through sectorial road transport professional associations. These organizations were constituted in order to defend and promote the professional interest of the sector in relation with public administration, government and transport users and other economic sectors.

As such they are supposed to be representative of the sector and should be the natural counterpart of the government in defining the road transport sector policy and its implementation. Reliable and effective associations that are truly representing road transport operators are key partners for reform, because their members are the main beneficiaries and the potential victims of progress. Governments should therefore support the establishment and functioning of such associations and involve them in the preparation, design and implementation of reforms. Associations' contribution can be sought in various forms; for example, they should be part of the coordination mechanisms between government agencies and the private sector. The private sector may also be involved at the political level by being part of advisory institutions aimed at analyzing transport policies and advising on draft transport legislation and regulation. Such formal consultative mechanisms are beneficial in creating a systematic framework for a collaborative approach to the governance of the sector and for developing a trust-based cooperation between the private and the public sectors.

Professional associations know their members; this is an advantage that needs be leveraged within the institutional framework, for example by involving them in the certification and authorization activities such as the issuance of the Certificate of Professional Competence for the access to the profession and access to transit systems, as well as in the bodies dealing with sanctions to be imposed on serious and repetitive offenders.

In Europe, Central Asia, or in North America, the road transport sector has structured itself through a small number of national associations in each country, which ensures good representation/relevance and strength. In other regions, in particular in Africa, a multitude of associations, often locally based have emerged in each country. As a result, the public sector is facing a number of associations with limited relevance and influence which render coordination and consultation processes difficult and typically unproductive.

In addition to the road transport associations, a number of entities are involved in the road transport fields such as:

- Chambers of commerce;
- Shippers councils;
- Transport users; and
- Industries' associations.

These organizations may interact with road transport associations and with the public sector at large, in particular in the formulation of the transport policy and more particularly in the framework of the reform process.

While data from industry associations can be industry-wide it often has to be complemented with data gathered from specific categories of service providers, often at the firm level. The transport operators and carriers are critical as the reform process will target them, directly or indirectly. Tables 2, 3 and 4 highlights the main functions within the

TABLE 2 Carrier or Transport Service Provider

Carrier	Main Characteristics
By definition the carrier/road transport operator is the legal and economic entity that will move the goods in a road vehicle from the sender's place to the receiver's premise.	
Type of Undertaking	Natural Person (individual owner or renter of a truck that s/he drives) or Legal Person (entity/undertaking/company).
Type of Operating Mechanism	Own vehicles that are operated, but can also be rented occasionally or for exclusive usage for a certain period of time. Renting vehicles with or without driver. Lease vehicles for a certain duration. In that case the lessor will exclusively use the vehicles and be responsible for them as if they were owned.
Regulatory Framework	Specific rules may apply in addition to the usual obligation of registering as a commercial entity/activity. Usually qualitative criteria are established through regulations on access to the occupation of road transport operator. The authorization to operate usually takes the form of a registration with the competent administrative structure, which is in charge of verifying the compliance with the criteria. The minimum conditions and criteria vary from one region/country to another. Once recognized as a Road Transport Operator (registration), the access to the freight market, meaning its ability to actually perform road transport operations may or may not be regulated.
Services	Transporting/moving the goods remitted to the carrier from the agreed point of loading/origin to the agreed point of unloading/destination, by providing a vehicle and a driver that are fit for the given operation. However, it is common that this basic task is complemented by additional services ancillary to transport and which are generally part of the transport contract. The ancillary services provided usually by the driver or transport operator staff are: loading, unloading, stowing and securing the cargo, filling in transport documents and accomplishing certain customs formalities in relation with transport, as well as return of load support or pallets.
Logistic Services	In addition to the ancillary services, the carrier may accept to carry out some logistics services that are usually not considered as part of the transport contract but are subject to normal commercial law. These additional logistics services may consist of forwarding activities (organization of door-to-door transport via intermodal solutions), packaging, collecting and grouping loads, warehousing.
Contractual Aspects and Liability	In general and as a rule the transport of goods is subject to the filling in and signing of a document, which sets the conditions of the transport including liabilities. However, depending on the local culture and tradition, in some parts of the world the transport contract is often concluded verbally and without formalities. The legal nature of the transport contract is either a normal commercial one or a special contract subject to specific rules. When the transport contract is a standard commercial one, the carrier/ transport operator is not subject to a special liability regime, but is liable according to standard commercial/ contractual laws applicable. When a special legal regime is the basis of the transport contract, it implies some particularities such as: • The carrier is bound by an obligation of result and is therefore considered as automatically liable for any damage, loss or delay unless proven that it is due to a limited list of situations. The level of this legal presumption varies between countries and international instruments applicable. • The counterpart of this strong presumption is that the indemnity due by the carrier in case of damage, loss or delay is limited to a lump sum compensation that may be calculated on the basis of an indemnity by weight unit (kg) or by load unit. • In case of severe fault by the carrier, the limitation may be excluded.
Transport Document	In general, any transport operation must be subject to the filling in and signing of an accompanying document, a Consignment Note (CN) or transport document, which may have several functions. On the one hand it will attest to the nature and quantity of the goods transported, their condition when they were taken into charge by the carrier through signing by the carrier and sender/shipper; the document will also attest the delivery to the consignee. But the Consignment Note is also useful for control purposes *en route* and may serve as a statistical tool. In this latter case a copy of the CN must be sent or communicated for statistical purposes to the designated authority.

TABLE 3 Commercial Vehicle Renters

Commercial Vehicles Renters	Characteristics
Their role is to rent commercial vehicles to professional transport operators or to industrialists (own account transport) with or without drivers.	
Type of Undertaking	The undertaking can be a Natural Person (individual owner) or a Legal Person (entity/undertaking/company registered according to national commercial law).
Type of Operating Mechanism	Usually the renters own the vehicles and are the employers of the drivers they offer to their clients.
Regulatory Framework	In some countries, the usual obligation of registering as a commercial entity/activity is sufficient. However in other countries (like in some countries of the EU) the registration to a dedicated register is needed for the activity of renting a vehicle without a driver. As far as renting vehicles with drivers is concerned, rules similar to those for access to the profession of road transport operator are applicable to renters (registration and compliance with minimum conditions and requirements for access to the profession/occupation).
Renting Services	In case of renting without drivers, the service consists in providing to the client the vehicle(s) he needs. The client is responsible for the vehicle's conformity to legal, security and technical requirements as well as to sanitary and customs regulations as appropriate. In case of renting with drivers, in addition to the vehicle(s) as above, the renters must provide professional drivers holding appropriate driving licences and supplementary certified driver and vehicle qualification as appropriate (e.g., CPC, dangerous goods, perishable foodstuff).
Contractual Aspects and Liability	For simple vehicle renting, a contract shall be signed and as a rule a copy of it should be on board the vehicle. The renter should provide basic third-party liability insurance to cover damages caused by the vehicles. However the client/transport operator is responsible for additional insurance, e.g., for traffic crash or for own commercial liability. In case of renting with drivers, a more complex contract must be signed, a copy of which must be on board. The renter with driver is liable for damage caused by the rented vehicle in case of default of the vehicle. He is also liable for damage produced in incidents or accidents caused by the driver during his driving. However, it is generally the client/transport operator who is considered responsible for the driver's acts undertaken outside the driving activity (such as loading/unloading). The renter has no liability towards the goods transported.

sector for carriers, commercial vehicle renters, and freight forwarders respectively.

Intermediaries/brokers: Freight brokerage has emerged in some regions of the world, where a broker's role is to match supply and demand, i.e., find road transport operators to carry the goods for a client (sender/shipper). They may also fulfil other tasks, for example filling in transport and customs documents, although in many regions these brokerage activities are now more and more conducted on-line over the internet. The brokers do not appear anywhere in the transport documents, and in general they are remunerated by a commission they take on the transport price paid by the sender/shipper.

Logistics services providers: In addition to the usual forwarding services (organizing transport, documents, customs procedures, intermodal trips . . .) specific logistic services may be required such as packaging, labelling, collecting and grouping shipments. In this case, shippers (directly or through forwarders) may recourse to specialized logistics services providers.

Senders and receivers: Senders/shippers/consignors and receivers/consignees are of course key clients/commercial partners for the road transport operators. However this client/provider relationship between a road transport operator and its contractual partner is of a specific type, as the quality of service provided by the carrier is highly dependent on the conditions offered by the client.

Valuable information to be collected would include:

- The nature of goods, their quality, quantity so that the carrier may provide the appropriate vehicle and driver and can comply with specific regulations (e.g., dangerous goods, perishable foodstuff. . .);
- The nature of the services expected (e.g., loading unloading by driver . . .) so that the carrier can take

TABLE 4 Freight Forwarders

Freight Forwarders	Characteristics
By definition forwarders are transport organizers and logistics services providers.	
Type of Undertakings	The undertaking can be a Natural Person (individual) or a Legal Person (entity/undertaking/company registered according to national commercial law).
Type of Operating Mechanism	The forwarder provides immaterial and material services. In some countries forwarders are allowed to perform commercial transport activities and operate vehicles, in which case they also act as transport operators. In countries where both professions are regulated, they must comply with both access criteria and conditions.
Regulatory Framework	In addition to the usual obligation of registering as a commercial entity/activity specific rules may apply. However, in most regions of the world this profession is not regulated. In regions and countries where the forwarding activity is regulated, the conditions to access the profession are usually very simple and consist in a registration to a dedicated register held in general by the line ministry for transport. However, in some countries like in France a registered transport company is allowed to perform forwarding services by subcontracting a part of its transport to another transport operator if this activity counts for less than 15% of its turnover. If it is above 15% of the turnover, then the transport company should in addition also register as a forwarding company. Self-regulation of the profession has been developed by FIATA to certify the level of professional competence of forwarders; however it is not a mandatory requirement to access the profession even if some clients may impose on their forwarders to be holders of such certificates.
Forwarding Services	Basically the services provided by freight forwarders consist at least of organizing the transport of goods for and on behalf of their clients, by selecting the mode of transport, the carrier(s) and other modalities. Most commonly they are involved in the organization of intermodal and multimodal transport services but also undertake to provide or organize other logistics services.
Contractual Aspects and Liability	There is no international legal norm that defines the legal status and liability of the forwarder, contrary to what exists for road carriers (defined by the CMR Convention for example). Therefore, it is usually admitted that forwarders are operating depending on national law applicable under two different types of contracts and liability regimes. In Anglo-Saxon countries, forwarders are considered as simple intermediaries whose task is to put in contact a client and a transport operator. They act as a kind of representative of the client but they do not contract on their own, they always act on behalf of their clients, for example when signing a transport contract. In that case, their liability is usually professional liability, they are liable only for their personal faults or breaches, and they are not responsible for the good accomplishment of the transport nor for the good state of the goods at destination. They act according to an obligation of means but not according to an obligation of result like the carrier. In many Latin American countries, forwarders are considered to be operating under an obligation of result, meaning that they are responsible for the good accomplishment of the transport and the good state of the goods at destination. This regime is known as 'Commissionaire." In practice they are liable for both their own and their subcontractors' fault. Under this liability regime, they can contract on their own name with transport operators. In this case, they act as the sender towards the transport operator. For the client it is a real simplification as their only counterpart is the forwarder (Commissionaire) and not a multitude of operators.
Forwarding Documents	In general, forwarders produce a door-to-door transport document, called a Bill of Lading, for the client. The FIATA model of a Bill of Lading is widely used throughout the world.

the necessary measures such as foreseeing loading material;
- Reliability as measured through compliance with the agreed time for loading and unloading so that the driver would not be obliged to face long waiting times and possible infringements of, for example, drive and rest time rules. Completeness and correctness of these elements reflect the professionalism, honesty, ability and capabilities of the transport operators' clients;
- The provision of instructions compatible with the legal obligations in traffic, in particular as far as road safety is concerned;
- The appropriate packing of the goods to allow their safe transportation; and
- The agreed remuneration.

Other transport mode operators: In some situations, actions by players in other modes of transport may also influence the quality of road transport services. It is in particular the case for maritime companies, especially for containerized cargo, which, in the framework of a direct transport contract (direct bill of lading), may also be in charge of the organization of the transport from the place of loading until the final place of destination, which would include the pre- and post-maritime transport legs. In such cases, the maritime companies become the clients of the road transport operator realizing that leg. Multimodal transport is the transportation of goods under a single contract, but performed with at least two different means of transport; the carrier is liable (in a legal sense) for the entire carriage, even though it is performed by several different modes of transport (by rail, sea and road, for example). The carrier does not have to possess all the means of transport, and in practice usually does not; the carriage is often performed by subcarriers (referred to in legal language as "actual carriers"). The carrier responsible for the entire carriage is referred to as a multimodal transport operator, or MTO.

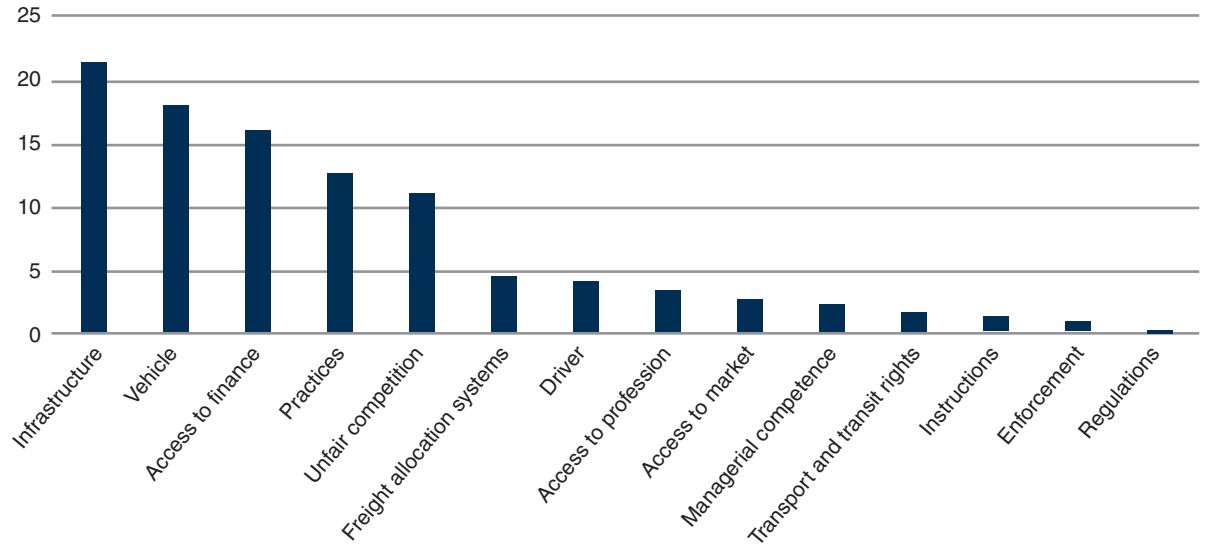
Clients: Transport services' clients can be private or public entities; they are the first to benefit or suffer from the quality of those services. A service is as expensive as the client is willing to pay, consequently clients play an important role in shaping the sector and should be involved in the reform design and implementation.

Identifying Key Areas for Intervention

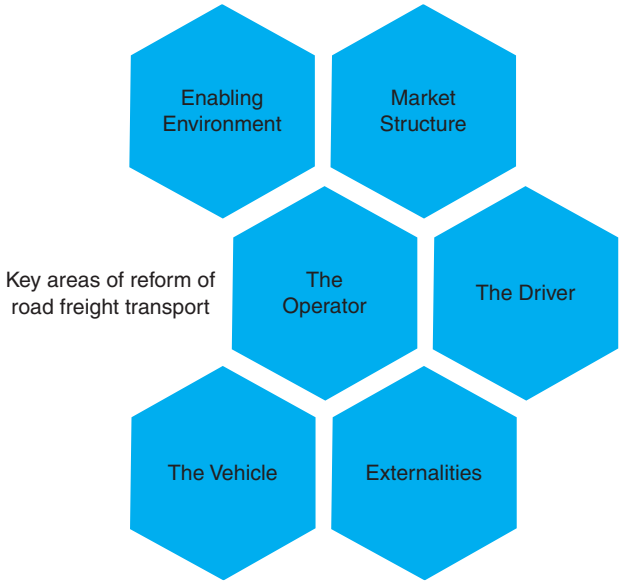
When data have been collected and analyzed, the next step is to identify areas of reform. The information gathered can be organized around a few topics, five to ten that are the most important depending on the purpose of the reform, e.g., cost, price, etc.). The topics can be ranked by order of priority or importance (Figure 5 presents a hypothetic example).

Once the top priorities have been identified, additional information can be collected as necessary to construct a full picture of a particular issue, depending on the resources available. If information is sought on a particular issue identified as most problematic, the methodology used should be as specific as possible.

FIGURE 5 Hypothetical Example of Ranking of Most Important Element Affecting the Efficiency of Road Transport Services



4 Key Areas of Reform



Setting a Framework for the Reform

By definition the term "reform" means making changes in order to improve something (e.g., a social, political, or economic institution or practice). However, change is often perceived as a threat to certain stakeholders' interests as they are likely to lose from the reforms. This is particularly true in road transport, where most actors are individuals or small undertakings who are often uncertain about the reforms. In general, even if in theory the transport operators are fully aware of the need for change, in practice, reform often generates hostile feelings and reluctance, especially if the processes are not well explained or lack transparency.

To enhance the probability of a reform's success, governments deciding to carry a reform should make a detailed plan of action, with assessment of risks, benefits, worthiness, costs and time frame. Due consideration must be given to the modalities for making the reform accepted by (the vast majority of) those concerned to ensure ownership and sustainability of the change. A possible way to start conceiving the reform plan is by making a qualitative assessment of the actions, as suggested in Table 5 below.

Creating Reform Acceptance

In countries where the road transport sector is weak, unstructured and atomized, the representation of the profession reflects these characteristics, to such an extent that the industry does not represent a credible interlocutor for the government in discussing the reform principles and its substance.

A successful approach was adopted at the beginning of the nineties by countries in Eastern and Southern Europe, where one of the first targets of the reform process was to address the organization of the profession by supporting the multitude of syndicates and associations to group into a single association/federation of the road transport sector.

The first objective was to obtain from the majority of the dispersed members of the profession a consensus on the way the profession should be heard by the government and the line ministry of transport in particular. This way a single federation or association can become the counterpart of the government for all road transport policy issues and in particular in the reform path. The reform acceptance will be stimulated within the profession through the support given by the government to federating the professional representation and will be considered by the professionals as a sign of recognition of their role as key contributors to the economic and social development. This step needs determination and convincing skills from the government but is key to allow the profession to accept the principles of the reform through a Public-Private Partnership approach. This was accomplished in various Western African countries such as Mali, Burkina Faso and Ivory Coast, where the establishment of a credible professional representation of the road transport sector has proven to be useful and effective in the reform process.

Creating Reform Ownership

In order to obtain the best outcome from a sectorial reform such as the one for road transport, ownership by the profession will be a key success factor to ensure it delivers the expected and foreseen benefits.

TABLE 5 Qualitative Assessment Framework for Reform Areas

		Driving License and Training	Vehicle Inspections	Unfair Competition	....
Description of Main Planned Actions		(1) (2) (3)			
Political Risk		Moderate			
Cost	Public	Low			
	Private	Moderate			
Return on Investment		High			
Involved Authorities					
Interests of Stakeholders (risks, support, incentives . . .)		Potentially Supportive Neutral Opposed			
Time Frame		Short term			

Creating ownership of the reform is the second step following acceptance of it by the profession. This can happen by involving the profession in:

- The diagnostic phase in the collection of data and information and the identification of key issues/ blockages to be resolved;
- The elaboration of the strategic objectives to be pursued by the reform;
- The definition of measures to be adopted and implemented; and
- The implementation of the reform.

This approach has proven to be efficient in preventing hostile reactions and to the contrary in supporting the reform, its objectives and actions undertaken by the profession itself, thus ensuring a facilitated implementation and a certain level of confidence in achieving the set objectives.

The main areas of reform of road freight transport services can be grouped into six: i) the enabling environment; ii) market structure; iii) the operator; iv) the driver; v) the vehicle and vi) externalities. The remainder of the Guide builds on Figure 2 and discusses each of these issues and their main characteristics, illustrated by appropriate examples from different parts of the world, and identifies the options or paths to reform, to improve the sector.

Enabling Environment

National Framework

Governance is key to ensure a successful modernization or reform in any economic area including road transport. In addition to political will and commitment, any such change process requires the establishment of a business-enabling environment built on well-functioning institutions, comprehensive yet applicable laws and regulations, good practices and proper enforcement.

Usually, the governance of the road transport services sector is a competence of the line ministry of transport, which issues regulations and implements them, directly or through specialized agencies. However, the scope of competence of the line ministry may vary from "heavy," more traditional, to "light," modern structures.

In some countries (e.g., Burundi), the Ministry of Transport is responsible for all transport modes and their respective infrastructure: land (road, rail, and inland waterways), air and maritime sectors. In such cases, the road transport sector is only one component of the ministerial portfolio and can be organized as a Directorate. In other countries, the transport competences are assigned by mode; for example, in India civil aviation, road transport, railways and shipping each has its own ministry. In Russia, there is one Ministry of Transport, which exerts its authority

through Federal Agencies in charge of individual modes of transport. It may also be that the transport sector is part of a multi-sectoral ministry, such as the Ministry of Sustainable Development and Energy in France. In the European Commission, all modes of transport involved in cross-border movements are grouped under the competence of a dedicated commissioner. For railway, maritime and air transport the authority is exerted through specialized European Agencies.

The form of organization and the place of the transport sector within a government often reveals the political and economic importance given to the sector. Nevertheless, there are cases where the place of the ministry is not very significant, although transport as an economic sector remains very important, notably in countries where regulations and institutions are in place and functioning properly, and where the private sector is well structured, organized and efficient. For example in Sweden, the Ministry of Enterprises and Innovation is responsible for the business sector, housing and transport, ICT, regional growth and rural policy. Transport includes railways, roads, shipping and aviation, as well as transport and infrastructure research. The number of transport ministerial staff is small and the authority for each mode of transport is exerted through specialized agencies.

The variation in organizational structures applies to the transport infrastructure sector. In some countries the responsibility of planning, building, maintaining and administering the road infrastructure lies with the ministry in charge of transport, as is the case in France (for the national network and highways). In other cases, responsibility is with another ministry such as the Ministry of Economic Infrastructure in Ivory Coast or the Ministry of Works in Tanzania. Local authorities in many countries are involved in the administration of secondary/local networks.

Policies' coherence and consistency are paramount for sustainable development; at the national level, they are the result of cooperation between various ministries. Multi-sectoral cooperation is particularly important for road transport services because of the sector's dependency and impact on various other economic and social sectors: trade facilitation, high number of direct or indirect jobs created, safety on the roads, and security (human trafficking, transport of hazardous cargo), etc. The ministry in charge of the road transport sector interacts, at least, with the ministries in charge of:

- trade (e.g., on issues related to trade policy and facilitation)
- industry (e.g., on issues related to vehicle's technical norms and standards)
- finance, including customs (e.g., on issues related to temporary importation of vehicles, transit guarantee systems)
- foreign affairs (e.g., on issues related to visa regimes, international agreements and conventions, mutual recognition of documents)
- regional integration and planning (e.g., on issues related to connectivity)
- the interior (e.g., on issues related to special transports, control and enforcement)
- labor and social affairs (e.g., on issues related to social legislation, working times, retirement, health care . . .)
- education (e.g., on issues related to curricula, issuance of professional diplomas and accreditation of training institutions)
- infrastructure and public works (e.g., on issues related to coherent development of transport networks)
- small and medium size enterprises (e.g., on issues of interest to road transport operators, which are in the vast majority SMEs).

However, irrespective of the organization at the ministerial (political) level, the administration/agency in charge of road transport is key to ensure the governance of the sector. Traditional administrative structures are in general heavily centralized, with a Directorate General (DG) for road transport established as part of the ministry; the structure of such a DG would typically include directorates/units responsible for:

- goods/passenger transport (e.g., registering, authorizing and licensing transport operators)
- international affairs and coordination (e.g., participating in the negotiation of international treaties on road transport)
- legal and regulatory affairs (e.g., drafting rules and regulations related to the sector)
- technical issues (e.g., vehicles, special transports, dangerous goods)
- projects and infrastructure aspects
- social affairs (e.g., driving and rest times)
- certification (e.g., of professional training institutions)
- inspection (e.g., checking compliance with the criteria for access to the profession)
- road safety (it may also be an inter-ministerial competence).

In regions that are highly integrated and where the legislation is adopted at the regional level, the trend is to limit the attributions of the ministries to elaborating national policies and strategies. The implementation and enforcement of the legislation at the national level is delegated to specialized agencies. This does not necessarily translate in overall lighter structures but decentralizes to a certain extent the processes and ensures a reasonable degree of impartiality in implementation and enforcement (including penalizing infringements). In many countries, some of the functions or tasks attributed to road transport agencies are performed by private or semiprivate entities acting by delegation or under a concession contract of service. It is very often the case for routine or periodical technical inspection of vehicles.

National Laws and Regulations

National laws and regulations are paramount for the effective organization and efficient functioning of road transport. They are part of the business-enabling environment and should be comprehensive yet clear and simple, in order to make their implementation and enforcement optimal. The national laws and regulations applicable to road transport should mainly focus on:

- designing the institutional setting that is adequate for the national specificities and adjusting it periodically in order to correspond to the developments;
- defining the responsibilities and competences of the institutions in charge of road transport, in a way that would avoid overlapping, confusion, misinterpretation and abuse of dominant power;

BOX 4 Romania's Organization of Transport

In Romania, a member State of the European Union, the Ministry of Transport (MoT) has a dual role of specialized body and State authority for transport. As transport specialized body, some of MoT's main responsibilities are to:

- elaborate and implement strategies, policies and development programs;
- organize and finance activities in relation to the collection of transport statistical and other documentary data;
- ensure users' rights to choose freely the mode, the operator and the mean of transport;
- support the development of public, multimodal and combined transport;
- stimulate initiative and ensure transport operators' autonomy;
- concession transport assets belonging to the State, on behalf of the latter.

As State transport authority, the MoT has implementation, inspection and enforcement attributions that are exerted through specialized bodies, to which MoT delegated some of its competencies. One of them, the Romanian Road Authority is a technical body responsible for:

- licensing road transport operators and economic agents performing activities that are ancillary to road transport (e.g., terminals);
- route licensing for operators performing regular or special transport of passenger transport;
- certifying enterprises that perform own-account transport operations;
- authorizing driving schools and instructors/trainers;
- registering and keeping records of road transport operators, own-account transport companies, and safety advisors;
- issuing certificates of professional competence for road transport personnel;
- implementing road transport technical norms and regulations;
- managing road safety audits including the training of road safety auditors;
- acting as Secretariat for the Interministerial Road Safety Council.

This structure is also represented at the local level in each of the administrative divisions of the country.

Another entity, the State Inspection for Road Transport Control is a technical body responsible for controlling the transport operators and their vehicles and drivers for compliance with the national and international requirements in areas regulated by the Road Authority.

Finally, the Romanian Automotive Register is the technical specialized body designated by the Ministry of Transport as a competent authority in the field of road vehicles, road safety, environment protection and quality assurance, with the following main responsibilities:

- to grant the national type, individual approvals and certificates of conformity (as applicable) for the road vehicles, and their systems, parts and separate technical entities;
- to perform the periodical technical inspection for certain categories of motor vehicles;
- to license the technical inspection stations and to check the periodical technical inspection activity;
- to license the workshops performing the works of mounting, adjustment and checking the vehicles and their components;
- to certify the quality management system.

Source: Authors based on Ministry of Transport of Romania (www.mt.ro).

- detailing the rules specific to the sector in line with the requirements of the reform, and without conflicting with the international obligations of the country or with other legislation applicable to economic activities. These rules should cover at least:
  - access to profession and to the market (licensing and authorizations),
  - technical issues (vehicles norms and standards, inspections, transport of dangerous goods and perishable foodstuffs, etc.),
  - driving licenses and professional competence of professional drivers (training institutions and personnel, initial and periodic training, etc.),
  - social and safety provisions (maximum driving time and minimum mandatory rest periods, etc.),
  - private law aspects (transport contract and liability rules, mandatory insurance, etc.),
  - inspections, control and enforcement of the rules with precise attribution of competence to each concerned authority, and
  - sanctions of administrative and disciplinary nature for the stakeholders infringing the rules (transport operators, shippers/receivers, forwarders, intermediaries).

Regional Framework

Increasingly transport markets are integrated at the regional level. As a result laws have to be harmonized at subregional and international levels. Historically and because of its flexibility, road transport is one of the areas the most regulated at the international level. The laws, norms and standards adopted in international/global fora have been a source of inspiration or replicated at the subregional level and have been further transposed in national legislation in the member countries of those international or subregional organizations.

Acceding to international legal instruments and adopting rules that are harmonized within the region is important but it does not produce any positive effect if they are not properly enforced. Two examples may be relevant in this respect: the European Union and the Regional Economic Communities (RECs) in Africa. The European Union is a highly integrated region. The term "*acquis communautaire*" is commonly used to refer to the entire body of EU law: treaties, decisions, regulations, directives, principles of law and interpretations of the European Court of Justice, all international transport agreements to which the European Community is a Party, as well as the relevant declarations and resolutions of the Council of Ministers. The directives are mandatory only in their substance and goal, leaving the choice of the implementation form with the countries; all the other instruments are directly applicable (in the form in which they were adopted) in each of the 28 Member States of the EU. Unlike other subregional entities, the EU Commission has the power to penalize its Member States for infringements to the *acquis*, including for poor enforcement.

The development and continuous adaptation to progress of EU legislation aims at setting up a legal framework for enabling and facilitating the effectiveness and efficiency of the single common market. Countries that are candidates to accession to the EU are obliged to align their national laws, rules and procedures to the entire body of the EU before they become EU Member States.

The road transport *acquis communautaire* is very comprehensive. It establishes common rules on access to the profession and to the market, and sets minimal standards for several aspects, among them: working time, driving time and rest periods (including enforcement and the use of the recording device—the tachograph) for professional road transport, and minimum annual vehicle taxes, as well as common rules for tolls and user charges for heavy goods vehicles. Moreover, it harmonizes the maximum weights and dimensions of road vehicles. The EU Commission also promotes more and safer parking areas along the trans-European road network.

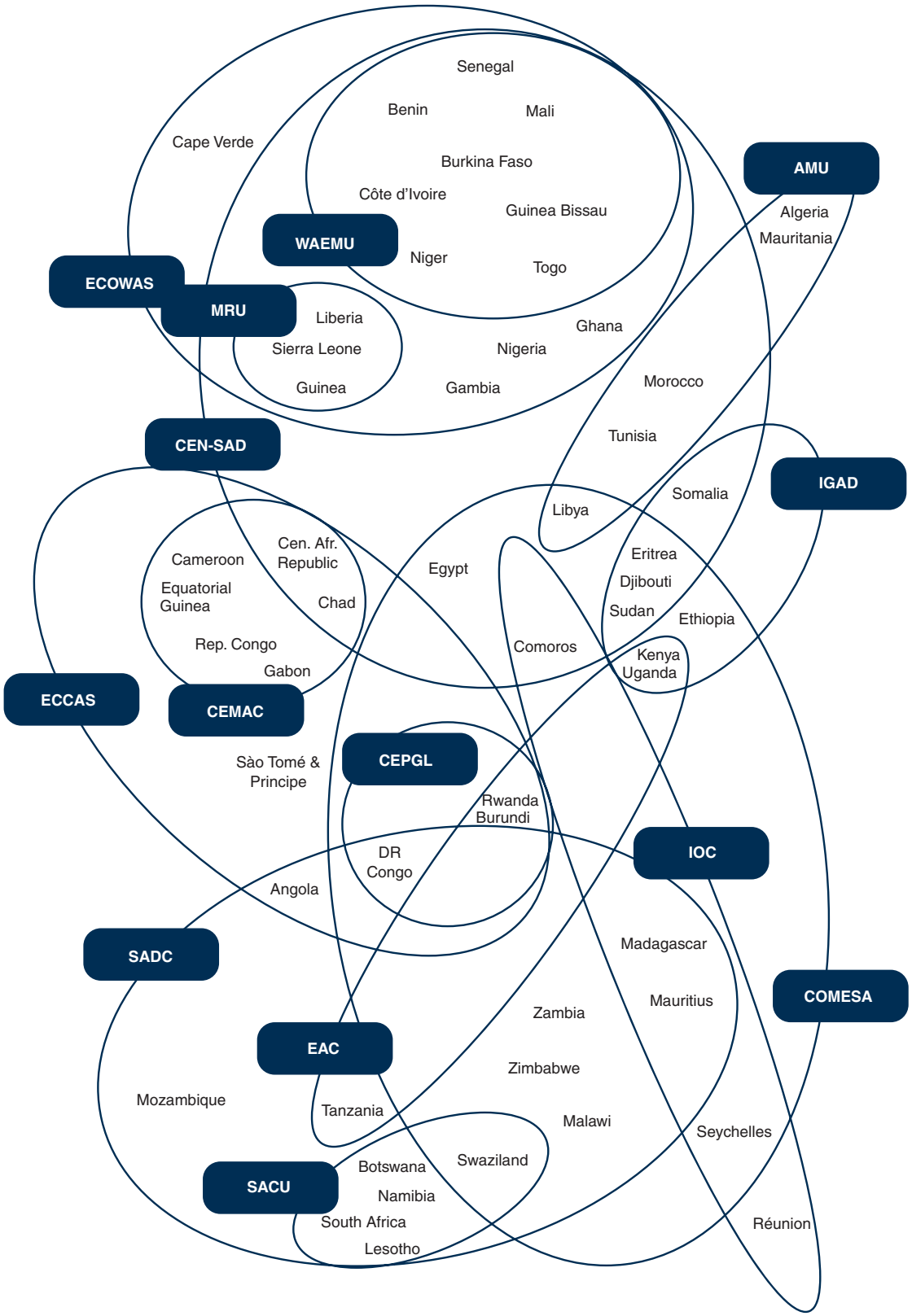
In Sub-Saharan Africa regional economic communities (RECs) consider transport as one of the most important growth enablers, hence they have developed legal instruments to harmonize rules and practices amongst their respective Member States. Their legal instruments contain provisions related to vehicle's technical norms and standards, driver's training, or contractual liability. But progress toward establishing subregional common transport markets has been slow in general, despite the cultural unity within each REC. In addition to reasons of political or economic nature, one of the main obstacles to a better regional integration has been the weak implementation and enforcement of the multilateral instruments at national levels. Another reason for weak pan-continental integration could be the plethora of existing organizations, which may generate confusion with respect to countries' obligations, when they are members to more than one such organization (see Figure 6).

International Framework

The United Nations Organization played an important role in developing international legal instruments in various areas, including transport. Faced with the development of international trade and transport the need to facilitate the movement of goods increased dramatically; the UN answer has been to provide treaties, rules and regulations acceptable to all its members, irrespective of their level of development or geographical location. When properly enforced, these legal instruments led to harmonization of norms and standards, which resulted in more open markets: the higher the level of harmonization, the shorter the list of practical reasons for market access denial.

International instruments are key in facilitating trade and transport as they harmonize rules, documents and procedures thus contributing to achieve more efficient international transport systems. Nonetheless, in most countries, the domestic transport market is much more

FIGURE 6 The Subregional Organizations in Africa



Source: Woodrow Wilson International Center for Scholars (2008), "African Regional and Sub-Regional Organizations. Assessing Their Contributions to Economic Integration and Conflict Management."

important than the international market, which is often only an extension of the national market. It basically means that in order to be successful at the international level, the sector should first be organized effectively and functioning efficiently at the national level.

The international transport legal framework had been developed since WWII in three main phases:

- Between 1950 and 1970s with the objective to harmonize rules and practices within the transport sector with a view to facilitate trade;
- Between 1970s and 2001 with the objective to adjust the existing framework to containerization and modern practices in transport operations; and
- After 2001 to take into account the security issues within the supply chain.

When the international framework was put in place at the end of WWII, road transport was not an industry yet, regional integration was just an idea in some visionary minds, and international trade was mainly carried by sea. The postwar reconstruction, the economic growth and the increase in trade led to a fast development of road transport services and to protectionist measures to preserve domestic markets for national carriers. International legal instruments were negotiated to set minimum standards, norms, and procedures that would ensure a framework for unrestricted movement of goods between the countries which implemented those rules. In many countries legislation was lacking or obsolete, hence the international provisions were also adopted as national norms, the best known example being the conditions for obtaining a driving license.

In the meantime, regional integration has progressed everywhere and regional instruments have been developed, including in the fields of road transport, to provide countries with common basic rules and objectives to organize their subregional trade with customized instruments. Today's problems are not the same but the need for good legislation and proper enforcement still exists. The international instruments may be a source of inspiration to influence the drafting of national rules and regulations. Ideally, they should be acceded to, but implementing them without being a contracting party could also be a good approach, provided this produces the desired effects.

(a) United Nations Economic Commission for Europe

After the Second World War the newly created United Nations decided to work on transport facilitation issues to accompany the rebuilding needs, in particular in Europe, and mandated the UNECE, its regional arm, to develop international legal instruments establishing norms and standards with worldwide application, in order to contribute to the development of international transport. It is in this context that 58 multilateral instruments have been developed, under the auspices of UNECE, fourteen of which are of particular relevance to road transport.

The countries have transposed these norms and standards in their internal legislation and this significantly contributed to regional integration because the conditions were the same: for inspecting the vehicles, for issuing the driving license, for operations at border crossings, for mandatory driving and rest periods, etc.

Countries from all the regions of the world became Contracting Parties to these instruments, and many countries implemented them without becoming a Contracting Party. The most relevant instruments are listed hereafter and can be downloaded at http://www.unece.org/trans/conventn/legalinst.html

(1) Road safety
- Convention on Road Traffic, on 8 November 1968
- Convention on Road Signs and Signals, on 8 November 1968

These two Conventions are supplemented by two sets of good practices, the Consolidated Resolutions on Road Traffic and on Road Signs and Signals respectively.

(2) Vehicles
- Agreement concerning the Adoption of Uniform Technical Prescriptions 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 Prescriptions, on 20 March 1958
- Agreement concerning the Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of Such Inspections, on 13 November 1997
- 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, on 25 June 1998

(3) Private law/contract
- Convention on the Contract for the International Carriage of Goods by Road (CMR), on 19 May 1956
- Its Protocol to the Convention on the Contract for the International Carriage of Goods by Road (CMR), on 5 July 1978
- And the latest Additional Protocol to the CMR concerning the electronic consignment note (e-CMR)

(4) Border crossing facilitation
- Customs Convention on the Temporary Importation of Commercial Road Vehicles, on 18 May 1956

BOX 5 The TIR Convention—as a Transport and Trade Facilitation Tool

The Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention) has been a key facilitation instrument in countries where it was operationalized. The Convention sets up the international customs transit procedure that permits the seamless international transport of goods by road through as many countries as necessary, without undergoing the usual customs procedures or the need to make a financial deposit at each border. Access to the TIR System represented an incentive for the road transport industry to evolve, because the Convention includes qualitative requirements for operators and professional associations that enter the system. The procedure includes the use of secure vehicles or containers that have to be pre-approved by national authorities according to TIR standards. The Convention furthermore provides a cross-border guarantee system to cover duties and taxes for each transport operation.

The UNECE provides the Secretariat for the administration of the TIR Convention. IRU is mandated to organize the international TIR guarantee system and to distribute TIR Carnets throughout the entire TIR guarantee chain. Each vehicle must carry the TIR Carnet, which certifies the validity of the cargo through the customs office of departure. It serves as the official guarantee document. The customs authorities at intermediate borders acknowledge the validity of the TIR Carnet and would generally not undertake any additional check unless deemed necessary. Access to the TIR system is rigorously controlled and TIR operations are highly efficient, thanks to computerization.

The TIR System served as a basis for the EU's Common and Community Transit regimes, and served as inspiration for several subregional transit systems, none of the latter attaining full effectiveness.

Source: Authors based on UNECE, IRU.

- Customs Convention on Containers, on 2 December 1972, administered by the WCO
- Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention), on 14 November 1975
- International Convention on the Harmonization of Frontier Controls of Goods, on 21 October 1982

(5) Dangerous goods

- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), on 30 September 1957 and its regular updates

In addition to these global instruments, the UNECE also developed and administers other agreements with a geographical scope limited to Europe and immediate neighboring countries. This does not prevent them from being implemented in other parts of the world.

(6) Driving and rest times for professional drivers

- European Agreement concerning the Work of Crews of Vehicles engaged in International Road Transport (AETR), on 1 July 1970. While a decision will be soon made to extend the geographical scope to four new south Mediterranean countries, the coverage will remain limited.

(7) Perishable foodstuffs

- Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be used for such Carriage (ATP), on 1 September 1970

UNESCAP publication "Towards a Harmonized Legal Regime on Transport Facilitation in the ESCAP Region"[17] describes a summary of the main benefits of these transport facilitation instruments.

(b) World Customs Organization (WCO)

In the fields of customs international legislation, the WCO has developed and administers several type of instruments[18] from international binding conventions to international standards.

As far as International Conventions are concerned, amongst the several WCO instruments, some are particularly relevant to accompany and facilitate international road transport operations such as:

- International Convention on the Harmonized Commodity Description and Coding System entered into force on 1 January 1988
- Customs Convention on the ATA carnet for the temporary admission of goods (ATA Convention) entered into force on 30 July 1963
- International Convention on the simplification and harmonization of Customs procedures (Revised Kyoto Convention) entered into force on 3 February 2006
- Convention on Temporary Admission (Istanbul Convention), entered into force on 27 November 1993

In the fields of security of international trade WCO developed a series of framework and implementation guidelines relevant to the road transport sector such as:

[17] http://www.unescap.org/resources/towards-harmonized-legal-regime-transport-facilitation-escap-region-guidelines

[18] http://www.wcoomd.org/en/about-us/legal-instruments.aspx

- The SAFE Framework of Standards to Secure and Facilitate Global Trade (2012 edition)
- Authorized Economic Operator Implementation Guidance

These are just a few legal instruments aiming to regulate road transport operations and procedures at the international level in a harmonized way, which would result in less barriers caused by differences, and would consequently contribute to lowering logistics and transport costs and improving the overall quality of the road transport services.

Enforcement

In many countries, enforcement of purely road transport regulation is a competence of the national administration/agency in charge of road transport and its regional arms/branches. As such, the administration/agency in charge of road transport is mandated to ensure control and enforcement of the rules related to the access to profession and market (registration, authorizations, licenses, etc.). They may apply administrative sanctions (suspension, revocation, etc.) in case of infringement.

Some other areas such as the driving and rest periods of professional drivers may be subjected to a shared enforcement competence between the administration/agency in charge of road transport, the labor agencies, and the police. However, in the vast majority of countries enforcement is the competence of the police and gendarmerie.

The enforcement of the legislation applicable to road transport is essential for the successful implementation of the modernization or reform of the sector. At the same time, it is a challenge because it depends on many factors: culture, level of social and economic development, clarity and applicability of legislation and regulations, definition of roles and responsibilities, and institutional capacities.

Efficient enforcement relies on comprehensive yet simple and transparent legislation and properly empowered, skilled and well-trained enforcing officers or civil servants, supported at political and executive levels. The success of road transport services reform depends to a high degree on the quality of enforcement: if the noncompliant transport operator can continue to operate in the same conditions as the one who made efforts to comply with the rules, the latter will be demotivated and will see no sense in modernizing its operations. Ensuring proper enforcement of the law is a complex endeavor, requiring political willingness, commitment and consistency, as well as financial resources adequate to the objective.

Path to Reform

The road transport sector is complex in its economic and social structure. Experience has demonstrated that existing structures of the sector are difficult to change. In developing countries with a nascent road transport industry, this difficulty may reside in the industry's fear that change will damage an existing, already fragile equilibrium. Very often, when somebody buys a truck, the entire family contributes to the acquisition and benefits from the activity, even if the revenues are low. In addition, operating a truck can provide for a modest living under many circumstances.

Main Challenges

The enabling environment is the foundation of any reform. Hence creating a business-enabling environment should be a priority from the very beginning of the reform process, in order to ensure all the conditions for the development of a reliable road transport industry.

Reforms have to be designed based on adequate and realistic diagnostics. When designing the reform it is essential to define its scope, and to consider and give adequate weight to the essential elements that can easily turn into risks:

- overarching goal of the reform and the "ideal model" to be achieved, in order to avoid designing a too ambitious reform that conditions may not allow to achieve;
- situation of the sector against the real needs of improvement;
- private sector acceptance and ownership of the change/reform process, in order to avoid strong resistance from the stakeholders;
- capabilities of the public sector to drive the reform process and then to monitor its implementation via a combination of incentives and enforcement measures (capacity building, institutional adaptation to the new context);
- availability of financial resources to carry on the reform;
- political will and commitment to accompany/impose the change, in order to avoid having great measures on paper but weak enforcement in reality.

Assessing the risks is paramount for any endeavor to make changes in the road transport sector. Indeed while results of the reform could be very attractive, the risks of failure are also significant and may not only jeopardize the reform but also compromise on short or medium terms any further change initiatives.

Recommendations

The road transport is characterized by a complex intertwining of various forces: political, economic and social. Reforming road transport should be a collective commitment of the decision makers, executive and legislative, Government and Parliament. The reform should be a distinct part of the national development programs and strategies, and the sector should be given high visibility at the institutional level. The strategic description of the road transport reform should include at least:

- A definition of the road transport system, goals and objectives of the reform;

- Scope of development in road transport and the role of central and local regulatory agencies;
- Synergies, cooperation and coordination requirements between regulatory, implementing, and enforcement agencies;
- Reporting standards and requirements;
- Results framework, monitoring and evaluation.

The institutional component of such a reform should be addressed in the inception stages of the process, as soon as the objectives are agreed, starting with the establishment or strengthening, as appropriate, of the administration/agency in charge of the sector. This entity must be duly empowered, with clearly defined competences (also for its decentralized regional entities), properly staffed and equipped, and adequately financed through appropriate budget allocations.

Competences can be shared but irrespective of the form of organization, efficient transport depends on effective coordination; hence, the roles and responsibilities of the various ministries and entities with competencies in one transport area or another must be clearly defined to avoid misinterpretations, overlapping, and all the potential abuses of dominant power. Mechanisms for ministerial cooperation and coordination have to be designed, organized and supported at the highest level, in a form that is the most appropriate for the national context and that would ensure effectiveness and efficiency of the coordination. Such mechanisms must include representatives of all stakeholders intervening or affected by the reforms, from both the public and the private sector. UNESCAP[19] published a set of good practices and guidelines on this matter in order to assist countries in establishing or strengthening coordination mechanisms that would lead to greater coordination between government agencies and between government agencies and the private sector. Although the study covers specifically the Asia-Pacific region, the examples are relevant for developing economies in any region of the world.

The success of the reform depends on its design and implementation, but mostly on how it was enforced. Therefore, the institutions responsible for enforcement must be strengthened, empowered and supported.

The professional associations of transport operators cannot have interests that are contrary to those of their members; therefore, involving the associations in activities related to licensing or permit distribution would not only ease the State's burden but would also eliminate the suspicion of discriminatory practices or corruption. Also, all those concerned by the rules should be consulted before the rules are finalized/adopted, first and above all because this is the only way the State can have a 360° view and consequently a realistic assessment of the planned rules' impact.

National laws and regulations are essential components of the reform and should certainly address a wide range of issues to cover key elements such as:

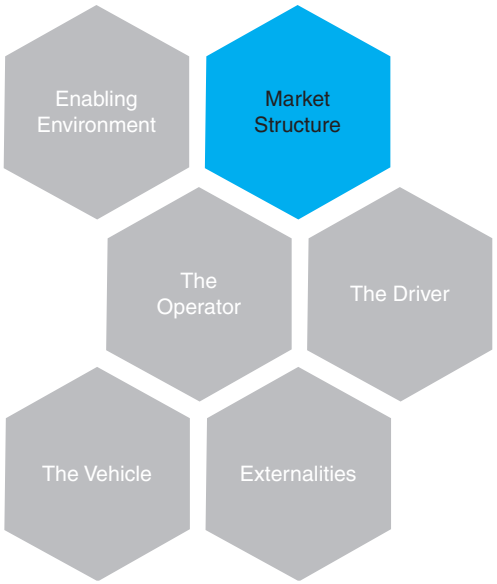
- Access to profession and market: defining criteria for access, administration procedures, control and enforcement, administrative, civil and criminal sanctions, appeal, record keeping, reporting and database
- Use of infrastructure: vehicle weight and dimensions, axle weight (for different configurations), overall vehicle and load weight, overall vehicle and load dimensions (length, width and height), exceptions (oversized transports), administrative, civil and criminal sanctions
- Vehicle standards and conditions for registration:[20] technical standards (including safety, security, environment, recording devices, e.g., digital tachograph), mandatory inspections (before registration, regular and periodical, differentiated by type of transport and vehicle), mandatory third-party insurance (permanent and a requirement for registration), special standards (vehicles for dangerous goods, perishable foodstuffs, controlled temperature, live animals), procedures, administrative, control and enforcement, civil and criminal sanctions, record keeping, reporting and database
- Professional drivers:[21] conditions for obtaining the driving license (including authorization of training institutions, instructors, examiners), curricula and form of the license (complying with international standards), certification of professional competence, procedures and administration, control and enforcement, civil and criminal sanctions, record keeping, reporting and database
- Transport operations: driving and rest periods, managers (certification of professional competence), safety and security (advisers for the transport of dangerous goods)
- Private law and insurance: definition of the road transport contract; liability of each stakeholder involved in a transport contract and litigation procedures in case of damage, delay, loss of goods, and indemnity limits; mandatory insurances (e.g., third-party damage)

A review of the international, regional and bilateral instruments related to road transport is helpful in (i) identifying those instruments that can serve as source of inspiration for national legislation; and (ii) making an inventory of the obligations of the country originating in the instruments to which it is a contracting party.

[19] Study on national coordination mechanisms for trade and transport facilitation in the UNESCAP Region, 2007, at http://www.unescap.org/sites/default/files/Study_on_Coordination_Mechanisms_fulltext.pdf

[20] The UNECE's Consolidated Resolution on Road Traffic (R.E.1) is a source of good practices on this subject and can be downloaded at http://www.unece.org/fileadmin/DAM/trans/roadsafe/publications/docs/Consolidated_Resolution_on%20Road_Traffic_RE1_e.pdf

[21] The UNECE's Consolidated Resolution on Road Traffic (R.E.1) is a source of good practices on this subject and can be downloaded at http://www.unece.org/fileadmin/DAM/trans/roadsafe/publications/docs/Consolidated_Resolution_on%20Road_Traffic_RE1_e.pdf



Market Structure

The road transport market remains very specific across history and in most regions. Its organization has changed over time, reflecting the importance given to the economic and social role played by the road transport sector. The regulation of access to the transport market has evolved from complete lack of regulation (translated in total freedom) to quantitative restrictions to operate (quotas), and later to qualitative criteria for access to the profession of transport operators, and for obtaining the right to actually carry goods (access to market). In some parts of the world (e.g., North America) it is common to use the word "deregulation" to describe the situation where there are no quantitative restrictions in terms of number of transport operators allowed to carry goods; this does not mean that the sector is not regulated in terms of safety, security or quality of service.

Access to Profession and Market[22]

Historical Background and Organization Models

Regulation of access to the profession and market has changed dramatically over recent history, notably during the last 25 years or so. In former communist countries, the road transport sector, as well as all economic activities, was centrally managed and organized by the State. The common model was that one big State-owned road transport company met the transport needs of the productive sectors and of the population. In other regions, notably in Western Europe, access to the profession/occupation and market was not regulated initially, but competition between EU and non-EU transport operators, and between the various modes of transport led authorities to develop regulations in this area. The EU acquis imposed qualitative criteria for access to the profession of transport operator which remain the most detailed and comprehensive. It led to quantitative restrictions being gradually abandoned, access to market was liberalized, and the quality of transport services improved. However, there were countries in the EU (e.g., Greece) which maintained for decades restrictions on the number of operators allowed to carry goods in the country.

Quantitative restrictions still apply to international road transport in the majority of the countries in the world, through traditional systems of permits/licenses/authorizations quotas for market access.

In principle, four prominent models have been used for the organization of access to the profession and to the market at national or regional levels.

Unrestricted Access

The early (and rather theoretical model for the current circumstances) meant an absence of any regulations on access to the occupation and the market. This 'excessively liberal' approach lets transport market forces totally prevail, the number of new entrants into the occupation is not regulated, either quantitatively or qualitatively, and access to any segment of the market is totally free. Qualitative rules on conditions of road freight transport operations are non-existent, very weak, or not implemented. This model prevailed in Western Europe from the 1900 to the mid-1930s and offered a high degree of flexibility for the sector and for transport users. However, history shows that the sector was unstable, with significant fluctuation of the numbers in the occupation, frequently accompanied by bankruptcies. The sector, while very competitive in pricing, did not really offer quality services, and in many cases did not cover costs. In addition, concerns with social standards and road safety were almost inexistent.

In this model, the market was regulated exclusively by supply and demand, and was characterized by a fight for survival of undertakings, frequent bankruptcies, and unfair commercial practices on both the demand and supply sides. Ultimately, the 'free-for-all' model tends to be self-destructive.

Quantitative Restrictions with Limited Qualitative Requirements

The model of quantitative restrictions imposes limitations on access to the profession. The number of authorized carriers, as well as the size of their fleet are quantitatively limited. A great number of conditions, mainly of an administrative nature, are to be met by applicants. In such schemes, new entrants are allowed only to compensate the elimination of actors from the market (bankruptcy, retirement, . . .). In this model, the consideration of certain qualitative aspects of admission may also be integrated, though only to a limited extent. This is a highly restrictive model whereby all access conditions are under strict control. Market forces are highly

[22] For purpose of clarity, access to profession/occupation means to hold a license of transport operator, and access to market means to effectively carry goods.

BOX 6 Self-Regulation in South Africa

In the past, access to road freight markets across the main districts in South Africa was restricted on geographical grounds. For the last few decades, as from the early 1990s, access to the occupation of road transport operators and to freight markets has been inadequately regulated; many of the existing regulations are ignored in daily operations, because enforcement as a whole is rather low. In this unregulated environment no further deregulation was really needed.

Currently, large companies are well run and competition is fierce. In general, margins are very tight with dire consequences, and not just for the small operators. In respect of access to the occupation, there are no specific regulations over and above those governing the establishment of a company in any other economic sector. There is no quantitative restriction on either the number of companies that can operate in the country, or the size of their vehicle fleet, or the number of drivers and other staff employed. There are no obligations concerning company premises; many operators who have a truck or a tractor and trailer combination keep them at home.

There are several opportunities to study road transport operations (university or college) but there are no mandatory conditions for becoming a transport manager and implicitly no special requirements regarding the transport manager's qualifications, training and examination conditions.

The situation is similar regarding the requirement for managers and companies to enjoy good reputation. There is no such requirement except for the exclusion of candidates with a criminal record.

There is no obligation to prove a solid financial standing of the company either. An aspiring transport entrepreneur will have to demonstrate that he warrants support from the banks in order to buy a truck, but other than those checks, he is not required to lodge any sort of collateral with any regulator.

Concisely, anyone can establish a road freight transport company, regardless of their education, training, employment background, good repute and/or financial status. There are no restrictions on access to markets: no authorizations or trip permits, or quotas, or prescribed routes, etc.

As to the domestic environment, recently (around 2005) the industry recognized that poor compliance with transport regulations creates an unfair competitive environment. It was therefore felt that a self-regulation scheme is required to create standard rules for the industry, and that these rules should become the 'business norm'—supporting the principles of good corporate governance. Therefore a self-regulation scheme, the Road Transport Management System (RTMS) was introduced in 2006. RTMS is an industry-led self-regulation scheme that encourages consignees, consignors and transport operators engaged in the road logistics value chain to implement a vehicle management system that preserves road infrastructure, improves road safety and increases the productivity of the logistics value chain. This scheme also supports the Department of Transport's National Freight Logistics Strategy. RTMS's mission is to provide a national management system (standards, auditors, manuals) and implementation support (information portals, recognition, technology transfer) for heavy vehicle road transport to consignees, consignors and transport operators. This type of initiative may contribute to establishing a level playing field by removing incompliant operators, thus increasing professionalism and fair business practices in the road freight transport industry.

Source: Nordengen and Pienaar (2007).

subdued and replaced by central decision making with a high degree of potential error. This access model is common in economies dominated by state ownership of businesses, in most cases yielding low efficiency and high costs of operation accompanied by monopolistic pricing causing harm to consumers and ultimately society. A recent example of such a model is that of Greece (Box 7).

Unrestricted Access to the Profession but Quantitative Restrictions to Access the Market

In Western Europe, the road transport activity that emerged between WWI and WWII was initially not regulated. Before 1930s, anyone could set up a company, buy and operate a truck. However, with the development of rail transport and the emerging competition between road and rail transport modes, transport coordination became a necessity and some countries started to adopt policies and regulations aimed at coordinating the offer of transport. They did not regulate access to the profession, which remained free, but quantitatively limited the long distance transport offer through the issuance of transport licenses. These licenses were issued by the line ministry of transport, which evaluated the total tonnage to be transported by road on long distance transport, and determined the number of licenses needed. The main objective was to protect the rail transport from a free, threatening competition with the road transport sector. The road transport companies were issued a limited number of licenses corresponding to their transport capacity versus

BOX 7 Quantitative Controls in Greece

The privilege to carry goods belonged historically to the State, which passed this on to truckers by selling them a limited number of licenses every year. The license gave the right to carry goods internally and internationally. In 1970 the Government decided that the 33,000 licenses on the market were enough to perform the country's commercial transport of goods and stopped issuing additional licenses. The commercial road transport became a "closed profession." As a consequence, the selling price of the licenses rose continuously, and reached as much as 250,000 Euros/truck in 2010. A license was seen as a long-term investment and a secure source of income. At the same time, this system protected the profession from stiff competition that new entrants would present, which translated into lack of incentives to innovate. The transport of goods "for own account" was not subject to the same rules. As a consequence, there are more than 1.4 million vehicles (smaller or bigger trucks) that are supposed to carry only their own business products or raw materials. This leads to low capacity-utilization. It also means that there are low economies of scale and unregulated use of vehicles.

Source: Authors.

the overall transport capacity. The number of licenses issued for a given company was limited and additional licenses were issued only if justified by the needs of the company (new clients, new transport patterns . . .). Transport coordination policies also consisted in fixing tariffs that were adopted by decree and stating that road transport operators had to apply strictly for long distance transport.

The transport coordination policies did not bring the expected results in terms of protection of rail transport. Furthermore, the road transport sector, despite its competitive advantage, was not sustainable as it was still dominated by a multitude of small companies, weakly capitalized and very vulnerable in terms of sustainability, and ultimately did not provide a service to the quality level expected.

Qualitative Criteria for access to Profession and Free Access to Market

With the development of the European Economic Communities and the step-by-step adoption of the Common Transport Policy in the mid 1970s, a new approach to the road transport sector organization emerged. It consisted mainly in first, differentiating access to the profession from access to market, and second, making the access to profession conditional on complying with certain qualitative criteria, while the quantitative limitation to operate was gradually dismantled.

This model is based on a qualitative approach for access to the profession. It initially started by requiring that the manager of a road transport company is professionally competent, reflected by a qualification diploma, "the Certificate of Professional Competence;" the curricula for this training was established by regulation. Over the years, the criteria of professional competence has been complemented by two new criteria, one imposed on the manager of the company, and one imposed on the company itself. The new criteria imposed on the manager was to have good repute and honor while the requirement imposed on the company was to have a certain financial standing, defined by regulations. The most recent criteria added to these three is the requirement for the transport operators to be established in one of the EU Member States in order to be allowed to operate in the EU as a whole.

The criteria for access to the profession are part of the *acquis communautaire* but the interest in their implementation has gone far beyond EU borders. They are increasingly influencing the regulations adopted in EU neighboring countries but also in the Caucasus, Central Asia and the Middle East. Some countries in Africa (Burkina Faso, Ivory Coast . . .) have also included the model in their legislation, in forms that are more or less following the EU model.

This EU model inspired the criteria adopted by UNECE in its Consolidated Resolution on the Facilitation of International Road Transport[23] (R.E.4), which can be implemented by countries irrespective of their geographical location (Box 9).

The Example of the USA[24]

Congress passed the Motor Carrier Act of 1935 (the 1935 Act), initiating a system under which the Interstate Commerce Commission (ICC) restricted new entry into the trucking business and approved specific routes. The 1935 Act also required motor carriers to file tariffs with the ICC 30 days in advance of their entry into force, allowed protest from other common carriers of proposed tariffs, and required that carriers' rates be reasonable 'as to both minimum and maximum'. The underlying rationale of the 1935 Act was that the motor carrier sector was economically unstable and that cutthroat competition might destroy an emerging industry.

In 1948, Congress passed the Reed-Bullwinkle Act aiming at fixing the issues of 'collective activity' (cartels) within the road transport industry. That act allowed "rate bureaus" operating under ICC-approved agreements to set rates collectively, and immunized the activities of bureaus

[23] http://www.unece.org/fileadmin/DAM/trans/doc/2002/sc1/TRANS-SC1-2002-04r4e.pdf

[24] Trucking Deregulation in the United States, Submission by the United States to the Ibero-American Competition Forum, September, 2007 (https://www.ftc.gov/sites/default/files/attachments/us-submissions-oecd-and-other-international-competition-fora/ibero-trucking.pdf).

BOX 8 European Union—Criteria for Access to the Profession of Road Transport Operator

Professional Competence of the Transport Manager
This important criterion is met through the following conditions:

- possession of knowledge corresponding to the level of training provided by regulation
- compulsory written examination which may be supplemented by an oral examination
- exemption being possible for applicants with at least five years' practical experience, provided such applicants pass a test, as well as for holders of advanced diplomas

Good Repute of the Transport Manager
The good repute is established by proving:

- the absence of conviction for serious criminal offences, including offences of commercial nature
- not to be declared unfit to pursue the occupation
- the absence of conviction for other offences, like pay and employment conditions in the profession, rules of road transport, and in particular drivers' driving and rest periods, weights and dimensions of commercial vehicles, road and vehicle safety, the protection of the environment

Sound Financial Standing
This condition is to be satisfied by the company by demonstrating:

- sufficient resources shall be available to ensure proper launching and proper administration of the undertaking
- for assessment purposes, review of annual accounts, funds available, assets, costs, premises, plants, equipment
- the undertaking must have available capital and reserves of at least €9,000 when only one vehicle is used and at least €5,000 for each additional vehicle

The criteria form the basis for licensing road transport operators and must be met permanently. In case one or more conditions are not met, the company must notify the authority and will benefit from a transitional period to regularize its situation (6 months). Failing to inform, or at the end of the period if the conditions are not satisfied, access to the profession may be suspended until conditions are met again.

The criteria shall be implemented in all EU Member States and may be stricter on a national level. They should however be applied in a nondiscriminatory manner. If they are fulfilled, the operator is entitled to receive a Community license. Such a license gives, without any capacity restrictions, full access to the market. This entails all freight transport between two EU Member States, transit through an EU Member State and transport within a EU Member State, regardless the EU Member State where the vehicle is registered. Own account transport may be exempted from a license.

Repeated or severe infringement to the transport governing rules may lead to a suspension or revocation of the access to the profession.

Source: Authors based on EU Regulation 1071/2009/EC.

operating under an ICC-approved agreement from the antitrust laws. Almost all carriers belonged to a rate bureau, and most customers paid the undiscounted rates that the bureaus set. As the Interstate Highway System was built and road transport came to dominate the carriage of manufactured goods, the industry achieved financial stability and the original rationale for restrictive motor carrier regulation ceased to exist.

According to a 1988 Federal Trade Commission (FTC) study, the restrictive regulation of trucking drove prices up and encouraged inefficient practices. Trucking regulation increased freight rates by one-third to one-half and increased the freight bill to U.S. industries by $5.5 to $7.3 billion per year. Studies indicate that high prices and protection from competition generated substantial supra-competitive profits for carriers owning operating certificates and significantly higher wages for union members employed, but imposed large net welfare losses on society. Even during the years of high fuel prices (in the mid-seventies), major carriers earned on average a 50 percent higher rate of return than did firms in other sectors of the economy.

Beginning in the late 1970s, a series of administrative and legislative actions were taken to liberalize the road transport industry in the United States. Entry was no longer restricted, barriers to entry were low, and rates' filing/reviewing was abolished. Congress has preempted state economic regulation of intrastate transport (except for transport of household goods). Under current law,

BOX 9 Consolidated Resolution on the Facilitation of International Road Transport (R.E.4)

R.E.4 was adopted in 2004 with the main message to UNECE Member States to liberalize the international road transport market, and harmonize the provisions of their international or bilateral transport agreements.

In particular, the Resolution defines the "profession of international road transport operator" as the activity of any enterprise carrying out international transport of goods on the account of others by means of a vehicle or a collection of coupled vehicles. Under this definition, the resolution also provides for some minimum conditions and requirements to be met by an international road transport operator. In particular, it stipulates that in order to engage in the activity, transport undertakings must "first be licensed" by their national competent authority on the basis of the satisfaction of three basic criteria:

- Good repute, which is considered to be met by that person managing the activity has not been convicted of criminal offense (including commercial crimes), is not unfit for the occupation and has not been convicted of serious breaches of labor, and transport law.
- Adequate financial standing, which is met when evidences are demonstrated that the undertaking has available sufficient resources to ensure that the company is properly set up and managed. The resolution does not define amounts or ceiling of the financial means that must be available.
- Professional competence, which is met by the person managing the activity when he demonstrates that he has sufficient knowledge to "engage properly and viably in the occupation" in particular in the fields of commercial and business administration, technical standards and operations, road safety, access to market, elements of company law, social and labor law, and civil and fiscal law.

By that, the Resolution aims at harmonizing the rules applied to international transport markets, which should be accessible not on the basis of quotas but of qualitative criteria to be met by the operators willing to act on this market.

Source: Authors based on UNECE.

collectively agreed single-line rates are no longer generally "immune" from the antitrust laws. The main exception is the formulation of general rate increases.

Consequently, for example in the "less-than-truckload" (LTL) segment, low-cost nonunion affiliated regional carriers have become an important competitive force. In response to this challenge, the national LTL carriers have pursued an aggressive policy of purchasing regional (nonunion) carriers and operating them as independent business units. The dominant force in "truckload" trucking has become the mega-carriers. It followed that carriers substantially reduced their empty miles, with the advent of deregulation leading to real operating costs per vehicle mile dropping dramatically. The quality of service improved, the operating costs declined, and so have average rates charged per vehicle mile.

Liberalization and deregulation did not mean absence of rules. Since 1 January 2000, jurisdiction regarding access to the occupation and the markets is the responsibility of the Federal Motor Carrier Safety Administration (FMCSA) within the United States Department of Transportation (USDOT), which grants operating authority to truckers.

'Operating authority' is the legal permission granted by a federal or state government to engage in interstate (state-to-state) or intrastate (within a state) transportation for hire. Authority is divided by type ('common', 'contract' and 'broker') and commodity ('property except household goods', 'household goods'. . .). 'Common' carriers are essentially the operators carrying goods for clients, for hire and reward/commercial. 'Contract' carriers only serve businesses with which they have a contract. 'Brokers' merely arrange for transportation but do not actually take possession of a shipment.

To obtain interstate 'property except household goods' authority, the applicant does not need prior experience. In order to obtain interstate 'household goods' authority, the applicant must be able to certify that he is fit, willing and able to exercise the special care associated with transporting household goods. If a candidate applies for authority to be an interstate carrier, he will then need to obtain liability and cargo insurance.

The application procedure for operating authority is based on a system of self-certification: interested trucking firms must certify that they are aware of and in compliance with all relevant safety regulations. Once an operating authority has been granted, safety regulations are enforced through roadside inspections and compliance reviews at the company's place of business. These safety regulations are based on the Federal Motor Carrier Safety Regulations (FMCSR). They regulate driver's hours of service and logbooks, as well as other driver requirements like a minimum age, qualification, English literacy and understanding of

highway traffic signs and signals. It is the responsibility of operators and drivers to be aware and comply with all applicable safety regulations.

The operator's obligations include, among others:

- to inspect and maintain all commercial vehicles under its control. This obligation includes the employment of personnel sufficiently qualified to carry out maintenance and inspection work;
- to prove their 'financial responsibility' which means having insurance policies or surety bonds sufficient to satisfy the minimum public liability requirements (for bodily injury, property damage and environmental restoration). Motor carriers of 'property, except household goods' must have at least the minimum amount of insurance required by law: USD750,000 for common freight and USD5 million for the transportation of dangerous or hazardous goods;
- to ensure that all drivers of commercial motor vehicles meet the specified qualification;
- that they are responsible for drivers to comply with Hours of Service (driving and rest time) rules;
- to comply with the Federal Hazardous Materials Regulations in case they carry such materials.

Interstate commercial operators and intrastate operators carrying hazardous materials (quantities requiring a safety permit) must be registered with the FMCSA and must have a USDOT number. The USDOT number serves as a unique identifier when collecting and monitoring a company's safety information acquired during audits, compliance reviews, crash investigations, and inspections.

One of the latest developments has been initiated by the FMCSA in 2014, by establishing a New Entrant Safety Assurance Program that impacts US and Canada-based motor carriers. A 'New Entrant' is a motor carrier domiciled in one of the two countries, who applies for a USDOT identification number, in order to initiate operations in interstate commerce. The New Entrant will be monitored during the initial 18-month period. He/she must operate safely, maintain up-to-date records, conduct periodic inspections and perform maintenance, and pass the safety audits. FMCSA conducts a Safety Audit on the New Entrant; it monitors safety performance through roadside inspections and grants permanent authority, if safe. Generally, the audits, compliance reviews/interventions take place at the principal place of business. A New Entrant will fail the safety audit for alcohol and drug violations, using unqualified/undocumented drivers, as well as for various operations, repairs and inspections violations. If the audit is passed successfully, the FMCSA will continue to monitor the New Entrant's safety compliance and performance. If failed, New Entrants must satisfactorily implement a corrective action to correct safety management practices. Failure to do so will result in immediate revocation of USDOT registration. If involved in household goods transport, the New Entrant carriers are also required to be in compliance with Household Goods (HHG) Regulations.

The Example of People's Republic of China

After WWII, China laid much emphasis on rebuilding its transport infrastructure. The road transport industry, performing according to national economic plans, was elaborated and approved by central state authorities. The numbers of employable vehicles and staff as well as the size of purchasable supplies to run the vehicle fleets were fixed in accordance with central annual economic plans. Tariffs, wages, other operating cost elements, profit margins and work performance targets (in annual tons and tons-km figures) were determined centrally. The geographical scope of operations was also regulated.

The progress toward more flexible organization of the sector started in the 1980s but the process was accelerated after 2001, when China acceded to the World Trade Organization (WTO), whereby the Chinese road transport market started opening to the outside world.

Until 2000 or so, many road transport companies were still owned by the state, but since then private initiative has quickly and significantly grown in importance; however, the industry is still mainly composed of smaller sized companies.

In 2004, the Ministry of Transport transferred the evaluation system used for categorizing Chinese road transport enterprises to the China Road Transport Association (CRTA). Road transport undertakings have been sorted by the CRTA according to five different classes.

With the market economy reform, all quantitative restrictions have been gradually abandoned, and the current complex regulation of the road transport industry in China relies on qualitative criteria. The main law on the subject, the Road Transport Ordinance (July 2004), defines the organizational structure and tasks of supervising authorities; it also includes requirements for road freight transport companies in respect of safe and environment-friendly operations. A whole series of bylaws sets various conditions of operation including access to occupation and markets, as well as the related rules of enforcement. A periodical quality credit score examination of operators is part of the access to the occupation system. Road freight companies are distinguished by their economic strength and loading capacity, as well as their road safety performance and the state of their company management system.

The Road Transport Ordinance enshrines the principle of fair competition between service providers and prohibits restricted or monopolized road transport markets. The Ministry of Transport is the authority for the overall administration of road transport, while the transport departments of local governments are responsible for transport affairs in their respective provinces. The Ordinance sets the qualitative requirements for admission to the occupation of road transport operator:

- Availability of suitable and accredited vehicles for freight transport;
- Availability of adequately trained drivers, under the age of 60, with appropriate qualification certificates;
- A set of operational safety standards and an appropriate management system is in place;
- Company premises are approved and qualification certificate is received from the local (county-level) Road Transport Management Bureau;
- Availability of managers having passed an appropriate examination to receive a certificate valid for 6 years (renewable). A manager liable for a major road accident during the 3 years preceding the application for a certificate cannot be admitted;
- Availability of drivers, maintenance personnel and repair technicians having passed an appropriate examination to receive a certificate valid for 6 years (renewable);
- Availability of the necessary financial means/capital assets (see detailed financial requirements under the sub-item 'Classification of road freight transport enterprises' in this section); and
- Admission and readmission conditions are closely linked with the credit point evaluation system of companies.

There are a number of key regulations under this complex Ordinance, applying to each aspect of the road transport operation.

Provisions on the Administration of Road Freight Transport and Terminals

These regulations establish the conditions of applying for carrying out road freight transport businesses, the conditions of operating enterprises, and freight terminals, as well as specific arrangements for the supervision and enforcement of the regulation governing road freight transport administration, fines and penalties for infringement.

Provisions on the Administration of Road Transport Personnel

These regulations aim at improving the comprehensive quality of road transport. They include general principles, conduct of service qualification, issuance of service qualification licenses, service performance stipulations, legal liabilities, etc. They also clarify the working responsibilities and obligations of transport authorities at all levels, as well as those of road transport companies and their staff. Furthermore, the regulations establish a credit score evaluation system, with a grading of credit examination classified by excellent, very good, good, fair, pass (levels AAA, AA, A, and B, respectively) and fail.

The regulations are implemented through subsequent documents elaborated by the Ministry of Transport. The purpose of these documents is to set the foundation of the credit point system, in order to establish and improve the market competition and exit mechanism characteristic of 'survival of the fittest'. They are also meant to encourage the road transport and motor vehicle enterprises to do lawful business, keep business promises and work in good faith, play fair and offer high quality services.

Provincial road transport authorities are responsible for launching the credit examination of road transport enterprises, with the transport department at city and county levels. The enterprise whose quality and credit grades are no less than "AA" grade and have reached "AAA" grade for at least two years during the period of validity of their previous Certificate, should be renewed by the Admission Department, if their term expires and needs extension. The enterprises whose grades were "B" in the previous year or "A" in two successive years, should be encouraged to rectify any problems. After the deadline set for remedial action by the road transport authorities, if there are still hidden safety risks, enterprises will have their road transport operation licenses revoked.

The operation licenses may be removed in cases of serious traffic accidents, poor quality of service provided, or irregular operations conducted.

Classification of Road Freight Transport Enterprises

This classification system considers the following critical aspects: (a) available capital assets, (b) types of business activities, (c) available credit facilities, (d) scope and types of services provided, and (e) size of personnel and vehicle fleet.

Class I — The net asset of the company is more than 400 million RMB[25] including more than 300 million RMB assets in road freight transport (trucks, freight transport terminals, etc.); the tonnage of trucks should reach more than 7,000 tons, of which the tonnage of 8-tonne (or more than 8-tonne) trucks reach more than 5,000 tons or take up more than 50% of the total tonnage; gross annual income reaches more than 300 million RMB, of which at least 200 million RMB are generated by the road freight transport business; road traffic accident rate in the previous year is not higher than 0.1 times per truck, the death rate in road traffic accidents should be no higher than 0.02 persons per truck, the injury rate no higher than 0.05 persons per truck; have one Class I freight transport terminal or two Class II terminals; the Class I road freight enterprise should have a top-level management system across all the major fields of marketing, accountancy, statistics, safety, technology, staff management, complaints received, negative media coverage, administrative penalties, etc.

Class II — The net asset of the company is more than 100 million RMB including more than 60 million

[25] RMB means renminbi, the national Chinese currency.

RMB assets in road freight transport (trucks, freight transport terminals, etc.); the tonnage of trucks should reach more than 1,400 tons, of which the tonnage of 8-tonne (or more than 8-tonne) trucks reach more than 1,000 tons or take up more than 40% of the total tonnage; gross annual income reaches more than 60 million RMB, of which at least 40 million RMB are generated by the road freight transport business; road traffic accident rate in the previous year is not higher than 0.1 times per truck, the death rate in road traffic accidents should be no higher than 0.02 persons per truck, the injury rate no higher than 0.05 persons per truck; have two Class II terminals; and the Class II road freight enterprise should have a high-level management system across all the major fields of marketing, accountancy, statistics, safety, technology, staff management, complaints received, negative media coverage, administrative penalties, etc.

Class III The net asset of the company is more than 20 million RMB including more than 12 million RMB assets in road freight transport (trucks, freight transport terminals and so on); the tonnage of trucks should reach more than 650 tons, of which the tonnage of 8-tonne (or more than 8-tonne) trucks reach more than 400 tons or take up more than 30% of the total tonnage; gross annual income reaches more than 12 million RMB, of which at least 10 million RMB are generated by the road freight transport business; road traffic accident rate in the previous year is not higher than 0.12 times per truck, the death rate in road traffic accidents should be no higher than 0.03 persons per truck, the injury rate no higher than 0.08 persons per truck; have two Class III terminals; the Class III road freight enterprise should have a relevant management system across all the major fields of marketing, accountancy, statistics, safety, technology, staff management, complaints received, negative media coverage, administrative penalties, etc.

Class IV The net asset of the company is more than 4 million RMB including more than 2,400 thousand RMB assets in road freight transport (trucks, freight transport terminals and so on); the tonnage of trucks should reach more than 300 tons, of which the tonnage of 8-tonne (or more than 8-tonne) trucks reach more than 150 tons or take up more than 20% of the total tonnage; gross annual income reaches more than 4 million RMB, of which at least 2,400 thousand RMB are generated by the road freight transport business; road traffic accident rate in the previous year is not higher than 0.15 times per truck, the death rate in road traffic accidents should be no higher than 0.1 persons per truck, the injury rate no higher than 0.12 persons per truck; have two Class III terminals; the Class IV road freight enterprise should have a relevant management system, complaints received, negative media coverage, administrative penalties, etc.

Class V The minimum capital requirement for establishing such a transport company is RMB 1 million.

Provisions on the Management of Motor Vehicle Drivers Training
The regulations include general principles on conditions of admission to business (of training institutes), trainers' professional competence, business management, supervision and inspection, legal obligations, and standards of management of driving schools.

Provisions on International Road Transport
These regulations include specific conditions of access to the occupation of international transport operator:

- Engagement in domestic road transport business for at least three years without a major road traffic accident caused by negligence in the last three years or more ("major road traffic accident" means an accident with any of the following consequences: fatality(ies); injury of 10 persons; economic loss of RMB 30,000 to 60,000.) In China, the driver bears equal or higher responsibility for traffic accidents as/than other traffic participants;
- Drivers employed in international operations should comply with the following conditions:
  - Be in possession of the corresponding motor vehicle driving license,
  - Be under the age of sixty,
  - Pass the examination of related international road transport laws and regulations, foreign affairs provisions, vehicle maintenance, basic knowledge of loading, unloading, safekeeping the goods,
  - Meet, if engaged in the transport of dangerous goods by road, the requirements of regulations governing the transport of dangerous goods by road;
- Vehicles intended to be used for international road transport should correspond to Technical Class I (the highest).

The Road Transport Ordinance and its complementary regulations cover in a comprehensive manner the access to the occupation of road transport operator and their access to the market. Road freight transport companies in China are under tight scrutiny by transport authorities. There are no quantitative restrictions of access to either the occupation or the market, but authorities have regulated the access scheme through the introduction of a qualitative

credit score evaluation system. The administration of the evaluation system has been entrusted by the authorities to the professional association of the transport operators and its local member associations.

Access to the International Road Transport Market

There are three main types of schemes applicable to international market access:

- National criteria (e.g., China, Turkey);
- Bilateral road transport agreements; and
- Multilateral (transport-led) agreements and schemes (e.g., ECMT or BSEC).

There is a fourth type that is based on supranational regulations, but which is less relevant for this Guide. It is typically applicable in highly integrated groupings of countries, for example the European Union. The EU criteria for access to the profession have been described in the previous section.

A fifth type of market access is regulated through multilateral (trade-led) agreements, for example the North American Free Trade Agreement (NAFTA). The provisions of such agreements cover a multitude of complex issues; in general, road transport is not a main subject, hence this type of scheme is not discussed in the present Guide.

National Criteria

The example of China is relevant in that transport operators must acquire experience on domestic markets, use the services of good drivers and use vehicles corresponding to high technical standards, before being authorized to perform international transports.

Example of Turkey: Using National Criteria

The example described hereafter reflects the approach of policy makers in Turkey. They introduced criteria for access to the profession and markets for road transport operators performing international activities, before applying such criteria to the entire industry. There were several reasons for that, but the main one might have been to support the exports of the country by good quality transport. Secondary reasons may include the desire to create a good image of professionalism for the Turkish industry abroad, or the intention to create a champion for the complex reforms of the sector, which were undertaken later on.

In Turkey, there are two types of certification for road transport companies operating internationally:

(i) **International Road Freight Transport Company for Commercial Purposes (C2 Certificate)**
Applicants for a C2 certificate must have at least 11 fully owned heavy good vehicles with a total capacity of no less than 440 tons and a working capital of 100,000 Turkish Lira. Vehicles registered under the C2 certificate must be less than 20 years of age. There are no requirements as to company premises. The certificate is issued by the Ministry of Transport, Maritime Affairs and Communications.

(ii) **International Freight Forwarder (R2 Certificate)**
Applicants for a R2 certificate must have a working capital of 300,000 Turkish Lira and the usage right of independent premises suitable for this type of operation. This type of company shall operate its own vehicles, which are kept at and operated from the company premises. The R2 certificate is issued by the Ministry of Transport, Maritime Affairs and Communications. The forwarder type company (R2) is normally the organizer of international road freight transport operations carried out by a company in the possession of a certificate for road freight transportations (C2).

According to the rules in force, one Senior Executive and one Mid-Level Executive of a C2 or R2 certified company must be in possession of a Certificate of Professional Competence (CPC). As to the requirement for their good repute, transport managers shall not have been sentenced for smuggling, fraudulency, fraudulent bankruptcy, counterfeiting, breach of confidence, drug trafficking, human trafficking, theft, bribery and terrorist activities.

There are no quantitative restrictions regarding the number of transport companies admitted to the occupation as long as the conditions of certification are met. The authorized number of vehicles and tonnage capacity are contained in the C2 or R2 certificate, but they are not restricted either.

Once certified, owners must start their operations within 6 months and they cannot interrupt their operations for longer than a year. Each type of certificate has to be renewed every 5 years by paying the renewal fee 60 days before the expiration date.

Bilateral Approach

According to World Bank's QuARTA[26] the most preferred limits imposed on international operations applied in quantitatively restricted bilateral relationships are the following:

- Limited number of trip permits exchanged between contracting parties of a bi- or multilateral governmental agreement;
- Limited annual quotas fixed in the same international legal context for various types of haulage, e.g., for bilateral traffic (export, import), transit traffic, traffic in the vicinity of national

[26] Charles Kunaka, Virginia Tanase, Pierre Latrille, and Peter Krausz. 2013. Quantitative Analysis of Road Transport Agreements (QuARTA). Washington, DC: World Bank. doi:10.1596/978-0-8213-9851-7 License: Creative Commons Attribution CC BY 3.0.

borders (e.g., within a 50 km wide strip on both sides of the border), third country traffic with or without transit obligation through the country of establishment; an annual review of the usage level of quotas and a related redistribution of unused permits that might solve permit shortage problems;
- Restrictions imposed on return-cargo acquisition;
- Total prohibition of cabotage;
- Limitation of the number of tax-free permits exchanged;
- Limitations of the validity of permits in time (monthly, annually, etc.); and
- Tolerances in the system: permit-free and/or quota-free operations allowed for certain types of transport, like using vehicles the total laden weight of which does not exceed 6 tonnes (or the payload remains under 3.5 tonnes), occasional transport to/from airports, transport of broken-down and breakdown vehicles, transport of livestock and perishable goods, carriage of medical supplies for humanitarian purpose, transport of mail, initial/terminal legs of combined transport operations, removals, funeral transport, etc.

International bilateral schemes are based on quantitatively restrictive models deriving from an intertwining system of bilateral governmental agreements, which started to develop as haulage and became a significant mode of carriage of cargo across frontiers after WWII. Among European governments alone, in the 1960–70 decade there were about 900 such bilateral agreements in force. The bilateral agreements covered similar subjects. Due to their multiplication, they became difficult to manage and to implement. All the important decisions on the practical implementation of the agreements, including the decision on the number of permits to be exchanged by the countries, are entrusted to a joint committee, composed of representatives of the two countries who meet generally once a year.

Deregulation (replacement of quantitative restrictions with qualitative criteria) emerged in the same period when the system of bilateral agreements reached its peak, but it did not have much influence on the content and functioning of bilateral agreements. Some basic qualitative elements for access to the profession were integrated into a number of bilateral agreements, but quantitative market access rules remained almost untouched.

In parallel to this development, the introduction and implementation of a set of international transport conventions have reinforced the legal context of the qualitative nature of bilateral agreements. Efforts were undertaken to create harmonized provisions in bilateral agreements, though without notable success. Discrimination which is an inherent characteristic of bilateral agreements, continued to play against operators, who were treated differently under each agreement. Even if provisions of agreements were drafted according to the same formal patterns and sometimes principles, discrimination prevailed among operators.

Bilateral agreements lost significantly in their importance across Europe because of unprecedented political and economic changes at the end of the 1980s and early 1990s, continuing with the enlargement of the EU eastwards, which made many bilateral agreements lose their *raison d'être*.

On the other hand, the emergence of the newly independent states that succeeded the former Yugoslavia and former Soviet Union, not only in Europe but also in Central Asia, led to an explosive growth of new bilateral agreements partly for good reason and partly for the simple demonstration of newly born national independence.

Although at a multilateral level the approaches have steadily moved toward transport liberalization, bilateral road transport agreements continue to prevail as instruments to regulate the access to international markets in all the regions of the world. For example, in Western Africa, the ECOWAS Member States adopted in 1982 a Convention to regulate interstate transport. This Convention defines the basic rules to be applied for itineraries of international routes, and the technical conditions for vehicles (weight and dimension), but leaves the implementation of freight distribution to bilateral agreements.

Multilateral Agreements and Schemes

International cooperation can have a significant positive impact on facilitating road transport for countries in their respective subregions. The best-known examples to date are the European Conference of Ministers of Transport (ECMT)[27] created in 1953 and the Forum of Asian Ministers of Transport (FAMT) created in 2008.

The European Conference of Ministers of Transport[28] (ECMT) was set up in 1953, with the objective to facilitate international and inland transport including road freight, and integrate the markets concerned. In 1974, the ECMT, faced with the development of road transport and the increasing need for trade and transport facilitation, developed a permits scheme (the "multilateral quota") that facilitates multilateral transport operations and replaces for such transport the recourse to bilateral permits issued under the bilateral agreements. The scheme was seen by the Council of Transport Ministers as a practical step towards the gradual liberalization of international road freight transport.

ECMT multilateral permits authorize transport undertakings established in an ECMT Member country to carry goods by road for hire or reward between ECMT Member countries and in transit through the territory of one or several ECMT Member country(ies). The licences

[27] ECMT became the International Transport Forum in 2006.

[28] ECMT became the International Transport Forum in 2006, and currently counts 57 member countries. (http://www.internationaltransportforum.org/about/about.html)

are not valid for transport operations between an ECMT Member country and a third country, nor for cabotage operations.

Besides being a significant facilitation tool, the ECMT multilateral quota system has played an important role as the main incentive for professionalizing the road transport industry and making the fleets cleaner, safer and more efficient.

More specifically, the scheme rewarded an increased number of permits undertaking operating vehicles with higher standards regarding noise and emissions. Also, only operators authorized in conformity with the criteria for access to the profession could avail themselves of permits.

Just like any system that needs to adjust in order to develop, the ECMT quota system went through a number of challenges over the last ten years, the most important being:

- an unbalanced distribution of licences between the countries;
- certain restrictions imposed on the use of the licences have reduced the efficiency of usage of the ECMT quota;
- the system of controls and sanctions in the Quota System are mainly the responsibility of the country where the vehicle is registered and there is little cooperation between the various national supervisory authorities as well as between authorities of various countries in terms of road transport enforcement and infringement; and
- certain countries have become more protectionist, a trend undoubtedly reinforced by the recent economic crisis.

A Quality Charter[29] for international haulage operations performed under the ECMT multilateral quota was adopted in May 2015, in order to allow further development of the system by creating a level playing field and enhancing the compliance with quality requirements. The Charter focuses on four specific areas:

- Admission to the occupation of transport operators;
- Compliance with driving and rest times;
- Categorization of infringements; and
- Driver training.

The Quality Charter addresses these issues and sets some rules that aim at reinforcing the qualitative criteria for obtaining ECMT licences, in particular as far as professional competence for transport managers and professional drivers are concerned.

As far as the access to the profession is concerned, the four criteria are taken on board: professionalism, honor, financial standing and establishment in one of the ECMT member countries. The Charter goes into more details than in the UNECE resolution R.E.4, in particular as far as the examination to pass the Certificate of Professional Competence is concerned. The Charter states that the "standards set out by the IRU Academy for the approval of examination and training centres, and also for the issuing of Certificates of Professional Competence, are recognised as a reference model. The certificates issued by such centres are considered as meeting the requirements of the ECMT Multilateral Quota provided that they are countersigned by the national authorities of ECMT Member countries that are competent in this area."

Path to Reform

Establishing or changing the conditions for access to the profession and market is a very sensitive issue. However, this is essential for creating a professional and efficient road transport industry. The criteria used in the EU (professional competence, honor and sound financial standing) have been widely replicated (in general at a smaller scale) in various parts of the world. They seem therefore a good reference to be used when designing such a reform. The criteria should be adapted to local conditions: economic situation, institutional capacity, etc.

Main Challenges

Many countries are considering reviewing their road transport access to profession and market rules. This is a crucial component of road transport sector reform and needs to be approached carefully based on clear data and a sound diagnostic analysis. The main specific aspects to be identified before designing the reform are:

- What is the profession willing or ready to accept?
- What is the government ready or willing to implement and enforce?
- Are training institutes and authorities able to cope with the new rules, and if not how long would they need to be in a position to implement them?
- What is the situation in the neighboring countries and main trade/transport partner countries in order to avoid creating unequal competition rules?

Indeed, the reform or change in this field is socially very sensitive and should ideally be envisaged through a coordination and consultation process that involves professional associations, to ensure that the industry adheres to the future rules.

Usually new rules apply immediately to new entrants, but for existing operators particular attention will have to be paid to defining transitional periods for full compliance. Too short of a transition period will not allow the integration of the vast majority of existing companies, while a long transition period will lessen the benefits of the reform. According to experiences of other countries, the benefits that may be expected already in the short term are a better quality of service and global performance of the sector.

[29] The text of the Charter can be accessed at http://www.international transportforum.org/IntOrg/quota/pdf/ITF201503Fe.pdf

As for any change or reform, the risk of failure is high if the above-mentioned issues have not been properly considered and addressed. The risk of not assessing properly the extent and consequences of the reform may lead to the exclusion from the market of a number of actors that cannot be replaced on the spot. This would aggravate the situation and create room for the development of an informal market that will affect the sector in the long run.

In general, quantitative restrictions can generate corruption. In developing countries with significant risk of corruption, the legal framework must be simple and clear, not open to interpretation, with fines for every infringement and not for an "interval" of infringements, etc. This would remove the room for discretion.

Recommendations

There is no 'off-the-shelf' solution applicable in every country and region of the world in a homogeneous manner. However, based on experiences of other countries in the world, some recommendations may be drawn up to guide governments in their reform process.

Of all the international examples, the EU rules represent the most comprehensive scheme on the subject, but is difficult to replicate as such. It took 30 years for EU Member States to reach the current level of sophistication that was gradually instilled. The ECMT model copied the majority of the EU elements but coupled the requirements with a strong incentive for the compliant operators: access to international markets, based on the multilateral system of road transport permits. The UNECE Consolidated Resolution R.E.4 provides a good source of inspiration for countries willing to reform their transport sector and in particular the access to the profession and market.

Of all the national rules, the example of China is the most complex and comprehensive, but its success was largely guaranteed by the determination of the authorities and their coherence and consistency in enforcing the rules.

Recommendations for Rules on Access to the Profession

In many developing countries, the lack of a sound financial understanding and education by operators may lead them to offer their services below actual costs. Once these typically small operators realize that they are losing, many attempt to "round the corners"—i.e., continue to offer low prices for transport but cover their costs from other (grey/black) areas, e.g., tax evasion, buying the fuel from doubtful sources etc.; many ultimately go bankrupt. This can be addressed in a number of ways: (1) modify the legal framework, which is not enough per se; it needs to be enforced, but functions well in combination with (2) increasing the institutional capacity of authorities to enforce the law (by rewarding/incentivizing/holding them accountable), and (3) improving the financial/economic education—this is a long-term endeavor but the healthiest. Usually, when (3) is in place, the other two have long been functional already.

(a) The rules

The rules (laws, regulations) to be adopted should clearly define the scope (applicability) of the criteria to be adopted; in particular the rules should apply to commercial/public/for hire and reward transport, but own account or private transport may also be included, depending on the specific situation in the country. The rules should also clearly mention that the criteria must be met on a permanent basis.

The rules should also foresee that access to the profession would be certified through a registration of operators (company, undertaking) in a dedicated Road Transport Register maintained by the Ministry of Transport or any other authority locally designated for that purpose. The register would at least contain for each operator:

- The identification of the company and its secondary establishments (branches);
- The name and details of the person(s) justifying the professional competence and the honorability/good repute criteria;
- The base and financial standing elements as mentioned in the law/regulation;
- For information purposes, the type of activity (general cargo, tank transport, regional, etc.); and
- Date of registration, suspension, revocation.

The rules should set:

- The minimum conditions and requirements to be met by the transport operator;
- The documents and information to be provided by applicants to obtain the registration;
- The deadlines for the administration in charge to handle the application;
- The sanctions to be applied (criminal and administrative) in case of wrong or fake information, absence of update of the registration or exercising the profession without proper registration; and
- The conditions for suspending or revoking the registration.

As far as the professional competence criterion is concerned, the rules should:

- Define the person(s) concerned by this criterion: owner, transport manager, head of local branch, etc. It is recommended that the person who must comply with this criterion is the same as the one who shall be requested to prove compliance with honor/good reputation criterion.

In any case the rules should foresee that the person concerned by the legislation should be the one ensuring effective and permanent management of the road transport activity within the company.

- Define the competences required according to local needs and possibilities;
- On that basis, define the training programs that would provide managers with the required level of professional competence. Annex 9 and 10 present an indicative list of subjects to be included in the curricula for manager training and the specific example of subjects included in the IRU Academy CPC Manager Program, as well as an example of the diploma;
- Define the competence required from the training institutes and from the trainers;
- Define the accreditation process for the training schools and institutes allowed to deliver these programs and the way the conditions are verified and implemented;
- Define the examination conditions (calendar, type of exam, etc.) and authority in charge;
- Define the conditions applicable to applicants (age, education level, nationality . . .);
- Define the diploma to be issued (its categorization within the education scheme);
- Define alternative ways to satisfy the professional competence criterion, such as:
  - professional experience: define the level and duration of the equivalent experience, for example, 5 consecutive years as manager of road transport activities within a transport company (duly registered) over the past 8 years,
  - equivalent diplomas: define the list of equivalent diplomas;
- Define the implementation date:
  - For the new entrants: usually effective immediately (if training capabilities are in place),
  - For the existing professionals: either by deciding that they automatically qualify, or by setting an obligation to follow a refreshing training within one or two years from the entry into force of the regulation;
- Define the procedure for cases when the criterion is not met anymore and transitional period granted to allow the company to be compliant again; and
- Define the sanctions to be applied in case of falsification of diplomas, or noncompliance with the criterion after the end of the transitional period mentioned above.

As far as the honor/good reputation criterion is concerned, the rules should:

- Define the person(s) concerned: owner, transport manager, head of local branch, etc. It is recommended that the person who must comply with this criterion is the same as the one who shall be requested to prove compliance with professional competence criterion.

In any case the rules should foresee that the person concerned by the legislation should be the one ensuring effective and permanent management of the road transport activity within the company.

- Define the elements that would be accepted as proof of honorability/good repute. For example, the applicant may be requested to prove that he has not been:
  - Convicted for serious criminal offences, including offences of commercial nature,
  - Declared unfit to pursue the occupation,
  - Convicted for serious offences related to the transport legislation, like drivers' driving and rest periods, weights and dimensions of commercial vehicles, road and vehicle safety, the protection of the environment;
- Define the procedure for cases when the criterion is not met anymore and transitional period granted to allow the company to be compliant again; and
- Define the sanctions to be applied in case of noncompliance with the criterion after the end of the transitional period mentioned above.

As far as the sound financial standing criterion is concerned the rules should:

- Define the financial standing baseline. It is crucial to determine this reference point in accordance with local conditions and possibilities, so as to ensure that most undertakings and companies may comply with the criterion in a reasonable period of time. This is the only realistic way of implementing the criterion; adjustments should be foreseen, to adapt to developments of the industry;
- Define the value of the financial standing. This may be based, as in the EU, on an amount per vehicle, but may also be a combination of the following elements:
  - a minimum amount of capital proven by audited accounts,
  - a minimum amount of funds available on a bank account,
  - a financial guarantee (surety or equivalent) established by a financial institution for one of the above mentioned amounts,
  - a percentage of the yearly turnover (however this needs to be assessed on a yearly basis, which may be complex to implement);
- Define the ways the financial standing is proven (audited accounts, Bank statements . . .);
- Define the procedures in case of change affecting the value (for example if the financial standing condition is established based on the number of trucks, what to do in case of new trucks or decreasing of the fleet);

- Define the procedure for cases when the criterion is not met anymore and transitional period granted to allow the company to be compliant again; and
- Define the sanctions to be applied in case of noncompliance with the criterion after the end of the transitional period mentioned above.

(b) The voluntary standards

An alternative approach to the legislative/regulatory approach would be to focus on encouraging transport operators to set their own professional standards. Even without the support of regulatory measures, there are strong incentives for operators to achieve these professional standards, because it would help them to:

- Market their services more effectively to customers who want high quality services, and to
- Increase their access to credit by improving their creditworthiness.

Raising professional standards is an effort that may take many years; to achieve this, transport operators will have to adopt a long-term strategy and a feasible yet ambitious implementation plan.

In countries where the road transport industry is well organized, and has a strong professional representation (through professional associations/federations . . .), the sector may be willing to adopt professional standards. These could underpin the professionalization efforts and could be implemented in parallel with the legislative/regulatory approach, in particular when the training capacities needed to obtain the required qualification to operate is either not existing or insufficient. Indeed, this step could be an intermediary path towards entry into enforcing of the rules on access to the profession.

Once professional standards have been established and adhered to by the transport industry, it is much easier to incorporate them into operator licensing conditions. The steps required to implement this approach include:

- The road transport sector and government should consult, debate and agree on the need for improved professionalism and determine the skills gap. A first step would be to organize regional workshops where the government would present their policy initiative, objectives and action plan to achieve them, and where operators and their representative associations would give feedback, possible alternatives and proposals with the aim to reach a consensus;
- The professional association could take the lead and responsibility for defining the professional standards and for providing sector-specific training that should cover basic knowledge of all aspects of running a transport company such as, but not limited to:
  - transport and business law,
  - business and financial management, technical standards and operating practices, licensing,
  - road safety,
  - international aspects (for operators engaged in international transport);
- The professional association may seek support from similar organizations in other (more advanced or experienced) countries to gain information and advice on defining standards and setting up training and examination schemes;
- The government may take responsibility for any basic educational matters that are involved in increasing professional standards (e.g., literacy);
- The public at large and in particular transport customers should be made aware of the professional goals of the road transport sector, and should encourage those operators seeking or achieving higher professional standards (e.g., preferential contracts);
- In countries with a significant proportion of informality, it is unlikely that a high number of informal operators would consider obtaining accreditation. For this category, short-term courses in practical management skills would be meaningful; these could be organized by the professional association;
- The government and the road transport sector through its professional association should maintain regular dialogue, possibly through roundtable meetings or in the frame of the National Facilitation Committee, to discuss transport issues and policy developments; and
- When entering into international transport agreements (bilateral or regional), consideration should be given to adopting common standards for training, regulation, competence, data collection and enforcement to ensure a certain level of harmonization of the competition conditions.

One important issue should be considered when envisaging the introduction of voluntary standards. In a market where the consignor and consignee have in general no responsibility (and risk) whatsoever they will, too often, chose the cheapest service, hence allowing companies with general low standards to get the bulk of the orders and placing well-managed companies at risk of bankruptcy. One country, Australia, introduced a shared responsibility model where the responsibility of transport is split along the transport chain (Box 10) and defined by law.

Recommendations for Rules on Access to Market

(c) Domestic market

In principle, compliance with the rules for access to the profession should grant access to the domestic market. Quantitative restrictions create closed professions, keeping the road transport operators in a kind of bubble, protecting them from real competition.

BOX 10 Australia's Compliance and Enforcement Bill[30]

The National Transport Commission (NTC) has pioneered the development of a national compliance and enforcement reform package, which aims to further the achievement of nationally agreed road transport safety, productivity, asset protection and environmental reforms. The centerpiece of the package is the model Road Transport Reform (Compliance and Enforcement) Bill (the "C&E Bill"), which was approved unanimously by Australian transport ministers in November 2003.

The C&E Bill introduced the Chain of Responsibility concept—that is, that all those with responsibility for activities that affect compliance with the road transport laws should be held legally accountable if they do not meet their responsibility. Chain of Responsibility provisions in the Bill impose obligations on all parties in the transport chain and all individuals in the corporate chain of command. Those parties are required to either take reasonable steps to prevent a contravention of the road transport laws, or to not encourage or coerce others to contravene those laws.

Special Chain of Responsibility provisions in Part 4 of the Bill provide that consignors, packers, loaders and receivers may be held legally liable for breaches of heavy vehicle mass, dimension and load restraint requirements, in addition to drivers and vehicle operators. In this way, off-road parties are as legally liable as their on-road counterparts are, if a breach of those requirements occurs. This enables authorities to better target the party or parties actually at fault in each case. It also reduces pressures on on-road parties and ultimately leads to improved compliance, and safer roads. The Chain of Responsibility approach has now been extended to model laws dealing with fatigue, the transportation of dangerous goods and heavy vehicle speeding.

However, additional requirements should be imposed for the access to specialized markets, like the transport of dangerous/hazardous goods or perishable foodstuff. Such requirements may refer to specialized training for drivers, employment of a specialized adviser at the company, or special technical certification of the vehicle.

(d) International market

Access to international markets is still largely dominated by quantitative restrictions. Despite quota limitations, bilateral agreements have played a crucial role in developing international road freight transport during decades. They supported the spectacular growth of export-import and transit operations as well as to a certain extent third-country road freight traffic. International organizations have done their utmost to harmonize these agreements, with mixed success. In order to maximize national reforms of the road transport sector, governments should overcome the drawbacks of bilateralism and quantitative restrictions.

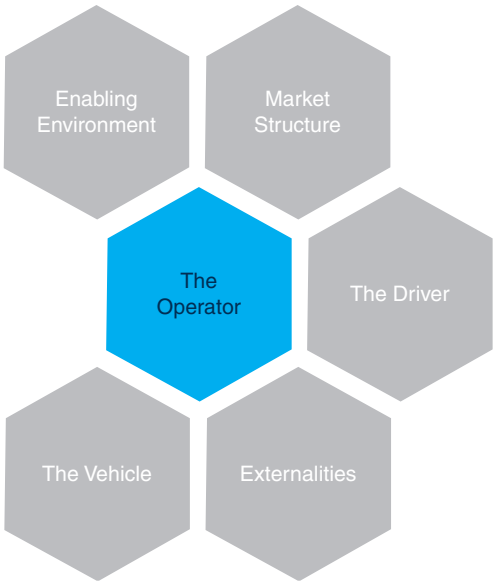
While the sudden abandonment of quotas and quantitative restrictions on the grounds of economic efficiency may be desirable, it may be seen as a loss of sovereignty or economic potential by many countries. In particular, landlocked countries may feel threatened by such a measure, because their operators might lose favorable quotas for transport from and to the ports of their transit neighboring countries. A gradual movement towards qualitative restrictions may be preferred.

In order to increase efficiency of the current bilateral and multilateral quota-based agreements, it would be useful to introduce qualitative elements that would reserve (part of) the international/regional transport operations to road transport operators meeting those qualitative criteria, such as:

- Basic criteria for access to profession (professional competence, good repute, sound financial standing);
- Use of vehicles meeting certain criteria in terms of weight and size, emissions, road safety equipment; and
- Employing drivers trained according to agreed, higher standards.

These would enhance the quality of the services offered. It would be up to the negotiating countries to set the limits that their road transport sector is able to afford. However, a gradual approach would allow for the harmonization of the transport requirements at subregional levels, which would create a market based on fair competition. Eventually, these would contribute to better regional integration and a liberalization of road transport.

[30] http://www.australiantransportcompliance.com.au/chain-of-responsibility



The Operator

One of the characteristics of the road transport sector is that it offers players a good opportunity for upward mobility: many multimodal transport operators, freight forwarders or logistics providers have started as road transport operators.

The road transport sector is made up of a variety of business models used by the operators to carry out their jobs. Almost everywhere, the road transport operators are small enterprises/undertakings/companies acting often as individual or natural persons, known as the "one man/one truck" or "driver-owner" model. In many developing countries there are few operators acting under a commercial legal status. In general, Governments realized the importance of road sector as a revenue generator and took measures to regulate at least the registration of transport operators, in order to formalize the sector and make sure that taxes are paid. However, there are still countries or subregions such as in Western Africa where the informal sector remains predominant. This is a source of unfair competition, low tariffs levels and bad quality and unreliability of the road transport services. Informality is a market-disturbing factor, which severely affects the economic viability of the formal sector.

Legal Status

Individuals dominate transport service provision in many developing countries where access to the profession is not regulated and where in principle anybody meeting very basic conditions (if they exist at all) can become a carrier, acting as an individual or natural person. However, even in developed or highly regulated countries, formal transport operators may prefer the individual approach. The explanation can be of a cultural nature (e.g., the pride of being one's own boss) or a reaction to major changes (like in Romania where after communism collapsed and private property was allowed, the big state-owned transport companies were dismantled and almost each truck got an individual owner). In the EU the individual approach gained momentum as a consequence of the complex, strict and costly rules and regulations applied to transport companies.

In informal environments, this approach has proven to be positive in that it allows access easily to a job and a living for extended families. On the other hand, it often contributes to a sector where professional capacity is low, and the activity is performed at a subsistence level, with little concern for the level of quality, reliability, and predictability of the service.

In formal environments, where access to the profession is regulated even for natural persons and individuals, this form of organization limits the commercial possibilities of the transport operators and their capacity to act independently on the market, pushing them to act as subcontractors of transport companies or forwarders.

The existence of formal business models should not hide the fact that in various regions of the world, the road transport sector is populated by the so-called "informal sector" which emerged after a sudden deregulation process without sufficient accompanying measures aimed at upgrading the professionalization of the sector. The informal sector in Western Africa, for example, is formed by individuals operating based on the "one truck–one driver" model; they are not established as commercial entities and operate without real status. They obtain their freight also via informal freight distribution channels. They generally do not maintain accounting records and operate with outdated vehicles. The viability of such operators is doubtful; however, they are a disturbing factor in the market as they operate outside any economic viable model. Freight intermediaries and shippers, while complaining of the situation, however benefit from the low prices practiced with a tendency to impose such tariffs levels also to the formal operators, thus generating a kind of snowball negative effect.

Commercial Legal Entities

The road transport operators holding the vast majority of the market share are established as commercial companies, according to their national commercial applicable law. The most common legal structure is the "limited company" (by shares, by guarantee, public, proprietary) model, but there are many other types of business entities defined in the legal systems of various countries: corporations, cooperatives, community interest company, economic interest grouping, joint-stock company, partnerships, sole traders, and limited liability company.

Cooperatives and groupings are forms that are more and more common in countries or regions where transport operators need to mutualize their fleet and commercial capabilities. Cooperatives are structures where every member brings a share in the form of capital or material (trucks). All activities are carried out by the cooperative, which in turn distributes the contracts and, ultimately,

the benefits to its members. This is a popular structure in Greece, for example.

Other operators prefer to keep their independence but to group in order to mutualize part of their fleet and other resources for a given purpose or contract. Such structures may take the form of an economic interest grouping, well known in France and starting to emerge in Western Africa ("Groupement d'Intéret Economique (GIE)"). In such structures, the grouping is the contractor of the clients/shippers, and the service provider; however, the grouping's members have agreed in advance on the way each of them will contribute to the contract by assigning vehicles, drivers, commercial resources, technicians, and experts.

This way of operating may be adequate and beneficial in countries where operators face unbalanced transport operations (e.g., lack of backhaul cargo resulting in empty legs). In such cases, the grouping structure allows mutualizing the resources, optimizing the fleet management and increasing profitability.

Structure

Road transport companies are usually structured around three basic functions: commercial, administrative and financial, and operations (driving, maintenance). In most of the small companies, the manager is often the owner or the main shareholder, and may assume various functions, including sometimes acting as driver, in particular in individual companies.

In medium size companies (5 to 10 trucks), the manager often himself assumes the commercial and general management functions, in particular finance, while operating agents are taking care of the organizing of the activities and managing the drivers, while administrative and accounting functions are in the hands of specialized staff.

Over a certain size, more than 20 trucks, the internal organization and management structure may vary according to the type of activity (full load, specialized transport, long/short distance, local distribution . . .) and the geographical location.

For companies mono-site based, the usual structure prevails; however, for companies disposing of several locations/establishment certain functions may be decentralized such as fleet management, drivers, and commercial activities, in particular for local markets. In such business models, general management, social aspects (salaries, social care, etc.), legal, accounting and finance as well as overall commercial aspects remain at the headquarter or main establishment.

For more sophisticated companies offering not only transport services but also transport organization, forwarding, and logistic services, each activity may be organized as a profit center.

Insurance

The insurance aspect is very important in the road transport sector as it may help transport operators to secure their operations and contribute to the sustainability of their companies. In addition, a good insurance cover may also be an important element that banks and financial institutions may take into account in granting credit or loans to a transport company. However, it is important to clearly define the risks to be covered and the insurance coverage that can be organized.

Depending on national legislation, the insurance may be compulsory for certain risks and optional for others. Besides the insurance being seen as a burden or administrative requirement at the beginning, when it is made compulsory, the later understanding of risks and internal measures to reduce them may bring significant advantages for transport operators, beyond any formal approach. Insurance coverage includes:

(a) Civil liability

In many countries, the civil liability insurance is compulsory for any commercial professional activity. It aims at covering the moral or material damages created or generated by the activity of the company, its employees and subordinates to third parties. This is different from traffic and vehicle insurance. For example, it covers the buildings and physical assets for the damages they may create in case of an accident (a wall falling on a pedestrian).

(b) Traffic

This type of insurance is often called "vehicle insurance" or "third-party insurance" and is compulsory by law almost everywhere in the world. In the majority of countries, presenting a valid third-party insurance is a pre-requirement for vehicle registration. This insurance covers the risk of a traffic accident and the resulting damages to people (injured or dead), to other vehicles or properties. There are countries where such insurance does not cover the driver of the vehicle insured; for example, this is the case in France, where a guarantee extension must be obtained for that risk.

(c) Commercial liability

In general, this type of insurance is not compulsory by law, but it has become indispensable, in particular in case of damage to the goods transported. It is not an insurance of the goods; the risk covered is the liability of the carrier in relation with the goods transported. The transport company is the insured entity, the holder of the insurance. Such insurance enters into play to compensate damages, delays or loss of the goods when the transport company is declared liable according to the applicable transport/commercial law. The coverage is often limited in amount, per incident, and per annum.

(d) Goods or cargo insurance

This type of insurance is not compulsory by law; where it exists, the insurance covers the goods irrespective of any liability of the carrier in case of damage, and the beneficiary of the coverage is the owner of the goods. The owner of the goods generally negotiates

such an insurance, but the carrier may also offer this service through a cargo insurance policy he may have negotiated with more favorable terms. In that case, the carrier will only be a facilitator; the beneficiary of the coverage will remain the owner of the goods.

(e) **Commercial risks**

In addition to the specific transport related insurance policies, there are other types that a carrier may consider with a view to insuring its commercial risks, such as nonpayment by clients, loss of income and turnover, or currency exchange risks. IRU provides examples of commercial transport contracts, which are available upon request at iru@iru.org.

Path to Reform

In most countries where a sectoral change or reform is needed or envisaged, special attention should be paid to the structure of the road transport companies, which in turn influences the business models that will be used from the legal and from the operational point of view. Even if difficult to measure or correctly assess, this aspect is particularly important in countries or regions where the informal sector has become increasingly important in number of actors and in market share.

The general orientation of the reform may target the formalization of the sector to make it reliable, sustainable and profitable to the economy. Such an approach would imply structuring the profession in such a way that one of the consequences is the weakening (and eventually disappearance) of the informal sector.

It appears important that if the objective of formalization of the sector is clear, it is presented in such a manner that it does not generate a feeling of exclusion of the informal sector but a feeling of progress through the future creation of official jobs. Indeed, the number of people involved in the informal sector may represent in itself a risk of social disturbance and troubles that may jeopardize not only the reform but also the social peace, with consequences on the economy.

The communication will therefore play a crucial role as it may facilitate the process of acceptance of the reform by the stakeholders. The benefits of addressing this crucial issue in a positive tone may materialize in an easier acceptance of the reform and improved chances for success.

Professionalizing the Sector

The professionalization of the sector will certainly influence the classical business models used in the road transport sector.

Governments may wish to include in the reform process and content some accompanying measures, e.g., incentives or support mechanisms to encourage the carriers to operate as legal entities rather than individuals or natural persons. Incentives could be put in place to encourage the operators to mutualize their activities through cooperatives or economic groupings; such incentives could take the form of fiscal advantages, facilitation in accessing credit and loans for fleet renewal, etc.

The promotion of the formalization of the informal sector through the creation of companies or through groupings and cooperatives should be accompanied by incentive measures that may be of a fiscal nature. For example, fleet renewal programs may be restricted to companies operating under a legal status; therefore, in order to benefit from it, informal operators would be encouraged to formalize their activities by creating a legal entity or contributing to a grouping or cooperative to become eligible to the program.

As far as transport insurance is concerned, governments may wish to include in the law some obligations in terms of insurance coverage as a tool to strengthen the sector but also to create a more favorable climate in the relationship between the transport operator and its clients. Such a measure may in addition have a positive impact in limiting unfair competition. Mandatory insurance would also contribute to alleviating the burden represented by, e.g., consequences of traffic crashes on the State's budget. Such measures should certainly include traffic (third-party) and vehicle insurance as well as civil and professional liability.

Shippers/senders/consignors and receivers/consignees are of course key clients/commercial partners for the Road Transport Operators. However, this client/provider relationship that exists between the road transport operator and its contractual partner is of a specific type, as the quality of service provided by the carrier is importantly dependent on the conditions and practicalities offered by the client.

The quality of road transport services will be highly dependent on:

- The quality of the information provided by the Sender of the goods, their nature, quality, and quantity so that the carrier may provide the appropriate vehicle and driver and can comply with specific regulations (e.g., dangerous goods, perishable foodstuffs . . .);
- The information on the nature of the services expected (e.g., loading, unloading by driver . . .) so that the carrier can take the necessary measures such as foreseeing loading material;
- The compliance with the agreed time for loading and unloading so that the driver would not be obliged to face long waiting times;
- The provision of instructions compatible with the legal obligations in traffic, in particular as far as road safety is concerned;
- The appropriate packing of the goods to allow their safe transportation; and
- The agreed remuneration.

All these elements, which will all contribute to the level of quality of the transport service, are dependent on the transport operators' clients. In such context, it is important

to envisage this commercial relationship in its legal context as it may influence if not condition its economic dimension.

Reforming the Forwarding Industry

Forwarders provide immaterial and material services. In some countries forwarders are also allowed to perform commercial transport activities and operate vehicles. In that case they act also as transport operators and, where both professions are regulated, they must comply with both access criteria and conditions.

In most regions of the world, this profession is not regulated. In regions and countries where the forwarding activity is regulated, the conditions to access the profession are usually very simple and consist of a registration to a dedicated register held in general by the Ministry of Transport.

However, in some countries like in France a registered transport company is allowed to perform forwarding services by subcontracting a part of its transport to another transport operator if this activity counts for less than 15% of the turnover. If it goes above 15% of the turnover, then the transport company should in addition also register as a forwarding company.

Self-regulation of the profession has been developed by FIATA to certify the level of professional competence of forwarders; however, it is not a mandatory requirement to access the profession even if some clients may impose on their forwarders to be holders of such certificates.

In modern logistics chains, forwarders have become the main clients for road transport operators; they intervene between a shipper asking them to organize a door-to-door transportation and the carriers they select for carrying the road transport component of that operation.

The services provided by freight forwarders consist at least in organizing the transport of goods for and on behalf of their clients by selecting the mode of transport, the carrier(s) and other modalities. Most commonly, they are involved in the organization of intermodal and multimodal transport services but also undertake to provide or organize other logistics services.

Forwarders are also in charge of creating the transport documents and often the customs declarations on behalf of their clients. In general, forwarders are emitting a door-to-door transport document, called a Bill of Lading, to their client. The FIATA model of a Bill of Lading is widely used throughout the world.

In some regions of the world, freight brokerage has emerged. The broker's role is simply to find road transport operators to carry the goods for a client (sender/shipper). In some regions, these brokers have emerged further to the liberalization of local transport markets and are acting on the so-called "informal market," as is the case in Western and Central Africa. These brokers usually do not appear in the transport documents; they are remunerated by a commission that takes on the transport cost paid by the sender/shipper.

However, in other parts of the world, brokers are providing a real service in organizing a match between the demand and the offer, and they often carry out some documentary tasks, for example filling in transport and customs documents.

In addition to the usual forwarding services (organizing transport, documents, customs procedures, intermodal trips, etc.) specific logistic services may be required, such as packing, labelling, grouping shipments, assembling, etc. In that case, when shippers directly or through forwarders are not realizing by their own means logistics services, they may recourse to specialized logistics services providers. These logistics service providers may intervene either for the forwarders, or for the carriers, the senders or receivers.

Formalizing Contractual Relations

The contractual relation that is established between the carrier and its client, whether a shipper or a forwarder/intermediary, is of a different legal nature depending on the countries or regions. The road transport contract may be either a standard commercial contract or a special contract governed by specific rules. In many countries, the contract of transport by road is considered as a standard commercial contract. As such, it is governed by the general commercial law. It is considered as a consensual contract, meaning that it is concluded by exchange of agreement that is not formalized. In that sense a written contract is not necessary. The carrier's liability is standard, meaning he is responsible for his acts or omission as well as the one of its subordinates and employees if a damage, delay, or loss happens, if this damage is caused by a fault. The carrier is simply bound by an obligation of means; he must undertake all possible efforts to realize the contract but is not bound by an obligation of result. Under such a liability regime, the claimant has to establish that the damage was caused by a fault imputable to the carrier.

The liability of the carrier is unlimited in principle, but he may through his general conditions of transport reduce or limit the indemnity level. The contract is not limited in its scope. It may of course cover the transport as well as any ancillary service that the carrier may offer. To compensate this strong liability regime, the indemnity due by the carrier in case of damage, loss or delay is limited by law. The limit is defined through a fixed amount per kilogram of lost or damaged goods, or per shipment, in case of delay, the indemnity equals the transport price. The carrier may accept upper limits but cannot exclude his liability or decrease the level of indemnity.

Contracts for Forwarding Services

There is no international legal norm that defines the legal status and liability of the forwarder, contrary to what exists for road carriers (defined by the CMR Convention, for example). Therefore, it is usually admitted that forwarders

are operating depending on national law applicable under two different types of contracts and liability regimes.

In Anglo-Saxon countries, forwarders are considered as simple intermediaries whose task is to put in contact a client and a transport operator. They act as a kind of representative of the client but they do not contract on their own; they always act on behalf of their clients, for example, when signing a transport contract. In that case, their liability is usually professional liability. They are liable only for their personal faults or breaches, and they are not responsible for the good accomplishment of the transport nor for the good state of the goods at destination. They act according to an obligation of means but not according to an obligation of result like the carrier.

In more Latin influenced countries it is considered that the forwarders are operating under an obligation of result, meaning that they are responsible for the good accomplishment of the transport and the good state of the goods at destination. This is the regime known as 'commissionaire." In practice they are liable for both their own and their subcontractors' fault. Under this liability regime, they can contract in their own name with transport operators. In that case, they act as the sender towards the transport operator. For the client it is a real simplification as his only counterpart is the forwarder (commissionaire) and not the multitude of operators.

Extra Contractual Liability of the Transport Users

If the carrier and its clients are linked through a transport contract, the carrier's commercial partners may also be liable for their acts or omission outside the scope of the contractual relation that exists between the carrier and its clients (shippers, forwarders, receivers). Indeed, it is increasingly considered that the shipper in particular bears direct responsibility at the penal level in situations that impact either road safety, social and environmental regulations. As such, the liability of shippers is increasingly outlined in national penal legislations or regulations when their acts, omissions or behavior leads to a situation that creates danger either for the driver or for the road users in general. It is in particular the case for overloading situations, non-respect of social (driving and resting times) or speed limit rules when they result from the shippers acts or instructions (imperative delivery deadline). The shippers expose themselves to fines and possibly other sanctions. Such responsibility of shippers has been introduced in many countries such as France, in some US states, and in the Ivory Coast recently.

The transparency of contractual relations is important in the road transport sector. Informality and consensus-based transactions are still dominating the sector in many parts of the world. The quality of road transport services may only get better if these important issues are addressed within the reform. Indeed, if the reform addresses the organization of the road transport market, its structure, and the access to freight, it would add value to also include the legal aspect connected to the road transport contract. This would be even more important in countries where the oral tradition still prevails, in order to create minimum rules that would contribute to set on fair ground the competition between operators.

By adopting clear and transparent rules to regulate transport contracts and by setting the obligations of the shippers, the carrier, and the receiver respectively, market habits may change towards more transparency and more equity. Leaving these aspects aside, the reform would compromise some important elements such as the access to freight on an equal basis.

Faced with the development of international transport by road and taking into account the need to harmonize contractual law to facilitate the settlement of disputes and harmonize the competition conditions between operators registered in different countries, some attempts have been made to define the basic conditions of the road transport contract.

BOX 11 Examples of International and Regional Regulation

The UNECE CMR Convention

The CMR convention has been developed in the late 1950s under the auspices of the United Nations Economic Commission for Europe. The CMR Convention aims at regulating the international carriage of goods by road. It establishes a liability regime based on an obligation of result imposed on the carrier with limitation of the indemnity. The CMR Convention applies as long as the country of departure or that of the destination of the transport is a contracting party to the convention. The convention also considers that the transport contract is of a consensual nature, but it fixes the minimum information that should appear on the transport documents that may take the form of a consignment note. The CMR convention counts 55 Contracting Parties mainly located on the Eurasian continent, Middle East and North Africa.

The OHADA Uniform Rules

The Organisation pour l'Harmonisation du Droit des Affaires en Afrique (OHADA) has adopted a Uniform Act related to the contract of transport of goods by road. This act is inspired by the CMR Convention. It confirms the consensual nature of the contract and the obligation of result imposed on the carrier compensated by a limitation of indemnity due. This Uniform Act is governing in principle all transports undertaken at the national or international level between the member states of the OHADA.

Source: Authors.

With the global objective to modernize the road transport sector and better organize its ability to deliver a service of quality, it may be opportune to include the clarification of the relationship that exists between the carrier and her clients. Whatever the legal status that will prevail (obligation of result or of means, liability based on fault or presumed), it could be of assistance to set some road transport model contracts that will help in organizing the relationship on the basis of clear indicators such as:

- Loading and unloading responsibilities;
- Ancillary services; and
- Procedure to follow in case of loss, damage, delay.

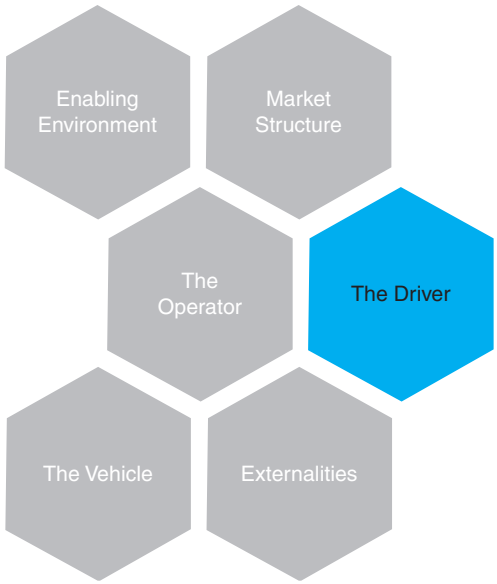
Such model contracts should be drafted in close cooperation between the professional organizations representing the road transport operators as well as the ones representing the shippers and transport users. In addition, as part of the reform, the liability of transport users may be considered and established as a powerful tool to moralize the practices and fight against abusive behavior. Direct penal responsibility of shippers may be established for situations of:

- Overloading and non-respect of weight per axle rules;
- Conditions of transport that do not allow the respect of driving and resting times or of speed limits.

The intermediaries/brokers should work exactly like classified ads in the newspapers, or like freight exchanges (for example in the EU timocom[31] or teleroute[32]), with additional feedback systems from clients and operators about each other, or with additional information and verification systems for increased transaction security (e.g., checking the license, in order to prevent identity theft). These players must be well defined by the forwarders, who are fully liable for contractual and financial aspects. The freight exchanges can be virtual or material, with physical presence on the ground, at loading/unloading places. It is difficult to actually take responsibility without physically assisting to processes, and in general this responsibility is transferred onto the transport operator. Very often transport operators suffer because of "phantom" forwarders, which intermediate at good rates for the first 6–9 months, charge the clients but do not pay the transport operators, and then disappear. The liability should be established proportionally to the price of the service, and the service of an intermediary (e.g., coxer) should be paid with an amount equivalent to an advertisement in the newspaper.

[31] http://www.timocom.com/

[32] http://teleroute.com/



The Driver

The driver is a central component of road transport services, being the ambassador of his company towards the clients, the road users, the control authorities and the competitors. The driver is a key asset for a road transport company; his capabilities to act economically, timely and to the satisfaction of the clients will considerably influence the image of the company and therefore it's positioning on the market. As such, he should accommodate various and at times conflicting interests:

- Serve his company;
- Drive safely;
- Drive economically and environmental friendly;
- Serve the clients;
- Take care of the load;
- Deliver on time;
- Accommodate unforeseen events or difficulties; and
- Respect the law and regulation in particular as far as road safety is concerned.

The professional driver therefore has multiple capabilities, which are a combination of personal capabilities, qualification and knowledge, and of course, practice. Therefore, the qualification of the driver is essential and should definitely be considered and prioritized when designing the reform of the sector.

A professional goods transport driver is a member of the operational staff employed by transport companies. In addition to purely transporting goods, these companies may also be involved in activities that are generally categorized under the term 'physical distribution': managing tasks on behalf of production companies, such as storing finished products, assembly/customization of products, delivery/distribution and factoring. Professional drivers are

confronted with various other external elements that are not limited to driving.

Responsibilities and Main Tasks

Professional drivers are intervening at various levels of the transport services and are therefore taking responsibilities for:

- The vehicle
  - Ensure the roadworthiness and correct maintenance of a truck, truck-trailer or tractor-trailer combination before departure and while enroute;
  - Have the loading and unloading equipment on board that is appropriate for the cargo;
  - Cleaning of the cargo space, cabin and exterior;
  - The maintenance and operational readiness of loading and unloading equipment; and
  - Taking appropriate measures to safeguard the vehicle in case of accident or incident.
- Road safety and driving
  - Be fit to drive;
  - Respect the traffic rules in all circumstances;
  - Observe driving and resting times rules;
  - Respect restrictions and traffic bans;
  - Respect weight and dimension rules as well as weight per axle limitations;
  - Inspect the vehicle and the load to ensure correct and safe loading and securing of the load before starting;
  - In case of incident or accident take appropriate measures to signal and secure the area to avoid additional accidents; and
  - Report to his company any incident or accident.
- Commercial and contractual operations
  - Be at the agreed time at the place of loading and register at time of arrival and departure;
  - Notify any delay to his company and client;
  - Verify the external aspect of the goods to be loaded and the packing to ensure that they are appropriate for transport and take appropriate reservations in writing on the transport document in case of a problem detected;
  - Check the correctness of the accompanying cargo documents and take corrective measures in case of mismatch (difference in quantity, quality . . .);
  - Carry out the transport assignment in accordance with the wishes and requirements of the transport company and the shipper and according to contract provisions;
  - Deliver on expected time the correct quantities of goods loaded;
  - Receipt of any payment for goods for which cash is due on delivery (COD); and
  - Report on the transport document damage, comments and flaws relating to the cargo and inform his company immediately.
- Loading/unloading
  - Proceed to the loading and unloading operations (including stowing and securing the cargo) safely if foreseen by the transport contract;
  - Ensure correct distribution of the cargo throughout the compartments to respect appropriate axle weight; and
  - Respect the shipper/consignee rules as far as parking, loading, unloading, and safety are concerned.
- Administrative tasks
  - Prepare his itinerary to take into account client's needs, his company instructions, and economic and environmental constraints;
  - Maintain journey work reports (logbooks), tachograph mechanical, analog or digital records, time accounting sheets and expense forms;
  - Keep and bring back to the company all relevant documents connected to the transport operation; and
  - Comply with the company regulations as regards, for example, dress codes (uniform . . .).
- Interacting with public control authorities
  - Comply with instructions from control authorities and provide any document that is required.

In addition, professional drivers involved in international transport should:

- Ensure they are in possession of required documentation for international transport
  - International driving license;
  - Passport and visas valid for the journey undertaken;
  - Bilateral or multilateral transport permits or authorizations; and
  - Transport related documents.
- Handle customs documents and procedures if required
  - Fill in or check customs documents for the goods; and
  - When required proceed with the customs formalities related to the vehicle and container (e.g., temporary importation).

Minimum Level of Knowledge

In order to carry out successfully his tasks and responsibilities, a professional driver must therefore acquire and master certain basic knowledge, such as:

- Transport laws and regulations (national and international when appropriate);
- Traffic and road safety laws and regulations;
- Driving and resting times laws and regulations when applicable;

- Environment laws and regulations applicable to road transport;
- Road transport contracts laws, procedures and transport documents;
- International and national customs regulations; and
- Specific regulations applicable to special transport such as dangerous goods, perishable foodstuffs, etc.

This basic knowledge shall allow the professional driver to master:

- the function of road transport within integrated logistics chains;
- developments within transport logistics and any associated means of communication;
- the personal, vehicle and cargo documents required for the function;
- the method of working with the time registration equipment in place in the context of the applicable legislation on working hours (driving and rest times);
- the road network, major cities, industrial/storage and transfer areas important for road transport, and through-routes (transit);
- the common warning symbols and pictograms on goods packaging;
- the loading, unloading, stowing, securing of goods including protecting cargo from adverse weather conditions during transportation;
- the technical equipment used when loading, unloading, securing and transporting;
- the correct technique when lifting, carrying, pushing and pulling goods varying in size and weight;
- the general layout of terminals, storerooms and warehouses, if this relates to the work carried out by drivers on a daily basis;
- the general loading and unloading procedures at terminals, storerooms and warehouses if these relate to the work carried out by drivers on a daily basis;
- sufficient mechanical expertise to perform the correct procedures and checks before, during and after the journey, and be able to repair (minor) technical defects on the road;
- the measures to be taken if the transport assignment is disrupted by collisions, vehicle breakdowns, traffic congestion, damage to the cargo and other flaws;
- the elementary rules relating to nutrition and personal hygiene and health;
- the elementary rules relating to the provision of first aid in case of accidents;
- the basic organizational structure within transport companies;
- the basic fixed and variable expenses associated with truck transportation;
- the basic cost structure within a transport company; and
- the place and role of drivers within the company organization and business economics.

For a long time, holding a driving license corresponding to the category of vehicle to be driven was sufficient to become a professional driver. This is still the case in a large majority of countries and regions. It is recognized today that the qualification requirements of a professional driver are not, by far, limited to driving; they require much more competencies in a variety of fields from which the quality of service delivered will depend. These competencies are not natural; they are acquired through training on-the-job, at company premises or in specialized institutions. It is why, in addition to having well established driving license requirements, many countries have adopted the principle of a Certificate of Professional Competence (CPC) for professional drivers, certifying the satisfactory completion of specialized training. The competencies are refreshed through regular periodic trainings. Competencies for specific activities such as the transport of dangerous goods or perishable foodstuffs are subject to even more specialized training (initial/vocational or continuous/during job).

Driving License

International Conventions as Basis for Domestic Legislation

The requirement to hold a driving licence to drive a motor vehicle on the public highway dates to the very first motor car built by Karl Benz in 1888. The world's first mandatory national driver's test was introduced in France in 1899; by 1903 the major European economies had introduced laws relating to driving licensing, and in 1910 forms of tests were also introduced in Germany and the USA. At that time the number of vehicles was minimal and mainly involved passenger cars, but the main motivation of regulators was the same as today: the concern for road safety.

In 1907 and 1908 early motorists participated in road races from Paris to Beijing and from New York to Paris, but most vehicles had travelled relatively short distances. WWI began as a cavalry-reliant conflict and ended with using motorized transport for the movement of equipment, people and supplies. During the war (1914–1918) large numbers of troops learned to drive different vehicles and, following the peace, they and the vehicles represented the nascent road transport industry.

The dramatic expansion of motorized road transport with consequent concerns over road safety, but also the preoccupation for harmonizing the traffic rules in order to facilitate international transport, have resulted in three major international legal instruments, each of them reflecting the conditions and possibilities of the period when they were concluded:

- Convention on Motor Traffic (Paris, 24 April 1926)
- Convention on Road Traffic (Geneva, 19 September 1949)
- Convention on Road Traffic (Vienna, 8 November 1968)

All three conventions have been successful in regulating road traffic at the international level, but they have also served as a basis for national road traffic rules across the world, including in countries which have never ratified them.

The Convention on Motor Traffic (Paris, 1926): Twenty countries from around the world ratified the 1926 Convention which, in addition to dealing with fiscal matters and the international recognition of the international driving licences issued in the signatory countries, established a minimum driving age of 18, and categorized vehicles into three identifiable categories, which also gave the category of the driving license. Apart from motorcycles, the two other categories made the distinction between light and heavy vehicles as 3500 kg GVW which remains the norm today in most countries. This benchmark has since influenced the design and manufacture of commercial vehicles.

The Convention on Road Traffic[33] (Geneva, 1949): The convention was needed to adapt the international rules to the development of road transport in many parts of the world; it is still in force in 96 countries. The convention was the first to cover road signs and signals as well as driving licences; its provisions extended to five the categories of vehicles requiring driving licences. The vehicles were categorized based on their weight and/or number of seats, including vehicles used for the transport of passengers and comprising, in addition to the driver's seat, more than eight seats.

The Convention on Road Traffic[34] (Vienna, 1968): This legal instrument, commonly known as the Vienna Convention, has been ratified by 73 countries and forms the basis of many other countries' traffic codes. The objective of the convention is "to facilitate international road traffic and increase road safety through the adoption of uniform traffic rules." This proved to be an effective facilitation tool by means of its provisions on mutual recognition and admission in the international traffic of vehicles and drivers in possession of certificates issued in conformity with the Convention.

TABLE 6 Categories and Subcategories of Vehicles That Require a Driving License

Category/Pictogram	Subcategory/Pictogram
A 	A1 
B 	B1 
C 	C1 
D 	D1 
BE 	
CE 	C1E 
DE 	D1E 

Source: Authors based on Vienna Convention.

Two annexes to the convention relate to the rules and format of domestic and international driving licences (permits) respectively. They extend to seven the number of vehicle categories for which a driving license is mandatory, and includes subcategories as shown in Table 6.

The Vienna Convention also sets obligations for the contracting parties:

- Every driver of a motor vehicle must hold a driving permit;
- Contracting parties undertake to ensure that driving permits are issued only after verification by the competent authorities that the driver possesses the required knowledge and skills; the persons authorized to check if drivers have the necessary knowledge and skills must have appropriate qualifications; the contents and procedure of both theoretical and practical exams are regulated by national legislation; and

[33] http://www.unece.org/fileadmin/DAM/trans/conventn/Convention_on_Road_Traffic_of_1949.pdf

[34] http://www.unece.org/fileadmin/DAM/trans/conventn/Conv_road_traffic_EN.pdf

- Domestic legislation must lay down requirements for obtaining a driving permit. In particular, it shall specify the minimum ages for holding a permit, the medical conditions to be fulfilled and the conditions for passing the theoretical and practical exams.

The UN Consolidated Resolution on Road Traffic[35] (R.E.1): This Resolution is aimed at supplementing the Convention on Road Traffic, 1968, and the European Agreement of 1971 with best practices in road safety intervention. The objective of this resolution has been to create a reference tool which presents guidance for countries on the improvement of road safety and a framework which will allow greater harmonization of regulations on a voluntary basis at the international level. Most and above all, the resolution furnishes a catalogue of measures and practices detailing the implementation of the legal instruments, providing solutions that are feasible and affordable for countries with various levels of development. Concerning the driving license, the resolution provides examples of:

- Minimum requirements for professional driving instruction (driving instructors and scope of tuition);
- Guidelines for methods of professional tuition; and
- Additional recommendations for professional drivers of vehicles of categories C, D, CE, DE, and subcategories C1E and D1E (training programs).

During the decades since their adoption the legal instruments on road traffic have proven to be efficient in improving road safety performance in the countries where their provisions were properly implemented. In recognition of these positive effects, several resolutions[36] of the United Nations General Assembly commended the UN Member States that have acceded to the international legal instruments on road safety and encouraged member states that have not yet done so to consider becoming contracting parties and, beyond accession, applying, implementing and promoting their provisions or safety regulations.

Driving Exams

The basis of all driving exams is to test a person's ability to drive a motor vehicle safely. It exists in various forms worldwide, and shall be a requirement to obtain a driving licence. A driving test generally consists of three parts: a written or oral test (theory test) to confirm a person's knowledge of rules and laws relevant for driving, a driving test in closed perimeter to test a person's ability to drive and manoeuver the vehicle (e.g., parking) and a driving test on the road, to assess a person's driving ability under normal operating conditions.

To make the test fair, written tests should be based on a standardized question series, meaning that everyone takes the same test under the same conditions. In many places the test can be done with assistance of computers, and typically consists of questions related to road signs and traffic laws of the respective country, but may also include questions related to road safety best practices and technical questions regarding vehicle operation and maintenance. New technology allows the use of interactive material including hazard perception tests. In many countries passing a "theory" test is required prior to being allowed to apply for the practical test.

There are various models for obtaining a professional driving license. For example, European legislation requires drivers to have passed tests on smaller vehicles before taking any tests for heavier categories; typically this progresses from category B to C to C+E, etc. In this model, age and medical examination are important criteria. A professional driver must be at least 21 years old and be physically and psychologically fit for driving that category of vehicle, with the capacity attested to by recognized medical doctors.

Other models (e.g., in some West African countries) allow tests to be taken on a large/heavy vehicle without any previous experience on smaller, easier to drive, vehicles. In some of these countries, there is also a possibility that once the driver obtained his license for a category B vehicle, he can obtain a valid driving license for all the other categories (including heavy vehicles) through "administrative extension" by the competent authorities, without any additional exam.

It would be difficult to demonstrate with numbers the influence of one model or the other on the efficiency and profitability of road transport services. However, statistics[37] show that countries which apply the first model, based on thorough training, comprehensive examinations and periodical regular refreshment of drivers' skills, are performing better than others in terms of road safety.

Certificate of Professional Competence

In addition to the training to become a driver and with the objective to establish a profession of choice and ensure that professional drivers comply with stringent safety and qualitative criteria, some countries have established additional requirements for professional drivers' skills and knowledge, which in most cases are acquired during initial and periodic training. These additional qualifications are not something new. Throughout the development of the road transport sector many drivers employed as professional drivers had gained both their licences and experience during

[35] http://www.unece.org/fileadmin/DAM/trans/main/wp1/wp1fdoc/ECE-TRANS-WP1-123e.pdf

[36] Resolutions 57/309 of 22 May 2003, 58/9 of 5 November 2003, 58/289 of 14 April 2004, 60/5 of 26 October 2005, 62/244 of 31 March 2008, 64/255 of 2 March 2010, 66/260 of 19 April 2012, and 68/269 of 10 April 2014 on improving global road safety (for example http://www.unece.org/fileadmin/DAM/trans/roadsafe/docs/A-RES-68-269e.pdf).

[37] The World Health Organization's *Global status report on road safety 2013* presents information on road safety from 182 countries, accounting for almost 99% of the world's population (http://www.who.int/violence_injury_prevention/road_safety_status/2013/en/).

military service, both in conflicts or peacetime service. Often their military driving activities involved challenging environments and the safe loading of all types of cargo including hazardous and explosive materials. The experience gained therefore provided excellent training for employment as professional drivers.

Following World War II, most economies enjoyed unprecedented growth and nearly full employment and, by the 1960s, many governments recognised the need to encourage the training of young persons and those lacking skills for sustainable employment. At the same time they saw the need to up skill those in employment in order to embrace new technology.

In many countries this training was funded from a payroll levy raised on all employees or, in some cases, from a small amount on fuel taxes. The funds raised were available for approved training by all employees and thus encouraged all employers to engage in the process. Some countries were more successful than others, and this applied in market economies as well as in state controlled enterprises.

In many instances government intervention resulted in more controlled and better standard training. In the transport sector this was clearly demonstrated by the high level of driver training provided during the 1970s and 1980s in Eastern Europe. State owned transport operators in Poland, Hungary, Romania, Czechoslovakia and Bulgaria received "in-house" comprehensive driver training to provide safe and high quality international transport services from Western Europe to Middle East countries. Such activities provided "hard currency" earnings whilst the in-house training of the drivers helped to optimize expenses. Following the change of political regimes in these countries and the opening up of the transport sector, the pool of well-trained professional drivers has enabled these countries to expand dramatically their international operations into new markets. Also, many drivers were in a position to find employment in countries with higher incomes.

From the 1960s until 1993, countries in Western Europe had been slowly opening up the transport sector to free-market conditions and "privatizing" many of the state-owned transport operations. The extent of this free-market liberty varied from completely unrestricted markets in Benelux and the UK to keeping the state involvement in France and Germany.

The process of liberalising road freight transport in France began in 1986. With the advent of the European Single Market in 1993, the State realized that its main role should be to manage road safety and define the rules on competition, promoting economic and social progress. This policy led to the mandatory implementation of new regulations for the initial and ongoing training of professional drivers involved in freight and passenger operations. The initial training was known as FIMO (Formation Initiale Minimale Obligatoire), and the ongoing periodic training was known as FCOS (Formation Continue Obligatoire de Securite). The legislation came into effect in January 1997 with the specific aim of improving the safety and professionalism of all professional drivers of vehicles over 7,500 kg GVW. The initial training, after passing the theory and practical driving test for the category of vehicle to be driven**,** required training for a minimum of 4 weeks equating to 140 hours. Those successfully completing the training were awarded a Certificate of Professional Training (CFP—Certificat de formation professionelle). For the continuous periodic training (FCOS), the legislation required all professional drivers to undertake blocks of 5 days of training to upskill them on new technologies and legislation.

The regulatory regime for professional drivers in the EU may be difficult to implement in all countries. However, countries beyond the EU have introduced similar requirements, notably the European member countries[38] of the International Transport Forum adopted in June 2015 as a Quality Charter for international road haulage operations. The Quality Charter establishes qualification standards for companies, managers and drivers it entered into force on 1 January 2016. It applies to pan-European road haulage operations under the Multilateral Quota system established in 1974 by the European Conference of Ministers of Transport (ECMT), which evolved into the International Transport Forum (ITF) in 2006.

In order to help public and private partners meet the challenges related to qualifications and skills, the IRU Academy has developed a comprehensive training program which provides high-level, harmonized training to professional drivers. The program is delivered by training institutions in various countries where the IRU has members. The IRU Academy's CPC Driver Program[39] covers both initial qualification and periodic training, and is available for road haulage as well as road passenger transport. By working with local experts, great care has been taken to adapt the content to different national and regional requirements. The CPC Driver Programme is currently available in three versions: CPC Driver Middle East, CPC Driver EU (European Union), CPC Driver International (CIS region). An example of Driver's Certificate of Professional Competence issued by the accredited training institutions is shown in Annex 7.

Special Competences and Qualifications

With today's increasing awareness of safety, security and environmental challenges, road transport operators and drivers must comply with complex regulations and practices, and be familiar with the latest technologies and standards that address these key issues.

[38] Besides the EU Member States, ITF European membership includes Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, FYROM, Georgia, Iceland, Moldova, Montenegro, Norway, Russia, Serbia, Switzerland, Turkey and Ukraine.

[39] https://www.iru.org/join-us/iru-academy-courses

BOX 12 The Experience of the European Union in Certifying Professional Competence

The main objective of *Directive 2003/59/EC on the initial qualification and periodic training of drivers of certain road vehicles for the carriage of goods and passengers* was to prescribe the minimum qualification and the training requirements of professional drivers to enable them to meet the new demands arising from the development of the road transport market. EU Member States have to issue the driver with a certificate of professional competence (CPC), certifying that the driver complies with his or her obligations of initial qualification or periodic training. The Directive states that the duration of the initial qualification of professional drivers is 280 hours; the driver also has to have at least 20 hours of additional driving lessons to practice the learned concepts. There is also an accelerated initial qualification: if the driver complies with certain requirements, the duration is 140 hours with an additional 10 hours of driving lessons. The Certificate of Professional Competence can be obtained after exams. The requirements for the examination are detailed in an annex to the Directive. A driver in the EU, who has a Certificate of Professional Competence, is also obliged to have a periodic training of 35 hours every five years.

The minimum qualification and training requirements are defined by Directive 2003/59/EC as follows.

Section 1: List of Subjects

The knowledge to be taken into account by Member States when establishing the driver's initial qualification and periodic training must include at least the subjects in this list. Trainee drivers must reach the level of knowledge and practical competence necessary to drive in all safety vehicles of the relevant license category. The minimum level of knowledge is defined in an annex to the Directive.

The Lesson Plan will contain nine modules as presented below:

1. Advanced training in rational driving based on safety regulations

Module 1 All licenses

1.1. Objective: to know the characteristics of the transmission system in order to make the best possible use of it:

Curves relating to torque, power, and specific consumption of an engine, area of optimum use of revolution counter, gearbox-ratio cover diagrams.

1.2. Objective: to know the technical characteristics and operation of the safety controls in order to control the vehicle, minimize wear and tear and prevent disfunctioning:

Specific features of hydraulic vacuum servo brake circuit, limits to the use of brakes and retarder, combined use of brakes and retarder, making better use of speed and gear ratios, making use of vehicle inertia, using ways of slowing down and braking on downhill stretches, action in the event of failure.

1.3. Objective: ability to optimize fuel consumption:

Optimization of fuel consumption by applying knowledge as regards points 1.1 and 1.2.

Module 2 Licences C, C+E, C1, C1+E

1.4. Objective: ability to load the vehicle with due regard for safety rules and proper vehicle use:

Forces affecting vehicles in motion, use of gearbox ratios according to vehicle load and road profile, calculation of payload of vehicle or assembly, calculation of total volume, load distribution, consequences of overloading the axle, vehicle stability and center of gravity, types of packaging and pallets; main categories of goods needing securing, clamping and securing techniques, use of securing straps, checking of securing devices, use of handling equipment, placing and removal of tarpaulins.

Module 3 Licences D, D+E, D1, D1+E

1.5. Objective: ability to ensure passenger comfort and safety:

Adjusting longitudinal and sideways movements, road sharing, position on the road, smooth breaking, overhang operation, using specific infrastructures (public areas, dedicated lanes), managing conflicts between safe driving and other roles as a driver, interacting with passengers, peculiarities of certain groups of passengers (disabled persons, children).

1.6. Objective: ability to load the vehicle with due regard for safety rules and proper vehicle use:

Forces affecting vehicles in motion, use of gearbox-ratios according to vehicle load and road profile, calculation of payload of vehicle or assembly, load distribution, consequences of overloading the axle, vehicle stability and center of gravity.

(*continues*)

BOX 12 The Experience of the European Union in Certifying Professional Competence *Continued*

2. Application of regulations

Module 4 All licenses

2.1. Objective: to know the social environment of road transport and the rules governing it:
Maximum working periods specific to the transport industry; principles, application and consequences of Regulations (EEC) No 3820/85 and (EEC) No 3821/85; penalties for failure to use, improper use of and tampering with the tachograph; knowledge of the social environment of road transport; rights and duties of drivers as regards initial qualification and periodic training.

Module 5 Licences C, C+E, C1, C1+E

2.2. Objective: to know the regulations governing the carriage of goods:
Transport operating licenses, obligations under standard contracts for the carriage of goods, drafting of documents which form the transport contract, international transport permits, obligations under the Convention on the Contract for the International Carriage of Goods by Road, drafting of the international consignment note, crossing borders, freight forwarders, and special documents accompanying goods.

Module 6 Licences D, D+E, D1, D1+E

2.3. Objective: to know the regulations governing the carriage of passengers:
Carriage of specific groups of passengers, safety equipment onboard buses, safety belts, vehicle load.

3. Health, road and environmental safety, service, logistics

Module 7 All licences

3.1. Objective: to make drivers aware of the risks of the road and of accidents at work:
Types of accidents at work in the transport sector; road accident statistics; involvement of lorries/coaches; human, material and financial consequences.

3.2. Objective: ability to prevent criminality and trafficking in illegal immigrants:
General information, implications for drivers, preventive measures, checklist, legislation on transport operator liability.

3.3. Objective: ability to prevent physical risks:
Ergonomic principles, movements and postures that pose a risk, physical fitness, handling exercises, personal protection.

3.4. Objective: awareness of the importance of physical and mental ability:
Principles of healthy, balanced eating; effects of alcohol, drugs or any other substance likely to affect behavior; symptoms, causes, effects of fatigue and stress; fundamental role of the basic work/rest cycle.

3.5. Objective: ability to assess emergency situations:
Behavior in an emergency situation: assessment of the situation, avoiding complications of an accident, summoning assistance, assisting casualties and giving first aid, reaction in the event of fire, evacuation of occupants of a lorry/bus, ensuring the safety of all passengers, reaction in the event of aggression, basic principles for the drafting of an accident report.

3.6. Objective: ability to adopt behavior to help enhance the image of the company:
Behavior of the driver and company image: importance for the company of the standard of service provided by the driver, the roles of the driver, people with whom the driver will be dealing, vehicle maintenance, work organization, commercial and financial effects of a dispute.

Module 8 Licences C, C+E, C1, C1+E

3.7. Objective: to know the economic environment of road haulage and the organization of the market:
Road transport in relation to other modes of transport (competition, shippers), different road transport activities (transport for hire or reward, own account, auxiliary transport activities), organization of the main types of transport company and auxiliary transport activities, different transport specializations (road tanker, controlled temperature, etc.), changes in the industry (diversification of services provided, railroad, subcontracting, etc.).

Module 9 Licences D, D+E, D1, D1+E

3.8. Objective: to know the economic environment of the carriage of passengers by road and the organization of the market:
Carriage of passengers by road in relation to other modes of passenger transport (rail, private car), different activities involving the carriage of passengers by road, crossing borders (international transport), organization of the main types of companies for the carriage of passengers by road.

Source: Authors based on EU Directive 2003/59/EC.

Transport of Dangerous Goods

Regulations covering the transport of dangerous goods appeared in some national legislation in the early 19th century; in 1893, international railway rules were drawn up in Europe and they became known as the RID (Regulations concerning the international carriage of dangerous goods by rail). In 1924, the maritime industry agreed on the first Safety of Life at Sea Convention (SOLAS), which included a chapter on the transport of dangerous goods by sea. SOLAS has been revised on several occasions since, but no detailed provisions concerning dangerous goods transport were included until the first International Maritime Dangerous Goods Code (IMDG Code) appeared in 1965. Until then, it was left to national governments to regulate; the IMDG Code was made mandatory as of 1 January 2004 as part of the international law of the sea. In 1949, the main airlines realized the need for control of dangerous goods carried in commercial aircrafts; subsequently, the airlines association, the International Air Transport Association (IATA), produced a set of "Restricted Articles Regulation" in 1954, which has since been regularly updated and re-issued.

Apparently, none of these separate modal rules considered what other parties where doing, and there was little recognition of international interfaces. Therefore, the rules for classification, identification, packaging, etc., were very different. In 1953, the Economic and Social Council of the United Nations (ECOSOC) established an ad hoc Advisory Committee of experts on the transport of dangerous goods. This Committee produced a first set of multimodal recommendations on the Transport of Dangerous Goods in 1956; they were adopted by ECOSOC, which then established the Committee on a permanent basis in Geneva in 1959. The Committee has continued to meet ever since, making a biennial report to the Council with amended and extended recommendations, which the Council endorses.

The UN Model Regulations for the transport of dangerous goods, widely known as the "Orange Book," establish a basic system for the safe transport of dangerous goods worldwide by all modes. These recommendations have been developed in the light of technical progress, the advent of new substances and materials, the exigencies of modern transport systems and, above all, the requirement to ensure the safety of people, property and the environment. They are addressed to governments and international organizations concerned with the regulation of the transport of dangerous goods. The Model Regulations cover the classification of dangerous goods; their listing; the use, construction, testing and approval of packagings and portable tanks; as well as consignment procedures such as marking, labelling, placarding and documentation. The current edition[40] contains provisions concerning, inter alia, the transport of viscous liquids; gases; polymerizing substances; internal combustion engines or machinery powered by flammable liquids or gases; electric vehicles; lithium batteries and ammonia dispensing systems.

The European Agreement Concerning the International Carriage of Dangerous Goods by Road

The transport of dangerous goods by road was the object of the work of UNECE in Geneva, as from the mid 1950s. This work materialized into the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), opened for signature in 1957, and entered into force in 1968. The Agreement itself is short and simple. The second article is key. It states that apart from some excessively dangerous goods, other dangerous goods may be carried internationally in road vehicles complying with several conditions that are presented as annexes.

The ADR identifies the substances that are considered as dangerous goods and that can be admitted in international transport and establishes the conditions under which they can be carried. These include classification of substances according to their specific type of danger, packing conditions, marking and labelling, placarding, documentation and special requirements for the transport of dangerous good in tanks and in cargo transport units. The ADR also contains requirements

[40] http://www.unece.org/trans/danger/publi/unrec/rev13/13nature_e.html

on transport equipment and transport operations, requirements for vehicle crews, equipment operation and documentation and driver training as well as requirements concerning construction and approval of vehicles.

The Agreement has currently 48 Contracting Parties but its provisions are implemented much broader, including in many developing countries. Some of these are resource rich (oil, gold . . .) and the safe and secure transport of these raw materials or of products used in their processing e.g., cyanides, dynamite . . .) are of utmost importance for their economies, population, and environment. These substances are just a few examples but the list of dangerous goods that are commonly carried by road is much more comprehensive; hence, the need to regulate their handling and carriage and make this area a part of the road transport services reform.

An Agreement alone will not yield results if not properly implemented; the human factor must always be taken into consideration and addressed when considering safety and security. Professionals need to be able to effectively put in place measures aimed at achieving greater competence and thus better safety and security in the transport of dangerous goods by road.

The ADR specifies all training requirements that have to be complied with by the main actors involved in the transport of dangerous goods by road, including the driver. All drivers engaged in the transport of dangerous goods by road shall undertake a training course before being allowed to drive vehicles carrying dangerous goods. Their knowledge of the subject will be proven by an ADR certificate, obtained after successfully completing the course and examination. The ADR certificate allows drivers to carry dangerous goods in either packages or tanks, or in both (provided the driver undertook all relevant training and examination), and is restricted to the UN danger classes for which they have passed the exams. The certificate must be endorsed by an accredited authority.

The ADR also sets the requirements about drivers, as summarized in the key points below:

- Driver training may be offered by training centres which shall be accredited by official authorities;
- Drivers have to go through basic training for a total number of hours set by ADR. They are also required to receive specialized training based on their manner and category of transport;
- Training should be supported with applied practice (fire extinguishing and cargo securing, for instance);
- The certificate is valid for 5 years. Within one year from certificate's expiration, refreshment training should be attended;
- The certificate should be granted only if the attendant is successful in the exam. The most important point about the exam is that the party delivering the training and the party which is in charge with examination shall be separate entities;
- Training centres should have accredited instructors capable of offering this training. They shall also be equipped with the required facilities and instruments (such as books, videos, documents, protective equipment, packaging samples, fire extinguishers, etc.);
- All training should be conducted within the scope of curriculum and training schedules at international standards and approved by the relevant authority; and
- Authorized bodies must supervise the training.

The specific responsibilities of the driver of a vehicle carrying dangerous goods, as defined by the ADR, are:

Driving

- Drive with due regard to statutory regulations and traffic regulations relating to the transport of ADR goods (e.g., speed limits, routing . . .).
- Park the vehicle according to regulations.

Maintenance

- Maintain the vehicle's equipment (fire-fighting equipment, telecommunication equipment, equipment limiting speed . . .) in accordance with general and specific requirements concerning the transport of ADR goods.
- Check that all equipment is on board the vehicle before departure.
- Carry out a daily check on the state of the vehicle.
- Ensure that the vehicle is properly cleaned.

Collection/Delivery

- Recognize the general classification and the characteristics of hazardous goods.
- Recognize correct labelling and marking of parcels, containers and vehicles.
- Recognize typical dangerous goods packaging.
- Identify the danger class to which the products belong.
- Apply regulations concerning the compatibility of transported materials and the incompatibility of batches.
- Ensure that the goods are transported in an appropriate type of vehicle.
- Before commencing loading, check the adequacy between volume available and volumes to be transferred.
- Respect the specific requirements concerning loading and stowage of goods.
- Participate in loading and unloading operations in compliance with existing procedures.
- Select the appropriate means of handling as required.
- Ensure compliance with the appropriate loading instructions.
- React appropriately to specific delivery bans (places, dates and times).

Information/Communication

- Check that all necessary information/communication tools (mobile phone, electronic data base system, etc.) are operational and on board.
- Check that the required documents are on board. (e.g., instructions in writing).
- Check that the transport documents are complete (identification of products, safety requirements).
- In the absence of transport documents, or if these are not complete, obtain information from the appropriate source.
- Place the transport documents so that they are readily available.

Safety/Quality

- Identify the risks of the transport of hazardous goods and safety requirements detailed in written emergency instructions.
- Show ability to follow security regulations and implement emergency procedures.
- Identify safety equipment required for ADR transport.
- Check the availability of individual protective equipment such as clothes and breathing equipment, and that it is adapted to the risks according to the goods transported.
- Respect the safety requirements defined by the shipper, the consignee or the hauler.
- Intervene efficiently and appropriately in case of vehicle breakdown or incident involving the load (for example, help prevent contamination in the case of spillage).
- In the case of accident intervene to protect oneself and surroundings.

ADR is universally recognised as the main reference for the carriage of dangerous goods by road and is therefore used by many countries not only for international transport but acts as a "blueprint" for national laws and legislation on domestic transport. The ADR is open for accession to all UN Member States; the accession has no financial implication (e.g., fee for membership) for countries.

Social Regulations

By nature of their activity, professional drivers of heavy vehicles are often away from their homes and families for a long time, with precarious living conditions (e.g., for rest and hygiene). In exerting their profession, drivers are part of the general traffic and interact with all the other road users, as well as with roadside players. Their welfare is important for themselves but also in view of their responsibility towards the clients and the other road users, which is significant and requires special attention. Many countries in various regions of the world have introduced rules limiting the number of driving hours and imposing rest periods. In countries where such rules do not exist, it is common for drivers to be paid by trip/operation which pushes them to driving excessive hours in order to accomplish the task and get another contract. The European Truck Accident Causation Study[41] investigated 624 serious accidents and found fatigue to be the main overall cause in 6 percent of the cases. Fatigue was found to be the cause of almost 18.6 percent of all crashes involving a single truck (which represents 7.4 percent of all 624 serious crashes). The motivations of these social rules are thus of both social and economic nature: to prevent fatigue and its possible consequences on road safety, to allow drivers to spend time with their families, but also to set an environment that enables fair competition.

The United States of America introduced social legislation, the Hours of Service (HOS) Regulations,[42] since 1938. Currently, most drivers must follow HOS rules if they drive a commercial motor vehicle (CMV). In general, a CMV is a vehicle that is used as part of a business and is involved in interstate commerce and fits any of these descriptions:

- Weighs 10,001 pounds or more;
- Has a gross vehicle weight rating or gross combination weight rating of 10,001 pounds or more;
- Is designed or used to transport 16 or more passengers (including the driver) not for compensation;
- Is designed or used to transport 9 or more passengers (including the driver) for compensation; and
- Is transporting hazardous materials in a quantity requiring placards.

A summary of Hours of Service Regulations is reproduced in Annex 8.

Starting with the 1960s the EU has also tackled the social aspects of road transport. Since then, a comprehensive framework of social rules[43] for road transport of goods and passenger was established, with three main complementary goals:

- to ensure the adequate social protection of road transport workers;
- to guarantee fair competition between undertakings; and
- to improve road safety by averting road fatigue.

An additional objective of those rules is that good working conditions could also contribute to attracting young people to the profession, especially in Europe, where the sector is suffering from a shortage of qualified staff.

[41] IRU: *A scientific study: "ETAC" European Truck Accident Causation* (Geneva, 2007)

[42] http://www.fmcsa.dot.gov/regulations/hours-of-service

[43] http://ec.europa.eu/transport/modes/road/social_provisions/index_en.htm

The main piece of EU law on the subject is Regulation (EC) No 561/2006, which applies to the carriage of goods by vehicles with a total mass exceeding 3.5 tons and to the transport of passengers by vehicles which are adapted for carrying more than nine persons. The main provisions of the regulation are as follows:

Driving time is subject to a number of rules, i.e.:

- the daily driving time should not exceed nine hours. Twice a week, this may be extended to ten hours;
- the weekly driving time shall not exceed 56 hours;
- the total driving time during any two consecutive weeks shall not exceed 90 hours;
- the driver should record as other work on the tachograph any work time during which he is not driving, as well as any time spent driving a vehicle not falling within the scope of this Regulation and the journey time on a ferry or train when he has no access to a bunk or couchette;
- after driving for four and a half hours a driver shall take an uninterrupted break of not less than 45 minutes or of 15 minutes followed by 30 minutes over the same period;
- a driver may have at most three reduced daily rest periods between any two weekly rest periods;
- in any two consecutive weeks a driver may take only one reduced weekly rest period. In this case, the reduction shall be compensated for by an equivalent period of rest taken enbloc before the end of the third week;
- where a driver chooses to do this, daily rest periods and reduced weekly rest periods may be taken in a vehicle, as long as the vehicle is stationary and has suitable sleeping facilities;
- when a driver takes a rest period while the vehicle is transported by ferry or train, that period may be interrupted not more than twice for a maximum of one hour in total. The driver should also have access to a bunk or couchette.
- the maximum weekly working time may not exceed 48 hours but may be extended, in an isolated week, to 60 hours only if over a period of four months, an average of 48 hours a week is not exceeded.

Member States of the EU shall lay down a system of effective, proportionate and nondiscriminatory penalties in order to ensure compliance with the Regulation in their territory. They may:

- impose financial penalties on transport undertakings which have committed infringements;
- immobilise a vehicle if the infringement is of a kind that is liable to endanger road safety;
- compel the driver to take a daily rest period; and
- withdraw, suspend or restrict an undertaking's licence or a driver's driving licence.

The intensification of trade between the EU Member States and other countries in the Eurasian landmass has led to the negotiation, under the auspices of UNECE, of the European Agreement Concerning the Work of Crews of Vehicles Engaged in International Road Transport (AETR).[44] This agreement has been adopted in 1970 and counts 51 contracting parties. An extension of its regional scope may be adopted soon to extend it to four North African countries.

The AETR has the same objectives and its provisions are aligned with the EU rules. In addition to those objectives, AETR contributes to facilitating the movement of goods and passengers by road, between the countries which are parties to the Agreement.

There are various forms of keeping track and monitoring compliance with driving times and rest periods. The most common are the analogue and digital recording devices named tachographs, but logbooks are still used. Drivers have very good knowledge of the social provisions in force in the countries where they drive, as well as on using the recording devices. IRU Academy has developed a comprehensive training program for the use of the recording devices,[45] tailored to the practical needs of road transport companies and their drivers, and preparing them for today's increasingly demanding market and stringent regulations.

ECO-Driving

During the last ten years, the preoccupation for environment protection increased, including in many developing countries. At the level of driver's training big companies are generally training their drivers in ECO-Driving, mainly because of the demonstrated effects of ECO-Driving on:

- financial savings in petrol and fleet costs, e.g., reducing maintenance expenses (tyres, etc.);
- significantly reducing CO_2 emissions and improving fuel efficiency; and
- reducing road risks, accidents and casualties and increasing road safety.

The road transport industry elaborated an ECO-Driving Program[46] that provides a stand-alone one-day ECO-Driving course, incorporating the latest ECO-Driving techniques and best practices combined with the use of driver performance monitoring, done with a monitoring tool, the ECO-Driving Training System (EETS). This program focuses on the development of three essential driving competencies:

- Anticipation: Learning to be a proactive driver;
- Behaviour: Adopting the necessary ECO-Driving behaviour to reach objectives; and

[44] http://www.unece.org/fileadmin/DAM/trans/doc/2010/sc1/ECE-TRANS-SC1-2010-AETR-en.pdf

[45] https://www.iru.org/join-us/iru-academy-courses

[46] https://www.iru.org/join-us/iru-academy-courses

- Practice: Being able to put into practice the ECO-Driving theory.

The ECO-Driving Training System (EETS) enables the objective measurement and analysis of driving behaviour and its impact on fuel consumption and CO_2 emissions among other ECO-Driving indicators and allows for:

- Objective evaluation of the ECO-Driving competence of drivers in any vehicle;
- Reports on the effectiveness of the training course for trainers and trainees;
- Effective customized training sessions to be designed for drivers; and
- Real-time reporting and coaching information for trainers.

Instructors of training institutes willing to obtain accreditation in ECO-Driving will have to undertake a 3-day course (ECO-Driving Train the Trainer) in which they will learn and implement the correct theory and practice of the ECO-Driving driving behaviour and learn and implement the ECO-Driving method in their professional driving environment. This programme is a combination of theoretical classroom sessions supplemented with regular practical ECO-Driving exercises on public roads. This training program is in full compliance with the CPC Driver requirements on initial qualification and periodic training in most European countries.

Path to Reform

The professional driver is a key actor within the road transport sector, and a key contributor to the commercial, financial and economic results of a transport company. Being a professional driver involves a combination of various skills revealing the need for an appropriate legal framework to be developed to organize the conditions under which he will be able to operate. Therefore, the reform of the sector has to address a wide array of important issues such as initial, vocational, on-the-job, periodic and specialized training, including conditions for issuing the driving licenses.

Main Challenges

The tasks and functions of professional drivers have significantly expanded over the years and a driving licence (even through a special category for heavy vehicles) is not sufficient to certify the qualification of a professional driver anymore. This complexity resulted, in some cases (notably in the European developed countries), in a lack of interest in the profession and a consequent shortage of qualified drivers. Therefore, any reform of the road transport sector aimed at developing the sector and improving the quality of road transport services should include the "driver" in its scope, with one main strategic goal: to provide the drivers with high-level skills. This by definition involves the implementation of a training strategy that includes at least provisions for the initial/vocational training in order to obtain the driving licence, and the periodic/continuous training to obtain the certification of their professional competence. If "training" appears to be increasingly fashionable, developing a policy in this field should take into account some crucial elements that may condition the success of the reform.

Changing Mentality

The road transport sector worldwide is mainly composed of individuals or small companies. This type of operator usually considers that if drivers are better trained, they will require a higher pay than the nontrained ones, and for drivers already employed, training comes with a cost that is not affordable in most companies. At a first glance this is true because:

- training is usually not free; it can even have a high cost; and
- the driver who is in a training session is not driving, so is not productive for the company, but in most situations his wage remains due.

This approach of "cost too high, therefore training not worthwhile" should move to the understanding that training is a must as it is an investment in human resources, a process to build capacity that will bring better profitability to the company beyond short-term planning. In addition to that, better trained drivers are a gain for the society as a whole thanks to improved road safety, less congestion and pollution as a positive consequence of eco-driving techniques, for example. Failing to change the mentality would jeopardize the realization of these expected benefits of the reform. Therefore, introducing new training requirements should take this aspect into account and should be accompanied by incentives and ample, focused and convincing communication.

Dealing with Illiteracy

There are still countries in the world where professional drivers are often illiterate, which does not necessarily prevent them from being good professionals. Hence, in designing the reform, the definition of qualification criteria, training requirements and programs should not result in prohibiting this category of professionals to continue working: The training should be adjusted to incorporate elements that would help overcome this constraint, for example by defining special training material, and of course by foreseeing dedicated alphabetization sessions.

Illiteracy should not be overlooked; failing to address this important issue may create discrimination and social tensions that may deprive operators of experienced drivers. The challenge will be to motivate this special category of professionals to accept the change and develop their capabilities to read and write, to improve their professional competence and remain active within the sector.

Explaining the Benefits

In general, change raises fear of the unknown future and of losing the existing privileges (if any, or even if meagre). Part of this challenge will consist in explaining in a convincing manner, and documenting to the extent possible, that training of a driver is indeed an investment that companies will recover by:

- Eliminating or reducing traffic crashes;
- Reducing operation and maintenance costs (fuel, oil consumption, tires . . .) thanks to responsible and eco-driving; and
- Improving service to clients, resulting in more operations/contracts.

These aspects will reduce operating costs (including insurance share) thus contributing to an increased profitability.

Institutional Capacity

The success of the reform is highly dependent on the public authority's ability to implement the reform from the technical point of view, as well as on its capacity to enforce the rules and, when necessary, apply sanctions in cases of noncompliance. Effective enforcement makes the difference between theory and practice, between wishful thinking and reality. Therefore, the institutional aspects that are the most relevant regarding reform related to professional drivers and which should be of concern for public authorities are:

- To ensure that staffing available is sufficient to cope with the implementation of the reform and its enforcement;
- To implement a coherent capacity building program, training the concerned staff to the new regulation content, its control and enforcement component and the foreseen sanctions;
- To ensure that the regulation to be implemented is coherent, consistent and sufficiently based on a proper legal basis, in particular for the sanctions;
- To empower the institutions concerned by clearly defining their roles and responsibilities but also by enabling them from the technical point of view (e.g., up-to-date IT equipment and facilities); and
- To ensure coordination between the various authorities involved in the implementation and enforcement of the reform, and to hold them accountable.

Recommendations

Harmonizing Driving Licences and CPCs

It is never too much repeated that a well trained professional driver is a valuable asset for the company and for society, with effects on profitability, road safety, security or environment protection. In addition to that, today's world is global and characterized by an unprecedented mobility of people, goods, and workforce. Professional qualifications are an essential opportunity for integration, provided they are internationally recognized. For this to happen, the skills must be obtained in similar conditions and their certification must take a harmonized form. For professional drivers this translates into harmonized conditions for obtaining the driving licenses and the CPCs, and harmonized forms of documents, based on international practices, norms and standards that are recognized to be efficient.

(a) The form of the documents

The Convention on Road Traffic[47] (Vienna, 1968) and the Consolidated Resolution on Road Traffic[48] (R.E.1) contain the widest accepted provisions and recommendations concerning the categories and forms of the driving licences (national and international). These are models that may be adopted at subregional and national levels and were recognized as such by several resolutions of the United Nations General Assembly.

(b) Curricula for initial training and for professional competence

In general, national traffic codes set the strategic principles of the training programs for the issuance of driving licences; the detailed curricula are approved through secondary legislation, e.g., orders of ministers or administrative decisions. Comprehensive inspiration in this regard can be found in annexes III to VI of the R.E.1.[49]

Countries engaged in road transport reform may also consider developing requirements aimed at improving the professionalization of the industry through certified drivers' training on specific qualifications. The road transport industry was proactive in elaborating training programs adapted to local conditions and needs. The IRU Academy has developed complex yet applicable curricula for general driver's competence, but also for specific competences like using the recording device (driving and rest hours), transport of dangerous goods, safe loading and cargo securing, crash prevention and eco-driving. These programs are offered to road transport professionals through a global network of IRU Accredited Training Institutes (ATIs). The IRU Academy uses a multilingual content management system to ensure its programme materials are available to a maximum number of members and instructors.

(c) Validity of driving licences and medical checks

Many countries have introduced for professional drivers an obligation of regular medical checks conditioning the validity of the driving licence. According to R.E.1 professional drivers should undergo regular medical

[47] http://www.unece.org/fileadmin/DAM/trans/conventn/Conv_road_traffic_EN.pdf

[48] http://www.unece.org/fileadmin/DAM/trans/main/wp1/wp1fdoc/ECE-TRANS-WP1-123e.pdf

[49] ibid.

BOX 13 IRU Academy Accreditation Procedures

Accreditation requirements are key to quality control, and any training institute wishing to offer IRU Academy training programmes must undergo accreditation for each programme, proving that they meet its requirements. The IRU Academy programs are open to organizations with qualified instructors that are willing and capable of offering internationally recognized high-quality training, such as road transport associations and operators, training institutes, schools and universities.

The accreditation process begins for each programme by applicants making an online application and completing the respective application process. All accreditations share the following requirements:

Training Facilities

- Each training institute must have its own training facilities for theoretical and practical training delivery.
- Each training institute must have qualified IRU Academy certified instructors to cover all programmes.

Professional Training Program

- Each training institute may directly use the IRU Academy programs' content and materials
- Each training institute must design a personalised program meeting national needs and requirements in full reference to the IRU Academy Program.

Involvement with National Authorities

Training institutes shall actively get involved with the national examination bodies to ensure that examination and the training programs are established and delivered in full compliance with national requirements.

Accreditation Process & Certification

The accreditation process begins with an online application. The IRU Academy will accompany the candidate training institute during the accreditation process to help them comply with the requirements. Accreditation is granted when all the requirements are met, at which point the IRU Academy and the training institute will sign an agreement and an accreditation certificate will be granted to the institute, which becomes an Accredited Training Institute (ATI). There are three types of fees that the training institute will have to foresee in order to complete the accreditation process: application fee, annual fee and per student fee. The fees are only meant to cover the administrative expenses, as the IRU Academy is a nonprofit entity.

Accreditation Validity and Re-accreditation

The accreditation will remain valid as long as the training institute fulfils its commitments undertaken by the agreement and can demonstrate its continued capacity to deliver training in the related program. If this is not the case anymore, the IRU Academy may terminate the accreditation and/or ask the institute to undertake re-accreditation. To demonstrate continued capacity to deliver training in the related programme and as a part of the re-accreditation process, the IRU Academy may request that at least one principal program instructor attends a Train the Trainer course before granting the accreditation again.

Source: IRU.

examinations within the period specified in national legislation. This provision can be implemented:

- either through a limited validity of driving licences, for example 5 years for professional drivers up to 60 years old, and one year after, but renewable pending medical testing (as foreseen in the Ivory Coast draft of the revised traffic code);
- or through unlimited validity of the driving licence, conditioned by a compulsory medical check usually every 5 years (as is the case in France).

In any case, such an obligation should be accompanied by measures aimed at empowering medical doctors to proceed with the regular medical checks, including by ensuring a proper coordination (e.g., IT connection) with the administrative authority managing the driving licences and related data bases.

(d) Accreditation of training institutes, training the trainers

The legislation should foresee the conditions under which training institutes and driving schools may obtain their accreditation/authorization/certification. The criteria should cover the conditions for:

- the training institute itself (training techniques, requirements/material for theory, practical and driving techniques, delivery . . .);

- the managers (professional qualification and accreditation); and
- the trainers/instructors (professional qualification).

R.E.1[50] provides basic recommendations of good practices in these areas in its annexes III to V. The IRU Academy has put in place a thorough process of accreditation for training institutions, which could also be used as a model.

(e) Training and certification of special competences

Even if special transports (dangerous goods, perishable foodstuffs . . .) are not typically performed by national road transport operators, these types of transport should still be regulated by national legislations. Regulations should also cover training requirements and qualifications that would be needed for drivers involved in such transports. On the one hand, such requirements would provide an opportunity for voluntary training of professional drivers; on the other hand, the provisions would provide the necessary legal framework to the national enforcement authorities to control foreign driver's qualifications while transiting their country.

(f) Social legislation

Professional driving has some special characteristics that may need to be reflected in adapted rules, for example in the area of social legislation. Working conditions and driving hours are among the most important in drivers' welfare, but also road safety and fair competition are important. The international legal instruments (e.g., AETR Agreement) may be a source of inspiration for driving and rest hours, including control and recording devices. Mostly and above all, this specific social legislation should not be in contradiction with the national labour rules and regulations.

Transition Periods

Introducing new, more complex requirements for the training of professional drivers may be a sensitive endeavour in most countries, in particular because the change will not only apply to future professional drivers but should also encompass the existing professionals. The latter should benefit from specific measures in order not to be excluded from the profession if they don't comply with the qualification requirements. Therefore, it appears essential that reforms relating to professional drivers licences and qualification/competence duly take into account the following key elements:

- Preparation: the part of the reform related to driving licences and professional qualification should only enter into force when:
  - all legal and practical conditions are in place and in particular when training programs are defined, available and publicized;
  - the training schools and institutes are established and capable to deliver the new programs in sufficient number; and
  - the ancillary activities (e.g., medical checks) are organized and functioning.

A good preparation implies that when designing this part of the reform, thorough attention should be paid to the evaluation of the needs in terms of number of persons concerned, in order to determine the required training capacity. On these bases, a budgeting plan should be envisaged at public and private levels to ensure that when the rules will enter into force, all means will be available to implement them. In general, resources for training are scarce on both private and public sides, hence the necessity to consider a gradual entry into force and define the stages.

- Planning: the reform should foresee stages for its implementation, with realistic transitional periods, at the end of which all those concerned would have received adequate training according to the requirements. The total duration until the full implementation of the new rules should not be excessively long, in order not to lose momentum, and should be set with due consideration of the administrative and training capacities. The following steps could represent a feasible approach:
  - For the driving licences for professional drivers:
    - All new rules will apply to all new applicants as from the date of entry into force;
    - For drivers already holding a licence, the medical checks should be organized within 1 year from the entry into force and, from then after, according to the new rules;
    - For the regular/periodical refresher training, all the new drivers should take it according to the new rules, and the existing drivers should be granted a 2- to 3-year period to comply with the requirements; and
    - In case the reform encompasses a new format of the driving license, the transition period should be established according to the capacity of the administration charged with the issuance of the document. However, the period during which several different forms of driving licenses are in use should be limited to a maximum of 4 to 5 years, depending on national specific data (e.g., population, number of drivers, etc).
  - For the professional qualification/competence:
    - All rules will apply to all new applicants as from the date of entry into force; and

[50] http://www.unece.org/fileadmin/DAM/trans/main/wp1/wp1fdoc/ECE-TRANS-WP1-123e.pdf

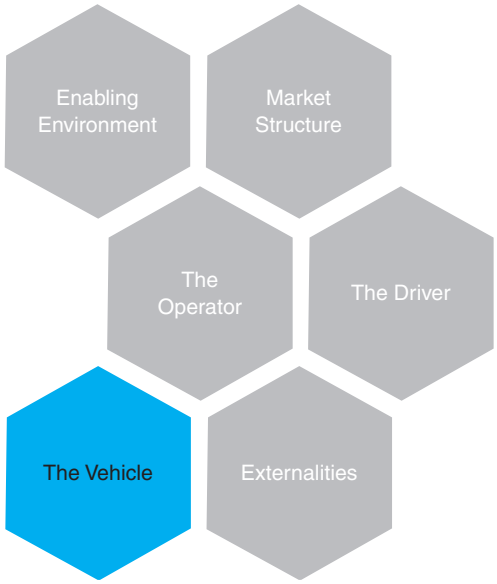
- For professional drivers already employed, a good option for a gradual implementation could be to consider that they comply with the requirements of initial training, as from the entry into force of the new rules. However, they should be requested to follow an initial refresher training during a transitional period of a maximum of 3 to 4 years after the entry into force of the rules, and from then after, according to the new rules.

Accompanying Measures

The investment in training is paid back by reduced fuel consumption, lower maintenance and operating costs, longer life of the vehicle, fewer fines, penalizations from clients and fewer crashes. According to estimations of the Romanian professional association (National Union of Road Haulers) a maximum of 3,200 Euro investment per driver (700 Euro for the course and 1,500–2,500 Euro the four weeks of driver being unproductive) is recovered in 3–12 months. Notably it would take a maximum of one year to recover the investment exclusively by fuel savings. Commonly, for 10,000 km per month, at a consumption of 32 × 100 km × 12 months, the total is 38,400/year. The average savings by a driver trained in eco-driving is 10 percent; at 1.2 Euro/l (with VAT) the total savings amounts to about 3,800 Euro/year. In addition to that, the operator saves from reduced fines (e.g., min. 2,000 Euro/year). The ETAC study cited points out that 85 percent of the crashes involving commercial trucks are caused by the human factor, 5 percent by technical condition of the vehicle, 5 percent by infrastructure and 5 percent by weather conditions.

However, the road transport sector is one of the sectors where regular or continuous high profit is an exception, notably in countries where the industry is less than efficient. Imposing regular training for professional drivers has an economic impact on road transport companies, hence the need to counterbalance this effect on the sector and to motivate transport companies to train their drivers, for example by setting mechanisms for financing the training. Financing the professional training is key to creating a positive acceptance by the transport companies of the training requirements and of the bigger reform. Such a form of support may take various forms. In France for example, a fund is established through a tax on transport companies (1% of the yearly turnover) to finance compulsory training activities. The cost of the compulsory training is borne by the fund which then pays the training cost to the accredited institutions or reimburses the transport company. Other countries like Morocco, have gone even further: the fund, in addition to financing the training courses, is also compensating the company for the wage of the driver and the related charges during his training period.

Such mechanisms are essential in convincing the transport operators that regular training of professional drivers is a key component for better profitability, better environment impact of the sector and increased road safety. They are also instruments that may alleviate the burden on transport operators and make the reform more affordable and therefore more acceptable.



The Vehicle

The vehicle together with the driver and the infrastructure are transport's inextricably linked and interdependent essential components conditioning the performance of road transport services in terms of safety, cleanliness, accessibility and affordability. If one element is underperforming, the other two will not compensate the consequences on the transport service.

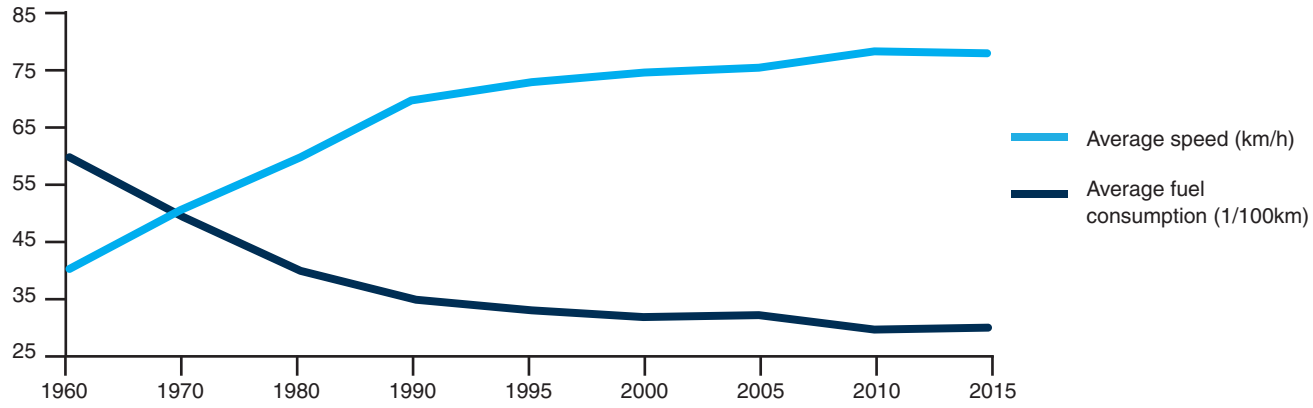
The vehicle is to road transport what the loom and the sewing machine are for the textile industry: an essential production tool. The better the tools, the higher the productivity and quality of the deliverable. In the last 40 years new trucks' average consumption of fuel decreased by 40%, from 50 liters/100 km in the 1970s to 30 liters/100 km in 2008.[51] Technological advancements combined with human skills (eco-driving) even lowered the consumption to 23.29 liters/100 km in 2014.[52] Since 1960 the average speed doubled, and the average consumption dropped dramatically.

However, the potential for good vehicle productivity can be jeopardized by several features related to the vehicles: the fleets are obsolete and the technical inspections are poorly organized and/or enforced. There can also be issues regarding the legislation and the ancillary areas. For example, in many countries it is prohibited to import secondhand

[51] https://www.iru.org/what-we-do/advocacy/environment

[52] http://www.scania.com/media/pressreleases/N14021EN.aspx

FIGURE 7 Evolution of Vehicles' Performances



Source: IRU.

trucks older than a certain number of years (in general 5–8 years) but the importation taxes for new vehicles remain prohibitively high, the conditions for access to financing are difficult to comply with by the vast majority of transport operators, and third-party liability insurance is either not mandatory as a prerequirement for a vehicle's registration or not properly enforced. The causes of these recurrent problems are multiple and complex and the solutions are not always easy to identify and implement.

Many countries have implemented with varying degrees of successful fleet renewal schemes. The reasons for fleet renewal schemes were varied, but mostly to improve road safety, protect the environment and the infrastructure assets, improve efficiency or to encourage purchase of locally manufactured vehicles. The experiences of different countries offer valuable lessons on how to implement such schemes.

Obsolescence of Vehicles and Fleet Renewal Mechanisms

The obsolescence of the fleet of commercial vehicles has a series of dramatic consequences on:

- The quality of transport services, their reliability and predictability;
- The economic and financial viability of operators: high operating cost (increased fuel, oil and tire consumption, repeated breakdowns and costly maintenance and repairs) reduced profit and drastically limited operators' capacity to invest in new vehicles;
- The direct impact of the sector on environment (increased congestion, consumption and emissions); and
- The road safety performance (increased number of accidents caused by the bad condition of the vehicles.

These effects are even more dramatic where the road transport market is disorganized and where operators have difficulties in accessing financing to develop their activities. Therefore, the part of the reform covering the vehicle should encompass a wide array of aspects: technical characteristics, norms and standards, technical inspections and control of compliance, as well as issues related to fleet renewal. This part of the reform is essential and needs to be addressed in a thorough manner, as it requires a comprehensive legal framework including fiscal and enforcement dimensions. A holistic, multidisciplinary and multi-sectoral approach would produce positive results including better road safety, protection of environment, health and infrastructure assets, and improvement of the quality of transport services. Broader effects may materialize in the development of local manufacturers (vehicles or spare parts).

The design of the reform should be based on detailed preliminary assessment of the existing situation, resources available, and economic, financial and social projections. The implementation of the reform should be done in a coordinated manner, aiming to ensure a sustainable modernization of the road transport sector and a maximization of the utilization of the (new) vehicles.

The condition of vehicle fleets can be improved by a somewhat artificial process of keeping their average age constant through restrictions on importing used vehicles, or by real fleet renewal programs. The latter may be envisaged as incentives within a global reform of the sector and may combine and incorporate various mechanisms addressing financial, fiscal, or other types of measures.

Restriction on Importing Used Vehicles

A study [53] focusing on the deregulation of U.S.-Mexico trade in used cars and trucks following the North American Free Trade Agreement (NAFTA) examines the environmental consequences of international trade in used vehicles. The authors document that international trade between rich and

[53] International Trade in Used Vehicles: The Environmental Consequences of NAFTA, Lucas W. Davis, UC Berkeley and NBER, Matthew E. Kahn, UCLA and NBER, January 2010.

poor countries has acted as a substitute for an explicit "cash for clunkers" program. Differences in operating costs and willingness to pay for quality imply that used vehicles will tend to be traded from high-income countries to low-income countries. The study mentions several examples of high-income countries exporting used vehicles to lower-income trading partners.

In August 2005, Mexico issued a decree allowing 10–15 year-old vehicles to be imported from the United States and Canada. Virtually overnight, a vigorous trade flow emerged and the study documents that between 2005 and 2008 over 2.5 million used vehicles were exported from the United States to Mexico. The authors show that traded vehicles were higher-emitting per mile than the stock of vehicles in the United States, but lower-emitting per mile than the stock of vehicles in Mexico. As a result, when a vehicle was sold, average vehicle emissions per mile tended to decrease in both countries. In March 2008, Mexico reinstated trade restrictions for all 11–15 year-old vehicles. Thus, after the change the only used vehicles that could be imported were vehicles that were exactly 10 years old. At the same time, the government increased the import tax on used vehicles entering Mexico from 3% to 15%. This return to trade restrictions was a political response to pressure from the Mexican Association of Automobile Distributors faced with decreased sales of new vehicles and who argued vigorously for trade restrictions. The media reported that this policy change caused a surge in prices for vehicles that were exactly 10 years old. In 2008 dealers in South Texas offered $500–$800 premiums for 1998 model vehicles.

In 2004 it was reported that Japan was exporting one million used vehicles annually to over 100 different countries all over Asia, Africa, and the Middle East. South Korea exported over 220,000 used cars and trucks in 2007 mainly to Vietnam and Russia, and the same year (2007) media reported that used car imports from the United Kingdom to Ireland hit 50,000 a year. Another prominent example of a vehicle importing country was Peru, where, according to 2005 data, over 80% of the vehicles in circulation were imported as used vehicles from the United States and Japan.

In Europe, after political changes took place at the beginning of 1990s and most of the trade restrictions were eliminated, the used vehicles were traded eastwards from high-income countries to lower-income countries in "waves": as the vehicles depreciated, they were traded to lower-income countries that could accept and pay for lower quality. This also coincided with stricter environmental standards taking time to be adopted and enforced in the respective lower-income new democracies.

Trade in used vehicles is often regulated on trade and environmental grounds. In general, the prohibition of used vehicles is formally justified by the fear that a country can become a junkyard for used vehicles in poor condition, with all the consequent risks for safety, efficiency and environmental protection. It is also common for countries that manufacture or assemble vehicles to encourage exports in order to drive local consumption,[54] although admitting it openly remains rather exceptional. Most countries have put in place certain restrictions[55] on new and used vehicles brought into a country based on age, technology (e.g., diesel vehicles), and emissions. These often go hand in hand with economic instruments such as subsidies (for example, rebates or buyback programs), taxes and tariffs (for example, vehicle registration fees, road user charges and various other taxes).

Examples of Regulations Restricting Import of Used Vehicles

The **Andean** Community Automotive Policy bans imports from other countries of used cars, trucks, and buses, as well as new vehicles from previous years. It also bans trade in these vehicles among the member nations.[56] In addition, **Bolivia** prohibits the importation of cars over five years old, diesel vehicles with engines smaller than 4,000 cubic centimeters, and all vehicles that use liquefied petroleum gas. **Argentina** prohibits import of used cars

Costa Rica allows the importation of used vehicles but imposes a high tax, up to 54 percent of the assessed value of the car, depending upon the age of the vehicle. Taxes on imported products are calculated on a cumulative basis and generally include: a) ad valorem tax or duty—applied against CIF (cost, insurance & freight) value-duty rates currently range from one to 10 percent for motor vehicle parts; b) consumption tax—applied against total cumulative sum of CIF value, plus the ad valorem tax; tax rates currently range from zero to 25 percent for motor vehicle parts; c) Law 6946 tax—applied against CIF value, currently one percent for all products; and, d) sales tax—currently 13 percent for all products, applied against total cumulative sum of CIF value, plus any ad valorem tax, plus the consumption tax, plus Law 6946 tax.

In **Chile** the importation of used vehicles is prohibited though imports of certain vehicles are allowed such as used ambulances, funeral hearse cars, fire-fighting vehicles, street cleaning vehicles, irrigation vehicles, towing vehicles, television projection equipment vehicles, armored commercial vehicles, workshop vehicles, cement making trucks, prison vans, radiological equipment vehicles, motor homes, off-road transportation vehicles, and other similar vehicles for special purposes, different from common transportation vehicles. There is a 9 percent import duty plus VAT on such vehicles. A vehicle is considered new if:

[54] Pelletiere, Danilo, and Kenneth A. Reinart. 2002. "The Political Economy of Used Automobile Protection in Latin America." World Economy, 25(7): 1019–1023, found that the most significant factor determining protection against used vehicles is the presence of domestic automobile production.

[55] Pelletiere, Danilo, and Kenneth A. Reinart. 2004. "Used Automobile Protection and Trade: Gravity and Ordered Probit Analysis." Empirical Economics, 29(4): 737–751, found that among 132 countries for which data are available, 74 have some kind of restrictions on used vehicle imports.

[56] Bolivia, Colombia, Ecuador, Peru.

1) It is of the current year; or the model is of the previous year but the importation occurred before April 30th, and 2) the vehicle has no more mileage than that required to transport the vehicle from the factory to the point of sale and according to customs it corresponds to a first transaction vehicle (i.e., the invoice is from the distributor or the factory). Special laws allow a tax exemption for new/used car imports by persons returning from exile or returning after living abroad (for one complete year or more) for studies or work after a determined number of years.

In **Jordan**, the importation of personal vehicles older than 10 years and that of trucks older than 3 years is prohibited while the importation of used vehicles is allowed in the **United Arab Emirates** provided that the vehicle is in conformity with the State standards and its steering wheel was not modified. Vehicles that have been subject to accidents such as drowning, fire, collision, rollover, etc., as well as vehicles used as a taxicab or by police are not allowed to be imported.

In **Turkey** the importation of remanufactured/rebuilt/used/reconditioned vehicles is prohibited. For new vehicles, only the current year or the following year models are allowed to be imported. The Turkish import regime also prohibits importation of remanufactured/rebuilt/used/reconditioned vehicle parts—they can only be imported to be used as iron scrap in the iron and steel production.

Upon pressure from local industry, **Pakistan** introduced in 2013 an age restriction (not older than 5 years) on import of used commercial vehicles. Media[57] reports suggest that this measure pushed up sale of locally produced trucks by approximately 35 percent. However, the importation of some used vehicles for a special purpose, such as concrete mixers, remains allowed.

From the cases described above it appears that there are four main options as regards to importation of used vehicles:

- prohibiting the importation of all used vehicles;
- allowing the importation of used vehicles younger than a certain age;
- allowing the importation of used vehicles which satisfy technical conditions related to emissions or safety; and
- allowing the importation of all used vehicles.

The criteria applied for the importation of used vehicles bring once again into debate the "qualitative" versus the "quantitative" conditions for admission. With the progress of manufacturing technologies and the global improvement of road infrastructure and fuel quality, topped with regular technical inspections and proper maintenance, the average life span of vehicles is considerably longer than three or four decades ago. This makes the age of the vehicle irrelevant: there is no guarantee that a "young" vehicle (less than 5 years age) which served on bad roads or was carelessly driven, maintained and managed would perform better than an "old" (10+ years) established brand vehicle, operated on good roads, going through regular technical inspections and regularly maintained with original spare parts by qualified professionals. Figure 8 illustrates the dramatic decrease in emissions in the EU as a consequence of the technological developments and introduction of Euro standards.

In countries with emerging markets and unstructured road transport industry, small road transport operators struggle to secure financing for the replacement of their obsolete and inefficient fleets. In many cases, even new vehicles domestically produced remain unaffordable to these operators. Together with other factors (lack of training, etc.) these keep their potential locked. In such cases, allowing the importation of used vehicles in good technical condition (certified formally) may prove to be a good option, contributing to the creation of the enabling environment for the provision of safe, clean and affordable transport services. In order to mitigate potentially adverse effects, the governments of countries where vehicles are manufactured or assembled, might also strive not to affect the interests of their domestic industry when designing the importation rules.

For obvious safety, efficiency and environment related reasons, conditions should be imposed whereby the importation of "clunkers" remains prohibited irrespective of their technical or age condition. This category includes, for example, damaged, salvaged, badly dented vehicles as well as vehicles previously used for police or taxi services.

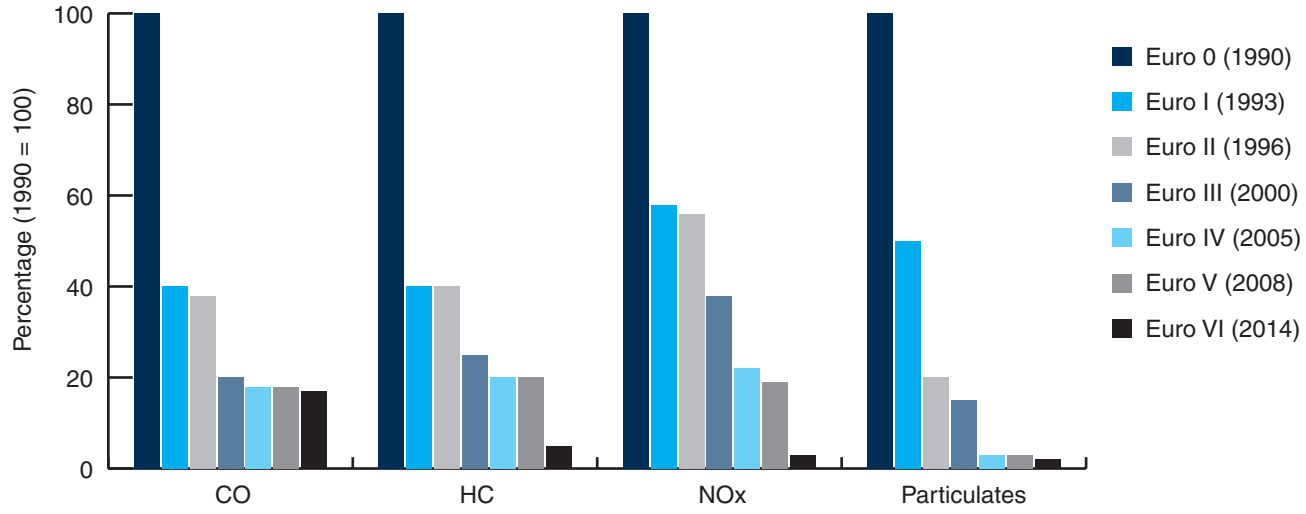
Adopting one policy or another must be preceded by careful economic and social consideration of all the benefits and disadvantages, and due consideration must be given to the design and implementation of mitigating measures; for example, where affordable personal mobility is impeded by restricted import policies, public transit alternatives must be planned and made available.

Examples of Economic and Fiscal Instruments

Many countries in the world have implemented vehicle replacement programs in forms that depended on various factors: development priorities, level of income, if the country is manufacturing vehicles, situation of sectors that are ancillary to transport (banking and insurance), etc. As a rule the programs were designed to encourage consumers to trade in (and scrap, in many cases) their old, inefficient vehicles, in exchange for more efficient ones. With few notable exceptions, the programs were adopted in 2009, amid the major economic crisis, and set to last for a limited period of time, with two major objectives: to encourage vehicle purchase and thus stimulate economic growth, and to protect the environment. In Turkey, the scrapping scheme was placed under the road safety improvement priority. In general, the scrapping and buyback programs covered

[57] Dawn, June 22nd, 2014.

FIGURE 8 Evolution of Commercial Vehicle Emission Standards in the EU



Source: IRU.

private cars while the subsidized fleet renewal schemes covered commercial vehicles (trucks and buses).

The "Feebates" Approach[58]

"Feebates" result from a FEE on inefficient technology and a reBATE on efficient vehicles. They are a fiscal policy for encouraging car buyers to prefer more efficient, lower emission vehicles and for manufacturers to design them. The key words of this policy are "benchmark" and "rate." A "benchmark" defines who pays and who receives benefits by setting a level of fuel economy or emissions (e.g., in gCO_2/km). A "rate" determines the marginal costs and benefits (usually priced in cost per g/CO_2). Depending on the choice of benchmark, feebates can produce revenue, be revenue neutral or be a net subsidy to cleaner, fuel efficient car purchases.

The International Council on Clean Transportation (ICCT) has published a document on Best Practices for Feebate Program Design and Implementation.[59] According to the ICCT, the important elements of a best practice program are:

- A continuous and linear feebate rate line, without any breaks or discontinuities;
- The benchmark set to make the system self-funding and sustainable, and periodically adjusted to compensate for changing conditions;
- A linear metric, such as CO_2 emissions or fuel consumption per unit of distance; and
- An attribute adjustment (if one is used) based on vehicle size, not any other metric.

When developed and implemented correctly, feebate programs can support the adoption of clean fuel and vehicle technologies. Some successful schemes are summarized in Table 7 below.

Registration Fees

This tax is an important source of government revenue and can be used to promote low carbon, fuel efficient vehicles if designed properly. In addition, a periodic, in-use fee may be levied based on CO_2 emissions and fuel consumption. Registration taxes/fees are usually levied upon first registration of the vehicle. Table 9 presents examples of different vehicle tax regimes.

Scrapping Schemes and Buyback Programs

Scrapping schemes and buyback programs have been designed and put in place to accelerate the retirement of older transport means; in general, they are motivated by safety, environmental, efficiency or economic reasons. These programs have been more or less successful in various countries in the world, depending on the legislation and the accompanying measures.

Buybacks provide incentives, monetary or of a different nature to the owners of the transport mean to voluntarily scrap their older, often more polluting vehicles. Incentives may be provided directly to the owner, may take the form of tax benefits, or may be paid directly to the vendor of the newer transport mean.

In general, governments are providing the incentives but there are also cases where private sector and local

[58] A detailed presentation of feebates by Professor David L. Greene, University of Tennessee, is available at http://www.unep.org/transport/gfei/autotool/approaches/economic_instruments/Greene_ORNL_Feebates.pdf

[59] http://www.unep.org/transport/gfei/autotool/approaches/economic_instruments/ICCT_feebate_may10.pdf

TABLE 7 Examples of Successful Feebate Schemes

Country	Scheme
Austria	There is a fuel consumption tax that is levied on the purchase price (net) or commercial leasing fee of certain categories of vehicles. For example, the formula for passenger cars (including mini-buses, caravans) and combination cars is 2% × fuel consumption in liters/100km minus 3 l, respectively minus 2 l for diesel vehicles; the fuel consumption tax must not exceed 16% of the invoice price. Additionally, a bonus-malus system is included to account for emissions of CO_2 (and NO_x and PM).
Belgium	Different schemes apply based on the region. In the Walloon region, a CO_2 based bonus-malus is added to the standard registration tax (based on fiscal horsepower). The benchmark is set at 81–145 g/km and the bonus varies between €500 and 3,500, while the malus varies between €100 and 2,500.
Chile	There is a Feebate system with a benchmark of 175 grams of CO_2 per kilometer, and it is estimated that the incentive and disincentive system will imply a 5% reduction of CO_2 emissions from the total national vehicle fleet in 2014, obtaining a total CO_2 reduction of 2.15 million tons during the next 5 years. A Chilean Auto Fuel Economy Label was developed for the national market and adopted in April 2013.
Denmark	There is a tax based on vehicle purchase price, a CO_2 based correction is applied based on km/l. For petrol-powered cars the registration tax is reduced at DKK 4,000 for every km that the car covers more than 16 km/liter fuel (equivalent to 145 g CO_2/km). For diesel-powered cars the registration tax is reduced at DKK 4,000 for every km that the car covers more than 18 km/liter fuel (equivalent to 147.2 g CO_2/km). For petrol-powered cars the registration tax is raised with DKK 1,000 for every km that the car covers less than 16 km/liter fuel. For diesel-powered cars the registration tax is raised with DKK 1,000 for every kilometer that the car covers less than 18 km/liter fuel.
France	The bonus-malus program, part of the comprehensive environmental framework, was roughly equivalent to €150/tCO_2. In 2009 it paid buyers of cars emitting a maximum of 160 grams of carbon dioxide per km a bonus ranging from €200 to 5,000 depending on emissions levels. In 2010, the maximum limit for eligibility went down to 125 grams per km, and the bonuses were reduced. France's bonus-malus had an immediate effect (as shown in Table 8 below), lowering the average emissions of cars sold by 5.4 g/km, entirely due to car buyers choosing lower emission vehicles. Due to the high level of integration between countries in the EU, the purchase of new cars was also possible in Ireland, where Irish customers that purchased new French cars could benefit by a grant from both the French and Irish Governments.
Israel	A "green" car tax reform came into effect in August 2009. It provides incentives for buyers of low-polluting vehicles. Purchase tax rate on a vehicle is directly linked to emission levels. There are 15 groups of vehicles, with the first representing the cleanest vehicle group and the 15th the most polluting. The tax benefit is granted after applying the new standard purchase tax rate of 83 percent. The benefit ranges from NIS 15,000 (US$3,900) for relatively clean vehicles, to zero for the most polluting group.
Japan	5% consumption tax on vehicles plus an annual automobile tax, which increases by engine size, ranging from 29,500 to 111,000 yen. An additional 10% tax is levied on vehicles used for 13 years (11 years for diesel vehicles) or longer. This tax is 5% of the purchase price for private cars and 3% for commercial and mini-vehicles. Japan also levies tonnage tax according to vehicle weight at each vehicle inspection. The tonnage tax for passenger cars is 5,000 yen per year for each 0.5 ton of gross vehicle weight. Incentives were granted until April 30, 2012, for eco-friendly cars such as 100 percent cut, 75 percent cut or 50 percent cut. A heavier tax is levied on vehicles used for 18 years or longer (for example 6,300 yen per 0.5 ton for private passenger cars).

Source: Authors.

TABLE 8 Effects of Bonus-Malus Scheme in France

Emissions of CO_2 9g/lmkm)	Bonus (–) or Malus (+) per Vehicle (€)	New Registrations 2007	New Registrations 2008	Percent Change 2008/2007
< 60	–5,000	0	0	0%
61 to 100	–1,000	352	1,657	+371%
101 to 120	–700	412,598	721,235	+75%
121 to 130	–200	215,010	194,143	–10%
131 to 160	0	936,139	846,030	–10%
161 to 165	+200	66,415	41,161	–38%
166 to 200	+750	305,296	184,202	–40%
202 to 250	+1,600	95,416	46,614	–51%
>250	+2,600	33,317	15,241	–54%
TOTAL		2,064,543	2,050,283	–1%

Source: Own estimates.

administrations contribute thereto. Buyback policies were introduced on a large scale in the 1990s in several European countries, including France, Spain, Italy, Hungary, Norway, Denmark, and Greece, as well as several US states and Canada.

In **Romania** the "Program for stimulating the fleet renewal,"[60] better known nationally as the "Ramshackle" Program, is a government program supported by funding from the Ministry of Environment, aiming to eliminate old vehicles from traffic and to replace them with newer, less polluting ones. It covers cars and light trucks and was first introduced in 2005; initially it did not impose emission norms for the vehicle to be bought. To be eligible for scrapping, the car must be older than 10 years (for public institutions' vehicles this is 5 years) and they must be in working condition, containing the essential elements: engine, chassis, body, etc. Both individuals and legal persons (NGOs, public institutions, commercial companies, etc.) owning old vehicles can be eligible for the scheme. Legal persons must comply with several requirements, for example fulfilling the obligations toward the State or local budgets and the Environmental Fund, no recorded acting against financial and customs legislation, not being in insolvency proceedings or liquidation or bankruptcy, and not sponsoring activities with negative environmental effects. Applicants who received State aids above a specific ceiling during the three years preceding the application for scrapping premium are not eligible. The mode of operation of the program consists of granting a discount on the price of a new vehicle, irrespective of brand or make, bought from authorized manufacturers or dealers, if the buyer proves that the old car was scrapped at an authorized center.

In the frame of the most recent version of the program (2014), the "ramshackle" owner receives from the scrapping center a proof of destruction (certificate) and a voucher for the premium, which represents the equivalent in lei of maximum €1,500 (6,500 lei). A maximum of two eco-bonuses of €120 (500 lei) each can be added for the purchase of new hybrid or Euro 6 (the cleanest fuel) vehicles. The voucher and eco-bonus can be used to obtain the corresponding discount when the new car is purchased. Within its validity period, the voucher is transferable between individuals, but not the eco-bonus. Legal persons cannot buy vouchers; they must scrap their own old vehicles. A person can purchase one or more new vehicles through this scrapping program, including in leasing, provided that the value of the discount for each of them does not exceed three scrapping premiums. These details (original price, discount) must be included in the invoice issued by the manufacturer or dealer. Since its implementation, the number of vehicles under the program increased from 14,607 cars traded in 2005 to 32,327 in 2010.

The buyback "Accelerated Vehicle Retirement" program implemented in **Germany** from January to September 2009 has been one of the largest so far, with an impact of €5billion on the German budget. The scheme was similar to most similar programs: every owner of a 9+ years old car, registered in his name for at least one year, was entitled for a scrapping premium of €750 to maximum €2,500 when buying a new car complying with Euro 4 pollution norms. Only individuals were eligible for the premium but the new

[60] http://www.afm.ro/

TABLE 9 Examples of Vehicle Tax Regimes

Country	Regime
Portugal	A Vehicle Registration Tax (ISV) is based on cylinder capacity and CO_2 emissions. In addition, an Ownership tax (Annual Circulation Tax—IUC) is also applied: • for passenger cars registered between 1981–July 2007, based on cylinder capacity and CO_2 emissions and age • for passenger cars registered since July 2007, based on cylinder capacity and CO_2 emissions • for commercial vehicles, based on weight, axles and type of suspension Vehicle Registration Tax is also subject to VAT (i.e.: car's base price + ISV + VAT). A reduced rate of 10 to 50 percent may be applied depending on a range of aspects such as weight, usage of LPG fueled vehicles, hybrid vehicles and motor homes. Imported used vehicles must pay ISV; however, when imported from a European Union country, a reduced rate ranging between 20 and 55 percent may be applied based on age. The reduced rate is applied to the total amount of tax to be paid. Electric vehicles are exempted from ISV and IUC.
Norway	A taxation system for all vehicles was introduced in 1996 "engangsavgift" where registration tax was based 50% on weight, 30% on engine displacement, and 20% on power (stroke volume) of the vehicle. This tax system therefore placed a higher burden on larger vehicles and vehicles with larger engine sizes. In 2007, CO_2 emissions replaced stroke volume and since then the CO_2 variable gains more momentum in the tax equation every year, favoring smaller cars and engines and penalizing heavy cars with large engines. Automobiles using CFC air-conditioning equipment cannot be imported into Norway. Electric cars are not subject to any tax at all, can drive in commuting lanes, park and charge batteries for free, and drive through toll stations without paying.
Netherlands	Part of the registration tax is based on purchase price, the rest on CO_2 emissions. A special regime is in place for low emission vehicles. For gasoline vehicles with emissions of no more than 102g/km, the tax rate is 0 (also the part related to net list price). For diesel vehicles with emissions below 70g/km, the same holds. Diesel vehicles with emissions higher than 70 but not higher than 91g/km only pay the CO_2 part of the tax, at a rate of €40.68/(g/km over 70g/km). Diesel cars with Euro 6 engines benefit from a rebate on the BPM of €1,000 and €500 in 2012 and 2013 respectively. Zero-emission vehicles, including electric vehicles, are exempt from the tax.
Finland	A vehicle registration tax is calculated based on a formula which takes into account the CO_2 emissions, by adding 0.122 percent for every g/km exceeding 60 g/km to 4.88 percent. In practice, the minimum tax is 12.2 percent and the maximum 48.8 percent.
Romania	First introduced a ban on the importation of used vehicles older than 8 years in the mid-nineties. The measure was also meant to encourage local consumption, as the country was manufacturing vehicles under a national brand. However, capacity of enforcement was also weak and the ban could be circumvented. In 2007, after the accession of the country to the EU, a tax was adopted on first-time registration, calculated based on vehicle's engine size and age—the bigger and older the car, the higher the tax. The tax was used for "green" programs such as a "cash-for-clunkers" programs, reforestations and improving the energy efficiency of buildings. The measure later re-adjusted such that the older the vehicle, the smaller the amount paid. The rationale was that the older the car the lesser the number of years left to pollute.

Source: Authors.

BOX 14 Gradual but Comprehensive Reform in Turkey[61]

The example of Turkey is relevant for conducting in a gradual manner a comprehensive reform of road transport services. In the context of a steady economic growth and an intense international trade, Turkey had to harmonize its laws and practices with those of their major trade partner, the EU.

To this end, the authorities introduced at the beginning of the year 2000 criteria for market access and access to the profession, as well as a mandatory certification of professional competence (CPC) for professional drivers, and medium and high level managers operating in road transport sector. These created a well-established, professional and influential road transport industry. In order to get an operating license, the transport operator must pay a fee, based on the business plan and the type of license required; part of the fee is earmarked by the Ministry of Transport for a "Scrapping Fund."

Turkey is a vehicle manufacturer and road safety is a declared top priority of the Government, therefore the country is prohibiting the importation of used vehicles. In addition, in 2009 it was decided that for road safety purposes, there will be a gradual withdrawal of old motor vehicles from traffic and the market, without an obligation to buy a new vehicle. In a first stage, this program concerned vehicles older than 30 years (trucks with permissible maximum weights of more than 3,500 kg and buses with more than 16 seats including the driver). The owners of vehicles were paid a small compensation through the "Scrapping Fund" established by the Ministry of Transport. The program was the result of a thorough inter-sectoral analysis and design, which took into account, for example, that in the majority of cases, 30+ years vehicles are immobilized and ownership tax (and maybe late payment fee, fine, penalty) has not been paid for a number of years. As an incentive, the owners of such vehicles would be exempted from paying the amounts owed to the authority in charge with revenue collection.

It was planned that eventually 160,000 vehicles older than 30 years would be removed from the domestic market in the first phase. In the first year after the adoption of the measure, roughly 23,500 vehicles were scrapped. The positive start of the program led the Turkish authorities to envisage a second phase, during which another 200,000 old vehicles would be scrapped.

In parallel, in order to optimize the investments in infrastructure and in improving the road transport services, in 2007, Turkey signed a Public Service Concession Agreement for 20 years for the construction and operation of state-of-the-art vehicle inspection stations with a leading international group. As a result, in the first year after the agreement was signed, due to the high quality inspections with modern equipment, 36 percent of the vehicles inspected were rejected because they did not comply with the norms and were sent to repair shops. Two years after the agreement was signed there were 189 fixed and 78 mobile inspection stations operating in 81 cities throughout the country.

The next step taken by Turkey was to establish a program for the creation of a Weight and Dimension Control Station (WDC) network with high technology equipment. A comprehensive investment plan has been prepared for increasing the number of control stations up to 160 by 2020. All these WDC Stations will be located on the international axes and intense traffic arteries mainly used by heavy-good vehicles.

Source: Authors.

car could also be bought from another person/company, provided it had not been registered with them for more than 14 months. The program was designed to cover a maximum of 600,000 cars and a budget of €1.5b, but immediately after its start the car sales increased dramatically (40% higher in March 2009 compared to March 2008), making the government decide to continue the scheme at least until the end of 2009. According to literature,[62] especially small and upper small car segments seem to have profited from the program as they made up 84% of the newly registered cars during the program. One specific aspect of the German program is that it only required the owners of "scrappable" vehicles to retire them from circulation and take them to the junkyards, as opposed to the Canadian, Romanian or US schemes, which provided the reward based on a proof of destruction. This allowed wrongdoings and German authorities discovered an illegal scheme through which, according to the media,[63] an estimated 50,000 scrapped vehicles have been exported to Africa and Eastern Europe.

In the **United States of America**, the Car Allowance Rebate System (CARS) also known as the "Cash for Clunkers" was a stimulus program whose purpose was "to shift expenditures by households, businesses, and

[61] http://www.unece.org/trans/main/sc1/sc1rep.html

[62] "Pull-forward effects in the German car scrappage scheme: a time series approach," Veit Böckers, Ulrich Heimeshoff and Andrea Müller, Düsseldorf Institute for Competition Economics, June 2012.

[63] http://content.time.com/time/world/article/0,8599,1915250,00.html

governments from the future to the present."[64] The program foresaw rebates/discounts of $3,500–$4,500 given to buyers of new cars, with the trade-in of an older, less efficient vehicle that met certain criteria. Eligible vehicle types included automobiles (passenger cars), category 1 trucks (sports utility vehicles, small trucks, and minivans weighing less than 6,000 pounds), category 2 trucks (vans and pickup trucks weighing between 6,001 and 10,000 pounds), and category 3 trucks (large vans and trucks weighing between 10,001 and 14,000 pounds). The amount of the rebate was transferred to the selling car dealer on the buyer's behalf if (i) the traded in car had been registered and in use for at least a year, and had a federal combined city/highway fuel-economy rating of 18 or fewer miles per gallon (mpg); and (ii) the purchase was of a new car, priced at maximum $45,000 and rated at least 4 mpg better than the old one (for a $3,500 voucher). If the new car was rated at least 10 mpg better, the buyer got the $4,500 voucher. In practice, when the owner brought a "clunker" into a dealership to trade in, the dealer gave him a voucher worth either $3,500 or $4,500 to be applied toward the purchase (or long-term lease) of a new vehicle. The dealer then disabled the engine of the trade-in vehicle by running a sodium silicate solution through the engine, causing its permanent destruction. The dealer sent the disabled vehicle to either a salvage auction or to a disposal facility. The dealer had to prove that the vehicle was successfully destroyed to the National Motor Vehicle Title Information System (NMVTIS) in order to be reimbursed for the $3,500 or $4,500 voucher by the National Highway Transportation Safety Administration (NHTSA), the administrator of the program. The program spanned over a little more than one month and its cost for the Federal Government was $3 billion. The DOT reported that the program resulted in 690,114 dealer transactions and that the average fuel efficiency of trade-ins was 15.8 mpg, compared to 24.9 mpg for the new cars purchased to replace them, translating to a 58% fuel efficiency improvement. According to studies,[65] 84 percent of the vehicles traded in were category 1 trucks (sports utility vehicles, small trucks, and minivans weighing less than 6,000 pounds) and 59 percent of the vehicles purchased were passenger cars.

The program was considered in general a success; however, with some shortcomings. Studies[66] show that the CARS program led to a slight improvement in fuel economy and some reduction in carbon emissions. However, the program resulted in a reduction of carbon dioxide emissions of only 8.58 to 28.28 million tons and the cost per ton of carbon dioxide ($91 to $301) reduced, because the program was higher than what would be achieved through a more cost-effective policy such as a carbon tax or cap-and-trade, but was comparable (or indeed lower) to what was achieved through some of the less cost-effective environmental policies, such as the tax subsidy for electric vehicles or the tax credit for ethanol.

The recycling part of the program was also criticized for its lack of incentives, in the sense that shredding was preferred to recycling. The Automotive Recyclers Association (ARA)[67] issued a report when the CARS program was announced saying that encouraging recycled parts usage would make the program more efficient. According to the ARA, still-functioning engines are the most valuable part of a scrapped car, as the engine is the most expensive in terms of energy and resources to manufacture, so car companies reap both an environmental and cost benefit from being able to recycle engine parts. But this was prohibited under the CARS program—the engine had to be destructed. The ARA claims that for each ton of metal recovered by a shredding facility, roughly 500 pounds of shredder residue are produced, meaning about 3 to 4.5 million tons of shredder residues is sent to landfills every year. This shredder residue typically consists of a mix of materials including polyurethane foams, polymers, metal oxides, glass and dirt. The Environmental Magazine states that recycling just the plastic and metal alone from the CARS scraps would have saved 24 million barrels of oil.

Many other countries implemented scrapping schemes in 2009–2010, following similar models as shown in Table 10 below. The value of the premium and the age of the vehicles eligible for scrapping were very similar. The conditions imposed to the new car are slightly different between countries: some are based on internationally recognized pollution norms, others on CO_2 emissions or on price.

Most scrapping and buyback programs are popular wherever implemented. However, most tend to be for private cars rather than commercial vehicles. Although literature evaluating scrapping schemes is rather rich, a full assessment of the pros and cons of scrapping schemes, including all the dominant effects and their determinants in an advanced way, has not been done yet. The balance of costs and benefits from these programs are neither straightforward nor easy to determine. All schemes had rather large costs and each scheme had weaknesses and strengths; their success depended on multiple factors: implementing arrangements, magnitude of the program, sustainability. On the positive side, it seems obvious that there are environmental improvements. According to research[68] the most favorable cost-effectiveness scores of scrapping schemes occur in large densely populated

[64] http://www.whitehouse.gov/assets/documents/CEA_Cash_for_Clunkers_Report_FINAL.pdf, September 2009.

[65] Ted Gayer and Emily Parker, "Cash for Clunkers: An Evaluation of the Car Allowance Rebate System," October 31, 2013, Brookings Institute.

[66] Ted Gayer and Emily Parker, "The Car Allowance Rebate System: Evaluation and Lessons for the Future," October 31, 2013, Brookings Institute.

[67] Environmental Magazine, http://www.emagazine.com/blog/the-cash-for-clunkers-conundrum

[68] Bert Van Wee, Gerard De Jong & Hans Nijland (2011). Accelerating Car Scrappage: A Review of Research into the Environmental Impacts, Transport Reviews: A Transnational Transdisciplinary Journal, 31:5, 549–569.

TABLE 10 Characteristics of Scrapping Programs for Selected Countries

Country	Incentive	Age or Other Requirement for the Vehicle Scrapped	Environment or Other Requirements for New Car	Government Cost/Restrictions
Austria	€1,500	13+ years	Euro 4	Max. 30,000 cars
China	$450 to $2,600 (plus $450 to $1,100 from the Shanghai local government for their residents)	Old vehicles that no longer meet the government emissions standards		
Italy	€1,500 (scrapping), which can be combined with • €1,500 purchase incentive for a new car running on CNG, electricity or hydrogen (increased to €3,000 if it emits exactly 120 g/km and to €3,500 if it emits less than 120 g/km) • €1,500 purchase incentive for new car running on LPG, increased to €2,000 if the car emits less than 120 g/km.		Euro 4 +, maximum CO_2 emissions 130 g/km (diesel) or 140 g/km (other fuels)	
Ireland (first scheme introduced early in the 1990s)	€1,500 (in 2009), €1,250 (in 2010) to be used as discount on the new Vehicle Registration Tax	10+ years	Emissions that do not exceed 140g/km	
Japan	Up to $2,500, plus a tax break on gasoline-electric hybrid vehicles and other low emission cars and trucks	13+ years	Environmentally friendly, fuel-efficient cars, according to criteria established by the government	$3.7 billion
Luxembourg	€1,500 to €2,500	10+ years	CO_2 < 150 g/km (€1,500) or CO_2 < 120 g/km (€2,500)	
Slovakia	€2,000 (originally €2,500)	10+ years	Price less than €25,000	
Portugal	€1,000 (10+ years) and €1,500 (15+ years)	10+ years 15+ years	CO_2 < 140 g/km	
United Kingdom	£2,000 (£1,000 funded by the government and £1,000 funded by the automobile industry	10+ years		£300 million (initially)

Source: Authors from various sources including Car Fleet Renewal Schemes: Environmental and Safety Impacts, OECD/ITF 2011.

areas, and only (or mainly) if cars with old (or no) emissions control technologies are scrapped in order to prevent further recirculation of vehicles or selling to developing countries, as well as avoiding the importation of old cars for the sole purpose of benefitting from the schemes. Typical measures to avoid such behavior include imposing a minimum time requirement that the vehicle should be registered in a state or country, a valid (safety or maintenance) inspection, the stipulation that the vehicle be driven to the scrapyard under its own power, or other technical requirements. Besides, an OECD/ITF assessment[69] of the USA, Germany and France schemes also concluded, among others, that for the monetized benefits in terms of CO_2, NO_x or safety to exceed the costs associated with vehicle replacement, scheme design should ensure that larger and older "dirty" vehicles are traded in for lighter, cleaner ones equipped to higher safety standards. If anything else is allowed by the scheme, then CO_2, NO_x and safety benefits are eroded. The schemes should ideally target older vehicles that are still being driven. In Europe, for example, this means covering pre-1992 cars that predate Euro standards and Euro-1 cars produced from 1992 to 1996.

Fleet Renewal Programs

In the majority of countries where a reform of road transport services is needed, the trucks used to carry goods both for commercial purposes and for own account are in general old and in poor technical condition, hence presenting a low economic potential and a high risk for road safety and environment. In "do-nothing" scenarios, the condition of these trucks worsens, the repairs' cost increases and so are Vehicle Operating Costs (VOC) and the environmental and safety risks. Furthermore the transport offer drops, the operators focus exclusively on selected segments of the business, and compensate their losses by increasing transport tariffs. The solution is complex and does not entail just replacing the vehicles, because a new vehicle driven on bad roads by a bad driver will quickly take transport operations back to the starting point: inefficiency and nuisance.

The number of schemes aimed at supporting the private sector (road transport operators) to acquire trucks for commercial transport is smaller in number and value than those for private cars. In general, in countries where such schemes are needed the most, the ancillary sectors such as banking and insurance are neither well established nor well functioning. The market is dominated by small road transport operators, informal, who are not organized in any form of professional associations. Accounting books and liability deriving from formal transport contracts between the carrier and the client are quasi-inexistent, and there is little predictability of revenues. Consequently, small transport operators represent higher risk customers for banks and other financial institutions because of weak or no guarantees for reimbursement in case of possible default on their debt. Furthermore, banks would require that the truck bought with a long-term credit is insured against all risks, which represents an additional cost for the borrower. In the absence of bank loans, many operators buy vehicles with funds from outside the banking circuit: own funds, family contribution, or supplier financing. These create a vicious circle, because for a small amount invested the only affordable vehicle would be a cheap, most likely used one, in a questionable condition.

Fleet renewal programs should thus be one of the core elements of reform as they may represent excellent incentive mechanisms that would help in creating acceptance and ownership of the reform by the profession. From the various schemes implemented, it appears that fleet renewal programs are a combination of various measures of different natures such as:

- Fiscal incentives;
- Direct financial assistance;
- Facilitated access to credit; and
- Control and enforcement.

Several countries in West Africa implemented (or consider doing so) complex fleet renewal schemes. In the majority of the countries, the main reasons for the programs are to ensure compliance with the regional weight standards and to improve road safety performance. Some of the most relevant examples are described hereafter.

In **Ivory Coast**, discussions started in 2008 to create a framework of measures to facilitate fleet renewal in the country. In 2009, the Government established by decree a special organ, the Fund for the Development of Road Transport (Fonds de Développement du Transport Routier, FDTR), as a subsidiary body of the Ministry of Transport. This body was initially in charge of providing the required sureties towards banks and financial institutions for operators willing to renew their fleet. In 2014, in reaction to the absence of results, it was decided to change the legal status of the FDTR into a public establishment with commercial and industrial character.

Under this new status the FDTR's Managing Council is composed of representatives from key ministries, the professional body representing the road transport and representatives from organizations of vehicles traders. The Council's objective is to facilitate the FDTR's role in providing financial assistance to the transport operators who are willing to invest in renewing their fleet. It is based on a Public/Private Partnership involving Banks and financial institutions, vehicles traders and state bodies. The official goal that was announced in 2014 was to allow the financing of 300,000 vehicles (new or used less than 5 years old) until 2020 with a global budget of 150 billion of FCFA (nearly 260 million USD).

So far, the FDTR is setting up its internal procedures and eligibility criteria; however, it has not yet come up with concrete proposals for facilitating the financing of vehicles. Eligibility criteria applicable to operators, old vehicles to be replaced and new vehicles to be financed are yet to be defined, and scrapping methods and policies have to be adopted.

[69] Car Fleet Renewal Schemes: Environmental and Safety Impacts, OECD/ITF 2011.

BOX 15 Fleet Renewal in Morocco

In **Morocco**, the Government took a holistic approach in reforming the road transport industry that started with the adoption of a comprehensive law[70] which entered into force in 2003. In the frame of the reform, fleet renewal schemes were defined and adjusted every two years to take into account new developments. The first[71] stage has been implemented between 2006 and 2008 and was basically a buyback scheme. The old vehicles candidates for scrapping were eligible if they (i) were 15+ years old, (ii) were in working condition for at least 3 months without interruption in the 12 months preceding the request for scrapping, and (iii) they belonged to the owner before the starting date of the program. The scrapping premium was set between MAD 45,000 and 85,000 (approx. $4,950–9,350) per vehicle, an amount that the owner was obliged to use for purchasing a new vehicle. This first stage of the scheme was not a success, because the transport operators found the premium too low.

The program continued in 2008–2010 with increased premiums between MAD 90,000 and 130,000 (approx. $9,900–14,300) per vehicle, and additional requirements to effectively and completely scrap the old vehicle and to purchase a new vehicle equipped with all the safety features required by the regulations in force and a maximum permissible laden weight of 15+ tons. This program also allowed transport operators to use premiums for the purchase of articulated vehicles (tractor plus [semi]trailer) or of trailers specialized for the transport of containers, which had to comply with international standards in force.

In 2010 the Government and the private sector signed a programmatic contract for the development of the logistics competitiveness for the period 2010–2015, one component being the regulation and the modernization of the road transport of goods. In this framework, the fleet renewal program continued in 2011–2013 under the objective of improving road safety and transport operations' efficiency and it covered the fleet for commercial transport and for the rural public transport of passengers—trucks and buses respectively. The scheme was implemented by the Ministry of Transport, which allocated a maximum annual amount of MAD 170 million (approx. $19 million) from the State budget. The earmarked budget was mainly fed by 50 percent of the fines for violations of transport laws and regulations (including speed-driving) and the value of the material from scrapped vehicles.

The program was adopted under the objective of improving road safety and transport operations' efficiency and it covered the fleet for commercial transport and for the rural public transport of passengers—trucks and buses respectively.

Eligible owners of old vehicles had to be formally registered as transport operators, certified by (i) being recorded in a special professional register (for the goods transport), or (ii) be in possession of a rural transportation agreement[72] (for the passengers transport). The old vehicles candidates for scrapping were eligible if they (i) were 15+ years old, (ii) were in working condition for at least 3 months without interruption in the 12 months preceding the request for scrapping, and (iii) they belonged to the owner before the starting date of the program. In case of legal persons established after that date, the vehicle had to have been owned by one of the associates in the company prior to the beginning of the program.

Eligible transport operators were entitled to a benefit of the premium for the purchase of a new vehicle if:

- the old vehicles have been entrusted to a designated body for effective scrapping and elimination from traffic;
- the new vehicles were equipped with all the safety features required by the regulations in force;
- the new truck had a maximum permissible laden weight of 15+ tons; and
- the new bus corresponded to a very specific category (defined by law), had 15 places and was less than 2 years old (from the first registration).

For the commercial transport of goods, the buyer of one new truck was allowed to cumulate the premiums for two old trucks scrapped.

The amount of the premium for scrapped vehicles was established, based on their age and maximum permissible laden weight. The premium varied between MAD 90,000 and 155,000 (approx. $10,100–17,500) for a truck and between MAD 70,000 and 110,000 (approx. $7,900–12,400) for a bus. During 2008–2013 the program allowed the purchase of 1,374 vehicles (387 tractors and 987 [semi]trailers); the average age of the fleet went down from 14 to 12.45 years.

The program continued in 2014–2016 with new adaptations to the development of the market and industry. For the first time the premium was differentiated between "scrapping" and "renewal," meaning that the owner of the old

[70] http://www.mmmaroc.com/Infospratique/loitransports.pdf?OpenElement

[71] Loi de finance pour l'année budgétaire 2011, Bulletin officiel N°5904 bis at http://www.leconomiste.com/sites/default/files/loi_de_finances_2011.pdf

[72] "agrément de transport en milieu rural"

vehicles would not be obliged anymore to use the scrapping premium for the purchase of a new vehicle. Within the existing budget, renewal premiums were given priority. In addition, for the transport of goods, the law allowed the use of three scrapping premiums for the purchase of one new truck, which also reflected a consideration of balancing the transport capacity with the demand.

An estimation made by the private sector[73] shows that in addition to invaluable gains from reducing emissions, replacing a 10+ years old vehicle with a Euro 4 standard one would result in annual savings of 15,000 liters of fuel per truck, or 150,000 liters for the depreciation period (10 years) or 1.29 million MAD (approx. $142,000[74]) saved per truck. In case of a 7 years depreciation period the amount of fuel saved would still be 105,000 liters or 859,950 MAD (approx. $94,600). The number of vehicles that need to be replaced was estimated to be 36,000; this means that the new vehicles will save 540 million liters annually or 5,400 liters for a 10 years depreciation or 3780 liters for 7 years respectively. These savings amount to 30–44 billion MAD (approx. $3.3–4.8 billion), in addition to 7–10 times less emissions.

Source: Authors based on http://www.mmmaroc.com/Infospratique/loitransports.pdf?OpenElement, Loi de finance pour l'année budgétaire 2011, Bulletin officiel N°5904 bis at http://www.leconomiste.com/sites/default/files/loi_de_finances_2011.pdf, Transport Federation-General Confederation of Employers in Morocco (FT CGEM) on www.lavieeco.com of February 8, 2013.

Within a global approach aimed at modernizing the road transport of goods, the government of **Burkina Faso** realized that the obsolete fleet of commercial vehicles would be an obstacle to achieve the expected results. It therefore started in 2011 by adopting a general measure of exemption of import taxes and duties and of VAT on new or used vehicles. The program was placed under the leadership of the Ministry of Transport; more specifically, the program was administered and managed by a Piloting Interministerial Committee composed of representatives of ministries involved, of the drivers' organizations and of the road transport federations and associations. The Committee is in charge of examining the applicants' files and verifying the eligibility criteria for the companies and the vehicles.

The objective of the governmental program is to allow the sector to acquire 400 heavy vehicles (articulated vehicles) and 200 vehicles for the transport of oil products. The eligible vehicles are new vehicles less than 6 months old with a mileage less than 6,000 Km, and used vehicles less than 5 years old. All of them must comply with the UEMOA rules; the rolling gross weight should be comprised between 28 and 51 tons. For controlled temperature vehicles and tanks for petrol transport, the maximum rolling gross weight is extended to 59 tons. The vehicles acquired within the program cannot be sold before 7 years of use within the benefiting company; if they are sold before that end date, the VAT and import taxes and duties become due. As of 2015, the Committee handled more than 600 files leading to import authorizations up to around 700 vehicles (300 vehicles for general cargo and 400 for petrol transport).

[73] Transport Federation-General Confederation of Employers in Morocco (FT CGEM) on www.lavieeco.com of February 8, 2013.

[74] All conversions of MAD are as per the exchange rate of November 2014.

Technical Standards for Vehicles

All vehicles degrade in service; moreover, inadequate maintenance increases the number of defective vehicles in use, which has adverse effects on efficiency, safety and the environment. The legislation should set the minimum standards that must be complied with in order for the vehicle to be admitted into traffic, and should introduce the obligation of regular technical inspections. These are paramount for improving safety and environment protection and for optimizing the investments in fleet renewal schemes by increasing the productivity of the vehicle (no idling because of technical reasons). However, no matter how comprehensive the legislation is, it plays no role without proper enforcement, which requires solid institutional capacity. Technical inspection of vehicles, together with training of the vehicle crew play also an important role in the access to international markets: the higher the level of harmonization with international best practices, the lesser the list of reasons for exclusion from markets.

For modern vehicles equipped with advanced systems that assist the driver, the need for roadworthiness enforcement is greater than ever because road safety and environmental protection are now more reliant on the correct functioning of technologies. Failure of these technologies results in the loss of the benefits they provide.

The UNECE is a source of good practices in land transport, which are applicable irrespective of geographical location and level of development of the countries. In the area of technical inspections, the Convention on Road Traffic (Vienna, 1968) establishes the principle that vehicles of more than 3,500 kg used for the carriage of goods and their trailers are subject to mandatory technical inspections. The 1971 European Agreement supplementing the Convention goes further, establishing rules to be observed in respect of noise and pollutant emissions and imposing the issue of an international technical inspection

certificate. The Agreement concerning the Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of Such Inspections[75] (1997) defines uniform conditions on Periodical Technical Inspections (PTIs) of wheeled vehicles that it will suffice for these vehicles to fulfil in order to be certified in their countries. All these legal instruments provide a good and solid basis that countries may wish to follow irrespective of their status with regard to these agreements.

The national legislation on technical inspections should address the following minimum conditions and areas:

- A National Authority should be set up and equipped to handle the technical inspection of vehicles, while the inspections themselves may be carried out by designated entities or bodies;
- Vehicles dedicated to the professional transport of goods including those involved in own account transport should be required to undergo a technical inspection one year after admission to traffic and every year thereafter in order to ascertain that they satisfy statutory requirements, particularly in regard to the basic road traffic safety and environmental protection regulations;
- A weight threshold limit could be set for the purpose of the regulation. It may be recommended to apply the above obligation to vehicles with permissible maximum mass above 3,500 kg;
- The intervals referred to above may be reduced to six months for vehicles requiring more rigorous testing, such as those used for public transport and vehicles carrying dangerous goods;
- Vehicles subject to change of ownership may be subject to technical inspection in addition to the intervals mentioned above;
- Moreover, vehicles which have been seriously damaged in accidents should be submitted to a technical inspection with stricter checks before they are allowed into traffic again;
- During random roadside checks, it should also be ascertained that the vehicles comply with the mandatory periodic technical inspections; and
- Sanctions and fines may be foreseen by law in case of noncompliance, including an obligation to repair and the possible immobilization of noncompliant vehicles.

As far as vehicle registration is concerned, the legislation should foresee that the compliance with the technical standards is mandatory for admission into traffic.

Annex 1 to the Consolidated Resolution on Road Traffic[76] (RE1) contains a list of items that should be included in a periodic vehicle inspection. It also identifies the vehicle system or component to be inspected, gives the method of inspection and provides information on the criteria to be used to determine whether the vehicle's condition is acceptable.

In many countries, technical inspections of vehicles are generally ineffective in ensuring minimum levels of roadworthiness. The standards are often impossible to achieve without enormous repair costs on many vehicles. The lack of suitable testing equipment can also constrain the scope of the inspections. In practice, the inspectors may even lower the standards so that most vehicles can pass the test. Establishing effective administrative controls over the inspection standards and code of conduct is extremely difficult. Unless the government takes action, administrative control becomes even more difficult and the basis for passing the inspection becomes extremely arbitrary, with enormous scope for corruption. Enforcement efforts generally become seriously undermined.

Path to Reform

The obsolescence of the fleet is an endemic obstacle to the modernization of the road transport sector, but renewing the fleet should not be an isolated objective of the reform. Experience has demonstrated, e.g., in Ivory Coast, that establishing a fleet renewal program without creating primarily the enabling environment to improve the overall functioning and economic condition of the sector, leads to insignificant (if any at all) results. First, there is no justification of a program that facilitates the financing of new trucks if the operators cannot afford to reimburse their loans. Second, there is no progress if the vehicle is new, but the driver is unprofessional, or the manager has no skills to run the business and the vehicle is often idle. Third, facilitating the investment in new or used but better vehicles would make little sense if the old vehicles are not taken out of the market. Finally, in general a fleet renewal program entails, at least at its beginning, important impacts on the state budget, either directly in case of financial assistance (subsidies) or indirectly through budget loss due to the exemption of tax.

Therefore, if the reform envisages a fleet renewal program, it is important to include it from the very outset in the framework of the global modernization policy. The program should be designed realistically, based on an assessment of needs and capacities to satisfy them, and with due consideration of the ways to ensure a program's sustainability. Such a program could also be ambitious and aim to become a viable economic model in the medium or long term, in the sense of being entirely financed from sources other than public budget.

Just like any reform element, the success of such a program depends on clarity, transparency, proper governance

[75] http://www.unece.org/fileadmin/DAM/trans/main/wp29/wp29wgs/wp29gen/1997agr/conf4efr.pdf

[76] http://www.unece.org/fileadmin/DAM/trans/main/wp1/wp1fdoc/ECE-TRANS-WP1-123e.pdf

and monitoring, and prompt sanction of deviations, irregularities or abuses.

Recommendations

Fleet renewal programs are attractive for transport operators, but in order to produce positive effects such programs should be designed after thorough evaluation of the realities of the sector and its capabilities to become sustainable. In countries where the sector is already well established and functioning, the operators have reached a level of development that gives them reasonably easy access to financing (credit, loan, lease, etc.). In these countries, the fleet renewal may be encouraged through "feebates," registration fees, or scrapping schemes without direct public budget intervention (subsidy, tax exemption, etc.).

In countries where the road transport sector needs major and complex reform in order to fulfil its role in ensuring mobility and connectivity, the renewal of the fleet may be envisaged as an incentive for change acceptance, a reform accompanying measure.

The overarching goal of fleet renewal programs should be to achieve a rejuvenation of the fleet on a step-by-step, sustainable basis. As such, and depending on the needs and on the local financial market, a fleet renewal program may be composed of a variety of coordinated measures.

Administration of the Program

The fleet renewal program should be clearly defined, and should be managed in a professional and transparent manner. As the fleet renewal would be one component of the road transport sector modernization or reform, it would make sense to place its management under the Ministry of Transport. A Management Committee composed of representatives of other ministries concerned, notably the ministry in charge of Finance, Economy and Budget, could administer the program. The Committee should also involve representatives of the road transport sector, as the main category concerned by the program. They could be specifically involved in issues concerning the eligibility of candidates applying for fleet renewal, notably on aspects like honorability or professional competence.

The Management Committee would be tasked at the initial stage to:

- Propose the setting up of the program on the basis of the Policy adopted, including the financial mechanisms and sources;
- Propose the eligibility criteria for the companies, the old vehicles to be renewed and the new vehicles to be financed, and the sanctions to be imposed when beneficiaries are not respecting their obligations under the program; and
- Propose the internal management procedures of the program.

Once the program is defined, the Management Committee would be in charge of:

- Implementing the rules defined;
- Checking that the eligibility criteria are met;
- Assisting eligible candidates to prepare their application file;
- Monitoring the implementation of the program;
- Monitoring permanently the compliance of the beneficiaries with their assumed obligations;
- Applying sanctions in case of noncompliance by the beneficiaries; and
- Monitoring the elimination from the market of old vehicles eligible to the program (scrapping scheme).

In addition, the Management Committee could be responsible for the management of the funds that will be allocated to the program.

Creation of a Dedicated Fund

The creation of a fund dedicated to facilitating the financing of the new vehicles is essential in countries where the operators are not in a position to obtain and reimburse credits or loans. In such circumstances, public financing may be envisaged to either provide direct financial assistance to operators eligible to the program, or serve as a guarantee for the loans contracted by operators through the program. The fund can be established on the basis of:

- Public allocation through the budget;
- Financial contribution from development partners; and
- Contribution by the financial institutions (banks, insurance companies . . .).

Another possibility to "feed" such a fund would be by establishing a tax/levy/fee based on companies' turnover, or on products or activities such as transport insurance products, financial services, selling of vehicles, etc. However, such a solution could only be envisaged in countries where the road transport sector would be able to support this additional fiscal burden.

The management of the fund may be placed under the responsibility of the Management Committee, which would carry on this task according to state or donors' financial standards.

Defining Eligibility Criteria for Operators

In order for the program to be successful, and in particular to ensure that it addresses the needs of the majority of operators while it constitutes an incentive to formalize and better organize the sector, defining the eligibility criteria for the operators is an important element of the program. To use the program as an incentive it may be useful to direct its benefits to:

- Commercial/public/for hire and reward transport companies (not the own account operators, because transport is not their main activity);
- Companies duly registered as transport operators and operating under a legal commercial status and formal operators;
- Companies that maintain accounting records which can be audited and are at least deposited (in the sense of being safe kept);
- Companies effectively active on the road transport market for a certain period of time to be defined according to local circumstances (1 to 2 years minimum); and
- Companies operating vehicles owned and exclusively used by the company.

As an incentive for individuals or natural persons to mutualize their business and operating means through commercial groupings or cooperatives, the benefit of the fleet renewal program may be extended to such groupings under the conditions that the old vehicles belong to one of the members of the grouping and respects the eligibility criteria, and that the new vehicle will be used exclusively within the grouping or cooperative.

Defining Eligibility Criteria for the Old Vehicles

The eligibility criteria for the old vehicles to be replaced is key to the program as they may underpin its credibility. The most common criteria used in other parts of the world where such programs were successful include:

- to be old. A step-by-step approach may be recommended by fixing first an age limit which would be half of the average age of the fleet. This age limit could be diminished after initial results have proven a reduction of the average age of the fleet;
- to be owned by the applicant company, to hold a registration certificate and a technical inspection certificate proving that it is still authorized for traffic; and
- to be effectively used within the company (documented with copies of transport documents referring to the registration number of the vehicle concerned).

In addition, to be credible and to avoid that the old vehicles remain on the market, the program should foresee a compulsory and automatic destruction of the old vehicle that will be replaced. The program may allow recycling of individual spare parts, provided these are clearly stipulated in the regulations establishing the fleet renewal program.

Defining Eligibility Criteria for the New Vehicles

The program should state from the outset that a simple purchase of new vehicles is out of the program's scope. The facilities of the program shall only apply on the basis of an old-for-new exchange. The program should define the criteria that are essential for achieving the objectives of the strategic reform: safe, clean, and efficient transport (with its consequence, the affordability). Such criteria could be related to age and technical parameters, for example:

- to be new or used but with an upper limit of age, e.g., 5 years maximum; in this latter case, the vehicle should also correspond to safety and pollution norms;
- to be purchased (renting or leasing is not possible) and used exclusively by the company; and
- to remain within the company for a minimum given period (5 or 7 years), and if vehicles are sold before, advantages obtained should be reimbursed (VAT, import duties and taxes, incentive . . .).

Beyond these essential criteria, it may be wise to allow the eligible operators to select additional technical characteristics of the vehicle they would purchase, to correspond to their activities and operating conditions.

Eliminating the Old Vehicles from the Roads

Within the overall policy on fleet renewal, a mandatory scrapping scheme would be important for eliminating the old vehicles from the roads. Depending on the actual situation of the country concerned, this may even be taken as an isolated measure aimed at contributing to environmental and road safety improvements. When it is part of a global road transport modernization or strategic reform, scrapping schemes may be complementary tools to be used in connection to other mechanisms. Irrespective of the goal, the efficiency of the scrapping schemes will depend on the control measures and enforcement capabilities of the authority in charge of this part of the program. In particular, the program may be set in such a way that as soon as an old vehicle becomes eligible under the program:

- The beneficiary immediately hands over the registration certificate, technical inspection certificate, special authorization (dangerous goods, transport licenses, etc.);
- The vehicle is sent to a dedicated station aimed at scrapping the vehicle;
- The scrapping is attested by a certificate given to the authority in charge; and
- Proper information is immediately transmitted to the register of the vehicle, road transport authority attributing transport licenses or authorizations, and insurance companies.

Sanctions should be foreseen and strictly enforced in case of non-respect of obligations concerning the usage or recycling of registration documents, or usage of vehicles covered by the program.

Incentive Measures

In addition to an adapted scrapping scheme, additional incentives, mainly of a fiscal nature, could be granted. For example, the program may foresee exemptions of import taxes, duties, or VAT on new or used vehicles under a certain age limit (depending on the fleet and market situation). These exemptions may be extended to spare parts to be used for maintenance or repairs of eligible vehicles.

The program should include provisions by which, in case of noncompliance by the eligible company to its obligations within the program, the exempted amounts (VAT and import taxes and duties) become due.

Financial Component of the Program

Notwithstanding the fiscal advantages, operators in many developing countries engaging a road transport reform will be confronted with difficulties or even the impossibility of access to credit institutions and obtaining loans, simply because they are not financially credible. In many of these countries, the operator has no direct contact with the shipper (because of intermediaries) and is not in a position to negotiate global contracts. Hence, the operator is not in a position to establish credible account books and to mobilize important guarantee amounts to the banks.

In such a context, the program should encompass at least the following:

- The fund established for fleet renewal purpose could be partly used to serve as a guarantee/surety for the banks granting a loan within the program; this way the company would not be forced to mobilize this amount, which they may need for their current operations. In addition, this would not increase the fix operating costs of the company and would not reduce further the commercial margin;
- The reimbursement period could be extended up to 5 years (it is often limited to 3 years) to decrease the monthly amount to be reimbursed, thus contributing to preserve a commercial margin; and
- The participating banks may grant special interest rates compensated by an obligation to eligible companies to domicile their accounts in the given bank.

Regulation of Vehicles Imported

As part of the overall program, it may be appropriate to adopt a regulation limiting the import of used vehicles, in order to avoid a parallel market to emerge and ruin the benefits of the fleet renewal program. The regulation could forbid the import of used vehicles above a certain age limit. The limit should be as low as realistically possible but should be based on the actual situation of the existing fleet and more importantly on the capabilities of the road transport companies to finance their purchase.

Enforcement Capabilities

As is the case for all reform components, the enforcement capabilities are key for the success of the fleet renewal program. Part of the program and of its financing should be dedicated to this crucial aspect. The Management Committee of the fleet renewal program or any authority in charge of the project will need to be allocated with sufficient:

- Human resources, trained and meeting the job description criteria to be established;
- Financial resources to cover their operating costs engaged for fulfilling the mission;
- Technical equipment in particular offices and IT; and
- Delegated authority to manage the program without external interference (e.g., political pressure).

Synthesis of Fleet Renewal Experiences

Based on a report[77] financed by the EU, some conclusions can be drawn on the advantages and inconveniences identified in the various components of fleet renewal schemes developed in various countries.

(a) Exemption of taxes and duties

Experience of Mauritania (2009), Mali (2004) and Burkina Faso (1998–2012)

Strengths	Weaknesses
Decrease of the vehicles costs/prices	Decrease of state budgetary income
Easy to implement through the finance law (national budget)	Limited duration of the program (1 to 5 years)
	May contribute to developing own account transport if it is not excluded from the program, to the detriment of public transport

(b) Grant loans with reduced interest rates

Experiences in Senegal (2003–2008) and Burkina Faso (2013)

Strengths	Weaknesses
Reduced interest rate compared to normal market conditions	Not easy to finance
Facilitate the modernization of the profession and its formalization	Limited available amounts (grants, loans or subsidies)
	Short-term loans (5 to 7 years and often less)
	Requires some organizational capabilities

[77] Louis Berger, Mise en place d'un dispositif opérationnel de renouvellement du parc de véhicules de transport public au Niger, rapport final, Juin 2013, dans le cadre de l'Appui institutionnel du programme routier du 10éme FED.

(c) Scrapping schemes
Experience in Morocco

Strengths	Weaknesses
Contribute to reduce the purchase price of the new vehicles	Cost for the state budget Short duration of the program (3 to 5 years) Needs implementing and enforcement capacities

(d) Leasing
Experiences in Mauritania (1998) and Senegal (2003)

Strengths	Weaknesses
Reduced need for capital Easy to realize (if financial institutions are practicing this method) Does not affect the credit possibilities of the company for other needs Brings some fiscal advantages Does not affect the immobilization part of the accounts	Leasing costs are usually higher than standard bank loans The transport company does not own the vehicles and cannot use them as assets when demonstrating its financial credibility

(e) Road Transport Development Funds
Experiences in Senegal (1997), Ivory Coast (2009 and 2012, without significant results yet) and Mali (1996)

Strengths	Weaknesses
Facilitate the provision of guarantees to the participating financial institutions on behalf of the transport companies Contribute to the professionalization of the stakeholders as it may cover more than the simple renewal of the fleet. Long-term measure	Affects the state budget Requires organizational capacities Must be attractive compared to standard financing mechanisms

Source: Authors.

Technical Inspections

Under these conditions, the options for government to improve roadworthiness are limited. If strict enforcement of the standards is practically impossible and if the government does not wish to abandon the inspections completely, then steps can be taken to define more clearly the essential minimum requirements for passing the inspections. This is the approach adopted by many countries.

For example, in the Philippines an attempt was made during the 1980 to distinguish between 'musts' and 'needs'. The 'musts' were the standards that all vehicles must reach to pass the test, while the 'needs' were the standards which should ideally be achieved for safe operation. This approach offered the potential advantage that basic minimum standards could be set for all vehicles, while owners could receive advice to make their vehicles more roadworthy. However, initially these attempts failed because they were only introduced for taxis and school buses and the vehicle owners objected to being discriminated against. This suggests that an appropriate approach to be recommended could be:

- To introduce step-by-step increasingly higher standards of inspections;
- To inform sufficiently before implementation on the new standards so as to give vehicle owners time to adjust to the future higher standards;
- To define clearly the new standards in order to encourage compliance and reduce scope for corruption;
- To generalize the new standards to all vehicles concerned without exceptions, starting initially with purely advisory inspections as an incentive to comply;
- To define inspection charges on realistic estimate of the real costs, so that the necessary equipment can be obtained; and
- To define parallel programs of roadside spot checks, widely advertised in the media as part of a road safety campaign, in order to monitor the effectiveness of the approach.

Consideration could also be given to delegating the vehicle inspection process to a private company based on a concession of public service. Such an approach is adopted in some African and European countries but requires close monitoring by government to ensure that the inspections are carried out in the proper manner.

Setting and Implementing Vehicle Size and Weight Regulations

Overloading of trucks is often regarded as one of the most serious problems in road transport because of the economic consequences on the road transport market as well as the damages to infrastructure and associated maintenance costs incurred. Opinions are divided about how to deal with this important issue. Often the solution is envisaged only under the angle of implementing strict controls and sanctions on drivers and transport companies. This approach may have

immediate results but ignores the causes of these practices and endangers the sustainability of the sector. Another approach should be to sanction the shippers/consignors who may even be (in some cases) the primary beneficiaries of overloading practices. For example, in Burundi often newspapers publish tenders for the carriage of beer or soft drinks that specify that the truck should be able to carry 75–90 tons of cargo on the domestic network, while this is conceived to carry much less than that (53 tons on the main roads).

The call for stricter enforcement is common to all instances where this issue is discussed. However, there is an increasingly embraced view that enforcement is virtually impossible because of institutional constraints, for example, enforcement officers do not apply the rules because there are substantial material advantages for them if conniving with truck operators to elude the law.

Attempts to counter these incentives with stricter supervision or monitoring systems have not proven effective, so there is increasing interest in changing the nature of the incentives by placing responsibility for road maintenance at a local level, coupled with appropriate incentives to keep the roads in good condition at a minimum cost.

Some possible solutions to improve the enforcement of road vehicle size and weight regulations are presented hereafter.

Ensure That the Size and Weight Regulations Are Based on Economic Criteria

It is rather common for the maximum axle load and gross vehicle load limits to be much lower than the optimum. Strict enforcement would not allow efficient use of road transport vehicles and impose substantial additional transport costs. In practice, everyone ignores the regulations except when enforcement officers want favors from the truckers. This fails to check even extreme overloading and undermines enforcement efforts generally.

(a) Make the regulations clear to road users and enforcement officers

In many cases, the rules are not clear. The road administration may have its own design standards while vehicles have their own weight specifications. There may also be subregional norms and standards which could be different from the national ones, or even bilateral agreements imposed on foreign trucks using the country's roads' different weight standards. These are practices that should be avoided, because they create confusion and opportunities for subjective enforcement.

(b) Advertise the regulations clearly

Even when the rules are clear, road users and enforcement officers may not understand them completely or in the same way. This calls for advertising the rules clearly, especially at the weighbridge control points. Efforts should also be made to raise awareness of the road transport commercial partners (shippers/consignors, forwarders and logistics providers) and make them take responsibility in operator's compliance with the rules.

As a reminder, haulers have different operational tasks, and vehicles need to perform accordingly, in order to provide all services. Therefore commercial vehicle designs are optimised for specific tasks which influence the weight distribution on loading platforms and on axles, requiring vehicle manufacturers to meet transport operators' demands by providing specific features such as wheelbase, weights and dimensions, number and type of vehicles in a combination, number of axles, engine size, transmission characteristics, differential gear ratios, suspensions and type of brake system.

(c) Place weighbridge stations under the right responsibility

Road wear is a process in which several different deterioration mechanisms, including environmental and traffic related factors, create different modes of distress such as cracking, rutting and potholes. For pavement fatigue and wear assessment, axle loads and configurations are much more important than the gross vehicle mass (GVM). Several other factors affect road wear such as speed, axle spacing, etc. Furthermore, there is a difference between the impact permitted and the impact measured.

The road administration has the greatest interest in minimizing road damage so, provided regulations are based on economic criteria, this may be the most appropriate organization to enforce weight rules.

(d) Maintain the weighbridge equipment

Often the equipment does not work in the proper manner and so measurements cannot be used for enforcement purposes. Appropriate means of financing the weighbridge stations is usually the problem and this can be tackled as part of the measures adopted to improve financing of road maintenance. The World Bank possesses a comprehensive collection of good practices on road maintenance and assets protection.[78]

(e) Put in place effective coordination measures at the local level

The police and highway authority have to work together to enforce size and weight regulations at the local level, and the regulatory authority at the central level has to be able to monitor enforcement. This can be achieved with minimal staff at weighbridge stations, provided there are procedures for stopping and checking vehicles and for informing the regulatory authority about checks made. In some countries lack of effective procedures and mistrust among agencies result in duplication of controls and overlapping of competences between several agencies working at weighbridge stations. This can increase the number of checks and produce delays to vehicles, and may considerably increase the risk of

[78] http://www.worldbank.org/en/topic/transport

unofficial payments being requested from transport operators.

For enforcement authorities, weighbridge stations will improve roadside check effectiveness compared with the traditional methods of randomly targeting noncompliant operators and will reduce the consequences of overweight vehicles for road safety and road wear.

(f) Gain support for enforcement from road users

Where enforcement is weak, there is no incentive for legitimate operators to obey the rules because they would only be placed at a competitive disadvantage compared to other operators. Building up support for enforcement among road users is vital. This requires the regulatory and enforcement agencies to establish a dialogue with road users, possibly through periodic meetings involving representative organizations (transport customers, trucking associations, freight forwarders and major operators). The National Facilitation Committee could be an adequate forum to host and coordinate discussions on enforcement matters (among others).

Create Legal Sanctions for Consignors in Case of Overloading

In most countries, the road transport operator or even the driver are the only persons/legal entity considered as responsible in case of overloading, when it is increasingly understood that shippers benefit directly from these practices.

For instance, requirements of rational handling and load securing do not usually allow the rearrangement of the cargo during a distribution journey to avoid an overloaded axle. A 3-axle semitrailer coupled to a 2-axle tractor unit will be carrying about 25 tonnes of goods when fully loaded, within a 40-tonne gross vehicle weight. At the beginning of the journey the drive axle load will be 11.5 tonnes, but will increase to 13 tonnes when 7 tonnes of goods are unloaded from the rear of the semitrailer. The vehicle will suddenly become illegal when it is first unloaded, but will become legal again as more goods are removed along the journey. There are many good initiatives in the road transport sector, like best practice guidelines, but one still lacks an overall understanding of cause and effect and how to overcome the problem of overloading and inadequate securing of loads. This lack of understanding may lead to putting the blame on the wrong party, who may not have caused the problem.

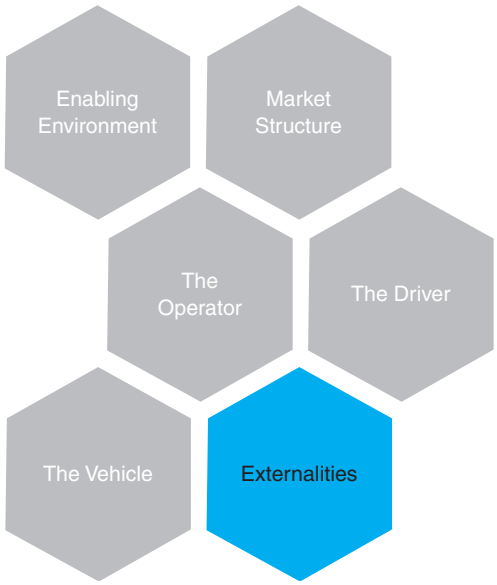
Some countries like France have activated a regulation by which the shippers/consignors are responsible under criminal law and sanctioned with heavy fines in case of overloading. This responsibility is independent from the one of the transport company, which is also sanctioned. In Greece, the responsibility for overloading is also shared between the operator and the consignor.

Introducing such a principle may help in facilitating the implementation of weight rules and would also contribute to improve the operating conditions of transport companies.

Involve Other Authorities in the Control of Weight and Dimension Regulation

Often, trucks are leaving their loading place in a visible situation of unloading; this happens in particular in ports, where in principle customs authorities have accepted the customs declaration (transit, import, warehousing) which clearly indicates the weight of the goods transported, and where port authorities have also allowed the truck to leave the area. Both authorities, in their tasks and functions, have access to the weight information as well as to the truck loading capacity.

These authorities could be entitled to immobilize a truck not complying with the weight rules. Such a measure combined with a sanction on shippers/consignors may prove to be extremely powerful tools to fight against overloading and enforce compliance with the weight and dimension rules.



Externalities in Road Transport Services

In road transport it is important to make a distinction between internal and external costs. Internal costs are those borne directly by transport operators by acquiring, operating and maintaining vehicles and facilities. Most, if not all, direct costs of transport are borne by operators and passed on to users of the transport services. External costs, on the other hand, include the effects of transport services, arising from environmental impacts (air pollution, greenhouse gas emissions, noise), accidents and congestion. The external costs of transport are borne by society as a whole and are often not taken into account by transport operators and users.

However, it is increasingly recognized that internalizing external costs of transport is important in order to ensure

that prices reflect all the costs associated with transport activities and that they increase in proportion to the costs imposed on society. IRU argues, rightly, that proposals to internalize costs should be based on some form of regulatory impact assessment.[79] This is critical given the extensive role that road transport plays in the modern economy. Awareness of the full costs of transport can help operators to plan and manage their operations in as efficient and sustainable a manner as possible. With proper internalization, prices of transport will reflect the full cost of services and therefore influence consumption patterns of users. In cases where the polluter pays, principle is applied, and these costs can be reflected in transport prices and are therefore paid by users. However, in many cases that principle is not practicable nor socially acceptable, and therefore other mechanisms have to be found to either reduce the level of external costs or to recover the costs through other means such as taxation. The basic rationale of taxation is to discourage use, making it the most obvious instrument to internalize external costs.

Estimating External Costs

There are four main categories of external costs imposed by road transport services:

- Increase in infrastructure costs;
- Environmental costs (greenhouse emissions, air pollution, noise);
- Accidents; and
- Congestion.

The proportion of each of these costs in total external costs will vary depending on context, be it country, rural versus urban areas, developed versus developing country, etc. Table 11 presents the general averages of the costs estimated at a global scale. It shows that costs related to global warming are highest followed by pollution at a local level. The characteristics of each of the above four categories of costs are described below.

Infrastructure Costs

While infrastructure costs are not an externality as such, there is a link between infrastructure and externalities which is important in part because infrastructure choices made today will determine transport service choices and impacts over long periods of time (Milligan, et al. 2014). In addition, due to the climate change effects that transport contributes to, there will in the future be increases in expenditure to make transport infrastructure resilient. A higher frequency of extreme weather conditions related to climate change, such as storms and floods, will require more costly infrastructure repairs and development.

[79] IRU's position as stated in its paper CMT/G8351/JHU is to apply the Cheapest Cost Avoider Principle, based on Coase.

TABLE 11 Estimated Costs of Transport Externalities

Externality	Heavy Trucks Cost (U$) per Vehicle km
Traffic congestion	0.0005
Local pollution	0.0135
Accidents	0.0075
Global warming	0.02050
Total	0.0420

Source: Based on IMF Working Paper WP/11/124, June 2011 and EU, 2003.

Environmental Costs

Transport is one of the largest contributors to greenhouse gas emissions. It is estimated that the logistics and transport sectors generate more than 5.5% of total greenhouse gas emissions in the world (Milligan, et al., 2014). The combustion of fossil fuels in transport leads to two types of emissions: noxious gases and greenhouse gas emissions. These emissions are associated with harm to human health and to the atmosphere (Table 12).

However, in many developing countries environmental and congestion costs are difficult to determine and therefore to recover. As noted elsewhere in this Guide, data on the quantum of these externalities are normally not available. As such, it is difficult to determine what the taxes should be that could be levied to compensate for these externalities. Rather, the approach that is taken is to levy a nominal tax, either through fuel or other taxes, or to impose vehicle standards that seek to minimize negative environmental impacts.

The upgrading of vehicles to higher standards, such as the Euro emission standards, and improvements in fuel consumption both help to reduce air pollution, though increasing traffic congestion in some countries can counteract these measures. Advanced economies have implemented emission control measures for more than a decade. For instance, in the United Kingdom there are several measures that seek to make logistics operations sustainable in economic, social and environmental terms while the European Union in the early 2000s promoted a "fair and efficient pricing" policy designed to ensure all external damage by road traffic is fully internalized in the price of transport. Polluters are expected to pay the marginal cost of their activities.

Noise can be an annoyance and prolonged exposure has negative effects on health and personal well-being. Noise has also been determined to impact property prices.

Accidents

The external costs related with accidents include personal injury, death and lost income, medical and policing costs and

TABLE 12 Type of Pollutant and Possible Effects on Human Health and Environment

Pollutant	Possible Effects	
	Human Health	Environmental
Carbon Monoxide (CO) and Carbon Dioxide (CO_2)	Reduces blood oxygen carrying capacity Impaired vision, headaches, drowsiness Loss of consciousness Death	
Nitrogen Oxide (NO_3) and Nitrous Oxide (N_2O)	Respiratory infections Decreased pulmonary functions	Eutrophication and acidification Tropospheric ozone Global warming
Hydrocarbons	Skin irritation Difficulty breathing Impaired lung function	Tropospheric ozone Smog
Particulate Matter	Difficulty breathing Carcinogenic effects	
Sulphur Dioxide	Respiratory diseases Death	

damage to property. Though heavy goods are involved in fewer accidents they tend to be involved in often severe and fatal accidents.

Congestion

Congestion can be reflected in the price of transport services by operators as it impacts on time, which is a major variable in the costs structure of transport services. However, each vehicle on the road causes delays to other vehicles, which is therefore the marginal cost of congestion. Therefore, congestion costs have to include also costs imposed on other road users and therefore to society through delays. However, such costs are difficult to determine and internalize. Still, some measures can be taken, including congestion charges, to reduce the volume of traffic or through restrictions on access to parts of the road network during certain times of the day. For example, several port cities (including Chittagong, Hanoi, and Manila) have resorted to daytime bans on truck movements to ports as a first measure to combat congestion (AAPA 2008). Although they reduce congestion, the bans add to the cost and time of shipping or distributing goods and can therefore have significant economic impacts.

Congestion resulting from port traffic is a more serious problem than simple figures might indicate. A typical container berth handling 300,000 containers per year will generate about 2,000 truck movements per day, assuming that trucks have to make two trips for each container, one in and one out. But to this must be added the other traffic generated by the terminal—the journey to and from work for the terminal operating staff, customs agents, other public agency staff, and other logistics and service providers. This additional traffic can more than double the traffic associated with moving freight in and out of the port. City traffic can also cause delays to trucks trying to reach the port, reducing port operational efficiency.

Path to Reform

For purposes of economic efficiency, it is important to internalize costs, but internalizing the external costs of road freight transport is difficult. A gradual and incremental approach is advisable.

Recommendations

There are various though still evolving measures that can be taken to internalize the external costs of transport. Some of the more common and proven approaches are described below.

(a) **Educating Users**

Internalizing the external costs of road transport often faces skepticism and resistance from users. It is therefore important that users and service providers are provided with information on the social and economic costs that are involved. There are high costs due to air pollution, congestion, accidents and climate change. Society

therefore already pays these costs but needs education on their contributory factors. This is the reason why it is important for countries to collect and provide information on all the different aspects of externalities. Information on trends should also be provided. The collection of transport statistics is poor in many developing countries, yet is critical to proper planning and regulation of the sector.

(b) Infrastructure Consumption

Estimating infrastructure consumption costs is the easiest of all the externalities to determine, and internalize. Internalization can be achieved through levies of duties and taxes on equipment and fuel, infrastructure consumption charges (including tolls) and other indirect charges. These costs are important to determine if the total receipts cover all associated costs and whether the balance of the amounts paid is sufficient to recover external costs.

The main issue is whether the direct and indirect returns from such additional costs are justifiable or whether consumption costs can be recovered from users. In those instances where infrastructure is under-utilized and there is spare capacity, revenues could be well above the marginal cost of providing additional services. Investing in additional capacity to handle a higher volume of traffic on the other hand may result in under-utilization. Additional capacity can always be financed by users through user tariffs or some other cost recovery mechanisms. This is often the case with road transport where fuel taxes, tolls or other mechanisms are common to recoup infrastructure development and maintenance costs. In East and Southern Africa both COMESA and SADC have defined harmonized principles for road infrastructure costs recovery which are widely used.

Cost recoveries from transport operators will grow due to climate change and the increased likelihood of damage. It will also become important to more strictly enforce speeding and vehicle overloading, both of which reduce the lifespan of infrastructure. In Kazakhstan the authorities restrict driving during the summer months to minimize road deterioration when asphalt is soft (Nakat, 2008).

It is often easier to internalize the external costs of the domestic fleet than foreign registered vehicles. Transit countries in particular can bear a significant burden of the costs of externalities. Nevertheless, the costs should be estimated and appropriate measures taken to internalize them even for the foreign vehicles. It is important to recognize that differences between countries in internalizing externalities can affect the competitiveness of transport services on international routes. The fleets of those countries that do not fully internalize external costs can have a cost advantage over those that do. In a regional context, where transport services are integrated, it would be important for the countries to adopt harmonized approaches to internalizing the costs.

The most common approach is to recover costs from foreign trucks using road infrastructure in foreign countries using electronic means, based on tolls payable by all vehicles regardless of nationality of registration. This approach reflects the fundamental principle of nondiscrimination, consistent with WTO rules. Where electronic tolls are not collected then a vignette system is used. However, the principles remain the same, designed to avoid charges that can distort the operating environment and competition.

Where roads are not tolled, it is a common practice to require foreign trucks to pay infrastructure usage fees on crossing the border. For example, the Common Market for Eastern and Southern Africa (COMESA) adopted a standard and simple fee of $10 per 100 kilometers for all member countries. Such standardization is particularly important if the tariffs are very high (increasing transport cost) or benefit domestic operators over foreign registered fleets (reducing competition). In the SADC, the types of charges payable by vehicle operators when entering a country and using its roads vary considerably. There are two types of charges: (1) compulsory access fees, which are all charges payable at border posts upon entering a country and (2) other fees, including charges payable on toll roads, fuel levies, and fuel taxes.[80]

The types of charges that are payable by vehicle operators when entering a country and making use of the road network of the country vary considerably. These fees include:

- Compulsory access fees refer to all charges that are payable at the border posts upon entering a specific country.
- Other fees include fees payable on toll roads, fuel levies and fuel taxes. Fuel levies were included in the cases where there is a dedicated fuel levy. Fuel taxes are used as a proxy for countries who do not have a dedicated fuel levy in order to arrive at comparable results. Regarding fuel levies and fuel taxes, it should be noted that cost recovery levels were calculated by including and excluding fuel levies and taxes, as these are not necessarily payable if there is no need to refuel in a specific country.
- Domestic fees include annual vehicle licence fees that are only paid by domestic vehicles. Although fee levels were recorded where available, these fees were excluded from the calculation of cost responsibility and cost recovery as they do not apply to transit traffic.

[80] SADC member states are Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, United Republic of Tanzania, Zambia, and Zimbabwe.

(c) Pricing Carbon Emissions

Pricing of externalities remains the most effective and direct way to reduce costs to society. Pricing discourages waste and increases fuel economy. However, fuel prices vary significantly across the world (Figure 9). The impact of price increases on consumption depend very much on the price elasticity of demand. In some instances there would be little change in consumption, at least in the short term. It is only in the long term that prices may influence consumer behavior.

A complicating factor though is that many developing countries provide subsidies to fuel, especially diesel which is the most commonly used in farming and heavy goods transportation. There is evidence that high fuel prices have a detrimental effect on exports (Carruthers, et al., 2011). Countries therefore make decisions to keep fuel prices low as a way of pursuing other developmental goals. However, the fact remains that subsidies can often give incorrect signals to the market—though there are also instances where some countries subsidize cleaner and renewable energy sources, with beneficial effects. Without subsidies, countries can save large amounts that could be invested to improve transport and other infrastructure. Efforts to properly reflect the full cost of transport due to climate change would require the price of fuel to include those costs. For instance, it is estimated that a gallon of regular gasoline contains approximately 0.0024 tonnes of carbon and depending on the pricing of carbon, this could translate into a specific amount to be included in the price. The price could then impact consumer behavior. Similar approaches could be adopted for air pollution, and health costs due to transport operations. However, as argued above, in many developing countries data are not systematically collected in order to make informed decisions. Rather, nominal amounts are at times levied, or practices such as subsidies, that encourage even more consumption are adopted.

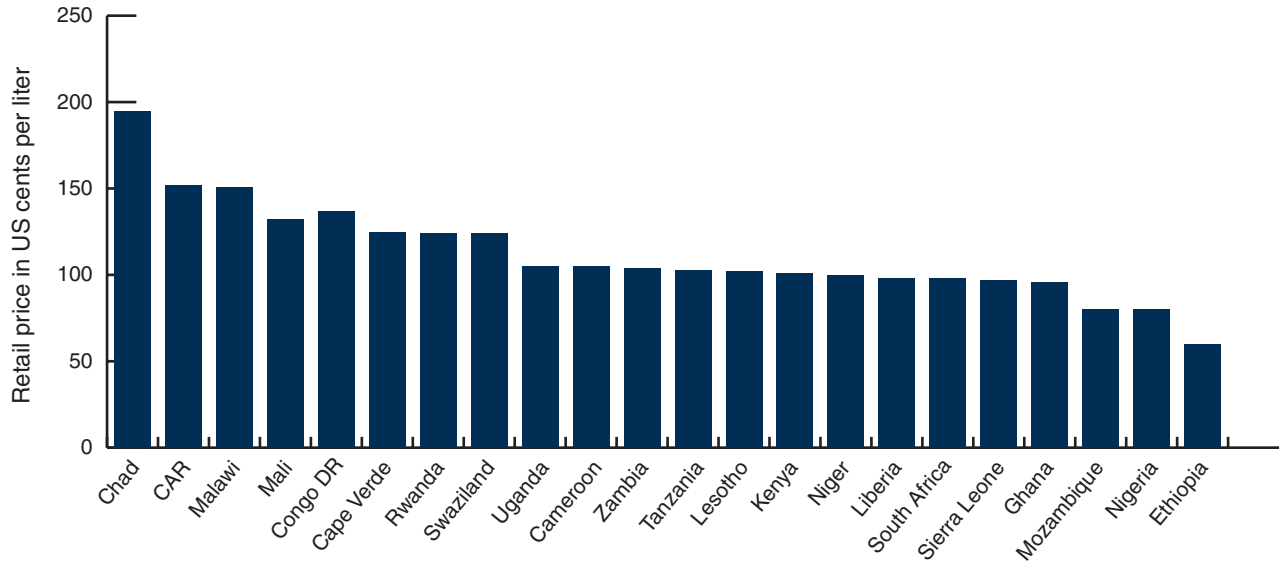
The transition to low carbon emission transport system is more costly than in other sectors (Milligan, et al., 2014). This is because of the significant amount of sunk costs and the need to change behaviors in addition to other constraints.

Cordon pricing is also gaining currency as a way of reducing emissions and congestion in specific geographical areas. Both tolls and cordon pricing are particularly effective in urban areas in reducing congestion and emissions. Their main disadvantage is that they may lead to a transfer of congestion and emissions to those regions immediately outside the restricted zone. Consequently, area-wide planning is important so that all options and loopholes are included.

(d) Fleet Modernization as a Strategy to Reduce Externalities

Upgrading to higher vehicle standards, such as Euro emissions standards and improvements in vehicle fuel efficiency, can contribute to reducing the total volume of emissions. However, Milligan, et al. (2014) argue that innovations in engine technology on their own would not be sufficient to significantly reduce greenhouse gas emissions. They maintain that advances in fuel and other vehicle technologies have to be accompanied by pricing, improved regulation, and availability of multimodal transport options in order to have impact.

FIGURE 9 Prices of Diesel in Selected African Countries



Source: Carruthers, et al. (2011).

They argue that fuel taxation is the most effective and direct way to promote energy efficiency. Also, though falling, the price of some of the more transformative new technologies is still high.

Modernizing the trucking sector so as to provide higher quality and faster services at lower cost is essential. This will require not only reforming the trucking sector, but also the overall policy environment for the transport sector and tackling the causes of the negative externalities imposed by public and private sector operators on trucking. A prerequisite would be to undertake in-depth sector reviews based on firm level surveys of users and providers of transport services in all countries.

Some countries have offered support for vehicle scrapping schemes as a way of modernizing their fleets. This has been the case recently in the United States and also in some European countries during the financial crisis.

(e) Regulatory Approaches

The trucking sectors in many developing countries are dominated by small-scale operators using old vehicles. Such vehicles have higher greenhouse gas emissions relative to their carrying capacities. There is generally an inverse relationship to scale in that large-scale operations are more efficient than small volume operations, as are found in many developing countries. One side effect of the atomized operations is that there are many inefficiencies, which contribute to high levels of emissions. One of the main causes is unproductive vehicle operations, as the amount of empty running tends to be high. The higher the empty running, the higher the emission intensity. More efficient route planning could help reduce emissions. Regulatory authorities should therefore aim to minimize operational constraints and leave operators to optimize their route networks as much as possible to minimize empty running. There are many instances where regulations, for instance on permits, encourage increased levels of empty running.

It is important to recognize that any intense regulatory touch can have significant cost implications. However, there are some approaches that have been tried and proven successful in different countries. These include:

- Setting fuel economy standards;
- Enforcing road traffic rules and regulations—emissions increase with speed and vehicle loading; and
- Adopting inspection polices for imported and used trucks. This is particularly useful when adopted on safety and environmental grounds rather than to protect a domestic vehicle industry. Some developing countries adopt standards developed elsewhere and have been able to implement them even if gradually.

Milligan, et al. (2014) recommend that regulations should be subject to different tests including their targeting, enforceability and cost of implementation. Regulations when not properly targeted can have unintended consequences on other sectors or leave out some of the activities that should be included. The ability of the authorities to enforce is critical to the effectiveness of any regulations.

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Annex 1 Examples of National Strategies to Reform the Road Transport Industry

National Strategy to Reform the Road Freight Transport Sector in Spain (2001–2014)

Context

Since 2001, Spain has successfully implemented a long-term strategy to reform and restructure the Spanish road freight transport industry, named "Plan Estratégico de Actuacíon para el Transporte de Mercancías por Carretera" (PETRA). The main triggers of the reform process were the low level of professionalization of the sector and the structure of the road transport market, with a large part of cargo being transported by own account companies. The road transport sector was fragmented, with many self-employed drivers; in 2000, there were 128,050 commercial road transport companies in Spain and 336,593 companies licensed for own account transport. About 71.6 percent of the commercial road transport companies and 75.9 percent of the own account companies operated only one truck.

The background to the PETRA was the analysis that the poor supply of road transport services is a result of the size of the haulage companies. The sector was fragmented, with a predominance of small companies with little financial support. Small businesses are positive for the market as a whole, in those areas of activity in which they are the most effective. However, when they are excessively numerous, they tend to become a second-class wage-earning manpower supply.

The aim of PETRA was to promote a modernization of the road transport sector and lay solid foundations for a more competitive and efficient sector. To this end, PETRA promoted, supported and accelerated the grouping or collaboration between companies (resizing). This reduced the weight of the very small business in the supply chain as a whole, and increased the number and size of the large companies, consolidating them and helping them become more competitive and flexible in answering customers' demands.

The launch in 2001 of a strategic plan to reform the road transport industry marked a stop and reversed the trend of further fragmentation. In 2004, the number of commercial road transport companies decreased to 119,032 of which 60.9 percent with only one truck. In 2014, the number of licensed own account companies was only 61,837 of which 67.8 percent with only one truck, while the professional road transport industry consists of 102,448 companies of which 57.9 percent with only one truck. These figures show a further professionalization of the road transport sector as well as a certain level of consolidation of the industry.

PETRA (2001–2008)

PETRA is a strategic plan focusing on ten main fields of intervention; the plan includes 27 projects:

- Company structure:
  - Elaborate a concentration strategy;
  - Promote co-operation between companies;
  - Promote outsourcing of transport and logistics services; and
  - Disseminate a system of economic subsidies for small companies when abandoning the transport market.
- Training:
  - Implement a training program for road transport operators and professional drivers;
  - Implement a system of training of young professional drivers by contract; and
  - Support and promote higher education centers for transport studies.
- New technology:
  - Promote and develop investments in new technology; and
  - Facilitate access of transport companies to new technology, promote training and disseminate information.
- Image, best practices, information:
  - Launch campaigns to improve the image of the sector;
  - Communicate 'best practices' of the sector; and
  - Elaborate a code for best practices, promote dissemination and manage a market monitoring system.

- Logistics and promotion of professional transport services:
  - Support the establishment of central procurement centers for vehicles and technology and freight demand and supply; and
  - Balance the relations between small road haulage companies, large providers of logistics services and freight forwarders.
- Regulations:
  - Favor renewal of the vehicle fleet by providing tax incentives;
  - Harmonize regulations at all levels; and
  - Develop capacity for developing regulations and inspection methodology.
- Labor regulations:
  - Set-up and manage a social monitoring system for compliance with social legislation;
  - Supervise the legal contracting conditions of the drivers; and
  - Strive for balance between demand and supply of professional drivers.
- Infrastructure and intermodality:
  - Promote a national network of intermodal facilities and infrastructure.
- International dimension:
  - Promote the establishment of international joint-ventures with national and foreign transport companies and providers of logistics services.
- Environmental improvements:
  - Promote investments in environmentally friendly vehicles;
  - Promote measures to increase road safety and environmentally friendly operations;
  - Impose restrictions to vehicles that harm the environment; and
  - Promote eco-driving.

PETRA II (2009–2013)

PETRA II, an Action Plan that identified more measures based on the strategy formulated under PETRA, and taking into account the Government's Strategic Plan for Infrastructure and Transport from 2005, was launched in 2009. PETRA was a strategy to modernize the Spanish road haulage sector and to make it more competitive. PETRA II was more of a comprehensive action plan for both the road freight transport sector as well as the public sector.

The action plan under PETRA II focuses on further increasing the competitiveness of the road haulage sector and the efficiency of the sector in the context of expansion, sustainability and integration of transport systems. The main objectives of PETRA II were to increase business conscience, restructuring the road haulage industry and supporting the industry to better respond to the changing demands from the market.

The tables presented in Annex 10 show the lines of strategic objectives and actions undertaken by companies and the public sector as defined by PETRA II, which can be summarized as follows:

- Strategic objectives and actions on the road transport companies' side:
  - increase the companies' efficiency;
  - increase the quality of services offered;
  - improve the companies' image;
  - improve security/safety;
  - environmental commitment; and
  - improve social environment.
- Strategic objectives and actions on the public sector side:
  - safeguard the conditions of competition;
  - improve security/safety;
  - improve the environment;
  - support the companies' efficiency;
  - promote entrepreneurship quality;
  - adjust the social conditions to the sectorial specificities.

The total investments allocated by the Directorate for Road Transport of the Ministry of Development for the implementation of PETRA II was € 377.9 million, shared as follows:

- € 303.3 million to finance the retirement of older people from the road haulage sector;
- € 39 million for training;
- € 9 million for the establishment of the transport and training foundation;
- € 10 million for observatories and studies to monitor the developments in the road freight transport sector; and
- € 10 million for support of road transport inspection services.

PIMA Transport Plan

PETRA II was followed by a plan for fleet renewal (trucks and buses) named "Plan para la renovación de la flota profesional de transporte por carretera, de camiones y autobuses" or PIMA.

This plan was launched in October 2014[81] and provides a facility for the scrapping of vehicles above a certain age, with an initial budget of € 5 million. In addition, the

[81] http://www.fomento.gob.es/MFOM/LANG_CASTELLANO/GABINETE_COMUNICACION/NOTICIAS1/2014/OCTUBRE/141016-01.htm

plan provides a line of soft loan of € 200 million from the European Investment Bank with more favorable conditions than those currently available on the market; these, together with the contribution of a commercial bank, could reach up to € 400 million to encourage and facilitate the renewal of some 2,500 vehicles.

The three strategic plans and action plans span over 14 years and they form sequential components of a long-term commitment of the public and private sector in Spain to reform the road haulage industry. The Spanish strategy to reform their road transport industry is a good example of determination, coherence and consistency.

Road Transport Service Reform in Mexico

Context

Mexico's road transport restructuring, vital to the country's business activities and external trade, resulted in the country's trucking industry deregulation in 1989 in an effort to liberate the industry from a restricting regulatory environment that impeded efficiency. Regulation was thought to control quality of service, promote evenness of service and fair pricing and to prevent cost-cutting practices that might increase accidents and pollution. However, regulation served only to restrict competition, limiting the industry to only a few firms, creating a highly concentrated market and rent seeking behavior. The industry was not modern or well equipped, lacked efficiency and innovation. As a result, freight rates were extraordinarily high and service quality poor (IEG, 2012).

Mexico joined GATT in 1986 and reduced tariffs, subsequently inducing steady trade growth with the United States over the seven years following the GATT accords, reflecting growth from $26 billion in 1986 to $76 USB in 1993. This growth has generally continued since 1994 after the implementation of NAFTA, though temporarily stalled by Mexico's economic difficulties in 1995, but with a resumption in growth in 1996, equivalent to $100 billion that year and then reaching $500 billion in 2012. Mexico is now the second largest market for U.S. products after Canada. The United States trades more in goods and services with Mexico and Canada than it does with Japan, South Korea, Brazil, Russia, India and China combined. Mexico has benefitted from the NAFTA-induced growth, with trade swinging from a $1.7 billion U.S. surplus in 1993 to a U.S. trade deficit of $61.4 billion in 2012.

Trade liberalization directly affected the trucking industry, Mexico's primary mode of transport for traded goods, representing over 70 percent of the freight bill in Mexico and 80 percent of the goods transported by value. Trade flows and the structure of cargo movements changed, especially in routes connected with international trade (Mexico City–Monterrey–Laredo; México City–Veracruz, and Manzanillo–Guadalajara) while flows decreased on domestic routes (Mexico City–Guadalajara and Guadalajara–Monterrey). These changes realigned the interests of the members of the trucking chamber and truckers in general, and these realigned interests, in turn, furthered the goal of the Salina administration to increase competition and enhance market contestability through deregulation.

In road transport, the principal objectives of the reforms were to: (1) deregulate the trucking industry, (2) increase funding for highway maintenance, and (3) initiate an emissions inspection program.

CANACAR, the national Chamber of road freight transport, was created on June 8, 1989, as a response of the industry to the policy of deregulation of the road freight services and in order to avoid dispersion and fragmentation of the sector. It was constituted as autonomous public institution with legal personality and own patrimony, specializing in the provision of truck services. CANACAR members agreed to cooperate with the appropriate authorities in the program for the modernization of the road freight industry.

In Mexico, deregulation eliminated:

- the obligation to belong to central cargo stations;
- the structure of regular services by route, specialized by product, and mandatory rates, so that after the deregulation they are freely fixed by supply and demand; and
- the State and regional Committees and the Federal technical committees of road freight transport that granted permissions for the truck services since 1977.

In addition, the trucking companies that worked without concessions or permissions were regularized becoming permit holders.

A recent OECD audit found that the reform in the trucking sector achieved, and in many cases exceeded, Mexico's goals. With deregulation, at least 30,000 new trucking firms entered the market, rapidly increasing competition. The result was greater operating efficiency and lower transport costs.

Important Aspects of the Regulatory Reform

In 1989, the Government of Mexico formulated a policy framework to deregulate road freight transport and spur development of a competitive trucking industry with free entry and exit and market-based pricing. Prior to that time, the transport sector was subjected to government-imposed barriers to competition, such as restrictions on operating on federal highways, discretionary allocations of freight among truckers, and restrictions on moving cargo outside the established transport corridors. All cargo had been subject to official tariffs and a semi-public company held a monopoly in handling containers.

Approach

A study by the World Bank, Independent Evaluation Group (IEG), indicated that the Mexican government feared that in the absence of competition, deregulation would result in sharp increases in transport rates. It therefore chose to deregulate the trucking industry in three stages to allow time for competition to develop.

- In 1989, the government negotiated a pact with the trucking association CANACAR under which truckers agreed to cooperate in the deregulation and modernization of the trucking fleets. The government, in turn, offered through CANACAR loans at preferential rates for truckers to renew their fleets;
- Immediately following stage 1, the government issued a decree eliminating many restrictions on entry into the trucking business and abandoned the notion that trucking operations would require a concession; and
- In 1990, the government issued a decree abandoning tariff ceilings, allowing truckers to set freely their own rates. The new law was not published until late 1993 and the regulations were not implemented until late 1994. Apparently, the signing of NAFTA in January 1994 accelerated the implementation of these regulatory reforms.

Outcomes

The deregulation of the trucking industry had a major positive impact on Mexico's economy. Among the outcomes:

- Many new truck operators entered the field. By the end of August 1990, about 51,000 federal trucking permits had been issued, of which 30,000 were for new entrants and 14,000 for what had previously been illegal operators;
- Tariffs for trucking services fell by 23 percent in real terms during 1987–94. The Ministry of Trade and Industrial Development estimated that general distribution costs in real terms during the same period dropped 25 percent;
- Service improved in frequency, access, and speed of delivery; and
- More flexible pricing of both truck and rail transport increased competition in the transport industry and helped to lower overall transport costs.

Impact of the Reform

In addition to the substantial savings in transport costs, the reform effort also had the effect of improving safety regulation as well as cost recovery for maintaining the country's road system. In the 1990s road crashes accounted for about 3 percent of all deaths in Mexico, a considerably higher rate than in countries with much greater motorization. Studies showed that 25 to 30 percent of trucks were overloaded. Although the government embraced deregulation of the trucking industry, it had no intention of stopping highway safety regulation. The government prepared a study that included recommendations for increased regulation of the sizes and weights of trucks. After the study was completed, the government in February 1994 issued new size and weight regulations to be phased in within three years.

To provide an adequately maintained road system that benefitted the trucking industry, Mexico's government raised the price of diesel fuel at least 10 percent in real terms. In fact, the government raised diesel prices 17 percent in May of 1990 and another 10 percent in November of that year. With these changes, the real price of diesel fuel increased by 21 percent in real terms during 1990. Cost recovery has increased further in recent years. According to the Ministry of Finance, truckers were paying nearly the full cost of road use already in 1994.

Market Structure and Behaviour

Between 1989 and 1996, the number of registered trucks increased from 164,000 to 315,318, a 13 percent per year increase, significantly more than the economy's average growth rate. The increase was due to new firms entering the market, existing firms expanding, and formerly unregistered firms registering. With the easing of entry barriers, many informal carriers registered with Mexico's Secretary of Communications and Transport (SCT), though some reportedly skirt registration to avoid taxes, securing freight through informal freight forwarders.

By the end of August 1990, 60 percent of the 51,000 new federal road permits issued for freight transport were issued to new entrants, 27 percent (14,000) of whom had previously been illegal operators; the rest were issued to firms that were expanding their fleets. The new structure lowered tariffs and improved service, inducing some agriculture and industrial producers to divest their own fleets in favor of contracting with third party providers. Trucks previously owned by private producers provided a significant portion of the expanded public for-hire fleet.

While deregulation paved the way for new market entrants, there was also evidence of some companies engaged in anticompetitive behavior. In 1997, the Federal Competition Commission investigated possible anticompetitive practices in diesel fuel transport and distribution. The investigation uncovered agreements to divide markets into geographic zones and to limit the supply of transport services for fuel oil, to strengthen the ability to divide markets. The agreements were declared illegal and the Commission imposed economic sanctions and promoted conditions favoring competition.

Segmentation

The market of the road freight industry has two main segments: small, low-tech owner-operators and large, technologically

advanced firms. Small owner-operators with low-technology are preponderant. In 1996 there were 315,000 truck units divided among 60,500 registered firms. Of the total number of firms, 87 percent were owner-operators of 1–5 trucks, 8 percent were small firms with 6–30 trucks, and 2 percent were medium firms with 31–100 trucks. In 1996, 3 percent or 187 firms were large firms with more than 100 trucks and they owned 9 percent of the truck units (2,750).

This segmentation keeps the market concentrated in large firms, which claim 65 percent of national haulage and 87 percent of border crossing transport. Large firms provide services based on long-term contracts and cover main routes, while owner-operators cover short hauls, urban markets, and remote areas. Large firms focus on a few main routes and the most profitable ones (Mexico City–Laredo, México City–Guadalajara). They also usually maintain loading and unloading terminals in the main cities, and switch from larger long-distance trucks to smaller trucks to haul the trailers in the city. Trucks used for deliveries in the city have a higher average age.

Performance

Reform has had a significant impact on the performance of Mexico's road freight industry. In addition to lower costs and higher quality services, including faster delivery times and fewer transit losses in general, the following trends are noted by Dutz, Hayri, and Ibarra (2000):

- Higher output. From 1989 to 1995, the traffic volume on domestic public roads increased 52 percent, rising from 107,200 to 162,827 million ton-kilometers. The average distance increased by almost 30 percent, from 346 km to 444 km. Domestic road freight increased 18 percent from 309.8 to 366.7 million tons. Distances traveled increased substantially more than the volumes carried. Total annual kilometers hauled increased by 60 percent, with some firms more than doubling distances covered.
- Higher growth rate of trucking firms. A complementary indicator for freight haulage volume is the change in the number of trucks by firm. Among firms expanding their fleets, the average growth rate was 64 percent. The growth rate for large firms was 75 percent. Another important indicator is the number of states served by operators. According to trucking firms studied by Dutz, Hayri, and Ibarra (2000), they were active in between 1 to 10 states, reflecting the existence of new trucking service offerings to new markets.
- Lower prices. Prices are falling overall, but falling faster in low-end service segments. While evidence is anecdotal, it all points to a reduction in truck tariffs on the order of 25 percent in real terms since 1989. Some estimate a price decline of between 5–15 percent. Some in the industry have indicated that the decline would have been even greater if prices did not include the effect of new toll roads, estimated to add 6 percent to the cost of a typical trip. Small trucking firms are struggling to survive. Most do not have direct contact with clients, instead dealing with freight forwarders or large trucking firms. In the high-end service segment, where time and reliability are critical, clients are willing to pay more for service; for such shippers, the logistics cost usually represents less than 10 percent of product price. Large, sophisticated carriers provide these services. These prices do not appear to have come down as much, reflecting the quality elements embedded in the price and the less intense competition among big technologically sophisticated trucking firms.
- Labor reallocation in favor of larger firms. National road freight statistics indicate a modest increase in employment in the industry between 1989 and 1995 of 5.2 percent, from 509,000 to 536,000 annual remunerated employees. Incumbent small firms remained small. Among larger firms, the more aggressive expanded substantially, while the less agile contracted substantially, and others shed their workforce.

Innovation and Productivity

Large trucking firms are adopting innovations. Almost all are buying new trucks with electronic combustion systems to save fuel, and most are using computer systems to upgrade communications and have modernized freight tracking by investing in satellite or cellular-based communications systems. These companies have also sought to optimize their routes with reductions in empty backhauls. The most important effect of operational innovations is better relations with downstream users thanks to greater responsiveness to user needs.

Dutz, Hayri, and Ibarra (2000) assert that these innovations appear to have had a significant impact on industry productivity, particularly relative to the cost of distribution as innovations enable trucking companies to improve fleet utilization efficiency. In fact, the cost of commodity distribution in Mexico declined 25 percent in real terms during the period between 1987 and 1994. Not surprisingly, both regulatory reforms and innovations have had numerous positive economic impacts, such as

- New products, new goods, new areas served, and direct deliveries replacing deliveries through wholesalers and retailers;
- Container-based load rationalization, cutting transport costs and reducing damage and loss;
- Greater reliance on transport services outsourcing, converting fixed costs into variable costs; and
- More efficient logistics systems encouraging some firms to centralize their manufacturing.

Current Issues

Mexico's road freight industry faces a number of problems involving personal security, technical safety, and regulatory implementation in both local and international fronts. Truckers are concerned with robberies on highways and additional payments and costs. The excessive number of crashes reveals that vehicle safety, poor highway conditions, and driver control are issues, as is the government's unwillingness to enforce technical standards and maximum load restrictions. Intense competition exerts constant pressure. The failure to implement and ensure harmonized federal and state regulatory reforms may undermine progress in opening the industry to competition and risks a return to monopolistic practices and cartels.

Border Crossing for Trucks

Cross-border freight movement between the United States and Mexico is a complex and time-consuming process. Restrictions on foreign carrier operations in Mexico (i.e., only Mexican tractors and drivers are permitted to operate within the boundaries of Mexico) necessitate an interline or interchange between the participating U.S. and Mexican trucking firms. An interline entails the transloading of freight between the two motor carriers at the border. An interchange involves the exchange of trailers at the border. Thus, unlike most U.S. domestic truck transport markets, at least three carriers must participate: a U.S. carrier on the U.S. side, a "drayage" operator to cross the border, and a Mexican carrier to transport the cargo within Mexico.

The need to transload or interchange freight at the border and to utilize various other parties to facilitate the border crossing creates problems besides the obvious one of interrupted transport. Not only does the likelihood of damage increase with increased handling of the freight, but determining liability when a claim arises is sometimes difficult, and insurance coverage for door-to-door cross-border service through one insurance carrier has traditionally not been available. Additionally, asset utilization, an important productivity goal for U.S. carriers, is a concern when interchanging with Mexican carriers.

Equipment Problems

The average age of the Mexican truck fleet is much older than that of the U.S., with over half of it pre-2000 vintage. Further, the ratio of trailers to tractors in Mexico is considerably lower than that in the U.S. whereas most U.S. carriers operate 1.5 to 2 trailers for every tractor on average, the ratio in Mexico is 0.5 trailers per tractor. The shortage of trailers has resulted in instances of Mexican carriers using U.S. trailers to make other deliveries in Mexico. Such occurrences have an adverse impact on equipment turnaround time and, thus, asset utilization for the U.S. carrier.

Furthermore, transit times in Mexico are usually poor because carriers are driven more by convenience than by shipper-customer needs. As a result, service is very unreliable. For example, according with one U.S. shipper, service from its plant to one of its Mexican customers can range from four days to fourteen days. Shorter and more dependable transit times are required for improved equipment utilization for interchanging U.S. carriers.

Incompatible equipment standards have created operating problems for U.S. carriers. The 53-foot trailer is prevalent in the U.S., but it is not permitted on the Mexican highway system. The 48-foot trailer is standard equipment south of the border.

The shortcoming of Mexican trucking industry, especially on the longer hauls to central and Southern Mexico, have offered an opportunity for railroads and intermodal services.

Conclusions

The success of removing market entry restrictions while enhancing safety and environmental regulations provided significant opportunities for reducing cost and improving service in the trucking sector. Structural reforms changed the nature of regulation, with emphasis from entry constraints giving way to environmental and safety regulations. While the market opened the way for new entrants, companies attempted to preserve higher prices with price collusion, though the new regulatory framework was effective in ending this collusive behavior. The participation of rail services in cross-border movements has also had a tempering effect on trucking prices; intermodal traffic between Mexico and the U.S. has increased from 4 percent in 1993, the year before NAFTA was signed to 17.8 percent during NAFTA's 20 years (Fox, Londoño-Kent, 2014).

Twenty years of NAFTA has had a large impact in the way goods are transported in NAFTA countries. In Mexico, the most notable change is the improvement of infrastructure. Nonetheless, it will be many years before Mexico has a more well-connected and fluid Mexican land transportation system equivalent to its North American counterparts. However, the regulatory framework has shaped the behavior of trucking companies to respond to market competitiveness with a focus on innovation and fleet utilization efficiency rather than relying on anticompetitive actions.

While Mexico's reforms have had the intended benefit of facilitating market competition, and NAFTA has liberalized border crossing freight movements, some of the vestiges of the "old" system remain, with Mexican brokers imposing restrictions on U.S. truck entry into Mexico, which can create up to three days delay for Southbound movements from the U.S. On the other hand, prohibition of Mexican carriers in the United States and vice-versa, perpetuates the drayage system composed of small trucks that simply shuttle, transfer or ferry goods across the border. It is hoped that eventually the efficiency gains attributed to deregulation and innovation, and the Mexican Customs Law of 17 December

2013 that eliminates the need to use Mexican Broker, will ultimately find their way to the NAFTA border crossing process and change for the better the "business as usual" mindset that has extended to the new millennium.

The Road Transport Reform in Belarus

Geographically, Belarus has always been a transit country as its domestic market was very limited, the international road transport has always been an attractive development market for the national economy.

Context

During the USSR times, the transport market was strictly centralized. In the early 1970s, "Sovtransavto" was established under the Ministry of Road Transport of Russian Soviet Federative Socialist Republic, and remained for many years the largest operator of the Soviet Union in the field of international road transport. In addition to "Sovtransavto," transport companies from other countries were fulfilling cross-border trade in USSR. After the political changes took place in the former Soviet space, a consolidation of "Sovtransavto" assets started in 1994 in the former Soviet republics, and later, the company was corporatized and privatized. Belarusian transport operators became involved in the international transport operations from the beginning of "Sovtransavto."

The volume of international transport operations and their geographical scope were continuously growing; in 1975, in order to improve the organization of long-distance and international cargo transportation, a road-transport-forwarding complex was founded in Brest (RTFC-1), becoming one year later part of "Sovtransavto." In 1978 the complex was reorganized into the Road transport company for international transport operations "Sovavto-Brest." "Sovavto-Brest" was requested to guarantee mixed container shipments, in the first place, throughout the chain Japan—Soviet Union—Western Europe (in 1982, the company delivered its millionth container).

In the second half of the 1980s a large transport-forwarding centre was built and opened for operation on the Soviet-Polish border, in order to create more favourable conditions for foreign trade activities. In 1992, following the collapse of the Soviet Union, all of its property was divided between Russia and Belarus. On the basis of the Belarusian part a joint enterprise was created together with German partners—"Brestvneshtrans" (which later became the first Belarusian member of the International Federation of Freight Forwarders Associations (FIATA)).

The collapse of the Soviet Union had severe impact on the transport market. In fact, right after the collapse of the USSR, Belarus focused on maintaining the services and economic relations that were existing for decades by using new principles. In parallel, regional integration progressed in the Eurasian Region.

The Steps of the Reform

The Situation of Road Transport and the Needs

In the early 1990s, following the collapse of the Soviet Union, Belarus had to rebuild everything from scratch, without any transition period it became necessary to:

- move from a command and administration system to a market system and to build economic relations;
- organize vocational education and the development of professional competence (acquisition of knowledge and experience during teaching and training, in major transport companies in the former Soviet space and abroad);
- ensure the accession of Belarus to fundamental international conventions and agreements in the field of international road transport;
- organize the sector and its companies; and
- structure the professional representation through a national association, BAMAP.

The motivations of the reform were the intended integration of Belarus in the Customs Union (CU) and the Single Economic Space (SES), as well as the ambitious project to create the Eurasian Economic Union (EEU). One important aspect of the Eurasian integration is that integration processes are going naturally, in an evolutionary way, without unnecessary acceleration and involvement of other countries.

Throughout this period, the road transport sector had to face :

- breach of cooperation relations between business entities;
- lack of qualified personnel in the field of international road transport, freight forwarding, foreign trade activities;
- absence of the necessary infrastructure to carry out international transport operations;
- lack of access to financing, and difficulties regarding the acquisition of equipment;
- assaults on drivers and vehicles in order to take possession of the load;
- the high financial risks for carriers due to the spread of fraudulent working schemes; and
- gradual introduction of restrictive and protectionist measures, including against Belarusian carriers.

From 2000, new opportunities and challenges emerged:

- elimination of all kinds of checks at internal borders of the Member States of the Customs Union;
- preservation of a permit system to perform international road transport, including to/from third countries;
- the fall of freight rates;

- the decline of the returns on investment on transport operations, and as a result, of their profitability; and
- the regular increase of costs for carriers (fees, road tolls, fuel prices, etc.).

The Reform

On the 28th December 1991 the Minister of Road Transport issued an order describing in details what must be achieved and by when in order to re-organize international transport. One of the first priorities was to create a system that will manage international transport, including the administration of the national permit system (dozvol), procedures for road charging for international carriers, infrastructure needed for border crossing, etc.

In February 1992 the signing of an Interim Agreement on international road transport with the Republic of Poland marked the beginning of the organization of bilateral relations with the sovereign Republic of Belarus. The Group "Belmagistralavtotrans" was commissioned to create the service which would ensure the issuance of foreign permits and the smooth operation of international road transport. What is surprising is that this task was not set to a government body, but delegated to a commercial organization (at that time "Belmagistralavtotrans" was an open joint-stock company). This task was successfully fulfilled until 1995, when the centres of road transport control were transferred under the Ministry of Transport and Communications.

With the beginning of economic reforms in the Republic of Belarus and the emergence of various forms of property, with the transition to market relations in transport industry, and following to the rapid development of international road transport of passengers and goods, a fundamentally new service of state regulation of international road transport was needed. The Belarusian state-owned company International road transport office "Interavtotrans" (SOE "Interavtotrans") was established in 1994 and took over the responsibility for this service.

In many ways, legal and regulatory framework in the field of international road transport in the country was created by experts from the business, and often on their own initiative. Having a sufficiently clear understanding of the principles of the system of international road transport, most of them had an understanding that if they act separately on foreign markets, Belarusian carriers will not achieve great success, and considering the increasing competition, which every year became fiercer, they could definitely lose their positions. Of course, the single large companies would have remained, but small businesses would have been forced to leave. It became obvious for all that it was necessary to create an association which would take over the defence of the interests and assist small and medium-sized businesses. The Belarusian Association of International Road Carriers "BAMAP" was created on 23 April 1992 on the initiative of the leaders of 24 transport companies, most of which were part of the group "Belmagistralavtotrans." In November 1992, the Association "BAMAP" joined IRU.

With the collapse of the USSR, thousands of poorly trained entrepreneurs entered the market of transport services. In this context, the licensing system was introduced in 1992, as a new state system of regulation and control of transport activity, corresponding to market conditions, to be applied regardless of the type of property, size and departmental affiliation of the providers of transport services. Initially licenses were issued by the Ministry of Transport and Communications, but a few years later (1997) a Transport Inspection was established as a separate department within the SOE "Interavtotrans." Later on, "Interavtotrans" became a commercial entity; this may have diminished the importance and the effectiveness of controls in the framework of the transport policy of the Ministry of Transport and did not allow to fully implement the licensing system.

An important motivation for the reform of road transport services was the possibility to move goods without hindrance between Belarus and its main trade partners, within an economically integrated space. From the early 2000s until present, the process of Eurasian economic integration went through several successive stages. The first stage was the establishment, in 1994, of a free trade zone (FTZ) by Belarus, Kazakhstan, Russia and other countries—members of the CIS. A new international treaty—the Treaty on the free trade zone—was signed by the member-states of the CIS in October 2011, identifying as one of the main goals the creation of conditions for free movement of goods, and acknowledging the need of integration into the global economy and international trade system.

The second stage was the creation, in 2007, of a Customs Union between Belarus, Kazakhstan and Russia. Since the 1st of July 2011 there are no more customs controls at the internal borders between the three countries, all types of customs controls and registrations being transferred to the external borders of the Customs Union. The creation of a single customs territory was completed, allowing the free movement of goods and vehicles of the Customs Union and third countries after their release for domestic consumption on the territory of any Member State.

The third stage, the creation of a Single Economic Space, aims at ensuring the freedom of movement for goods, capital, services and labor between the members of the Space. In addition, the functioning of the Single Economic Space involves the coordination of key economic policies of the Member States in relation to macroeconomic and financial sector, transport and energy, industry and agriculture, trade, etc. The fourth stage of the Eurasian integration is the creation and full-functioning of the Eurasian Economic Union.

Outcomes

Deprived of centralized control and of "Sovtransavto" patronage, the leaders of the majority of enterprises engaged in international road transport experienced

shock and disorientation. However, these didn't last long; in a relatively short period, the principles of running the system of international road transport have been defined. Hence by 1992, two joint ventures—"Belvestrans" and "Belkargo" were operating along with three national companies ("Belmagistralavtotrans," "Minskintertrans," "Sovavto-Brest").

The launch in the organization of international transport operations was so energetic that within a short time the fleet increased up to 12,000 vehicles. The number of licenses issued for international transportation of goods was increasing from one year to another. Convinced of the benefits of this type of business, small private firms and individual entrepreneurs, having only a few vehicles, joined the professional association "BAMAP." There were 24 founding members of BAMAP in 1992; in February 1998, there were already more than 2,000 members, and in the early 2000s, about 3,000 companies were doing transport operations.

The share of state-owned enterprises and organizations has decreased from 45 percent (1992) to 10 percent (1998), and currently stands at less than 2 percent.

The increase in the volume of goods transportation was going at such a rapid pace that at some point it turned out that Belarus held a large share, even on the Russian market of road transport. Belarus started in late 1993 the issuance of TIR Carnets, and by 1998 reached the 5th place in Europe in the number of issued TIR Carnets. In order to maintain its position on the market, it became necessary to take active measures to diversify the international routes and explore "nontraditional" markets.

Since establishing the Eurasian Economic Union, the parties reached an agreement allowing the carriers registered on the territory of one of the Member States to run on a non-permit base the following types of international road transport of goods:

- between the Member State on whose territory the carrier is registered and another Member State;
- transit through the territory of other Member States; and
- between other Member States.

Phased liberalisation of cabotage will only take place at a later stage. In a more distant future there shall be a discussion on cancellation of authorizations for international road transport of goods carried to/from "third countries" on the territory of the Single Economic Space (SES).

According to the current agreement, the Eurasian Economic Union is implementing a coordinated (harmonized) transport policy aimed at ensuring economic integration, consistent and gradual setup of a single transport space relying on the principles of competition, openness, security, reliability, availability and sustainability. The objectives of the coordinated (harmonized) transport policy are:

- The creation of a common market of transport services;
- Concerted action to safeguard Members' common benefits in the transport sector and implementation of best practices;
- The integration of the transport systems of the Member States in the global transportation system;
- An efficient use of the transit potential of the Member States;
- Improving the quality of transport services;
- Transport security;
- Reducing the harmful effects of transport on the environment and human health; and
- To create a favourable investment climate.

The main priorities of the coordinated transport policies are:

- The creation of a single transport space;
- The creation and development of Eurasian transport corridors;
- The implementation and development of transit potential in the framework of the Union;
- The coordination of transport infrastructure development;
- The establishment of logistics centres and transport companies providing transport process optimisation;
- The involvement and use of human resources capacity of the Member States; and
- The development of science and innovation in the field of transport.

A promising direction for further development of the transport industry is the integration of a single transport system of the Single Economic Space (SES) in the European transport system. The establishment of the SES by Belarus, Kazakhstan and Russia makes the creation of a united transport system (UTS) one of the most pressing priorities.

Conclusion

Today, the system of international road transport in Belarus is mainly composed of private companies, 96% of which are small and medium businesses. Every year, vehicles are becoming more "green;" more than half of vehicles of

Belarusian haulers meet high environmental standards Euro-4 and Euro-5. According to ecological standards Belarusian carriers are among the leaders in Eastern Europe. Notwithstanding the inherent difficulties, this long and continuous reform process resulted in the annual growth of income from the export of services related to international road transport, which increased by about 42 times over the last 20 years.

The case of Belarus is interesting as it confirms the importance of placing the reform of the road transport sector as a strategic priority at the State level. The example is not typical, as passing from a centrally managed sector to an increasingly privatized sector is specific to the ex-communist countries. In addition, Belarus has always focused its road transport policy on the international market, which is also particular. However, this example illustrates that when the sector is identified as a strategic priority, its reform can be a success if it benefits of coordinated efforts of both public and private sector. The private sector should be encouraged and empowered to take the lead in moving forward the reform path. Finally yet importantly, the reform cannot be achieved in short term, but to the contrary, it is a matter of medium and long term.

The Road Transport Reform in Indonesia

Context

The government has identified high logistics costs as one of the key issues undermining Indonesia's economic competitiveness. The World Bank Logistics Performance Index places Indonesia's logistics performance relatively lower than its middle-income country comparators such as Malaysia and Thailand. The high domestic logistics cost has undermined costs competitiveness and prevents domestic consumers or companies to source more locally. A recent empirical study[82] also suggests that high logistics cost causes regions located further from cities to experience more volatile food prices; one of the consequences is that those regions remain isolated and the prospects of reducing their development gap with the rest of Indonesia are undermined.

The road freight transport sector is dominated by small companies. It is estimated that there are more than 1 million road transport companies in Indonesia, with a total fleet size of 7 million trucks in 2014 of which more than 50 percent with a capacity to carry more than 7.5 tons. The sector plays a crucial role in the economic development of Indonesia. Despite the fact that Indonesia is an archipelago with more than 17,000 islands, 90 percent of all freight is transported by road. Short-sea transport and railways still play a marginal role in the transport of goods.

Recommendations and Estimate of Their Impact on Logistics Costs

The study, on the basis of the diagnostic of the situation of the sector in Indonesia, recommended a set of measures, aimed at reducing the logistics costs. These recommendations are:

- Linking the operator's licensing system with an information system for road freight system;
- National harmonization of licenses and permits for road freight transport companies;
- Implement operator's license, qualitative criteria and professional competence of transport operators;
- Introduce and implement a system of training and education of professional drivers to increase their level of competence additional to the driving license;
- Revise the law on working times of drivers and create the necessary conditions to implement this law and organize a system for its enforcement;
- Revise the law on motor vehicle inspection and create the necessary conditions to implement this law and organize a system for its enforcement;
- Introduce policy measures to stimulate fleet renewal,
- Maintain differences between the fuel price for professional transport companies and other vehicles using the road;
- Apply effective measures against overloading; and
- Maintain and develop road infrastructure.

The estimated impact of the implementation of these measures is presented in the table on the following page.

Conclusion

It is too soon to assess the actual outcome of the road transport sector reform in Indonesia. However, this example demonstrates the need to envisage a reform of the road transport sector through a coordinated and well-planned implementation over several years of complex measures aimed at improving various fields such as legislation, business environment, practices, etc.

[82] René Meeuws, How the road freight transport sector can contribute to the reduction of logistics costs in Indonesia, July 2014

Measures	Assumption	Reduction in Road Transport Costs in %	Reduction of Logistics Costs in %
1. Wide use of electronic freight reservation systems	Results in reduction of empty backhaul. If average backhaul can be increased by 10%, if means a efficiency improvement of 5%. We assume a reduction of in road transport cost of 80% of this efficiency improvement.	4%	1.32%
2. Harmonization licenses and permits	No significant reduction in road transport costs.		
3. Application of qualitative criteria for access to the profession	Capacity development of read transport operators may increase the efficiency of road transport management and the performance of the road transport company. We assume an efficiency improvement of 2%.	2%	0.66%
4. Introduction of Certificate of Professional Competence for drivers	Competent drivers perform more efficiently, drive economically and safe. We assume an efficiency improvement of 4%.	4%	1.32%
5. Application of working times and rest periods for professional drivers	Reduction of traffic accidents and congestion after accidents. We assume a saving of 0.5%.	0.5%	0.16%
6. Application of Periodical Vehicle Inspection	Reduction of accidents and reduction of congestion due to breakdowns, accidents, speed. We assume a saving of 1%.	1%	0.32%
7. Introduction of fleet renewal measures	Fleet renewal measures may improve the performance of the road transport sector considerably. We assume an increase of efficiency of 5%	5%	1.6%
8. Subsidized fuel prices road transport industry	If professional road transport companies benefit from subsidized, it will encourage the use of those companies by the shippers and reduce empty backhauls. We assume an increase of backhaul of 4%, resulting in an efficiency improvement of 1.6%.	1.6%	0.5%
9. Combat and eradicate overloading	Combat the eradicate overloading reduce accidents and breakdown on the road. It also will have a positive impact of the state of the roads. We assume a saving of 4%.	4%	1.32%
10. Improvement of road infrastructure	Improvement of road infrastructure may have a real impact on the reduction of road transport costs. We assume an efficiency improvement of 10%	10%	3.3%
Total		**32.1%**	**10.5%**

Annex 2 Common Questionnaire UNECE/ITF/Eurostat for 2013[83]

Road Transport > Infrastructure > Motorways
Length at 31.12 (km): total
Road Transport > Infrastructure > Other roads
Length at 31.12 (km): total
Length at 31.12 (km) > By category: State, provincial, communal
Length at 31.12 (km) > By roads inside/outside built-up areas
Length at 31.12 (km) > By surface: paved, unpaved
Road Transport > Infrastructure > E roads
Length at 31.12 (km) total
Road Transport > Transport Equipment > Mopeds
Number at 31.12 (Unit): total
Number at 31.12 (Unit) > By vehicle technology: petrol, others
Road Transport > Transport Equipment > Motorcycles
Number at 31.12 (Unit): total
Number at 31.12 (Unit) > By size of engine: 125 cc or less, exceeding 125 cc
Number at 31.12 (Unit) > By vehicle technology: petrol, others
Road Transport > Transport Equipment > Passenger cars
Number at 31.12 (Unit): total
Number at 31.12 (Unit) > By age: less than 2 years, 2–5 years, 5–10 years, 10–20 years, more than 20 years
Number at 31.12 (Unit) > By unloaded weight: up to 999kg, 1000kg–1249kg, 1250kg–1499kg, more than 1500kg
Number at 31.12 (Unit) > By type of motor energy
Number at 31.12 (Unit) > By type of motor energy > Petrol (including hybrids): total)
Number at 31.12 (Unit) > By type of motor energy > Petrol (including hybrids) > By vehicle technology: Petrol (excluding hybrids), Hybrid electric-petrol (indicate in a footnote if plug-in hybrids are also included), Plug-in hybrid petrol-electric
Number at 31.12 (Unit) > By type of motor energy > Petrol (including hybrids) > By size of engine: up to 1399cc, 1400cc–1999cc, 2000cc and more

[83] Detailed data are included in this annex only for the road transport of goods. For other types of road transport and for infrastructure only the headings and summary of data are included, for information.

Number at 31.12 (Unit) > By type of motor energy > Diesel (including hybrids): total
Number at 31.12 (Unit) > By type of motor energy > Diesel (including hybrids) > By size of engine > By vehicle technology: Diesel (excluding hybrids), Hybrid diesel-electric (indicate in a footnote if plug-in hybrids are also included), Plug-in hybrid diesel-electric
Number at 31.12 (Unit) > By type of motor energy > Diesel (including hybrids) > By size of engine: up to 1399cc, 1400cc–1999cc, 2000cc and more
Number at 31.12 (Unit) > By type of motor energy > Alternative: total
Number at 31.12 (Unit) > By type of motor energy > Alternative > By type of alternative motor energy: Battery—only electric, Natural Gas Vehicles (NGV) i.e. compressed natural gas (CNG) or liquefied natural gas (LNG), Liquefied Petroleum Gas (LPG), Hydrogen and fuel cells, Bioethanol, Biodiesel, Bi-fuel vehicles, Others
Road Transport > Transport Equipment > Motor coaches, buses and trolley buses
Number at 31.12 (Unit): total
Number at 31.12 (Unit) > By type : Motor coaches, Buses, Trolleybuses, Mini buses and mini coaches
Number at 31.12 (Unit) > By age: less than 2 years, 2–5 years, 5–10 years, 10–20 years, more than 20 years
Number at 31.12 (Unit) > By type of motor energy
Number at 31.12 (Unit) > By type of motor energy > Petrol (including hybrids): total
Number at 31.12 (Unit) > By type of motor energy > Diesel (including hybrids): total
Number at 31.12 (Unit) > By type of motor energy > Diesel (including hybrids) > By type of alternative motor energy > By vehicle technology: Diesel (excluding hybrids), Hybrid diesel-electric (indicate in a footnote if plug-in hybrids are also included), Plug-in hybrid diesel-electric
Number at 31.12 (Unit) > By type of motor energy > Alternative: total
Number at 31.12 (Unit) > By type of motor energy > Alternative > By type of alternative motor energy: Battery—only electric, Compressed natural gas (CNG), Liquefied natural gas (LNG), Liquefied Petroleum Gas (LPG), Hydrogen and fuel cells, Others
Number of seats at 31.12: total
Road Transport > Transport Equipment > Trams
Number at 31.12 (Unit): total
Road Transport > Transport Equipment > Light goods road vehicles (lorries up to 3500 kg)

ID		Title	Value	Flag	Note				
Number at 31.12 (Unit)									
	B-II-22-30-0.0-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By age									
	B-II-22-30-34.1-0.0	<= 2 years							
	B-II-22-30-34.2-0.0	2 >= 5 years							
	B-II-22-30-34.3-0.0	5 >= 10 years							
	B-II-22-30-34.4-0.0	10 >= 20 years							
	B-II-22-30-34.5-0.0	> 20 years							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy									

Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Petrol (including hybrids)									
	B-II-22-30-55.10-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Petrol (including hybrids) > By vehicle technology > By vehicle technology									
	B-II-22-30-55.10-95.1	Petrol (excluding hybrids)							
	B-II-22-30-55.10-95.2	Hybrid electric-petrol and plug-in hybrid petrol-electric							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Diesel (including hybrids)									
	B-II-22-30-55.20-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Diesel (including hybrids) > By vehicle technology > By vehicle technology									
	B-II-22-30-55.20-95.1	Diesel (excluding hybrids)							
	B-II-22-30-55.20-95.2	Hybrid electric-diesel and plug-in hybrid diesel-electric							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Alternative									
	B-II-22-30-55.30-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Alternative > By vehicle technology > By vehicle technology									
	B-II-22-30-55.30-95.1	Battery—only electric							
	B-II-22-30-55.30-95.2	Compressed natural gas (CNG)							
	B-II-22-30-55.30-95.3	Liquefied natural gas (LNG)							
	B-II-22-30-55.30-95.4	Liquefied Petroleum Gas (LPG)							
	B-II-22-30-55.30-95.5	Bioethanol							
	B-II-22-30-55.30-95.6	Biodiesel							
	B-II-22-30-55.30-95.7	Others							

Road Transport > Transport Equipment > Lorries (excluding light goods road vehicles—LGV)									
ID		Title	Value	Flag	Note				
Number at 31.12 (Unit)									
	B-II-21-30-0.0-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By age									
	B-II-21-30-34.1-0.0	<= 2 years							
	B-II-21-30-34.2-0.0	2 >= 5 years							
	B-II-21-30-34.3-0.0	5 >= 10 years							
	B-II-21-30-34.4-0.0	10 >= 20 years							
	B-II-21-30-34.5-0.0	> 20 years							
Number at 31.12 (Unit) > By type of motor energy > By permissible maximum gross weight									
	B-II-21-30-94.10-0.0	3501 kg–7500 kg							
	B-II-21-30-94.20-0.0	7501 kg–12000 kg							
	B-II-21-30-94.30-0.0	12001 kg–40000 kg							
	B-II-21-30-94.40-0.0	Over 40000 kg							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy									
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Petrol (including hybrids)									
	B-II-21-30-55.10-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Petrol (including hybrids) > By vehicle technology > By vehicle technology									
	B-II-21-30-55.10-95.1	Petrol (excluding hybrids)							
	B-II-21-30-55.10-95.2	Hybrid electric-petrol and plug-in hybrid petrol-electric							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Diesel (including hybrids)									
	B-II-21-30-55.20-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Diesel (including hybrids) > By vehicle technology > By vehicle technology									
	B-II-21-30-55.20-95.1	Diesel (excluding hybrids)							
	B-II-21-30-55.20-95.2	Hybrid electric-diesel and plug-in hybrid diesel-electric							

Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Alternative									
	B-II-21-30-55.30-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Alternative > By vehicle technology > By vehicle technology									
	B-II-21-30-55.30-95.1	Battery—only electric							
	B-II-21-30-55.30-95.2	Compressed natural gas (CNG)							
	B-II-21-30-55.30-95.3	Liquefied natural gas (LNG)							
	B-II-21-30-55.30-95.4	Liquefied Petroleum Gas (LPG)							
	B-II-21-30-55.30-95.5	Bioethanol							
	B-II-21-30-55.30-95.6	Biodiesel							
	B-II-21-30-55.30-95.7	Others							
Road Transport > Transport Equipment > Lorries (including LGV)									
ID	**Title**	**Value**	**Flag**	**Note**					
Load capacity at 31.12 (1000 tonnes)									
	B-II-06-25-0.0-0.0	Total							
Load capacity at 31.12 (1000 tonnes) > By type of motor energy > By permissible maximum gross weight									
	B-II-06-25-94.1-0.0	Up to 3500 kg							
	B-II-06-25-94.2-0.0	3501 kg–7500 kg							
	B-II-06-25-94.3-0.0	7501 kg–12000 kg							
	B-II-06-25-94.4-0.0	12001 kg–40000 kg							
	B-II-06-25-94.5-0.0	Over 40000 kg							
Road Transport > Transport Equipment > Road tractors									
ID	**Title**	**Value**	**Flag**	**Note**					
Number at 31.12 (Unit)									
	B-II-07-30-0.0-0.0	Total							
Number at 31.12 (Unit) > By age									
	B-II-07-30-34.1-0.0	<= 2 years							
	B-II-07-30-34.2-0.0	2 >= 5 years							
	B-II-07-30-34.3-0.0	5 >= 10 years							

	B-II-07-30-34.5-0.0	10 >= 20 years							
	B-II-07-30-34.6-0.0	> 20 years							
Number at 31.12 (Unit) > By type of motor energy									
Number at 31.12 (Unit) > By type of motor energy > Petrol (including hybrids)									
	B-II-07-30-48.10-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > Diesel (including hybrids)									
	B-II-07-30-48.20-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > Diesel (including hybrids) > Alternative > By vehicle technology									
	B-II-07-30-48.20-95.1	Diesel (excluding hybrids)							
	B-II-07-30-48.20-95.2	Hybrid electric-diesel and plug-in hybrid diesel-electric							
Number at 31.12 (Unit) > By type of motor energy > Alternative									
	B-II-07-30-48.30-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > Alternative > Alternative > By type of alternative motor energy									
	B-II-07-30-48.30-54.1	Battery—only electric							
	B-II-07-30-48.30-54.2	Compressed natural gas (CNG)							
	B-II-07-30-48.30-54.3	Liquefied natural gas (LNG)							
	B-II-07-30-48.30-54.4	Liquefied Petroleum Gas (LPG)							
	B-II-07-30-48.30-54.5	Bioethanol							
	B-II-07-30-48.30-54.6	Biodiesel							
	B-II-07-30-48.30-54.7	Others							
Road Transport > Transport Equipment > Semi-trailers									
ID	**Title**	**Value**	**Flag**	**Note**					
Number at 31.12 (Unit)									
	B-II-08-30-0.0-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By permissible maximum gross weight									
	B-II-08-30-94.10-0.0	Up to 20000 kg							
	B-II-08-30-94.20-0.0	20001 kg–30000 kg							

	B-II-08-30-94.30-0.0	30001 kg–40000 kg							
	B-II-08-30-94.40-0.0	Over 40000 kg							
Load capacity at 31.12 (1000 tons)									
	B-II-08-25-0.0-0.0	Total							
Load capacity at 31.12 (1000 tons) > By type of motor energy > By permissible maximum gross weight									
	B-II-08-25-94.10-0.0	Up to 20000 kg							
	B-II-08-25-94.20-0.0	20001 kg–30000 kg							
	B-II-08-25-94.30-0.0	30001 kg–40000 kg							
	B-II-08-25-94.40-0.0	Over 40000 kg							
Road Transport > Transport Equipment > Trailers									
ID		**Title**	**Value**	**Flag**	**Note**				
Number at 31.12 (Unit)									
	B-II-09-30-0.0-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By permissible maximum gross weight									
	B-II-09-30-94.10-0.0	Up to 750 kg							
	B-II-09-30-94.20-0.0	751 kg–3500 kg							
	B-II-09-30-94.30-0.0	3501 kg–10000 kg							
	B-II-09-30-94.40-0.0	Over 10000 kg							
Load capacity at 31.12 (1000 tons)									
	B-II-09-25-0.0-0.0	Total							
Load capacity at 31.12 (1000 tons) > By type of motor energy > By permissible maximum gross weight									
	B-II-09-25-94.10-0.0	Up to 750 kg							
	B-II-09-25-94.20-0.0	751 kg–3500 kg							
	B-II-09-25-94.30-0.0	3501 kg–10000 kg							
	B-II-09-25-94.40-0.0	Over 10000 kg							
Road Transport > Transport Equipment > Special purpose road vehicles									
Number at 31.12 (Unit): total									
Road Transport > Transport Equipment > New mopeds registered during the year									
Number at 31.12: total									
Number at 31.12 > By vehicle technology: petrol, others									

Road Transport > Transport Equipment > New motorcycles registered during the year
Number at 31.12 (Unit): total
Number at 31.12 (Unit) > By vehicle technology > By size of engine: 125 cc or less, exceeding 125 cc
Number at 31.12 (Unit) > By vehicle technology > By vehicle technology: petrol, others
Road Transport > Transport Equipment > New passenger cars registered during the year
Number at 31.12 (Unit): total
Number at 31.12 (Unit) > By unloaded weight: up to 999kg, 1000kg–1249kg, 1250kg–1499kg, more than 1500kg
Number at 31.12 (Unit) > By type of motor energy
Number at 31.12 (Unit) > By type of motor energy > Petrol (including hybrids): total
Number at 31.12 (Unit) > By type of motor energy > Petrol (including hybrids) > Alternative > By vehicle technology: Petrol (excluding hybrids); Hybrid electric-petrol (indicate in a footnote if plug-in hybrids are also included); Plug-in hybrid petrol-electric
Number at 31.12 (Unit) > By type of motor energy > Petrol (including hybrids) > By size of engine: up to 1399cc, 1400cc–1999cc; 2000cc and more
Number at 31.12 (Unit) > By type of motor energy > Diesel (including hybrids): total
Number at 31.12 (Unit) > By type of motor energy > Diesel (including hybrids) > By size of engine > By vehicle technology: Diesel (excluding hybrids), Hybrid diesel-electric (indicate in a footnote if plug-in hybrids are also included), Plug-in hybrid diesel-electric
Number at 31.12 (Unit) > By type of motor energy > Diesel (including hybrids) > By size of engine: up to 1399cc, 1400cc–1999cc; 2000cc and more
Number at 31.12 (Unit) > By type of motor energy > Alternative: total
Number at 31.12 (Unit) > By type of motor energy > Alternative > By type of alternative motor energy: Battery—only electric, Natural Gas Vehicles (NGV) i.e. compressed natural gas (CNG) or liquefied natural gas (LNG), Liquefied Petroleum Gas (LPG), Hydrogen and fuel cells, Bioethanol, Biodiesel, Bi-fuel vehicles, Others
Road Transport > Transport Equipment > New motor coaches, buses and trolley buses registered during the year
Number at 31.12 (Unit) total
Number at 31.12 (Unit) > By type of motor energy > By type: New motor coaches, New buses, New trolley buses, New mini buses and mini coaches
Number at 31.12 (Unit) > By type of motor energy
Number at 31.12 (Unit) > By type of motor energy > Petrol (including hybrids): total
Number at 31.12 (Unit) > By type of motor energy > Diesel (including hybrids): total
Number at 31.12 (Unit) > By type of motor energy > Diesel (including hybrids) > By type of alternative motor energy > By vehicle technology: Diesel (excluding hybrids), Hybrid diesel-electric (indicate in a footnote if plug-in hybrids are also included), Plug-in hybrid diesel-electric
Number at 31.12 (Unit) > By type of motor energy > Alternative: total
Number at 31.12 (Unit) > By type of motor energy > Alternative > By type of alternative motor energy: Battery—only electric, Compressed natural gas (CNG), Liquefied natural gas (LNG), Liquefied Petroleum Gas (LPG), Hydrogen and fuel cells, Others
Number of seats at 31.12: total

Road Transport > Transport Equipment > New trams registered during the year									
Number at 31.12 (Unit): total									
Road Transport > Transport Equipment > New light goods road vehicles (lorries up to 3500 kg) registered during the year									
ID		**Title**	**Value**	**Flag**	**Note**				
Number at 31.12 (Unit)									
	B-II-23-30-0.0-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy									
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Petrol (including hybrids)									
	B-II-23-30-55.1-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Petrol (including hybrids) > By vehicle technology > By vehicle technology									
	B-II-23-30-55.1-95.1	Petrol (excluding hybrids)							
	B-II-23-30-55.1-95.2	Hybrid electric-petrol and plug-in hybrid petrol-electric							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Diesel (including hybrids)									
	B-II-23-30-55.2-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Diesel (including hybrids) > By vehicle technology > By vehicle technology									
	B-II-23-30-55.2-95.1	Diesel (excluding hybrids)							
	B-II-23-30-55.2-95.2	Hybrid electric-diesel and plug-in hybrid diesel-electric							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Alternative									
	B-II-23-30-55.3-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Alternative > By vehicle technology > By vehicle technology									
	B-II-23-30-55.3-95.1	Battery—only electric							
	B-II-23-30-55.3-95.2	Compressed natural gas (CNG)							

	B-II-23-30-55.3-95.3	Liquefied natural gas (LNG)							
	B-II-23-30-55.3-95.4	Liquefied Petroleum Gas (LPG)							
	B-II-23-30-55.3-95.5	Bioethanol							
	B-II-23-30-55.3-95.6	Biodiesel							
	B-II-23-30-55.3-95.7	Others							

Road Transport > Transport Equipment > New lorries (excluding light goods road vehicles—LGV) registered during the year

ID	Title	Value	Flag	Note				
Number at 31.12 (Unit)								
	B-II-24-30-0.0-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By permissible maximum gross weight								
	B-II-24-30-94.1-0.0	3501 kg–7500 kg							
	B-II-24-30-94.2-0.0	7501 kg–12000 kg							
	B-II-24-30-94.3-0.0	12001 kg–40000 kg							
	B-II-24-30-94.4-0.0	Over 40000 kg							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy								
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Petrol (including hybrids)								
	B-II-24-30-55.1-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Petrol (including hybrids) > By vehicle technology > By vehicle technology								
	B-II-24-30-55.1-95.1	Petrol (excluding hybrids)							
	B-II-24-30-55.1-95.2	Hybrid electric-petrol and plug-in hybrid petrol-electric							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Diesel (including hybrids)								
	B-II-24-30-55.2-0.0	Total							

Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Diesel (including hybrids) > By vehicle technology > By vehicle technology									
	B-II-24-30-55.2-95.1	Diesel (excluding hybrids)							
	B-II-24-30-55.2-95.2	Hybrid electric-diesel and plug-in hybrid diesel-electric							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Alternative									
	B-II-24-30-55.3-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By type of motor energy > Alternative > By vehicle technology > By vehicle technology									
	B-II-24-30-55.3-95.1	Battery—only electric							
	B-II-24-30-55.3-95.2	Compressed natural gas (CNG)							
	B-II-24-30-55.3-95.3	Liquefied natural gas (LNG)							
	B-II-24-30-55.3-95.4	Liquefied Petroleum Gas (LPG)							
	B-II-24-30-55.3-95.5	Bioethanol							
	B-II-24-30-55.3-95.6	Biodiesel							
	B-II-24-30-55.3-95.7	Others							
Road Transport > Transport Equipment > All new lorries (including LGV) registered during the year									
ID		**Title**	**Value**	**Flag**	**Note**				
Load capacity at 31.12 (1000 tons)									
	B-II-16-24-0.0-0.0	Total							
Load capacity at 31.12 (1000 tons) > By type of motor energy > By permissible maximum gross weight									
	B-II-16-25-94.1-0.0	Up to 3500 kg							
	B-II-16-25-94.2-0.0	3501 kg–7500 kg							
	B-II-16-25-94.3-0.0	7501 kg–12000 kg							
	B-II-16-25-94.4-0.0	12001 kg–40000 kg							
	B-II-16-25-94.5-0.0	Over 40000 kg							

Road Transport > Transport Equipment > New road tractors registered during the year									
ID		Title	Value	Flag	Note				
Number at 31.12 (Unit)									
	B-II-17-30-0.0-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy									
Number at 31.12 (Unit) > By type of motor energy > Petrol (including hybrids)									
	B-II-17-30-48.10-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > Diesel (including hybrids)									
	B-II-17-30-48.20-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > Diesel (including hybrids) > By vehicle technology									
	B-II-17-30-48.20-95.1	Diesel (excluding hybrids)							
	B-II-17-30-48.20-95.2	Hybrid electric-diesel and plug-in hybrid diesel-electric							
Number at 31.12 (Unit) > By type of motor energy > Alternative									
	B-II-17-30-48.30-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > Alternative > By vehicle technology									
	B-II-17-30-48.30-95.1	Battery—only electric							
	B-II-17-30-48.30-95.2	Compressed natural gas (CNG)							
	B-II-17-30-48.30-95.3	Liquefied natural gas (LNG)							
	B-II-17-30-48.30-95.4	Liquefied Petroleum Gas (LPG)							
	B-II-17-30-48.30-95.5	Bioethanol							
	B-II-17-30-48.30-95.6	Biodiesel							
	B-II-17-30-48.30-95.7	Others							
Road Transport > Transport Equipment > New semi-trailers registered during the year									
ID		Title	Value	Flag	Note				
Number at 31.12 (Unit)									
	B-II-18-30-0.0-0.0	Total							

Number at 31.12 (Unit) > By type of motor energy > By permissible maximum gross weight									
	B-II-18-30-94.1-0.0	Up to 20000 kg							
	B-II-18-30-94.2-0.0	20001 kg–30000 kg							
	B-II-18-30-94.3-0.0	30001 kg–40000 kg							
	B-II-18-30-94.4-0.0	Over 40000 kg							
Load capacity at 31.12 (1000 tonnes)									
	B-II-18-24-0.0-0.0	Total							
Load capacity at 31.12 (1000 tonnes) > By type of motor energy > By permissible maximum gross weight									
	B-II-18-24-94.1-0.0	Up to 20000 kg							
	B-II-18-24-94.2-0.0	20001 kg–30000 kg							
	B-II-18-24-94.3-0.0	30001 kg–40000 kg							
	B-II-18-24-94.4-0.0	Over 40000 kg							
Road Transport > Transport Equipment > New trailers registered during the year									
ID		**Title**	**Value**	**Flag**	**Note**				
Number at 31.12 (Unit)									
	B-II-19-30-0.0-0.0	Total							
Number at 31.12 (Unit) > By type of motor energy > By permissible maximum gross weight									
	B-II-19-30-94.10-0.0	Up to 750 kg							
	B-II-19-30-94.20-0.0	751 kg–3500 kg							
	B-II-19-30-94.30-0.0	3501 kg–10000 kg							
	B-II-19-30-94.40-0.0	Over 10000 kg							
Load capacity at 31.12 (1000 tonnes)									
	B-II-19-24-0.0-0.0	Total							
Load capacity at 31.12 (1000 tonnes) > By type of motor energy > By permissible maximum gross weight									
	B-II-19-24-94.10-0.0	Up to 750 kg							
	B-II-19-24-94.20-0.0	751 kg–3500 kg							
	B-II-19-24-94.30-0.0	3501 kg–10000 kg							
	B-II-19-24-94.40-0.0	Over 10000 kg							

Road Transport > Transport Equipment > New special purpose road vehicles									
Number at 31.12 (Unit): total									
Road Transport > Enterprise Economic Performance and Employment > Investment and maintenance in road transport vehicles in goods road transport enterprises (GRTE)									
ID		**Title**	**Value**	**Flag**	**Note**				
Million national currency; current prices									
	B-III-03-26-0.0-0.0	Expenditures in road transport vehicles—Total							
Million national currency; current prices > By type of motor energy > By expenditure type									
	B-III-03-26-10.1-0.0	Investment in road transport vehicles							
	B-III-03-26-10.2-0.0	Maintenance in road transport vehicles							
Road Transport > Enterprise Economic Performance and Employment > Investment and maintenance in road infrastructure									
ID		**Title**	**Value**	**Flag**	**Note**				
Million national currency; current prices									
	B-III-04-26-0.0-0.0	Expenditure in road infrastructure—Total							
Million national currency; current prices > By type of motor energy > By expenditure type									
	B-III-04-26-10.1-0.0	Investment in road infrastructure							
	B-III-04-26-10.2-0.0	Maintenance in road infrastructure							
Road Transport > Traffic > Motor vehicles movements on national territory, all vehicles, irrespective of country of registration (kilometers within the territory of the reporting country)									
ID		**Title**	**Value**	**Flag**	**Note**				
Vehicle-km (Millions)									
	B-IV-01-40-0.0-0.0	Total							
Vehicle-km (Millions) > By type of motor vehicle									
	B-IV-01-40-49.1-0.0	Motorcycles							
	B-IV-01-40-49.2-0.0	Passenger cars							

	B-IV-01-40-49.3-0.0	Motor coaches, mini coaches, buses, mini buses and trolley buses							
	B-IV-01-40-49.4-0.0	Lorries (including LGV) and road tractors							

Road Transport > Traffic > Motor vehicles movements on national territory, vehicles registered in the reporting country (kilometers within the territory of the reporting country)

ID		Title	Value	Flag	Note				
Vehicle-km (Millions)									
	B-IV-02-40-0.0-0.0	Total							
Vehicle-km (Millions) > By type of motor vehicle									
	B-IV-02-40-49.1-0.0	Motorcycles							
	B-IV-02-40-49.2-0.0	Passenger cars							
	B-IV-02-40-49.3-0.0	Motor coaches, mini coaches, buses, mini buses and trolley buses							
	B-IV-02-40-49.4-0.0	Lorries (including LGV) and road tractors							

Road Transport > Transport Measurement > Passenger transport on national territory by vehicles registered in the reporting country (kilometers within the territory of the reporting country):

Passenger-km (Mio): total
Passenger-km (Mio) > By type of motor vehicle: Motorcycles, Passenger cars, Motor coaches, mini coaches, buses, mini buses and trolley buses

Road Transport > Transport Measurement > Goods transport by vehicles registered in the reporting country

ID		Title	Value	Flag	Note				
Tons carried (1000)									
	B-V-02-17-0.0-0.0	Total							
Tons carried (1000) > By kind of operation									
	B-V-02-17-41.10-0.0	Operated for hire or reward							
	B-V-02-17-41.20-0.0	Operated for own account							

Tons carried (1000) > By type of transport									
	B-V-02-17-71.10-0.0	National transport							
	B-V-02-17-71.21-0.0	International transport loaded in the territory of the reporting country							
	B-V-02-17-71.22-0.0	International transport unloaded in the territory of the reporting country							
	B-V-02-17-71.30-0.0	Cross trade transport							
	B-V-02-17-71.40-0.0	Road cabotage transport							
Tons carried (1000) > By maximum permissible weight (MPW category) of goods road motor vehicle									
	B-V-02-17-94.10-0.0	Up to 3500 kg							
	B-V-02-17-94.20-0.0	3501 kg–7500 kg							
	B-V-02-17-94.30-0.0	7501 kg–12000 kg							
	B-V-02-17-94.40-0.0	12001 kg–40000 kg							
	B-V-02-17-94.50-0.0	Over 40000 kg							
Tons-km (Mio)									
	B-V-02-39-0.0-0.0	Total							
Tons-km (Mio) > By kind of operation									
	B-V-02-39-41.10-0.0	Operated for hire or reward							
	B-V-02-39-41.20-0.0	Operated for own account							
Tons-km (Mio) > By type of transport									
	B-V-02-39-71.10-0.0	National transport							
	B-V-02-39-71.21-0.0	International transport loaded in the territory of the reporting country							

	B-V-02-39-71.22-0.0	International transport unloaded in the territory of the reporting country							
	B-V-02-39-71.30-0.0	Cross trade transport							
	B-V-02-39-71.40-0.0	Road cabotage transport							
Tons-km (Mio) > By maximum permissible weight (MPW category) of goods road motor vehicle									
	B-V-02-39-94.10-0.0	Up to 3500 kg							
	B-V-02-39-94.20-0.0	3501 kg–7500 kg							
	B-V-02-39-94.30-0.0	7501 kg–12000 kg							
	B-V-02-39-94.40-0.0	12001 kg–40000 kg							
	B-V-02-39-94.50-0.0	Over 40000 kg							

Road Transport > Transport Measurement > National goods transport within the reporting country by vehicles registered in the reporting country

ID	Title	Value	Flag	Note				
Tons carried (1000)								
B-V-03-17-0.0-0.0	Total							
Tons carried (1000) > By kind of operation								
B-V-03-17-41.10-0.0	Operated for hire or reward							
B-V-03-17-41.20-0.0	Operated for own account							
Tons-km (Mio)								
B-V-03-39-0.0-0.0	Total							
Tons-km (Mio) > By kind of operation								
B-V-03-39-41.10-0.0	Operated for hire or reward							
B-V-03-39-41.20-0.0	Operated for own account							

Road Transport > Accidents > Number of injury accidents
Number at 31.12 (Unit): total
Number at 31.12 (Unit) > By type of road: Motorways, In built-up areas, Outside built-up areas, Unknown

Road Transport > Accidents > Number of casualties (killed plus injured)
Number at 31.12 (Unit): total
Number at 31.12 (Unit) > By road user: Pedestrian, Cycles, Mopeds and motorcycles, Passenger cars, Others
Number at 31.12 (Unit) > By type of road: Motorways, In built-up areas, Outside built-up areas, Unknown
Road Transport > Accidents > Number of killed
Number at 31.12 (Unit): total
Number at 31.12 (Unit) > By road user: Pedestrian, Cycles, Mopeds and motorcycles, Passenger cars, Others
Number at 31.12 (Unit) > By type of road: Motorways, In built-up areas, Outside built-up areas, Unknown

Annex 3 NIWO Questionnaire (Vehicles with Carrying Capacity of More than 1000 KG)

Date about the Trip				The Loads During the Trip														
Date period	Kind of vehicle	km		Loaded in		Unloaded in		Distance in km	Weight of load in tones	Freight rate in gulden	Carrying capacity in tones	Kind of goods	Number of containers		Dangerous goods			
		loaded	empty	location	country	location	country						20 ft	40 ft	Orange plate	VN #	Transport document	
																	Class	N°
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

Annex 4 Cost Price Repository (February 2015)[84] for a Long-Haul[85] 40T Truck

Conditions of Vehicle Exploitation

Yearly kilometers per vehicle	113,130.0 km/year
Number of operation days per year	228.4 days
Average calculated speed	67.1 km/h
Laden drive rate	86.9 %
Load capacity	25.8 tons
Load capacity on laden drive	87.6 %
Waiting time 1 load + 1 discharge	3.12 h
Semitrailer/tractor ratio	1.35
Tractor used for	6.3 years
Semitrailer used for	11.6 years

Conditions of Service for Drivers

Number of hours worked per day of operation of a vehicle	9.9 h
Working time on a full month's work	205.0 h
Including driving time %	73.7 %
Number of working days per year	214.6 d
Yearly working time	2091 h
Number of drivers driving the vehicle	1.066
Working time on a full month's work—part time	197.7 h
Including driving time %—part time	74.5 %
Number of working days per year—part time	118.7 d
Yearly working time—part time	1145 h
Number of drivers driving the vehicle—part time	0.023

[84] www.cnr.fr

[85] The "Long haul 40-tons" observes the behavior of the costs for long haul professional road carriage of general cargo in heavy trucks, in an exclusive or principal capacity. Long haul is understood to be domestic or international carriage whose operating constraints make it impossible or uncertain for the driver to return home daily.

Cost Components of Vehicle Mileage

Average consumption per 100 km	32.6 liters
Diesel price/liter before VAT at tank[86] (after Diesel Tax discount)	0.9216 €
Part of refueling at tank	69.6 %
Diesel price/liter before VAT at pump[87] (after Diesel Tax discount)	0.94 €
Part of refueling at pump	30.2 %
Tires, yearly cost	3,273.0 €
Maintenance-repairs, yearly costs	8,703.0 €
Tolls, yearly costs	9,140.0 €

Components of Fixed Costs of Vehicle

Vehicle value as new	82,815.0 €
Financing methods noted : loan	42 %
Financing methods noted : leasing	43 %
Financing methods noted : rental	15 %
Yearly cost of vehicle financing and retention	11,660.0 €
Vehicle value as new—semitrailer	26,059.0 €
Financing methods noted : loan—semitrailer	40 %
Financing methods noted : leasing—semitrailer	53 %
Financing methods noted : rental—semitrailer	7 %
Yearly cost of vehicle financing and retention– semitrailer	3,101.0 €
Insurance covering vehicle	2,216.0 €
Insurance covering goods carried	410.0 €
Axle tax and other vehicle taxes	516.0 €
Structural costs and other indirect charges, annual costs	19,476.0 €

Cost Components of Operating Personnel

Wages and other remuneration elements on a monthly basis	2,405.16 €
For a full-time driver—employer's contribution before abatements	48.63 %
Fillon charge cut and French TEPA Act deduction (for a company with more than 20 employees)[88]	377.99 €
Travel indemnifications (daily average)	41.25 €

[86] At company's facilities

[87] At regular fuel stations

[88] Specific French legislation

Wages and other remuneration elements on a monthly basis—part time	2,294.67 €
For a part-time driver—employer's contribution before abatements	48.63 %
Fillon charge cut and French TEPA Act deduction (for a company with more than 20 employees)—part time	376.87 €
Travel indemnifications (daily average)—part time	39.03 €

Structure of the Cost per Unit of Operation of a Vehicle

Diesel	0.302 €/km
Tires	0.029 €/km
Maintenance-repairs	0.077 €/km
Kilometer range	0.408 €/km
Tolls	0.081 €/km
Kilometer range	0.489 €/km
Wages and other remuneration elements	13.78 €/h
Wage charges and other remunerations	4.54 €/h
Travel expenses (daily average)	4.22 €/h
Total per vehicle operating day (CC)	22.54 €/h
Cost of tractor retention	51.05 €/d
Cost of semitrailer retention	13.58 €/d
Insurance	11.5 €/d
Taxes	2.26 €/d
Total per operating day (CV)	78.39 €/d
Structural charges and other indirect charges (CS)	85.27 €/d
Daily range	163.66 €/d

Structure of the Cost of a Vehicle

Diesel percent	23.8 %
Tires percent	2.3 %
Maintenance-repairs percent	6.1 %
Tolls percent	6.4 %
Wages and other remuneration elements percent	21.7 %
Wage charges and other remunerations percent	7.0 %
Travel expenses (daily average) percent	6.6 %
Cost of tractor retention—structure percent	8.1 %
Cost of semitrailer retention—structure percent	2.2 %

Insurance—structure percent	1.8 %
Taxes—structure percent	0.4 %
Structural charges and other indirect charges (CS) percent	13.6 %

Summary of the Costs of a Vehicle

Cost synthesis (cost price)	143,667.0 €

Trinomial Formulation

The trinomial formulation can calculate simply and quickly, the cost of a transport operation.

Kilometre range (1 km run) CK	0,489 € (0,408 € without toll)
Daily range (vehicle cost + structural cost) CV + CS	163,66 €
Hour range (1-hour working period) CC/h	22,54 €

Annex 5 Sample Questionnaires for Specific Areas of Road Transport Service

These samples are not exhaustive, they are just giving an orientation on the main questions to be asked in order to obtain information about one area or another. Depending on the country's specific situation, some details can be deleted or additional questions and categories of answer options can be included, as appropriate. The interviewees should be encouraged to supplement the questionnaires with elements that are important to them.

The questionnaires should all include an introductory part capturing the information about the respondents; this is needed for the comparability and the analysis of data. This introductory information should cover at least:

- The respondent (transport company/association/client, institution, organization. . .)
- Date and location of the interview
- [Name and] position of the interviewed person

For the transport operators, companies and transport services providers (formal or informal), the questionnaire should include a mandatory introductory part covering:

- [Road transport] company name
- [Name and] position of the interviewed person
- Date and location of the interview
- Annual turnover
- Number of employees
- Number of trucks
- Volume of goods transported annually (quantity or percentage of activities)
  - Container trucking
  - Break bulk (Full Truck Load: FTL)
  - Break bulk (Less Than Truck Load: LTL)
  - Tanker road transport
  - Other road transport (describe):
- Other activities (Yes/No and percentage of the turnover)
  - Storage/warehousing
  - Forwarding
  - Brokerage
  - Other (describe)
- Geographical scope of activities at the time of the interview
  - Local (regularly, occasionally, exceptionally)
  - Regional (between administrative units of the country) (regularly, occasionally, exceptionally)
  - National (regularly, occasionally, exceptionally)
  - International (regularly, occasionally, exceptionally)
    - Cross-border (max. 50 km beyond the border)
    - Long distance
- What are the main trade corridors you serve?
- How important are routes other than corridors in your total business (what share of volume transported?)

In case a confirmation of the problems identified in the preliminary consultation is needed, the following set of questions could also be included in all the questionnaires.

- Do you think that the following present any obstacle to the current operations of your establishment? (Y/N)
  - Infrastructure problems
    - Missing links in the road network
    - Poor road condition
  - Input costs
    - Cost of vehicles
    - Cost of maintenance and spare parts
    - Fuel costs
    - Labor costs
    - Lack of backload
    - Road accidents
    - Corruption and Roadblocks
    - Crime and security
    - Rail competition
  - Regulation problems/Governance
    - Regulation of licenses
    - Freight allocation
    - Border-crossings
    - Transit regime
    - Practices of competitors in the informal sector
    - Governance of the transport sector (Please describe)

- Logistics and marketing
  - Logistics to minimize idle time
  - Monitoring of trucks and drivers on their way
  - Communication with the client
  - Competitive Repositioning
- Other
  - Lack of business/demand
  - Unfair competition from more dominant companies
  - Traffic/congestion
  - Access to finance
  - Informal payment requests
  - Taxes
- Other (Please specify)

Sample questionnaire concerning the driver (the respondents should mainly be drivers, transport operators, transport companies)

The questions may be rephrased depending on if the interviewee is a truck driver, a driver-owner or a manager of a trucking company.

- Are you employed full time or part time?
- Are you employed with a contract?
- How many hours a week do you work?
- How many years of experience working in this sector do you have?
- What is your highest level of education?
- Initial qualification
  - What kind of professional training did you obtain before becoming a professional truck driver?
  - How many hours of study/practice, what tests?
- Upon your recruitment, what kind of requirements do companies ask for?
  - Have you been driving for over 7 years?
  - Have you had two or more speeding violation in the last 3 years?
  - Have you had more than one accident in the last 3 years?
  - Have you ever had your license suspended?
  - Have you had your license revoked in the last 5 years?
- Continuous (on the job) training: did the company provide any special skills training after recruiting you? E.g. for cargo loading, stowing, securing or for the transport of:
  - Dangerous goods
  - Perishable foodstuff
  - Livestock
- According to your national legislation, are you liable for your truck's weight? If yes, have you been fined for breaking the weight standards (overweight, total or axle)?
- Are you insured? If yes, please indicate who is paying for the insurance (self, employer, joint).
  - Health
  - Third-party
  - Vehicle
  - Cargo
- Was a gift/informal payment expected or requested at any time during your training or recruitment, in order to obtain a license/certificate/permit. . . ?
- Are you a member of a Drivers' Trade Union/ Syndicate/ Association? If so,
  - Do you pay a membership fee?
  - For which of the following reasons did you join the Association?
    - To get your rights defended
    - Networking: finding opportunities for contracts and deals
    - Other
- Do you operate mostly during the day or night?
- In the past year, have you been victim and/or did you experience losses as a result of road accidents or theft and robbery?

Sample questionnaire concerning the vehicle (the respondents should mainly be transport operators and companies)

- Please provide answers to the following questions for the trucks that you own or lease and are functional:
  - How many do you have? (new/second-hand)
  - What is your fleet's capacity (total and average)
  - What is the average age of your vehicles? (new and second-hand)
  - How many have been on the road in the last 6 months?
  - What is the average mileage of your trucks?
  - How many years of use on the road do you typically get from each?
  - What is the average age of second hand vehicles at time of purchase?
  - Do you intend to add trucks to your fleet within the next 2 years? (Why?)
  - Did you purchase at least one vehicle in the last 5 years?
- What are the main constraints when buying a truck?
  - Price unaffordable
  - Uncertainty of the business
  - Importation of second-hand trucks is prohibited
  - Other

- What resources would you consider if you were to purchase a truck today?
  - Loan
    - Formal Bank credit (what would the interest rate be?)
    - Informal financing (what would the interest rate be?)
  - Company cash flow
  - Personal savings
  - Other (specify):
- Which is the main reason for your financing choice?
  - Eligibility for a formal loan
  - Interest rates
  - Bureaucratic procedures
  - To avoid risk
- What type of vehicles is your fleet including?
  - Truck (2/3/4 axles; heavy/medium/light weight)
  - Trailer (5 axles; heavy/medium/light weight)
  - Semi-trailer (2/3/4 axles; heavy/medium/light weight)
  - Tractor (3 axles; heavy/medium/light weight)
  - Other (describe)
- Cost breakdown of total company costs (share of total costs in %)
  - Vehicle costs
    - Depreciation of vehicle
    - Interest vehicle
    - Infrastructure use (road tax, vignettes, toll. . .)
    - Tires
    - Fuel
    - Repair and maintenance
    - Other vehicle costs:
- Do you monitor your fuel consumption?
  - No
  - Per truck: annually, monthly, per trip (Y/N)
    - Other (Please specify)
  - Per driver: annually, monthly, per trip (Y/N)
    - Other (Please specify)
- For the most common type of truck you have, what is the fuel consumption per 100km?
- In the year preceding the interview, what was your average monthly fuel consumption? (Liters/month and LCU/month)
- Do you monitor accidents and damages to your trucks?
  - No
  - Per truck: annually, monthly, per trip (Y/N)
    - Other (Please specify)
  - Per driver: annually, monthly, per trip (Y/N)
    - Other (Please specify)
- In the year preceding the interview how many breakdowns did you have per truck?
- What was the average cost per breakdown?
  - Repair
  - Spare parts
  - Recovering truck
  - Lost revenue
  - Other cost
- In the year preceding the interview how many accidents did you have per truck?
- What were the main causes?
- For accidents, what were the additional costs compared to a breakdown?
  - Fines/compensations to be paid
  - Other
- In the year preceding the interview what percentage of your tires were purchased:
  - New
  - Used
  - Retread
- What is the average life of the tires purchased
  - New
  - Used
  - Retread
- According to the national legislation, is technical inspection mandatory?
  - As a pre-requirement for registration
  - Periodically (how often)
  - Depending on mileage (how many km)
  - For special vehicles (e.g. dangerous goods)
- If not mandatory, how often have your trucks been inspected in the last year?
- Who has inspected the truck?
- What was the cost of inspection?
- How much time did it take you to get your truck inspected?
- How many days on average did the trucks not transport any goods in the year preceding the interview? (e.g. they were idle, inactive because breakdowns . . .)
- What were the main reasons for idle times of trucks or empty transports? (percentage, ranking)
  - Delays in loading/unloading operations
  - Difficulty to find cargo
    - Not enough freight
    - Freight allocation mechanisms (e.g. queuing or tour de role)
    - Not able to find cargo for the way back
    - Backhaul loading prohibited
  - Decisions taken by institutions (please explain)
  - Prices not profitable
  - Breakdowns
  - Accidents
  - Other (please specify)

Sample questionnaire for market structure (the respondents should mainly be transport services providers, formal or informal)

- How many trucks do you own or operate? How many tractor/trailers?

- What is your fleet's capacity (total and average)
- How much do you estimate your annual cash expenses are, including interest charges (but excluding non-cash items like depreciation, and excluding taxes).
- What percentage of your firm is owned by:
  - Private domestic individuals
  - Private foreign individuals
  - Other
- Cost breakdown of total company costs (share of total costs in %)
  - Vehicle costs
    - Depreciation of vehicle
    - Interest vehicle
    - Infrastructure use (road tax, vignettes, toll. . .)
    - Tires
    - Fuel
    - Repair and Maintenance
    - Other vehicle costs
  - Costs of driving personnel
    - Wages incl. social security
    - Subsistence and other personnel costs
  - Specific transport costs
    - Costs for cargo insurance, documents, inspections, etc.
    - (Ferries, mode change costs, etc.)
  - General costs/overhead
    - Wages incl. social security
    - Premises costs (e.g. if you pay a rent for your offices)
    - Other general costs:
  - Total costs
- How do you usually get your business?
  - Newspapers/internet
  - Manufacturer
  - Shipper/owner of the goods
  - Intermediaries
  - Free market (freight exchange system/bourse de fret)
  - Restricted market (freight allocation mechanism/ tour de role)
  - Waiting at the lorries' park
  - Other
- Which method do you use to determine your prices in each case?
  - Firm's list price
  - Negotiation with client/Contract
  - Fixed by unions/transport associations
    - If your prices are fixed by unions, do you, nonetheless, negotiate prices with the client? (Never/Occasionally/Always)
  - Fixed by Government authority
  - Market price
  - Other (please specify)
- Do you vary your prices according to the season or type of goods?
- In the year preceding the interview, what percentage of the volume of your freight business was:
  - Transport of goods produced by other firms
  - Subcontracted formally from another transport firm
  - Subcontracted informally from another transport firm
  - Other (Specify)
- Can you describe the freight access regime in place? Does this differ in any way within the country, for international routes, or by freight corridor?
- In case your main activity is not to provide road transport services, do you typically quote the prices for road freight services separately to customers, or are they part of an all-in price?
- Did you obtain any of these licenses before you began operations? (Please specify if company or truck level)
  - License to operate
  - License to own vehicle
  - License to have truck on the road (national/ international)
  - License specific to cargo
  - Insurance certificate
  - Technical inspection certificate
  - Other (Please specify)
- How much does each of the licenses/permits cost?
- How many days did it take to get the road transport license(s) and permits?
- Was a gift/informal payment expected or requested in order to obtain a license?
- Are there any minimum fleet requirements to obtain licenses?
- Which documents are needed per trip?

	Who Is Checking These Documents	Official Cost to Obtain	Bribes	Time to Obtain Document
Truck				
Truck letter				
Registration certificate				
Business license				
Driver's license				
Technical control certificate				
Insurance card				
Other (Please specify)				
Cargo/Freight				
Export certificate				
Import certificate				
Other (Please specify)				
People on the truck				
Identity card				
Passport				
Laissez passer				

- Are you a member of a Road Transport Association? If yes,
  - Do you pay a membership fee?
  - What is the name of the Road Transport Association?
  - For which of the following reasons did you join the Association?
    - For lobbying purposes
    - Networking: finding opportunities for contracts and deals
    - To get assistance with licensing
    - Other (specify)
- In the year preceding the interview, for the route on which you operated the most frequently, please answer the following questions.
  - Origin
  - Destination
  - Total one trip distance
  - Turnaround time
  - Number of turnarounds/year
  - Yearly mileage of a truck
  - Yearly mileage on empty-haul
  - Price charged (to go) per unit
  - Price charged (to return) per unit
  - Average load from origin to destination
  - Likelihood of being asked for a bribe increases on route
  - Bribes per trip
  - Mainly operate at night or day
  - Number of days your trucks are idle per trip
  - What is the most common factor explaining the number of days your trucks remain idle per trip? (Lack of load/oversupply of vehicles/Prices below breakeven point/Decisions made by institutions in charge of freight allocation/Frequent vehicle breakdown/Other (Specify):
  - Principal product(s) transported
  - Is this a cross-border route?
  - Number of control points for axle-load regulations
  - Percentage of trip with overload fines
  - Number of overload fines per trip
  - Average fine amount for overload
  - Principal product(s) transported as backload
- How many years of experience working in this sector do you have?
- What is your highest level of education?

- At the time of the interview, how many employees (full-time) is your company employing?
- How many women in each of the categories?
  - Management level
  - Administration
  - Drivers
  - Mechanics
  - Other (Please specify)
- Please describe the full-time seasonal/temporary drivers of your establishment in the year preceding the interview:
  - Total number of seasonal/temporary drivers
  - Average length of employment (months)
  - What has been the trend for wages in the past 5 years in the trucking industry?
    - Increased less than 10%
    - Increased 10–20%
    - Increased more than 20%
    - Remained the same
    - Decreased
- In the year preceding the interview, did you pay for security (equipment, personnel, or professional security services)?
- If yes, how much was spent? (calculated as total annual cost or as a percentage of annual sales)
- In the past year, did you experience losses as a result of road accidents or theft and robbery? If yes, what were the estimated losses? (calculated as the total annual value or as a percentage of annual sales)

The following questions should be included in questionnaires meant to identify weaknesses in transport and transit rights for operators carrying goods across borders.

- Are there any restrictions preventing you from operating abroad? If yes, in which countries?
  - Lack of transit rights
  - Lack of transport rights
  - Cabotage prohibited
  - Backhaul prohibited
  - Triangular (third-country) transport prohibited
  - Other
- In what year did you begin operations outside of the country?
- Please name up to 3 main foreign countries where you operate
- Please name up to 3 main transit countries you cross during operations
- Do you need a permit from the host country to transport or transit its territory? If yes, do you obtain enough permits to carry out your activities?
- Did you have problems in foreign countries because the standards were different for:
  - Vehicle (pollution norms etc)
  - Weight and dimensions
  - Driver's license
  - Cargo quality
- Did you perform any cross-border transportation of freight in the year preceding the interview? If so,
  - What was the main point of exit that you used?
  - What was the average amount of time it took to cross this border?
  - What was the average amount of time you waited to pick up freight once inside the loading place?
  - What was the average turnaround time between the time you entered the loading place to pick-up freight and the time you exited it?
  - How much was spent and to whom in en-route bribes on cross-borders routes (calculated as total annual cost or as a percentage of annual sales)?
    - to public officials
    - racketeers
    - others
- Please indicate the likelihood with which you were asked for a bribe in a foreign country
  - At a weighbridge
  - At a road block
  - At a border post
  - At a port
- Do you give additional money to the driver to pay the bribes? (Y/N) If yes,
  - How much per trip usually
    - Corridor from X to Y
    - Corridor from A to B
    - Corridor from D to E
- Which documents are needed for cross-border transport? (with country X)

Type and Name of Document	Costs
Document :	
Document :	
Document :	
Document :	
Document :	
Document :	

- When you operate on cross-border routes, for which shipper do you transport goods?
  - Multinationals
  - Local manufacturing companies
  - Other (Specify)
  - Total

- Do multinationals have special requirements in terms of transport?

  If yes, what did you have to do to comply with these requirements?

  - Invest in equipment (trucks)
  - Undergo special training
  - Change/comply with insurance policy
  - Other (specify)

More and more developing countries adopt or consider adopting policies aimed at protecting the environment. The following questions could be included in questionnaires covering aspects related to greening the road transport sector.

- Is any of the following greening techniques used by your company?

Truck Technical Characteristics	Buying new(er) trucks	Y/N
	Buying fuel efficient trucks	Y/N
	Buying trucks with smaller engines	Y/N
	Buying more energy efficient tires	Y/N
	Other:	
Use of Other Modes/Intermodal Transport	Rail	Y/N
	Other:	
Improving Operations	Load factor (actual load/loading capacity)	Y/N
	Use of transport planning software	Y/N
	Other:	Y/N
Monitoring Fuel Consumption	Total fleet (per year)	Y/N
	Per truck	Y/N
	Per driver	Y/N
	Per client/shipper	Y/N
	Per trip	Y/N
	Other:	
(ECO-) Training Drivers	Eco-driving training for drivers	Y/N
Monitoring Performance	Special annual report, e.g. based on GRI 1)	Y/N
	Periodical evaluation on base of KPI's 2)	Y/N
	A special "fuel efficiency" manager	Y/N
	Performing bench marking with other companies	Y/N
	Other:	
Other		

- Please indicate which greening initiatives/policies could motivate your company to further invest in the "greening" of transport activities? (Please indicate the importance of such a measure on a scale of 1 (totally not important) to 10 (extremely important))

Measure	Importance
Investments in road infrastructure	Importance (1–10) . . . . .
Investments in multimodal terminals	Importance (1–10) . . . . .
Fleet renewal schemes (tax reduction, subsidies)	Importance (1–10) . . . . .
Introduction of vehicles tax schemes based on emissions	Importance (1–10) . . . . .
A special emission fuel tax	Importance (1–10) . . . . .
Tax incentives to promote alternative fuels (if available, think about biodiesel etc)	Importance (1–10) . . . . .
Introduction of tolls related to the emissions of a truck	Importance (1–10) . . . . .
Introduction of a road pricing system based on the emissions of a truck	Importance (1–10) . . . . .
Application of transport planning systems (software) to reduce empty kilometers	Importance (1–10) . . . . .
Mandatory monitoring and reporting of emissions and greening policies at company level	Importance (1–10) . . . . .
Fuel saving through driver training (eco-driving)	Importance (1–10) . . . . .
Changing regulations on weights and dimensions (such as extra long trucks)	Importance (1–10) . . . . .
Multilateral permits system including incentives for greener and safer trucks	Importance (1–10) . . . . .
City/region entrance limitations for "dirty" trucks	Importance (1–10) . . . . .
Other	Importance (1–10) . . . . .

Additional questions concerning regulations and governance

- What is the most important *regulatory* restriction you face on the routes that you operate?
  - Licenses and permits (Please distinguish between company and truck level)
  - Axle-load (limits, enforcement, weighing stations, . . .)
  - Road Safety/Avoid accidents
  - Insurance
  - Other (Please specify)
- Please rank according to priorities of actions that should be taken: (1–3)
  - Invest in new road infrastructure
  - Reduce operating costs (e.g. fuel, tires. . .)
  - Ease regulations
- How often do you have to pay bribes to public officials on cross-border routes?
- Where are you most likely asked to pay a bribe inside your country?
  - At a weighbridge
  - At a road Block
  - At a border Post
  - At a port
  - Other
- How much was spent in en-route bribes to public officials (calculated as total annual cost or as a percentage of annual sales)?
- Does the payment of a bribe depend on the nature of your cargo? If yes, which cargo/type of cargo increases the probability of paying a bribe when stopped?
  - Oil products
  - Manufactured products
  - Food products
  - Container
  - Other (Specify):
- What is the percentage of trip with overload fines?
- What is the average fine amount for overload?

Annex 6 National Survey on Road Transport Sector in Indonesia (2014)

Contact Details
Name:

Position:

Company name:

No. HP:

A. CONTROL INFORMATION

A.1 In which year was your company established?_____

A.2 What is the city of your main establishment?_____

In case you have other establishments, in which cities are they located?_____

A.3 What is the number of full-time paid employees?_____

What is the number of trucks owned?_____

A.4 Type of respondent:

	Yes	No
Freight Forwarder		
Stevedoring Services		
Stuffing Services		
Shipping liners		
Warehousing		
Customs Services		
Others, Specify_____		

B. GENERAL INFORMATION

Note: Questions B1 apply to your entire firm, including all its establishments

B.1 What percentage of your firm is owned by:

Private domestic individuals (companies or organizations)	
Private foreign individuals (companies or organizations)	
Government (national, local)	
Other:_____	
TOTAL	**100%**

B.2 Are you a member of a Transport Association? Yes/No

If yes, which?_____

C. VEHICLE FLEET

How many of the vehicles in your fleet fall into each of the following categories

	0–5 Years	6–10 Years	11–15 Years	≥ 16 Years
Truck				
Trailer				
Tanker				
TOTAL				

D. TRUCKING OPERATIONS

Please, identify up to four (4) frequent routes on which your trucking service is operated. For each route, provide the following information per truck.

	Route Characteristics	Description or Unit	1st	2nd
a	Origin	Place name		
b	Destination	Place name		
c	Total one trip distance (one way)	km		
d	Main Type of Road (See table below)			

	Route Characteristics	Description or Unit	1st	2nd
	Asphalt (Bitumen)	Mark one (x)		
	Earth (wide)			
	Earth (narrow)			
	If other, specify			
e	How would you rate the quality of the road? (see table below)			
	Very good (well-maintained road, enough wide, Good surface, secure)	Mark one (x)		
	Acceptable (maintained sufficiently to be usable)			
	Not good (not well maintained, narrow, dangerous)			
	Unequal quality along the road			
f	On average, what is your speed on this route?	Km/h		
g	Average age of operating trucks	Years		
h	Average tare weight of vehicle mostly used on this route (weight of the vehicle only; it excludes the weight of its content)	Tons		
i	What is the trips total in this route per month?	Number		
	What is the number of turnarounds per month?			
	• Turnaround time (including waiting time)	Hours		
	• Of which, waiting time only	Hours		
	• % of empty return trips	%		
	What is the number of one way trips per month?	Number		
	• One trip time (including waiting time)	Hours		
	• Of which, waiting time only	Hours		
j	What is the main constraint on this route (see table below)			
	Lack of load/oversupply of vehicles	Choose 3 in order of importance (mark 1,2 or 3)		
	Road condition			
	Seasonality of loads			
	Security problems			
	Congestion on the road			
	If other, Specify_____			
k	Days of operations per month per truck (COMPUTED)	Days		
l	Monthly mileage of a truck (COMPUTED)	km		
m	Monthly mileage on empty-haul (COMPUTED)	km		

E. MARKET AND PRICING

	Cargo Price and Load	Description or Unit	1st	2nd
n	Principal products transported to go/outbound (up to 3)	Mention	1.	1.
			2.	2.
			3.	3.
o	Principal products transported as backhaul/inbound (up to 3)	Mention	1.	1.
			2.	2.
			3.	3.
p	• Average load to go/outbound	Tons		
	• Average load to return/ inbound	Tons		
q	Price charged to go/ outbound	Rp		
r	Price charged to return/ inbound	Rp		
s	Request for informal payment/gift per trip			
	• To go/ outbound	Rp		
	• To return/ inbound	Rp		

E.1 Which method to you use to determine your prices in each case?

Method to Determine Price (choose one)			
Firm's List Price	Negotiation with Client	Fixed by Unions or Transport Associations	Market Price

E.2.a. Who are your direct competitors?

Local manufacturing companies which transport the goods that they produce	
Individual truckers who own their vehicle	
Local small and medium trucking companies	
Local large trucking companies	
Foreign trucking companies	
If other, specify _____	

E.2.b. In the past 5 years, what has been the trend in your operations for:

	Increase	The Same	Decrease
Number of trips sold			
Price per trip			
Number of fleets			

E.3. Last year, what percentage of your total annual revenue was generated by your largest client? _____%

Do you have formal agreements (e.g. contract, letter of intent) with your main clients? _____

- If Yes, do they include any of the following characteristics?

Multi- Year contract or agreement	
Fixed or minimum load to transport (tons, trips, etc.)	
Fixed unit prices (e.g. per trip or per volume unit) below usual market price	
Specific requirements on equipment or fleet (e.g. age of vehicles, type of engine, type of tractors and trailers,. . .)	
Specific requirements on training or on certification of employees (managers or drivers)	
Minimum quality certification of the carrier (e.g. financial stability certification, ISO certification, etc.)	
If other, specify _____	

F. PRODUCTIVITY

F.1 The increase in revenue of your company during 2010–2013_____(%)

F.2.a. How much fuel does the average truck use per 100 km _____

b. At which age do sell your trucks to buy new ones _____ years

c. What type of trucks do you buy normally in percentage?

EU/US Trucks	Japanese Trucks	Chinese Trucks	Other Brand (specify)	TOTAL
				100%

G. CONSTRAINTS

G.1 Please classified the constraint by its effected in each category

	Infrastructure Problems	No Obstacle	Minor Obstacle	Moderate Obstacle	Major Obstacle	Very Severe Obstacle
1	Missing links in the road network					
2	Poor road condition					
3	Congestion on main roads					

Infrastructure Problems		No Obstacle	Minor Obstacle	Moderate Obstacle	Major Obstacle	Very Severe Obstacle
4	Congestion around major population centers/cities due to lack of bypasses or alternative routing					
5	Restrictions on periods of time for entering in large cities					
Input Costs						
6	Cost of vehicles					
7	Cost of maintenance and spare parts					
8	Fuel costs					
9	Labor costs					
10	Lack of backload					
11	Road accidents					
12	Corruption and roadblocks					
13	Crime and security					
14	Tax rates					
15	Tax administration					
Regulation Problem						
16	Regulation and licenses					
17	Freight allocation					
18	Border-crossings					
19	Practices of competitors in the informal sector					
20	Stopping time for inspection					
21	Phytosanitary regulations					
Labor Problems						
22	Inadequately trained workforce (drivers and mechanics)					
23	Health problems of the drivers					

G.2 Of the following 4 types of actions, which one would be your first priority?

Invest in new road infrastructure	
Invest in existing road rehabilitation	
Reduce input costs	
Ease regulations	

Annex 7 Example of a Driver's Certificate of Professional Competence

iru.org/academy

IRU ACADEMY

CPC DRIVER CERTIFICATE

Awarded with distinction on 12 October 2012 to

Damir TVRDICA

Born in Split, Croatia, on 29 February 1976, certifying qualification in the

Certificate of Professional Competence (CPC) for Driver

Initial Qualification for Truck Drivers Cat. C, C+E, C1, C1+E

Possession of this qualification is confirmed by the IRU Academy on its web site under Graduate Viewing Code: 5671234/J1 or /P1.
This certificate is valid until (Code 95) 11 October 2017.

The training is provided by the IRU Academy Accredited Training Institute DTC, in full compliance with the EU Directive 2003/59/EC, on subjects referred in section 1 of Annex A and the strict criteria fixed by the IRU Academy, endorsed by its high level Advisory Committee, regarding instructor qualification, training and examination to provide and ensure the highest professional skills and quality in road transport.

Certificate ID DTCCOCPD73741234

Mr Umberto de Pretto
Secretary General
International Road Transport Union (IRU)
Switzerland

Mr Vladimir Muster
State Secretary
Ministry of Transport and Communications
Croatia

Mr Petar Pevac
General Manager
DTC
Croatia

Annex 8 Summary of Hours of Service Regulations[89] in the USA

The following table summarizes the HOS regulations for property-carrying and passenger-carrying drivers Updated: Thursday, December 18, 2014

Hours-of-Service Rules	
Property-Carrying Drivers	**Passenger-Carrying Drivers**
11-Hour Driving Limit May drive a maximum of 11 hours after 10 consecutive hours off duty.	10-Hour Driving Limit May drive a maximum of 10 hours after 8 consecutive hours off duty.
14-Hour Limit May not drive beyond the 14th consecutive hour after coming on duty, following 10 consecutive hours off duty. Off-duty time does not extend the 14-hour period.	15-Hour Limit May not drive after having been on duty for 15 hours, following 8 consecutive hours off duty. Off-duty time is not included in the 15-hour period.
Rest Breaks May drive only if 8 hours or less have passed since end of driver's last off-duty or sleeper berth period of at least 30 minutes. Does not apply to drivers using either of the short-haul exceptions in 395.1(e). [49 CFR 397.5 mandatory "in attendance" time may be included in break if no other duties performed]	60/70-Hour Limit May not drive after 60/70 hours on duty in 7/8 consecutive days.
60/70-Hour Limit May not drive after 60/70 hours on duty in 7/8 consecutive days. A driver may restart a 7/8 consecutive day period after taking 34 or more consecutive hours off duty. Must include two periods from 1 a.m. to 5 a.m. home terminal time, and may only be used once per week on 168 hours, measured from the beginning of the previous restart. Suspended NOTICE: The Consolidated and Further Continuing Appropriations Act of 2015 was enacted on December 16, 2014, suspending enforcement of requirements for use of the 34-hour restart. For more information see FMCSA's Federal Register notice: www.fmcsa.dot.gov/regulations/hours-service/hours-service-drivers	Sleeper Berth Provision Drivers using a sleeper berth must take at least 8 hours in the sleeper berth, and may split the sleeper berth time into two periods provided neither is less than 2 hours.
Sleeper Berth Provision Drivers using the sleeper berth provision must take at least 8 consecutive hours in the sleeper berth, plus a separate 2 consecutive hours either in the sleeper berth, off duty, or any combination of the two.	

[89] http://www.fmcsa.dot.gov/regulations/hours-service/summary-hours-service-regulations

Annex 9 Syllabus of the Main Topics to Be Covered for the Managers "Certificate of Professional Competence"

Subject Area	Topics Covered
Road Transport Legislation	Operator licensing
	Driver licensing
	Drivers hours regulations
	Traffic regulations
	Dangerous goods regulations
	Public service vehicle regulations
	Vehicle construction and use regulations
Road Transport Management	Management objectives and comparative advantage concepts
	Market analysis
	Vehicle selection
	Vehicle utilization
	Computerized and manual scheduling
	Use of computers in fleet management
	Traffic management
	Competitive tendering
	Negotiation and contracts
	Vehicle maintenance
	Facilities and staff planning
	Employment law and practices
	Defect reporting
	Fuel management
	Cost benefit analysis
	Accounting and budgeting
	Controlling expenditure
	Risk management
	Health and safety issues

Subject Area	Topics Covered
	Accident procedures
	Security
	Insurance
Vehicle Engineering Management	Legal aspects
	Vehicle construction and use regulations
	Safety inspections
	Deriving a vehicle technical specification
	Use of statistics and analysis
	Current development in technology
	Workshop design and stores control
	Workshop and fitter performance measurement
	Health and safety issues
	Workshop and vehicle costing and budgeting

Annex 10 IRU Academy CPC Manager Program

The IRU Academy has established training standards for the Certificate of Professional Competence (CPC) in international and national transport for road haulage on the basis of international legal instruments and best practices.

The IRU Academy CPC Manager is aimed to transport operators and other professionals who are required to hold a Certificate of Professional Competence in order to comply with the requirements to access to the profession or who get engaged in international transport. The programme also suits the needs of managers and other staff who would like to improve their career prospects and develop their management skills and transport knowledge as well as to entrepreneurs and operators who would like to start their own transport enterprise.

The IRU Academy course standards have been developed to allow maximum flexibility to the Accredited Training Institutes (ATI) to adapt their training programmes to meet national needs and specific features. However, all Accredited Training Institute CPC programmes must cover the following subjects:

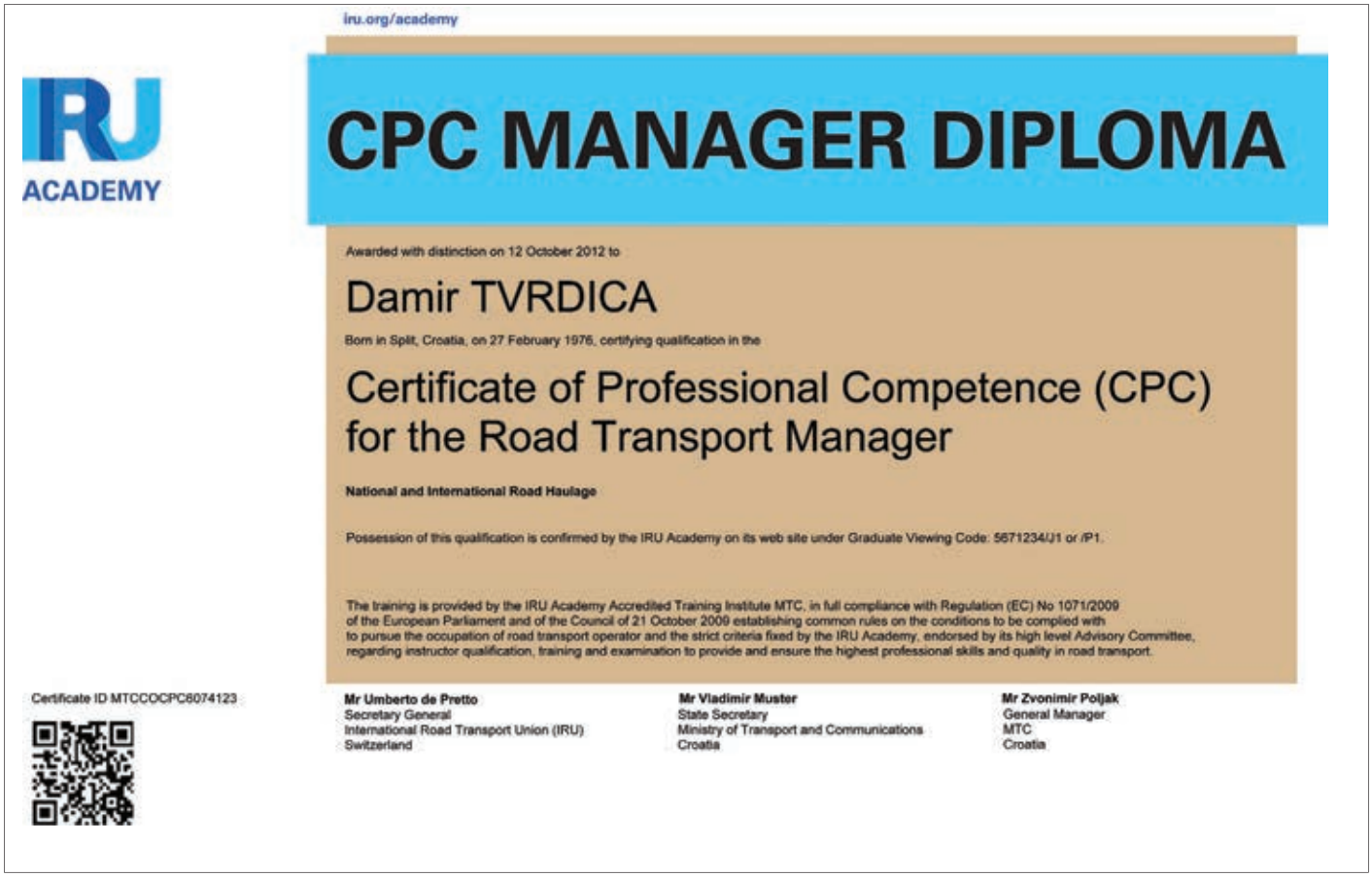
- **Civil Law**—Contracts, contract negotiations, claims, CMR Convention.
- **Commercial Law**—Business organizations and legal obligations, constitution and operation and dissolution of commercial companies
- **Social Law**—Codes of practice in industrial relations, role and function of various social institutions (trade unions, arbitrators, government agencies, etc.), rights of employers and employees, social security legislation, employment law and industry codes of practice, driving and working time regulations.
- **Fiscal law**—Motor vehicle tax, infrastructure user charges, tolls and taxes, corporate and personal income tax, double taxation, international and national rules on VAT.
- **Business and financial management of the undertaking**—Payments, bank credit, guarantee deposits, mortgages, leases, hire purchase, content and layout of balance sheets, profit and loss account assessment of undertakings profitability and financial standings, budgets, financial ratio analysis, cash flow management and cost management, organizational structure, work planning, marketing and public relations, financial risk management and insurance, electronic data transmissions, GPS utilisation, route and load planning, invoicing, quotations, Incoterms, strategic partnerships, relationships and interface with other transport modes, freight forwarders, trade facilitation organizations, stock control, quality management and human resources management control, quality management and human resources management.
- **Access to the market**—Operator licensing, renting, sub-contracting, admission to the occupation, authorizations, inspections and sanctions, registration requirements, required documents and legal compliance, ECMT quota, customs rules, TIR system and Community Common Transit system, ATA carnets, procedures at frontiers.
- **Technical standards and aspects of operation**—National and international legislation governing the weights and dimensions of vehicles, vehicle requirements according to the needs of the undertaking, legislation and regulation to type approval, measures and practices for reducing noise and decreasing air pollution, vehicle construction, technical inspection, periodic maintenance, cargo handling and loading, piggy-back, roll-on roll-off combined transport, safety issues, legislation on the carriage of dangerous goods and waste, regulations and procedures on the carriage of perishable foodstuffs, rules on the transport of live animals, routing and scheduling vehicles, traffic management.
- **Road safety**—Driving licences and permits, medical certificates, vocational driving and theory tests, minimum age, penalties and appeals, harmonization of social legislation, driving and

working times, AETR rules, current practice in safe driving, traffic and parking restrictions, special zones, traffic rules, main provisions of the Convention on Road Traffic, safe working practices and risk assessment procedures and systems, traffic accidents and offences, main route network, driving techniques and driver assessment and incentives.

- **Health**—Implementation of procedures which will contribute to maximise personnel's physical and mental ability.

It is left to individual training organizations to deliver the programme and modify its sequence according to local needs, methodologies and pedagogical approaches. Additionally, where and when applicable, relevant national legal provisions have to be included in the programme.

Example of a Manager's Certificate of Professional Competence



Annex 11 Spain's Strategic Plan of Action for 2009–2013 (PETRA II)

'Plan Estratégico de Actuacíon para el Transporte de Mercancías por Carretera', for the period 2009-2013.

Competency and Actions	Areas Mostly Concerned by the Actions									
Administration (public sector)	Social, labor	Professionalization	Safety	Infrastructure	Intermodality	Sustainability	New Technologies	Management of the Enterprise	Market Structure	Regulatory Framework
Guarantee the conditions for competition										
Maintain the qualitative conditions required for access to the profession and operating on the market									✔	✔
Progressively eliminate discrimination and restrictions for free competition									✔	✔
Intensify the control of the qualitative criteria	✔	✔	✔						✔	✔
Improve safety										
Support the training on safety	✔	✔	✔						✔	✔
Inspection plans			✔							✔
Install and operate weighing scales			✔	✔						
Rest areas on the road infrastructure			✔	✔						
Environment protection/improvement										
Promote fleet renewal and energy efficient vehicles										
Support the training on environment protection and energy savings										
Intermodal transport										
Freight platforms										

Competency and Actions	Areas Mostly Concerned by the Actions									
Administration (public sector)	Social, labor	Professionalization	Safety	Infrastructure	Intermodality	Sustainability	New Technologies	Management of the Enterprise	Market Structure	Regulatory Framework
Support business/enterprise (private sector) efficiency										
Improve the conditions for market transparency			✔			✔	✔	✔		✔
Maintain the existing observatories and establish new ones as needed	✔	✔	✔						✔	✔
Support the mutual guarantee bodies and other forms of aid to financing								✔	✔	
Eliminate the artificial barriers to the access to the profession and market									✔	✔
Support the internationalization of businesses								✔	✔	
Promote quality entrepreneurship										
Support the training	✔	✔	✔						✔	✔
Promote quality accreditation and certification								✔	✔	
Promote codes, catalogs and agreements on good practices for businesses	✔							✔	✔	
Support the implementation of new technologies							✔	✔	✔	
Contribute to social aspects										
Adapt social and labor aspects to the needs of the sector	✔								✔	✔

Competency and Actions	Areas Mostly Concerned by the Actions									
Businesses/Enterprise (private sector)	Social, labor	Professionalization	Safety	Infrastructure	Intermodality	Sustainability	New Technologies	Management of the Enterprise	Market Structure	Regulatory Framework
Improve business/enterprise (private sector) efficiency										
Expanding the array of services offered by the business		✔		✔						na
Adaptability of businesses to market changes	✔	✔						✔	✔	na
Optimization of costs	✔	✔	✔	✔	✔	✔	✔	✔	✔	na
Improve the commercial capacity (skills)		✔					✔	✔	✔	na
Business and/or commercial resizing in order to achieve the objectives above	✔	✔	✔			✔	✔	✔	✔	na
Improve the quality of services offered										
Professionalization through training of staff	✔	✔	✔		✔	✔	✔	✔		na
Improving enterprise's technological capacity		✔					✔	✔	✔	na
Transparent relation between transport operators and shippers								✔	✔	na
Capacity to maintain a competitive price policy		✔					✔	✔	✔	na
Capacity to respond to the intermodal demand		✔			✔			✔		na
Develop and implement safety management and training		✔	✔					✔		na
Business and/or commercial resizing in order to achieve the objectives above	✔	✔	✔			✔	✔	✔	✔	na
Improving the image of the business/enterprise (private sector)										
Transparent relation between transport operators and shippers								✔	✔	na
Implement new technologies in connection with modernization and innovation							✔	✔	✔	na
Fleet renewal and maintenance		✔	✔			✔	✔	✔	✔	na
Access to quality accreditation and certification								✔	✔	na
Environmental commitment		✔				✔	✔	✔		na

Competency and Actions	Areas Mostly Concerned by the Actions									
Businesses/Enterprise (private sector)	Social, labor	Professionalization	Safety	Infrastructure	Intermodality	Sustainability	New Technologies	Management of the Enterprise	Market Structure	Regulatory Framework
Improving the image of the business/enterprise (private sector)										
Optimize social benefits for those working within the enterprise or with it	✔	✔	✔		✔	✔	✔	✔		na
Job creation	✔	✔	✔		✔	✔	✔	✔	✔	na
Business and/or commercial resizing in order to achieve the objectives above	✔	✔	✔			✔	✔	✔	✔	na
Improving safety										
Fleet renewal and maintenance		✔	✔			✔	✔	✔	✔	na
Professionalization through training of staff	✔	✔	✔		✔	✔	✔	✔		na
Implement safety related technological innovations		✔	✔				✔	✔		na
Develop and implement safety management and training		✔	✔					✔		na
Business and/or commercial resizing in order to achieve the objectives above	✔	✔	✔			✔	✔	✔	✔	na
Environmental commitment										
Fleet renewal and maintenance		✔	✔			✔	✔	✔	✔	na
Adaptability to intermodal transport		✔			✔			✔		na
Business and/or commercial resizing in order to achieve the objectives above	✔	✔	✔			✔	✔	✔	✔	na
Social and labor aspects										
Optimize social benefits for those working within the enterprise or with it	✔	✔	✔		✔	✔	✔	✔		na
Job creation	✔	✔	✔		✔	✔	✔	✔	✔	na
Business and/or commercial resizing in order to achieve the objectives above	✔	✔	✔			✔	✔	✔	✔	na

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