

PIARC (World Road Association) Strategic Plan - 2024-2027

Technical Committee 2.3 – Sustainable Freight

Overview

Road freight transport remains essential for economic and social development in all countries. In the new context of climate change, high energy prices, scarcity of base resources and ageing infrastructure, TC 2.3 works will focus on the key factors that will enable an efficient and sustainable road freight transport. This means optimising land and road use for freight services and facilities, finding and enforcing the good compliance between vehicles and roads to minimize road wear while allowing more efficient freight vehicles and ensuring the right vehicle use the right road at the right time. Following previous cycle, the role and potential benefits of emerging technologies will be investigated and emphasis will be set on greening, considering all possible solutions to reduce road freight transport carbon footprint and other environmental nuisances, notably by seeking robust and energy efficient solutions. The question of road freight demand should also be addressed, as well as multimodal transport. A special attention will be paid to the contribution of women to transport, in LMIC but not only, and in particular to how it can improve road safety.

2.3.1 Efficient road infrastructure and operation for freight transport

Purpose: The purpose of this work is to highlight the specific benefits and needs that freight induces on road infrastructure in today's context, seeking compliance with economic, societal and environmental requirements. After recalling socio-economic grounds, the TC should focus on the various solutions, including emerging technologies, that are proposed to help road transport to efficiently contribute to a more sustainable freight transport system serving economic and social development.

Preliminary research questions: The output will not be a research publication. The following items should be addressed:

dynamic use of road space

freight facilities along roads as truck parking, truck control, truck lanes

spatial planning and land use issues related to freight facilities

road connectivity to multimodal/intermodal hubs

compliance of heavy vehicles with road infrastructure and regulation

direct and smart enforcement (weights and dimensions, vehicles, driving time, etc.)

Intelligent Access for freight transport

truck management

impact of heavy commercial vehicles on road safety

application of emerging technologies

Importance to roads agencies: This work is important to road authorities and agencies because many are facing ageing infrastructure, demands for allowing new freight vehicles and growing traffic and to expand the infrastructure lifetime. Road Freight Transport accounts largely for maintenance or development expenses, but can also contribute to economic development and wealth while providing revenues. It is therefore of the utmost importance to get a clear idea of the evolving needs of sustainable road freight and the new solutions that emerge in road use and design. Reducing the impact of heavy commercial vehicles on road safety is also a major concern to comply with a zero fatality on road target.

Audience: The target audience for this work will be road authorities, decision makers and technology providers.

Deliverables: Literature review, case studies, high impact summary, article in Routes/Roads magazine, seminar, workshop or conference.

Background to TC's work on this topic: During the previous cycle, a review of emerging technologies has been done and published. More specifically on overloading, important work was delivered to address the question of impact on road freight on infrastructure. Arusha's seminar highlighted the need for a better link of freight transport with socio-economic questions. The development of smart/direct enforcement appears also necessary to keep the efficiency and effectiveness of commercial vehicles' control in safe conditions and with an increasing volume of traffic. Emerging technologies and connected vehicles (V2V and V2I) allow new practices of smart enforcement which progressive implementation and harmonisation will be followed.

Low and lower-middle income countries: In many LMIC, freight transport remains key for bringing essential goods to the population. The availability of the road network and its ability to allow heavy goods vehicle is therefore critical. A specific seminar could be organised on this topic.

Gender inclusion & diversity: The workforce in road freight transport remains predominately male. However, there has been an increase in women truck drivers. There has also been limited participation from women in the road freight transport decision-making processes and stakeholder engagement practices. The work will highlight good practices or initiatives promoting women in freight transport.

Potential duration: Full cycle (4 years).

2.3.2 Greening of road freight

Purpose: The purpose of this work is to continue building upon the research initiated in the previous cycles to help the transport sector reduce its negative impact on the environment and climate. Consequently, it will address the question of the need for energy to transport goods, and the need for its reduction.

Preliminary research questions: The output will not be a research publication. The following topics should be addressed:

Strategies to optimize freight transport by working on the demand for road transport (decoupling economic growth and road freight traffic growth)

Requirements for road freight facilities and roads when using trucks with alternative drives

Multimodal approaches using rail and ships in combination with road

Finding robust and energy efficient solutions

Assessing road freight transport emissions and factors to reduce them

New status and cases of good practices

Electric Road System (ERS) will not be addressed in itself, but will be taken into account as one solution among others.

Importance to roads agencies: This work is important to road agencies because most of the current solution for a greener road transport require adapting road infrastructure (EV charging, ERS, heavier vehicles...) and the use of alternative modes in combination with roads.

Audience: The target audience for this work will be road authorities and agencies, decision makers and technology providers.

Deliverables: Literature review, case studies, high impact summary, article in Routes/Roads magazine, seminar, social media.

Background to TC's work on this topic: During the previous cycle, good practices and interesting innovations have been collected and a final report produced. But several domains as multimodality, among which are LMICs issues, could not be fully tackled.

Low and lower-middle income countries: Building a long-term resilient freight transport system in the context of climate change will require robust and low energy solutions. For many LMICs living under hard climate conditions and potentially lacking access to energy, the emergence of efficient solutions will provide more favourable outcomes. The TC could organise a seminar on this issue.

Gender inclusion & diversity: The contributions of women in many LMICs to transport are critical to the overall well-being of their livelihoods and economic conditions. Safety is a big concern for women in LMICs. Conducting outreach through surveys or listening sessions would contribute greatly to our TC's understanding of their transport needs and help to identify solutions of the greatest benefits. Putting forward such innovations could be an objective for the TC.

Potential duration: Full cycle (4 years)