

Weights and dimensions from a CT perspective

Related to the proposed amendment of Directive 96/53 [COM(2013) 195]

Standardisation is a strategic enabler of intermodal transport. Stability in the regulatory framework relating to weights and dimensions is an essential prerequisite of efficient and competitive road-rail Combined Transport, whereby clients can commit for long-term, and actors can take the corresponding investment decisions with confidence. Legislators should be cautiously aiming to create a stable legislative environment, which encourages capital expenditure into physical assets depreciated over several decades – such as CT wagons, intermodal loading units, handling equipment, and even entire transshipment terminals – without the threat of unforeseeable regulatory risk.

Frequently changing, unstable conditions lead to a general reluctance to invest, and ultimately result in stakeholders opting for the mode of transport offering the shortest lifecycles and lowest fixed costs: road. The excessive reliance of the European economy on road haulage during the second half of the 20th Century resulted in the European Union's unsustainable addiction to mineral oil, significant transport-safety problems, as well as the dramatic rise in European greenhouse gas emissions. The European Commission has realised this unfavourable trend and proposed – as a fundamental remedy – modal shift to sustainable transport solutions, like Combined Transport, most recently within the Transport White Paper adopted in 2011.

The extended dimensions for aerodynamic devices suggested by the Commission to Directive 96/53 produce most of their effects in longer distance road haulage, and that at relatively higher speeds, which makes up slightly more than half of the tonne-kilometres realised by road transport today. Rail freight and Combined Transport in particular are the most competitive over the very same longer distances, using predominantly electric traction, which enables at least 30% energy savings, while emissions of 75% fewer greenhouse gases per tonne-kilometre. Moreover, the safety performance of rail transport is 10-times better than trucking when compared on a tonne-kilometre basis, and 25-times if approaching from the aspect of fatalities.

The recently proposed revision of the Directive on the weights and dimensions of heavy road vehicles was justified by the Commission with the desire to reduce greenhouse gas emissions and the consumption of petroleum products, as well as an opportunity to improve road safety. UIRR fears that some measures contained in the draft amendment will hinder modal shift, which promises to deliver far superior results in the same areas; while other proposed amendments will undisputedly improve the legal framework of the transport sector. The legislator is cautioned to carefully consider the acceptance of those measures, whose counterproductive consequences may outweigh any potential advance that on the surface they may seem to offer.

Main comments to the Commission proposal:

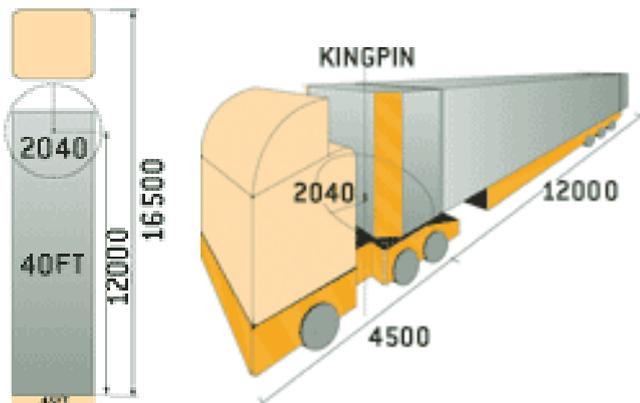
1. **Extension of the maximum allowed trailer length by 15cm** as a possibility for trucks in CT operations is welcome.
2. **Clarify the cross-border application of the 44t gross weight allowance** in case of HGVs performing CT positioning legs.
3. **Ensure CT compatibility of any dimension-extension** related to aerodynamic elements.
4. **Prohibit the cross-border circulation of megatrucks:** eliminate ambiguities from the existing legislative text.
5. **Define special reporting and enforcement obligations** for Member States that permit the use of megatrucks.
6. **Prevention of overloading and exceeding of dimensions:** every improvement is welcomed by UIRR.
7. **Use the definition of *Combined Transport*** from Directive 92/106, instead of "*intermodal transport*".

I. Extension of maximum allowed semi-trailer length

Standardised 20- and 40-foot (ISO-)containers have revolutionised world trade in the past half century. 45-foot ISO containers, which appeared somewhat later, offered 12% greater freight capacity; they became popular in American continental transportation. The number of 45-foot ISO container appearing in European ports remains limited since container slots on deep-sea vessels are typically configured for 20- and 40-foot ISO containers.

Transport of 45-foot ISO containers by semi-trailer to and from ports in Europe implies that the presently allowed maximum semi-trailer length is exceeded by a few centimetres (*see picture to the right*), which is only possible today thanks to national derogations.

The shipping of 45-foot swap-bodies/containers, which are a lighter weight and pallet-wide type of loading unit used in continental European shipping, could become an attractive alternative, as such intermodal loading units offer the same load capacity as a semi-trailer.



Due to the definition (12 metre length and a 2.04 metre turn-radius) the pallet-wide 45-foot swap-body/container is just a few centimetres too large at the front corners.



In order to satisfy the existing rules 45-foot pallet-wide swap-bodies/containers are manufactured today with patented, and hence expensive rounded corner fittings (*see picture above*). A modest extension of the maximum allowed semi-trailer length would enable the competitive use of every type of 45-foot intermodal loading unit in Combined Transport.

UIRR has been calling for the limited extension of the maximum allowed length of a semi-trailer used in Combined Transport; subsequently, it **welcomes the Commission proposal to extend the maximum allowed semi-trailer length by 15 centimetres when the truck is taking part in a CT operation**¹. Moreover, this modest semi-trailer length extension is one of the few measures undisputedly supported by every actor of the transport sector.

Summary:

- UIRR welcomes the Commission proposal to extend the maximum allowed semi-trailer length by 15 centimetres in case the truck is taking part in a Combined Transport operation

¹ Between the nearest convenient CT transshipment terminal and the consignment's point of origin, or its final destination

II. 44t gross weight-allowance of trucks taking part in Combined Transport operations

Gross vehicle weights and axle loads are limited for two main reasons:

- Roads and bridges are constructed for certain maximum loading parameters, and their wear correlates to vehicle weight and axle-load on the fourth power. For example, a heavy truck will wear the road infrastructure about 10,000 times more than a 1 tonne automobile. The existing road infrastructure in Europe and its maintenance costs require a limit to be established to truck weights and axle loads.
- Road safety considerations are the other reason for limiting maximum allowed weight. Roads cater to heavy trucks, lighter passenger vehicles, and even lighter motorcycles and bicyclists, as well as pedestrians. Increasing the maximum allowed vehicle weight increases the probability and gravity of accidents if and when they occur.

The presently allowed maximum weight of 40 tonnes for a HGV in cross-border traffic was the result of a carefully negotiated compromise between infrastructure capabilities, safety considerations and road-maintenance costs. In the early 90's the legislator allowed a 4 tonne extra weight for trucks taking part in Combined Transport operations based on the considerations that (i) compensation for the extra weight of intermodal loading units used in CT, (ii) recognising that the road section of a CT transport-chain is limited in length and speed, whereas (iii) the overwhelming portion of a CT journey takes place on rail, where the system of infrastructure enables the handling of much heavier consignments while guaranteeing superior safety.



Heavier consignments are typical in case of transporting liquid goods, such as chemicals, which are frequently dangerous goods shipments. A 6 or 7,5 metre long tank container (see picture to the left) enjoys a loading advantage of 1-2 tonnes of useful weight in case forwarded by CT, which is an important attraction for these dominantly dangerous goods shipments to choose the much safer Combined Transport.

Hence the 44 tonne exemption is especially important so that CT transport-chains continue to be used to handle these special – heavy and often dangerous – consignments (as compared to long distance road-haulage).

The existing Directive 96/53 only grants the 44 tonne maximum gross vehicle weight allowance for the case when “a 40-foot ISO container is carried as a combined transport operation”². Fortunately most of those countries in the centre of Europe that apply a 40 tonne maximum weight limit for HGVs (Austria, Germany, Switzerland) grant the 44 tonne exemption to every truck that travels as part of a Combined Transport operation; while some other countries only apply a very narrow interpretation of the exemption. The Commission has recognised this deficiency; however the formulation should still be enhanced to clearly apply to every truck (semi-)trailer combination that carries intermodal loading unit(s) as part of a Combined Transport operation, without discrimination and even over cross-border relations.

Summary:

- **Extend the 44 tonne maximum allowed vehicle weight, to any truck-trailer combination performing a combined transport operation, in every possible combination of motor vehicles and intermodal loading units**

² Paragraph 2.2.2 (c) of Annex I

III. Aerodynamic devices

More aerodynamics appear at first sight logical to produce energy savings and thus reduced greenhouse gas emissions, but the theory may result in false conclusions if the approach is limited to one mode only, road, without taking other modalities of transport into account. For instance aerodynamic devices produce their effects when trucks travel over longer distances undisturbed on highways, and even then aerodynamics show an exponential correlation with speed (the faster the truck the greater the impact). These are exactly the relations where rail freight and Combined Transport are the most competitive producing not only a few percent of energy and GHG emission saving, but 30% and 75% respectively!

If the legislator intends to improve the energy efficiency, and curb the GHG emissions as well as the oil dependency of inland freight transport, then much more productive means exist, which may simultaneously contribute to improving the problems of road safety and congestion as well (by accelerating modal shift of longer distance transports towards sustainable modes). Hence, any change in legislation that could negatively impact this much desirable modal shift should be approached with great care. The Commission proposal – in UIRR’s view – rightly calls for compatibility in every instance with Combined Transport.

The Commission is raising expectations too high with its aerodynamics-inspired proposals, as the results achievable with aerodynamic devices are much lower than some interest groups may wish us to believe. Secondly, length extensions up to 2 metres in the rear and 1 metre in the front are likely to be in conflict with easy handling at the warehouse ramp, or safety – especially at times of powerful crosswinds, as well as they will most certainly not result in trucks compatible with Combined Transport. Fortunately the first centimetres of aerodynamic devices have a much greater effect than the additional ones; moreover, there are several aerodynamic solutions which would fit within the presently permitted maximum dimensions³:

- An extensive range of aerodynamic devices exist that fit within the presently permitted maximum vehicle dimensions, but have not proliferated until today (for samples see the pictures below); their effectiveness have not been compared to those devices forming the basis of the Commission’s dimension extending proposal.



- Neither the European Commission, nor any other entity has studied the compatibility of a road vehicle built with aerodynamic devices that protrude beyond the presently permitted dimensions with Combined Transport (i.e. Rolling Motorways, and in case of semi-trailers, Unaccompanied Combined Transport using for instance pocket wagons).
- The testing of the aerodynamic components that the Commission’s impact assessment relies upon was carried out at speeds of 90 km/h, which is presently not even legal in several Member States. Moreover, the fuel-saving potential of these devices are exponentially reduced by lower travelling speeds.
- The safety aspects of so-called demountable aerodynamic devices, again forming a basis of the Commission proposal, have also not been studied either, or these studies have never been made public. It has not been confirmed how heavy cross-winds, or unique traffic situations that may occur during the rail sections of Combined Transport, would affect a potentially empty, or lightly loaded truck/semi-trailer equipped with such a demountable aerodynamic device.

³ For more information see UIRR’s input to the public hearing of the Commission held in 2012 <http://www.uirr.com/en/media-centre/press-releases-and-position-papers/2012/mediacentre/512-ec-public-hearing-on-the-revision-of-directive-9653.html>

In an effort to supply empirical data to the Commission, UIRR will collaborate with experts of railway undertakings and wagon manufacturers to investigate the compatibility of various possible length extensions for aerodynamics with the existing CT wagon park used to transport semi-trailers (pocket wagons), as well as complete trucks (wagons used by Rolling Motorway operators).

Following consultations with road hauliers, automotive industry and specialists of aerodynamics, UIRR is confident that moderate solutions that also conform to the various railway norms – embedded into so-called UIC leaflets – can ultimately be found, which can deliver a meaningful result in line with the Commission's and the European legislators' expectations without compromising safety and compatibility with other modes.

UIRR remains convinced that **Combined Transport constitutes the most powerful tool to improving the energy efficiency and reducing the GHG emissions of long(er)-distance freight transport** in Europe, while the portion of long-haul transport remaining with road sector could be enhanced by a combination of a reduced maximum allowed speed harmonised at 80 km/h and aerodynamic solutions that should mostly be possible within the prevailing maximum dimensions.

Summary:

- **UIRR asks the European Commission to strictly adhere to the criteria of *Combined Transport compatibility* when authorising the concrete exterior dimension-changes of trucks in the future.** Without proper scientific studies expectations are unduly raised about the theoretical performance of aerodynamic devices that extend beyond the presently authorised maximum dimensions of commercial road vehicles.

IV. Cross-border circulation of megatrucks

The presently effective text of Directive 96/53 has been interpreted as not permitting the cross-border circulation of megatrucks from 1996 until June 2012. There were several challenges made to this interpretation which was all fended off until the Commission legal service suddenly changed its mind, and issued a new interpretation in June 2012, which took the European transport sector by surprise as it stated that cross-border circulation of these oversized vehicles was indeed possible⁴.

Several studies were produced during the past years⁵ that investigated the potential impact of introducing megatrucks into long(er)-haul cross-border road transport in Europe. Every one concludes that rail freight, and Combined Transport within it, will suffer a significant reverse modal-shift⁶ as a consequence. Only along the five European freight corridors modelled by the study completed in 2012 by Kessel & Partner in collaboration with the Fraunhofer Institute, it was foreseen that the proliferation of cross-border circulation of megatrucks (over long-distance relations) would result in the reverse modal shift of about 10 billion tonne-kilometres from sustainable modes of transport to road haulage annually. Furthermore, nearly 1500 additional road accidents, €1.5 billion more of road external costs, and the loss of 43 extra lives may also be expected.

⁴ http://ec.europa.eu/commission_2010-2014/kallas/headlines/news/2012/03/longer-trucks_en.htm

⁵ TIM Consult (2006): <http://www.uirr.com/en/media-centre/press-releases-and-position-papers/2006/mediacentre/17-study-on-longer-and-heavier-road-vehicles-gigaliner.html> UIC (2008): <http://www.uirr.com/en/media-centre/leaflet-and-studies/mediacentre/63-the-effects-of-the-introduction-of-mega-trucks-in-europe.html> Kessel & Partner/Fraunhofer (2012): <http://www.uirr.com/en/media-centre/press-releases-and-position-papers/2012/mediacentre/492-tangible-risks-of-lhvs-in-eu-wide-circulation.html>

⁶ Reverse modal-shift: consignments carried by sustainable modes reverting back to road haulage

Based on the evidence presented in the studies cited, **UIRR must call for the prohibition of cross-border circulation of megatrucks**. The reinterpretation of the Commission should be retracted, and the text of the Directive made unambiguous as regards to the complete prohibition of the cross-border circulation of these heavier and longer commercial vehicles in Europe.



Considering the numerous questions that remain unanswered with relation to the environmental, traffic safety and economic effects of the wider use of megatrucks, the requirements for the would-be operators of megatrucks – under the “special permit to be issued by the competent authorities” (Paragraph 3, Article 4) – should be defined in European law.

Collection of an adequate quantity of empirical data on the circulation of these 25,5-meter-long HGVs would be imperative; therefore UIRR proposes that the European Legislator specify as a condition for all those Member States, who engage in the issuance of these permits the following obligations:

- Implementation of a special enforcement programme to ensure that megatrucks only circulate on the routes designated by the responsible authorities as suitable for such longer and heavier road vehicles and that all other conditions contained in the “special circulation permits” are observed.
- A reporting obligation extending to the special enforcement programme, safety incidents, circulation relations and transport performance, as well as the collection of proof on the acclaimed energy and emission performance of megatrucks, and an analysis on how megatrucks impacted the modal balance on their territories.

The potential adverse economic effects stated in the above cited studies with regards to the risks of reverse modal-shift from sustainable modes back to road haulage, the Commission should also be obliged by the European Legislator to prepare and submit a report (every two years) on the effect of megatrucks on the modal balance and road safety performance of those Member States which engage in the issuance of the required “special permits” enabling their circulation within their territories.

Summary:

- **The circulation of megatrucks – beyond the territories of the few Member States which historically permit the use of these vehicles – should not be allowed.**
- **A reporting obligation should be placed on those Member States which issue the special permits required for the circulation of megatrucks, as well as they should be required to develop and implement targeted enforcement programmes of these special permits (under the monitoring of the European Commission).**
- **The Commission should report to the European Legislator on the modal balance within those Member States which authorise the circulation of megatrucks.**

Who is UIRR?

Founded in 1970, the *International Union for Road-Rail Combined Transport (UIRR)* represents the interests of European road-rail Combined Transport Operators and Transshipment Terminal Managers. Road-Rail Combined Transport (CT) is a system of freight forwarding which facilitates the economically and ecologically sustainable insertion electric rail into long-distance (road) transport-chains through the use of intermodal loading units (ILU), whereby the carbon footprint of the transport-chain is reduced by at least 75%.

V. Establishment of measures of check overloading and dimensions

Any measure to improve the ability of National Authorities to more effectively control infringements of weight and dimensions, including harmonised administrative penalties, is fundamentally to be welcomed as a means of levelling the playing field both among competing road hauliers and vis-à-vis other modes of transport, while improving safety as well. UIRR also recommends that advanced technologies be employed to replace spot-checks of overloading with 100% controlling on roads, alike to the solution used by rail infrastructure managers.

The limited budgets available to the European Commission to catalyse progress in transport, such as the Trans-European Networks (TEN) and the EU programmes for research, development and innovation, should be used to advance the development of technologies to enforce the weight and dimensions of commercial road vehicles. Member State Authorities should be offered uniform Pan-European electronic enforcement solutions that enable efficient control of these vehicles, which extensively engage in cross-border operations.

UIRR welcomes any measure that will bring improvement to chronic problem of overloading. Whether it is a (craneable) semi-trailer, or a container the Transshipment Terminal Manager and CT Operator players of CT transport-chains are not everywhere prepared to determine the weight of the loading unit by measurement; they have to rely on the weight declared in the shipping documents. Load planners of transshipment terminals, who determine which loading unit to be placed on what wagon when composing a train, have to carefully distribute loads so as to avoid overloading any one wagon-axle.

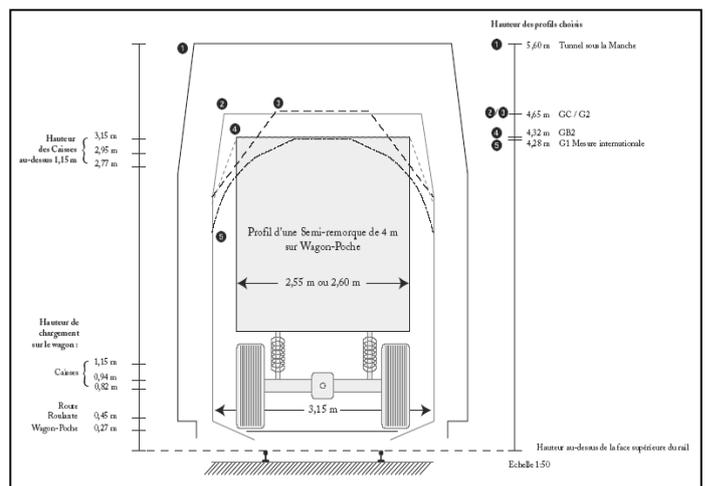
Rail infrastructure managers have recently begun installing special scales under the tracks, which automatically measure the axle load of wagons. There were already limited number of cases, when overloaded loading units have resulted in excessively heavy wagon axles for which the CT Operator had to pay a fine, or in worse cases even had to face the serious disturbance of the train being stopped until the overloading is eliminated. Road hauliers handling final-mile assignments of CT operations had to face fines, and at times even the impoundment of the overloaded semi-trailer, for the same reason. Hence, UIRR particularly welcomes that shippers will become liable for the (over)loading of vehicles and intermodal loading units.

The width and height of semi-trailers and complete trucks are especially important parameters from the perspective of the railway gauge of the rail infrastructure, especially in tunnels and under bridges, while the width and length are important dimensions from a wagon-perspective (fitting into pocket wagons used to carry semi-trailers). Rail infrastructure managers routinely control exterior dimensions and **apply zero allowance for deviations**. Consequently, the tolerance of excess length and width – as proposed in the Article 13 (7) and (8) – is entirely unacceptable from a CT viewpoint. Moreover, **the Commission proposal fails to mention the height parameter**, which should also be strictly observed.

The exterior dimensions of trucks are different from their loading since the former are engineered parameters that are built to the precision of millimetres, hence these may not be 'unwillingly exceeded' like weight, which can show (slight) differences depending on the actual loading of the vehicle.

Subsequently, there is **no reason why to define 'tolerated deviations' from regulated exterior dimensions**.

Besides methodically checking the weight of commercial road vehicles, their exterior dimensions – namely width, length and height – should also be regularly measured and controlled.



Height and width are important from a rail gauge perspective

Summary:

- UIRR welcomes the clarification of responsibility with regards to overloading, and encourages that for efficiency reasons modern technologies are used in road-side enforcement.
- Deviations of length, width and height of trucks should be prohibited, not simply penalised.

VI. A choice of definitions: “Intermodal Transport” or “Combined Transport”

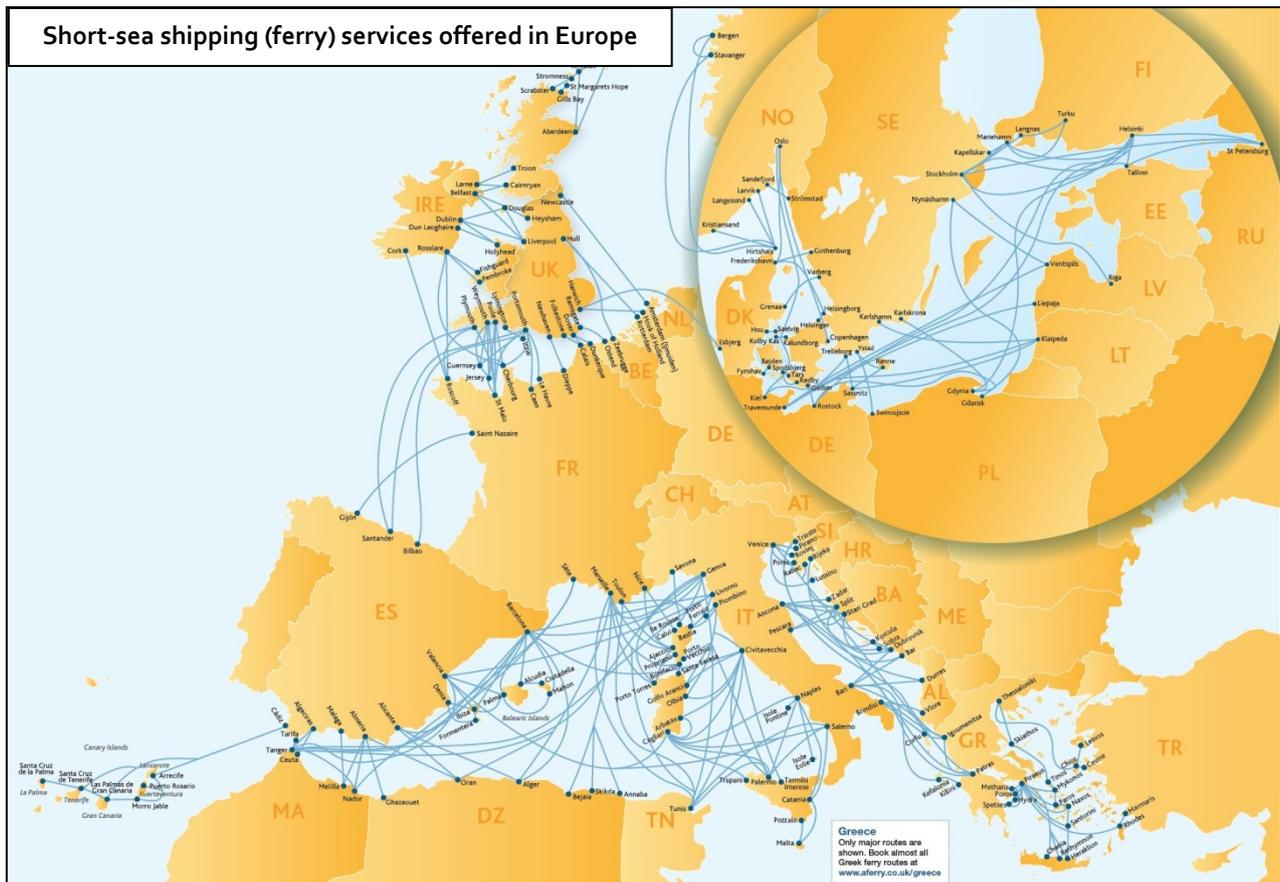
The use of two or more modalities of transport in a particular transport-chain is referred to throughout the Commission’s proposal as “intermodal transport”, which is a term not yet defined in European law; ‘Combined Transport’ on the other hand, a synonym of intermodal transport is defined in Directive 92/106 as follows:

Combined Transport means the transport of goods between Member States where the lorry, trailer, semi-trailer, with or without tractor unit, swap body or container of 20 feet or more uses the road on the initial or final leg of the journey and, on the other leg, rail or inland waterway or maritime services where this section exceeds 100 km as the crow flies and make the initial or final road transport leg of the journey;

- between the point where the goods are loaded and the nearest suitable rail loading station for the initial leg, and
- between the nearest suitable rail unloading station and the point where the goods are unloaded for the final leg, or
- within a radius not exceeding 150 km as the crow flies from the inland waterway port or seaport of loading or unloading.

The call-for-proposals to prepare the studies that will found the revision of Directive 92/106 have been recently issued by the Commission (DG MOVE). This revision will provide an ample opportunity to adjust the definition of Combined Transport, if seen as necessary, which should not be preceded by a countervailing new definition for “intermodal transport” (that defines the road section of intermodal transport as “not to exceed 300km, or just as far as the closest terminals”).

Finally, UIRR hereby calls for the rejection of the unlimited road haulage distance granted to a transport “if it uses intra-European short sea shipping”, which would mean that a semi-trailer or swap-body/container, which travels by any of the dozens of ferry services offered in Europe could be hauled over possibly 1000km-long distances by a truck, while enjoying all the advantages granted to intermodal (combined) transport, even in case if CT options for the given transport would be available.



Summary:

- UIRR proposes to reject the Commission proposed unlimited trucking distance to and from short-sea shipping transports within Europe, and suggests replacing the term *intermodal transport*, used by the Commission, with the better defined and long existing term of *Combined Transport*.