INTEGRATION OF WATERBORNE TRANSPORT IN A MULTI MODAL TRANSPORT SYSTEM


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1. DEFINITIONS (1)

**Multi Modal Transport**

The definition jointly given by the United Nations Convention on International Multimodal Transport of Goods (1980), the United Nations Economic Commission for Europe (ECE) and the European Conference of Ministers of Transport (ECMT) is: “The carriage of goods by two or more modes of transport under one transport contract.”

More detailed, the definition reads as follows:

“International multi modal transport is the carriage of goods by at least two different modes of transport on the basis of one multimodal transport contract from a place in one country at which the goods are taken in charge by the multi modal transport operator to a place designated for delivery situated in a different country.”
1. DEFINITIONS (2)

Inter Modal Transport
is defined by the ECE and ECMT as “the door-to-door movement of goods in one and the same loading unit or road vehicle, which uses successively two or more modes of transport without handling the goods themselves in changing modes.”

Combined Transport
This term is used by ECE and ECMT to cover environment-friendly inter modal transport, involving as little road transport as possible: “Combined Transport means the transport of goods where the lorry, trailer, semi-trailer with or without tractor unit or container of 20 feet or more uses the road on the shortest possible initial and final leg of the journey and uses rail or inland waterway or maritime services on the longest leg of the journey.”
2. EXPERIENCES OF INLAND WATERWAY AND MULTI MODAL TRANSPORT IN EUROPE (1)

Already in 1992, the European Union released its first “White Paper on the future development of the common transport policy”, with the accent on opening the transport market for the whole European Union.

One of the implementations of this first White Paper was the “PACT – programme (Pilot Actions for Combined Transport)”, offering more than 50 million Euro (62 million US$) to companies that were enhancing competition of combined transport by rail, inland waterway and short sea shipping.
2. EXPERIENCES OF MULTI MODAL TRANSPORT IN EUROPE (2)

In 2001, the European Union launched its second “White Paper on Transport Policy for 2010” forecasting that if no actions were taken, road freight transport would increase by around 50 per cent by 2010, leading to additional road infrastructure costs, an increased number of accidents, increased congestion and increased local and global pollution. The direct effect would be growth of the international road freight traffic by about 12 billion tonkm per year.

So, one of the main objectives of the White Paper was to shift the balance between modes of transport by means of a pro-active policy to promote intermodality and transport by rail, sea and inland waterways.
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2. EXPERIENCES OF MULTI MODAL TRANSPORT IN EUROPE (3)

The major initiative to reach these objectives was the “MARCO POLO support programme”, open to all proposals to shift freight from road to other more environmental friendly modes. The MARCO POLO I programme was active from 2003 to 2006 with a budget of 75 million Euro (94 million US$) and aimed to shift the forecasted increase of 48 billion tonkm of freight from roads to short sea shipping, rail and inland waterways or to a combination of modes of transport in which road journeys are as short as possible with a subsidy of 1 Euro for each 50 tonkm, shifted from road to other transport modes.
2. EXPERIENCES OF MULTI MODAL TRANSPORT IN EUROPE (4)

And although the “MARCO POLO I programme” only achieved 46% of its objectives (22 billion tonkm shifted from road to other modes), in 2006 the European Union decided to start a “MARCO POLO II programme”, running from 2007 to 2013 with a total budget of 450 million Euro (630 million US$).

When developing the second Marco Polo programme (2007 - 2013), the forecasts of freight transport growth were recalculated. As a result, it was concluded that in the absence of any action, international road freight transport would grow by 20.5 billion tonkm per year between 2007 and 2013.

Marco Polo II was expected to shift a substantial part of this growth and between 2003 and 2013, some 200 grants were awarded, providing financial aid to over 720 companies where the last 27 projects, funded in 2013 will last until the year 2020.
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2. EXPERIENCES OF MULTI MODAL TRANSPORT IN EUROPE (5)
2. EXPERIENCES OF MULTI MODAL TRANSPORT IN EUROPE (6)

This MARCO POLO II programme was combined with a specific “Motorways of the Sea” – project to promote short sea shipping. Motorways of the Sea actions offer a door-to-door service which combines short-sea shipping with other forms of transport. These actions innovate in terms of logistics, equipment, products and services. In addition, they are selected because of what they offer in quality of service, simpler procedures and inspections, higher safety and security standards, access to ports, efficient hinterland connections, and flexible and efficient port services.

Moreover, to permit growth of inland waterway transport within the multi modal transport chain, in 2006 a “NAIADES action programme (Navigation and Inland Waterway Action and Development in Europe)” was launched, with recommendations for actions to be taken between 2006 and 2013 by the European Community, its Member States and other parties concerned in five strategic interdependent areas: Markets, Fleet, Jobs & Skills, Promotion and Infrastructure.
2. EXPERIENCES OF MULTI MODAL TRANSPORT IN EUROPE (7)

All these programmes have led to following actions, taken to this day, to permit the growth of inter modal transport, with inland waterway transport as one of the main legs of the chain:

- numerous Inland Waterway Container Terminals and Inland Clearance Depots (ICDs);
- a suitable waterway network, where still some bottlenecks and missing links have to be solved;
- adequate aids to navigation and Information Technology (IT) systems;
- a modernised fleet with adapted vessels;
- a lot of facilitation measures such as no tonnage limitation, free rates and inland customs clearance;
- new legislation and financial measures in favour of inter modal and combined transport.

…. leading to a modal shift of container distribution in the Port of Antwerp since 2001 of more than 10% (65% to 55%) from road to inland waterways (28% to 35%) and rail (7% to 10%) and with a desired modal split for the year 2025 of 40% road, 40% inland waterway and 20% rail.
2. EXPERIENCES OF IWT MULTI MODAL TRANSPORT IN EUROPE (8)

Finally, in March 2011, the European Commission adopted its third “White Paper on Transport Policy 2011: A Roadmap to a Single European Transport Area”.

This roadmap of 40 concrete initiatives has the aim to build a competitive and efficient transport system that will increase mobility, remove major barriers, reduce Europe’s dependence on imported oil and cut carbon emissions in transport.

Key goals of the road map include a 50% shift of medium distance intercity passenger and freight journeys from road to rail and waterborne transport in order to contribute to a 60% cut in transport emissions by the middle of the century.

3. MULTIMODAL TRANSPORT IN THE GREATER MEKONG RIVER SUBREGION (1)

In 1999, the Governments of Cambodia, PR China, Lao PDR, Myanmar, Thailand and Viet Nam signed an “Agreement for the Facilitation of Cross-Border Transport of Goods and People”.

In 2004, the same countries signed Annex 13b to this agreement on “Criteria for Licensing of Multimodal Transport Operators for Cross-Border Transport Operations”.

And finally, in 2005, all Members of the Association of Southeast Asian Nations (ASEAN) signed an “ASEAN Framework Agreement on Multi Modal Transport”.

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3. MULTI MODAL TRANSPORT IN THE GREATER MEKONG RIVER SUBREGION (2)


Although there are big transport needs in the GMS, these agreements show that multi modal transport was introduced only recently in the Greater Mekong Sub region (GMS), due to several generic problems, with amongst others:
- Long dwell times for containers in ports and at border checkpoints.
- Congestion of the land transport accesses to ports and poor rail access to ports.
- Incompatible customs and immigration procedures.
- The only recently introduced planning and execution of new transport and port investments.
3. MULTI MODAL TRANSPORT IN THE GREATER MEKONG RIVER SUBREGION (3)

In the last decade several transport investment plans were made. The backbone of the GMS Economic Cooperation Program is to create road and rail transport corridors, with amongst others:

- The East West Corridor connecting Thailand, Laos and Vietnam.
- The Southern Corridor connecting Thailand, Cambodia and Vietnam.
- The North South Corridor connecting southern China through Laos or Myanmar to Thailand.
But of course, this is only a starting point, because these corridors have to develop through different levels to economic corridors:

Level 1: Transport Corridors, physically linking areas or regions.

Level 2: Multimodal Transport Corridors, physically linking areas or regions through the integration of various modes of transport.

Level 3: Logistics Corridors, with a harmonised regulatory framework to facilitate the efficient movement and storage of goods.

and

Level 4: Economic Corridors, able to attract investments and economic activities along the less developed areas or regions.
3. MULTI MODAL TRANSPORT IN THE GREATER MEKONG RIVER SUBREGION (4)

Next to these road and rail corridors, the Mekong River Commission (MRC) has formulated a “Strategy and Programme for navigation development on the Mekong River”, approved by the council in 2004.

The programme addresses issues as diverse as regional transport planning and the comparative advantages of waterborne transport, a new legal framework for Mekong navigation, measures to strengthen safety and environmental protection, improved information and coordination systems and institutional development through capacity and partnership building within the navigation sector.
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During the last decennium, many workshops and even short courses on “Multimodal Transport” have been organised in Cambodia by ASEAN, UN ESCAP and CAMFFA, but mostly, the conclusions were always the same:

- There is an insufficient use of key waterways.
- There is a further need to encourage and promote the development of multimodal transport and integrated transport logistics.
- There is a need to promote the development and expansion of the Inland Clearance Depot (ICD) concept.
- Greater use of rail transport (partly through the ICD concept) should be encouraged.
- Better cross-border co-operation and transport co-ordination is needed.
- The use of a single combined transport or multimodal transport document should be expanded.

and

- ASYCUDA (Automatic System for Customs Data) and EDI (Electronic Data Interchange) should be implemented as widely as possible.
3. MULTI MODAL TRANSPORT IN THE GREATER MEKONG RIVER SUBREGION (5)

As final conclusion, it can be stated that, although many plans and investments have been made during this last decade, multi modal transport and especially multi modal transport with integrated waterborne transport, is growing rather slowly in the Greater Mekong Subregion, due to three reasons:

1. Infrastructure is improving but still lacking. Investments in nodal points (such as ICDs) are needed to go from level 1 (transport corridors) to level 2 (multi modal transport corridors).
2. Rules and regulations are in place but not totally implemented; and
3. Border crossings are still the weakest link in the corridors.
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4. INTEGRATING INLAND WATERWAY TRANSPORT WITH OTHER TRANSPORT MODES (1)

Inland Waterway Transport is inter modal and multi modal in essence. Investments in multi modal, inter modal and combined transport nodal points and connections between cost-effective and environmental friendly inland waterway transportation, faster railways, and more elastic road transportation will significantly improve the efficiency of Inland Waterway Transport in the overall transport system.

But the effective integration of inland waterway transport in multi modal, inter modal and combined transport requires:

4.A. that an adequate waterway, port and vessel infrastructure is in place.
4.B. that the latest technologies are used and constantly updated.
4.C. that the interchange of transport modes is facilitated by adequate regulations, and
4.D. that strong promotion is made for Inland Waterway Transport in the multi modal transport world.
4.A. Infrastructure planning of inland waterway transport for multi-modal operations.

Inland waterway transport requires three basic elements of infrastructure: waterways, terminals and vessels.

Waterway requirements.
Standard requirements for the carriage of containers are the width and depth of the fairway (at low water level) and the vertical clearance under bridges (at high water level).
Where needed, locks or ship elevators should be constructed.
And finally, harmonised and state-of-the-art aids to navigation should enhance safety and make night navigation possible.
4.A. Infrastructure planning of inland waterway transport for multi modal operations.

Terminal requirements.
A bi-modal terminal links river operations to a hinterland, served exclusively by road. But as a general rule, terminals should be tri-modal, having rail, water and road access, where road transport should be limited to serve the immediate neighbourhood, and which also should be service and logistics centres. And finally there are dry ports, serving road and / or rail, which also should be organised as Inland Clearance Depots (ICD) and should be located not too far from or even inside the ports.

Vessel requirements
Supporting the shipyard and ship repair industry to meet the demands of a modern fleet concerning new construction and propulsion technologies is here of utmost importance.
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4.B. Use of the latest technology to connect inland waterway transport with other transport modes

The communication revolution (VHF, mobile telephone, internet) made the exchange of information between vessel and shore, operator and clients much easier. Vessel Traffic Systems (VTS) and River information Services (RIS) make IWT safer and more efficient.

Moreover, in order to interlink with other transport modes, IWT vessels need to be integrated (with onboard computer) in the present Electronic Data Interchange (EDI) systems, as has been successfully done in Europe.
4.B. Use of the latest technology to connect inland waterway transport with other transport modes

In the past, IWT has not been very strong in reliability and “just-in-time” delivery, with delays caused by fog, night, rain, draught, etc. Today, state-of-the-art aids to navigation, onboard radar and VTS assistance enabled IWT to fully integrate in the “just-in-time” processes.

Moreover, thanks to the Global Positioning System (GPS) and Global Navigation Satellite System (GNSS) positioning and tracing is becoming much easier. The Automatic Identification System (AIS) and Electronic Charting System (ECS) are applications providing essential data for operators, clients, port authorities and other public and private services.
4.B. Use of the latest technology to connect inland waterway transport with other transport modes

**Handling equipment:** In Europe the main inland container terminals use the same state-of-the-art equipment as seaports, such as barge gantries, tri-modal gantries, straddle-carriers and reach-stackers, because a faster turnaround is boosting multi and inter modal transport.

And finally there is the unitisation with systems such as Lighter Aboard SHIp (LASH) and Roll-On Roll-Off (RORO).
4.C. Facilitation measures between inland waterway transport and other transport modes

**IWT should be included in all transport legislation.**

Usually, laws governing transport undertakings are uni-modal oriented. General transport legislation should encourage cost efficient and environmental friendly modes (restrictions on trucking, tonnage limitations on trucking, taxes for road use, “polluter pay approach”, etc.). Multi Modal legislation should authorise and encourage the transformation of the status of an Inland Waterway Transport operator to a Multi Modal Transport operator (MTO) by adequate regulations.

**The needs of multi modal IWT should be included in infrastructure planning and construction.**

- vertical clearance of road and rail bridges;
- through-passage structures or locks at barrages and power dams;
- waterway classification and missing links between waterway networks;
- location and layout of inland container depots (bi-modal or tri-modal).
4.C. Facilitation measures between inland waterway transport and other transport modes

**Simplification and harmonisation of documents, customs procedures and information exchange.**
- Minimise the problems of issuing multiple documentation and other formalities connected with each segment of the transport chain;
- Standardise and computerise all kinds of documents;
- Encourage the use of Automated Systems for Customs Data (ASYCUDA);
- Encourage the use of a single Multi Modal Transport Document (MTD);
- Make use of intelligent transport technology systems for toll collection.
4.D. Promotion for Inland Waterway Transport in the Multi modal Transport World

Inland container transport by environmental friendly modes became a necessity, due to the growing awareness of the threats of global warming. Even in Europe, for a long time, the system of incentives was largely reserved for rail. Now, incentives for combined transport and modal shift are encouraging and promoting IWT, because:

- IWT is without any doubt the most cost-efficient, most save and environmental friendliest transport mode;
- IWT needs longer transit times but is reliable (no road congestion) and can certainly deliver cargo “just-in-time”;
- IWT is linked to seaports and river banks;
- IWT is in the inter modal market mainly competitive on medium range distances (from 250 to 1000 km). For longer distances, main competition comes from rail, on shorter distances, competition comes mainly form road.
5. CONCLUSIONS

To enhance multi modal, intermodal and combined transport, attention has to be paid to following needs:
- Development of the infrastructure, nodal points and connections, including the Inland Clearance Depot (ICD) concept;
- Simplification and standardisation of customs procedures and data exchange;
- Harmonisation and integration of legislation and regulatory framework;
- Encouragement of human resources development in freight forwarding, multi modal transport and logistics management.

To integrate inland waterway transport in the multi modal transport system, attention has to be paid to following needs:
- Development of an adequate infrastructure (elimination of bottlenecks and missing links);
- Use and constant update of the latest technologies;
- Facilitation of the interchange of IWT with other transport modes by adequate regulations;
- Strong promotion and incentives for IWT in the multi modal transport world as most efficient and environmental friendly transport mode.
All this means that there is still a lot of work to do……but……

WATER IS THE WAY TO GO

Thank you for your kind attention