



Economic and Social Council

Distr.: General
5 April 2011

Original: English

Economic Commission for Europe

Inland Transport Committee

Working Party on Inland Water Transport

Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation

Thirty-ninth session

Geneva, 15–17 June 2011

Item 5 of the provisional agenda

Strategic development of inland waterway infrastructure

Discussion note on the Pan-European approach towards further development of inland water transport infrastructure

Note by the secretariat

I. Mandate

1. The “White Paper on Efficient and Sustainable Inland Water Transport in Europe” of the Working Party on Inland Water Transport (SC.3) posited that SC.3, in close coordination with other international bodies to avoid duplication, could offer a forum, for ad hoc committees, expert groups or round tables to further coordinate the development of the E waterway network (ECE/TRANS/SC.3/189, para. 205 (c)).
2. In the discussions on the follow-up to the White Book at its thirty-eighth session, the Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation (SC.3/WP.3) welcomed the proposal by the secretariat to hold an expert meeting on inland waterway infrastructure in line with this policy recommendation and in the context of the ongoing revision of the UNECE Inventory of Main Standards and Parameters of the E Waterway Network (“Blue Book”) (ECE/TRANS/SC.3/WP.3/76, para. 18).
3. Presented below is a discussion paper drafted by the secretariat, in consultation with the leader of the infrastructure work package of the Platform for the implementation of the EU NAIADES programme (PLATINA). Its goal is to suggest a possible approach towards further development of inland water transport (IWT) infrastructure in the ECE region and elaborate the proposals on concrete joint actions by the institutions involved in IWT promotion and development.

4. SC.3/WP.3 may wish to discuss this document in light of the expert presentations on IWT infrastructure in Europe, to be made during its thirty-ninth session, and agree on the conclusions to submit to SC.3 with respect to the role of UNECE in this area.

II. Towards an Integrated Pan-European Strategy for IWT Infrastructure Development

A. Introduction

5. This paper aims to suggest a way forward to assist countries and competent international organizations in establishing an integrated IWT infrastructure development strategy and implementing initiatives. Overall, a network approach is advocated, connecting IWT to the overall transport and logistic performance in the supply chains. Indeed, the competitive edge of IWT depends on a further integration of its operations in a coherent pan-European infrastructure policy approach.

6. To support an efficient economy in Europe, effective traffic systems have to be developed and maintained. In the medium to long term, transport volumes are expected to rise significantly, whereas the boundaries of current traffic systems are reached and exceeded more frequently. Insufficient transport infrastructure leads to increasing emissions, accident numbers and congestion as well as a decline in the reliability and punctuality. The IWT sector can deliver a valuable contribution to coping with the rising transport tasks in a way that is effective as well as sustainable and environmentally sound. IWT is, and has been for a long time, regarded as the most environment-friendly and safest surface transport mode with favourable energy efficiency. Therefore, various organizations promote and aim to strengthen the competitive position of IWT.¹

B. The place of infrastructure development in the overall IWT promotion policy

7. One of the actions that allow the execution of a pan-European IWT promotion policy is to design and structure the development of a pan-European wide physical infrastructure network. In support of that endeavour, two phases aimed to assist in the development to structure a pan-European IWT infrastructure network can be identified:

(a) In the first phase, the status quo of IWT infrastructure in Europe should be assessed, identifying various infrastructure bottlenecks and missing links at the European level and generated some concepts on how to perceive various issues and determining trends.

(b) In the second phase, a pan-European infrastructure network strategy has to be developed, elaborating the framework for further actions, i.e. the prioritization and phasing of infrastructure improvements. The generic strategic orientation underlying the development of IWT infrastructure is to connect IWT to global supply chain developments and national/local policy requirements. This will challenge all transport modes and various stakeholders and operators to co-operate, create value added services, provide green logistics, innovate and strengthen the European infrastructure network as a whole.

8. This discussion paper further elaborates on the second phase.

¹ European Commission: "Integrated European Action Programme for Inland Water Transport, NAIADES".

C. Towards the development of a pan-European IWT infrastructure network strategy

9. The establishment of a pan-European wide infrastructure network strategy is a prerequisite to foster IWT. Two activities are required:

(a) To define a common IWT infrastructure network strategy: In support of that endeavour, various inventories (UNECE Blue Book, Trans-European Transport Network (TEN-T) programme and PLATINA) can substantially contribute to the work. Additionally, in the process of developing a pan-European IWT infrastructure strategy various questions need to be asked and answered. If possible, the preferred end state of the IWT infrastructure network should be defined.

(b) To agree on a common view on how to effectively implement a pan-European IWT infrastructure strategy: To establish this view, choices have to be made on the prioritization and phasing of IWT infrastructure improvements. It is useful to effectively determine what improvements would yield the highest efficiency gains in the entire transport chain.

10. Efficiency gains can result from a decrease in costs, increase in modal shift and sustainability, the opening up of new markets and/or stimulation of regional development. Waterways and basins differ (greatly) regarding infrastructure components, fleet composition and markets served. Therefore, infrastructure developments in these waterways and basins will also differ in impact. Insight should be obtained regarding which infrastructure investments yield the highest benefit for IWT and the efficiency of transport chains, while a distinction is between waterways and basins.

11. In addition, the benefits of improving linkages between cities, ports, and other main economic centres should be assessed. Increased connectivity, especially for IWT, can stimulate economic developments and greatly enhance the competitiveness of cities, ports, and other economic centres. Investment in IWT infrastructure can have positive influence on regional economic development. When cities, ports, and other economic centres attain high quality IWT connections, this could induce industries and companies to settle and set up activities in the area. The economic development that results can allow certain sectors of industry to grow and provide great benefits to the local society.

12. Overall, these two actions constitute an IWT Infrastructure development strategy creating a momentum to interact and involve the countries and all other parties concerned in establishing a pan-European IWT infrastructure agenda.

13. Two approaches to come up with the most appropriate issues and questions to be integrated in the IWT infrastructure strategy have been identified:

- (a) Top-down approach (policy-oriented – long term - perspective)
- (b) Bottom-up approach (business-oriented – short/medium term - perspective)

1. Questions based on the top-down approach

14. Within this approach the current state of the infrastructure network is confronted with the ideal end state. Different types of gap analysis can provide insights into where and which kind of infrastructure investment is most needed, and how much this would take in effort, financial and other costs.

15. The various questions which can be asked are:

(a) What is the status quo of the current infrastructure network, focusing on the following elements?

- (i) Layout of the waterway network;
- (ii) Class of the waterway and other characteristics, such as bridge clearance, draught restrictions, fairway dimensions, lock capacity, port characteristics.
- (d) What is commonly accepted among stakeholders to be the ideal state or end view of infrastructure development in the long term, including information on?
 - Residential or industrial areas of (potential) economic value to be disclosed by IWT, in and outside the EU.
- (e) Which missing links and bottlenecks exist with regard to the ideal state (for instance by using the definitions used in the UNECE Blue Book)?²
- (f) How far is the current infrastructure network removed from the end state?
 - (i) How much would it cost to reach the end state?
 - (ii) How far are the different regions/basins/corridors removed from the end state?
 - (iii) How much would the infrastructure improvements cost per region/basin/corridor?
- (g) Which types of bottlenecks or missing links are mostly lacking: bridge clearance, draught restrictions, fairway dimensions, lock capacity, ports?
 - (i) Which types of bottlenecks are prevalent in the different regions/basins/corridors?
 - (ii) To which extent are these bottlenecks basic or strategic (in the definition of the Blue Book)?
 - (iii) How does this overview relate to the different regions/basins/corridors?
- (h) How many missing links ought to be constructed?
 - How many missing links ought to be constructed in the different regions/basins/corridors?
 - (i) To what extent main or upcoming economic centres, industrial or residential, are connected?
 - (i) To what extent are main economic centres connected to sea by IWT?
 - (ii) To what extent are main economic centres connected to each other by IWT?
 - (iii) To what extent are main economic centres connected to sea or to each other by IWT in the different regions/basins/corridors?
 - (j) To what extent are the bottlenecks and missing links eminent regarding the possibility of opening up new residential and industrial regions and the economic development that could result?
 - How does this overview relate to the different regions/basins/corridors?
- (k) To what extent can a European IWT network interconnect the regions?
 - How does this overview relate to the different regions/basins/corridors?

² UNECE Inventory of Main Standards and Parameters of the E Waterway Network (Blue Book), ECE/TRANS/SC.3/144/Rev.1.

(l) When considering the end view, what will the improvement realized mean in terms of uniformity and consistency of the infrastructure network?

To which extent is uniformity and consistency realized in the different regions/basins/corridors?

16. In light of information contained in the UNECE Blue Book and other inventories, it appears that most of these questions have or can be answered using the information that is already gathered. The layout has been described including several waterway characteristics. An additional task would be to define an ideal end state (waterways of international importance, all of class IV and up). Based on the answers to these questions it should be possible to determine the type of infrastructure investments to be undertaken in various parts of the infrastructure network.

17. An issue that might be called for is a re-evaluation of projects on the basis of opportunities to open up residential and industrial regions, or regions that are likely to portray economic development. Even though this exercise will not result in directions on steps to be taken next, it will deliver a qualification of which kind of infrastructure investment will have larger impact regarding reaching the end state than other kinds. Investing in infrastructure projects should be assessed by taking all projects in a certain basin or corridor into account, not on a project basis.

2. Questions based on the bottom up approach

18. The basic question is how to obtain the highest value for money spent on infrastructure, for IWT, the region, or society at large. Opportunities attainable through infrastructure investment are sought for. These opportunities can consist of productivity improvements for IWT, new market opportunities in terms of additional freight volumes and modal shift, or increased competitiveness of main cities, ports, and centres. The following are examples of questions that can be posed in the bottom up approach:

(a) What are IWT fleet characteristics and activities in a region, basin or corridor:

- (i) Current freight flows in type and volume, distinguished per waterway, basin or corridor;
- (ii) Composition of fleet utilising distinctive waterways;
- (iii) Cost structures of the fleet;
- (iv) Loading capacity of vessels (in connection to water conditions);
- (v) Travel and waiting times (for locks and bridges);
- (vi) Markets that are served by IWT and other modes of transport.

(b) Which type of bottleneck (bridge clearance, draught restrictions, lock capacity, inland port characteristics, availability of inland ports, fairway dimensions) impedes IWT efficiency most? Depending on the relevant type of freight flow, freight volume, IWT fleet characteristics et cetera, how can investment in certain bottlenecks allow IWT to gain productivity in a particular waterway or corridor most? To give an example:

- (i) When most freight flows consist of large bulk, draught restrictions should be lifted; when most freight flows however consist of container transport, enhancing bridge clearance might yield a higher benefit for IWT in that particular corridor.
- (ii) When a corridor is largely utilized by ships that sail on a day-trip basis, IWT efficiency can improve through investing in overnight staying possibilities; when the

corridor is mostly utilized by ships that sail on a continuous basis there is less need for these investments.

(c) Which investment sub-strategies (investing in a particular type of bottleneck) would create the highest return on investment for IWT and society at large?³

(i) Which investment sub-strategies would create the highest return on investment in the different regions/basins/corridors?

(ii) How much would the infrastructure improvements cost per region/basin/corridor?

(iii) In which region is the highest return on investment to be attained?

(d) To what extent can IWT gain by improving connections with or between main economic centres or potentially important ones, industrial or residential?

(i) Which (potentially) important economic centres are currently not (optimally) connected to sea or to each other by IWT (bottleneck or missing link)?

(ii) Which of these centres are serviced by other modalities (road and/or rail)?

(iii) How do the cost structures of IWT compare to the cost structures of other modalities, and in connection, which modal shift opportunities could be obtained for IWT by infrastructure investments to improve the connection?

(iv) Which opportunities for new freight flows can be seized by IWT by connecting developing economic centres?

(e) To what extent can cities, ports, and other economic centres or European regions as a whole gain by improving connections with other main economic centres or potentially important ones, industrial or residential?

(i) Which European cities, ports and other economic centres can mostly benefit from increased competitiveness due to increased connectivity in IWT?

(ii) In which European region can most opportunities regarding new markets, freight flows and modal shift be found?

(iii) To which extent are regions enabled to develop due to the IWT infrastructure connection that is established or improved, and which benefits could be attained as a result by society?

(f) Which European region as a whole has the largest potential of developing areas economically through investments in IWT infrastructure?

(g) How do the costs of the infrastructure investments relate to the costs in general (e.g. do geographical and other conditions allow for infrastructure investments that have a good potential of yielding favourable returns on investment)?

(h) What impact will the investments have on fleet composition in relevant waterways and corridors?

19. The information that is presented in the UNECE Blue Book and the PLATINA Inventory of available knowledge on strategic inland waterway projects will not be sufficient to assess the return on investment of infrastructure developments. The information gathered on type and volume of freight flows lacks detail. Furthermore, it

³ This question can be answered by assessing the return of investment on a sample of projects from a certain bottleneck type.

should be assessed how proposed infrastructure improvements relate to the type and volume of freight flows. Different types of freight flows require different types of infrastructure enhancement, as has been exemplified above. This exercise has not yet been executed on pan-European IWT infrastructure.⁴ Information on bottlenecks in inland ports will be useful in assessing which improvements to inland ports will provide the most benefits to IWT.

20. In the short (to medium) term, as a certain budget is set for infrastructure improvement: discussing these questions should enable stakeholders to decide which infrastructure investment strategies will bring most benefits to IWT and society at large. By opposing the return on investment of sub-strategies, priorities in project types can be set. The assessment can provide answers to other questions, such as whether investing in inland ports, particularly in the smaller waterways of the network, yields higher benefits than investing in the enhancement of waterway dimensions. Another issue that could be looked into is whether enhancing a waterway class II to class IV yields a higher return on investment than enhancing a waterway class IV to class V. It is however vital to make a distinction between different regions in assessing the return on investment on sub-strategies, as the return on investment on investment strategies might differ. This could also imply that return on investment in some regions or corridors yields higher productivity gains for IWT than investments in other regions or corridors.

D. Conclusions: Follow-up process

21. In short, an IWT infrastructure Development Strategy should cover;
- (a) a sketch of the ideal IWT infrastructure end state;
 - (b) a sketch of what brings IWT infrastructure value for money; and
 - (c) an identification of the elements, which should be taken into consideration, including their impact.
22. UNECE members States have to select which questions they would like and can pay attention to. Within UNECE an information gathering and discussion process should be set up among UNECE members and stakeholders. The questions that have been presented in this issue paper can provide directions to the information process.
23. It is crucial that the UNECE member States agree upon the need for gathering more information in order to make decisions in prioritization and phasing of infrastructure improvements. Agreement should also be reached on the questions regarding infrastructure development and insights to follow from assessing the information. The questions presented in this issue paper should be formulated more sharply and augmented upon. Also the various parties concerned which should be involved in the process and contribute to the work have to be identified. Therefore, some months should be spent on finalizing and fine-tuning the methods of the information gathering process.

⁴ Such a study has been undertaken in the Netherlands. In 2006–2007 the Dutch Government commissioned a study on the competitiveness of the Dutch IWT (*Policy Strategy Inland Waterway Transport*, conducted by *Policy Research Corporation* on behalf of the Dutch Ministry of Transport, Public Works and Water Management, 2006–2007). Part of this study focused on assessing the costs and benefits of different types of IWT infrastructure projects. Several cases of infrastructure projects have been assessed in order to derive general conclusions on the social benefit of infrastructure project types and blueprint regarding the prioritization of IWT infrastructure projects. Information on freight flows has also been taken up in the analysis.

24. When the competent UNECE intergovernmental body (Working Party on Inland Water Transport) approves the development of a coherent IWT infrastructure strategy, the process should start with a kick off meeting. The task of the meeting would be:

- (a) to define work;
- (b) to define the issues to be covered;
- (c) to identify the questions to be answered;
- (d) to identify external parties/stakeholders to be contacted;
- (e) to indicate important documentation;
- (f) to divide work;
- (g) to establish a central coordination team;
- (h) to discuss the possibility to establish regional teams (if so how);
- (i) to define the process.

25. Ideally, different regional teams should be set up under the auspices of SC.3 with the mandate to assess the infrastructure investments in a specific part of the infrastructure network (region/basin).⁵ These regional teams will decide within their own group how to effectively collect the necessary information and developing insights. The information that is gathered by the regional teams should be discussed within the team to decide on priorities within that region/basin, but also among the different teams. Not only should an overall view of the network result, but also regional groups can learn from each others information gathering procedures and compare methodologies. As a mere indication, whereas each regional team would reconvene regularly to discuss results, at central level the working groups can meet every two to three months to compare results and further insights on the methods used by other regional teams.

26. What is important is that infrastructure investment decisions are assessed within the wider frame of an ideal end view of pan-European IWT infrastructure and the return on investment that different investment strategies could yield. As the information needed to conduct assessments can be quite detailed or requires estimations of future freight flows, economic growth etc, it might be hard to gather all the relevant information. However, discussions on the return on investment of projects or investment strategies can also take place on the basis of more limited information, complemented with regional expert opinions and approximations about how certain investment decisions will benefit IWT and/or society at large. Investing large amounts of time and means into gathering detailed information might not be necessary for a prioritization in investment strategies.

27. In conclusion, all information and insights should be brought together at a central level; a coordination group under the auspices of SC.3 should be established. The outcome of this process will be the (already achieved) overview of missing links and bottlenecks in IWT infrastructure, complemented by an assessment of the relative impact of types of infrastructure development on the position of IWT in Europe per region/basin/corridor, and the potential in enhanced competitiveness of cities, ports, and other economic centers due to enhanced IWT connectivity. The combined information provides a reference for IWT infrastructure decision makers to set up and assess infrastructure development while using market-based indicators for the gains that result from types of infrastructure development.

⁵ Given the limited resources available in the PLATINA project, it is not clear whether more than two regional teams (Danube and riparian and Western Europe can be established). Possibly the River Commissions can play a major role in facilitating this process.