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Working Party on Transport Trends and Economics
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# EVALUATION PROCESS FOR INLAND TRANSPORT INFRASTRUCTURE PROJECTS

## Transport Infrastructure Needs Assessment (TINA)

Transmitted by the European Commission (EC)

The Working Party, at its eleventh session, asked its Chairman and the EC to make the TINA final report available to its forthcoming session. The executive summary of the Draft Final Report on Transport Infrastructure Needs Assessment in Central and Eastern Europe, as provided by the European Commission, is reproduced below. Copies of the full final report (English only) will be available at the meeting room, and may be requested at the secretariat.

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Please note that the distribution of documentation for the Working Party on Rail Transport (SC.2) is no longer "restricted". Accordingly, the secretariat has adopted a new numbering system whereby all working documents other than Reports and Agendas will be numbered as follows: TRANS/SC.2/year/serial number. Reports, Agendas, resolutions and major publications will retain their previous numbering system (i.e. TRANS/SC.2/189).

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# DRAFT TINA FINAL REPORT

***TINA***
***a Common Transport Infrastructure Needs Assessment***
***in the candidate countries for accession***

***Identification of the network components for a future Trans-European Transport Network***
***in***
***Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia***

Draft Final TINA Report

EXECUTIVE SUMMARY

Drafted by the TINA Secretariat

June 1999

# 1 INTRODUCTION

## *1.1 Transport Infrastructure Needs Assessment (TINA) in Central Europe*

In July 1996, the European Parliament and Council adopted, on the basis of Article 129c of the Treaty, a Decision on guidelines for the development of the Trans-European Transport Network[1]. This contains outline plans for the land transport networks and criteria for network nodes as airports or seaports. The guidelines constitute a declaration of intent by the Community for the development of a single multi-modal transport network to meet the needs of the transport sector.

The first Structured Dialogue between the Transport Council and the Transport Ministers of the associated countries, in September 1995, recommended inter alia undertaking a Transport Infrastructure Needs Assessment (TINA) for the candidate countries for accession. Based on this recommendation, the Commission launched the TINA process, with a view to defining the future Trans-European Transport Infrastructure Network in the enlarged European Union, using the criteria of decision 1692/96EC. The Commission has throughout ensured that this multilateral process remained consistent with the overall pre-accession strategy, notably the Accession Partnerships and the National programmes for the Adoption of the Acquis.

## *1.2 Method of Work*

The Transport Infrastructure Needs Assessment (TINA) process has been designated to initiate the development of a multi-modal transport network within the territory of the candidate countries for accession: Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovakia, Hungary, Slovenia, Romania, Bulgaria, and Cyprus. This network development should comply with the principles, objectives and criteria as set out in the guidelines for the development of a Trans-European Transport Network in the territory of the European Union.

The general TINA process can be divided in two main stages: The first stage concerns the definition of the network where cost estimates play a major role. The second stage concerns the identification of investment measures by which the identified network would be brought up to a desired quality level.

The first stage was developed with the intention to define the TINA multi-modal transport network, which could be realised in the time horizon of 2015, taking into consideration the expected economic development of the countries concerned. In this respect, all the necessary parameters that play a role while designing a network were identified and investigated. The political vision, the economic framework, the cost of the investment measures, the existing financing opportunities, the traffic forecast and the efficient operation of the network were amongst the factors which were investigated in the process of defining the TINA network.

The second stage concerned possible investment measures. The reported measures were analysed comparing costs estimates of the different countries with unit cost estimates. This analysis led to a fairly solid base of the cost estimates for the network.

The draft TINA Final Report concludes this work, and sets the basic reference framework for future project assessment. This project assessment, to

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[1] Decision 1692/EC of the European Parliament and of the Council of 23 July 1996 on Community guidelines for the development of the trans-European transport network, OJ L228 9 September 1996.

be done in the context of future TINA work and in ISPA will generate a dynamic list of projects in order of their priority for the development of the network. The TINA process will eventually lead to the identification of viable investment projects, which will, in the future extended TEN-Tr, be candidates for projects of common interest. In the context of pre-accession financing the ISPA team will, based on the TINA findings, perform a more detailed project analysis of all projects, which it will consider for financing.

The general steps of the process in stage one, were:

(a) to set the main rules on which the hypothesis of constructing the network should be built
(b) to identify a multi-modal backbone network using global criteria, such as those which led to identify the Crete Corridors and their adjustments as endorsed at the third Pan-European Transport Conference of Helsinki
(c) to identify those additional network components (i.e. links (rail, road, inland waterways) and nodes (airports, ports, terminals)), which are necessary to transform the Helsinki's "Corridor approach" into a real transport network, with similar attributes to those described in the Decision No 1692/96/EC for the TENs
(d) to identify all possible investment measures which contribute to develop the TINA network as defined in the previous steps; to make an estimation for their cost
(e) to report on the network development in certain years (2000, 2005, 2010 and 2015)
(f) to develop a GIS for the TINA network linking geographical, economic and traffic information

## 2 The economic framework - GDP development

The definition of the TINA network, which could be realised in the time horizon of 2015, took into consideration the expected economic development of the countries concerned. The cost of the network should be consistent with realistic forecasts on financial resources, so that average costs should not exceed 1.5% of each country's annual GDP over the period up to 2015.

The basic economic data about the eleven countries for the base year 1995 constitute a starting point for extrapolations for the future. The most important assumptions relate to economic growth in the countries.

An optimistic scenario assumes that average growth rates in the acceding countries will reach levels of 6 to 7% and maintain this level until 5 years after accession and will then slowly converge with EU levels which will keep a level of between 3 and 4% growth rates. A more negative scenario would assume that GDP growth rates would be equal to or slightly less than the EU average growth rate of 2.5% expected for the next 15 years. A very negative assumption would imply that the acceding countries would not benefit at all from the accession process, a fairly unlikely scenario.

## 3 The TINA Network

### *3.1 Description of the Network*

The TINA process is designated to initiate the development of a multi-modal transport network within the territory of the candidate countries for accession.

The design of the network followed two main steps (Methodology paper, TINA-10/97):

**S** The definition of the alignment of a backbone network, which is the network proposed by the European Commission - and accepted in the TINA process - as the starting point for a differential network design, identical with the links and nodes of the ten multi-modal Pan-European transport corridors of Helsinki, on the territory of the TINA countries;

**S** The definition of the additional network components, proposed by acceding countries and the three TINA regional subgroups and approved by the TINA Group, after having assessed the relevant proposals.

In its final shape, the TINA network is meant as one entity, without any differences between its two components, in the horizon of 2015. However, in the construction process, the elements of the TINA network belonging to the backbone network, may have a better priority against the rest of the network.

The TINA network comprises 18,587 km of roads, 20,710 km of railway lines, 4,131 km of inland waterways, 40 airports, 15 seaports, 52 river ports and 84 terminals (out of which, 16 are situated in seaports and river ports, and 68 stand alone).

All the maps showing the outline of the TINA multi-modal network can be found in the draft Final Report.

The outline TINA Network has now been defined, subject to the endorsement by the Group of TINA Senior Officials; however, minor changes in its shape might occur, if future studies prove this necessity. Furthermore, for these cases where there is still an uncertainty, the routing of the Pan-European Transport Corridors is subject to final decisions of their Steering Committees.

### *3.2 Construction Cost of the Network*

*Reported costs*

A total cost of EURO 86,547 million has been resulted from the countries' reports, out of which:

- EURO 45,805 million for investments on the road network
- EURO 31,241 million for investments on the railway network
- EURO 1,795 million for investments on the inland waterways network
- EURO 4,138 million for investments on airports

- EURO 2,985 million for investments on seaports
- EURO 298 million for investments on river ports
- EURO 286 million for investments on terminals

Table 3-1 shows the estimated cost of the required investments by country and mode.

| | Rail | Road | Inland Waterway | Airport | River ports | Sea ports | Terminals | TOTAL |
|---|---|---|---|---|---|---|---|---|
| Bulgaria | 2130.0 | 2773.5 | 0.0 | 59.4 | 54.9 | 489.1 | 73.0 | 5579.9 |
| Cyprus | - | 302.8 | - | 211.2 | - | 270.0 | - | 784.0 |
| Czech Republic | 3937.9 | 5829.2 | 700.1 | 231 | 24.7 | | 8.5 | 10731.4 |
| Estonia | 259.3 | 289.9 | - | 35.7 | - | 15.0 | 0.0 | 599.9 |
| Hungary | 996.3 | 4775.0 | 400.0 | 286.0 | 84.0 | - | 0.0 | 6541.3 |
| Latvia | 942.1 | 374.0 | - | 74.0 | - | 569.3 | 28.03 | 1987.4 |
| Lithuania | 1381.73 | 614.7 | 0.0 | 140.9 | 0.0 | 551.3 | 0.0 | 2688.6 |
| Poland | 14483.5 | 17550.0 | 436.5 | 2930.8 | 0.4 | 716.6 | 176.9 | 36294.5 |
| Romania | 4303.6 | 5139.3 | 257.9 | 114.4 | 134.5 | 373.2 | 0.0 | 10322.9 |
| Slovakia | 1902.7 | 5537.25 | 0.0 | 26.5 | 0.0 | - | 0.0 | 7466.5 |
| Slovenia | 903.6 | 2619.6 | - | 28.0 | - | 0.0 | 0.0 | 3551.2 |
| TOTAL | 31240.7 | 45805.1 | 1794.5 | 4137.9 | 298.5 | 2984.5 | 286.4 | 86547.4 |

Table 3-1: Cost estimation for the proposed measures by country and mode (all cost in million EURO)

## 4 CONSTRUCTING THE NETWORK

### *4.1 Traffic forecasts*

During the first stages of the TINA process, there was no coherent forecast of traffic in the region of the candidate countries for accession. Only national or regional forecasts existed, which were neither co-ordinated nor compatible. The need for detailed future traffic forecasts (based on common sources and assumptions) led the European Commission to launch a specific Study for traffic forecasts on the TINA network. The Study is expected to be concluded in July 1999, and will cover the future planning needs sufficiently, while also providing basic information for project linked cost-benefit analysis purposes (reference: ToR of the PHARE Study "Traffic Forecast on the ten Pan-European Transport Corridors of Helsinki"). However, in the present stage of defining the TINA Network, the Consortium, which elaborates the Study, made available the first preliminary results of the Study, covering a "reference scenario".

### *4.2 From potential investment measures to concrete projects*

The Transport Infrastructure Needs Assessment (TINA) in the candidate countries for accession, identified investment needs of the order of EURO 86 billion up to 2015 for the realisation of the TINA network, comprising railway, road, airport, sea port, river port and terminals infrastructures. In the description of these investment needs, no clear distinction has been made between actual projects and possible investments.

TINA annotates sections, components or links of the transport network as “possible investment measures”, which require upgrading or refurbishing or which are newly required since they have been identified as “missing”. Their identification process broadly follows the recommendations of WP.5 of the UN-ECE (identification of missing links and bottlenecks).

Thus, the total cost volume of all “possible investment measures”, as quoted above with EURO 86 billion, most likely indicates an upper ceiling for investments in order to bring the network considered to a desired technical and/or capacity standard.

In the screening process, which follows in order to, find fundable or bankable projects most likely some of these possible investment measures might be dropped at least for the period until 2015, or might be formulated in different options of lower costs.

Use of the term Project should be restricted to possible investment measures which have undergone some assessment, are fairly mature and advanced in their structure, and which can meet the criteria of the financial institutions.

In the network, outlined by the TINA process, it is the work of the relevant authorities, the IFIs and, depending on the financial engineering, the banks and possible other private investors, to identify fundable and where appropriate bankable projects. Such projects are usually sections or parts of projects of common interest.

For the authorities and IFIs the work comprises to obtain information about the

- socio-economic and financial performance of the projects;
- environmental assessment of each project;
- economic ranking of the projects.

and to bring them to maturity which annotates that the information and the features of the project allow to enter the process of financial engineering which i.e. addresses the issue if the projects are suitable for public or private financing or a mixture of both. Only with this information it can be determined if projects are fundable or bankable. Fundable projects are those with a high socio-economic benefit but low financial rate of return; bankable projects are those with reasonable revenue streams, manageable financial risks and a financial rate of return above 10%.

*4.3 Guidance for Projects' Appraisal*

Before any decision on financing/ funding individual projects is taken, the projects proposed for implementation should be subject to a socio-economic assessment.

The proposed guidance for projects appraisal will be an Annex to the Final Report. The overall aim of this document will be to establish a common framework so that schemes and options submitted to the various financing/

funding institutes by different states have been selected and appraised on a broadly comparable basis, and are presented in a way that facilitates review and analysis.

The principal focus of this guidance is the social appraisal of projects, that is an assessment of the overall economic and social value. Also of interest is the pattern of gains and losses associated with the project. In particular the financial sustainability of the project is relevant, so that the pattern of financial, economic and social flows associated with the project needs to be demonstrated. This is best achieved by the use of a framework approach containing at its core a cost-benefit analysis but with additional reporting of environmental impacts and impacts of broader policy. The method is oriented towards projects, which are sufficiently well defined to be capable of serious evaluation. The framework is capable of handling projects on all modes of transport.

The central role of this guidance is to support a social appraisal. But in addition, the analysis also sheds light on the outline financial performance of the scheme. This is important from the perspective of the financial institutions. Therefore financial flows -revenues and costs to the relevant parties- need to be shown explicitly within the appraisal. The appraisal provides an opportunity to think creatively about Public-Private Partnership projects and only to put forward projects, which have a realistic chance of being funded. If the project appears to be socially worthwhile and potentially fundable, the banking institutions will have their own more detailed financial appraisal procedures.

*4.4 Status of the Network today, in 2005, in 2010 and in 2015*

The status of the road and rail TINA network is presented in the following form:

| ROAD | RAIL |
|---|---|
| 4-lanes motorways | High speed lines (speed > 160 km/h) |
| 3-4 lanes expressways | Double electrified lines, conventional |
| 2-lanes roads | Double, non-electrified lines |
| | Single electrified lines |
| | Single, non-electrified lines |

A comparison of the existing (1999) and future (2005, 2010 and 2015) status of the network with the current (1995) and future (2005, 2010 and 2015 respectively) traffic in the various rail and road sections, gives some interesting indications for the existing bottlenecks (the analysis is based on the recommendations of UN/ECE/WP.5 for the needed infrastructure capacity - the analysis does not include the sections where traffic data do not exist). The status of the network for the years 2005, 2010 and 2015 is based on the information received by the countries (see the footnote), concerning the proposed investment measures per section and the time horizons of their implementation.

All the relevant information and the maps indicating the future status of the network with the future possible infrastructural bottlenecks can be found in the draft TINA Final Report.

## 5 SUSTAINABLE USE OF THE NETWORK

The TINA process has been designated to initiate the development of a multi-modal transport network within the territory of the candidate countries for accession. All the necessary steps to define the various stages of development of this infrastructure in the time horizon of 2015 were assessed; however, it must be underlined that any infrastructure development should be accompanied with those necessary measures to ensure the efficient operation of the infrastructure network.

In this respect, the draft Final Report includes some recommendations for an efficient operations policy in the candidate countries, to improve the services provided on the infrastructure network (also improving its efficiency and attractiveness); in addition, the draft Final Report includes a summary of some main technical fields on which the Union focus, in order to achieve the goals of the required efficient operations policy (Intelligent Transport Systems - ITS)

## 6 CONCLUSIONS, RECOMMENDATIONS

### *6.1 The TINA Network*

The most important prerequisite for the Network's design was the guiding principle that this network should be seen as the possible future extension of the TEN, in an enlarged Union. In this respect, the network must be in line with the main provisions of the Common European Transport Policy and with its main objective, to ensure sustainable mobility for people and goods.

The essential guidelines for the design of the TINA network were:

- To define a (future) Trans-European transport network which interconnects national networks, makes them interoperable and links the peripheral regions of the (enlarged) Union with the centre
- Respect for the environment embodied in transport systems which help resolve major environmental problems
- Promotion of the highest possible safety standards
- Links to third countries

The final TINA network comprises 18,587 km of roads, 20,710 km of railway lines, 4,131 km of inland waterways, 40 airports, 15 seaports, 52 river ports and 84 terminals.

The outline of the network has been finally defined; however, minor changes in its shape might occur, if future studies prove this necessity. Furthermore, in these cases where there is still an uncertainty, the routing of the Pan-European Transport Corridors is subject to final decisions of their Steering Committees.

The network seems to serve well the region of the candidate countries.

The cost to construct the Network has been estimated by the countries to EURO 86,547 million (EURO 31,241 million for the railway network, EURO 45,805 million for the road network, EURO 1,795 million for the inland waterways network, EURO 4,138 million for airports, EURO 298 million for river ports, EURO 2,985 million for seaports and EURO 286 million for terminals).

An indicative individual costing for rail and road modes, based on unit costs, showed that the reported EURO 77 billion for rail and road constructions on the network might be reduced to EURO 50 - 60 billion.

*6.2 Development of the Network*

An essential element in the whole TINA planning process was that this network would have a realistic prospect of its construction being financed, based on a perspective of an average construction cost of about 1.5% of GDP in each country.

From the Report it appears that, in some cases, strict compliance with the indicative annual ceiling of 1.5% of GDP restricts the prospect, for some countries, of constructing all the parts of the network they propose in their territories.

A possible conclusion could be that, for some countries, the complete realisation of the network would have to be extended beyond 2015. Things can radically changed if the involvement of the private sector or the IFIs can be ensured. Furthermore, the realisation of the total network can be considered as having much better perspectives, taking into account that some of the currently reported investment measures may change to project options with less cost, if the needs do not ask for more. In this sense, the future status of the network as reported today, might change and alternatives of lower cost may appear for certain sections of the network.

For the realisation of the network, the countries have reported a number of potential investment measures (of a total cost of EURO 86.5 billion). However, it is worth mentioning that any plan for the construction of the network requires the definition of concrete projects. This process will need detailed feasibility and environmental studies on a case by case basis, in order to define viable projects which can form an -as much as possible- viable network (ref.: Article 2, point (f) of the Decision No 1692/96/EC). The assessment of the projects will be based on the methodology for projects assessment, which will be finalised in the coming months and will be a part of the TINA Final Report.

*6.3 Operation of the Network*

The operation of the network is the second fundamental option of its existence. Even if the network exists, it must be ensured that the infrastructure must be used in the most efficient way. For the proper operation of the network, two separate options appear:

- The technical tools to be introduced on the network to improve the level of its services and to make it more attractive. The introduction of the Intelligent Transport Systems (ITS) on the TINA network can serve this objective.
- The sufficient legislative - institutional framework to ensure access under the best conditions, eliminating any administrative obstacles and barriers, and thus improving its exploitation. In this sense, the adoption of the EU acquis is a sine-qua-non prerequisite for the better functioning of the network.

Based on the EU provisions for the European networks, it can be said that the absolute objectives are:

- An internal market which works efficiently and facilitates the free movements of goods and people
- A coherent, intergrated transport system using the most appropriate technologies
- Social policies to protect and promote the interests of those working in and using transport

*6.4 The way ahead*

It will change accordingly

The TINA process has so far achieved its intended goal, and preparations in the acceding countries for an extension of the Trans-European Network are well under way. The first stage of the process, the development of outline maps for road and rail networks in the eleven candidate countries has been completed. Further work concerning the development of an investment strategy covering both the pre-accession phase and the period after accession is under way. The TINA process provides a framework of reference for the transport network in the EU and the candidate countries, reflecting the main transport priorities at trans-national level. The present mandate for the TINA process ends, when the Group delivers its final report. In the next stage, the focus will be on use of different financing instruments, and on investment pipelines. However, the implementation of the recommended network needs close monitoring and, in the course of the accession process, adaptations of the network outline might also be necessary. This would in particular require close co-ordination with the Accession Partnerships and National Programmes for the Adoption of the acquis and reporting on progress within the framework of the Europe Agreements.

The TINA process has been successful, but the work is on-going. Further technical assistance is needed for monitoring progress, and utilising common methodologies for project analysis and priority setting.

It is clearly necessary for work with the candidates on TINA to be coherent with work inside the Union on the Trans-European Network. This will require using the same methodologies and requires a common reporting framework.

In the next stage of this process, certain action in some main fields is necessary:

- On the basis of the network outline endorsed in the TINA process, establish, for the transport sector, priorities amongst possible investment measures using the criterion of sustainable mobility and an investment project pipeline for external financing
- Promotion of institutional building, and of organisational and regulatory measures favouring the competitiveness of rail
- Promotion of PPP schemes
- Development and adaptation of assessment methods for the future Trans-European transport network, including strategic environmental assessment, for its components, and for possible investment measures and projects
- Monitoring of the development of the future Trans-European transport network in the acceding countries and its usage, with the publication of regular information on progress
- Maintenance of a Geographical Information System (GIS) and an Expert Network in the field of monitoring the GIS for Central Europe

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