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# ASSESS

*Assessment of the contribution of the TEN and other transport policy measures to the mid-term implementation of the White Paper on the European Transport Policy for 2010*

FINAL REPORT  
ANNEX XXI INFRASTRUCTURE INVESTMENT

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# Preface

This is ANNEX XXI of the final report for '*Assessment of the contribution of the TEN and other transport policy measures to the mid-term implementation of the White Paper on the European Transport Policy for 2010*'.

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# Scope

## Scope of the ASSESS study

The ASSESS study is about the *“Assessment of the contribution of the TEN and other transport policy measures to the mid-term implementation of the White Paper on the European Transport Policy for 2010”*.

The European Commission’s White Paper of 12.9.2001 “European transport policy for 2010: time to decide” aims to promote a sustainable transport policy. The White Paper proposes to achieve sustainability by gradually breaking the link between transport growth and economic growth, principally in three ways: changing the modal split in the long term, clearing infrastructure bottlenecks and placing safety and quality at the heart of the transport policy.

As foreseen, the White Paper on Transport undergoes in 2005 an overall *assessment concerning the implementation of the measures it advocates and to check whether its targets* - for example, on modal split or road safety - *and objectives are being attained or whether adjustments are needed*.

ASSESS provides technical support to the Commission services for the above mid-term assessment of the White Paper.

The analysis accounts for the economic, social and environmental consequences of the proposed measures and their contribution to sustainable development objectives. It provides also a detailed analysis of those effects of enlargement likely to affect the structure and performance of the EU transport system.

The study takes a three pillar approach based on the use of analysis, indicators and models. National transport policies are reviewed for compatibility and coherence with the White Paper objectives. The models used allow a detailed analysis of the freight market, the passenger market and their infrastructure networks under a number of scenarios.

## Scope of this Annex

This annex analysis the TEN-T projects in relation to the White paper. The key focus of this paper is on the future, and, hence, the key questions at the heart of this paper are whether there are methods in place to ensure that investments contribute to the White Paper objectives and, if so, whether the identified investments can be financed? The question relating to ‘methods’ is twofold, firstly relating to technical methods of investment appraisal and, secondly, relating to the overall decision-making process.



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# ANNEX XXI *Infrastructure investment*

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## **XXI.1. Introduction**

### **XXI.1.1. Context**

The White Paper's investment objectives are almost entirely bound up with development of the Trans-European Transport Network (TEN-T). The overall aim is towards removing the bottlenecks on the main international routes, and the specific objectives are outlined as follows:

- Revision of the TEN guidelines
  - Completing the routes identified as the priorities for absorbing the traffic flows generated by enlargement, particularly in frontier regions, and improving access to outlying areas
  - Developing a high-speed rail network, removing the bottlenecks in the railway network
  - Developing motorways of the sea and airport capacity, including sections of pan-European corridors situated on territory of candidate countries
  - Developing multimodal corridors giving priority to freight
  - Completing the Alpine routes and providing a better passage of the Pyrenees by providing a high capacity rail line (needs revision of the guidelines for the TENs)
- Developing traffic management plans for all main trans-European links
- Improve safety of long tunnels in the TENs
- Enlarge public, private and innovative funding for the TENs
- Provide clarity about the legal possibilities to use revenues of road toll for the development and maintenance of other transport modes

The White Paper identified a number of actions which it viewed as contributing to the achievement of these objectives. ASSESS Annex I and II give an overview of these actions and of progress made towards their implementation. The Commission has been very active in this policy area, notably having executed a revision of the TEN-T guidelines and a renewal of the financing mechanism in 2004, and so the development of the Trans-European Transport Network was described in ASSESS Annex I as being one of the three White Paper policies that have been almost completely implemented at the EU level. However, other EU-policies and external developments in relation to environmental policies and to tougher financial restrictions have been identified as being somewhat in conflict with pursuing the building of the Trans-European transport network, and a number of delays in construction have been experienced.

### **XXI.1.2. Approach in this paper**

The key focus of this paper is on the future, and, hence, the key questions at the heart of this paper are whether there are methods in place to ensure that investments contribute to the White Paper objectives and, if so, whether the identified investments can be financed? The question relating to 'methods' is two-fold, firstly relating to technical methods of investment appraisal and, secondly, relating to the overall decision-making process.

In XXI.2 we briefly consider the decision-making process, review the stated appraisal framework set out within the TEN-T guidelines and review evidence on how the TEN-T projects were identified in practice. Then in section XXI.3 we briefly review the state of the art in transport appraisal and comment on the transparency and the degree to which the appraisal framework utilized relates to the state of the art. In section XXI.4 we consider the financing issues, firstly comparing aspirations and achievements thus far, reviewing the different financing models variously proposed and comment on the likelihood of the investment targets being realised. Section XXI.5 then provides some overall conclusions.

Whilst recognising that the above could represent a vast agenda, we have had to be selective in the sources we have drawn on within the time available to us. We have, therefore, concentrated on the most recent literature, including the report of the Van Miert High-Level Group (HLG, 2003), the Extended Impact Assessment of the revised TEN-T guidelines (CEC, 2003b) and other EU policy documentation.

## **XXI.2. The Trans-European Transport Network and its appraisal**

The concept of Trans-European Networks emerged through the 1980s in conjunction with the development of the European Single Market. It was, not unreasonably, argued that modern and efficient infrastructure linking the various regions and national networks would be required in order to facilitate the ‘freedom of movement of goods, persons and services’ which was said to be at the heart of the Single Market concept. The Trans-European Networks comprise transport, energy and telecommunications networks, though naturally we focus exclusively on transport here.

The concept of Trans-European Networks was introduced formally with the Maastricht Treaty, more specifically in Title XV of the TEC.

According to Article 154, “the Community shall contribute to the establishment and development of trans-European networks in the areas of transport, telecommunications and energy infrastructures.”

Article 155 defines the responsibilities of Community:

- establish guidelines identifying projects of common interest
- implement measures necessary for interoperability of networks
- support projects of common interest e.g. through feasibility studies, loan guarantees or interest-rate subsidies
- contribute through financing through the Cohesion Fund
- promoting coordination between Member States

Article 156 clearly states that the Community does not have the final word in the appraisal of the TEN: “Guidelines and projects of common interest which relate to the territory of a Member State shall require the approval of the Member State concerned.”

The Trans-European Transport Networks (TEN-T) are multi-modal and multi-dimensional, consisting of roads, railways, airports, international sea ports, inland ports, traffic management systems and, since 2004, motorways of the sea. An early statement of the aims of the TEN-T (European Parliament, 1996) was that they should:

- Integrate national networks and modes of transport;
- Link peripheral regions of the Union to the centre
- Improve safety and efficiency of the networks

The European Union has a long-standing interest in the development of Europe's transport infrastructure, having been engaged in work in this area for over 25 years. A Committee on Transport Infrastructure was established in 1978 which assisted the Commission in the allocation of the transport infrastructure budget endowments throughout the 1980s. Furthermore, consideration of the specific infrastructure investment requirements associated with a High Speed Train network gave rise to the December 1990 High Level Working Group Report on the development of the European High-speed train network (CEC, 1990).

The TEN-T itself was initiated in 1994 by the European Council endorsing a list of 14 priority transport projects, since referred to as 'the Essen Projects'. These were based on the report drawn up by the "Christophersen Group", a special group of representatives of the Heads of State or Government who had identified a set of priority projects which, in their view, were "of determining importance for the establishment of the trans-European networks for transport and energy" (HLG, 22003). The Christophersen Group devised a list of selection criteria in order to identify, from the 34 projects which had been submitted to it, a set of 14 priority projects, as follows:

- (i) projects had to be projects of common interest in accordance with the criteria which were meanwhile set in the Community guidelines for the development of a trans-European transport network;
- (ii) they had to be of exceptional size, bearing in mind the type of project and the relative size of the Member States directly concerned;
- (iii) they had to pass the economic viability test, including improvements of competitiveness and the technological performance of the Union;
- (iv) they had to allow for the possibility of private financing;
- (v) they ought to be mature enough in order to be carried out quickly;
- (vi) they had to avoid the public financing of infrastructure which would lead to distortions of competition contrary to the common interest;
- (vii) and to respect Community legislation, in particular concerning environmental protection.

Regulation 2236/95 created a specific budget line for the TEN, supplementing the existing facilities provided by the Cohesion Fund and the ERDF. We shall come back in Section XXI.4.2 to the details of this regulation.

Hence, in the efforts to get the TEN-T started, the selection of projects appears to have taken place with reference to this set of selection criteria, rather than an explicit, formal appraisal framework. It was only subsequently, in 1996, that the Commission and the Parliament agreed a set of guidelines (Decision No 1692/96, European Parliament, 1996) which put in a single reference framework the plans and criteria for each mode of transport, with the intention of making it possible to identify projects of common interest likely to be eligible for the TENs budget or under financial structural instruments. The 1996 guidelines included the 14 Essen projects, as well as a much larger list of projects of common interest, and set 2010 as a deadline for their completion.

However, the criteria used to identify projects of common interest were again somewhat loose. The 1996 guidelines referred to projects needing to contribute to the objectives, to undergo an Environmental Impact Assessment and be 'potentially economically viable', but these objectives and requirements – whilst laudable – appear so general as to allow many projects to potentially qualify for consideration. Remembering that the original 14 Essen Projects were identified as priorities prior to the 1996 guidelines, the mechanisms for reviewing priorities appeared unclear, referring only to a requirement for the Commission to produce an 'Implementation Report' every two years – reporting on progress with the already identified projects – and to review the Guidelines every five years; a Committee was to be set up at the Commission, comprising representatives of the Member States, to assist the Commission in these activities.

The possibility of an eastward enlargement of the EU following the collapse of communism created new challenges. The 1994 and 1997 Pan European Transport Conferences create Pan European Transport Networks as a priority for cooperation with the CEEC and NIS. Following the Transport Infrastructure Needs Assessment (TINA), ten pan-European transport corridors within accession countries and four pan-European maritime areas were defined. These Conferences took place within an Intergovernmental rather than Community framework.

The most important sources of EC funding for these projects were (alongside loans from the BERD and the World Bank):

- PHARE: 1.8 billion EUR (1993-1998)
- ISPA: 1 billion EUR (2000-2006)
- EIB loans: 4.8 billion EUR
- TACIS

In 1999, there was a first revision of the financial guidelines – we refer to Section XXI.4.2 for more details.

2001 turned out to be a crucial year for the further development of the TEN-T. At that time, only three priority projects had been completed and it was clear that a new impetus was needed.

First, in May 2001 there was an initial revision of the 1996 guidelines, relating specifically to ports and terminals (Decision 1346).

Then, the conclusions of the 2001 European Council in Gothenburg expressed the view that revised TEN guidelines should be brought forward with a view to giving specific priority, where appropriate, to infrastructure investment for railways, inland waterways, short sea shipping, inter-modal operations and effective interconnections – we should keep in mind that this was also the Council where the EC policy on sustainable development was defined.

The 2001 White Paper on transport policy identified several problems with respect to the realization of the TEN, and also proposed a list of actions – see Section XXI.1 for more details.

A more comprehensive revision of the 1996 guidelines was then initiated in late 2001, to link with the White Paper. Based on the Commission's proposals set out in late 2001, the Commission and the Parliament agreed on a revised set of guidelines in 2002 (COM/2002/0542 final). However, whilst the European Council recognized the need for a revision of the guidelines at that time, the revision agreed by the Commission and Parliament did not gain the agreement of the Council.

In early 2003 the Van Miert High Level Group was appointed to undertake a comprehensive review of progress with the TEN-T. In their review, the Group noted candidly that “an examination of all the priority projects selected by the Christophersen Group might give the impression that they do not have a perfect coherence. Some of the Essen projects reflect a national planning desire which does not show any strong synergy with the remainder of the trans-European network. Others take the form of packages including many disparate projects” (HLG, 2003). They put these difficulties down to “the method used and the rules of the game inherent in this type of exercise”; in other words, the appraisal and decision-making framework.

The Group expressed a wish to avoid the previous acknowledged difficulties by, in particular, having a rigorous and clear methodology for choosing the priority projects and keeping the need for projects to fit within an overall framework and hierarchy coherent with the trans-European network by having the concept of major trans-European axes in mind. Nevertheless, they asserted that the Essen projects “have a

role in completing major trans-European axes whose usefulness and European added value is undeniable at the level of the Community” (HLG, 2003). Hence, they affirmed the original 14 priority projects, and then devised their own method to identify further priorities<sup>1</sup>. Their method started by taking up most of the Christophersen Group selection criteria, then adding further criteria which sought to capture Community Added Value and reflect the objective of sustainable development. The innovation of the Group was said to have been to have “introduced evaluation criteria beforehand, on which it will justify the inclusion or not of a project in the list of the priority projects” (HLG, 2003). Furthermore, it was indicated that “the evaluation criteria are not absolute instruments, but constitute above all a methodological reference to facilitate the work of the Group and to justify certain decisions” (HLG, 2003).

The method pursued by the Van Miert Group was two-stage. Firstly, projects were eliminated from the long list if they did not meet one of a set of criteria, as follows:

- Being on a main trans-European axis pertinent to the internal market of the enlarged Europe, taking in particular into account projects crossing natural barriers, solving congestion problems or corresponding to missing links.
- Having a European dimension in particular by meeting a threshold of €500 million for infrastructure.
- The existence of evidence showing potential economic viability, other socio-economic benefits (e.g. social, environmental), and firm commitments from the concerned Member States to carry out the required impact assessments with a view to completing the project within an agreed timeframe.

In a second stage, the Group took the remaining projects and selected priority projects in relation to three further criteria, as follows:

- The European value added of the project, in terms of importance for facilitating exchanges between Member States, for instance improving interconnections and interoperability between national networks.
- The strengthening of cohesion, either by better incorporating the future Member States into an enlarged Europe or by connecting the main peripheral areas and the least developed regions to the rest of Europe.
- The contribution to the sustainable development of transport while tackling the problems of safety and of environmental protection and by promoting modal transfer.

This process identified a further 22 priority projects from the 100 that member states had presented to them. The priority set identified found agreement amongst all member state delegations, other than Belgium, Luxembourg and Greece.

Finally, the report also called for specific measures, all of whom were in line with the approach taken in the White Paper. To name just the most important:

- Motorways of the sea should complement the main land axes
- National rail networks should be made more interoperable, specifically with respect to signalling and telecom
- Part of the rail network should be dedicated to freight
- Air traffic management should be integrated
- A river information system should be established
- A vessel traffic management and information centre should be created <sup>2</sup>
- Existing airports should be better managed
- Main European axes should be identified
- Acceding countries should be integrated
- Community aid should be increased

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<sup>1</sup> [http://europa.eu.int/comm/ten/transport/revision/hlg/2003\\_report\\_kvm\\_en.pdf](http://europa.eu.int/comm/ten/transport/revision/hlg/2003_report_kvm_en.pdf)

<sup>2</sup> Clearly, Galileo would play a crucial role in the establishment of such a system.

Moreover, the report called for:

- A new financing approach (see Section XXI.4)
- better coordination
- creation of transnational legal entities
- common impact assessment methodologies

In light of the then impending EU enlargement, of the identification of 10 priority pan-European transport corridors and four priority pan-European areas, and following consideration of the Van Miert Group's report, the Commission issued proposals for a revised set of TEN guidelines (COM/2003/0564 final) and for new financial rules (COM/2003/0132 final). . These proposals reconsidered the identification of priority projects and identified a number of possible solutions to the financing and implementation difficulties that had been experienced.

The overall goals of the TEN-T were also re-stated as to improve the competitiveness of the EU economy as a whole, to support the completion of the internal market, and to contribute to a balanced territorial development of the Union. Two new goals were also included:

- to contribute to a sustainable transport system at European level by giving higher priority for investments in environmentally friendly modes in view of rebalancing modal shares;
- to make a success of enlargement by integrating transport networks of acceding countries with those of the current Member states and by improving the quality of the networks in the acceding countries in order to reduce travel times, accidents and environmental damage from transport (CEC, 2003b).

The European Commission then undertook an 'Extended Impact Assessment' of this revision of the Guidelines, published in late 2003 (CEC, 2003b). This took the form of an analysis of the broad socio-economic impacts of two TEN-T policy packages in comparison to a business-as-usual scenario which involved continuing with the 1996 Guidelines and set of projects in place. As background to the case for revising the TEN-T Guidelines and set of projects, the Commission acknowledged that the 1996 plans for the TEN-T were "the result, essentially, of a juxtaposition of national plans ... [and] lack ... a common global vision on a continental scale" (CEC, 2003b).

Forecasts of the impacts of the three scenarios were developed and analysed with reference to a forecast year of 2020. Much of the input to this work, in particular the modeling and forecasting, was undertaken within the TEN-STAC study (Scenarios, Traffic Forecasts and Analysis of Corridors of the Trans-European Transport Network; Phase 1). This was a major and comprehensive study, commissioned by the European Commission, to model the development of interregional passenger and freight transport demand, the development of the infrastructure networks and the consequent environmental, accessibility and economic impacts for each of the three scenarios throughout the whole of Europe using a system of transport and economic models (NEA, 2003). The estimation of the impacts for each scenario assumes that all projects are completed as planned, their cost estimates are not exceeded, and no policy measures in other fields or sectors are taken that might affect transport demand.

The three scenarios were described as follows:

1. Trend scenario – The Commission does nothing: The Community framework for the trans-European network remains as in 1996. Only the projects in an advanced stage (completed before 2008) are built. The rail freight network is opened up to competition. Big yet disparate changes are made to the charges levied on heavy goods vehicles for use of infrastructure but only in the countries which have already initiated reforms in this field. Due to the lack of a common view of traffic trends, linked to the development of the networks in neighbouring countries, the Member States defer their investment in the intermodal transnational corridors.
2. European scenario – The Commission urges the Council to adopt its 2001 proposal and adds parallel measures on charging for the use of infrastructure plus a more ambitious railways policy:

The investments made include, in addition to the trend scenario, all the Essen/Dublin projects plus the six new projects as proposed by the Commission in 2001, and half of the works planned in the Accession Treaties. Charges for use of infrastructure are imposed on heavy goods vehicles throughout the network. National measures to improve interoperability and train path management, particularly on freight routes, are applied on the links along the priority projects.

3. European+ scenario – The Commission adds to its proposal new projects, closer coordination of investment, measures on charging for the use of infrastructure and a more ambitious rail policy: In addition to the investments envisaged in the previous scenario, the new priority projects identified by the High-Level Group are built. The network planned in the Accession Treaties is nearly completed. Coordination between Member States is reinforced along the corridors formed by the priority projects. It allows faster interoperability and better capacity management than in the previous scenario, which encourages operators to offer more efficient services to ports and on long-distance transnational routes. Cross-financing implying higher motorway tolls in the Alps and Pyrenees is introduced. This scenario applies the recommendations made by the High-Level Group.

The assessment was made at the European level, with a focus on Europe-wide aggregate impacts, and the document points out that “it is important to note that the sustainability of the individual TEN-T projects is not assured by this assessment (CEC, 2003b). In other words, the assessment is of the overall programme, rather than the projects which make up the programme. In relation to project assessment, it points to project level evaluations which take place at later stages in the process, eg the Environmental Assessment which, by EU law, each project must undergo prior to the financing decision being taken.

A summary of the impacts set out in this Extended Impact Assessment is set out in Table 1. This represents an extremely interesting attempt to estimate and summarise the programme-level costs and benefits, and demonstrates how the benefits differ between the different scenarios examined. However, it does raise a number of questions, perhaps notably with regard to implied benefit cost ratios.

**Table 1: Summary of socio-economic impacts versus trend (CEC, 2003b)**

Category	European	European+
<b>Economic</b>		
Potential travel time savings	€4.4 billion	€7.7 billion
Cost	€113 billion	€196 billion
Effects on internal market dynamics	Small increase of international traffic	Increase of international traffic particularly important for acceding countries
Reduction in road congestion delays	3%	14%
<b>Sustainable development</b>		
Modal rebalancing	Reduction of road growth on international market segments	Stabilisation of modal split at European level, reduction of road growth on international market segments and in 12CC
Emission reduction	€0.4 billion	€0.7 billion
Impact on nature	Risks to be further assessed at local level in particular for inland waterway projects	Risks to be further assessed at local level in particular for inland waterway projects
<b>Social</b>		
Accidents	Fewer accidents due to modal shift and better quality infrastructure	Fewer accidents due to modal shift and better quality infrastructure
Balanced territorial development	Relative accessibility to improve for peripheral countries	Relative accessibility to improve most for peripheral and acceding countries
Higher GDP growth and employment	n.a.	Welfare 0.23% GDP or one million permanent jobs

Subsequently, the revised TEN Guidelines and the revised financial rules were adopted in April 2004 (Decision 884/2004 and Regulation 807/2004). The objectives of the TEN were not actually restated, but can be extracted from the 2004 guidelines as follows:

- to ensure international mobility of goods and passengers;
- to shift the balance between transport modes
- to achieve an infrastructure network capable of meeting growing needs, particularly in the context of enlargement;
- to reduce bottlenecks in regions such as the Alps, the Pyrenees and the Baltic Sea;
- to strengthen internal market cohesion, especially in view of EU enlargement and the need to remove bottlenecks and/or complete missing links for the movement of goods (transit) across natural or other barriers or across borders.

This final objective was further elaborated to include sub-objectives to boost growth, to better integrate an enlarged Europe, to improve the productivity and competitiveness of European business on global markets, to contribute to the objective of economic, social and territorial cohesion and to contribute to inter-modality.

(Based on the text of the 2004 Guidelines; European Parliament, 2004a)

In addition, it was agreed that environmental objectives – in particular the objective of decoupling the negative impacts of transport growth from economic growth – be integrated into the TEN framework. To this end, it was, firstly, agreed that the TEN-T proposals be subject to environmental assessments, as provided for in EC legislation. Secondly, it was agreed that priority be given to rail, inland waterways and short-sea shipping, on the basis that they are environmentally friendly modes and, consequently, the Trans-European Rail Freight Network, provided for in Directive 2001/12, and the concept of ‘Motorways of the Sea’ were incorporated into the overall TEN framework. However, this criterion seems to us to represent a very broad means of prioritising environmentally friendly projects as, whilst we acknowledge that it is generally understood that these modes are more environmentally friendly than road transport, it will not necessarily always be the case and, even where it is, not all rail, inland waterway and short-sea shipping projects will be equally environmentally friendly. A more targeted means of prioritising environmentally friendly projects would have been to have provided specific support for identified environmental benefits, whatever mode they involve.

The overall priorities of the TEN were revised as follows (Decision 884/2004, Article 5)::

- (a) establishment and development of the key links and interconnections needed to eliminate bottlenecks, fill in missing sections and complete the main routes, especially their cross-border sections, cross natural barriers, and improve interoperability on major routes;
- (b) establishment and development of infrastructure which promotes the interconnection of national networks in order to facilitate the linkage of islands, or areas similar to islands, and landlocked, peripheral and outermost regions on the one hand and the central regions of the Community on the other, in particular to reduce the high transport costs of these areas;
- (c) the necessary measures for the gradual achievement of an interoperable rail network, including, where feasible, routes adapted for freight transport;
- (d) the necessary measures to promote long-distance, short sea and inland shipping;
- (e) the necessary measures to integrate rail and air transport, especially through rail access to airports, whenever appropriate, and the infrastructures and installations needed;
- (f) optimisation of the capacity and efficiency of existing and new infrastructure, promotion of inter-modality and improvement of the safety and reliability of the network by establishing and improving inter-modal terminals and their access infrastructure and/or by deploying intelligent systems;

- (g) integration of safety and environmental concerns in the design and implementation of the trans-European transport network;
- (h) development of sustainable mobility of persons and goods in accordance with the objectives of the European Union on sustainable development.

Based on the overall priorities for the network, the 2004 guidelines define priority projects according to a set of criteria; where as no such set of criteria were given in the 1996 guidelines. The criteria specify that priority projects are those that:

- (a) are intended to eliminate a bottleneck or complete a missing link on a major route of the trans-European network, in particular projects which are cross-border projects, cross natural barriers or have a cross-border section;
- (b) are on such a scale that long-term planning at European level will help significantly;
- (c) present, overall, potential socio-economic net benefits and other socioeconomic advantages;
- (d) significantly improve the mobility of goods and persons between Member States and thus also contribute to the interoperability of national networks;
- (e) contribute to the territorial cohesion of the European Union by integrating the networks of the new Member States and improving connections with the peripheral and island regions;
- (f) contribute to the sustainable development of transport by improving safety and reducing environmental damage caused by transport, in particular by promoting a modal shift towards railways, inter-modal transport, inland waterways and maritime transport;
- (g) demonstrate commitment on the part of the Member States concerned to carrying out studies and evaluation procedures in time to complete the work in accordance with a date agreed in advance, based upon national plans or any other equivalent document relating to the project in question.

Hence, somewhat greater prominence is given to cross-border projects and the development of sustainable mobility than was the case in the 1996 guidelines. With specific regard to appraisal and trans-national projects, the 2004 guidelines acknowledge that “a situation in which national procedures for the assessment of the environmental and socioeconomic impact of a project are carried out separately by Member States may prove to be inappropriate to the transnational dimension of projects declared to be of European interest (European Parliament, 2004a). It therefore proposed the development of coordinated evaluation and public consultation procedures or transnational enquiry procedures covering the relevant Member States, which focus on the socioeconomic and environmental aspects of projects, in addition to joint evaluation methods.

Notwithstanding these difficulties in relation to trans-national projects, the 2004 guidelines extended the list of priorities to now include 30 projects and, at the same time, extended the time horizon from 2010 to 2020. The list includes and adds to the initial list of Essen projects endorsed ten years earlier, only three of which have been completed in that time. There is an implication that the projects identified as priorities meet the criteria specified in the guidelines, though the evidence to support or demonstrate this does not appear to be available in the public domain.

In extending the list of priorities, the 2004 guidelines recognised that a considerable increase in appropriations will be needed in order to meet the TEN objectives. With this in mind, the Guidelines set out a number of points aimed toward concentrating funding efforts. They specify that for each priority project:

- Member States give an appropriate priority to the projects declared of European interest when submitting applications for funding under the TEN budget and the Cohesion funds;
- The Commission ensures that projects declared of European interest are taken into account when projects or programs co-financed by ISPA and the structural funds are established;

- A project may be withdrawn from the list where there are unjustified delays in implementation, so as to incentivise Member States to adhere to the agreed timetable;
- Ex-post project evaluations take place to facilitate future revisions of the guidelines and list of priority projects and improve project evaluation methods amongst the Member States.

Following Article 17a, the Commission was granted the possibility to “ designate, in agreement with the Member States concerned, and after having consulted the European Parliament, a person called the "European Coordinator". The European Coordinator shall act in the name of and on behalf of the Commission. The remit of the European Coordinator shall normally relate to a single project, especially in the case of a cross-border project, but may, if necessary, be extended to cover the whole of a major axis.”

The tasks of these coordinators would be to:

- (a) promote, in cooperation with the Member States concerned, joint methods for the evaluation of projects and, where appropriate, advise project promoters on the financial package for the projects;
- (b) draw up a report every year for the European Parliament, the Commission and the Member States concerned on progress achieved in the implementation of the project(s) for which he/she is responsible, new regulatory or other developments which could affect the characteristics of the projects and any difficulties and obstacles which may result in a significant delay in relation to the dates indicated in Annex III;
- (c) consult, together with the Member States concerned, regional and local authorities, operators, transport users, and representatives of civil society with a view to gaining fuller knowledge of the demand for transport services, the possibilities of investment funding and the type of services that must be provided in order to facilitate access to such funding.

A draft Commission memorandum<sup>3</sup>, (July 2005) proposes the first six such coordinators.

We return to the subject of financing in section XXI.4.

### **XXI.3. State of the art in investment appraisal**

An important precursor to successfully taking forward a programme of investment, such as the TEN-T, would seem to be that people – the decision-makers and stakeholders in question – believe that the projects which make up the programme are somehow worthwhile, fundable and otherwise achievable. In order to demonstrate how worthwhile and fundable a project, and ultimately an overall programme, is you need some form of appraisal, comprising a technical method and, crucially, a decision-making framework within which that technical method is going to be used. As recent as 2001 though, appraisal practice at the European level was described by Grant-Muller et al as being “still very much at its formative stage” (Grant-Muller et al, 2001). They note that progress towards the greater use of recommended appraisal guidelines depends not only on the technical integrity of the guidelines – being informed both by EU research and by national techniques and practice - but on a host of additional factors including politics, pragmatic constraints and historical tradition.

Appraisal is crucially conditioned by the prevailing political system within which it operates but the fundamental political model in relation to European transport appraisal appears somewhat unclear. Grant-Muller et al sum up the two likely political models as follows:

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<sup>3</sup> [http://europa.eu.int/comm/ten/transport/agency/doc/2005\\_07\\_20\\_coordinator\\_en.pdf](http://europa.eu.int/comm/ten/transport/agency/doc/2005_07_20_coordinator_en.pdf)

“One approach to transport infrastructure policy – and hence to the appraisal regime – would be to assign prime responsibility to national governments (or, for border crossing projects, to groups of national governments). The EU interest would enter in as much as these essentially national projects had beneficial or adverse impacts at European level, beyond the ambit of national Governments. European funding would take the form of top-ups to national funding where projects supported identified pan-European goals. The implications for appraisal would then be clear – the basic appraisal would be at national level, following national appraisal principles, with a submission to Brussels relating to those aspects considered to have wider European impacts. There would be no reason or need for uniformity of appraisal practice between Member states.

The alternative is a more unified approach in which at the limit all projects ‘of European interest’ – say initially the TENs – are subject to a standard form of appraisal so that priorities can be determined for the use of scarce funding resources. This raises philosophical and practical problems encapsulated in the phrase – whose values? Should local values be used, reflecting the willingness to pay of the consumers affected? Or should pan-European values be used? Is there a need, in this case, for complete harmonisation of investment appraisal of projects of European interest?” (Grant-Muller et al, 2001)

One key factor is whether prime responsibility for transport infrastructure policy, in particular where it has a European dimension to it, is assigned to national decision-makers or to European decision-makers, but again it is not clear how responsibilities are located in relation to European transport investment. The politics of the decision-making process involve issues of primacy and subsidiarity that go to the heart of European policy-making, so perhaps it is not surprising that the political model is to some degree ambiguous. Our view is that this lack of clarity has been the cause of a number of technical and political difficulties experienced thus far in progressing projects. Furthermore, implementation difficulties are likely to persist until there is greater clarity regarding the political context.

At the technical level, good quality appraisal of major projects such as the TEN-T projects is a challenging task. In charting the development of transport appraisal and the changing policy context of making decisions on transport investment over the past 30 years, Grant-Muller et al (2001) highlight three desirable requirements of modern transport appraisal:

- to incorporate environmental and wider policy impacts as well as the direct transport impacts;
- to be multi-modal and multi-agency in structure;
- To generate results that are accessible and comprehensible in arenas such as public inquiries.

The first question that arises is that of the overall appraisal framework that is to be used. Broadly speaking, frameworks tend to fall into one of three types:

- Cost-Benefit Analysis (CBA), in which the negative and positive impacts are estimated in money terms and weighed against one another;
- Multi-Criteria Assessment (MCA), in which a set of objectives are identified with a set of criteria designed to indicate the extent to which those objectives are met; and
- Combined CBA/MCA methods, e.g. in which the CBA result is presented as one of the criteria within an MCA, or where the costs and benefits comprising the CBA are presented as individual criteria.

European Commission thinking on appraisal frameworks has been shaped by a series of research reports through the 1990s. A summary and synthesis of this work was developed by the Transport Investment Evaluation (TIE) expert Group (Bentzen et al., 1995). The conclusion was that a joint CBA/MCA model would be the most effective way to pursue project appraisal at the European level, though there was no clear agreement or guidance on how this should be implemented; in particular in relation to how to trade off between different MCA criteria.

Following that work, a number of EU research projects have dealt with transport appraisal frameworks, most relevant here being the EUNET and HEATCO projects. EUNET aimed to develop common appraisal guidelines for appraising potential TEN projects, with an accompanying software tool to facilitate the use of the guidelines. HEATCO is currently revisiting the basis for common methodology and/or values in European transport appraisal.

National appraisal practice is also a factor influencing European thinking on appraisal. The choice of framework and the way in which it is implemented varies throughout Europe. However, whilst different traditions in transport appraisal practice persist in different countries, Grant-Muller et al (2001) identify a number of key similarities which present a potential starting point for common guidelines:

- “In all countries, appraisal is used for prioritizing projects, making recommendations and for evaluating alternative options (for the same project) but not for making a final decision. Implicit in all national appraisal frameworks is recognition that, over and above the appraisal results, an additional series of political, cultural and other priorities must be weighed into the final decision on project approval (see, for example, Secrétaire d’état, France, 1995). In theory there is therefore a separation between the roles of the decision-maker (whether an individual or a committee) and the analyst. In practice, however the distinction may not be so clear. The point at which political, cultural and other priorities enter the process is likely to vary between countries with, for example, variations in the use of public consultation, local enquiry committees and so on. Whilst the recognition of the difference between analysis and decision making provides a point of commonality across national frameworks, it may also provide a potential source of division in establishing common guidelines.
- There is a growing trend towards multi-modality arising from an increasing priority, both the national and international level, to establish an integrated transport system. This in turn has driven the need to design appraisal frameworks that simultaneously cover several modes and mode interchanges. A specific example is the UK Guidance on Methodology for Multi-Modal Studies (MVA et al, 1999). Arising from a multi-modal outlook is the need to define new impacts, generic measurement methods and reconcile some of the theoretical problems raised. An example of the latter is the case where the use in evaluation of different values of time by mode in the urban context can lead to public transport improvements apparently having net disbenefits rather than benefits.
- The use of CBA within the appraisal framework by the majority of European countries provides a potential starting point for any common guidelines eventually produced” (Grant-Muller et al, 2001).

The second key question is to what extent it is possible to provide meaningful measures of the impacts of transport projects which might then serve as inputs to the appraisal framework. Grant-Muller et al (2001) identify three sets of impacts that are of interest: direct transport impacts; environmental impacts; and wider impacts. The principle of valuing the direct transport impacts in monetary terms is generally accepted and much technical work has been done to refine values. However, conventions and values used differ between countries, and a number of issues of how to apply principles remain open; eg, whether rail fatalities and road fatalities should have the same appraisal values. Great progress has been made on measurement and valuation of environmental impacts, in particular noise and air pollution, though uncertainties and disagreements, particularly regarding the treatment of global warming, remain.

The wider policy impacts, such as those relating to completion of the internal market and promotion of economic and social cohesion, are the most acute problem. Whilst they appear as prominent factors in the consideration and justification of the TEN, even a convincing framework for dealing with them, let alone agreement on how they might best be valued, seems problematic. The general assumption underlying a lot of what is written about the TEN-T is that decreases in transport costs lead to decreases in regional inequalities, but recent insights from ‘New Economic Geography’ have shown that increases in inequalities may also occur (see, for instance, Fujita, Krugman and Venables, “The Spatial Economy”). Spatially disaggregated general equilibrium models, such as CGEurope are increasingly being employed to

provide further insight into the impacts, and recent research by the IASON consortium has also made progress in this area.

The third key question relates to how to accommodate multiple viewpoints within appraisal and decision making procedures (see for example, Turro, 1999 pp. 244-8). As more use is made of MCA methods, even where these might incorporate CBA outputs, as a greater number of objectives take on importance and as a greater number of stakeholders are involved in the decision-making process, projects will increasingly be evaluated explicitly and simultaneously from the point of view of several stakeholder groups, both public and private sector. Thus, the issue of how to integrate and present appraisal results to those involved in the decision-making process becomes vital.

One response to this question in relation to the TEN-T was a software tool developed and prototyped within the EU funded EUNET project (Grant-Muller et al. (1998)). The EUNET tool provided a framework to draw together both CBA and MCA outputs to give an overall summary measure for schemes. However, it not only allowed the user access to overall project scores and rankings, but also disaggregate outputs, summary tables, statistics and graphs to gain a deeper understanding of those scores and rankings. Nevertheless, its use in practice has, to our knowledge, been very limited.

Computerised storage and presentation of appraisal information represents a clear step forward in recent years. An important benefit of a computerised facility is that it allows a considerable degree of flexibility in terms of sensitivity testing on parameters, accessing disaggregate information or summary tables which are user specified. However, such systems have not, in reality, been adopted and a more general policy decision is needed on the extent to which they can be utilized within the decision-making process.

Finally, the issue of option generation should be noted. Before appraisal can start to take place there needs to be an identification of a set of projects to be appraised. Various stages might be involved in arriving at this set of projects. For example, a first stage might involve decisions on which strategic corridors should be included; a second stage might involve, for each corridor, decisions on what modes to focus on; and a third stage might involve, for each mode on each corridor, decisions on what schemes to develop as projects. However, it is not at all clear to what extent the projects included in the TEN have been arrived at through this sort of, what might seem to be a conceptually sound, decision-making process. Instead, outside observers have speculated that the option generation process was subject to much less structure than this, with many of the projects included as a result of lobbying rather than transparent assessment (Peters, 2002; Richardson, 1997; and Doherty and Hoedeman, 1994). Were this to have been the case, it may go some way to explaining the comments expressed by the Van Miert High-Level Group and by the European Commission in relation to the original set of projects, when they refer to an apparent lack of coherence and of a common global vision (see above).

## **XXI.4. Financing**

### ***XXI.4.1. Financing a key barrier***

From the outset progress with implementing the TEN-T has been difficult. The first Implementation Report, in 1998, identified slow progress being made in relation to the initial set of Essen Projects. The appointment of the Van Miert High Level Group five years later was another recognition that difficulties were being experienced. They highlighted three sorts of difficulties - Financial, legal and administrative - but of these finance seems to be the most significant.

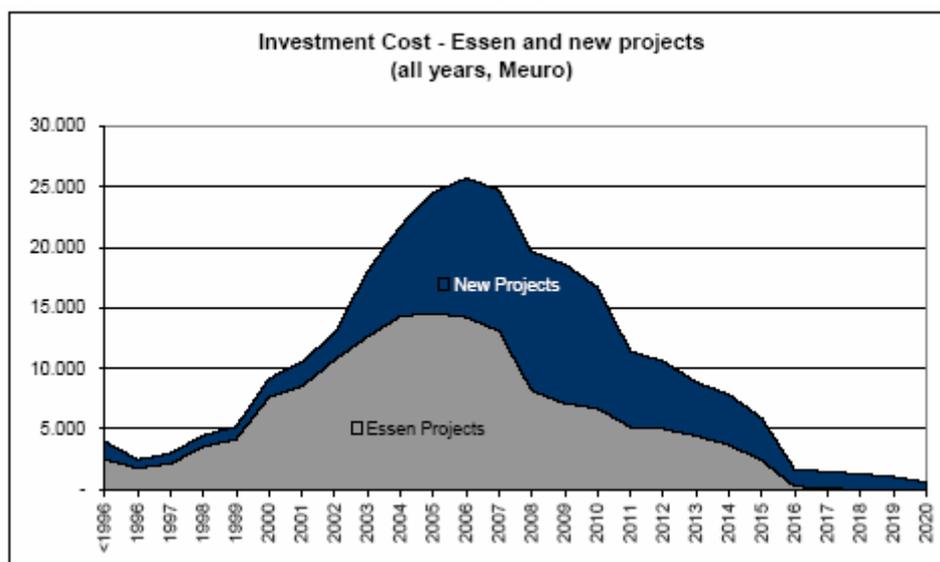
The first point to note is the sheer scale of the estimated project funding involved in the TEN, which is huge by any measure. This point might appear obvious but it is important not to lose sight of the fact that

the programme represents a massive investment plan. The estimated costs of realisation of the full network is € 600 billion to be completed by 2020. Following 2004 estimates, € 225 billion is for the priority projects, approximately €112 billion of which is for the Essen/Dublin projects still to be carried out. Recent information from the Member States indicates that the remaining investment requirements have increased to 252 billion €<sup>4</sup>.

The financial aspirations of this plan would seem all the more ambitious when compared against the level of investment that has been achieved in the nine years since the first set of TEN guidelines. In that time, three of the priority projects have been completed, at a total investment cost of € 75 billion. Whilst this has, undoubtedly, been a significant level of investment, achievement of the current plan would involve a significant increase in the rate of investment over the next 15 years.

The European Commission noted that “overall the rate of investment in the priority projects would have to double in order to complete these projects by 2020” (CEC, 2003b). This is illustrated in the graph below (Source: CEC, 2003b) which shows the year-on-year investment profile built up from the timetables proposed by the Member States and the type of project. The Commission highlight that “approximately €110 billion would be needed for the period 2007-2013 alone, and € 80 billion by 2006. On average, for 15 years half of the €30 billion currently earmarked for the TEN-T every year would therefore have to be allocated to the priority projects, peaking at over €20 billion per year by 2008” (CEC, 2003b).

**Figure 1: Investment cost - Essen and new projects**



#### **XXI.4.2. Sources of funding**

Thus far most of the funding has come from various parts of the public sector in the form of direct grants. The principal sources are:

- National funding;
- European funding (including TEN-budget, ERDF, Cohesion-fund);
- European Investment Bank loans, Structured Finance Facility
- Private sector
- Direct user contribution

<sup>4</sup> The most recent reference for these figures is DG TREN, “TEN-T priority axes and projects 2005”, Office for Official Publication of the European Communities, ISBN 92-894-9837-4

National funds have so far proved the most significant source of financing for the TEN projects, amounting to some 15-20 billion € per year. Much of the benefits arising from the projects are likely to accrue at the national level so it would appear reasonable for Member States themselves to provide the funds linked to those benefits. However, national governments naturally have many calls on their budget, and in specific relation to their transport budget they are required to balance spending on urban, regional and national priorities as well as on those priorities set out in the TEN. So whilst national governments are likely to continue to be the most significant of the funding sources, they are also likely to continue to find it difficult to balance the competing priorities for spending. It was estimated that investment in the TEN-T by the EU27 between 1996 and 2003 was less than €30 B per annum, and that this represents approximately a third of national investment in transport. Of this investment spending on TEN-T, approximately 25% is currently earmarked for the priority projects, equating to less than 0.1% of GDP (TEN-Invest, cited in CEC, 2003b). So whilst the historic level of national spending represents a significant investment in absolute terms, with the overall estimated cost of the TEN-T being approximately €600 B, it is clear that national funds, even if sustained at their current levels, will be insufficient to complete the network within the foreseeable future.

European funding has then provided a secondary financing source, amounting thus far to some 3 billion € per year. This funding is divided between a TEN-specific budget – which has been introduced with Regulation 2236/95 and forms the major part of EU funds for the TEN –, and funding through the Cohesion Fund and the European Regional Development Fund (ERDF).

During the 2000-2006 period, the structural and cohesion funds have cofinanced TEN projects up to a total of € 6 billion for ERDF and € 14.1 billion for the Cohesion Fund. The Commission foresees that for the 2007-2013 period the Cohesion Fund could spend € 31.5 billion in TEN-T investments - assuming that 50% of its budget will be devoted to the TENs - while the ERDF could provide funding for a total of € 11.4 billion over the same period. However, it is only possible to use the Cohesion Fund and ERDF in those eligible countries and regions, typically peripheral regions, where as most of the major projects on the trans-European networks are located closer to the central area and, hence, in countries or regions which are not eligible for the two instruments. The countries or regions not eligible for the structural financial instruments qualify only for funding from the trans-European network budget, 40% of which is allocated to the priority projects. According to the Commission's own figures, the average contribution from the Community has, since 1993, been less than 3% of the cost of the priority projects for countries and regions not eligible for the structural financial instruments (CEC, 2003b). The significant role of the two structural funding instruments perhaps means that it is easier to find funds for projects in some parts of the EU rather than others purely based on the eligibility of the country or region. Hence, projects in these eligible countries may take priority over projects elsewhere even if, according to the appraisal process, these latter projects have a greater impact.

It might seem reasonable to link European funds to where there is clear European added value involved in the projects; that is, where there are trans-national benefits in excess of those which accrue to the Member States directly concerned. These could be wider effects on European competitiveness or cohesion benefits (Laird, Nellthorp and Mackie, 2005). Whilst the EU guidelines on funding have been developed in parallel with the evaluation and identification of TEN-T projects, the two processes have been somewhat separate and there seems to have been no such clear identification of trans-national benefits that might be linked to EU financing.

Terms and conditions on rules on financial aid to the TEN-T have been set out in a series of Regulations. Firstly, Regulation 2236/95 adopted by the Council of Ministers in 1995 specified that:

- The EU may only fund projects identified in the guidelines (and shown on the maps).
- The EU will fund not more than 50% of the cost of feasibility studies, and 10% of the cost of the work.

- Possible forms of financial aid consist in interest subsidies, contributing to loan guarantees and direct grants to investments
- The balance must be met out of public or private sector funds.
- An environmental impact assessment must have been made for each project.
- The project must offer guaranteed financial viability and show an adequate degree of maturity
- The project must be consistent with the Union's other policies, notably as regards the environment, competition and the rules on the award of public contracts
- Each project must be judged on its merits.

Secondly, Regulation 1655/99, adopted in June 1999 by the Council of Ministers and European Parliament served to update the 1995 Regulation, covering the period 2000-2006. It specified:

- A multi-annual indicative programme to give greater prominence to the EU funding of projects
- The promotion of Public-Private Partnerships (PPP)
- The introduction of risk capital for the financial aid given by the Union
- An increased ceiling for Community aid up to 20% of the total cost of the project in the case of satellite positioning and navigation systems
- The Earmarking of approximately € 4 billion between 2000 and 2006; to be spent on Trans-European Transport Networks
- That at least 55% of funds for TEN-Ts be given to railway projects and not more than 25% to roads.
- That the Commission may cancel its financing decisions if the project has not commenced within 2 years.

Thirdly, Regulation 807/2004 was adopted in April 2004. The key aspect of this new regulation is that it increases the potential EU contribution to 20% for project sections crossing borders and natural barriers – as these seem most difficult to achieve progress with.

Up to and including 2004, 5 billion € has gone into these projects from this budget line<sup>5</sup>.

The largest part of the financial requirement for the priority projects falls in the period 2007-2013- about 140 billion €. In July 2004 the Commission therefore proposed, for the period 2007-2013, a budget of €20.350 million for transport (COM(2004) 475). It is envisaged to increase the co-financing rate to a maximum of 30% for the priority projects, and to allow, in exceptional cases, a maximum rate of 50 % for cross-border sections of priority projects. Whether these proposals are agreed depends on the outcome of the overall budget negotiations between Council and Parliament on the new financial perspectives. In June 2005 the European Parliament provided its full support for the proposals, but the European Council has not reached agreement on the new financial perspectives.

The EIB has provided 50 billion EUR in loans up to now and it is foreseen that the same amount will be lent in the years up to 2010<sup>6</sup>. The European Investment Fund has provided loan guarantees. It has also created a new financial instrument, the Transport Investment Facility (TIF). This consist in loans with maturity up to 35 years and covering up to 75% of cost. However, it has to be kept in mind that the EIB has its own statutory priorities.

A further source of funds is the private sector. The Van Miert Group estimated that the private sector would be willing and able to contribute approximately 20% of funds, corresponding to an estimate made at the time of the possibilities of revenue generation from pricing. Furthermore, the private sector's willingness to invest in transport depends crucially on the overall financial framework and on the 'value for

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<sup>5</sup> DG TREN, "TEN-T priority axes and projects 2005", p.8.

<sup>6</sup> DG TREN, "TEN-T priority axes and projects 2005", p.8.

money' represented by the selected projects. Transport investments are often subject to inherent risks and uncertainties, for which the private sector would seek to insure themselves against, eg via the inclusion of risk premia. So it is important to devise methods of sharing project risks between the public and private sector, otherwise the private sector funding may simply represent an expensive form of borrowing. Public-Private Partnerships have proved to be successful mechanisms for levering in private sector financing, whilst maintaining public involvement to pursue social objectives and, as mentioned above, to share risks appropriately. One key element of PPPs is that they provide the capacity for the private sector to generate commercial benefits, whilst allowing the public sector to pay for identified socio-economic benefits. The success of such PPPs have generally been founded on well-performing projects which have the capacity to generate on-going revenue streams; highlighting again the importance of sound appraisal methods in order to prioritise these such projects.

A final source of funds is from users via direct user charging. This is potentially vital, but shows little sign of being realised due to difficulties in implementing the White Paper's charging policy. The difficulties in relation to infrastructure charging have, for example, been highlighted in an accompanying paper on acceptability (See Annex XX on the political dimension).

With COM(2003)448, the Commission introduced a Proposal for a modified "Eurovignette" Directive. This proposal calls for:

- road charges to cover infrastructure and accident costs
- differentiate taxes according to the level of congestion and the sensitivity of the environment
- targeting heavy vehicles and main itineraries (this last point mainly refers to the TEN-T)
- earmarking of road charges for infrastructure

This proposal is still under discussion. Following the amendments proposed by the Parliament in a first reading (20 April 2004), the Council adopted a Common Position on 6 September 2005 - see COM(2005) 423.

The Commission continues to put significant efforts into investigating innovative financing proposals. These include a new guarantee instrument being prepared to cover certain revenue risks and a proposal of the Commission of 09.03.2005 for a loan guarantee of 1bn for cross-border transport infrastructure projects to stimulate private investment. These issues will be the subject of another High Level Group report in the near future.

The Commission continues to investigate innovative financing proposals. These include:

- A new guarantee instrument to cover certain revenue risks and
- A proposal for a loan guarantee of 1bn for cross-border transport infrastructure projects to stimulate private investment (COM(2005)76).
- A proposal for funding to the Motorways of the Sea via the "MARCO POLO II" programme, amounting to some 740 M € for 2007-2013 (COM(2004) 478)
- The creation of an executive agency for management of TEN-T budget<sup>7</sup>
- The creation of a steering group of Commission Members<sup>8</sup>

The new procedure for award of public contracts, the so-called "competitive dialogue" (Directive 2004/18) could provide a useful framework for concessions.

With such a large scale of funding required and various potential contributors throughout the EU, one might easily anticipate great difficulties emerging over who pays what. It would appear, however, possi-

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<sup>7</sup> [http://europa.eu.int/comm/ten/transport/agency/doc/2005\\_07\\_20\\_agency\\_en.pdf](http://europa.eu.int/comm/ten/transport/agency/doc/2005_07_20_agency_en.pdf)

<sup>8</sup> [http://europa.eu.int/comm/ten/transport/agency/doc/2005\\_07\\_20\\_communication\\_en.pdf](http://europa.eu.int/comm/ten/transport/agency/doc/2005_07_20_communication_en.pdf)

ble to reach such agreement, as, at the same time as re-examining the TEN priorities and arriving at a new set of 22 priority projects, the Van Miert Group also achieved agreement amongst the member states involved as regards financing and itinerary for all except four of their 22 projects. The difficulty then becomes taking these agreements forward in a co-ordinated way. To assist with this coordination activity, the Commission has, through the 2004 guidelines, established powers to appoint coordinators (see Section XXI.2).

Several ideas proposed by the Van Miert Group have, to the best of our knowledge, not yet been implemented:

- A ‘Special Purpose Vehicle’ (SPV) could buy TENs portfolio of loans from national financial institutions, securitise them and issue AAA bonds to the market. This would release new resources to be invested in TENs while ensuring capital relief for the originating financial institutions. The EIB Group could be involved in these transactions.
- Mutual Risk Fund: “Like insurance systems this would involve putting together the risks of a sufficient number of projects. This Mutual Risk Fund could be set up according to practices determined with the EIB and would be funded by the Member States concerned and the Community.

In late 2004, the Commission established a new high-level group, chaired by former Commission Vice President Loyola de Palacio in order to examine the connections between the TEN-T priority axes and neighbouring countries. The report of this group is due in autumn 2005<sup>9</sup>

Whilst exploring and developing new potential financing sources may be helpful in promoting a more rapid rate of progress with implementing the TEN, the historical record on transport investment cannot be ignored. EU15 Member States invested on average 1.5% of their GDP in transport infrastructure during the 1980s and now invest less than 1%. The new Member states also invest roughly 1.5% of their GDP in transport infrastructure investment. Furthermore, only a small part of this investment is targeted on the trans-European transport network, the vast majority being allocated to other national, regional or urban transport projects. The Van Miert Group highlighted that recent estimates of overall investments in the trans-European transport network in the EU27 amount to less than €30 billion per annum since 1996.

With such a pace of investments, more than 20 years will be needed to complete the network. Given the record, it seems quite unlikely that Member States will significantly increase their level of transport investment expenditure, even with incentives put in place by the EU. Attention should, therefore, continue to be placed on prioritizing the most important projects in order that they happen first.

## XXI.5. Conclusions

The majority of the White Paper’s investment proposals were bound up with the development of the Trans-European Transport Network, in particular the so called ‘Priority Projects’ comprising the core of that network. The Commission has been very active in this area and, notably, has overseen two updates of the guidelines for developing the TEN-T and three reviews of the set of priority projects in the period since the White Paper. What has emerged is a massive investment programme spanning the period up to 2020 and proposals for significant EU funding contributions towards the cost of this programme. Substantial sums of money have been invested in the priority projects over the past decade but the rate of progress with the investments in the TEN-T priority projects continually falls short of aspirations

In establishing an investment programme capable of being effectively implemented it is crucial to have a decision-making process that allows decision-makers to agree on the set of projects that are most worthwhile, fundable and, otherwise, achievable. For this, some form of appraisal framework is required, com-

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<sup>9</sup> See Press Release IP/04/1248, Brussels, 19 October 2004

prising a technical method and a decision-making framework within which that technical method is going to be used.

It was clear from the outset that the TEN-T was going to involve cutting-edge appraisal issues and, hence, that it was likely that some difficulties would be encountered in relation to technical appraisal. Firstly, their multi-national aspect called for some agreement and clarity regarding where prime decision-making and implementation responsibilities lay – with the Member States or with the EU. Secondly, their multi-modal, multi-dimensional and multi-agency nature called for an appraisal framework that could take these aspects on board – something that certainly did not exist in the mid-1990s. Thirdly, there was clearly a keen interest in what was referred to above as the ‘wider’ impacts of the projects – impacts related to the Internal Market such as employment impacts and the accessibility of different regions of the EU; impacts that the state of the art in appraisal lagged behind on. It is also important to acknowledge that the state of the art in respect of the assessment of infrastructure programmes is less well-developed than that for individual projects. In the context of a major programme of investment such as the TEN-T, this creates the potential for difficulties, perhaps giving rise to the possibility of conflicts emerging between achieving the overall objectives of the programme and how any particular project impacts at the local level, without there being a clear technical means of resolution.

Notwithstanding these conceptual difficulties, it also has to be acknowledged that there are significant practical problems in collecting the data required to input into the appraisal process - this applies both to the collection of relevant statistics and to technical and behavioural parameters – and in applying models at the appropriate scale and level of accuracy.

As well as the technical challenges associated with establishing a clear and robust decision-making process, there are, in a Europe of 25 member states and several levels of government, significant and wholly legitimate political factors impacting on the decision-making framework. The TEN-T decision-making process is inherently bound up with politics and, ultimately, politicians are responsible for making the decisions, so clearly political preferences will have an important role to play. However, we would argue that – where-ever possible – these preferences should be informed by and integrated with sound technical appraisal; even where a political decision is made to do something that is at odds with the findings of the technical appraisal. Furthermore, it should be clear what aspects of the project are being judged on the basis of technical assessment and what aspects are being judged on the basis of political preferences, not least so as to avoid any illegitimate double-counting of impacts.

The first decisions on TEN priority projects were taken prior to any common TEN appraisal framework. The extent to which formal appraisal did serve as a factor in the decision is not known, but even if it did it is likely that, recalling the variety of methods in use in different countries which we noted above, different Member States were employing different methods from one another to appraise projects relevant to them. In so far as responsibility for taking these projects forward lay with the national governments this perhaps posed no fundamental difficulty, but where EU funds were being sought as a means of part-financing the projects one would imagine that a European framework would have been required.

In the comprehensive reviews of progress with the TEN-T which took place during 2003 (HLG, 2003; and CEC, 2003b), apparent problems with the initial decision-making process and its outcome – the 1996 set of projects - were acknowledged. Despite this, the decision was taken to maintain that set of projects within the TEN-T programme, and then to use an enhanced process to identify further projects to the programme.

The Van Miert High-Level Group was successful in refining the TEN-T guidelines and the process for identifying priority projects. The appraisal process described in their report has a sound logic to it, though it appears to us to be some way from the state of the art in technical appraisal – no doubt this is, in part, a

reflection of the constraints on adopting the state of the art in practice noted above. The Commission's subsequent 'Extended Impact Assessment' of the proposals drawn up by the Van Miert Group represents a major exercise in impact assessment and a major contribution to the appraisal process. Focusing on assessment at the programme rather than the project level, it successfully demonstrates the benefits of the Van Miert proposals in comparison to previous TEN-T scenarios, though it does seem to raise a number of interesting question marks as well. In all of this, it has to be acknowledged that the appraisal of strategic routes crossing several member states and often at different planning stages from concept to near-implementation is a very challenging task indeed.

Funding mechanisms have also been problematic. The new TEN-T Guidelines place renewed emphasis on EU co-financing and, with the new regulation and proposal for financial perspectives, seek to increase the impact of that EU co-financing. Included within this are new financing instruments widening the range of tools available to mobilize funds, in particular in relation to cross-border projects which appear to have proved particularly difficult to take forward. However, there appears to be no clear link between the share of funding responsibilities and the incidence of benefits. Where the majority of a project's benefits accrue in one or other member state it would seem reasonable that the country in question takes on the major share of the responsibility for funding, whereas it would seem reasonable for the EU to take on that major responsibility for projects where the majority of benefits are of a trans-national or EU nature.

The failure thus far of pricing proposals to bring adequate cross funding from road represents a key problem in relation to financing. Agreement amongst all key stakeholders on infrastructure charging and arrangements for cross-financing has proved extremely difficult to achieve, yet whilst new financing models may provide some additional impetus, progress with revised Eurovignette and other infrastructure charging proposals will be important in actually generating new funds.

These financing constraints make prioritising allocation of funds to those projects that contribute most to the objectives even more important. That is, while financing continues to be a problem it is even more important to focus on establishing an effective appraisal and decision-making framework. This is likely to involve a framework capable of bringing forward a wide range of schemes – large and small – and testing them against one another in terms of their benefits and scope for implementation. For example, projects focusing on raising capacity and prioritising freight might be found to deliver a large proportion of the benefits associated with provision of new high speed lines, but might be less costly and more capable of being implemented in the short to medium term.

In summary, tackling these investment and financing issues requires action to:

- Focus investment on the most beneficial projects
- Continue work to improve decision making processes, to ensure rigorous appraisal of options and to link financing more closely to the incidence of benefits
- Make available new sources of funds, as would come from implementation of more appropriate pricing on roads and the use of cross financing

## References and Bibliography

Böge R (2004) WORKING DOCUMENT No 6 on Trans European Networks, Report for the EUROPEAN PARLIAMENT Temporary Committee on Policy Challenges and Budgetary Means of the enlarged Union (Financial Perspective 2007-2013), Brussels.

Bentzen K, Faller P, Pearman A & Tsamboulas D (1995) Framework for Transport Investment Evaluation. Unpublished Final Report for the European Commission, DG VII/E.

Commission for the European Communities (CEC) (1990) The European High Speed Train Network, Brussels.

Commission for the European Communities (1992) Trans-European Networks: Towards a Master Plan for the Road Network and Road Traffic, Motorway Working Group Report to DGVII, Brussels.

Commission for the European Communities (1995) Progress on Trans-European Networks: Commission Report to the Madrid European Council, CSE (95) 571, Brussels.

COMMISSION OF THE EUROPEAN COMMUNITIES (2003a) Proposal amending the amended proposal for a decision amending Decision No 1692/96/EC on the trans-European transport network {COM(2003)564 final}, Brussels.

COMMISSION OF THE EUROPEAN COMMUNITIES (2003b) Extended impact assessment of the proposal amending the amended proposal for a decision amending Decision No 1692/96/EC on the trans-European transport network {COM(2003)564 final}, COMMISSION STAFF WORKING PAPER SEC(2003) 1060, Brussels, 01.10.2003

Commission of the European Communities (2004) Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL determining the general rules for the granting of Community financial aid in the field of the trans-european transport networks and energy and amending Council Regulation (EC) n° 2236/95, COM(2004) 475 final 2004/0154 (COD), Brussels.

Commission of the European Communities (2005) Public consultation on the extension of the major Trans-European transport axes to the neighbouring countries and regions, Brussels.

Community of European Railways (CER): (2003) CER Position - Revision of the Trans-European Transport Network: Amended Proposals of the European Commission, 13 December 2003, Brussels. Available at [http://www.cer.be/files/TEN\\_Revision-112204A.pdf](http://www.cer.be/files/TEN_Revision-112204A.pdf).

Doherty, A. and O.Hoedeman. (1994). "Misshaping Europe: The European Round Table of Industrialists." *The Ecologist* 24(4) (July/August): 135-141

European Parliament (1996) DECISION No 1692/96/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, Brussels.

European Parliament (2004a) DECISION No 884/2004/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 29 April 2004 amending Decision No 1692/96/EC

on Community guidelines for the development of the trans-European transport network, Brussels.

European Parliament (2004b) REGULATION (EC) No 807/2004 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 April 2004 amending Council Regulation (EC) No 2236/95 laying down general rules for the granting of Community financial aid in the field of trans-European networks, Brussels.

European Investment Bank (2004) MOBILISING ESSENTIAL FUNDING  
<http://www.gdsinternational.com/pdf/eti/eibk.pdf>.

European Investment Bank (2005) Development of the Trans-European Networks (TENs) - The EIB's operational framework and resources deployed, Annual Press Conference 2005, Briefing Note N°03, Luxembourg, 3 February 2005, available at  
[http://www.eib.org/Attachments/general/events/briefing2005\\_tens\\_en.pdf](http://www.eib.org/Attachments/general/events/briefing2005_tens_en.pdf).

Fujita, M., P. Krugman, and AJ Venables. 1999. *The Spatial Economy: Cities, Regions, and International Trade*. Cambridge, Mass.: MIT press.

Grant-Muller, S. M, Nellthorp, J, Chen H, Pearman, A, Tsamboulas, D (1998) Innovations in Decision Analysis Deliverable D16: Decision Analysis report and prototype. Deliverable to the European Commission, EUNET project (Socio-Economic and Spatial Impacts of Transport). Restricted.

Grant-Muller, s. M., Mackie, P., Nellthorp, J. and Pearman, A. D. (2001) Economic appraisal of European Transport Projects – the state of the art revisited, *Transport Reviews*, V21 No2, pp 237-261.

High-Level Group on Trans-European Transport Networks (2003) Final Report, European Commission, Brussels.

J.J.Laird, J. Nellthorp and P.J.Mackie (2005), Network Effects and Total Economic Impact in an enlarged Trans-European Transport Network, *Transport Policy*, December

MVA et al (1999) Guidance on Methodology for Multi-Modal Studies (GOMMMS), DfT, London.

NEA (2003) 'Traffic flows in Europe', NEA News, No. 15, NEA Transport Research and Training, Rijswijk, November 2003, available at:  
<http://www.nea.nl/english/news/newsframe.html>

Peters D (2003) Old myths and new realities of transport infrastructure assessment implications for EU interventions in Central Europe, in Pearman, A.D. , Mackie, P. J. , Nellthorp, J. (Eds) *Transport Projects, Programmes and Policies*, Ashgate, Aldershot.

PIODI F (1997) THE FINANCING OF TRANS-EUROPEAN TRANSPORT NETWORKS, Working Document E4, Transport Series, EUROPEAN PARLIAMENT, DIRECTORATE-GENERAL FOR RESEARCH. L-2929 LUXEMBOURG, Available at  
[www.europarl.eu.int/workingpapers/tran/e4/fulltext\\_en.htm](http://www.europarl.eu.int/workingpapers/tran/e4/fulltext_en.htm)

Richardson, T. (1997). "The Trans-European Transport Network: Environmental Policy Integration in the European Union." *European Urban & Regional Studies* 4(4): 333-346

Rudischhauser, K (2005) overview of available EU funds and treatment of national debt under Maastricht, presentation at the Conference on options for funding rail development, Scope for private financing, organised by the European Commission in co-operation with the European Investment Bank (EIB) and the Community of European Railway and Infrastructure Companies (CER), Riga, Latvia, 7 – 8 April 2005

Secrétaire d'Etat aux Transports, 1995. Instruction cadre relative aux méthodes d'évaluation économique des grands projets d'infrastructure de transport, jointe à la circulaire du 3 octobre 1995. Secrétaire d'Etat aux Transports, Paris, France.

Turró, M (1999) Going Trans-European: Planning and Financing Transport Networks for Europe, Elsevier Science, Oxford.

Vickerman, R (2005) Trans-European Transport Networks – Impacts and Assessment, presentation to the Transport Economists Group, London, 23 February 2005.



## Appendix - Related Modelling Research

From the point of view of the contribution of appraisal to intelligent decision making, one particular need is improved modelling. Combined traffic and evaluation models that are sensitive to factors such as varying toll levels and that successfully co-ordinate the behavioural inputs underlying traffic models and the resource inputs relevant to evaluation, are urgently needed.]

There are a number of modelling approaches used in the context of estimating impacts for input to investment appraisal. Each approach has its relative merits and demerits. Vickerman highlights the Use Transport Interaction Models and Computable General Equilibrium Models as the two most typical approaches. However, the former tend to be static in nature and dependent on existing patterns of behaviour, require assumptions about land-use requirements of changing capital and labour intensities and treat different sectors unequally. Whilst the latter permit direct estimation of welfare effects, they again require assumptions about equilibrium, and call for large data inputs from existing sources (Vickerman, 2005).

Extract from 2004 guidelines

(23) The Commission has conducted an analysis of the impact of the recommendations made by the High-Level Group. The results show that carrying out the projects identified by the Group, combined with several of the measures under the Common Transport Policy, such as charging for the use of infrastructure and opening up rail freight to competition, would produce significant benefits in terms of time savings, lower emissions and less congestion, better access to peripheral Member States and to the new Member States, and greater general well-being.

The impact assessment conducted for the Commission 15 (SEC(2003)1060) suggests that carrying out these projects, if coordinated with intermodality, interoperability and charging for the use of infrastructure, as proposed in the White Paper on European transport policy would:

- produce significant time savings by reducing road congestion and improving rail performance, which could add-up for inter-regional traffic alone to almost € 8 billion per year;
- reduce CO<sub>2</sub> emissions generated by inter-regional traffic flows by 17 millions tonnes per year;
- reduce other emissions, cutting external costs of air pollution due to inter-regional traffic alone by over € 700 millions per year;
- other benefits in terms of time savings and reduction of emissions at local level for thanks to capacity relieved by modal transfer of long distance traffic;
- stimulate international trade, in particular in acceding countries;
- other advantages include an improvement of safety as a result of promoting alternatives to road transport and thereby reducing the number of road accidents;
- additional economic growth of 0.23% of GDP which could create up to 1 million jobs.

The European Spatial Planning Observatory Network (ESPON) 2.1.1 has modelled the impacts related to the TEN. It employs two models using the same broad data set

- -SASI: advanced LUTI model (Wegener)
- -CGEurope: spatial computable general equilibrium (Bröcker)

The models involve highly detailed multi-modal networks for EU25 (+ 4: RO, BG, N, CH), characterised by developments over the past 20 years and plans to 2020. To emphasise the scale of these models, they have a detailed zonal structure involving over 1300 regions at NUTS3 level or equivalent.

SASI produces changes in accessibility, leading to changes in production, population and hence GDP. CGEurope, on the other hand, produces changes in implicit transport costs, leading to direct measurement of changes in welfare, expressed as %GDP

The main general result from the ESPON analyses is that the overall effects of transport infrastructure investments and other transport policies are small compared with those of socio-economic and technical macro trends, such as globalization, increasing competition between cities and regions, ageing of the population, etc. A second main result is that the magnitude of the effect seems to depend strongly on the already existing level of accessibility. For regions in the European core additional gains in accessibility through more motorways or high-speed rail lines may bring only little additional incentives for economic growth, while in the regions at the European periphery or in the accession countries, however, a gain in accessibility through a new motorway or rail line may bring significant progress in economic development. But also the opposite may happen if the new connection opens a formerly isolated region to the competition of more efficient or cheaper suppliers in other regions.

The analysis of cohesion effects shows that in particular the distinction between relative and absolute convergence or divergence is important and that the spatial level at which cohesion is measured matters. The same holds true also for the comparison of polycentricity of MEGAs at the European level and polycentricity of FUAs in individual countries. Transport policies which reinforce polycentricity at the European level, may increase the dominance of capital cities within their national urban systems and so contradict the goal of the ESDP to achieve a balanced polycentric urban system (Walsh, 2005).

The ability to cover the costs of transport infrastructure from sources other than governments' general tax revenue is of growing importance. In turn, this raises the question of understanding the extent to which the costs of individual schemes can be recovered through user charges and the consequences for society as a whole of any significant shift towards this form of financing. In a similar vein, increasing involvement of the private sector seems essential to many of the policy ambitions for expansion of European transport capacity. If this is to be achieved, then project designers need to know how best to set up projects that will both achieve their social objectives and appeal to private sector finance. Familiarity with the private sector's perspective on what constitutes an attractive project is still not high among transport planners as a whole.