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land use SUSTAINABLE DEVELOPMENT links cargo instruments MOBILITY
stakeholders TOLL railway PPP motorways of the sea AXIS CORRIDORS NETWORK
Committees ENVIRONMENT freight greenhouse gases TERMINAL single sky
ADDED VAUE ports PEOPLE navigation FUTURE POLICY CO-MODALITY
FREIGHT efficiency competitive time horizon 2020 PRICING flows Lisbon agenda
CANALS freight INFRASTRUCTURE Navigation COORDINATION Interoperability

WORKSHOPS

ISSUES PAPERS

Challenges SESAR TRADE vessels free movement River information system
CORRIDORS aviation PRIORITY PROJECTS single sky management REGIONS

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The contents of these papers have been designed as a catalyst to generate discussion and contributions from stakeholders at the TEN-T Days conference on 14-15 October 2008. The papers do not constitute an official Commission position on any of the issues contained therein, nor do they represent a statement of intent regarding future policy development.

Challenges SESAR TRADE vessels free movement River information system
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- ✘ Workshop 1: Transport and Environment: Potential fields of TEN-T policy action towards the achievement of environmental targets
- ✘ Workshop 2: Freight logistics and Green Transport corridors: Transport infrastructure without bottlenecks and missing links to enable efficient services across the modes
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Workshop 1: Transport and Environment

Objective: to identify environmental issues of relevance to the future of the TEN-T in the next two decades

This paper does not discuss aspects of the TEN-T covered in other papers, for example the economic or political rationale. It takes the policy as a given and solely identifies and discusses the relevant environmental issues to better highlight the mobility versus environmental concerns dilemma

1. Definition of the problem.

Transport makes a significant contribution to a number of environmental problems in the EU. Road transport alone accounts for 17.8% of EU27 PM2.5 emissions and 17.9% NMVOC¹ emissions. Road transport and national navigation are together responsible for 43.1% of EU27 NOx emissions and 38.1% CO emissions. Transport emits more than a quarter of all the EU's carbon dioxide emissions – and is the only sector where, since 1990, emissions have grown significantly. Noise is also an environmental problem arising from transport. Continued transport growth is predicted and by 2020 freight transport is expected to have grown by more than 34% and passenger transport more than 27%. These impacts arise from the use of transport infrastructures, but the construction of infrastructures can also cause environmental problems, such as impacts on biodiversity, ecosystems and water courses.

For the purposes of this paper these environmental problems are divided into two phases:

Design phase: Prior to the construction of an infrastructure project, Community law requires an assessment of its environmental impacts. This assessment has to cover the whole range of these impacts from the need for the project to its effects when it is being used.

Implementation phase: Once an infrastructure project has become operational, its use can lead to impacts on the environment for example relating to greenhouse gas emissions, air pollutant emissions, noise emissions and impacts on water quality.

In addition, a specific section is devoted to the question of adaptation to climate change where it is clear the changing climate will result in a range of foreseeable impacts. It is likely that there will be an increased incidence of extreme weather events (for example intense rain and high temperatures) and sea-levels will rise. There are challenges to appropriately reflect these considerations in the development of new infrastructure projects and to ensure that existing infrastructures are adapted as necessary.

These elements are explored in more detail in sections 2 to 4 below.

2. Design issues

With regard to overall infrastructure impacts, it is desirable to consider whether we adequately understand the increase in transport demand and resulting environmental impacts.

Visual, landscape, biodiversity, (water) ecosystem and barrier impacts

The visual and landscape impacts, impact on biodiversity, (aquatic) ecosystems and barrier effects (physical barriers to wildlife) of an infrastructure result from locational choice. These impacts may include effects to the physical characteristics of water bodies (e.g. rivers, lakes, coastal areas). Such negative impacts must be minimised as far as possible by design of infrastructure.

¹ Non-methane organic compound groups

Air and noise impacts

Although the intensity of air and noise pollution is largely determined by vehicle standards, the scale of their effects can be influenced to some degree before implementation. Taking steps to minimise effects during the design stage are therefore vital. In the case of noise, mitigation measures can also be incorporated at the planning stage or added later.

Greenhouse gas impacts

One important issue concerns the appropriate value for future greenhouse gas (GHG) emissions to be used in cost-benefit decisions. There is an expectation that future costs of GHG mitigation will be higher and that therefore when long term decisions are being taken, it is appropriate for a high value to be used now.

A second important factor to be taken into account is the impact of climate policy on demand for TEN-T infrastructure. This requires consideration of two elements: the contribution from transport to meeting EU GHG targets and the inter-relationship between transport demand, energy intensity and GHG intensity

Transport has to play its role in meeting the EU's climate change goals. Jacques Barrot when he was transport Commissioner said *"There is no doubt that the transport sector will also have to contribute to reducing green house gas emissions, just as all other sectors of economy"*. A key target set by the European Council in March 2007² to achieve a reduction of at least 20% in greenhouse gases by 2020, foresaw that sectors which are not covered by the Emissions Trading Scheme (such as transport), would between them need to achieve a 10% reduction by then.

It needs to be considered whether reducing the total level of greenhouse gas emissions from the transport sector implies an alteration in future levels of transport demand. There is a clear linkage between the degree of progress with improving vehicle efficiency and de-carbonising transport fuels and the overall level of transport demand that will lead to a given level of greenhouse gas emissions. The less progress on efficiency and decoupling of CO₂ emissions from economic growth, the more demand would have to be constrained to achieve a given goal.

In planning it is necessary to make assumptions about future progress in these areas. There is a role to be played by designing TEN-T infrastructures in ways to reduce energy demand and greenhouse gas emissions. From a broad perspective the issue of modal choice can play a key role here, and this is part of the reason why the Commission is giving strong support from the TEN-T budget. More specifically, gradient change is one example of a design issue that has an impact on the energy required for travel on a section of infrastructure. The application of information systems can also help to manage flows in a way that minimises bottleneck effects and reduces overall emissions, as can the provision of infrastructure information to users to enable optimal management of vehicles such as trucks.

Requirements in Community law

On the part of Member States the claim is often made that the procedures they have to comply with regarding the legislative requirements are time consuming, onerous and cause undue delays with consequences for economic growth. In fact, respect of environmental rules is the key to more sustainable and acceptable transport projects and increases their political legitimacy. There are also economic and social advantages of having environmental considerations taken into account at an early stage rather than requiring corrective action later on. Consulting the public and the national and local authorities can improve planning and give an added democratic legitimacy to the whole process, especially if this is done early on.

² COM(2008) 30 final: Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions: 20 20 by 2020 – Europe's climate change opportunity

Strategic Environment Assessments (SEAs) on national and transboundary transport plans have to be carried out. It is also desirable for Member States voluntarily to carry out SEAs of the existing TEN corridors (which predate the coming into force of the Directive in July 2004) and to do so in co-ordination with each other.

Environmental Impact Assessment (EIA) shall assure that the environmental implications of decisions are taken into account when individual infrastructure projects are being developed. The consultations required under environmental impact assessment legislation can help to achieve a consensus on projects and speed up their completion (by reducing the risks of demonstrations and legal challenges later on) if project promoters take sufficient account of what they are told during the consultations.

The Water Framework Directive (WFD) requires an assessment of the impacts of new modifications on the status of water bodies (e.g. port extensions, deepening of rivers for navigation). A deterioration of the status of water body is only allowed when all practicable steps to mitigate the negative impacts have been taken, and when there are no feasible alternatives for the modification.

Topics for discussion

- 1. Is the quality of the implementation of EIA, SEA and WFD requirements sufficient? How can we ensure that different impacts are appropriately factored in to these assessments?*
- 2. Is there a way of ensuring through planning and design process that all environmental impacts are minimized using the full potential of mitigation measures?*
- 3. Is it possible and useful to establish environmental standards for transport infrastructures (e.g. TEN-T) relating to the greenhouse gas emissions that will result during their use?*

3. Impacts during the implementation phase

Visual, landscape, biodiversity, (water) ecosystem and barrier impacts

The majority of the impacts to biodiversity, (aquatic) ecosystems or barrier effect, also effects of physical modifications of water bodies are continuous. For instance the effects on wildlife migration and habitats are continuous and more intense infrastructure use can result in greater disturbance and exacerbate these effects.

Drainage water from transport infrastructure is likely to contain traces of material arising from wear due to interactions between the vehicles and infrastructure or resulting from emissions from the vehicles using the infrastructure. Such contamination could have an impact on the quality of water resources and might therefore merit more sophisticated approaches to its management. In addition, discharges into the water from shipping could also impact the quality of the waters.

Management to reduce air pollution, greenhouse gas and noise emissions

Noise emissions are affected by the way that the infrastructure is used. Air quality and emissions of greenhouse gas are associated with the use of a transport infrastructure are determined by a number of factors once it has been constructed. These factors will include the intensity of its use, the degree of stop-start operation and the maximum speeds of operation.

An obvious factor in air quality and greenhouse gas emissions associated with transport infrastructure is the permitted maximum speed. There is a clear link between vehicle air resistance, higher speeds and energy use which is a key factor in helping to limit overall greenhouse gas emissions. Measures that encourage driving at more energy efficient speeds are likely to also improve air quality.

The growing availability and range of technological capabilities could provide new tools for consideration by those responsible for demand management policies. Infrastructure charging technology to support the polluter pays principle is continually developing and compatible electronic toll systems now exist, enabling road charging policies to be put in place. Road tolls are commonly used in the EU as well as distance-based or time-based user charges in place for goods vehicles. Charging methodologies to reflect the real cost of road use have also been developed.³ Implementation of these approaches can help to reduce external costs of the TEN-T and encourage additional use of less environmentally damaging forms of transport.

ITS solutions can also contribute by reducing congestion and encouraging smoother traffic flows which avoid the need for acceleration and deceleration. Other measures to encourage driving at more energy efficient speeds, and to encourage higher occupancy levels also assist.

Topics for discussion

1. *What further potential is there for the mitigation of these impacts during use and how to assure that this potential is used?*

2. *Is it possible to establish environmental performance standards for new and upgraded infrastructures? If so, how could their achievement be rewarded at EU level?*

4. Adaptation of TEN-T infrastructures to climate change:

The Commission published a Green Paper on adaptation to climate change in 2007. While this covered all sectors, it pointed out that climate change is leading to a number of factors that require responses in the field of transport infrastructure. It is already leading to changes in rain fall and heat patterns that may be different from those that were taken into account when infrastructures were designed.

There is an expectation of increased extreme weather events and these lead to the question of whether they are within the design parameters. There are risks of damage and disruption due to storms and floods but also those due to heat waves, fires and landslides are also expected to increase. It may be that existing infrastructures need to be reviewed to assess their durability. The predicted sea level rise clearly has particular implications for ports for example, reducing the sheltering effect of breakwaters and quay walls. It could also have impacts where transport infrastructures are located close to the sea.

In view of these factors, the Green Paper highlighted the importance of integrating adaptation into policies and Community funding programmes. With specific reference to transport it noted that

"major infrastructure such as bridges, ports and motorways have lifetimes of 80-100 years, so today's investments must take full account of the conditions projected for the end of the century..... Investments that are optimal under current conditions may not necessarily be economically viable under future climatic conditions.... Therefore medium and long-term investments should be "climate proof". "

It stated that the Commission will examine how climate proofing can be reflected and made operational inter alia in the Trans-European Networks Programmes. It also noted that the need for adaptation could provoke significant restructuring in some economic sectors that are specifically exposed to climate change, e.g. ports.

³ In January 2008 the Commission released a comprehensive compilation handbook of existing studies on external costs in the transport sector:
http://ec.europa.eu/transport/costs/handbook/doc/2008_01_15_handbook_external_cost_en.pdf

and followed it in July 2008 with a proposal for a strategy for the internalisation of external costs (COM (2008) 435 final) and a proposal to revise the Eurovignette Directive (COM (2008) 436 final/2).

For existing transport infrastructure there is a need to develop a step by step approach to improve their resilience to climate change. Where TEN-T infrastructure is considered to be vulnerable, it is desirable to adopt measures to increase its resilience. This will mean

- promoting measures that are beneficial both for mitigation and adaptation to climate change,
- avoiding adaptation measures that will make it more difficult to cope with future climate risks or exacerbate impacts in another region or cause the poorest groups or regions to be the worst hit
- adopting in the first place adaptation measures that would pay off in the short term irrespective of uncertainties in the future forecasts ("no regret" measures
- considering worst-case scenario measures, even if uncertainties are high, in cases where the costs or the magnitude of the impacts in such scenarios would be unacceptable

The Commission is preparing a White Paper on adaptation, due to be adopted in November 2008. Its goal is to establish a framework allowing the EU to reduce the vulnerability of social and economic structures and ecosystems to the impacts of climate change, at the same time placing it at the forefront of international initiatives on adaptation. The White Paper will set up a process and conceptual framework on how to adapt, as well as establish guiding principles to be followed and propose concrete actions that can be undertaken which would be beneficial regardless of the uncertainties.

Topics for discussion

- 1. How can the vulnerability of TEN-T infrastructures best be assessed?*
- 2. How can existing TEN-T infrastructures be improved and future transport infrastructure designed in the best possible way to increase their resilience to future extreme weather conditions and subsidence risks?*
- 3. Should climate proof land use and spatial planning considerations be made a necessary condition for funding future TEN-T investments. What would a mandatory climate impact assessment look like?*

5. Questions

- 1) *Is there a need for adaptation of TEN-T funding in view of the need for the transport sector to contribute to the fight against climate change?***
- 2) *How can TEN-T funding be adapted to reduce non-climate environmental impacts?***
- 3) *What approach is needed to ensure TEN-T is adequately adapted to climate change?***
- 4) *What role should the EU take in driving through and supporting relevant changes?***

Community environmental legislation that is important for TEN-T development

Council Directive 79/409/EEC on the conservation of wild birds, known as the Birds Directive.

This creates a comprehensive scheme of protection for all wild bird species naturally occurring in the Union. It was adopted in 1979 as a response to increasing concern about the declines in Europe's wild bird populations resulting from pollution, loss of habitats as well as unsustainable use.

Council Directive 92/43/EEC of 21 May 1992, on the conservation of natural habitats and of wild fauna and flora, known as The Habitats Directive.

This Directive is built around two pillars: the Natura 2000 network of protected sites, and the strict system of species protection. The directive, which has been amended in xxxx protects over 1.000 animals and plant species and over 200 so called "habitat types" (e.g. special types of forests, meadows, wetlands, etc.), which are of European importance.

Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment, known as The EIA Directive.

This ensures that environmental consequences of projects are identified and assessed before authorisation is given. The public can give its opinion and all results are taken into account in the authorisation procedure of the project. The public is informed of the decision afterwards. The EIA Directive outlines which project categories shall be made subject to an EIA, which procedure shall be followed and the content of the assessment. Major transport projects are normally subject to an EIA.

Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment known as The SEA Directive.

This Strategic Environmental Assessment (SEA) Directive is an important step forward in European environmental law. Before its adoption, major projects likely to have an impact on the environment were assessed under EIA Directive. However, EIA assessment takes place at a stage when options for significant change are often limited. Decisions on the site of a project, or on the choice of alternatives, may already have been taken in the context of plans for a whole sector or geographical area. This Directive plugs this gap by requiring the environmental effects of a broad range of plans and programmes to be assessed, so that they can be taken into account while plans are actually being developed. The public must also be consulted on the draft plans and on the environmental assessment and their views must be taken into account. Whilst the concept of strategic environmental assessment is relatively straightforward, implementation of the Directive sets Member States a considerable challenge. It goes to the heart of much public-sector decision-making. In many cases it will require more structured planning and consultation procedures. Proposals will have to be more systematically assessed against environmental criteria to determine their likely effects, and those of viable alternatives.

Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy, known as the EU Water Framework Directive (WFD).

This is the main piece of EC water legislation and is designed to improve and integrate the way water bodies are managed throughout Europe. It requires to achieve good status for all water bodies (rivers, lakes, coastal waters, ground water) in Europe by 2015. This good water quality includes chemical parameters but also hydromorphological parameters (e.g. sufficient water depth, allowing fish to migrate). New modifications with significant impacts to the physical characteristics are therefore only allowed under certain strict conditions.

Directive 2002/49/EC on environmental noise.

This Directive provides a common basis for tackling the noise problem across the EU. The main principle is to monitor the noise problem by requiring competent authorities to draw up "strategic noise maps" for major roads, railways, airports and agglomerations, using harmonised noise indicators. It also aims to inform the public about noise exposure, its effects, and the measures considered to address noise. It requires competent authorities to draw up action plans to reduce noise where necessary and maintain environmental noise quality where it is good. Finally it aims to develop a long-term EU strategy, which includes objectives to reduce the number of people affected by noise in the longer term, and provides a framework for developing existing Community policy on noise reduction from source.

Directive 2008/50/EC of 21 May 2008 on ambient air quality and cleaner air for Europe.

This Directive describes how air quality should be assessed and managed in the Member States and lists, together with Directive 2004/107/EC (relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air), the pollutants for which air quality standards and objectives are set. It sets out the limit values for protection of human health for sulphur dioxide, nitrogen dioxide, benzene, carbon monoxide, particulate matter and lead in ambient air. Target values and long term objectives are set for the concentration of ozone in air. Target values are also set for the pollutants falling within the scope of Directive 2004/107/EC. Member States are required to establish air quality plans to ensure that compliance with the limit values will be achieved by the attainment dates, or in the case they are exceeded, with the aim of keeping the exceedance period as short as possible

Workshop 2

Logistics & Green corridors

Identified Problem(s):

- (1) An important growth of freight transport can be expected for the coming years.
- (2) Transport modes in their present situation, cannot accommodate this growth.
- (3) The strong unbalance in the modal split between the different transport modes in inland freight transport, headed by road, would deserve an attempt to re-equilibrate this situation, using each mode at its best potential and in combination with the others ("co-modality") to give a suitable answer to questions regarding the environmental impact of transport, the scarcity of fossil fuels and other negative external effects produced by freight transport and in particular by road.
- (4) One major observation is that each transport mode suffers of specific problems, all together hampering the development of real co-modality. Among others: ports: lack of space in the ports / missing hinterland connections; rail: lack of reliability due to several factors such as weak coordination of infrastructure managers, scarce interconnection of ITS systems, lack of a customer oriented approach; road (both interurban and urban): severe congestion / environmental impact; inland waterways: integration in multimodal transport chains / transshipment facilities; in general: need to ensure fair and non-discriminatory access to infrastructure and terminals)

Outline of Desirable Solution / Vision:

"Logistics" aims at satisfying the request for physical flows (goods, transport, packaging, storage etc.) and for associated information flows (traceability concept). It is in charge of managing the means making it possible to achieve this objective and mobilise resources (human and financial) to this end. Transport constitutes one of the main pillars of logistics (the others being processes and storage). It is therefore central to the co-modality concept and to its promotion.

The usual answer to the problems identified is to explore the possibilities for new infrastructure investments. However new transport infrastructures are not the only answer to this expected increase in freight transport demand. Because of their high costs, long planning procedures, the scarcity of open space and the environmental concerns towards those big infrastructure projects in some regions, alternative options should be considered.

Rising traffic volumes on the European transport network need to be accommodated taking into account the promotion of energy efficiency and environmental sustainability. A correct quantification of the present and future freight traffic fluxes and their relation with supporting infrastructures is essential to identify the major European transport corridors. This will consist in identifying concentrations of freight traffic between major poles, where a concerted intervention could allow the implementation of an integrated transport concept in which each mode is used according to its comparative advantages (co-modality concept = effective use of different transport modes isolated or in combination in order to obtain an optimal and sustainable utilisation of resources).

The Logistics Action Plan indicates the need by 2020 to define the "green corridors" and to reinforce their importance and role in the TEN-T priorities.

The green corridors, whose definition is addressed by research actions under preparation, should allow the transfer of massive freight traffic fluxes among several hubs on a 24/7 basis (conveyor style) optimising the use of the assets and the efficiency of the logistics chain whilst minimizing external impacts (safety, congestion, noise, pollution).

In order to ensure a smooth functioning of the green corridors, they should reflect the infrastructure needs underlying the logistics operators activities, not only in terms of physical connection between hubs but also in form of transshipment facilities located in terminals / intermodal connection points / dry ports regularly placed on the different segments of the corridors as well as in terms of ancillary systems (ITS applications, energy supply in form of green propulsion etc.). A massification of the fluxes would be capital to guarantee an effective deployment of the green corridors, which should also be able to dynamically reflect their variations.

Q Which solutions, infrastructural and others, could be identified to improve the efficiency of the logistics chain at EC level?

Q Are there specific infrastructural needs to address logistical problems related to urban freight transport?

Q In which way the future TEN-T policy could be shaped to make logistics working better?

Research results available and prospects for their deployment

Research activities are under preparation in order to define the "green corridors".

Good practices in individual cases / other parts of the world

Alameda corridor (Los Angeles – U.S.) – dedicated rail corridor (even if on small scale – 35 km) to de-congest Los Angeles and Long Beach ports connecting them to a main rail hub – a shuttle train every 29 min, 50 trains / day (with a capacity of 150 trains / day), 20000 trains in 2006 (each train 1500 m long, double stack containers). This is a concept similar to the "Betuwelijn" rail link, the latter being on a longer itinerary but still to reach cruise speed.

Proposed issues to be addressed in the framework of the future TEN-T policy

The identification of environmentally friendly solutions (for example in the field of green propulsion) and the use of ITS applications should help to define and promote the concept of "Green Corridors" which, addressed to the European citizen, will integrate a fresh vision with new values and a renovated commitment. This will consist in a collaborative framework intended to facilitate reaching the goals of an improved environment, economy, and equity of stakeholders from the European Union, public, private and non-profit sectors.

This could be based, among others, on several initiatives that are already initiated, such as the freight-oriented railway network, motorways of the sea, the bottlenecks' exercise⁴, NAIADES⁵, ECODRIVEN⁶, TREATISE⁷ and so on;

⁴ Exercise started by the Commission at the end of 2006 to identify obstacles hampering the smooth functioning and future development of transport logistics in Europe

⁵ EU programme aimed at promoting inland waterway transport in Europe

⁶ EU-funded project covering a campaign for improving driving behaviour, energy-efficiency and traffic safety among drivers of passenger cars, delivery vans, lorries and buses

⁷ EU-funded project providing free training in environmental transport for energy, environmental and fleet professionals

Q What should be the role of the European Commission in the promotion of the "Green corridors" and which would be the role of the private sector?

Q Could the "green corridor" be an dynamic concept, able to react on geographical changes in traffic flows?

Pipelines are a good example of massive freight traffic with relatively limited impact on the environment even if depending heavily on fixed infrastructure.

Workshop 3:

FUTURE TEN-T - SUPPORT TO SUSTAINABLE AIR TRANSPORT

The future of air transport

Air transport has become and will remain a part of daily life and business. Until recently it has been characterised by continuous traffic growth and predictions of further growth rates in the order of 5% and a doubling of its volume between 2000 and 2020.

Currently forecasts for traffic growth are being revised in reaction to fuel prices, the current economic climate and security concerns. However, part of the infrastructure in Europe has already difficulties to cope with the existing traffic in Europe and fragmentation and inefficiencies cause the air space users (finally the passengers) costs in the order of 3+ billion Euros every year. Therefore a fundamental overhaul of air transport infrastructure and air traffic management in Europe is necessary, with the objective to absorb the traffic without hampering safety, to reduce costs and to keep the environmental impact and emissions within limits. In addition, airport capacity needs to be fully integrated in the European Air Traffic Management (ATM) system in order to better manage existing capacity. Through better network management in particular system wide information management ensuring the gate-to-gate concept of operation (in order to have accuracy and predictability of arrivals), will be an important enabler for optimisation of the air transport system.

All these aspects are addressed in the **Single European Sky policy** and the **SESAR** programme, with a precise timetable and – for SESAR – the master plan for development and deployment. The EU foresees the creation of Functional Airspace Blocks by 2012 and SESAR envisages the practical implementation of a new generation of ATM concepts, systems and technologies from 2014 to 2020. Moreover, the Commission also adopted in 2007 an "Action Plan for airport capacity, efficiency and safety in Europe" with a view to put in place a comprehensive policy to optimize the functioning of the network constituted by the European airports.

It will be increasingly important to be able to cater for increases of freight and passenger transport demands in parallel with the opening up of the global aviation market through "open sky"-agreements as recently entered into force between the EU and US. There shall be no discrimination between airspace users as to the access to the ATM network but increased traffic will generate pressure on slots regulated airports naturally generating more growth at regional under-used airports while larger (hub) airports typically have limited possibility to grow further. For them the issue will be to better use existing capacity and capability to accept bigger airplanes.

However, the concerns about the environmental impact of aviation put a heavy responsibility on aspirations for growth. Noise and emissions, in particular the contribution of aviation to greenhouse gas emissions, will remain a burden for the aviation sector and continuous measures need to be taken to limit the environmental impact and to avoid that it grows at the same rate as transport itself. The Commission envisages that the European Emission Trading scheme works as an incentive for air transport service providers to implement measures to minimise and avoid the additional cost for CO2 certificates. In addition growth should not only be considered in isolation within the aviation sector. Combinations of air and rail could create more flexibility of route structures, increase airlines load factor as well and be environmentally preferable.

In addition and beyond the proposed policies and the foreseen research and development efforts, however, the crucial question remains **how to put ideas and intentions, even commitments, into business practice. Moreover, to introduce these at network level, is a huge challenge and requires major efforts from all stakeholders in a concerted manner.**

Questions:

How should a future European TEN/infrastructure policy be shaped to support the practical implementation of policy objectives?

What does a "network approach" mean for aviation and air transport?

An infrastructure policy for aviation

In Europe, by 2014 air space users will operate in a changing infrastructure and ATM (air traffic management) environment which will continue to modernise air traffic in Europe.

The precise legislative environment remains uncertain until Council and European Parliament have decided on the Commission's proposal for the Single Sky 2 package adopted in June 2008. However, the changes needed in the provision of infrastructure and traffic management services in order to achieve the safety, capacity, environmental and cost targets are so fundamental that they can be considered as critical for the final establishment of a truly European ATM system.

In order to make this happen, certain elements need to be developed and put in place, and we can already now start to reflect on the requirements for a future European TEN-T/infrastructure policy in this respect:

Functional Air Space Blocks

The implementation of FABs in the time horizon until 2012 will require a co-ordinated approach and careful planning and monitoring in order to achieve the expected benefits and to mitigate the risks which go along with such changes.

ATM Network Function

In addition the medium-long term as well as day-to-day route planning and high-level traffic monitoring will need to be redefined. The Commission proposes to establish a network function, in charge of network design and management aspects allowing the optimum use of airspace and ensure that airspace users can operate preferred trajectories.

SESAR Implementation phase

Based on the European ATM Master plan of 2008, the results of SESAR developed technologies and systems will start to be implemented by 2014 and a continuous implementation process is foreseen until 2020.

This requires a co-ordinated approach to technological changes and investment in new technologies, systems, procedures and training.

Network security

The Single Sky is based on a network approach, composed of different elements to survey and manage air traffic. Electronic exchange of data is at its core. The new technologies are still vulnerable and the sensitivity of data does not allow to take any risk and protective measures need to be developed. (ATM considered as "critical infrastructure")

Questions:

The implementation of the above elements which is considered as, indispensable to cope with the projected traffic development, requires a firm commitment, close coordination between all stakeholders, and appropriate financing. However, in the current outlook not all necessary investments present a positive business case for the stakeholders who should bear the costs, in particular air space users will have to face this situation.

How can a European infrastructure policy contribute to a successful coordination and involvement of all stakeholders to achieve the system/network related objectives?

Ground infrastructure for air transport

Airport capacity

Airport capacity is largely a function of **ground infrastructure**. Given the expected traffic evolution, Europe could face an **ever growing gap** between capacity and demand. This is referred to as the "capacity crunch". If current capacity levels are not drastically increased, it is estimated that over 60 European airports could be heavily congested and the top 20 airports could be saturated at least 8-10 hours per day by 2025.

Such congestion could have a severe impact on airlines' ability to maintain their schedules, especially at hub airports, and could therefore result in a less efficient European air transport industry. Congestion would also result in **environmental and safety costs**, since the density and complexity of operations will reach an unprecedented level.

Aviation in an intermodal environment

Nowadays, any newly built airport foresees a rail link while many existing airports build or plan such links. At Frankfurt Airport, there are more than 170 trains per day. Rail can have a positive effect on airports: for congested airports, precious slots used by short haul flights can be freed through substitution by efficient train services and used more efficiently. An airport rail link also enlarges the airport catchment area and reduces the use of private cars and therefore pollution.

Question:

Which specific priorities should be set as regards airports from a TEN-T point of view? How could a project selection be made so as to minimise competition/State aid issues and maximise the European added value effect?

Environment

Green flights

Improvements in aircraft and flight operations are necessary to exploit the potential of energy efficiency and savings, combined with new aircraft and control equipment, flight management and the search for possible alternatives to kerosene at lower costs and with lower carbon footprint. International co-operation is necessary to exploit the full benefits of such measures along the entire flight.

Green airports

Airport activity creates air and noise pollution. Airports also tend to use high quantities of energy, water etc. It is therefore important for airports to adopt all possible measures to reduce the average level of environmental impact per passenger. Investment in energy reducing measures, related to building/facility management (sustainable supply and use of electricity, heating, cooling), ground operations, waste and water management, energy infrastructure for aircraft, land use planning around airports etc.

Question:

How could a European TEN infrastructure policy produce incentives for measures going beyond "business as usual" to maximise energy efficiency and minimise emissions from aircraft and airport operations?

Horizontal issues*New financing models*

Stakeholder support for the modernisation of the European air transport system can only be gained on the basis of a compelling business case. States will need to provide therefore for transparency, fairness, comparability and predictability of the costs of the air transport infrastructure. An appropriate balance between market-led solutions (market mechanisms for slot valuation and allocation) and regulatory measures (Single Sky) must be sought to support the e.g. SESAR business case.

The crisis affecting the industry and in particular the aircraft operators since 2001 calls for an understanding of Airspace User's position and their business cases.

The question is, what conditions to create to engage the private sector or institutions like the European Investment Bank to support investment e.g. in the ATM infrastructure. The private sector has raised huge sums to support infrastructure projects around the world, but the funds managing this money struggle to find/locate profitable investment opportunities in Europe. Public funding may be brought to play a role alongside the private sector for risk-sharing purposes.

Also the implementation of the performance based framework of the Single Sky policy is expected to reduce the risk associated to SESAR investments, in particular for airspace users. The importance of capturing the full potential of operational improvements derived from the deployment of SESAR is of prime importance given the expected size of the investments.

Question:

Which conditions need to be created to attract and facilitate investments, when certain stakeholders will not see immediate benefits within their business case and benefits will occur (first) at network level?

International co-operation

The EU has concluded international aviation agreements all over the world ensuring a coherent business environment for air transport service providers. The cooperation with neighbouring countries and in particular in the context of the European Common Aviation Area (ECAA) goes further and aims at a seamless policy and operational environment for safety, security, air traffic management, social aspects and environment. The application of the Single Sky approach is at its core. The question is, if and how the EU could assist partner countries in building up the necessary capacity, infrastructure and services. Also at global level, the interoperability of the future European ATM system with other regional systems needs to be ensured, whilst also new issues such as environmental aspects gain importance.

Question:

How should international co-operation for infrastructure and related aspects in aviation be shaped in the future?

Workshop 4:

The "added value" of TEN-T policy: Have 15 years of Community action proven its worth, and how to further strengthen its effectiveness?

1 Introduction: what the paper is intended to achieve.

1.1. The aim of this note is to help stimulate a debate on the possible ways to revise and update the guidelines on trans-European transport infrastructure policy (TEN-T)⁸. In addition to the guidelines, the results of the TEN-T policy also depend upon the budget which it is allocated by the EU authorities. The Commission, supported by the European Parliament, has made it clear that it considers that the budget accorded to TEN-T is insufficient to achieve its objectives in full. The situation has not changed but it is important to keep the financial issue in perspective. TEN-T is more than a budget mechanism it is a concept and Community support is intended to serve as a stimulus to advance projects of particular Community interest and supplement but not replace national and private funding, For the purposes of this paper a budget increase is not a prerequisite for an analysis of possible ways in which Community wide transport infrastructure planning can be made more efficient. The note continues with a short analysis of the achievements of the TEN-T exercise and goes on to identify some issues and questions concerning the future.

2. The Achievements of TEN-T.

2.1. Quantifying the impact of the TEN-T exercise on the development of transport infrastructure is not an easy task. This is in part due to the fact that measuring the incremental benefits of TEN-T requires an assumption to be made about what would have been done in any event. In particular certain EU wide schemes have advanced well and even the so called 'priority projects' have moved forward more rapidly in the last few years due to various improvements such as the introduction of 'project coordinators' The coverage and comprehensiveness of guidelines has as a consequence that they lack specificity. Partly as a way to focus EU action the Council asked the Commission to identify priority projects in transport and energy .The Essen Council of 1994 finally agreed a total of 14 projects (see annex 1 for the list) The so called "priority projects" were identified through a process that was largely political and produced a package of projects designed to offer something to all concerned. However, the package offered a real move forward for TEN-T into the practical world of project planning and financing. The priority projects were to receive a substantial share of the available budget (two thirds) in order to move them forward as quickly as possible. The Commission proposed some additional projects in 2001 but it proved difficult to arrive at an agreement. The blockage was overcome by a report from a group chaired by Mr Van Miert which finally produced a new list of projects (see Annex 2). The priority projects have been closely monitored and their progress can be said to give some indication of the success of the TEN-T operation as a whole: the objective is to complete them by 2020. In 2008 it is clear that this process is becoming increasingly successful although there are many problems. Notably, the development of more sophisticated financial instruments to maximise the effectiveness of EU resources in generating other resources has started to have an impact. Although certain of the "priority projects" have been slow in moving forward there are success stories that can serve as indicators of the direction to advance in the future. The completion of

⁸ 'Decision n° 1692/96/EC of the European Parliament and Council of 23 July 1996 on Community Guidelines for the development of the trans-European transport network'. OJ. L 228 09/09/1996

current TEN-T programme will provide an additional 12,000 kms of railway and 3,500 kms of new roads. In addition aprox. 3,500 kms. of railways, 12,300 kms. of roads and 1,740kms of inland waterways will be substantially improved. This work is estimated to produce benefits of aprox. 8B € pa. mainly through a reduction of road congestion and quicker rail journeys. The EU's capacity to handle the forecast large growth of freight transport would also be substantially enhanced.

2.2 The broad and comprehensive nature of the TEN-T guidelines and networks has diluted the impact of the limited financial means available. However, the networks have been valuable in the new Member States in providing an integrated network for funding. In terms of the substantial amounts made available through regional and cohesion fund support the existence of the TEN-T networks has been a major factor in ensuring that resources were concentrated on a clearly defined network. The TEN-T networks have also been useful in focussing research work on resolving major problems and thus allowing construction to go forward more smoothly.

2.3. Looking more in detail at the progress with priority projects only four have as yet been completed⁹. An overview of the progress of the Priority Projects is provided in a Communication from the Commission in 2007¹⁰. The overall conclusion of this Communication and other reports is that the full completion of all the 30 Priority Projects by 2020 is unlikely to be achieved as progress has been too slow.

2.4. As has already been noted the guidelines have been successful in providing support for generic EU projects. Notably, the development of new technology and its application to infrastructure has been facilitated. Among the specific projects that have benefited has been the application of the ERTMS (European Rail Traffic Management System) to the railways and the Galileo satellite navigation and positioning system concerning all modes. Without the possibility of EU support offered by TEN-T it is unlikely if many of these new developments would have emerged or not have occurred with the same timing. International movements by all modes of transport will be greatly facilitated by the common approach adopted by these European projects: they will also largely resolve the problems of non-compatible national systems which is well illustrated by the large number of signalling systems in use on the railways which represent a major obstacle to developing a 'Single rail market in the EU'.¹¹

2.5. The positive impact of TEN-T on sustainable transport also merits a mention here. One objective of TEN-T financing is to prioritise projects on the most environmentally friendly modes like the railways or inland waterways. It has been estimated ¹² that when finished the 30 Priority Projects will cut the growth of CO² emissions by 4 %.(6.3 m tonnes pa). In addition the requirements or TEN-T funding make specific reference to the need to undertake assessments on the impact of the projects on the environment and thus encourage the application of the highest standards.

2.6. To summarise, the TEN-T exercise has shown clearly the value of EU action in relation to transport infrastructure. However, it is also clear that it lacks focus and concentration on specific issues where the EU should be competent. The next section looks at how this might be tackled.

⁹ Oresund bridge, Malpensa airport, the Betuwe line, the high speed line PBKAL.

¹⁰ Communication from the Commission: Trans-European Networks: Towards an Integrated Approach. COM (2007)135 final.

¹¹ For a review of the progress on the various projects see the 'Mid Term review of the European Commission's 2001 Transport White Paper, COM (2006)314.

¹² Communication from the Commission 'Trans-European networks: Towards an integrated approach' SEC (2007)374 21/3/ 2007 p 9.

3. The way forward: some key issues and questions.

3.1. The 1996 Guidelines associated a number of priorities (art 5) with a series of network maps which aimed to set out the Community's priorities for transport infrastructure. The large number of 'priorities' identified, ten in all, combined with the wide geographical scope and the size of the networks, gives rise to a first key question:

3.2 Question 1: does the existing form of the Guidelines ensure that EU priorities are specifically identified and targeted over and above the benefits to the individual Member States concerned?

Significant sections of some of the '14 Essen projects', agreed at the Essen Council of 1994 and confirmed at the Dublin Council of 1996, will still not be completed by the target date of 2010¹³. This failure seems to be due to a number of problems. Good progress has been made with resolving some problems but many remain. Already in the White Paper of 2001 proposed 'to concentrate on a primary network made up of the most important infrastructure for international traffic and cohesion on the European continent'.¹⁴ The difficult world economic context is very relevant to this question. The world economy is currently experiencing a substantial slow down of economic growth. It is clear that the ability of the EU to compete on the world market is more and more crucial for its future welfare. There is now a considerable amount of evidence that the various shortcomings of the EU transport infrastructure networks impose substantial costs on industry and the wider economy. Resolving these problems will clearly benefit the EU's capacity to compete in the world economy. In addition a more effective use of investment resources would have an impact on employment particularly in the construction industry which is a major employer of labour, and serve to stimulate economic growth. It has been estimated that the completion of the TEN-T programme would create additional economic growth of 0.2-0.3 of GDP, could create up to 1 million extra jobs¹⁵. A recent EIB study¹⁶ concludes that although the long term effects are often limited although the port and airport had important employment effects as well as wider economic implications. Other arguments can also be cited to support the case for a review of the guidelines. Notably, the need for a sustainable transport system has emerged very clearly since the original guidelines were developed in the early 90's. Properly orientated transport infrastructure planning can make a substantial contribution to ensuring that the transport sector plays its full role in meeting the new environmental challenges. Finally, making a success of the cohesion process and the 'Good neighbourhood' policy also calls for improvements in infrastructure links with the regions and countries concerned particularly for routes crossing EU frontiers which now need to be better integrated into the guidelines.¹⁷

3.3 Question 2: What should be the future role of the EU in infrastructure planning?

This is a key question to answer if an update of the guidelines' is to be effective. The guidelines' represent the first concrete attempt to take specific account of European transport needs. As long ago as 1975 The Economic Commission for Europe had identified what was termed the E road system¹⁸. The identification of E roads was significant as for the first time there was a pan-European structure put in place but it was not followed by a mechanism to ensure that adequate facilities were provided on the designated roads for the international users. This shortcoming also applied to the initial EU action, agreed in 1990¹⁹, to set up an 'action programme' for infrastructure in association with the planned integrated transport market. A number of

¹³ See the progress report on TEN-T priority projects for the Brdo informal Transport Council May 2008, p5.

¹⁴ Comm. White Paper 'European transport Policy for 2010: time to decide' 2001/ P 50.

¹⁵ Source: DG TREN memo 21 June 2005 on TEN-T.

¹⁶ EIB Evaluation Report 2007. Evaluation of TEN-T cross frontier projects: p3.

¹⁷ Comm. Communication 'Guidelines for transport in Europe and Neighboring regions'. 31 January 2007.

¹⁸ UNECE document TRANS/SC 1/2002/3 Road Transport Infrastructure April 2002.

¹⁹ Regulation (EEC). 3359/90. OJ L326 24/11/1990.

networks (covering land transport only) were subsequently agreed but they were merely indicative.

The 1992 Maastricht Treaty contained a new article (129b) which committed the EU to establish "trans-European networks in the areas of transport, telecommunications and energy". Specific reference was made to the needs of the new Europe without frontiers by the creation of interconnections between national networks; the requirement was also specified that the links should also be interoperable to facilitate the development of an EU transport market. The major innovation of TEN-T was that for the first time there was the recognition of the fact that the needs of international users should be given specific attention. However, having made this point it is important to clarify that the role of the Community was not foreseen as involving actual infrastructure construction and project development. A future redefinition of the Community role in infrastructure does not imply any threat to the competence of the existing transport infrastructure authorities in Member States. Rather, if the EU role is more clearly identified and translated into practice the scope and effectiveness of existing planning machinery should be enhanced. The Maastricht treaty specifically called for the identification of projects of common interest and that their construction should be assisted by the provision of EU financial support. This initiative was based on the practice in all Member States to create a planning hierarchy where a network of major or inter-regional routes is covered by central planning procedures. Below the national level there exist regional or city networks that are best served by specific planning procedures suited to the particular situation of the area concerned. It is widely accepted that this multi-tiered approach is an effective way of taking account of the needs of all users while remaining responsive to local considerations. If this structured approach to planning is adopted at EU level and routes for international traffic identified this should help to ensure that the needs of long distance, particularly international, flows were properly taken into account. For various reasons, some political, some practical, there are good reasons to believe that isolated national planning considerations find it difficult to take proper account of the needs of international flows. Even in bi-lateral situations integrated cross-border route planning has proved to be difficult and numerous examples of inconsistencies between infrastructure provisions on cross-border links can be sighted.

3.4 Question 3: How can the Community Interest of projects be identified and quantified?

Should the role of the Community in TEN-T be to represent the "Community interest", taking specific account of inter-regional traffic movement and also of overarching EU policies? If this is the case the EU has to work with national planning authorities to translate these into long term network planning. In considering this a view should be taken as to whether, the success of the TEN-T exercise was initially compromised as its scope was widened to offer something for all. Looking back, the enthusiasm not to miss out on possible EU funding is perhaps understandable but it sacrificed the important distinction between national and Community interest. It is now seems that this distinction should be reintroduced to ensure that the EU is assigned its proper role in infrastructure planning and financing. The extensive networks which feature in the existing guidelines inevitably lack the concentration on key EU routes which looks to be essential if Community Interest is to be maximised.

There are a number of major problems that need to be tackled if the TEN-T mechanism to meet the needs of pan-European transport. To answer the question –what is the value added of TEN-T funding it has to be shown clearly that the provision of EU support for individual projects is justified by the benefits produced for the Community. This question is important as some primary international projects may not produce the highest rate of return for the nation responsible for funding; indeed this a key reason why certain international links have not yet been constructed. The logic of EU support for such projects is that it should provide an incentive for the national promoter that should correspond broadly to the value of the "Community Interest". Another and unrelated justification for EU financial support concerns countries or regions where the level of infrastructure provision is judged to be inadequate and national resources are insufficient to provide the level of investment necessary. This argument of course

underlies the provision of support for regional development and cohesion projects. The advantage of concentrating regional and cohesion support on a core network is the avoidance the problems of "pepper potting", spreading resources too widely to be effective.

3.5 Question 4: should a mechanism be developed to identify the future inter regional demand which EU infrastructure will be required to cater for?

Planning EU action would be greatly facilitated by agreed long term inter-regional traffic forecasts .Although such a process is complex it does today appear to be realistic to aim for long term forecasts that are reasonably robust. Such forecasts would obviously be essential for the development of an EU planning system to identify the long term needs of trans-national traffic which are not met by projects planned at the national level. Such an approach would not supplant existing national mechanisms but rather supplement and extend them. Overall, this approach should facilitate the integration of planning for national and EU traffic and overall present a more effective approach to meeting all users' needs particular in relation to the rapid growth in inter-regional traffic flows.

3.6: Question 5 : Would the identification of a key set of major links to form an international network from the existing TEN-T network offer a practical way forward to help to ensure integrated planning and an efficient use of EU funds?

Although the results of ten years of application of the TEN-T system have produced successes improvements are possible. In the first place the experience with the "priority projects" combined with the lack of focus in the guidelines' current objectives indicates that more specific objectives for EU activity are called for. Although the progress with the 30 priority projects has been remarkable in some cases, the projects are not interconnected and represent individual corridors. The fact that there is no integrated network structure makes overall planning difficult; a good example of this is the 'Alpine arc' where a number of projects exist which have not been evaluated and prioritised as a whole. A core network would be incorporate into the existing system through a mechanism that would identify on the basis of clear, Community orientated, criteria the future key links to figure in it . The criteria to identify and quantify Community Interest would need to be closely defined to ensure EU value added as this could also be the basis on which financial support should be accorded. The principal guiding EU financial support would be that identified earlier of the support being proportional to the value of the project to the EU .Support should be limited to the amount the project actually requires to move forward. A future revision of the TEN-T guidelines to clarify the role of the EU should also aim for simplification and would also need to be more quantifiable than the 1996 version. This simplification would clarify and focus the expectations that the 1996 guidelines generated. As has been noted the guidelines' have been clearly successful on what are essentially trans-national projects like ERTMS and Galileo. However, these projects are exceptional and there is a need to redefine the EU role in relation to basic infrastructure projects. The identification of a so-called core international route network could be a way forward. The Communication on the development of a rail network giving priority for freight illustrates a way forward that could be generalised.²⁰ For projects to be tested to ensure they represent good value for the EU an evaluation system would need to be put in place that identified the additional EU benefits of projects over and above the national benefits. This approach illustrates how a revision of the Guidelines could be developed. To date the role of the EU has perhaps been seen too much in relation to project finance and this has failed to ensure that the fundamental goal of the TEN-T, to provide for EU international users and policies, has been realised. The challenge that any new guidelines face is how to obtain this objective, if this can be achieved the justification for EU involvement in transport infrastructure can be clearly seen and represent real value added.

²⁰ Communication from the Commission to the Council and the European Parliament; 'Towards a rail network giving Priority to Freight'. COM 2007/0608 final

4 Conclusions.

4.1 Before concluding It is important not to underestimate the benefits that the TEN-T approach has produced. Overall the TEN-T networks cover all modes of transport and extend into areas where there are likely to be substantial benefits in developing an integrated EU approach .They represent a significant advance for international transport over isolated national planning mechanisms and for the first time specific attention is concentrated specifically upon international objectives and movements. TEN-T is a potentially very effective mechanism to represent the needs of EU citizens in national transport planning. The potential benefits of the TEN-T approach were widely perceived and this can explain why the guidelines' that were finally agreed in 1996 lack a clear focus on Community interest are an attempt to make everyone happy.

4.2. The lack of any clear and widely accepted way to establish the nature and extent of 'Community interest' in the guidelines has meant that largely political and national criteria have been adopted to identify 'priority projects'. This can clearly be seen in the Essen and Van Miert lists which have the practical merit of being accepted by EU bodies but where some projects lacked sufficient information for Community interest to be clearly quantified. The Commission has attempted to tackle this problem, one example was the new list of priority projects proposed in 2001 but the failure of this list to gain acceptance in its original form illustrates the nature of the problem of persuading interest bodies to rise above purely national interest when the value added to the Community is unclear or unquantified. Although transport statistics are often difficult to compile international transport movements are increasing at a rate that exceeds purely national traffic thus implying that the role of 'Community interest' should be rising also. In the past it has proved difficult to provide good estimates of the volumes of international transport particularly, as has often been the case, when existing links were poor. Although forecasting is a still a difficult exercise the situation has improved and key element in quantifying 'Community' interest- the volumes involved-can now be estimated more accurately. This improvement could be incorporated into new EU action.

4.3. To conclude, this paper has attempted to identify a number of key issues and questions concerning the TEN-T revision. The fundamental concepts of 'Community interest' and a structured hierarchy of routes with the EU concerned with the highest level only, seems to be sensible in theory. In practice these concepts pose many problems to translate them into a practical and efficient system. However, the EU transport system faces many challenges and some form of integrated structure to coordinate inter-regional infrastructure planning and financing seems to hold the possibility to better cope with the rapidly increasing flow of traffic than any purely national approach.

Annex 1: List of projects agreed by the Essen Council 1994. (The Essen list).

1. High Speed rail/combined transport, Lyon-Turin-Trieste.
2. High speed rail, France Germany.
3. Motorways in Greece.
4. Lisbon-Valladolid motorway in Spain.
5. Cork-Dublin-Larne rail, combined transport.
6. Malpensa Airport Milan.
7. Oresund fixed link, Denmark-Sweden.
8. The Nordic triangle (road and rail).
9. High speed rail, West Coast main line UK.
10. Ireland-UK-Benelux road link.
11. High speed rail: combined transport link, Berlin-Verona.
12. High speed rail Madrid –Montpelier.
13. High speed rail link, Paris-Brussels-Koln-Amsterdam-London.
14. Butuwe line (rail: combined transport Netherlands Germany).

Annex 2: The 30 2003 Priority Projects (the 'Van Miert' list plus additional projects)

1. Berlin-Verona- Palermo rail link.
2. High speed rail Paris-Bruxelles-Amsterdam-London.
3. High-speed railway axis of south-west Europe.
4. High-speed railway axis east.
5. Betuwe line (NL).
6. Rail link from Lyons-Trieste to Ljubljana-Budapest-Ukraine border.
7. Motorways in Greece Igoumenitsa/Patras-Athens-Sofia-Budapest.
8. Multimodal axis Portugal/Spain rest of Europe.
9. Railway axis Cork-Dublin-Belfast-Stranraer.
10. Malpensa airport.
11. Oresund fixed link.
12. Nordic triangle railway/road axis.
13. UK/Ireland/Benelux/Benelux road axis.
14. West Coast main line (UK).
15. Galileo.
16. Freight railways axis Sines/Algeciras-Madrid-Paris.
17. Railway axis Paris-Strasbourg-Stuttgart-Vienna-Bratislava.
18. Rhine/Meuse-Main-Danube Inland Waterways axis.
19. High-speed rail interoperability on the Iberia peninsula.
20. Fehmarn belt railway axis.
21. Motorways of the sea.
22. Railway axis Athens-Sofia-Budapest-Vienna-Prague-Nuremberg/Dresden
23. Railway axis Gdansk-Warsaw-Brno/Bratislava-Vienna
24. Railway axis Lyons/Genova-Basle-Duisberg-Rotterdam/Antwerp.
25. Motorway axis Gdansk-Brno/Bratislava-Vienna.
26. Railway/road axis Ireland/UK/Continental Europe.
27. 'Rail Baltica' axis Warsaw Kaunas-Riga-Tallinn-Helsinki.
28. 'Eurocaprail' on the Brussels-Luembourg-Strasbourg railway axis.
29. Railway axis on the Ionian/Adriatic intermodal corridor.
30. Inland waterway Seine-Scheldt.

Workshop 5:

Intelligent transport systems for road transport optimisation and co-modality

Introduction:

Intelligent Transport Systems (ITS) refer to the integrated application of communications, control and information processing technologies to transportation. It is commonly accepted that ITS have the potential to contribute to a safer, more efficient and environmentally friendly transport system and to heightening the efficiency and the cost-effectiveness of transport operations - especially by facilitating and enhancing the interaction between the different transport modes through sharing of information on a door-to-door perspective (e.g. inter-modal journey planning by combining timetables, traffic information, consignment information in hubs and transfer points).

When addressing the road transport sector, ITS typically refers to services and applications related to traffic management, real time travel and traffic information, management of transport operations (freight logistics, commercial deliveries and collective transport), asset management as well as advanced (safety enhancing) in-vehicle applications. Where appropriate these applications and services should consider the links to the other modes to cater for more holistic transport system management scenarios as well as the development of seamless door-to-door transportation alternatives.

The problem:

It is expected that the EU will face an increase in the volume of transport by 2020 of 50% for freight and of 35% for passengers when compared to 2000. By that time 45% of all freight transport will go by road adding to the growing congestion affecting the EU road network - 10% of the network affected in 2008 corresponding to yearly costs of circa 1% of EU's GDP.

Despite marked improvements since 1990, emissions from car and trucks continue to be a major source of health-damaging air pollution in the transport sector. They now account for 82% of the growing demand in energy used in transport, raising the import dependency of the EU. Whilst road fatalities are in decline (-24 % since 2000 in EU27) their number (42,953 fatalities in 2006) is still 6,000 above the threshold of a 50 % reduction in fatalities during the period 2001-2010.

These trends create major challenges in terms of fighting congestion, reducing accidents, reducing CO2 emissions and other negative external effects of road transport. To these issues one should add wider aspects such as the physical security of people and goods, issues relating to the land-use needs for new infrastructures, etc.

Possible solutions:

Responding to the manifold complexity of these demanding challenges, whilst maintaining the level of mobility expected by European citizens and business, will require in the short/medium term:

1. **to enhance the efficiency of the road transport system** – by ensuring a better management of the traffic and of the road infrastructure assets notably towards making a better utilisation of the available infrastructure capacity;
2. **to streamline and integrate the management of transport operations** notably those involving multiple transport modes towards improving the efficiency and cost-effectiveness of transport value chains in a seamless door-to-door service perspective (e.g. multimodal information systems, eFreight, etc).

The urgency of the matter, when compounded to the existing and foreseeable constraints regarding the development of new road infrastructure (e.g. stagnation of investments, and the ever longer times for planning and realisation of major infrastructure projects) creates the opportunity for ITS to play a centre role in the solution of nowadays transportation problems.

Set against the forecasted growth in the demand for transportation, climate change and energy dependency implications, measures which target the objectives proposed above will not be sufficient for a long-term solution. Innovation and lateral thinking will have to play a pivotal role. The urgency and magnitude of the challenges also requires that preparative actions will have to start today if they are to reach fruition within the next ten years.

Innovation will have to be pervasive and include notably:

Technological: New technological concepts such as cooperative vehicle-highway systems, based on vehicle-to-vehicle and vehicle-to-infrastructure communications to contribute to a more efficient traffic management leading to less congestion and accidents. From the infrastructural point of view, road infrastructure must become more intelligent, allowing to send and receive reliable and timely data to and from vehicles, and thus collect and disseminate information on road and traffic conditions, accidents and incidents, severe weather conditions etc....

For example, huge savings could be made if fixed and variable road signing equipment could be replaced by messages sent directly to the vehicles. These will be complemented by advances in vehicle technologies (e.g. new on-board intelligent systems, powertrain technologies, advanced materials and aerodynamics) and infrastructure technologies (e.g. new materials, new construction methods) promoting a systematic approach that can lead to leap rather than incremental progresses in the optimisation of the road transport system.

Operational: Fit-for-purpose multimodal transport chains capable of delivering door-to-door transportation services under the best quality, efficiency, cost-effectiveness and environmental conditions (e.g. integration of multimodal urban/suburban transport systems, wide-area supply chains, e.g. based on the commercial and operational templates now provided by market leaders in delivery operations such as DHL, UPS, etc).

Whatever the development scenario is that might evolve towards the fulfilment of these goals, ITS will play a pivotal role in enabling many of these concepts to move from ideas into realisations.

1. Optimisation of the Road Transport System

The need for harmonisation

ITS projects in several European locations have already demonstrated the potential of ITS applications in terms of reduction of accidents, accident response time, vehicle emissions and travel time.

At the same time, the deployment of ITS applications in road transport is very patchy. Satellite-enabled navigation aids as well as its derived traffic information services or intelligent payment systems are now penetrating the market at an exponential growth rate, basically turning them into commodity goods. Other ITS where significant benefits for the optimisation of the transport system have been widely recognised (e.g. traffic management) are being taken up at a more variable pace than expected, and are being developed and implemented in a very different way throughout the EU. This is creating barriers for large scale markets to emerge, with consequent loss of benefits in terms of cost and risk minimisation, as well as endangering the development of seamless Europe-wide services. This relates in particular to the following applications:

- Dynamic traffic management that will lead to an optimal use of the existing infrastructure and reduce/delay the need for massive investments in additional TEN-T road infrastructure through functionalities such as:
 - variable speed harmonisation adapting the speed to the traffic/infrastructure conditions
 - dynamic lane allocation, including temporary use of the hard shoulder
 - real time network balancing, based on traffic demand and travel time prediction
 - faster incident detection and enhanced emergency assistance (eCall etc)
- Dynamic traffic information (via Radio Data System - Traffic Message Channel broadcast or on web sites) shifting from event based reporting towards a proactive distribution of traffic flows in order to offer the following advantages:
 - optimal road works planning, real-time travel times on the road network including alternative roads;
 - rerouting in case of disturbance, vehicle-to-vehicle and infrastructure-to-vehicle messaging (obstacle and queue warning)
- Closed-loop integration of the intelligent vehicle in crucial operational and management processes (cf. information, warning, traffic management and guidance) – up to the point that it becomes an integrated part of the whole Road Transport System.
- Deployment of Advanced Driver Assistance Systems (including dynamic navigation, Speed Information, adaptive cruise control, lane departure warning, eCall...) for making road transport more efficient and safe by reducing the risk of human error.
- Deployment of Automated Highway concepts - allowing an intelligent and optimal allocation of traffic flows over the network, by optimising the positioning of vehicles over the existing carriage width, and reducing the distance between the vehicles themselves.
- Road safety and security applications based on ITS technology, such as eCall or safe on-board HMI to guarantee the necessary level of protection for travellers and transport workers
- Better integration of the vehicle into the transport system by creating an open in-vehicle communication platform, enabling co-operative vehicle systems which enables the car itself to become part of the traffic management infrastructure

However, the deployment of these applications and services has to be rooted on a sound foundation that can ultimately guarantee its intrinsic quality. The use of up-to-date and, where appropriate, real-time or quasi-real-time road data and traffic information in all applications, is pivotal for the fulfilment of this objective. This will need a framework for collecting and exchanging/sharing road and traffic data, and for defining clear rules regarding the rights and

obligations of service providers and potential co-operation schemes between these providers. Such operational frameworks, notably, should allow catering for technological evolution in terms of data collection and data processing (such as those based on Floating Car or Phone Data).

The deployment of innovative technologies to assist the road user needs operational scenarios that can guarantee their usability in the most efficient, cost-effective and safe manner. This will stimulate the development of an open in-vehicle architecture (making use of common positioning (as offered by Galileo and EGNOS) and mobile communications components), and including the possibility to plug in nomadic devices, to enable the deployment at an affordable cost of several ITS functionalities such as tachograph, Electronic Fee Collection, dangerous good monitoring, eCall etc.

There is a clear need for harmonisation of local, regional and national systems at EU level for the benefit of users and manufacturers alike.

One of the potential models to push new infrastructure technologies into mainstream markets is to make use of a "piggyback" approach, incorporating ITS into the deployment in the framework of major projects for the construction of new transport links or upgrading of existing road infrastructure.

Indeed, investing in ITS in parallel to the construction of 'hard infrastructure' would allow to incorporate the potential of ITS to improve efficiency and safety right from the beginning, optimising resources (since at marginal cost) and potentially reducing capacity requirements and thus capital investments. But for such a model to be successful it is necessary that the appropriate design and installation guidelines, standards and codes of best practice enabling to plan and realise the incorporation of the new technologies in such capital-intensive projects do exist. This is fundamental to de-risk the deployment of such technologies in generating always unwelcome delays and uncertainties which may result in significant financial overheads implications.

Questions

Q What is your opinion about the Commission's concerns on the current lack of harmonisation between different ITS applications throughout the EU? What is the role of the Commission, the public authorities and the private sector to reach more harmonisation in ITS applications in the future?

Q How can public authorities effectively address the harmonisation of ever evolving commodity applications and services (such as navigation aids, intelligent payment systems) that are penetrating the market at a fast pace in order to enable seamless EU-wide services to emerge. Or do we run the risk that harmonisation will play a continuous "catch-up" role against an always moving commodity market?

Q What is your opinion about making ITS investment mandatory in new (and on-going) TEN-T infrastructure projects to a certain share of the total investment, in order to install new ITS infrastructure in a cost efficient and coordinated way. ?

Q What kind of new infrastructure (sensors, detectors, receivers, senders,...), , will be needed to receive and process the information the car is transmitting?

Q Which will be the way the infrastructure will communicate with the car in the future, and which technology will be needed on the vehicle to process this information?

Q What kind of modification/adaptation of the road infrastructure, will be needed to enable dynamic lane allocation, use of hard shoulder and reduced distance between vehicles?

Q Could TEN-T co-financing provide a solution to significantly accelerate the deployment of these technologies? Or are there other structural or functional barriers that must be accounted for?

Q TEN-T co-financing is currently strongly focussed on hard infrastructure on the road, meanwhile the deployment of future co-operative systems requires first of all the availability of advanced on-board equipment. Should TEN-T co-financing also be used to support the development and deployment of on-board equipment such as an open in-vehicle platform and related intelligent services in addition to investments in road side ITS infrastructure?

Q How could a better interchange of real-time traffic data and interaction with vehicle systems on the road be achieved on a cross-boarder and pan-European level? Could TEN-T play a role here (example: the EASYWAY project)?

Q How can the continuity of ITS services for passengers and freight in transport corridors and in urban/interurban regions be ensured? Should TEN-T support public-private partnerships to reach this goal and which form of support is the most efficient?

Q What requirements have to be ensured in the ITS deployments that are to be performed in the short to medium term in order to guarantee the future integration of these facilities in the framework of future co-operative systems?

2. Enhancing co-modality

ITS applications for freight and passenger transport are being implemented in the different transport modes without coordination. (e.g. TAF/TSI, SESAR, River Information Systems, toll systems in road transport, etc...). The vision of reaching a truly efficient transport system, able to tackle challenges such as congestion, pollution, climate change, energy efficiency, requires attaining higher levels of co-modality and of commercial and operational co-operation between transport modes. That will require some of these ITS applications to be integrated in a seamless manner and harmonised across modes.

The challenges are huge: not only is the deployment of ITS systems rather unbalanced within a mode (e.g. differential penetration in different regions of the Community) but is also unbalanced between modes. Many of these ITS applications, although addressing at high-level similar processes, do not share a common core of functional requirements. This functional and geographical dispersion, when compounded with potential competition barriers that might exist between service providers in different modes, do constitute a manifold challenge to be overcome in this course for increased levels of co-modality.

It is apparent that there is a need to focus on the creation of "success stories" in terms of application of ITS to multimodal transport chains that can provide references on how to overcome the in-built difficulties of the co-modality.

A number of ITS application areas appear attractive in this context:

Dynamic real-time traffic information systems for travellers including travel times on the whole transport network – including the non-road and public transport - plus a forecast for the road sections he/she is approaching in order to decide on the most adequate and fastest route.

Projects and local initiatives have been started to achieve this objective. The approach is widespread and the driving forces behind new developments are mainly of commercial nature: private companies owning traffic sensors, generating car travel times by cell phone tracking

initiated by the network providers, travel time profiles generated by data recorded in navigation devices,...

A better interaction between Interurban and Urban traffic management systems (including public transport modes) to facilitate the shift to more environmentally friendly and energy efficient modes, hence reducing negative environmental impact (emissions, noise ...)

Tracking and tracing of goods in freight transport, on a door-to-door monitoring perspective and across the whole multi-modal transport chain, towards enabling a step-change improvement of the quality and responsiveness of customer service.

ITS in the future means the provision of harmonised applications that enable seamless communication and data exchange between all existing transport modes in a multimodal environment.

Q How could seamless information transfer across all modes be guaranteed to enable complete trip support and permit the integration of transport modes into fast, cost efficient and ecological transport chains? How could TEN-T co-financing be used to support co-modality, for both passenger and freight transport?

Q Which application domains do appear most suitable for the creation of "success stories"? What will be the barriers that need to be confronted to enable tangible results to emerge?

Q How should provision of cross-mode travel information best be provided (pre-trip and on-trip) and what conditions should be fulfilled to make travellers and hauliers opt for co-modal solutions, including the switch to public transport when entering congested conurbation areas enclosing their end destination?

Q Which priority has the coordinated development of a generic ITS architecture for urban transport mobility, including an integrated approach for travel planning, transport demand, traffic management, the use of parking and public transport facilities to guarantee Community-wide interoperability and data exchange?

3. Galileo and EGNOS as part of the transport infrastructure

In 5-6 years time Galileo will be fully operational and part of the transport infrastructure. However, for all applications in Europe, EGNOS is an operational preliminary version of Galileo, which is currently bringing many of the improvements Galileo will provide when compared to GPS: a better accuracy, up to one meter for mobiles and 10 cm for fixed points, a better availability in difficult environments like urban areas, and an integrity signal allowing the improvement of the computed accuracy.

The majority of ITS applications are based on or enabled by the use of GNSS positioning signals. The functional improvements provided by the availability of EGNOS and, subsequently, Galileo may provide new avenues for the emergence of innovative ITS-related products and services. The latter will have full European coverage with EGNOS, worldwide coverage with Galileo.

In addition to existing applications such as route guidance, navigation, road charging, the main new application expected within a 10-20 years horizon is ADAS: Advanced driver Assistance system. This acronym encompasses a lot of different aspects related to road safety. For example: a vehicle detects a lack of control of its driver, takes over automatic control, decides to park on the roadside, and alerts all surrounding vehicles.

The potential contributions of Galileo in the ITS-context are extensive:

To operate ADAS applications will need:

- a highly reliable and secured positioning system,
- certified equipment,
- a positioning accuracy better than 10 cm

All these requirements will be fully met by Galileo, which will also provide to its users a guarantee of service.

For safety critical issues like ADAS or for financial transaction-dependent issues like road charging, Galileo will provide:

- the authentication of the emitter, in order to avoid spoofing (false GPS signal leading to a false position of the mobile),
- the possibility of encryption of the signal.

Galileo will help to improve the performance of existing applications linked to professional domains such as:

- container location in multimodal platforms to speed up modal transfers and to provide better client services,,,
- using Galileo authentication facility for exact positioning of the emitting source as a protection against fraud in road charging systems, .

It should also be noticed that the open signals of Galileo and EGNOS will be free of any charge. The pricing policies for the guaranteed service, the encrypted service and the authentication will be further defined by the European Commission in the near future.

Other applications linked to road transport safety include accident data recorders allowing reconstruction of accidents, emergency call with caller location, tracking and tracing of transport of dangerous goods as well as of coaches on long distance journeys.

TEN-T relevance:

Two main scenarios could be addressed:

- the EU-wide deployment of new applications and services already introduced on the market in one member state; and
- adapting applications or services developed in one member state which could be deployed in another member state or on a EU-wide basis.

Q How can transport take best advantage of the functionalities provided by GNSS/ Galileo, regarding the various transport modes and their interaction?

Q What other applications or services using GNSS/ Galileo can improve the effectiveness of freight operations or could contribute to e.g. development of e-freight?

Q Apart from ADAS, which new ITS applications could emerge based on the very high positioning quality of Galileo, and in which way they could be best supported in the context of TEN-T?

WORKSHOP 6

MAXIMISING SYNERGIES WITH THE PRIVATE SECTOR IN THE DELIVERY OF THE TEN-T How can the private sector bring more efficiency to the TEN-T

Definition of the problem

Despite strong commitment from Member States and support from the Community, the construction of some of the major European transport projects has fallen behind the original timetables. Lack of resources, high complexity of large transport infrastructure projects and suboptimal planning are among the main reasons for this situation.

In order to be able to deliver public assets on time and on budget, alternative models for infrastructure delivery involving stronger participation from the private sector should be considered. The Public Private Partnership (PPP) is one of the most common models for private involvement. Over the past decades the temptation has sometimes been to see PPPs as a sort of “private” magic wand to overcome budgetary constraints, or to set up a PPP agreement and pass inadequate risks to the private sector. But PPP does not create extra money per se and private sector involvement is directly related to the prospect of an acceptable level of profitability. Moreover risks are expensive and the failure of a PPP is generally at the great expense of the public authority. In the end, governments will always be accountable to the citizens if the infrastructure failed to be delivered.

The benefits generated by a well-structured cooperation with the private sector should not be limited to the financial aspect: overall private expertise, project innovation capability, new methods of management, better identification of needs, optimal use of resources or de-monopolise the public sector in infrastructure provision²¹ are some outcomes that suggest the real benefit of PPPs and private sector input in many cases are **efficiency gains** - getting more out of existing resources without jeopardising the quality of service delivery. Project managers should be in position to know when and how to seek private sector involvement, and should systematically consider alternative schemes to traditional procurement in order to ensure Best Value for Money.

The promotion of successful PPP schemes has always been an implicit element of TEN-T policy. The Commission sees the need to develop real partnership between public and private sectors to accelerate the implementation of the network by improving access to financing as well as overall cost-effectiveness. The forthcoming review of TEN-T policy is an opportunity to address the role of the private sector for the delivery of transport infrastructure projects and ask to what extent and in what way the involvement of a private partner can bring efficiencies. The question of potential Community tools to support this policy should also be explored.

1. A new role for the public sector

The involvement of the private sector for the delivery of public assets requires readjustments for the project promoters: a readjustment of capacity and related skills, and a readjustment of the rationale and the planning.

Acceptability of a shared business

Policy considerations will always play a part in decisions regarding private sector involvement. Key to this is an understanding of the real inputs and outcomes of alternative schemes for the delivery of public assets. This means that a project manager needs to test the most effective

²¹ The private sector can take over the public sector's role in infrastructure provision when public agencies/administration are inefficient. This scheme can help the public sector in developing projects for which they have not yet acquired full competencies.

procurement and tendering process. Dismissing alternative schemes to traditional procurement simply because of their complexity can lead to missed opportunities.

Misconception on PPPs (or even outright scepticism) can also be a powerful barrier to overcome, as can be the social acceptability of making profits on a public asset – or even the principle of devolution itself.

- **Should it be made compulsory to test alternative procurement methods (i.e. public sector comparator) for the TEN-T projects?**
- **What could be done at the TEN-T policy level in order to facilitate social acceptability of PPP projects? To improve PPP's perception?**
- **Should the TEN-T policy promote a "Code of Conduct" including for instant in matter of rules for a fair division of sharing potential gains (e.g. for the debt refinancing)?**

Building capacities

The development of the PPP reflects a change in the role of the State from direct constructor and operator to one of organiser, regulator and controller. Therefore Public agencies may need to understand better the requirements of the private sector²², and acquire new expertise in order to assure the public interest is met while negotiating complex contracts.

The shortage of relevant skills in the public sector as well as a general shortage of qualified project promoters for implementing large infrastructure programmes may create other pressures in addition to competition for finance. There is only a limited supply of project finance experts worldwide. Dissemination of knowledge and learning lessons from international experience are key to success.

New guidelines for PPP and TEN-T projects are currently under preparation and the Commission and the EIB have recently launched the **European PPP Expertise Centre (EPEC)** in order to facilitate cooperation amongst Member States and to provide project promoters with access to sources of expertise in the field of PPP.

- **What else can be done at the TEN-T policy level to foster capacity building towards a stronger private sector involvement?**
- **Do we make an efficient use of ex-post evaluation for TEN-T PPP projects?**

Towards a more private oriented projects' preparation and delivery

The public sector must recognise there are requirements attached to a private sector rationale. Not every project will automatically attract the private sector, and an incorrect preparation of a potentially suitable project can be discourage the private partner, or increase the project's price for a PPP. Likewise, the private sector is not interested in simply picking up projects for which there is no public sector budget, or for which there is no justification beyond the political one, unless the risk-reward ratio is firmly in its favour.

On the other hand, factors such as: a long term financial and political commitment to a project; an appropriate approach to risk sharing; enabling options for an early involvement of the private sector in the project; and a flexible approach to the project design and facilitation options for generating ancillary revenues are often quoted as essential for a privately developed project.

²² The UK Public Accounts Committee (PAC) has examined various UK Private Finance Initiative (PFI) transactions over the past year. The studies have revealed several areas of concern, particularly in the way that the public sector continues to repeat mistakes in managing the procurement of PFI projects.

- **What can be done at the TEN-T policy level in order to improve project preparation and project readiness for the private sector involvement? Should the TEN-T policy provide project promoters with a technical assistance body (similarly to the JASPERS facility)?**
- **What can enhance the private sector's interest in a project? Could there be the role for the TEN-T policy?**
- **What could be done to facilitate earlier and more efficient involvement of the private partner?**

2. Ways of increasing effectiveness

Promising as it may be, the use of PPPs may still not have realised its full potential yet. Even when a project seems to be suited for the involvement of the private sector, there are still areas of concern regarding effective implementation of PPPs.

Risk sharing

One of the critical requirements when considering PPP agreements is to set up a transparent, well-balanced and soundly priced risk sharing arrangement. There are basically three types of risks: political risk, construction risk and commercial risk. As mentioned above, there are ways to minimise the political risk: by making a long-term political and financial commitment to the project involving long-term budgetary planning and giving certainty and transparency through a clear (legal) framework for the private sector. On construction risk, a flexible approach to design, enabling new management methods, plus a better project preparation could also lead to reducing the risk.

As for the commercial risk, the reliability of traffic forecasts is a key issue, particularly when concession arrangements are considered. One of the basics of a transport infrastructure, in particular large infrastructure like the TEN-T, is that it is designed for absorbing a maximum level of capacity that is unlikely to be achieved in the early years of operation. The estimation of this maximum level relies on many parameters such as transport economics, pricing, accessibility of the network, competing infrastructures, oil prices, taxes, historic base... which makes it all the more difficult to accurately produce a reliable forecast. Indeed the profitability of a project can be compromised by either lack of accessibility (infrastructures which were planned to increase the network efficiency are ultimately not being implemented) or by construction of competing assets which were not foreseen at the time of the contract. This means that stable political commitment and long term planning are essential to effectively assess and transfer the risks. Apart from financial instruments, like guarantees, a reliable system of traffic flows monitoring could be a useful starting point for better traffic forecasting²³ and may offer an effective base for a better appraisal of demand risk.

If profitability projections are not met then this can bring into play the possible extension of the contract - or compensations, without breaching the equality of treatment of candidates. The case is particularly critical for assets for which revenues can significantly vary (PPP in railways...).

In practice, risk assessment capability is limited in the transport sector. Economic appraisals methods may differ significantly between Member States. Moreover, it is critical to avoid artificial risk transfer solutions, such as making the private sector bear risks it cannot control.

²³ A pan-European system, based on the data collected from national mobile telephony operators, could be envisaged to this end. In addition to building a powerful traffic database to be used for projection of the future flows, other benefits could potentially be pulled of this initiative such as daily employment-related to commuting migration patterns or urban development or traffic management.

- **Should the TEN-T policy propose a (compulsory) framework for risk analysis for the TEN-T projects?**
- **What measures could the TEN-T policy include to have a significant impact on the political risk?**
- **Should the TEN-T policy investigate the feasibility of an EU wide programme of real-time traffic monitoring?**
- **What could be envisaged in the contract for TEN-T projects whose profitability is not met at the end of the concession period?**

Increasing the competition

One of the prerequisites to address the best value for money remains the quality and the extent of the competition level for a given project. Bidding on a PPP project can be very expensive for the private partner as the level of complexity implied by a PPP project is significantly high. When a contractor is not successful on a bid for whatever reason, the costs necessary to set up the proposal which will not be recuperated may hinder its capacity to bid for another project, hence decreasing competition.

Another critical issue is the constitution of consortia: the design, delivery and operation of large transport infrastructure require competencies which are not likely to be held by one single company. To prepare small and medium sized enterprises to be a member of a consortium (or to subcontract) can represent an efficient way to increase competition in the market (and to develop local economy as well).

- **What form of compensation for the bidders could be proposed by the TEN-T policy?**
- **When TEN-T projects are considered, should a legislative package further modernising the Community procurement rules be envisaged?**
- **What else could be done at the TEN-T policy level in order to foster competition?**

Financial tools

The general financial pattern for a transport project is that it involves high initial investment, and since it is designed to accommodate future needs there is a permanent deficit in the early years of operation (negative cash flow). Two types of financial instruments are therefore generally required: grants and guarantees. While the guarantees may increase the bankability of the project, it is commonly accepted that the grants should not go beyond the minimum needed to reduce the deficit in the financial profitability of a project.

The Community has already made available the Loan guarantee instrument for the TEN-T projects (LGTT) in order to respond to the critical needs in the first years of the operation²⁴. Likewise, the grant system now includes the Construction based grant which offers to cover part of the availability payments during the operational (post-construction) phase of the project. In the framework of the revision of the TEN-T, the relevance of a range of possible instruments to be set up should be addressed.

- **Should the TEN-T budget envisage covering a percentage of the European Investment Bank's (EIB) provisioning (increasing its risk taking ability)?**
- **Should TEN-T study grants be specifically earmarked for testing financing model feasibility, to setting-up PPP agreements (seed capital facility)?**
- **What type of instruments would allow reducing the cost of external finance while transferring greater risks to the private sector?**
- **Would a guarantee covering the risk of delays in works on adjacent infrastructure have a significant impact?**
- **What other instruments could be worth setting up, potentially in cooperation with major financial institutions?**

Coordination of the means of the Commission

Not only DG TREN is working on PPPs. Several others Directorates General deal with different aspects of this scheme, and more generally on the involvement of the private sector. The question remains, both on a financing and on management perspective, what a stronger coordination could bring, and how this coordination should be set up.

- **Should the Commission envisage a horizontal taskforce on PPPs? What could be its remit (beyond EPEC activities)? What could be the role of the private sector?**

3. Beyond Public Private Partnerships

In infrastructure provision, the degree of private sector involvement varies widely, from traditional works or service delivery to full privatization of the assets. If PPPs is a way to address new schemes of cooperation for the public and the private bodies, it is also an opportunity to enhance the thinking on the economic viability of the transport policy.

Exploring new methods, which could accelerate the completion of the network while assuring benefits for both the public sector and the private partner, should not be neglected. For example, PPPs are not limited to the transport sector. In the telecommunication field, other models are being implemented. If one takes stock of the "utility model" for example, it could be

²⁴ The LGTT aims to facilitate investment in TEN-T projects by significantly improving the ability of the borrower to service senior debt, irrespective of initial traffic revenue. Its design substantially enhances the credit quality of the senior credit facilities, thereby encouraging a reduction of risk margins applied to senior loans to the project.

imagined that the road charges are reset every few years to offer the owner a reasonable return over the asset. It is also possible to envisage separating network management from asset ownership (selling journeys/availability of road space,...).

- **What models could be envisaged when considering a stronger/different involvement of the private partner? How to define a role for the TEN-T policy in this matter?**
- **Can "fully private" infrastructure be worth investigating for the TEN-T projects?**

Workshop n° 7

TEN-T Outline plans: Options for their future shape and methodological choices for their establishment

&

Workshop n° 10

Instruments to implement the TEN-T policy: the record and the potentialities

JOINT DRAFT ISSUES PAPER

This issues paper is intended to provide input on workshops n° 7 and n° 10 which are related, given that the TEN-T outline plans (the most visible part of the TEN-T policy) can fully materialize only if the instruments available for policy implementation at EU and national levels match the ambitions of the plans.

1. THE ISSUES AT STAKE

Outline plans: Planning approach and instruments in use

Outline plans (i.e. network schemes for road, rail, inland waterway, airport and port infrastructure) constitute a central part of the Community Guidelines for the development of the trans-European transport network. They are indeed the most visible part of the TEN-T policy, attracting large interest of economic actors, public authorities at national, regional and local level, politicians and citizens. Uncompleted elements of outline plans are labelled as projects of common interest – projects which are eligible for grant and other financial support from Community sources.

Outline plans are intended to be a planning instrument at Community level. The implementation of projects of common interest (technical and legal/administrative preparation, contract award, construction, financing) remains subject to national rules and procedures.

Key figures that mark the TEN-T policy are based on outline plans: 900 billion € total investment need until 2020, one third of which having been invested between the beginning of the 1990s and now. More than 300 billion € of – common - investment in the TEN-T sounds remarkable. To what extent is this genuinely attributable to the TEN-T label of the projects concerned, stemming from their inclusion in the outline plans? Would Member States have implemented many of the projects anyway in the framework of their national procedures, independently of the TEN-T policy? Has the TEN-T status triggered investment decision making to the benefit of these projects or is there a tendency to reflect, in the TEN-T outline plans, first and foremost investment priorities seen from the national angles? Is it possible to grasp the combined effects of Member States' action and Community support in relation to the TEN-T outline plans from a Community wide perspective? Can these effects be maximised through an adjustment or revision of the TEN-T outline planning approach?

As far as the instruments in support of the TEN-T policy, provided for by the EU Treaty²⁵, are concerned, until now the granting of financial aid to projects of common interest has been most

²⁵ Title XV (Articles 154 – 156) of the Treaty establishing the European Community

prominent to facilitate the completion of the outline plans included in annex I of the TEN-T Guidelines²⁶. With regard to the Treaty provision on network interoperability, the outline plans have been serving as the basis for the applicability of EU legislation on interoperability in the railway sector and on tunnel safety in the road sector. The TEN-T Guidelines include some target standards for certain outline plans (in order to ensure interoperability), especially in the inland waterway sector.

The fact that the outline plans are materializing considerably slower than foreseen in 1996 indicates that there is a mismatch between planning ambitions and instruments to ensure their realisation. Community funding has not been available to duly stimulate investment in the thousands of projects of common interest resulting from the outline plans – and will certainly not become available in the next decade. In many cases, lack of project maturity and of availability of financial resources at national level has also contributed to slowing down the overall investment rate in TEN-T projects. Does this situation not involve the risk that focus, visibility and credibility of the TEN-T policy suffer? The materialisation of the outline plan is **THE** indicator for the success of the TEN-T policy vis-à-vis citizens, public authorities and economic operators throughout the Community!

Is there a case for scaling down the outline plans without affecting the achievement of the key objectives of the TEN-T policy – contributing to the functioning of the internal market and to sustainable development and strengthening social and economic cohesion? Or, alternatively, are there ways of introducing "better" instruments to speed up the implementation rate of projects of common interest, to enhance measurability and visibility of action in relation to the TEN-T outline plans? Have the instruments provided for by the Treaty been made best possible use of so far (for example coordination of national policies)? Are there other, less formal, ways of enhancing the implementation of projects of common interest based on the TEN-T outline plans? Is there a need to go further with the development of network interoperability – for example through the introduction of minimum standards for rail and road infrastructure, intelligent transport systems (either in the TEN-T Guidelines or through further separate legislation linked to the Guidelines)?

TEN-T priority projects: Planning approach and instruments in use

The TEN-T priority projects are "selected" projects of common interest which – in geographical terms – represent a minor part of the TEN-T outline plans only. In terms of the investment challenges involved, they represent however almost half of the whole TEN-T. Because of their importance for the accommodation of international traffic flows across national borders, their role in connecting peripheral parts of the Community with central parts and their contribution to the achievement of sustainable development objectives, these projects have been endorsed as being of truly "European interest".

The initial 14 priority projects and their extension to 30, approved in 2004 (especially in relation to the EU enlargement from 15 to 25 Member States) have been in the centre of Community action since the beginning of the TEN-T policy: the available funding has been concentrated to a large extent on these projects and the Commission has undertaken various coordination initiatives. So far, Member States and the European Union have invested 126 billion € overall in these projects, and those Member States directly concerned by cross-border projects have coordinated themselves as appropriate.

²⁶ Besides their coverage by outline plans, projects of common interest are further specified in annex II of the Guidelines).

Although these projects too have suffered from implementation delays, they are the real showcase of the TEN-T policy in citizens', politicians' and economic operators' eyes. Still: Is the priority project – or priority corridor – approach (as a kind of layer above the TEN-T outline plans) the best possible way of grasping full benefit from the concentrated Community action? Are potential network effects missed? (International traffic flows are not stopping at either end of the corridors; infrastructure users are coming up with proposals on how to link up corridors). Should the priority projects be connected to form a "priority projects' network"? Could such a priority projects network form a nucleus of a TEN-T core network – a network which replaces or adds on to the TEN-T as reflected in the current outline plans? Would such a core network not provide more coherence between planning and instruments for their implementation?

New challenges to be taken up in the TEN-T planning for tomorrow

Climate change objectives as well as high service quality and efficiency ambitions in the transport market call for a co-modal approach which builds on a genuine integration of all transport modes (network schemes) and intelligent transport systems. The TEN-T planning for the next one to two decades should establish the single infrastructural basis at Community scale, providing for transport services as efficient as possible from an economic, environmental and social perspective. It shall ensure a balanced development of all transport modes, further the establishment of connections between modes and of the implementation of traffic management systems that allow optimal infrastructure use. The infrastructure basis shall be such that users are encouraged to choose the most efficient transport mode or co-modal transport chain, depending on their specific needs. Users' mobility demands shall be met while effectively contributing, at Community scale, to the achievement of climate change objectives in the transport sector.

The future TEN-T should cater for current and, as far as possible, future infrastructural needs resulting from the Community's policy action and legislation throughout the different transport sectors. The ambition of future TEN-T outline plans, and more generally TEN-T Community Guidelines, is therefore to provide a link between the different transport service areas.

New transport and energy technologies that may be introduced in the coming one to two decades, are expected to have infrastructural implications which should be taken account of in the TEN-T planning. Furthermore, the traditional separation between infrastructure and "rolling stock" becomes hazy in certain areas. Is there a need to extend the concept of projects of common interest to some aspects of rolling stock?

The EU is likely to continue to expand geographically. The TEN-T planning should make provisions for the connection to future Member States' networks and prepare for their inclusion into the TEN-T outline plans at the time of accession. Connections with neighbouring countries need to be provided for and relevant action needs to be coordinated between the fields of TEN-T and neighbourhood policy. In an EU that, in the near future, may involve more than today's 27 Member States, economic and social conditions are unlikely to converge rapidly between the different Member States and regions. Does this situation call for different TEN-T planning methods in different regions?

Are the instruments currently in use sufficient to respond to these and other future challenges of the TEN-T policy? Should the application of certain instruments provided for by the Treaty be further strengthened? Is there a need for new instruments, for the Community to be able for example to proactively support climate change and other environmental objectives, the implementation of new technologies or cooperation with neighbouring countries?

2. SOME THOUGHTS ON POSSIBLE RESPONSES: TEN-T OUTLINE PLANNING

Current legal basis and its implementation

The EC Treaty

The Treaty establishing the European Community (Title XV, Articles 154 – 156), defining the objectives of the policy of trans-European networks, includes a set of instruments which relate to both the planning and implementation side. TEN-T planning aspects are essentially to be addressed with the following instruments:

a) instruments to be adopted by the Council and the European Parliament²⁷:

- Community Guidelines;
- measures to ensure interoperability of networks, in particular in the field of technical standardization;

b) Non-legislative instruments:

- coordination of relevant national policies among Member States, in liaison with the Commission;
- Commission initiatives, in close cooperation with the Member States, to promote coordination among Member States.
- Cooperation between the Community and third countries to promote projects of mutual interest and ensure interoperability, allowing for seamless infrastructure links with third countries

The TEN-T Guidelines

Community Guidelines constitute the key instrument defining the TENs' policy. According to the Treaty such Guidelines shall cover objectives, priorities and broad lines of measures envisaged in the sphere of TENs and identify projects of common interest.

Outline plans are an essential component of the Guidelines currently in force in the transport sector²⁸. In which way do these Guidelines, in setting out objectives, priorities and broad lines of measures, address TEN-T planning issues for the steering of the outline plan development?

Objectives:

- Network coverage and scope to be achieved: Integration of land, sea and air transport infrastructure networks (road, rail and inland waterway networks, motorways of the sea, maritime and inland waterway ports, airports and inter-modal connection points) as well as traffic management, positioning and navigation systems. Interoperability to be ensured within the modes of transport as far as possible. Network integration and interoperability to be realized through completion of projects of common interest which are defined by means of outline plans and specifications. As far as proven to be in the Community's

²⁷ Article 156 of the EU Treaty stipulates that these measures "shall be adopted by the Council, acting in accordance with the procedure referred to in Article 251 and after consulting the Economic and Social Committee and the Committee of the Regions".

²⁸ Decision N° 1692/96/CE of the European Parliament and the Council on Community Guidelines for the development of the trans-European transport network, adopted in 1996 and amended in 2001 (...), 2004 and 2007 (...)

interest provisions should be made for the connection to the networks of EFTA States, Central and Eastern Europe as well as Mediterranean countries.

- Time horizon for the completion of the above network configuration: 2020
- Besides the basic rationale of the TEN policy (the functioning of the internal market), related policy objectives to be given full consideration include: sustainable development and territorial cohesion (coverage of the whole territory of the Member States and the Community so as to facilitate access and link island, landlocked as well as peripheral regions to the central regions of the Community)
- Economic objectives to be pursued: delivery of high-quality infrastructure while ensuring, as far as possible, economical viability of projects of common interest and optimal use of infrastructure capacity
- Transport service objectives to be adopted: sustainable mobility of persons and goods under best possible social and safety conditions; encouragement of intermodality.

Broad lines of measures:

- The drawing up and revision of outline plans, with particular attention being given to the optimum combination of transport modes and interconnections between the modes
- The identification of projects of common interest
- The promotion of network interoperability
- The cooperation with third countries concerned by the development of the networks and the conclusion of suitable agreements with them.
- The adaptation of existing networks
- Research and development

Priorities

The priorities established by the Guidelines, include on the one hand general network development priorities which arise from the policy objectives (network configuration, sustainable development, economic and transport service objectives) and priority projects (i.e. a selection of projects of common interest, considered to be of particularly high priority) on the other.

The 2004 Guidelines' revision has strengthened the focus on the priority projects, by both raising their formal status (declaration of European interest and definition of cross-border sections on the basis of criteria established by the "Committee for the follow-up of the Guidelines and the exchange of information") and reinforcing and expanding the instruments to support their implementation. As far as Community funding is concerned, Commission and Member States have been called upon, within the framework of the support of projects of common interest from the available sources of Community funding, to give priority to these projects and to ensure coherence and complementarity of financial interventions.

Other instruments set out in the Treaty

Interoperability is in particular being implemented in the railway sector where corresponding legislation is directly linked to the Guidelines – more specifically to the TEN-T outline plans in the railway sector.

The identification of projects of mutual interest is important to ensure seamless connection with the Community's neighbours and is being taken account of in the establishment of the outline plans.

The coordination of national policies and Commission initiatives are instruments that should be made use of at both the planning and implementation levels in order to ensure coherence between Community objectives and national commitments on the one side, and Community-wide network planning and implementation capacities on the other.

Strong and weak points of the TEN-T outline plans as currently in force

The outline plans as currently in force show a high degree of density and aim at meeting, at the same time, internal market and regional development objectives. As reference framework for interoperability and other Community legislation (such as tunnel safety), they ensure broad implementation of policy objectives in the transport sector.

Due to the predominance of national rules and procedures for planning, implementation and financing, such a network scope makes it however difficult to develop a genuine planning approach at Community level. This again entails a lack visibility and measurability of Community action and its benefits. Many of the tens of thousand kilometres of rail or road links remain, from relevant authorities' and the users' perspective, first and foremost national links rather than being perceived as "something on top of them", as trans-European links.

The Guidelines refer only partially to target standards (planning parameters) for the links and nodes included in the outline plans. Standards may change as a result of national procedures – but the implications for infrastructure capacity and service quality may go beyond national borders and affect other parts of the TEN-T. The definition of projects of common interest, consequently, depends largely on national planning procedures rather than on Community objectives (e.g. in terms of coherent capacity and quality standards along trans-national corridors).

Are the objectives and broad lines of measures, as set out in the Guidelines as currently in force, sufficient and appropriate for a genuine European network planning or is there a need for a different (more ambitious, more targeted,) approach? In the first case, which are the strengths and is there a need for their further reinforcement? Have the relevant Guidelines' provisions been properly reflected in the current outline plans? In the latter case, why is there a need for change, and how should a new approach be shaped?

Has the available knowledge and experience in the field of transport network planning so far been sufficiently made use of (scientific research and knowledge and experience available at national level)? Is there a need for more specific study and research work towards a genuine European network planning, and if so of what kind?

Possible outline planning approaches in view of a TEN-T Guidelines' revision

The TEN-T Guidelines currently in force stipulate that "the Commission shall report, every two years, to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions and that this report shall be accompanied, where necessary, by

legislative proposals to revise the guidelines. Furthermore, with regard to the priority projects, the guidelines specify that, by 2010, the Commission shall draft a progress report and, if necessary, propose amendments to these projects.

In the light of the problems and opportunities related to a European network planning which have been outlined above, the following broad concepts could be considered:

- A. *Maintain the current concept, consisting of "high-density" outline plans and priority axes. Both would have to be updated, with the priority axes' updating being expected to be subject to more substantial amendments.*
- B. *Given the difficulties in applying a true Community-level planning for the "high-density" outline plans, in stimulating and monitoring their full implementation; given the limited visibility of Community action regarding these outline plans: Abandon the "high-density" outline planning concept as included in annex I of the current guidelines. Maintain the priority axes' approach (amendments of axes as necessary; these axes constituting the only basis for Community support measures). Such an approach is currently used in the energy TEN. Applied to the transport sector, it would entail the elimination of the reference basis for various – current and future – transport policy legislation and other action (interoperability, safety, ...)*
- C. *Develop a "priority or core network" that links up priority axes and other axes that are important for the achievement of the key objectives of the TEN-T policy (ensuring the functioning of the internal market, contributing to social and economic cohesion and sustainable development). This network would have to be marked by a high degree of integration of all transport modes (including intelligent transport systems) so as to establish a sound basis for the provision of safe and efficient transport services that meet future demand while, at the same time, contributing to emission reduction objectives; it would have to facilitate co-modality. It would combine already existing network parts (completed through Member States investment, with Community assistance in many cases) with parts that remain to be completed. This should allow to maximise the benefit to be drawn from past and future Community action on the TEN-T. Member States' and Community action (financial, coordination etc.) should concentrate on the implementation of any project that contributes to the completion of this network. As far as the "high-density" outline plans are concerned, it would have to be seen whether they should be maintained as a basic layer (instruments for its completion, monitoring and updating to be discussed; refer to workshop n° 10); or whether a "priority or core network" should replace them.*

What are the advantages and disadvantages related to the three concepts set out above, and which could be most appropriate for the TEN-T revision?

Independently of the choice of one of the broad concepts set out above, there is a wide range of questions that should be looked at when designing the future TEN-T outline plans. They include for example:

How can, in **network planning at EU level**, internal market and territorial cohesion / regional development objectives go together in the best possible way? Should the TEN-T become subject to some strategic environmental impact assessment, to be carried out at EU level (for example, taking account of emission reduction objectives), and how could this be done? Which is the most appropriate way of ensuring proper connection between the TEN-T in the EU- Member States, candidate and neighbouring countries. Should technical standards for infrastructure (aiming at

interoperability for the different transport modes, including intelligent transport systems) be included in the guidelines in a direct and systematic way? Should TEN-T infrastructure be subject to minimum capacity standards? Should new infrastructure elements, such as freight terminals, be included in the TEN-T? Should the TEN-T be linked to other Community action such as infrastructure charging or safety objectives? How can future-oriented concepts for more efficient services in the different sectors (including co-modality, use of intelligent transport systems etc.) be taken account of in the assessment of infrastructure needs? Should infrastructure operation become part of the TEN-T related Community action? If so, how could this work? Should the issue of "critical infrastructure" (security aspects) be taken account of in the TEN-T planning?

How should **projects of common interest** be identified within the framework of a – possibly – changed network concept? Should and could they be defined more clearly anyway? Should they be evaluated on the basis of a single cost-benefit analysis method, and do the guidelines developed in the Community supported HEATCO research project provide a reasonable basis for this? Should and could European added value and network effect of projects be determined (in quantitative and/or qualitative terms) and be taken account of in TEN-T policy action? Is the concept of projects of common interest in technical / organisational terms still appropriate to respond to future objectives? Does it, for example, take account of the fact that new technologies may blur the borders between infrastructure and vehicles. Should it, in line with the objective of efficient infrastructure use, also cover aspects of infrastructure use? Is it time for a new generation of European projects of common interest (for example rail freight or green corridors), developed from a service / "business case" perspective, the implementation of which should be promoted as one single European project. How could these projects be defined? Should the implementation / financing concept be taken into consideration in the definition of projects of common interest, and could this facilitate the determination of means of support (instruments)?

Is there a need to review the **priority setting** in relation to network planning and implementation? Are the general priorities in the current Guidelines specific enough? In case of network concept C, would there be a need for project prioritization or should all projects be given the same priority status? In the latter case, should the means to support for their implementation be determined for each individual case, by selecting the (combination of) the most appropriate instruments?

Which of the list of the questions above are considered to be particularly relevant, which to be irrelevant, and what are the reasons for one or the other consideration? Which further questions should be asked, which aspect be taken into consideration?

3. SOME THOUGHT ON POSSIBLE RESPONSES: INSTRUMENTS TO SUPPORT THE IMPLEMENTATION OF TEN-T

Current legal basis and its implementation

The EC Treaty

The main legislative instrument referred to is the granting of Community financial aid. The Treaty lays down the main areas (support of feasibility studies, loan guarantees, interest rate subsidies) and refers to the possibility for the Cohesion Fund to contribute to the financing of specific projects in the area of transport infrastructure.

The following non-legislative instruments referred to in the Treaty are (besides some relevance at the planning stage) of particular importance for the completion of the TEN-T, i.e. for the implementation of projects of common interest with the objective of putting the outline plans into reality.

- coordination of relevant national policies among Member States, in liaison with the Commission;
- Commission initiatives, in close cooperation with the Member States, to promote coordination among Member States.

The TEN-T Guidelines

With regard to the instruments to support the implementation of the TEN-T, the Guidelines refer in particular to the following:

Broad lines of measures:

- The granting of financial aid under relevant financial instruments, and the ensuring of consistency and complementarity between the different financial interventions
- The promotion of continuous cooperation between interested parties
- Introduction of incentives for Member States and international organisations to further the achievement of Community objectives in the field of the TEN-T

Specific coordination measures for priority projects:

The Guidelines have introduced the instrument of the European coordinator, designated by the Commission in agreement with the Member States concerned, who shall facilitate the coordinated implementation of certain projects, in particular cross-border projects.

Strong and weak points of the instruments to support TEN-T implementation

Community funding from the TEN-T budget has, in a number of cases, contributed to overcome difficulties in early projects phases and reach the "point of no return". Through considerable grants, it has helped to significantly advancing major TEN-T projects – especially in the field of high-speed rail. It has been decisive for the launching of the Galileo project which, otherwise, would most likely not exist today. In a small number of cases, TEN-T funding has been vital to make public-private partnership approaches possible. In combination with structural funds' resources, TEN-T funding has significantly contributed to implementing key infrastructure links in "Cohesion countries".

All the above applies, however, mainly to the TEN-T priority projects on which the available resources have been concentrated to a large extent – and even for these projects, Community financial aid was by far insufficient to meet the needs of all the projects in an appropriate way. For the many other projects of common interest resulting from the outline plans as they currently stand, support has been only punctual. Although specific objectives of the TEN-T and the Community's transport policy have been guiding the granting of aid (e.g. establishment of intermodal connections, sustainable transport objectives etc.), it has been impossible to stimulate and support implementation of the network as a whole in a more systematic way.

The TEN-T Guidelines define themselves as the "Reference framework, intended to encourage Member States and where appropriate the Community in carrying out projects of common interest."

Obvious delays with the implementation of many projects of common interest may raise the question: Have the two main actors of the TEN-T policy – Member and Commission – been able to meet their respective commitments?

Have Member States given due priority to the projects of common interest to be implemented under their respective responsibility, in accordance with relevant national rules and procedures, so as to ensure their timely completion? Have they taken due account of the "European impact" of the projects under their responsibility – in the same way as they expect to draw benefits from the implementation of projects of common interest beyond their national borders? Have Member States, for this purpose, sufficiently coordinated their relevant policies amongst each other? Has the Commission duly stimulated such coordination?

It seems that the outline plans as they currently stand, and the large number of projects of common interest resulting from them, make it impossible for the Commission to fulfil its obligation under Article 211 of the Treaty, i.e. to "ensure that the measures taken by the institutions pursuant thereto are applied" (i.e. that the Decision of the European Parliament and of the Council establishing the TEN-T Guidelines is properly implemented)?

Does this not make the following question as relevant today as it was at the beginning of this policy?

How can the Member States and the Commission ensure (through other than financial instruments which are dealt with in workshops n° 6 and 12) that the TEN-T, as adopted by the institutions, is implemented in the most efficient way, in accordance with the agreed time plans and quality standards?

Some ideas and questions for discussion relating to a strengthening of the instruments in support of the implementation of the TEN-T policy

This reflection should start with the question:

Have the relevant instruments provided for in the Treaty – coordination initiatives of the Commission and coordination of relevant national policies – been made best possible use or is there scope for improvement towards more effective results?

The scope for the application of these two categories of instruments depends on the ambitions set with the network planning. The discussion of possible instruments should therefore be seen in relation to the choice of the planning concept.

Concerning **coordination initiatives to be taken by the Commission**, the concept of European coordinators has certainly proven its worth, especially in the last few years.

Should this form of commission initiative to coordinate Member States' cooperation be reinforced? Are there other areas of the TEN-T policy where it could be applied? Could a new form of European projects (e.g. rail freight, co-modal or green corridors; including, besides the infrastructural side, aspects of efficient operation, promotion of common cross-border institutional structures etc.) be subject to a new form of cooperation instrument? How should this look like?

Are there other areas of the TEN-T implementation where the Commission should take coordination initiatives to foster progress, and what initiatives should this be?

Are there national experiences, best practices etc. which could be beneficial to the implementation of the TEN-T and therefore should be spread over the Community. Which forms could this spreading of experience and best practice for the TEN-T implementation take? Which initiatives would be expected from the Commission in this respect?

Concerning **coordination of national policies**, the following questions may arise:

Should Member States assume more binding responsibility for the implementation of the projects of common interest included in the TEN-T. Should the Guidelines go beyond the current "reference framework" status (subjecting project implementation to Member States' budgetary planning, without any obligation or strong incentive to ensure full and timely completion of TEN-T projects). How could such a strengthening of Member States' investment obligation be put into practice?

Especially for the planning concepts that involve maintaining the "high-density" network planning, how could the Commission be enabled to better assume its role for planning, updating and monitoring? Could elements of the Open Method of Coordination enter into consideration for this purpose?

Workshop 8:

Rail freight corridors: Development perspectives and future infrastructural challenges

1. Definition of the Problem

The development of the TEN-T policy dates back to the 1990's when it was recognized that a clear Community structure was fundamental to move towards an integrated and interoperable network amongst the Member States. This objective, inserted in the Treaties since 1995, remains vitally important and valid. Improving the operation of this network in an overall European way must also be addressed. In this context, there is a need to foster a more dynamic coordination between Member States and Infrastructure Managers, for both operational matters and investments. Operational coordination and cooperation can be organized at a "corridor level", i.e. on specific trans-national axes that concentrate the major flows of goods or passengers in the EU.

The main subject for this workshop is to assess the potential for and the possible consequences of the development of international corridors for TEN-T and how such an approach could be incorporated into a revised set of Guidelines. A three stage approach is proposed for the evaluation of the corridor approach:

- first, identify the benefits and risks attached to a "corridor approach" based on the building of regional "business cases";
- second, to identify the drivers that could make this approach successful;
- lastly, to consider the possible interactions between such an approach and TEN-T policy.

2. What are the potential benefits/risks of a "corridor approach"?

An International corridor (IC) approach, for example for rail freight corridors, must be based on:

- the identification of the needs of network users in order to effectively address them in specific corridors;
- the definition of transnational axes on which quality standards will be implemented and capacity will be developed according to users needs;
- develop means to improve coordination amongst the Member States at a regional level.

In the light of forecasts of transport demand growth, both for freight and passenger services, there is a clear lack of capacity on many major routes to respond to demand in Europe. Bearing that in mind and in light of public budgetary constraints, scarcity of energy resources and environmental goals, co-modality (i.e. the optimum use of each transport mode in combination with others) should be one of the main driving forces for the evolution of transport policy in Europe. Specifically, a business-oriented strategy is essential to the success of an international corridor approach.

As regards a business oriented approach, it should first be stressed that this must relate closely to the clients, to the users. In a business-oriented approach, capacity, quality and price should be tackled. The European Coordinators initiative and the ERTMS corridor approach have demonstrated that coordination is a key for success in implementing European projects.

However, a corridor cannot work on its own. It must be well integrated into a network. In this context, isolated corridor initiatives can represent a difficulty if there is no coordination between them to simulate the effects of a network.

Q1: What kind of benefits can a "corridor approach" bring? What are the risks involved

Q1b: Is a "corridor approach" relevant for every mode of transport?

Q1c: What are the consequences of a "corridor approach" for investment planning (short-term and long-term)?

3. Drivers at Community level for successful corridors

Some existing initiatives at European level are already well advanced in the development of a coordinated corridor approach: the ERTMS corridors, the Rail freight oriented corridors (and to a certain extent, the Brenner platform). Some of the thinking hereafter is directly inspired by their experience.

- How to make an optimum corridor selection?

Whilst the identification of specific corridor routes on the TEN-T network could be left to Member States working in partnership with infrastructure managers and other stakeholders, a number of broad criteria should drive the process. These criteria relate to the overarching objectives established for the corridors, for instance:

- good connection between transport modes thanks to good intermodal nodes (terminals, platforms, stations, ...);
- Interoperability possibilities;
- transparent and inclusive governance structure;
- significant/existing demand and/or future expansion;
- links with other corridors;
- economic feasibility/Community interest.

The definition of these criteria and the monitoring of the selection and development of corridors are critical to ensure the consistency between a corridor approach and a common policy aiming at building a network.

Q2: What are the possible methods to select corridors at European level? What should be the link(s) between rail freight corridors and TEN-T Network?

Q2b: Would it be useful to have an official European label for corridors that have been identified according to such agreed criteria?

- Identification of common methods to facilitate better coordination among Member States and between Member States and the stakeholders

Better coordination amongst Member States and between the Member States and the various stakeholders such as the infrastructure managers or the clients can be fostered and supported in several ways. The European Coordinators initiative is already one effective way to promote coordination.

Q3: Should we promote legal entities for coordination? What could be a corridor's governance body? Is there a need for a European Coordinator on every corridor?

Q3b: What form of international regulation should a corridor have?

4. How an IC approach can be a step towards the construction of a TEN-T network?

As was noted above there are examples of a corridor approach coupled with planning which have contributed to the creation of transnational networks. One of them is the high-speed railway network linking Belgium, the Netherlands, France, United Kingdom and Germany.

Considering it the other way round, it could be questioned whether it would be possible to achieve a global transport policy at the European level without passing through a corridor approach.

Q4: Could a "corridor approach" be in line with TEN-T policy? If yes, what would a corridor approach imply for TEN-T policy in matter of legal (TEN-T guidelines), political (European coordination) and financial (TEN-T financial regulation) tools?

Workshop 9

New Generation Technologies:

Medium and Long-Term Perspectives for Vehicle and Energy Technologies and their Impact on TEN-T

Policy Area(s):

Mainly Transport & Energy and Research, but also Economy and Environment/Horizon 2020/CO2 Reduction.

Category(ies):

Innovation for Transport & Energy Infrastructure (and Services).

Identified Problem(s):

- (5) The growing global and EU economy demand an even faster increase of transport capacity inside the EU. – Decoupling can so far not be applied.
- (6) The current situation in transport is characterised by ever increasing traffics, with freight increasing even faster than passenger transport. Road and air transport modes growing fastest.
- (7) Cost of energy production is steeply rising, which result in unpredictable market prices.
- (8) Strong dependence of EU on external oil & gas supply is a growing political/strategic issue.
- (9) Overall external costs (including social & environmental) are steeply rising, also because creating equal market conditions for all transport modes has failed. External costs have not been fully internalised.
- (10) Difficulty to involve private capital in core infrastructure financing (PPPs).
- (11) Difficulty to build-up integrated systems of alternative fuel vehicles and the required infrastructure.
- (12) Difficulty to create real private demand for vehicles (but also ships) with alternative propulsion. – Major consequences are high unit costs and low user-friendliness. This will continue, as long as the technological and economic status of such vehicles and the required infrastructure do not allow volume production.
- (13) Technological issues with alternative fuel technologies and fuel supply.

Objectives of the Workshop:

- (a) To take stock of the state of the art and perspectives for research, technological development, and market deployment relevant to transport, in particular regarding propulsion methods and forms of energy. (Brief overview only.)
- (b) To predict the most likely impact of this research on core transport infrastructure.
- (c) To briefly assess how EC transport policy, funding, coordination and legislation, can contribute to solve the identified problems.
- (d) To assess in particular, what role the present TEN-T Programme (2007-2013), its mid-term revision (2010) and the future TEN-T Programme (2014-2020) could play in a possible solution(s).

Basis for Discussion:

Technological developments in the transport sector will continue to move ahead, on both the vehicle and the infrastructure side. In certain areas, we are experiencing some shift in the nature of projects - from "hard" infrastructure towards intelligent transport systems and vehicles (e.g. in the case of ERTMS²⁹ and telematics applications). The combination of "natural" RTD activities, a push through oil supply problems and a growing consciousness regarding the correlation between global warming and businesses (costs of flooding, heat waves, storms etc.) makes a unique opportunity for a technological boost in transport throughout the different modes – road, rail, waterborne transport and aviation.

Innovation is to a large extent an answer to (industrial) trade & transport requirements, while it is expected to be further driven by new developments in the vehicles sector (including propulsion methods). What are their impacts on core transport infrastructure and perhaps core energy and even communication infrastructure? There are, on the other hand, also infrastructure requirements that influence technological developments on vehicles; for instance new ships with low draught, railways with gauge changing equipment and perhaps the energy supply of alternative fuels (electricity, natural gas, LPG, synthetic fuels and hydrogen).

Where will research, technological development and market deployment activities at Community level and in Member States most likely go in this respect and what is their possible impact on (core) transport infrastructure? Considering, that such infrastructure takes often a decade to build, how can we plan/coordinate and fund the appropriate infrastructure in alignment with the vehicle development? How could the EC add value with actions on EU level?

In research several innovative transport/energy concepts are at a relatively advanced stage of technological development; some are ready for deployment, some are not. Consequently, at this point in time it is probably inappropriate to make a firm decision for which concept the EU should opt for entering into mass deployment. On the other hand it may be a long time until research has solved all the technical problems for innovative new technologies (e.g. the perfect battery). Perhaps it is possible to increase the momentum for moving from research to mass application using the present state of the art, i.e. deploying an imperfect technical solution and then relying on iterative market-driven improvements? However, in this context it should be considered, that potential investors would require a political/legislative base before engaging in significant investments.

In order to minimise losses, such an evolutionary process would require building core infrastructure which is either independent from the transport units/propulsion and the energy form, or flexible enough to allow a cost-efficient adaptation to the most appropriate solution. A discussion with the parties concerned should assess, which actions, - in addition to the existing European Technology Platforms and Joint Technology Initiatives - , could accelerate the market penetration of new vehicle and fuel technologies.

²⁹ European Rail Transport Management System

As an example:

Focus on electric/hybrid drives for road transport "Evolution of Road Transport."

Selection of corridors across EU (e.g. start with 2 forming a cross: west-east & north-south) based on existing major motorway trajectories providing electrical recharging facilities for lorries (& cars) every 2 hours of lorry travel time, including the required hard infrastructure works on transport (additional lanes – minimum 2 * 3 throughout, parking spaces, etc) and energy (connection to grid) plus all other services.

Recharging services to be outsourced to industry consisting of dual functionality: (a) quick recharging service of in-built battery (target 30 minutes), and (b) exchange of battery (target 5 minutes) - mainly intended for commercial vehicles, such as lorries.

Introduction of intelligent electricity pricing system with the following dependences: day/night/special daytime - promoting less congested times of the 24 hour cycle; local alternative energy promotion through low pricing (for instance at times of strong winds, if station near to windmill farms; car/lorry differentiation in price; special short-term low offers for road sections with traffic jams to divert vehicles to the parking/re-charging areas.

Offer additional services, such as food, accommodation, etc through outsourcing via licences to private sector.

The initiative promotes the utilisation of hybrid and pure electric drives by creating an EU-wide practical application. Real demand for such drives would be created and European automotive industry would have a natural market-driven incentive to address it, providing European car manufactures, and related industries, with the opportunity to develop to being the first address for such technology in the world.

In fact it would be possible for a normal household to justify buying a hybrid or pure electric drive car or a trucking company to invest into lorries with such drives, because they can be used to cover large distances despite the battery problem, without wasting time by waiting for much improved batteries, which could easily take a decade.

The hard infrastructure works for transport should be borne by the public sector. The hard infrastructure for energy could possibly be outsourced to the private sector, at least partly.

All services could be outsourced to the private sector, but pricing for electricity and utilisation fees should be controlled by a public entity (because of the inherent monopoly introduced by single charging stations every 2 hour lorry drive). However, in case real competition can be created in such a station, public control could be reduced or even avoided.

Some very preliminary additional thoughts on how to make the purchase and use of pure electric and hybrid drive vehicles more attractive to the general public, i.e. to reach the critical numbers for mass application:

- a. Refund to vehicle user based on external costs saved by such a vehicle when compared to their pure- fuel-motorised counterpart of the same model, where the user can choose between a flat rate determined by averages (mainly for private cars with normal mileage) and detailed accounting for distances covered by the electric drive (mainly for commercial vehicles or vehicles above a threshold of kilometres, e.g. 30000 km per year).
- b. But, normally no general special vehicle tariffs for electricity, except for congestion steering where there is a public interest to reduce related external costs (see mechanism, briefly outlined above).
- c. Except, for recharging by (distributed) local alternative electricity production (e.g. (1) photovoltaic on roof of private house, re-charging of vehicle battery in garage or (2) photovoltaic on mayor's office building, re-charging of vehicle batteries on central city parking area).
- d. For a limited period as start-up incentive: Creation of dedicated legislation to give further financial incentive for the utilisation of zero-emission vehicles (tax-reduction).

Several instruments of policy making are available at EC level. As a concrete example, could TEN-T be used as a platform or frame for the deployment of infrastructure-relevant new transport projects (including the required energy form) which would help solve the identified problems? There is a range of existing funding programmes at Community level, which could be used in the short term for pilot actions and in the medium-term and long-term be possibly upgraded to full actions for addressing the problems. The financial mid-term of the EC in 2010 and the start of the new financial cycle in 2014 are significant opportunities for innovation in transport (and related energy/environment/economic issues).

Desired Results of the Workshop:

While addressing the stated objectives:

- 1) To provide innovation driven possible solutions for inclusion in the Commission's up-coming Green Book on Transport.
- 2) To arrive at recommendations for existing funding programmes of the Community (to carry-out pilot actions).
- 3) To arrive at recommendations at least partially relating to the mid-term review of the current TEN-T Programme (guidelines & financial) and the future TEN-T Programme (2014-2020).

In any case the workshop is intended to act as an open forum to freely discuss any issue relating to transport infrastructure.

WORKSHOP 11

Waterborne Transport: Development perspectives and future infrastructural requirements

What is Waterborne Transport:

Waterborne transport consists of maritime transportation, deep-sea and short-sea shipping, inland navigation, sea-river shipping, port operations and the part of land operations which consists in cargo handlings/transshipment between the waterborne transport system and the other modes of transport. In the transportation domain, waterborne refers to the waterway arteries relative transport activities, vehicles/handlings technologies, and operational/organizational management. Characterized by (1) less pollution, (2) less energy consumption, (3) lower transport cost, and (4) higher free capacity, waterborne transportation is a well promoted transport mode for cargo transport in EU, in conforming to the current European transport policy (see White Paper on European Transport Policy 2001 as revised in 2006), to contribute to a balanced development of the transport system. In particular, the promotion of waterborne transportation is regarded as an effective measure to reduce environmental impacts while sustaining mobility, which is considered as the natural consequence of economic growth.

Recent statistics indicate the significant development of waterborne transportation in the global transport market shares as the effects of waterborne transport promotion and of the development of intermodal transportation. The most remarkable growth in waterborne transport is found in the short-sea shipping segment. However, even if it shows the highest growth among waterborne operations, it cannot yet catch up with the growth rhythm of the road transport mode. Technical revolutions had changed the images of waterborne transportation from the traditional service systems (bulk freight, low speed, etc.) to the modern intelligent systems (telecommunications, traffic and transport management tools, JIT (just-in-time) and other optimisations, etc.). The future waterborne transportation service will become more and more flexible, intelligent, transparent, and easy to use. It will play an important role in modern (transport) economics.

Benchmarking !

*Sustainability in Transport : - Inland Waterways Transport (IWT) in a nutshell
IWT uses 3 times less energy and emits 3 times less GHG than road transport. An average IWT vehicle can load 1,000 tons, which is the equivalent to 40 trucks! This has a double benefit – fewer trucks on the road and fewer costs for the company transporting the goods. The EU has a waterway network of more than 35,000km covering large to small rivers and canals. If the cargo currently shipped by inland waterways was carried by road, emissions to air in Europe would be at least 10% higher. It can be imagined how much they would be reduced if IWT became a more preferred transport option.*

- IWT is cheap (storage costs are reduced by combining low cost buffer storage with prompt delivery times).*
- IWT is reliable (the only transport modality with spare capacity and no traffic jams).*
- IWT is safe (fatal accidents are near to zero).*
- IWT is flexible for both short and long-distance haulage.*
- Ships are quieter than trains or trucks, helping to reduce noise pollution within busy urban environments*
- In Germany alone some 400,000 jobs directly or indirectly depend on the inland waterway sector and related companies.*

CURRENT SITUATION

At current trends for the increase of transport, the EU is expected to face an increase in transport of up to 50% in 2020 compared to 2000 levels. 45% of total EU freight transport takes place on the roads, a share of transport which continues to increase gradually at the expense of all other transport modes, including waterborne transport.

Without drastic measures, congestion will impede a healthy growth of the EU's economy, its costs already today amounting to 100 billion € or 1% of GDP and the corresponding CO₂ emissions, pollution and other negative impacts will further drain the sustainability of the EU's economy and the quality of life of its citizens.

Of all transport infrastructures it is in particular waterborne transport network which disposes of ample free capacities e.g. sea lanes, ports and inland waterways. Nevertheless these resources are not endless and need to be prepared to face the future needs, as for inland waterways, where currently some 40% of sea-tonnage from Antwerp and Rotterdam is carried on inland barges, a heavy growth in demand is expected whereby for 2020 it is forecasted for IWW a global modal share of up to 10%. The required inland waterways network exists to a large extent but is not yet ready to deal with this magnitude of transport demand and needs to be timely prepared.

Although having a vast potential to absorb transport demand, the waterborne sector needs to further improve its global performance. In this context, there are four essential areas where improvements are particularly relevant:

- Efficient land infrastructure, ports and hinterland connections particularly those concerning inland waterways, rail as well as intermodal terminals.
- Increased efficiency in operations (covering all internal elements e.g. maritime, ports, inland navigation, vessels, vehicles, platforms, and terminals)
- Development of a consistent, seamless and interoperable information network (e.g. logistic information, customs clearances and traffic and transport management – supporting JIT concepts and using technological tools and concepts such as : RIS and VTMS)
- Deployment of a seamless transport network between the ports (both sea ports and inland ports) and their hinterland, i.e. fully integrating waterborne in the door-to-door chain.

Furthermore and in order to achieve high performance standards on all the above parameters, waterborne transport infrastructure needs to be improved in a holistic way, i.e. not only with a view to magnify all those elements relating to transport performance but with a primary concern to improve all the factors determining its increased sustainability as well.

CHALLENGES:

Ports

As a result of the growth of the world economy and further integration of the European Economic Area, demand for maritime services is increasing. Seaborne transport at EU ports between 2001 and 2005 grew over 3% per year (based on tonnes carried). In 2006 3.7 billion tons were handled by in EU ports.

A prudent forecast on port traffic, would assume a growth of at least 2% yearly over the next 10 years, including at least 6% and 3% increase on the fastest growing cargo categories being containers and ro-ro. This would entail the need for extra port capacity on the amount of 1,5 billion tons (Optimar Study on Benchmarking strategic options for European Shipping and for the European maritime transport system in the horizon 2008-2018) or 30 000 ha of new port land with its accompanying infrastructure.

The main challenges for ports for the next decade can be summarized as follows:

1. Port capacity:

For the last three decades, ports have been facing a steady pace of growing traffic which created congestion and the need to expand for enlarging port capacity. But port expansion involves occupying new land areas and water bodies and deal with adjacent high natural value sites for which port developers are required to follow long decision-making procedures. This makes provision of additional port capacity costly and needs planning well in advance. Furthermore, expansion of port infrastructure should be accompanied by proper maritime access and inland connections, both being not directly exploited. For these two reasons private investors should be associated in new port developments after providing sufficient legal certainty on financial issues related to public-private partnership and after providing accurate estimation for environmental costs in building the new facilities (i.e. mitigation and/or compensatory measures).

Against this background the challenge would be how TEN-T policy can contribute to create the best possible business framework for

- an efficient sharing of financial responsibility between public and private promoters for securing port access and enlarging port infrastructure to cope with future port traffic and,
- an optimal/appropriate planning instrument for ports to be able to show their sustainable and environmental potential and to complement other common policies in order to improve the quality of life and environmental values as a whole.

2. Integration of ports in the logistic transport chain

Congestion is the main obstacle for integration of ports into integrated logistics services. The question immediately arises on how to increase capacity of inland connections, how can TEN-T policies contribute so that ports can benefit from rail and IWW transport and how new arrangements can result in a gain in capacity at the gates of terminals. And this applies not only to immediate hinterland connections but to further inland infrastructure where bottlenecks not perceived as such (i.e. for the rail network) may be significantly hampering port efficiency and competitiveness. For this reason port managers are forced to invest outside their port and build dry ports to provide alternative logistics solutions to eventually maintain its throughput.

The Logistics Action Plan encourages integration of transport services through the extensive and intensive use of information and communication technologies in freight and announces the e-freight and e-customs initiatives. Integrated transport chains would necessarily be using high quality infrastructure along the green corridors. How can ports best meet the technical requirements of the green corridors as main infrastructure nodes of the transportation system? In addition, technical parameters should also secure interoperability so that maximum benefit is brought from multimodal solutions. Therefore it is also questioned whether any port infrastructure or facility or equipment is potentially subject to technical standardization setting

on the top of international codes already providing some standards for civil works or handling equipment.

3. Port security

Implementation of new security measures in port facilities (Regulation 725/2004 and Directive 2005/65/EC) has recently shown to what extent ports can contribute to the achievements of improvement up and downwards along the transport chain. The question is therefore whether these new security measures can also influence the quality reliability, and cost efficiency of transport and whether TEN-T policies should address new challenges for IT requirements for cargo movements through ports, including tracking and tracing of cargo and tolling systems. Public administration services will benefit from the Maritime Space without Barriers including: simplification of customs clearance procedures, simplification of dangerous goods notification procedures, full implementation of FAL forms, single window (e-logistics, e-maritime) and physical segregation of traffic flows within ports. Shippers have welcomed all these initiatives, although port managers and terminal operators will face a substantial workload to implement them. Thus, how will TEN-T speed up this process which aims at the integration of ports in the TEN-T network?

4. Integration of ports in the territory: land planning

The increasing relevance of the role of ports in the TEN-T network/corridors is becoming crucial for freight transportation in the EU. Thus, ports need to grow and expand according with the rest of the network despite the physical reorganisation and/or upgrading of ports. There is a need to counter-balance port concentration. Port concentration brings economies of scale and efficiency of operations, but small ports improve maritime accessibility to all coastal territories and can accommodate efficient SSS links including MOS and substantially support inter-modality. A more sustainable growth of the port system in Europe will bring cost efficiency and further gains of reliability to the whole TEN-T network. Finally, port development decisions supporting one or the other option (promoting concentration of large ports vs. supporting small/medium ports) should always take into account, on the one hand, economic benefits for large territories served by big ports (e.g.. the whole country) and, on the other hand, costs and benefits for the areas around a port (social, economic and environmental impacts).

Thus the inevitable question for the future of the TEN-T network is whether it should favour port prioritisation and whether the current categories of ports (A, B and C) properly reflect the present needs of the port industry.

5. Maritime and port traffic management

Directive 2002/59 on vessel traffic monitoring triggered the process by which port managers became fully aware not only of the need to guarantee high level of safety in vessel movements but also of taking advantage of traffic control to provide the port users' community with relevant information to facilitate shippers to do the tracking of their shipments along the whole transport chain. The interconnection between the VTMS and RIS and other intelligent tracing systems of vehicles should be promoted.

As for the level of automatisisation and availability of information on port services provision and port traffic passing through EU ports, it is worth discussing about the minimum requirements which ports included in the TEN-T network should satisfy.

Inland Waterways (IWW)

In the EU, inland waterway transport (IWW) ranks third in inland freight transport after road and rail with ca. 500 million tons and 140 billion ton-kilometres (tkm) per year. The IWW, offers a 35.000 km congestion-free network connecting cities across Europe. Half of this network is accessible to 1 000-ton vessels.

The importance of IWW in the various countries and regions shows a great diversity, and the waterway networks vary greatly, mainly due to geographical and hydrological realities.

The IWW network consists of approximately 37 000 km of waterways. The core network with around 12 000 km rivers and canals of international importance (Class IV and higher) represents the TEN inland waterway network. It is interconnected and links 12 Member States. The remaining network is made up by smaller waterways (Class I – III) providing feeder services to the main network or at regional level. In addition, the network is composed of several hundreds inland ports and transshipment sites. Most European economic centres are connected by inland waterways.

The core network can be divided in four corridors:

- **the Rhine and its tributaries** (Netherlands, mid-western Germany, north of Belgium, Luxembourg, France and Switzerland),
- **the East-West corridor** (northern and eastern Germany, Poland and Czech Republic)
- **the Danube corridor** (south-eastern Germany, Austria, Slovakia, Hungary, Romania, Bulgaria) and
- **the North-South corridor** (parts of the Netherlands and Belgium, France).

Furthermore, isolated waterways systems exist in the UK, Finland, Sweden, Lithuania, Italy, Spain and Portugal and contribute to the transport system at regional level or can play a role in sea-river transport.

Contrary to the other transport infrastructure networks, the IWW network has ample free capacities which are already available or can be activated with relatively limited financial investments. However, the efficiency and competitiveness of transport operations by inland waterways are largely determined by the quality and conditions of the waterway infrastructure, problems being in particular inadequate fairway depths, widths, lock capacities and bridge clearances. Such local and large-scale bottlenecks exist throughout the whole network. Efficient management tools such as River Information Services (RIS) would contribute to optimise the utilisation of the existing infrastructure.

However, in order to ensure the continuity of inland waterway transports in the long run, efforts need to focus in the first instance on the systematic safeguarding and improvement of the navigability of the **core network**, i.e. by

- the maintenance of the respective waterway,
- the elimination of bottlenecks and,
- where necessary, the upgrading of particular sections to the predominant waterway standard.

The **secondary network**, which is increasingly neglected, needs to be reassessed in view of its feeder function to the main network. Therefore, the **extension** of the existing network, i.e. by closing gaps ("missing links"), such as for example in the medium term the connection between the Rhone and the Rhine or, in the long run, the connection between the Danube and the Elbe and the Oder might be the exception but should be studied.

In the longer run improvements must also take into account the possible effects of **climate change** which are likely to affect the navigability of the waterway networks in terms of availability, operation, fairway, size and draught of vessels. Nevertheless not only physical works and developments are relevant on this; enhanced and highly accurate information on the navigability and conditions of river sections as provided by River Information Systems can help alleviating these effects.

River Information Services (RIS)

By 2020, Fairway Information Services may be provided not only for major European waterways, but for all navigable waterways. Efficient update procedures, especially with relation to actual depth information and dynamic information (e.g. water level information) shall be available for skippers. Notice to Skippers information will be provided by every RIS provider, so that route planning will be supported with automatic information from authorities. These services should not only be used by cargo and passenger vessels, but also by pleasure craft.

An efficient inland waterway network depends on a well functioning infrastructure, which on the one hand requires sufficient financial means to address essential infrastructural bottlenecks, and on the other hand efficient management tools such as River Information Services (RIS) to optimise the utilisation of the existing infrastructure, including locks, ports etc. Shifting more freight to inland waterway transport will also contribute to achieving CO₂ reduction targets, and RIS will further enhance the environmental performance of inland waterway transport by adapting cruising speeds and therefore reducing fuel consumption according to lock or berth availability.

Traffic-related RIS services could be provided by a network of interconnected RIS providers. The conditions for international data exchange should be implemented and the single window concept realised. All relevant users at governmental (e.g. customs authorities) and logistical level (e.g. cargo shippers) will be able to retrieve the information services according to their needs.

Vessel tracking and tracing can be performed throughout Europe and contributes to traffic management as well as to enable key actors such as freight forwarders and cargo shippers (transport-related services) to monitor the status and manage deviations on logistic chains.

RIS services should be fully compatible and interoperable with port and other relevant transport modes' systems as well as integrated with the systems of logistic service providers, in order to enable an 'as much as possible delay-free' operation and the smooth integration of IWT into overall transport logistics chains.

RIS Services are expected to make use of the state-of-the-art navigation and communication technologies. Galileo services are expected to be used especially for safety-relevant RIS Services, terrestrial communication is expected to be supplemented by satellite communication.

As regards a revised TEN-T infrastructure policy, RIS should continue to be a topic under the Multi-annual Programme (MAP) also for the next financial period(s). Deployment activities should continue in line with technological developments and emerging RIS services. However, the scope of RIS deployment activities will enlarge in a way that interfaces with nodal points and other transport modes become equally important. In addition to the deployment of RIS services

by the national RIS providers, measures for the rapid implementation of RIS for logistical RIS users shall be adopted.

Motorways of the Sea (MoS)

Concerning the quest for optimum performance for Waterborne Transport on the global logistic chain, Motorways of the Sea encapsulates an integrated solution to the complexity of a seamless transport operation. In fact, it constitutes an ambitious concept which aims at developing highly integrated transport chains that face the following challenges:

- MoS solutions are more complex than door-to-door road transport solutions. MoS development requires the availability of the necessary equipment, services and infrastructure across the door-to-door transport chain, implying the co-operation from various actors in the transport chain (public and private) and raising challenges for the management of organisational and administrative complexity and the financial engineering of the venture.
- The short sea shipping sector is still not yet sufficiently integrated into the door-to-door transport chain. Users have to deal with various operators to bring goods to their destination and have a tendency to opt for road transport as an "easy" solution instead.
- Equipment, operations and infrastructures in ports are not always sufficiently adapted to the Motorways of the Sea, who need highly available, reliable and efficient services, adequate infrastructure in ports for transferring goods to road, rail and inland waterway modes, less bureaucracy and attractive pricing conditions.
- Bottlenecks often exist in the hinterland connections to the ports, dry ports in the hinterland with good connections to the sea ports that allow concentrating goods, are often lacking.
- A stable social climate is crucial for a Motorways of the Sea service which depends above all on its reliability and reputation
- Motorways of the Sea needs time to build up a reputation in the market and to reach the point of economic viability. Public support can therefore be vital to trigger their deployment
- Finally, and as the concept is implemented in a bottom-up type of approach, this makes its advancement dependent upon the proposals coming from the market. It is necessary to ensure that Motorways of the Sea are close to the needs of the transport users.

These challenges can all be addressed given time and political willingness to change the organisation of transport logistics in the interest of Europe's sustainable economic growth. A further complicating factor in the deployment of the Motorways of the Sea is fragmentation and complexity of public support instruments that can help their financing. TEN-T, Marco Polo, state aid guidelines as well as cohesion and structural funds have differing funding scope and funding conditions and use different criteria to qualify projects as Motorways of the Sea.

The TEN-T guidelines have been the first EU legal instrument that defines Motorways of the Sea and provides support for it. The revision of the guidelines presents a major opportunity to assess progress with the implementation and to define a new framework for supporting the Motorways of the Sea in such a way as to provide new impetus to its deployment.

The following issues are relevant in this respect:

- Coherence in funding conditions across EU Community instruments. Funding conditions in Marco Polo, TEN-T and State aid guidelines for maritime transport have slight differences. The revisions of the Marco Polo and TEN-T instrument provide an opportunity to make funding conditions coherent across these instruments.

- TEN-T guidelines should be revised in order to reflect a clearer and more encompassing definition of the concept. While leaving the flexibility necessary for the different applications. This would help stakeholders and promoters to better target their projects and consequently favour the development of concrete projects.
- Simplification of procedures for providing public support to Motorways of the Sea. TEN-T funding now requires participating in two separate calls for tender, one at Member State level and one at the EU level, increasing bureaucracy and delays for receiving funds.
- Identification of other enabling conditions for making Motorways of the Sea successful. Member States and regions could take further measures to promote Motorways of the Sea and make them more attractive. Measures such as promotion campaigns, rebates for port or rail/inland waterway dues, tax rebates can be important incentives helping to make the Motorways of the Sea more attractive.

Further measures should be taken to make Motorways of the Sea more sustainable. Even if short sea shipping is the most efficient transport mode in terms of CO₂ emissions and energy efficiency per tonne kilometre, overall pollution from short sea shipping is rising and further measures are needed to reduce energy consumption and emissions of pollutants. Research into environmental improvement is necessary, but already today TEN-T funds could increase the incentives for measures that can already be deployed to further improve the environmental record of Motorways of the Sea, making this transport alternative even more attractive.

Questions:

- What are the necessary policies to be incorporated in the TEN-T Guidelines for ports to continue growing without facing overwhelming bottlenecks located inland (especially along the railways lines), as these bottlenecks impede taking advantage of existing high performance port operations and shipping? Would it be the case for a new approach to TEN-T corridors planning so that coherent and harmonious development of port and inland infrastructure is guaranteed?
- Is there a need to clarify the concept of Motorways of the Sea and to revise the procedures to provide public support? [The Commission's report on the Motorways of the Sea brings a new definition which goes beyond the implicit definition contained in the current TEN-T guidelines. There is an opportunity to bring further clarification by introducing in the guidelines further criteria to which Motorways of the Sea should correspond or at least strive at. These new criteria could become common criteria for public funding of Motorways of the Sea projects and the procedures could be further streamlined]
- How should TEN-T be oriented to promote compatibility and integration of IT systems (VTMIS, RIS, ERTMS, etc) used for infrastructure management in order to substantially enhance the performance and relieve congestion faced by many EU ports? What is the role of Galileo-based IT services which could help the most and what priorities do you suggest to set for these services in particular?
- How to improve Waterborne Transport Infrastructure and Operations whilst improving its sustainability performance?
- How to incorporate innovation better in Waterborne Transport, i.e. how to speed up the deployment of innovative technologies and concepts in the infrastructure and in operations?
- Is connectivity of land infrastructure as a whole (ports included) improving at the same pace as transport services are becoming integrated?

- Should land-use planning and other policies aimed at developing a more sustainable transportation system be given TEN-T support to invest in small and medium ports? Should big ports be assisted by TEN-T funds so as to guarantee proper access and, eventually, a level play field for port service competition?

More Inland Waterways Transport - is this the solution to Juggle between rising fuel prices and traffic jams?

Why not extend RIS for transport management activities across all surface transport modes? [IWT, one of the oldest transport modalities, also has one of the most up to date navigation and communication methods through RIS. RIS enables real time knowledge regarding ship movements, cargo contents and other related data, making waterway management smooth-sailing].

- How to cover more consistently and better support Waterborne Transport in the TEN-T by improving guidelines unifying/integrating the development of ports, MoS, IWW, RIS, etc.?

Workshop 12

Ensuring an optimal funding of the TEN-T infrastructure

This paper sets out to take stock of the situation regarding transport infrastructure funding, submit the findings for discussion and test ideas for making funding effective. It is hoped that a debate can be launched about concrete actions which could be taken up in the course of a revision of trans-European Transport Network (TEN-T) policy.

1. TEN-T financial needs

Implementation of the TEN-T networks requires substantial amounts of resources. Based on information from the Member States, the overall cost of the network is EUR 900 billion³⁰ and nearly EUR 500 billion still needs to be invested until 2020. Completion of the priority projects alone requires more than EUR 250 billion. Despite the commitment of the Member States many of the major projects have fallen behind the original timetables. Lack of funding, plus the enormous complexity of these ambitious infrastructure projects, are the most important factors which impede the Member States from timely completion of their parts of TEN-T. Now, in the framework of the revision of the TEN-T policy, it is worthwhile to debate whether and how the current situation could be improved and to define the role of the TEN-T policy in this respect.

2. Funding of the TEN-T – current state of play

The constantly increasing demand for transport infrastructure³¹ does not seem to be reflected by a corresponding increase in amounts earmarked for investing in transport infrastructure in national budgets. During the 1980s, the Member States invested, on average, 1.5% of their GDP in transport infrastructure. Currently, only some new Member States reach this level, whereas the EU27 average went down to less than 1%³². This level of investment means that we are not even maintaining the infrastructure built by our parents and the underinvestment is mounting. Transport infrastructure must compete with other policy priorities and clearly many of them are perceived as being more politically pressing at the moment. Moreover, in the case of the infrastructure of European interest, these investments have to compete with purely national projects and therefore it is even harder to ensure the long term commitment of individual governments. The Community budget, with its limited resources earmarked for the development of the TEN-T, is used to reinforce the continuity of the commitment to European projects and to assist the implementation of the TEN-T programme.

Governments often point at the constraints on public borrowing imposed by the stability and growth pact, which limits the national public borrowing to a maximum of 3% of GDP, as the reason for their inability to increase investments in both the national and the TEN-T networks. Considering that the 3% ceiling on borrowing is set higher than the long-term average level of gross public investment level (1.5-2%), an increase of the ceiling or an attempt to exclude some expenditure when calculating the deficit would not solve the problem. A shift in public expenditure priorities may still be the most effective solution to underinvestment; however, it is not easy to carry out since it often requires strong political will followed by radical budgetary adjustments.

In view of the budgetary constraints, the limits on borrowing levels but also in the light of possible efficiency gains Member States increasingly turn to alternative models for infrastructure delivery; these are based on a stronger involvement of the private sector in financing, delivery and management of infrastructure including all forms of Private Public Partnership. Private financing is not a 'fix-it-all' solution to the funding of infrastructure. However, innovative

³⁰ From 1996 to 2020

³¹ By 2020 the growth of 34% in freight and 27% in passenger transport is expected in the EU (based on ASESS study for the reference period of 2005-2020)

³² According to the research carried out for the TEN-T Implementation Report 2004-2005, the EU27 investment only in the TEN-T infrastructure is on average only 0.45%

financing models, including private financing, help in increasing efficiency and accessing new sources of borrowing which can be useful in bringing infrastructure on stream more quickly by reducing dependence on governments' budgeting cycles. Having made this point, it is important to note that new financial resources are not created per se; private financing is de facto a mere payment postponement. Taxpayers and/or infrastructure users will ultimately have to pay back the loans and remunerate the private sector. Nevertheless, relying on the future beneficiaries to contribute to the costs of the new infrastructure is a sound and fair option. It is justified because such infrastructure enables development and brings socio-economic benefits which exceed the bill to be paid. The TEN-T infrastructure, which is the backbone for the functioning of the internal market, is an excellent illustration of such equation.

Several avenues to make the management of the limited resources more efficient and to locate new possible options for funding could still be explored. The funds available – especially those provided by the governments and the Community budget – are often poorly coordinated which makes them less effective. Private investment in turn remains difficult to access, highly selective and far from sufficient to meet the funding requirements alone. A framework better adapted to the infrastructure financing problems is clearly needed to meet the challenges of building the true trans-European networks.

3. In search for an optimal funding – options to be considered

It seems reasonable to assume that the majority of the infrastructure will still require public funding either in its totality or for the parts needed to assure the financial viability of the projects. One should search for efficiencies in the current funding models and look for new solutions and financial means. Some ideas are outlined below, and more essentially, some questions have been listed in order to trigger further debates.

3.1 Long term planning, need for efficiency and a stronger commitment to the European Networks

It is important to enhance the commitment of the Member States to long-term network planning i.e. to implement both the TEN-T priority projects and the background TEN-T network, and to avoid that changes in national government mean that the infrastructure development priorities of that Member State also change. A change of political priorities in one country along a transport corridor should also not put into question the ongoing and planned investments in the other countries along that corridor. Political decision-makers should accept their responsibility to provide long term infrastructure development programming (10-20 year strategies) and adequate financial decisions (5-10 year statement of commitments to an identified pipeline of transport projects). Fulfilling these requirements would allow for a better coordination of the delivery of major projects, increase overall efficiency of the TEN-T system, secure transparency and introduce greater certainty which is essential for increased involvement of the private sector. An increase in efficiency and indirectly a decrease in funding needs can also be achieved at a project level by improved long term planning. Improved project preparation including feasibility studies better outlining the economic opportunities of the project, correct dimensioning of the infrastructure and its timely delivery synchronised with the network development, would result in project costs savings reducing funding requirements.

- What instruments, going beyond the current TEN-T guidelines and the TEN financial regulation, could we envisage to ensure a stronger commitment of the MS to the agreed TEN-T priorities?³³
- Should we have a technical assistance body at the EU level which would improve and accelerate preparation of TEN-T projects (similarly to what JASPERS does)?

³³ This question is further developed in the issues paper for Workshop 10 "Instruments to implement the TEN-T policy: records and potentialities"

3.2 A better coordination of the EU resources

One of the most striking aspects raised by implementation of major projects is the lack of coordination between the different sources of public funds. The Community share in the development of the TEN-T is relatively high – the EU budget provides approximately 13 per cent of the overall funding of TEN-T through grants and the EIB advances on average a further 16 per cent in the form of repayable loans. For the period 2007-2013 in particular, the TEN-T budget is expected to provide 2.1% of the TEN-T overall investment needs, 8.9% will come from the Cohesion Fund and 2.1% from the European Regional Development Fund.

The TEN-T budget and Cohesion Fund are the most important providers of Community support for the implementation of the TEN-T projects but their roles, availability, as well as the way they are managed vary substantially.

Assistance from the TEN-T budget, on the one hand, is intended to act as a catalyst for starting up projects, by demonstrating their feasibility and economic and financial viability. It can also serve as a lever to mobilise other sources of funding, both private and public, and to provide easier access to loans. With its low rate of support to project construction costs, the leverage effect can be very high, but often it is not a sufficient incentive to start up some of the TEN-T projects. Besides, the rather limited budgetary resources do not always allow us to apply the maximum rates to projects introduced by the new TEN financing regulation revision in 2007 (up to 30% in case of cross-border sections of priority projects).

The Cohesion Fund, on the other hand, can make a significant (up to 85% of the total cost) contribution to projects. It gives the Community considerable weight in the programme to implement projects while complying with the subsidiarity principle. The Cohesion Fund can be very conducive to the development of the TEN-T but its availability is limited to the "cohesion countries". The leverage effect of the Cohesion Fund is lower than in case of the TEN-T assistance; moreover many countries have difficulties with turning the Cohesion aid into concrete projects and are criticised for low absorption rates

The TEN-T is managed by the Commission and the Cohesion Fund in managed by the beneficiary Member States themselves, which complicates both the planning and implementation phases of the TEN-T. In line with the TEN financial regulation, the major share of the TEN-T aid supports solely the priority projects. Thus, it is in the interest of the Member State to apply for financial support for projects, which are on the priority axis. The Commission can, through selecting the projects to be supported, ensure a continued commitment to the implementation of these priority projects. On the other hand, although the Cohesion Fund regulation supports TEN-T and in particular the priority projects, it is managed by the Member States and only at the programming stage can the Commission try to ensure that appropriate priority is given to the implementation of the priority projects. Nevertheless, the priorities can change during the programming period. In some cases this may lead to spreading of resources across a number of smaller projects which eventually put at stake some of the TEN-T priorities.

In a perfect scenario, one could envisage an organisation which, on the one hand, assists national authorities to make the best use of the available Community resources (advise on strategic combination of separate funds, making the best use of the most appropriate instruments including those of the EIB, ensuring a maximum leverage effect) and on the other hand, overseeing and coordinating the implementation of the TEN-T network and ensuring the commitment to individual projects. It might involve bringing closer together the management of the TEN-T budget and the Cohesion Fund resources within the limits set by the subsidiarity principle.

- How could the contribution of the EU funds to the TEN-T be improved and better coordinated? For instance, how in practice could the management of the TEN-T and Cohesion Fund budgets be aligned? Could the Trans-European Network Executive Agency play a role here bearing in mind the concentration of the TEN-T project management there?
- Should the Commission require the Member States' commitment to the list of key projects which is an integral part of their Operational Programmes?

Review the level of the TEN-T budget

Without questioning the overall success of the TEN-T policy, the existing budgetary resources have been shown to be insufficient. The project promoters are calling for a higher level of the Community assistance. Last year, in the multiannual and annual calls for project proposals, the demand for the grants exceeded the available resources roughly 2 times³⁴ over in case of the multiannual and 8 fold in case of the annual call for proposals. More than 11.5 and 0.95 billion EUR of grant support have been requested from the limited 5.1 and 0.11 billion EUR multiannual and annual allocation from the TEN-T budget. Not only did some good project proposals have to be rejected but also the support rate requested had to be decreased. In this context, it is hard to see how at the Financial Framework 2014-2020 the EU will be able to avoid a debate about a substantial increase in the Community funds for building TEN-T.

In the past the Council cut back the Commission's request for the TEN budget increase to 20 billion EUR for the Financial Framework 2007-2013 (approved amount EUR 8 billion), turning instead to the EIB to increase its financing of transport and energy projects.

The achievements of the EIB as the major financier of the TEN-T should not be underestimated. However, as more and more TEN-T projects enter into the construction phase, there is a growing need for grant budget to fill the gap between the financial rate of return and the socio-economic return reflecting broad benefits to the economy and society at large. Moreover, one cannot forget that Community grant funding has the advantage of being longer term than the national one and therefore it is a necessary tool to up-keep the commitment to the major European projects.

Adjusting the tools of the Community support

Aside from an increase in the TEN-T budget, one needs to explore options for better applying the present instruments and searching for new ones for Community support. Grant financing and the EIB borrowing activities are the standard mechanisms of the Community support to the TEN-T projects. Examples of the Loan Guarantee Instrument for the TEN-T project which allows for an unprecedented leverage of the Community resources³⁵ as well as the Risk Capital Facility – a pilot initiative for equity provision activity under the TEN-T budget - prove that the Community resources can be successfully channelled to projects in new and innovative ways. The objective behind diversifying the portfolio of available tools is to increase the leverage effect of the budget (often by facilitating the involvement of a private partner), to adjust the support to the particular needs of a project, to enable effective project structuring (equity provision) and to enable instruments which would favour the greening of transport activities. Moreover, now in times of a liquidity crisis on the market, increasingly affecting the TEN-T projects, one should examine possible options for increasing the access of projects to long-term, affordable borrowing.

- Should we, in addition to LGTT, consider using the TEN-T budget to contribute to risk provisioning in the EIB loans (risk sharing with the EIB) in order to increase the EIB's ability to accept "less bankable projects"?³⁶
- Could we consider the role for the EIB as a means of facilitating direct access to the markets by TEN-T projects? The EIB would be involved in setting up an investment vehicle - issuing project bonds which would be secured on the future revenues (tolls, track access charges) with, if needed, support of the EIB jointly with the Commission to cover any shortfall (guarantee).

³⁴ It is noteworthy that prior to the call the Commission services instructed the national authorities to limit the number of applications to a realistic minimum

³⁵ 1 bn EUR earmarked jointly by the Commission and the EIB is to support 20-40 bn EUR of aggregate investment loans volume and enable setting up 30-40 privately financed TEN-T projects

³⁶ With the TEN-T budget support the EIB could consequently increase its lending to projects that cannot be financed by private banks

- Could the EIB and/or the TEN-T budget start providing equity directly to the projects?³⁷ In the past the EIF already successfully provided equity investment in the TEN-T. Currently, to some extent the EIB provides equity indirectly through participation in infrastructure funds also active in TEN-T.
- What other role for the EIB? More direct involvement in projects including project preparation and an extensive technical assistance?
- What other mechanisms should one explore for combining the current Community instruments with other sources of funding, be it public or private?

Community Guarantee Scheme

Guarantees provide an essential service for loan activity since they cover some of the associated risk. There are no formal obstacles to setting up a Community guarantee instrument for TEN-T which could operate in a similar way to the existing Guarantee Fund for external lending operations. It might however involve earmarking of additional Community resources or using the grant budget available. Such guarantee fund could be used to secure TEN-T lending of financial institutions such as EIB, EBRD or KfW or to guarantee bond issuing activities of individual TEN-T projects. Such a fund could also be used to secure investments in particular types of projects such as cross-border schemes or those contributing to greening of transport objectives.

- Would a project guarantee instrument represent a valuable extension to TEN-T grants?

Creation of an EU-wide TEN-T infrastructure fund

Some TEN-T projects are affected by a strong geographical asymmetry between the benefits at Community level and the financial costs and externalities associated with the investment. Such projects, especially those of a cross border nature, face major difficulties with assuring necessary funding, even though, they could often benefit from an increased TEN-T grant support of up to 30%. There are those who advocate that the EU should assume greater responsibility over such projects and the setting up a dedicated EU-wide TEN-T infrastructure fund solely earmarked for their funding requirements. The financial resources for the fund could come from the Community budget or, in a more sophisticated model, from earmarking a small fraction of the transport related taxes (fuels) or user charges collected by Member States.

- How feasible it would be to allocate a share in fuel taxes collected in the EU to TEN-T (share directly linked to the transit traffic for instance)?

3.3 Greater involvement of the private sector, pension funds and dedicated infrastructure funds in infrastructure financing

Transport infrastructure assets provide secure, long-term cash-flow streams which are sought after by investors such as pension funds and life assurance companies who have long investment horizons. The amount of funds in the hands of such investors is increasing steeply in line with the trend towards funded pension schemes³⁸. One could imagine that it could be a perfect match in case of the TEN-T projects and it could be worthwhile to examine how to effectively channel these funds into the projects.

Pension funds tend to be harnessed for public infrastructure investment by way of government bonds. But mechanisms which would allow for direct participation in infrastructure could also be envisaged. Investment funds specialised in infrastructure projects could well serve as vehicles for involving the pension funds assets. Such infrastructure funds, which specialise in the

³⁷ Equity participation of stable institutional investors in a project may be needed to comfort private banks in providing long-term finance to the projects

³⁸ In January 2008, The Economist reported that Morgan Stanley estimates that pension funds world-wide hold over US\$20 trillion in assets, the largest for any category of investor ahead of mutual funds, insurance companies, currency reserves, sovereign-wealth funds, hedge funds, or private equity

inception and management of assets in the transport sector, could act as a new breed of project promoters ready to share the project risks with governments and to bring well structured projects to the market.

