Feasibility Analysis and evaluation of the viability of multimodal corridor of the approved Action "Sea2Sea" under the Trans-European Transport Network (TEN-T)

3rd. Deliverable

Definition of Major Building Blocks for full Impementation of the "Sea2Sea" Corridor

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ΝΙΚΟΛΑΟΣ ΜΗΛΙΩΝΗΣ - ΚΩΣΤΟΥΛΑ ΗΛΙΟΠΟΥΛΟΥ

Sea2Sea

Co-financed by the European Union
Trans-European Transport Network (TEN-T)

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1 INTRODUCTION

Summary

Within the current section of the Deliverable 3 :"Definition of major Building Blocks for full Implementation of the Sea2Sea Corridor", the Consultant presents the proposed funding framework and the preparatory actions for the full Implementaion of the future Corridor. Interelation in between the EU and the national funding mechanisms should be taken into account as of the Funding process of the Sea2Sea corridor, for both countries Bulgaria and Greece.The scope of raising Funding for the Sea2Sea Corridor is to acquire the necessary funds so as to meet the needs for the development the Corridor infrastructure & the Operation in respect to the implications to the environment, cohesion policy for the two countries,existing transport system of the whole south east region of the European Union. The implications of such a project reflect to the local communities but also to the regional level of the European Union.

At first sight the Consultant reports according to the general policies & regulations of the European Union Regional funding, but also to National level funding policies for both countries Bulgaria & Greece.Connecting Europe Facility (2014-2020), Cohesion & Structural Funds (2014-2020), INEA Intitiatives (2014-2020), Territorial and cross border Programme funding Inititatives, European Investment Bank funding Investments, are the major EU mechanisms providing support to EU Member States for Cohesion, Development, Mobility & Accessibility of the Regions.As next part of the Study the Consultant delivers a detailed apprach of the Prepatory Actions need to be Implemented by both cross border countries for the future developemnt of the multi-modal freight Corridor.

Cocluding, the Consultant reports the critical path of the Funding Process and stipulates the special charachteristics of the Corridor as a valuable tool for decision making for both countries engaged players heading for Pan-European mechanisms to come upon new guidlines for the next programming period for the Pan European freight corridors.

2 IDENTIFICATION OF EUROPEAN TRANSPORT POLICY & GUIDELINES

2.1 Role of Transport Policy on EU

Tranport network are at the heart of the Supply Chain and are the foundation of any country's economy. They allow goods to be distributed efficiently and people to travel. They make places accessible, bring and bind us together and allow us a high quality of life. Transport is a cornerstone of the European integration process and is firmly linked to the creation and completion of the internal market, which promotes jobs and economic growth.

As one of the first common policy areas of today's European Union, it was seen as vital for fulfilling three of the four freedoms of a common market as established in the Treaty of Rome in 1957: the free movement of individuals, services and goods.

Without smooth transport connections and networks, there would be no such movement. This is why EU transport policy has always focused on overcoming obstacles between Member States and creating a single European transport area with fair competition conditions for and between the different forms of transport: road, rail, air and waterborne.

The industry now employs around 10 million people, accounting for 4.5 % of total employment in the EU and creating about the same percentage of gross domestic product (GDP). Smooth transport connections are also vital to the EU's economy in terms of its exports — shipping carries 90 % of the EU's foreign trade.

Over the past decades, developments in European transport policy have helped to strengthen the wider EU internal market by opening up national markets previously dominated by public monopolies, such as in aviation and rail.

In addition, barriers to access, unnecessary differences in technical and administrative standards and distortions of competition across EU countries — pricing, taxes and other charges — are gradually being removed as part of the process of creating a genuine single European transport area across all forms of travel.

Expanding, modernising and streamlining EU-wide infrastructure is also essential to create seamless cross-border networks across the different forms of travel. This is why the trans-European network policy was enshrined in the EU's Maastricht Treaty of 1992. In addition, the Treaty incorporated environmental protection requirements into transport policy as a tool to help complete the internal market.

EU transport policy is also about helping and protecting people when they travel. Here, one of its achievements has been to secure and uphold passenger rights. Now, when passengers experience delays, they no longer have to find out for themselves what has gone wrong. They have a right to information and they know they can demand it from their transport company. And passengers with disabilities and reduced mobility qualify for special attention.

2.2 How Transport Policy Works

As part of the project to complete the European internal market, it is essential that transport connections are properly joined up across the 28 Member States that make up the European Union.

This involves building missing links and removing the many technical and administrative barriers that hinder smooth traffic and trade flows and generate unnecessary bottlenecks in Europe's transport system. It also often requires the streamlining of national differences in transport policy which can cause distortions of competition, as well as the removal of barriers to market access.

The ultimate aim is to create a single European transport area, to help Europe stay competitive by optimising the performance of the entire transport sector for the benefit of all.

For this to succeed, there must be access to top-quality transport infrastructure and services, backed by research, innovation and solid long-term funding.

Legislation

The legislative push towards the single European market that began in the 1980s heralded a turning point in transport policy. Since then, the trend has focused on facilitating cross-border movements of goods and services.

This has meant not only dismantling cross-border barriers but also integrating national markets. Transport legislation also aims to open access to markets and infrastructure, achieve technical compatibility — rail rolling stock, for example — and remove other technical and administrative barriers to competition. In turn this has led to rising GDP figures across the EU, linked to increases in passenger and freight transport.

Market access is balanced with EU-wide rules in areas such as driving and rest times for road freight, guaranteed rights for passengers across all forms of transport and social equality in conditions that ensure a fair and open environment for competition.

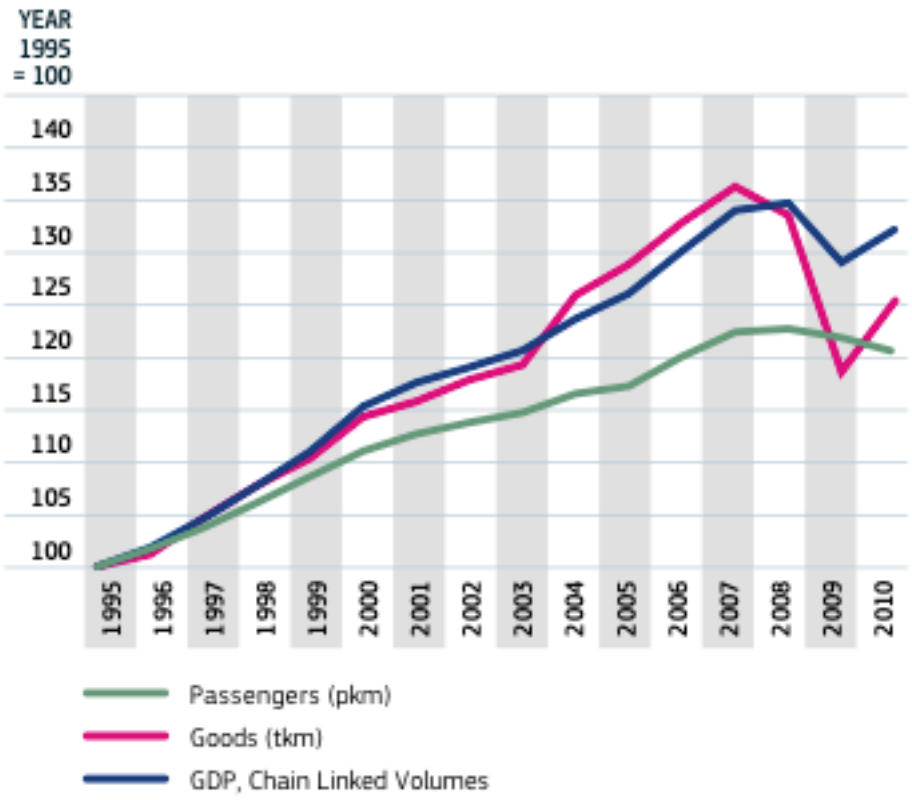


Table 1:Transport Growth in EU

Landmark pieces of EU transport legislation include the three railway packages, which began a gradual liberalisation of national rail markets, laws on road and maritime 'cabotage' (the transport of goods or passengers between two points in the same country by transporters registered in another country), and the two single European sky packages, which aim to create one European airspace under a set of common aviation rules.

Infrastructure

At the moment, transport infrastructure is unequally developed across Europe. In many of the countries that most recently became full EU members, there are no purpose-built high-speed rail links; their motorway networks are on average far less developed than in older Member States. Apart from the need to build missing links, a great deal of Europe's transport infrastructure also needs expanding and upgrading.

This is where the Trans-European network, or TEN-T comes in: a longstanding and ambitious project to modernise and knot together today;s patchwork of national parts into s smooth-running network that connects all corners of Europe while making the best use of all the different means of travel.

With the TEN-T, the EU plans to establish a core network by 2030, filling in missing cross-border links and making the network 'smarter', with deadlines to make sure that all projects contributing to the core network are implemented as a priority.

The core network will be supported by a comprehensive network of routes that feed into it, regionally and nationally. Standards are set to ensure that trains, ships, planes, trucks and cars can use the infrastructure safely and without any technical problems.

Transport financing under the Connecting Europe Facility for the period 2014–20 (see later section on the CEF) will also focus on this core transport network.

The aim is to ensure that, progressively, and by 2050, the large majority of Europe's citizens and businesses will be no more than 30 minutes' travel time from this extensive network. Apart from smoother and quicker journeys, it will provide safer and less-congested travel.

One of the most remarkable TEN-T success stories is the Øresund bridge between Malmö and Copenhagen, Europe's longest combined road and rail bridge, which connects Nordic countries to central Europe.

This link has contributed to an increase in economic traffic between the two sides and led to significant benefits for local regional development. Since it opened more than a decade ago, rail traffic has risen by more than 200 %.

Research and innovation

The EU considers research into resource-efficient transport that respects the environment across all forms of travel as an important part of transport policy. 'Smart, green and integrated transport' is identified as a major challenge as part of project funding within the EU's 'Horizon 2020'research programme to ensure that Europe stays at cutting edge of technological advances in tran Technological advance is the basis for the future of European transport, not least to keep Europe's transport industry at the forefront of global competition.

It is also the key to reducing the crbon emissions that transport procedures produces, because innovation and progress help to improve efficienlty-in aircraft and automotive engines, for example or by replacing oil-based energy sources.

This will be especially important in the years ahead since a significant shift in type of transport use will be needed to reduce oil dependency, greenhouse gas emissions and local pollution. This can be achieved by making better use of cleaner — and often cheaper — alternatives like rail and waterborne travel.

Researching, developing and deploying intelligent, or 'smart', ways to improve use of the existing infrastructure and of ICT to ensure seamless connections between different means of travel will also help to make transport cleaner, safer and more efficient.

Road transport is one example where innovative technology can help drivers to reduce fuel consumption, direct them to available parking places and avoid traffic jams and collisions.

In aviation, the single European sky air traffic management research programme (SESAR) represents the technology dimension of the drive towards a single European sky. SESAR should triple airspace capacity and raise safety by a factor of 10. This would reduce carbon emissions by 10 % for each flight and cut air traffic management costs by 50 %. SESAR aims to combine efficient fuel consumption with optimised aircraft access to airports and flight

trajectory management so as to make aviation more sustainable and better performing sport.

2.3 What EU Transport Policy does

In 2010, Europeans travelled, on average, around 12 900 kilometres per person within the territory of the EU's then 27 Member States.

For private individuals, cars remain by far the most common form of transport - partly due to their use for short local journeys and in rural areas where there are no other options - and accounted for nearly 74 % of this passenger travel distance. This was followed by aviation with 8 %, buses and coaches with roughly the same share, railways with 6 % and then powered two-wheel vehicles, trams and metros. Sea travel was last, with less than 1 %.

For freight, road haulage trucks still dominate over short and medium distances. A similar breakdown shows that road haulage accounted for nearly half of the freight tonnage transported in 2010, followed by seagoing ships and rail, and then inland waterways and oil pipelines. Air cargo came last with less than 1 % — but despite the low volume, the cost–value ratio of this type of transport freight is often far higher.

The European Union relies heavily on fossil fuels to power its transport sector. Oil-based fuels account for around 96 % of the sector's total energy supply, with road transport taking by far the largest share of the energy used by all forms of transport.

Meeting the EU's climate change targets will require deep cuts in emissions from transport, whose own carbon dioxide emissions account for at least 20 % of the EU's greenhouse gas emissions. To meet the target of reducing global greenhouse emissions by the 80 % thought necessary to keep climate change within safe limits (a temperature increase of no more than 2 ° Celsius), the transport sector needs to reduce its emissions by 60 % by 2050.

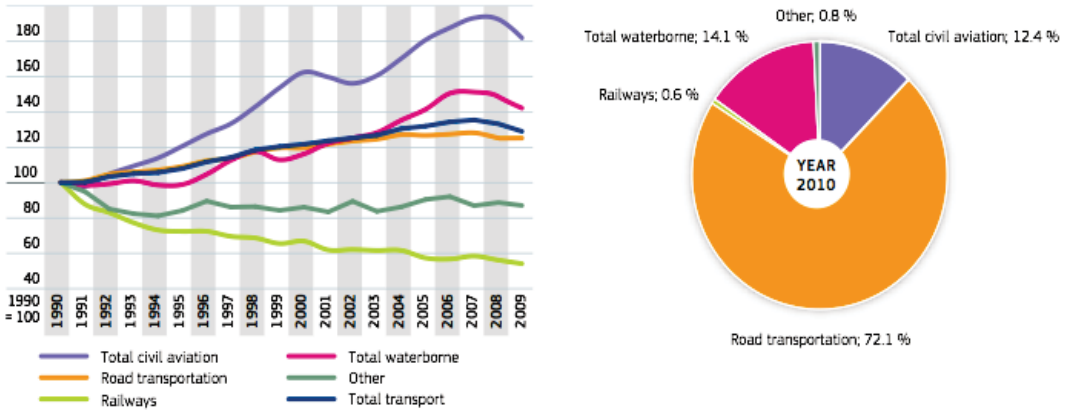
Cutting emissions caused by transport is a key part of EU policy, which is backed by numerous projects and initiatives to cut urban congestion, encourage more use of cleaner forms of travel such as rail and inland waterways and develop alternative non-oil fuels in the shipping and automotive sectors.

Road, as the largest single form of transport, is responsible for the largest share of pollution: some 71 % of overall transport CO2 emissions, according to the latest data (and passenger cars cause around two thirds of that). But other sectors pollute significantly less. Maritime and aviation account for 14 % and 13 % respectively, then inland navigation with 2 %. Rail is the least polluting means of transport, with less than 1 %.

Given that a quarter of EU transport emissions originate in urban areas, towns and cities play a key role in mitigating the effects of climate change. Many are also struggling to battle congestion and improve poor air quality.

Figure 1:Cars remain the most popular form of transport of European Citizens

EU-supported projects already show that it is possible to make the transition to sustainable urban mobility; particularly the Civitas programme, which promotes city initiatives for low-emission vehicles, improved safety and reduced congestion.



Source: European Commission.

Table 2:Greenhouse GAS Emissions in the EU per Transport Sector

Cities are a microcosm of what can be achieved on a wider scale, particularly with large-scale deployment of alternative fuels and energy sources to help reduce dependence on oil.

While the wide-scale use of these fuels and energy sources can be promoted in cities through the large fleets of buses, taxis and delivery vans used in urban areas, many rural areas suffer from a lack of necessary infrastructure.

This is addressed in the EU's strategy to promote clean fuels in transport, which aims to promote market take-up that has so far been held back by scant infrastructure for

recharging and refuelling, along with the high cost of vehicles and low level of consumer acceptance.

2.4 The European terrain of Transport

Rail

In rail, national considerations have historically prevailed over international ones. Even today, some 200 years after the invention of the train, many Member States still own the national rail operator and organise rail transport on a national basis.

This has led to a fragmented railway system, since countries apply different technical standards, signalling systems, power circuits and track gauges. These are all obstacles to smooth cross-border rail operations and inhibit the production of trains that can be used throughout Europe.

By the late 1980s, rail, along with other forms of transport, had to adapt to the opening of the internal European market. Freight transport by road was becoming more competitive, and by comparison railways were performing poorly.

The first major move to reform rail transport came in 1991, with a cautious opening of the rail networks to competition. Liberalisation of the rail sector, particularly for freight, pushed forward with moves to separate infrastructure and operations through a series of legal changes known as the three 'railway packages'.

After many years of stagnation and decline, since 2001 the European railway industry has managed to increase its passenger and freight volumes and to stabilise its market share among other modes of transport.

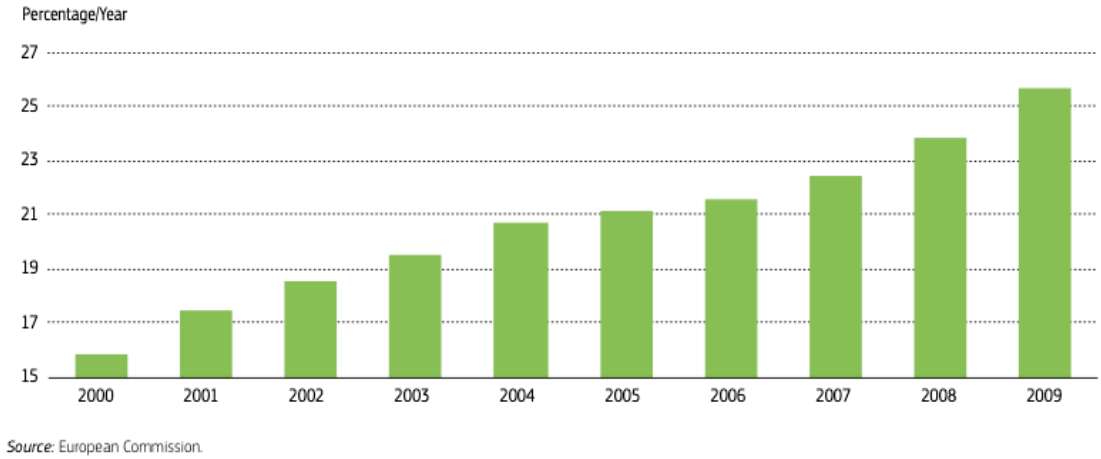
But that share has not risen as much as hoped, due in particular to a continuing decline in many southern and eastern Member States (balanced by growth in the north and west) and to lingering issues of network interoperability, as well as customer-related issues of price, punctuality and reliability.

Europe's railways are among the safest in the world. With rail safety, EU policies aim to maintain high standards and align requirements Europe-wide.

Although rail transport is much more environmentally friendly — and statistically safer — than road transport, it struggles to compete, in both the passenger and freight markets. Today, Europe's railways are not yet fulfilling their true potential.

A fourth railway package aims to raise rail's profile, efficiency and market share within European transport and to open up the sector to more competition with smoother, higher-quality cross-border services.

Figure 2:Passengers numbers and freight volumes continue to rise on Europe's rail network unities.



Source: European Commission.

Table 3:High Speed Rail Transport as a share of all Rail Tranport in EU

Aviation

A strategically important sector that makes a vital contribution to the EU's overall economy and employment, aviation supports 5.1 million jobs, directly and indirectly, and contributes €365 billion, or 2.4 %, to European GDP.

In the years following the Treaty of Rome, air transport was organised based on national public regulation of competition conditions rather than on the free market. This led to a

series of fragmented markets, national monopolies and very high tariffs. At that time, air transport was regulated by Member State bilateral agreements.

The aviation market was gradually liberalised through three successive packages of measures which covered air carrier licensing, market access and fares. These removed the restrictions that had limited air transport markets in Europe and prevented cross-border investment by European airlines.

In 1992 there were just 93 European routes served by more than two airlines. In 2011 there were 482 such routes. Thanks to EU transport policy, air travellers today have far more choice than 20 years ago and also pay much lower prices.

Figure 3:EU transport policy has provided air passengers with more travel opportunities.

The third (and most significant) package established the principle of full freedom to provide services within the single market and replaced the concept of 'national or flag carriers' with that of European airlines competing with each other.

The next step was to do something about the heavy airspace congestion causing lengthy delays on many European flights, given the projected doubling of demand for air travel by 2020 and the resulting strain on airport capacity.

In 2004, an ambitious initiative for a single European sky (SES) was launched to streamline air traffic management by collectively managing airspace. The aim is to reduce environmental pressures, and also fares, since airlines' extra costs for operating within such a fragmented market are enormous.

One of its main objectives is to replace the 28 national airspace systems with one to cover the entire EU. This would increase efficiency and cut costs.

The technology required for the future single sky is provided through the air traffic management research programme SESAR, which aims to modernise infrastructure and raise efficiency by optimising capacity — and so enable the SES to become a reality. A second package of measures, known as the single European sky II (SES II), followed in 2009 and focused in particular on the environment and cost efficiency.

The aim is to modernise Europe's air traffic control system, implement the single European sky and complete the European common aviation area.

However, Europe is still far from meeting its single European sky ambitions and more efforts are needed to make sure that the benefits of a genuinely integrated operating airspace are delivered as soon as possible.

Aviation safety and security: in the air and on the ground

Today's terrorists still view civil aviation as one of their main targets and are recklessly imaginative in their attacks. This is why EU security policy has to adapt constantly to new threats and new technology.

Starting with the 9/11 attacks in the United States, attacks on aviation have become increasingly innovative: the shoe bomber (2001), would-be bombers trying to use liquid explosives to blow up planes (2006), the attempt to blast a hole in a plane using explosives hidden in underwear (2009) and the interception of two homemade bombs transported as air cargo consignments (2010).

EU policy was quick to react to each new threat. Restrictions were placed on passengers carrying liquids, aerosols and gels, and new rules on the use of security scanners came into effect at EU airports and, most recently, on airlines carrying cargo and mail into the EU from non-EU states.In aviation safety, effective standards have made the European Union's safety record among the best in the world.

Figure 4:EU aviation security measures have made Europe's safety record among the best in the world

To improve safety in Europe further, the Commission - in consultation with Member State aviation safety authorities — prohibits airlines found to be unsafe from operating in European airspace.

Known as the 'EU air safety list', it details all airlines which are banned from operating in Europe. A second list includes airlines which are restricted to operating in Europe under specific conditions.

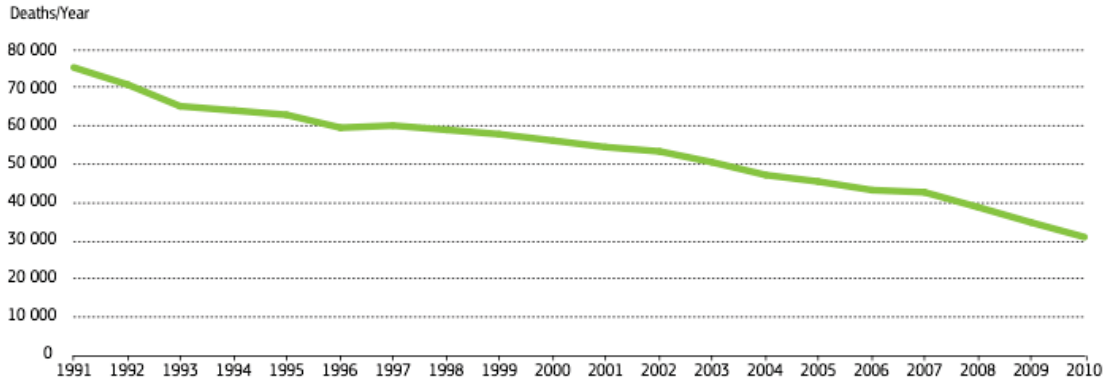
Road

Roads are still the main way of moving passengers and freight in Europe. Economically, road is the main form of transport for freight, where it accounts for the bulk of inland transport in the European Union and has been growing steadily in recent decades.

Figure 5:Road Safety Network in the EU

It took around 10 years between the mid-1980s and mid-1990s for Europe to open up its international road freight market and remove barriers to competition, such as the licences required for a road haulier to gain access to another country's market, quotas to limit the capacity of road traffic and tariffs.

The success of opening up this market throughout the EU is demonstrated by increases in international cross- trade and 'cabotage', where hauliers are permitted to offer their services for domestic journeys in other Member States. However, cabotage accounts for only a small share of domestic haulage markets and remains limited by legislation.



Source: European Commission.

Table 4:Road Deaths in the EU

Progress in opening up the market for passenger transport services has been slower. In 1992, European coach and bus operators were allowed to run international passenger transport services between Member States. Now, commercial EU carriers may transport passengers by bus and coach across the EU road network based on a European licence issued by the country where they are based.

Another sensitive issue over the decades in the road transport sector has been road charges and tolls.

EU policy has two objectives in this area: firstly, any charges must not be excessive or discriminate against foreign drivers compared with those of the Member State concerned; secondly, charges should be consistent with the 'user pays' and 'polluter pays' principles, and help pay for the maintenance and development of transport infrastructure.

A key piece of legislation was the Eurovignette directive, passed in 1999 to charge heavy goods vehicles for using certain infrastructures such as motorways and multi-lane roads, bridges, tunnels and mountain passes. The Eurovignette is an electronic common toll collection system where a registered vehicle can pass through road tolls in Europe after paying a single fee related to its weight and size.

In certain regions, extra toll charges may be levied to tackle the problem of environmental damage, including poor air quality, or to invest in more environmentally friendly modes of transport such as railways.

From the early 1990s, many barriers to a single market began to be dismantled via a succession of rules designed to standardise technical and administrative standards. These included rules to fix the maximum dimensions and weights of certain vehicles, the format of driving licences, vehicle registration documents and minimum driver training standards.

It took many years for Member States to agree on working hours for road freight, which proved to be a particularly sensitive area partly due to national differences in labour relations and working cultures. The EU now has common rules for maximum driving times, as well as minimum rest periods for all drivers of road haulage and passenger vehicles.

With almost 75 % of inland freight being transported by road between Member States, this makes it easier for lorry drivers to plan their European trips and for authorities to check

their driving times. Digital tachographs are now compulsory in new heavy goods vehicles and buses.

Safety is an integral element of EU road policy. Over the years there have been big improvements in safety levels. During the last decade, road deaths fell by 43 % and 2012 was a landmark year with the lowest ever number of road deaths reported.

However, accident rates still vary widely among the Member States, and in general, European roads are still far from safe. And while EU Member States have made clear progress in reducing road deaths, injury numbers are still unacceptably high and not falling at nearly the same rate. Estimates show that almost 1.5 million people were injured in 2010, of whom a quarter of a million sustained serious bodily harm. That compares with 28 000 deaths reported on EU roads for 2012.

For every person killed in a crash, there are an estimated four people disabled for life, and 10 serious and 40 slight injuries.

The Commission's road safety action programme aims to halve the number of EU road deaths by 2020. It calls for better safety measures for trucks and cars, better enforcement of road rules, a new focus on motorcyclists, promotion of modern technology to increase road safety and improved emergency and post-injury services — just some of its strategic objectives.

Maritime transport

Maritime transport is of huge importance for European trade since almost 90% of the European Union's external freight and 40 % of its internal freight is moved by sea.

Figure 6:EU rules & standards have been tightened

For many years, there was no EU-wide policy for maritime transport. It was only in 1986 that Europe was ready to adopt its first legislative package of regulations, which aimed primarily to open up its markets in maritime transport and services.

A second package came in 1989, allowing maritime transport services within one EU country to be offered by companies of another EU country (cabotage). This helped to maintain

adequate connections between islands and more remote maritime regions and the European mainland.

As with the other forms of transport, a strong emphasis has always been placed on safety as well as working conditions and training of seafarers. Competent crews are essential for safety and quality of service.

Unfortunately, the 1990s saw a series of shipping accidents — Aegean Sea (1992), Braer (1993) and Estonia (1994).These were followed by Erika (1999) and Prestige (2002), both with loss of life and oil spills. These accidents created the political climate for the EU to tighten its rules and standards to prevent accidents at sea, in particular those involving ferries and oil tankers.

The Erika I and Erika II legislation, as it is called, led to a phase-out of single-hull vessels, introduced a blacklist preventing ships repeatedly found to be in poor condition from entering EU ports and created a pan-European system of traffic monitoring.

Environmental issues are now an integral part of shipping legislation. The EU contributes to setting global rules to reduce emissions and protect the sensitive marine environment. It enforces rules on ship waste and discharges, as well as fuel and emission standards. Sophisticated monitoring and control mechanisms help EU countries to detect, prevent and tackle maritime oil spills.

The Commission's approach to passenger ship safety consists of three policy strands:

- to ensure continuous improvements of existing legislation to protect passengers with a focus on setting global standards at the International Maritime Organisation (IMO);

- to enforce safety rules to make sure EU and IMO legal instruments are applied correctly;

- to encourage voluntary action from industry so that operations are improved constantly.

At the same time, EU policy aims to ensure the best use of quality and innovation to keep its shipping fleet up to date with global developments in ship design, technology and operational procedures.

On security, the main threat to international shipping is piracy.

Acts of piracy against ships are a serious threat to the lives of crews and passengers and to the safety and security of navigation. They are also of great concern given the importance of maritime transport for the EU's worldwide trade relations.

The EU enforces rules on ship and port security to make sure the high number of vessels arriving in or in transit through European waters are safe and secure.

Ports are vital to the maritime and other sectors, with great potential for growth in the years ahead. As gateways to the entire EU transport network, they are engines of economic development and sources of prosperity for countries, cities and regions.

Figure 7:Europe's seaports are a vital of EU transport infrastructure

Europe depends heavily on its seaports, which by volume handle 74 % of the goods traded with the rest of the world. They are also the key to developing an integrated and sustainable transport system, where short sea shipping can be used as an alternative to saturated land transport corridors.

Even with only modest assumptions of economic growth, port cargo volumes are expected to rise by 60 % by 2030, almost certainly causing congestion.

In less than 20 years, Europe's hundreds of seaports will face major challenges in productivity, investment needs, sustainability, human resources and integration with port cities and regions.

They will therefore need to adapt, and EU policy will make every effort to allow them to do this, to stay competitive and prepare for future growth.

Investment and funding: the Connecting Europe Facility

Building and maintaining infrastructure is an expensive exercise. The development of the infrastructure needed to match the projected rise in European transport demand is expected to cost €1.5 trillion up to 2030. Just up to 2020, the Commission estimates that around €500 billion will be required to complete the trans- European network, and of that amount, around half is needed to get rid of the main bottlenecks.

Transport has been allocated around €26 billion, the lion's share of funding under the Connecting Europe Facility (CEF), the financing instrument to be used in the EU's 2014–20 budget period to invest in transport, energy and ICT infrastructures.

2.5 The next Day on EU Policy

The European Commission's most recent policy document on transport was issued in 2011 and is entitled 'Roadmap to a single European transport area'. It sets out a vision for the future of European transport up to 2050, recommends fundamental changes in policy thinking and is accompanied by a series of concrete targets and initiatives.

Its main points are as follows:

Challenges Ahead

- Demand for transport will increase (freight transport alone is expected to grow by 80 % by 2050) and the trend for urbanization will continue.
- The EU transport sector, particularly road transport, depends almost completely on oil as a fuel source. Given volatile oil markets and likely future difficulties in sourcing oil, reliable fuel alternatives must be found.
- The EU has committed to reduce its greenhouse gas emissions by at least 80 % by 2050. Transport, as a major polluter responsible for a quarter of the EU's greenhouse gas emissions, has to make a major contribution towards reaching that target.
- • One of the worst transport problems is congestion, especially on the roads and in the skies. Congestion costs Europe about 1 % of its GDP every year and also causes heavy amounts of carbon and other unwelcome emissions. This should be addressed.
- • there is a need to raise transport efficiency, which also involves improving logistics and creating smarter 'travel behavior' by making the best use of modern ICT and satellite-based technology. Europe must better combine all available modes of transport and networks rather than using a single form of travel, thereby optimizing use and capacity.
- • Focusing on research and innovation will keep Europe's transport sector competitive in the global marketplace and at the cutting edge of technological advances in transport.
- • Infrastructure: the aim is to complete the Trans- European Transport Network; to better integrate road, rail, air and waterborne travel (sea and inland waterways) into a seamless logistics chain; to remove the main bottlenecks; and to construct missing links, particularly across borders. Europe's transport infrastructure needs to be modernized and maintained, and the required funding must be made available from both public and private sources.
- • While much progress has been made across transport towards completing the internal market, there is still work to be done in sectors such as road and rail to open up markets and ensure fair and open competition.

Objectives

- To place a Europe-wide focuses on achieving optimal connectivity between different forms of transport: road, rail, air and waterborne travel (sea and inland waterways).
- To advance with work on the Trans-European Transport Network and build the smooth high-quality interconnections needed for the development of the internal market, thereby improving the lives of the travelling public.
- To promote investment in transport by making sure that the national and European regulatory environments are appropriate and in place.
- • To develop innovative financing instruments for transport infrastructure; to make

the best use of instruments already available within the Connecting Europe Facility; to find ways to complement national and regional funding from the European Structural and Investment Funds.

- • To promote integration across different transport sectors which is increasingly based on a non- discriminatory approach of general infrastructure costs being funded by those who use them: the 'user pays' principle.
- • to develop common European standards for transport safety and security; to strengthen Europe's role and influence in international transport.
- • To advance work to complete the Single European Sky project and complete negotiations on the Fourth Railway Package.
- • to work with major sector companies in public-private partnerships such as SESAR and Shift 2 Rail, in order to bring innovation to the aviation and rail markets that will benefit citizens and business.

3 CONNECTING EUROPE FACILITY

3.1 CEF IN THE EU MULTI-ANNUAL FINANCIAL FRAMEWORK (MFF 2014-2020)

With a proposed budget of €50 billion between 2014 and 2020, the Connecting Europe Facility11 will be a key instrument to promote growth, jobs and competitiveness through targeted infrastructure investment at European level. It will support the development of high-performing, sustainable and efficiently interconnected trans-European networks in the fields of transport, energy and digital services.

CEF investments will plug the gaps that would not be filled if the market, or existing public-sector instruments were the only options. It would thus tap into an important potential source of economic growth.

The Connecting Europe Facility will benefit people across all Member States, as it will make travel easier and more sustainable; it will enhance Europe's energy security while enabling wider use of renewables; and it will help modernise public administration in Europe by bringing more public services on line, a source of immense savings for hard-pressed public budgets.

CEF in figures (according to the European Commission MFF proposal of 29 June 2011)

	€ 50 billion (total)			
CEF 2014 - 2020	€ 9.1 billion (energy Infrastructure)	€ 9.1 billion (energy Infrastructure)	€ 31.7 billion (Transport Infrastructure)	
			€21.7 billion	€10 billion (marked from the Cohesion Funds)*

Table 5:Connecting Europe in figures

The €50 billion will create significant leverage and attract additional public and private funding through the use of innovative financial instruments, notably EU project bonds. In the energy sector, the €9.1 billion available, together with the regulatory and permitting solutions proposed in parallel, should allow the timely delivery of more than €200 billion worth of important projects. Likewise, an improved regulatory environment, combined with new financial instruments should leverage at least €50 billion for investment into high-speed broadband, the backbone of the digital single market. The €31.8 billion proposed EU co-

funding for transport projects is expected to generate about €140-150 billion of investments.

The European Commission first proposed the establishment of the Connecting Europe Facility in June 2011, as part of its EU budget proposal for the next multi-annual financial framework (MFF) 2014-2020. The proposal was submitted to the European Parliament and the Council, and it is expected to be adopted by the two co-legislators before the end of 2013.

3.2 CEF and the European Single Market

A truly integrated Single Market would not be possible without a seamless connection among all its component parts. Roads and other transport connections, electricity and gas transmission grids, as well as digital networks are vital for a functioning, integrated economic area and for its social and territorial cohesion. By focusing on smart, sustainable and fully interconnected energy and transport networks, the CEF will help to complete the European single market. At the same time, CEF support for broadband networks and cross-border public online services will allow millions of citizens and businesses to connect to the Digital Single Market, whether at home or while traveling within Europe.

Currently, significant missing links exist, notably in the Member States which joined the Union more recently, creating dividing lines between the centre and peripheries of the European Union and limiting access to each other's markets. They also hamper the further development of intra- community exchanges or the growth of new economic sectors, such as e-commerce. Missing cross-border physical interconnections also hamper the potential benefits derived from more integrated markets as regulatory integration within the EU advances (as seen most recently in the energy sector with the adoption and entry into force of the third liberalisation package).

EU level intervention, through grants and financial instruments, will focus on initiatives that eliminate or reduce market fragmentation. It will also focus on initiatives that increase European security and have considerable growth enhancement potential and/or socio-economic benefits.

3.3 CEF and the EU 2020 Strategy for growth and jobs

New infrastructure needs also arise in connection with the implementation of the Europe 2020 Strategy. Fostering Europe's transformation into a knowledge-intensive, low-carbon and highly competitive economy requires adequate modern and flexible energy, transport, and digital infrastructure networks. Through targeted investments in essential infrastructure, CEF will help to create jobs and boost Europe's growth and competitiveness.

Job creation is directly related to works such as construction, mechanical engineering, and business services. But it is also indirectly stimulated and induced by the economic effects of using new infrastructure. Investments in the energy transmission infrastructure that Europe needs until 2020 are expected to create 410,000 additional jobs in the next decade. For

broadband infrastructure, the construction of high-speed Internet networks in Germany alone is expected to create almost a million jobs (968,000) between 2010 and 2020. In transport, infrastructure investments of about €200 billion could generate, by 2020, about 650,000 additional jobs.

More generally, CEF investments will have a significant economic impact through its support to increasing the accessibility and improving the efficiency of network industries. Transport costs, for example, amount to between 2% and 10% of businesses' total costs, while households in the EU spend about 13% of their income on transport-related goods and services. Improved infrastructure connections will contribute to reducing these costs, with a significant effect on competitiveness and wealth. Improved energy transmission infrastructure by 2020 will translate into at least 0.42 percentage points of GDP increase in the EU, while just the deployment of eProcurement, an EU-wide digital service, could lead to an estimated minimum €50 billion euros of savings.

3.4 Synergies and simplification

CEF proposes a coordinated approach that will simplify procedures, reduce collective costs, and ensure the largest possible added value - by optimising the portfolio of instruments available, by standardising the operational rules for using them, and by capitalising on possible synergies across the three sectors.

The shared infrastructure-specific financing instruments will make the financial instruments bigger, better structured and optimised from the risk management perspective. They will be therefore more cost efficient to run, as well as more visible and recognisable by the financial markets.

The costs of administration will be lowered, as the management of the dedicated sectoral funds under a common legal and procedural framework will help achieve significant economies of scale: a joint CEF committee (formed of representatives of the Member States' administrations), a shared executive agency, shared procedures, jointly organised calls for proposals.

Economies of scale will also be exploited at project level, by supporting synergies between the sectoral works. Energy, transport and broadband networks can share common facilities (such as manholes, ducts, access to premises), encouraging a coordinated deployment of passive network elements. Synergies in project planning and permitting can also be exploited.

3.5 CEF and innovative financial instruments

CEF investments are also intended to act as a catalyst to attract further funding from the private sector and other public sector actors. As the current pressure on EU public budgets is likely to continue in the near future, a more systematic use of innovative financial instruments is required to leverage the impact of EU budgetary resources.

The CEF is designed to attract private sector investment to infrastructure through a number of financial risk-sharing instruments, including special lending, guarantees and equity investments. These instruments aim to give credibility to infrastructure projects and to lower their risk profiles. The goal is to offer an alternative to traditional grant funding and to plug financing gaps for strategic infrastructure investments.

The Commission will work closely with the European Investment Bank (EIB) and other financial institutions to take advantage of capital market investors' interest in long-term investment opportunities with stable revenues. Following the in-depth assessment of market needs and its financing capacities, distinct financial instruments will be rolled out in cooperation with financial institutions.

The Europe 2020 Project Bond Initiative, for which the pilot phase has been launched in 2012, is envisaged to become the main EU instrument to help the promoters of individual infrastructure projects attract private sector investors, in particular insurance companies and pension funds. This initiative will enable the issuance by project companies of long-term well-rated bonds instead of relying only on bank lending. The participation of the European Commission and the EIB will mitigate some of the risk associated with a project bond issued to finance a specific project. Member States, infrastructure managers or companies will therefore be able to access a competitive source of finance and consequently improve the cost of financing such projects.

The Europe 2020 Project Bond Initiative is thus expected to act as a catalyst to re-open the debt capital market – currently largely unexploited for infrastructure investments following the financial crisis – as a significant source of financing in the infrastructure sector. The aim is to attract private investment into a new class of European-wide infrastructure assets. Project bonds will also be one of the key EU financial instruments available within the CEF

Figure 8:EU Financial Instruments

Project bonds: How does it work?

Let's take an example. A transport project, such as a section of railway network, is planned by a group of companies (sponsors) and tendered by public authorities. The sponsors create a project company to raise the financing, construct and operate the railway network for a period agreed with the public authorities. The sponsors provide own funds to the project company in the form of equity and shareholder loans. The project company in the form of debt, traditionally a bank loan, obtains the remaining financing. This constitutes a so-called "senior debt". With the assistance of the Project Bond Initiative, instead of using traditional bank lending, the project company could raise the senior debt by issuing project bonds.

Capital market investors would buy the bonds if an investment grade credit rating, preferably at least A-, could be achieved. In order to support the project company to achieve such an attractive credit rating, the EIB will provide, in the framework of the Project Bond initiative, a loan or guarantee (the "Project Bond Instrument") to the project company. This Project Bond Instrument could cover all project-related risks affecting the cash flow generation from the start of the operating period, as well as any funding shortfall during the construction period. This will raise the likelihood of timely repayment of principal and interest to bond holders and, in turn, help reduce the risk of such bonds and increase correspondingly their credit rating.

Once drawn upon, the Project Bond Instrument will take the form of subordinated debt – i.e. it will rank after the senior debt tranche in terms of order of repayment, but before equity capital. As such, it will be reimbursed by the project company over time from the cash resources available after senior debt service, but prior to payments to equity and related financing (shareholder loans and other subordinated loans).

Funding from the EU budget (and in this particular case, from the CEF budget) will intervene by providing capital contributions to the EIB, in order to cover a portion of the risk the EIB is taking when it finances the eligible projects. This is already the case with other existing instruments, such as the Loan Guarantee Instrument for TEN-transport (LGTT). In other words, the EU budget will provide some risk cushion for the EIB to finance the underlying projects, while the EIB would have to cover the remaining risk. Through the EIB support of up to a maximum of 20% of project debt, a multiplier of around 15 to 20 can be achieved. Therefore, many more projects can be financed than with traditional grants.

3.6 Coordination with other sources of EU financial support

The European Commission will give particular care to ensuring complementarities with interventions supported by other EU programmes, while avoiding potential overlaps. In particular, coordination will be pursued in the implementation of the CEF with the Horizon 2020 research and innovation programme and the Cohesion and Structural Funds, where the Commission has proposed that important parts of the budget for 2014-2020 be dedicated to projects related to ICT, energy and transport infrastructure.

Coherence between CEF and the Horizon 2020 Programme will guarantee that the research and innovation chain leading to deployment in infrastructure is not interrupted. This coherence

is particularly critical at a time when significant technological advances in transport, energy and ICT will be needed to help the EU meet its ambitious Europe 2020 Strategy's objectives.

Within the Cohesion and the Structural Funds, the support to trans-European infrastructure networks in the three sectors remains central to the achievement of the objective of economic, social and territorial cohesion within the Union. The coordination between the specific trans- European networks' policy objectives and the corresponding cohesion policy objectives will be done primarily in the context of cohesion policy's main implementation instruments (the Common Strategic Framework, the Partnership Contracts, and the respective implementing Operational Programmes). Particular care will be taken to avoid overlaps, to maximise complementarity and to ensure the best possible use of Union support.

For example, the Structural Funds will support broadband roll-out projects where there is clearly no business case, while CEF financial instruments would help make specific projects commercially viable by ensuring lower interest rates and/or longer contract periods.

In transport, CEF investments will concentrate on cross-border projects and other projects of high EU added-value, as clearly pre-identified in the CEF Regulation. Whereas Cohesion and Structural Funds support will be allocated to other projects on the TEN-T of more regional and national immediate impact.

This approach is mirrored in the case of energy infrastructures. CEF funding will concentrate on transmission projects with cross-border impact delivering the priority corridors laid out in the Guidelines. Cohesion and Structural Funds support can in turn assist the development of distribution networks (the "last mile" needed to deliver energy to the citizens) and other energy infrastructures which are essential for the economic development of the regions concerned.

3.7 The European Infrastructure Package

CEF is part of a larger, new "European infrastructure package", as proposed by the Commission in October 2011. The package includes a set of revised policy guidelines setting the objectives and priorities of EU intervention in each of the three sectors of trans-European network development. The other main component is constituted by the CEF, as the common financial framework establishing the rules according to which EU financial support will be awarded to support these policy objectives. In other words, if with the CEF the European Commission proposes how the EU money should be spent, with the Guidelines it sets infrastructure priorities which this money should help deliver.

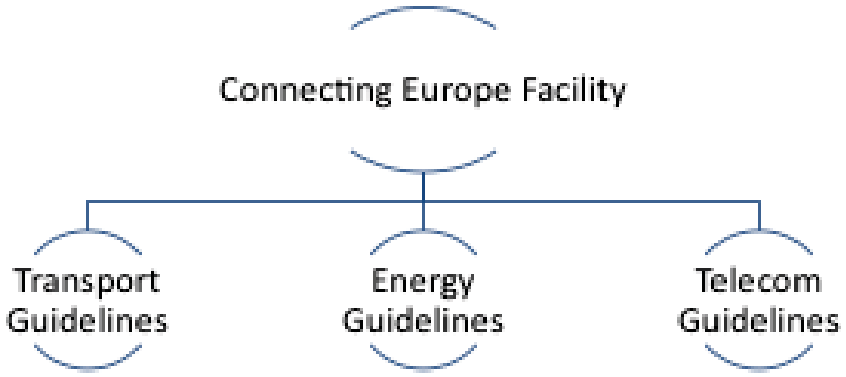


Figure 9:CEF Modern Structure

3.8 The management of EU funds under the CEF

CEF funds will be centrally managed, meaning that the programming of the use of funds, the selection of projects to be awarded financial support, the allocation of the funds and the control of the use of funds will be done directly by the Commission.

The use of funds is organised over the 7 years multiannual financial perspective by means of multi-annual and annual work programmes, to be adopted by the Commission after the approval of the Member States under the examination procedure. The work programmes detail proposal selection and award criteria, as well as the amount of funds concerned.

For the administration of the grants (non-refundable financial contributions) component of the fund, which will constitute the bulk of the CEF contributions, the Commission will be assisted by an Executive Agency. The support provided via innovative financial instruments will be managed by means of partnerships that the Commission will establish with the European Investment Bank (EIB) and other financial institutions.

4 HOW WILL CEF WORK?

4.1 Management of grants

The award of financial support in the form of grants will be done by the Commission via a competitive process.Calls for projects will be organised regularly for both the annual and the multi-annual work programmes. The proposals will be evaluated by external experts on the basis of a clear set of criteria, including the quality, maturity and relevance to the specific objectives of the calls. The evaluation process will be based on two key principles: equal treatment – all proposals will be evaluated in the same manner against the same criteria; and transparency – adequate feedback will be given to applicants on the outcome of the evaluation of their proposals.

The Commission, assisted by an Executive Agency, will be also responsible for managing the technical and financial implementation of the programme. A strict monitoring and use-it-or-lose- it rules will mean that funds which will not be used by a project within the specified period will be withdrawn from that project and returned to the CEF budget to be reallocated to other projects.

The repartition of tasks

European Commission	Executive Agency
Defines the Policy	Turns policy into Action
▪ Makes all CEF programing Decisions ▪ Defines Strategy, objectives and priority areas of action ▪ Selects the projects for co-financing and adopts the financing Decisions ▪ Evaluates the CEF Program me and the Agency's performance	▪ Follows up the technical and financial implementation of the projects ▪ Manages the entire project life cycle ▪ Executes the CEF budget ▪ Gives feed-back, assistance and reports to the beneficiaries of the CEF financing ▪ Coordinates with other Commission services, programs, Institutions and financial instruments

4.2 Support via innovative financial instruments

Unlike grants, the management of the funds to be allocated as EU financial support via financial instruments will not be done through calls for proposals. On the basis of the eligibility defined by the EU in the sectoral guidelines, the financial institution partnering with the Commission will select specific projects using standard eligibility criteria and credit risk policies, in order to optimise the use of the selected financial instrument(s) in the

financing of the project. It will be for the financial institution, on the basis of the due diligence carried out, to ultimately decide whether to mobilise the instrument(s) or not.

5 CEF TRANSPORT

5.1 A new policy framework

The revised policy guidelines for the trans-European transport network (the TEN-T Guidelines) propose a new planning of the TEN-T development, at two levels. The first level is constituted by a larger, basic network, called the "comprehensive network". This network includes the relevant existing and planned infrastructure in the Member States, and its outline is the result of the updating and adjustment of the existing TEN-T map. The second level (or layer) is constituted of the strategically most important parts of the TEN-T. It was identified on the basis of a specially designed European methodology, and it is titled the "core network".

The **Comprehensive network** will ensure effective access to and from the Core Network to all citizens and business in the EU will ensure that the implementation of the TEN-T policy will contribute to territorial cohesion and will provide accessibility for all regions, including peripheral regions of the Union

The date for the completion of this wide covering network, deploying high quality and safety standards, has been set for 2050.

The **Core Network** will be formed of those parts of TEN-T that carry the main concentration of trans-national traffic flows for both freight and passengers. It will ensure the effective connectivity of the Eastern and Western parts of the Union and of its peripheral regions to the central ones. It will provide efficient multi-modal links between the EU capitals, the main ports and airports of the EU.

Due to its strategic importance, its completion has been given priority.2030 has thus been set as the target for the full completion of the Core Network.

Ten multimodal Corridors **will help ensure the coordinated implementation of the Core Network. They will provide a platform for each capacity management, investments, building and coordinating multi modal transhipments facilities, and deploying interoperable traffic management issues**.

The revised TEN-T Guidelines also propose a reinforced approach to coordination in the development of the trans-European transport network. A number of corridors, drawing on

the core network, have been identified, following the main trans-European traffic flows. Development and implementation of the infrastructure along the corridor will be ensured by corridor structures that will bring together the Commission, the interested Member States, regions and local authorities as well as infrastructure managers, transport operators and, of course, the financiers. These structures will be placed under the aegis of a European Coordinator, responsible for overall coordination issues and ensuring transparency and accountability in the implementation of a specific corridor.

Finally, the new policy approach will place greater emphasis on ensuring:

- Effective interconnectivity across borders – cross-border links, and between modes – multimodal platforms;
- Effective interoperability – wide deployment and interoperability of intelligent traffic management systems;
- And enhanced safety and environmental friendliness of transport infrastructure – by promoting innovative technological developments.

5.2 Financing needs and priorities

The cost of infrastructure development in EU Member States for the period 2010-2030, needed to match the demand for transport, has been estimated at over €1.5 trillion. By 2020, investment needs on the TEN-T are estimated at about €500 billion. Of this, €250 billion would be needed to complete missing links and remove bottlenecks on the core network. For the period 2014-2020, the Commission has proposed that €31.7 billion be invested, via the CEF, to support the TEN-T development. This includes €10 billion ring fenced in the Cohesion Fund exclusively for transport projects in the countries eligible to the Cohesion Fund. The remaining €21.7 billion will be available for all Member States, including those eligible to Cohesion Fund support, for investing in TEN-T infrastructure. CEF investments will focus in particular on projects with high EU added value, such as building missing cross-border links and removing bottlenecks along main trans-European transport corridors. Priority will also be given to transport modes that are less polluting, to the deployment of telematics applications and the use of innovative technologies. The aim is thus to contribute to making the European transport system more sustainable, more efficient and give consumers more choice about how they want to travel.

5.3 Targeted investments in strategic EU added-value infrastructure

Investments in key infrastructures with strong EU added value can boost Europe's competitiveness in a difficult economic context, marked by slow growth and tight public budgets. Since the core network has been identified as that part of the TEN-T carrying the strategically most important European transport flows, CEF support will be targeted primarily to core network projects. In order to concentrate EU intervention even further, the Commission, in close consultation with the Member States, has pre-identified a list of projects towards which 80% to 85% of the total €31.7 billion CEF financial support for transport will be focused. This list, annexed to the CEF proposal, includes:

- Horizontal priorities" for TEN-T development, namely innovative traffic management systems and services for all modes;
- Projects identified along the ten core network multimodal corridors;
- Projects on the core network, mainly cross-border sections and bottlenecks, which are not part of Corridors.

The remaining 10% to 15% will be dedicated primarily to other projects on the core network.

6 GRANTS – DIRECT EU SUPPORT- INEA CALL

The support for TEN-T projects will take mainly the form of grants. Non-refundable EU contributions are necessary to help develop projects of important European added value, but for which the available national, regional public and private resources are not sufficient. Identified according to a specific network planning methodology taking a marked European perspective, the core network infrastructures have an inherent, recognised EU added value. Grants may amount to up to 50% of the total project implementation costs, depending on the type of project. The maximum rates have been established in the CEF Regulation, reflecting the anticipated added value to the development of the TEN-T network as a whole and the difficulties the experience has shown that certain types of projects may encounter.

Types of Projects		All Member States	Member States eligible for Cohesion Fund
Studies (all)		50%	50%
Works on			
Rail	Cross Border	40%	80-85%
	Bottleneck	30%	80-85%
	Other projects of common interest	20%	80-85%
Inland waterways	Cross Border	40%	80-85%
	Bottleneck	30%	80-85%
	Other projects of Common interest	20%	80-85%
Inland transport connections to ports and airports (rail & road)		20%	80-85%
Development of Ports		20%	80-85%
Development of multi-modal platforms		20%	80-85%
Reduce all freight noise by retrofitting of		20%	20%

existing rolling stock			
Freight transport services		20%	20%
Secure parking on road core network		20%	20%
Motorways of the Sea		20%	20%
Traffic Management Systems	ERTMS (rail)	50%	80-85%
	Other modes	20%	80-85%
Cross Border Connections		---	80-85%

The 2014 CEF Transport Annual Call for Proposals has a total maximum budget of almost €1 billion.

It addresses objectives which reflect transport infrastructure development/transport policy priorities of a shorter term nature, less mature, reduced in scope and for more diffuse in coverage - specifically the following priorities:

Funding Objective 1:

- Railways, inland waterways and roads projects on the Core Network including connections to inland and maritime ports and airports, as well as the development of ports
- Projects on the Comprehensive Network (railways, inland waterways, roads, maritime and inland ports)
- Projects to connect the TEN-T with infrastructure networks of the neighbouring countries - in particular related to cross-border sections (railways, inland waterways, roads, maritime and inland ports)

Funding Objective 2:

- Deployment of new technologies and innovation, other than those covered by the Multi-annual Work Programme
- Freight transport services
- Actions to reduce rail freight noise, including by retrofitting of existing rolling stock

Funding Objective 3:

- Telematic applications systems other than those covered by the Multi-Annual Work Programme
- Actions for better accessibility to transport infrastructure for disabled persons
- Actions implementing transport infrastructure in nodes of the core network, including urban nodes

- Connections to and development of multimodal logistics platforms

Following the needs on the addressed section of **Deliverable 2** "**Formulation of Improvement project mix and action plan**", **Section 2**: "**Administrative and Preparatory Actions**":

- Paragraph 2.2.1:"Stage 1-Improvement of the Alexandroupolis-Ormenio railway line"
- Paragraph 2.2.2 Stage 1:"Implementation of ERTMS"
- Paragraph 2.2.3 Stage 1:"Implementation of SEA2SEA Traffic Control Center"
- Paragraph 2.2.4 Stage 2:"Modernization of Plovdiv-Burgas railway
- Paragraph 2.2.5 Stage 3:"Doubling and electrification of the Karnobat-Siendel railway line,
- Paragraph 2.2.6 Stage 4:"Rail connection of the new Port of Kavala
- Paragraph 2.2.7 Stage 4:"Rehabilitation of Varna-Ruse rail line"
- Paragraph 2.2.8 Stage 4:"Improvement of the Ruse-Stara Zagora rail line"
- Paragraph 2.2.9 Stage 4:"Ruse Regional Intermodal Terminal"

the eligible funding objectives are the following:

A.Comprehensive Network Projects

General objective

This priority covers all transport infrastructure projects (studies and works) in order to implement the comprehensive network, within the limits of eligibility for financial support for projects of common interest on the comprehensive network set in the CEF Regulation.

Specific objectives

In particular this priority covers actions which contribute to bridging missing links, facilitating cross-border traffic flows and/or improving safety, or removing bottlenecks and when those actions also contribute to the development of the core network or interconnect core network corridors.

It also covers the preparation of future projects on the comprehensive network, through the necessary feasibility studies, permission procedures, implementation and evaluation in sections of the comprehensive network.

Multimodal logistic platforms

General objectives:

Multimodal logistics platforms cover maritime ports, inland ports, airports and rail-road terminals, as per the definitions of the TEN-T Guidelines. This priority covers all connections by road, rail and inland waterways to these logistic platforms.

Specific objectives:

Providing for effective interconnection and integration of the infrastructure, including where necessary through access infrastructure and so called "last mile" connections

Accessibility

General objectives

Commission Decision 2008/164/EC5 of 21 December 2007 aims at permitting interoperability and at offering a similar level of access to persons with disabilities or reduced mobility across the trans-European network. Regulation 1371/2007 on rail passengers' rights and obligations provides that railway undertakings and ticket vendors shall provide passengers with travel information and information about the accessibility of services, infrastructure and facilities.

Improving accessibility and information about accessibility (in line with relevant EU legislation on passenger' rights) at transfer points between modes (e.g. stations, airports, coach stations, connections between TEN-T and urban transport infrastructure) is also a key element in this regard.

The proposed actions shall contribute to these objectives according to the article 37 of the TEN-T Guidelines.

Specific objectives

• Enabling passengers with disabilities and passengers with reduced mobility to plan their train journey across Europe and to assess if they can use a particular station.

• Promoting projects enhancing accessibility during construction, upgrading and renewal of stations, in compliance with the Commission Decision 2008/164/EC.

• Supporting the creation of inter-modal transport chains, accessible to passengers with disabilities and reduced mobility; this would include intermodal information, actions to remove missing links between different modes of transport.

Freight Transport Services

General objective

The general objective is to stimulate and deploy innovative, efficient and sustainable freight transport services that use the infrastructure of the comprehensive network and contribute to reducing carbon dioxide emissions and other environmental impacts of transport, and improve accessibility within the Union. Support for sustainable freight transport services, as a follow- up of the Marco Polo II programme, will focus on core network corridors.

The specific objectives under this priority include:

• Support deployment of small scale infrastructure and equipment improving efficiency, sustainability, interoperability and safety of the services;

• Facilitate and promote multimodal transport service operations and systems enhancing integration between modes;

• Support and promote innovative concepts, products and advanced transport solutions and systems; stimulate collaborative approaches and other measures to improve the efficiency along the supply chain;

• Stimulate resource and carbon efficiency of freight transport services in individual modes, taking into account their specific characteristics, as well as in multimodal operations.

Innovation

This priority, on the whole, aims at advancing a sustainable and efficient transport system whereby infrastructure development enables the achievement of forward-looking policy objectives within and across all transport sectors.

General objectives

Overall, TEN-T development must keep up with state of the art developments of new technologies and innovation. In this respect, TEN-T development for all transport modes and systems shall complement Research and Innovation actions under Horizon 2020 by pursuing a market-oriented approach and promoting the deployment of innovative technological and organisational solutions in accordance with the provisions of article 33 of the TEN-T Guidelines.

The development of the necessary TEN-T infrastructure and facilities, as well as the optimisation of their use, shall support the Member States in implementing the Clean Power for Transport Directive2 – notably in the framework of the corridor approach.

Specific objectives

• Objectives applying to the comprehensive network (excluding the core network parts);

- Measures facilitating the decarbonisation of all transport modes by stimulating energy efficiency, introducing alternative propulsion systems, including electricity supply systems, and providing corresponding infrastructure. Such infrastructure may include grids and other facilities necessary for the energy supply, may take account of the infrastructure - vehicle interface and may

encompass telematics applications;
- Safe, secure and sustainable transport solutions for the movement of persons and the transport of goods
- Advanced concepts for operation, management, accessibility, interoperability,
- multi-modality and efficiency of the network;

• Objectives applying to the entire comprehensive network, i.e. including the core network;
- Promotion of efficient ways to provide accessible and comprehensible information to all citizens regarding interconnections, interoperability and multi-modality, including through multimodal ticketing and coordination of travel timetables;
- The promotion of measures to reduce external cost of transport, caused by factors such as congestion, damage to health, pollution of any kind including noise and emissions;
- Measures introducing security technology and compatible identification standards on the networks;
- Enhanced resilience to climate change;
- Further advancement of the development and deployment of telematics applications within and between modes of transport.

Neighbouring Countries

General objectives

The European neighbourhood policy, the preparation of further EU enlargement and the Union's active role in a number of international organisations entail cooperation with third countries in the field of transport infrastructure development. For this purpose, the TEN-T Guidelines (Article 8) set out specific areas of action.

Specific objectives

• The connection between the core network and the transport networks of neighbouring countries, with a view to enhancing economic growth and competitiveness, through studies;

• Completion of transport infrastructure in neighbouring countries which serve as links between parts of the core network in the Union, through studies;

• The connection of the core network at border crossing points which concern infrastructure necessary to ensure seamless traffic flow, border checks, border surveillance and other border control procedures, through studies and works;

• The implementation of traffic management systems in neighbouring countries through studies and works, except for River Information Services which are covered under the multiannual work programme.

6.1 Innovative financial instruments – leveraging EU investments

The European Commission will build on the financial instruments put in place under the current financial framework in cooperation with the EIB, such as the Loan Guarantee Instrument for trans-European transport network projects (LGTT). One other such instrument is the Project Bond Initiative, which has been developed building on the experience acquired with the LGTT. Following the successful completion of the Pilot Phase of the Project Bond Initiative, the two instruments will be used in parallel within the CEF framework.

Widening the portfolio of available financial instruments is also seen by stakeholders as a means to better adjust EU support to the particular needs of a project, to enable effective project structuring and to attract new investors. For transport infrastructure, a market uptake of €2 billion is estimated. With an expected multiplier effect of 1:15 to 1:20, the access to capital for the investments needed will be substantially enhanced.

6.2 A special mechanism for projects in Member States eligible to Cohesion Fund Support

For the 2014-2020 financial period, the European Commission has proposed that €10 billion be transferred from the Cohesion Fund, to be managed according to central management rules (including eligibility rules, closer monitoring and the application of the use-it-or-lose-it principle) and focused on the high EU added-value objectives and priorities as defined for the CEF transport.

These transferred funds will be however earmarked exclusively for TEN-T infrastructure projects in the Member States eligible to the Cohesion Fund. They will be made available in addition to financing from the rest of the proposed CEF transport budget of €21.7 billion. Moreover, projects supported with financing from these exclusively earmarked funds will benefit of more favourable financial support conditions. More precisely, co-funding rates shall be comparable to those provided by the Cohesion Fund – up to 85% – for all types of eligible actions. By contrast, when accessing financing from the CEF budget open to all Member States, the general CEF transport co-financing rates will apply (see table on page 20) and the projects will need to compete with the proposals coming from all Member States on equal basis.

Without this mechanism enabling the management of funds earmarked from the Cohesion Fund, the CEF will run the risk of being in effect an instrument used only by the economically more advanced Member States of the Union. That is, those countries that can afford to finance highly complex and costly infrastructure projects up to at least 60% of the total project cost. Without funds transferred from the Cohesion Fund, the CEF could not provide preferential, higher co- funding rates that would make these projects more affordable to those Member States whose economies have yet to catch up with those of the group of more advanced Member States.

Therefore, the objective of this specially designed mechanism is to ensure that these projects, needed to support the proper territorial and economical integration of the

European Union, are effectively realised in these Member States too. Currently, transport bottlenecks and missing links affect in particular the East and South-East to West connections – with important consequences for the capacity for economic growth of the countries in these areas, and the mobility of their citizens.

6.3 Implementation of Operational Programs

This section emphasizes on the Implementation of Operational Programmes of both countries, Bulgaria & Greece through the Stratgy for Development of the Tranpost System.

It has to be noted that this section is essentially a common part both for Deliverable 1 (D1)) associated to EU mechanisms for raising funding for investments.

Bulgaria

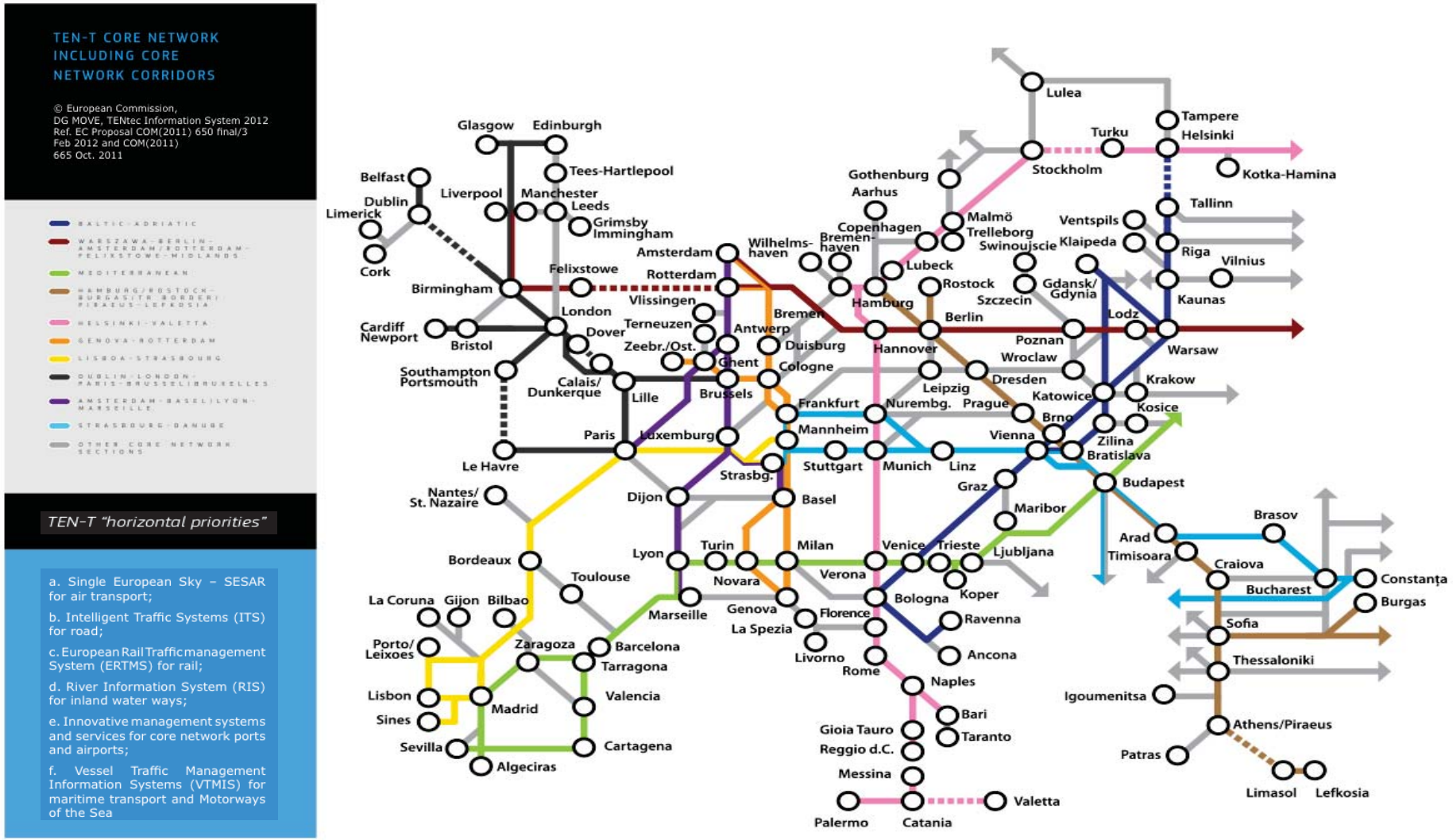
I. Strategy for the Development of the Transport System of the Republic of Bulgaria until 2020

«Delieverable D1», pages 211-246

Greece

II. Strategic Investment Programme for Transport 2014-2025 (SIPT 2014-25)

«Deliverable D(1)», page 224 - 246


TEN-T CORE NETWORK INCLUDING CORE NETWORK CORRIDORS
© European Commission, DG MOVE, TENtec Information System 2012
Ref. EC Proposal COM(2011) 650 final/3 Feb 2012 and COM(2011) 665 Oct. 2011
BALTIC-ADRIATIC
WARSZAWA-BERLIN-AMSTERDAM/ROTTERDAM-FELIXSTOWE-MIDLANDS
MEDITERRANEAN
HAMBURG/ROSTOCK-BURGAS/TR. BORDERI-PIRAEUS-LEFKOSIA
HELSINKI-VALETTA
GENOVA-ROTTERDAM
LISBOA-STRASBOURG
DUBLIN-LONDON-PARIS-BRUSSELS/BRUXELLES
AMSTERDAM-BASEL/LYON-MARSEILLE
STRASBOURG-DANUBE
OTHER CORE NETWORK SECTIONS
TEN-T "horizontal priorities"
a. Single European Sky – SESAR for air transport;
b. Intelligent Traffic Systems (ITS) for road;
c. European Rail Traffic management System (ERTMS) for rail;
d. River Information System (RIS) for inland water ways;
e. Innovative management systems and services for core network ports and airports;
f. Vessel Traffic Management Information Systems (VTMIS) for maritime transport and Motorways of the Sea
Glasgow
Edinburgh
Tees-Hartlepool
Belfast
Liverpool
Manchester
Leeds
Dublin
Limerick
Grimsby
Immingham
Cork
Amsterdam
Felixstowe
Rotterdam
Birmingham
Vlissingen
London
Terneuzen
Cardiff
Newport
Bristol
Dover
Zeebr./Ost.
Antwerp
Ghent
Southampton
Portsmouth
Calais/
Dunkerque
Lille
Brussels
Paris
Luxemburg
Le Havre
Strasbg.
Nantes/
St. Nazaire
Dijon
Basel
Bordeaux
Toulouse
Lyon
Turin
Milan
Novara
Verona
La Coruna
Gijon
Bilbao
Marseille
Genova
La Spezia
Porto/
Leixoes
Zaragoza
Barcelona
Tarragona
Livorno
Rome
Lisbon
Madrid
Valencia
Sines
Naples
Sevilla
Cartagena
Algeciras
Bari
Gioia Tauro
Taranto
Reggio d.C.
Messina
Palermo
Catania
Valetta
Lulea
Tampere
Turku
Helsinki
Stockholm
Kotka-Hamina
Gothenburg
Aarhus
Tallinn
Malmö
Trelleborg
Copenhagen
Ventspils
Wilhelms-
haven
Bremen-
haven
Swinoujscie
Klaipeda
Riga
Lubeck
Vilnius
Rostock
Gdansk/
Gdynia
Hamburg
Szczecin
Kaunas
Bremen
Berlin
Lodz
Hannover
Poznan
Warsaw
Wroclaw
Duisburg
Cologne
Dresden
Leipzig
Krakow
Katowice
Frankfurt
Nuremb.
Prague
Kosice
Brno
Mannheim
Vienna
Zilina
Stuttgart
Munich
Linz
Bratislava
Graz
Budapest
Maribor
Brasov
Arad
Ljubljana
Venice
Trieste
Timisoara
Craiova
Verona
Koper
Constanța
Bucharest
Bologna
Burgas
Florence
Ravenna
Sofia
Ancona
Thessaloniki
Igoumenitsa
Athens/Piraeus
Patras
Limasol
Lefkosia

7 PUBLIC PRIVATE SECTOR PARTNERSHIP AS WAY OF FUNDING

Chapter 1

7.1 Objective

The proposed guidlines of the European Investment Bank , the close collaboration with the EU Commission Services and the Member States , provide an alternative way scenario with the means of Public Private partnership in order to optimise the financing of Transport Infrastructure Initiatives such as the multi modal Corridor Sea2Sea.

The Public Private (PPP) partnership differs from conventional public procurement in several respects. In a PPP partnership the public and private sectors collaborate to deliver the public infrastructure project – which typically share the following features:

- A long-term PPP contract is between a public contracting authority and a private sector PPP company based on the procurement of the services, not of assets.
- The transfer of the certain project risks is to the private sector, notably in the areas of design, build, operations and finance.
- A focus on the specification of project outputs rather than project inputs, taking account of the "whole life cycle" implications for the project.
- The application of private financing (often 'project financing') is to underpin the risks transferred to the private sector.
- Payments are to the private sector, which reflect the services, delivered. The PPP Company may be paid either by users (e.g. toll Corridor;tariffs & models across the Corridor according to vaious segments); by the public contracting authority (e.g. availability payments, shadow tolls); or by a combination of both (e.g. low user charges together with operating public subsidies).

The rationale for using a PPP arrangement instead of conventional public procurement rests on the proposition that optimal risk sharing with the private partner delivers better Value for Money for the public sector.

PPP arrangement is, however, more complex than conventional public procurement. It requires detailed project preparation and planning, proper management of the procurement phase to incentivise competition among bidders. It also require careful contract design to set service standards, allocate risks and reach an acceptable balance between commercial risks and returns. These features require skills in the public sector which are not typically called for in conventional procurement.

The policy objective of TEN-T is the establishment of a single, multimodal network covering both traditional ground-based structures and equipment (including intelligent transport systems) to enable safe and efficient traffic across the EU and support the European internal market. The transport infrastructure components of TEN-T project is the road, rail and inland waterway network, and other

interconnection points between modal networks.

While the investment needs of the TEN-T network is high, many of the principles involved in applying for PPP funding will be applicable to implementing the new Corridor, and experience gained will be applicable to the TEN-T network.

Notwithstanding, a high proportion of TEN-T project will have features which will make more complex its delivery as PPP project than as conventionally procured projects. For example:

- Technology risks in complex communication systems (e.g. for rail); or
- Interface risks related to the interplay of particularly complex services (e.g. signaling, maintenance, operations, and communications in rail projects); or
- Counterparty risks in cross border projects.

7.2 Legal Framework for Public Private Partnerships

The term "public-private partnership" (PPP) is not defined in the EU legislation on public contracts. In general, it refers to forms of co-operation between public authorities and the private sector which aim at ensuring the funding, construction, renovation, management and maintenance of infrastructure associated with the provision of a service.

A legal and regulatory framework that supports PPPs is meant to facilitate investments in complex and long-term PPP partnerships, reduce transaction costs, ensure appropriate regulatory controls, and provide legal and economic mechanisms to enable the resolution of Contract disputes.

The design of the PPP Partnerships legal frameworks varies across EU countries depending on legal tradition and existing laws. The PPP legal framework should include:

- Provisions that make the PPP project possible and facilitate its functioning (for example, the legal right to establish a project company; or the terms and conditions under which public assets may be transferred to non-public entities; or the power of the project company to choose sub-contractors on its own terms, etc.); and
- Provisions that enable governments to provide financing, where relevant (for example, to provide subsidies or to make long-term commitments of public expenditure for the life of the PPP contract).

A PPP legal framework is typically identified in laws and regulations, but also in policy documents, guidance notes, and in the design of PPP contracts. The exact nature of the legal and regulatory framework applicable to a particular PPP transaction also depends, among others, on the financing mechanisms contemplated and the scope of responsibilities transferred to the PPP company. These are issues on which the public sector should always secure advice from suitably qualified advisors.

7.2.1 Country legal traditions

Most countries in Europe have a legal tradition based on civil law. Their law derives from a set of written rules or a civil code. By contrast, in common law jurisdictions such as Greece and Bulgaria, it is the

common law (meaning case law and precedents rather than a civil code) which forms the fundamental basis of all commercial transactions, and from which the principles underpinning the allocation of risk have developed.

Administrative law governs PPP partnerships in many civil law countries. Administrative law sets out fundamental principles, which, in many cases, cannot be derogated from or overridden by agreement of the parties. As such, it provides the framework within which PPP partners' contracts mut be negotiated.

Common law and cicil law jurisdictions have distinct approaches to the issues relevant to PPPs.Differences also exist between civil law countries. It ins not possible to explore all jurisdictions and thus some of the main aspects will be highlighted that could also be particularly important.

In many civil law countries a number of the rights implied by law are relevant to PPPs. A public authority may often be unable to renounce a right conferred upon it by the body of administrative laws and regulations that govern it. This can be perceived by the private party as a limitation to negotiations of bespoke PPP contracts. These rights may include the right of a contracting authority unilaterally to cancel a contract early, the right of an operator to compensation following an unexpected rise in the cost of operations, or the right of an authority to make unilateral changes to the contract if they are in the public interest. Some civil law jurisdictions also contain mandatory notice periods, which must be observed before termination for breach of contract (by either party) can be invoked. In certain civil law jurisdictions, direct agreements or step-in rights are not possible or if they are, they are limited in scope and reach by the existing administrative laws and regulations.

Different approaches are also adopted towards security and insolvency in civil and common law jurisdictions. In insolvency situations, the emphasis in common law jurisdictions is on rescue and reorganisation. In contrast in civil law jurisdictions, the insolvency process focuses on winding companies up. In relation to security, which generally forms an important part of PPP arrangements, the concept of trusts in common law jurisdictions allow a security trustee to hold security on behalf of lenders. This avoids the civil law practice of granting security separately to all lenders, and re-registering it if they change, which can be costly and impractical.

A further practical issue in some civil law jurisdictions is that concessions are not allowed to be transferred to a replacement concessionaire without going through the whole re-tendering process. This is the case for example in Slovakia, and causes major issues for any project lenders who may need step in and cure rights, which is a fundamental principle of project finance. This issue can be partially addressed by allowing for the transfer of the shares in the concessionaire, but with the disadvantage that any transfer of shares carries with it the liabilities of the concessionaire and the asset of the concession.

In general, common law jurisdictions will have a less prescriptive approach to the structuring of PPPs than civil law jurisdictions but one has to ensure that both in substance and in terms of formalities public bodies exercise powers to enter into PPP contracts within the scope of their powers, particularly in the case of authorities which are not departments of state (that is, part of central government). In addition, regard must be had to administrative (rather than legal requirements) imposed by Finance Ministries and to standard form documentation.

7.2.2 Member State PPP Legal Framework

Often in civil law countries, concession laws are introduced to enable PPP projects and to define the type of services that could be procured under PPPs. Specific PPP laws have been introduced in Greece and probab;y in Bulgaria among others. These laws may focus on a specific transport mode, such as motorways, or may apply to PPP partnerships across transport modes and infrastructure sectors. When a country enacts a PPP law, it normally requires changes and references to other binding legislation and regulations.

A specific PPP law is not a necessary condition for PPP development. The legal framework can also be provided by changing existing legal provisions which may have an impact on the PPP project. Nevertheless, PPP laws can establish fundamental principles that PPP partnership should adhere to (for example, the need to assess Value for Money) and to ensure transparency and accountability in the provision of infrastructure.

7.2.3 EU Legislation

Under EU law, there is no specific system governing PPPs. There is, however, EU legislation, which is relevant to certain aspects of PPPs. For example, PPPs represent one method of public sector procurement. The EU has two procurement directives, the Public Sector Directive (2004/18/EC), which prescribes the procedures for the award of works contracts, public supply contracts and public service contracts; and the Utilities Directive (2004/17/EC), which prescribes procurement procedures for entities operating in the water, energy, transport and postal sectors. Furthermore, all contracts in which a public body awards work involving an economic activity to a third party, whether PPPs or not, must be examined in the light of the rules and principles of the EC Treaty, including, in particular, the principles of transparency, equal treatment, proportionality and mutual recognition.

7.3 Accoutnability of the PPP Partnership

Both countries Greece & Bulgaria have submitted successfully under the TEN-T Framework the SEA2SEA Initiative.Suppose that partners form both countries have knowledge and experience in conventional public procurement but are not familiar with PPP partnerships. Partners may find themselves at different stages of decision-making in the PPP project cycle. To illustrate this point consider the following hypothetical scenarios:

Scenario 1 – The Sea2Sea Initiative has been identified and initial pre-feasibility studies completed. The public contracting authority is considering whether to follow a PPP route and needs to compare PPP against other available procurement strategies to be able to select a preferred procurement option. The scenario suggests a number of sources of information to help the public sector authorities to do the necessary analysis to check if PPP is the preferred procurement option (Chapter 2). This analysis normally involves an ex ante comparison of a PPP with a national conventionally funded project (a Public Sector Comparator). The following elements will usually be considered:

- Affordability (i.e. the revenue consequences of the options);
- Risk allocation (i.e. the risks that will be retained by the public sector under each option);
- Value for Money (i.e. the cost and quality consequences of the options);

- Bankability (i.e. the feasibility of securing private finance for the project under reasonable market conditions); and

- Eurostat treatment of PPP projects (i.e. the impact of a PPP on the public authority's debt and deficit situation).

- Scenario 2 – One or both of the two countries public contracting authority is committed to develop the Sea2Sea Initiative with a PPP partnership but the public officials in charge of defining the project strategy have not been previously involved, or have little experience, with PPP procurement methods. They need to understand, among other things, what to expect in terms of how to seek expert advice, the steps required in the PPP project cycle, and how to engage with the private sector. The total "road map" of all the steps that need to be taken in the procurement phase of the PPP cycle (Chapter 3 and Chapter 4).

- Scenario 3 – The Sea2Sea Initiative is already under implementation and the PPP Company proposes changes to the contract, which may impact its financial balance and the Value for Money rationale of the existing PPP arrangement, for example. The public sector officials in charge need to understand the impact of the proposed changes and what information to request from advisers to be able to negotiate with the PPP company with a view to preserve Value for Money in the contract. The Guide covers the key issues that the public contracting authority needs to consider when renegotiating a PPP contract (Chapter 5).

7.4 Detailed Structure of the PPP Partnership & Contents

Figure 10 summarises the three key phases of the PPP project cycle. Detailed drop down structure of PPP project cycle to phases is mapped on the following Figure.

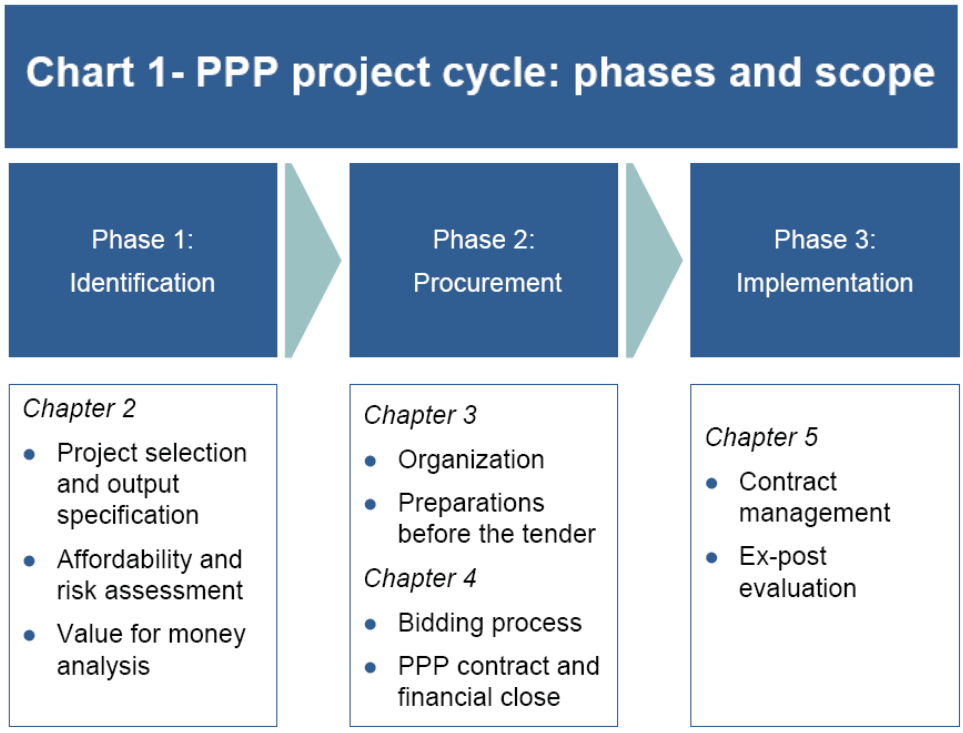


Figure 10:Project Life Cycle to phases

The Guide has four core chapters and one annex. Chapters 2 to 5, the core chapters, cover the procurement and implementation phases of the PPP project cycle and have two stages each (Table 6):

- Chapter 2 provides a summary of the main issues related to the identification phase of the PPP project cycle, including project selection, feasibility studies, affordability, risk allocation and Value for Money.
- Chapter 3 goes over the detailed preparation steps typically required before launching the public tender for the award of the PPP contract.
- Chapter 4 covers the procurement phase of the PPP cycle, including request for proposals, selection of preferred bidder, and financial close.
- Chapter 5 focuses on contract management issues (including changes to the contract, disputes, renegotiations, and termination) and ex-post evaluation.

The structure of the core chapters has the following features:

- For each stage shown in Table 6, the Guide identifies the key steps which the public contracting authority and its advisers need to take before moving to the next stage.
- The discussion of the key steps listed in the third column of Table 1 includes the rationale for the step, the key tasks involved and a list of publication sources to understand those tasks further.

Chapters	Stages	Key Steps
Chapter 2: **Project Identification**	7.5.1 – Project Selection	- Identification - Output specifications - Affordability - Risk Allocation
	7.5.2 – Assessment of PPP option	- Eurostat treatment - Bankability - Value for Money
Chapter 3: **Detailed preparation**	7.6.1 – Getting ready	- Project team - Advisory team - Plan & timetable - Further studies - TEN –T funding
	7.6.2 – Before launching the Tender	- Detailed PPP design - Procurement method - Bid evaluation criteria - Draft PPP contract - Notice & prequalification
Chapter 4: **Procurement**	7.7.1 – Bidding process	- Invitation to Tender - Interaction with bidders

		- Contract award - Final PPP contract
	7.7.2 – PPP Contract & financial close	- Financial agreements - Financial close
		- Management responsibilities - Monitoring service outputs - Adjustments in the contract
Chapter 5: **Project Implementation**	7.8.1 – Contract Management	- Changes to the contract - Dispute resolution - Asset Management - Contract termination
	7.8.2 – Ex-post evaluation	- Institutional Framework - Analytical Framework

Table 6:Chapters-Stages-Key steps

In addition:

- Some specific issues, for example traffic risks and payment mechanisms, or combining EU grants with private finance, are developed in more detail with text boxes because of their relevance to TEN-T PPPs and their fundamental role in the design of the PPP arrangements.
- Checklists are included at the end of each stage to remind of the key tasks that have to be fulfilled before moving to the next stage.
- Summary in the form of a chart is included at the end of each core chapter listing all the stages, steps and key tasks presented in the chapter.

7.5 Project Identification

Chapter 2

The brief summary of the main issues of the project identification phase is presented, which takes place before the procurement phase (Figure 10). The project identification phase is important because it determines whether the selected TEN-T project can (and whether it should) be delivered as a PPP instead of using conventional public procurement.

Chapters 3, 4 and 5, which provide the main focus on the PPP partnership, then explain in detail the procurement and implementation phases of the PPP project cycle.

7.5.1 Project Selection

The ultimate objective of a project selection process is to ensure that it represents "Value for Money". Value for Money refers to the best available outcome for society taking account of all benefits, costs, and risks over the whole life of the project. A necessary condition for a project to represent Value for Money, irrespective of the procurement option chosen to deliver the project, is that the benefits to be derived from the project outweigh the costs. This is normally tested by undertaking a cost-benefit analysis of the project and its requirements.

A distinctive feature of PPP projects is that their requirements are defined in terms of outputs rather than inputs. Conventional project procurement has usually focused on inputs. In this regard, PPPs involve fundamental changes in the way projects are prepared and in the information that the public contracting authority needs to provide to private sector investors. While the typical set of feasibility studies used in the public procurement of transport projects focus on inputs, PPP projects demand a clear set of output requirements and service quality standards which are reflected in the PPP contract (key step 7.6.2.6, Draft PPP contract).

In the project selection step, the public contracting authority and its advisers will review alternative project definitions in the context of a PPP policy, sometimes following guidelines that the public sector will use to assess all PPP projects. These guidelines normally specify who approves what and when throughout the process of project selection, preparation, and procurement.

Once a project specification is selected, the public contracting authority and its advisers will undertake feasibility analysis and project preparation, including traffic demand analysis, cost analysis and a preliminary environmental assessment of the potential impacts of the project.

In the project identification phase, and in order to consider the PPP procurement option, the public authority and its advisers need to answer a set of key questions:

- Is the project affordable? Will users or the government, or both, pay for the project? How will they pay? (user charges, operating subsidies, EU grants, government guarantees, etc.).
- What are the key sources of risk in the proposed project? What is the optimal risk allocation and risk management strategy?

- What are the financing sources for the proposed project? Will the project be bankable (capable of raising debt finance) and attract investors and comply with the requisites for EU funding?
- Even if the project is affordable and bankable, does the project represent Value for Money?
- For many countries, the issue of the balance sheet treatment of the project (ie will it score as a public sector investment for purposes of the Debt and Deficit Procedure) is also important.

Stage 7.5.1 identifies a list of issues and considerations for the attention of the public authority and its advisers. It does not however offer a comprehensive catalogue of recommendations, as the assessment of the PPP choice will be dependent on the specific situation of each country, notably in terms of legal and institutional context. The TEN-T Executive Agency, DG MOVE and EPEC may develop these considerations and provide more tailored guidance in a future document.

7.5.2 Assessment of PPP option

Affordability

Affordability relates to capacity to pay for building, operating and maintaining the TEN-T project, be it capacity to pay by users of the infrastructure services or by the government that has identified the need for the infrastructure asset to be built.

An affordability assessment requires a careful analysis of the expected operating and maintenance costs of the TEN-T project, together with the levels of cash flow required to repay the loans and provide a return to investors. The financial and technical advisers will develop a financial model to assess alternatives in terms of a range of capital, operating, and maintenance cost estimates, appropriate cost escalation indexes, and assumed financing structure and preliminary contract terms. At the pre-feasibility stage, the financial model is developed at a fairly high level. It is later on, at the feasibility stage and when PPP partnership is designed in detail, that the financial model is further developed and refined. (key step 7.6.2.3, Prepare detailed design of the PPP). The assessment of costs translates into an estimate of the required revenues to meet those costs:

- In PPPs where users pay directly for the service (so-called revenue- based PPPs), the public contracting authority and its advisers need to examine the capacity and willingness of users to pay, especially if tariffs need to be increased from current levels to meet revenue cash-flow targets. In many PPPs, the public sector will need to subsidise the service in order to make it affordable. The use of public subsidies can impact the Value for Money of a PPP arrangement requiring that the net life-cycle efficiency savings from the PPP option be large enough to compensate for the use of public funds.

- In PPPs where the public contracting authority makes the payments (so- called availability-based PPPs), assessment of affordability is a key consideration in the design of the project. The public contracting authority will enter into payment obligations over the life of the PPP contract, which represents long-term commitments by government, lenders and investors and can influence the design of the project and its Value for Money proposition. Sometimes, options may need to be examined that combine direct fees from users with government service payments or that contribute existing government assets to the project.

Thus, affordability relates not only to the financial balance of the PPP arrangement, but also to government expenditure items in general. A TEN-T project is considered to be affordable if government

expenditure associated with it, whether it is via PPP or via conventional public procurement, can be accommodated within the inter-temporal budget limit of the government.

Risk allocation

Achieving the Value for Money that justifies the PPP option also depends on the ability to identify, analyse and allocate project risks adequately. Failure to do so translates into financial costs. Thus, at the project identification stage, in addition to assessing the sources of revenue linked with the affordability of the project, the public contracting authority and its advisers need to establish a broad assessment of the risks that arise from the project requirements in order to manage them. Risk management is an ongoing process which continues throughout the life of a PPP project. It takes place in five stages:

- Risk identification. The process of identifying all the risks relevant to the project.
- Risk assessment. Determining the likelihood of identified risks materialising and the magnitude of their consequences if they do materialise.
- Risk allocation. Allocating responsibility for dealing with the consequences of each risk to one of the parties to the contract, or agreeing to deal with the risk through a specified mechanism which may involve sharing the risk.
- Risk mitigation. Attempting to reduce the likelihood of the risk occurring and the degree of its consequences for the risk-taker.
- Monitoring and review. Monitoring and reviewing identified risks and new risks as the PPP project develops and its environment changes, with new risks to be assessed, allocated, mitigated and monitored. This process continues during the life of the PPP contract.

Broadly speaking, PPP project risks can be divided into commercial risk and legal and political risks:

- Commercial risk can be divided into supply and demand risks. Supply risk concerns mainly the ability of the PPP company to deliver. Supply risk can be sub-divided into construction risk and supply-side operation risk (where construction and operation constitute the two phases of the project). Construction and supply-side operation risks include financial market risk due to, for example, changes in the cost of capital or changes in exchange rates and inflation. Demand risk relates to insufficient traffic volumes or a traffic composition not in line with base case assumptions.
- Legal and political risks relate to, among other factors, the legal framework, dispute resolution, the regulatory framework, government policy, taxation, expropriation and nationalisation.

In general, the private sector is better placed to assume commercial risk while the public sector is better placed to assume legal and political risk.

If government guarantees are envisaged, the public contracting authority and its advisers need to assess the impact of the risk allocation on the cost of the guarantee and its future implications on public finances before granting the guarantee

Bankability

A PPP project is considered "bankable" if lenders are willing to finance it – and this generally means on a project finance basis.

The majority of third-party funding for PPP projects normally consists of long- term debt finance, which

typically varies from 70 percent to as much as 90 percent of the total funding requirement (for example, in a PFI-model PPP), depending on the perceived risks of the project. Debt is a cheaper source of funding than equity, as it carries relatively less risk. Lending to PPP projects (usually referred to as project financing or limited-recourse financing) looks to the cash flow of the project as the principal source of security (Annex for an introduction to project finance issues as they apply to TEN-T PPP projects). The public contracting authority and its advisers need to assess financial risks thoroughly. The financial risks experienced by transport PPPs projects tend to be related to some or all of the following factors:

- Too much reliance on "best case" scenarios for revenue assumptions and on levels of demand from a poorly chosen "baseline" case;
- Lack of attention to financing needs in the project feasibility, which leads to larger amounts of debt in projects;
- Long-term PPP projects that are financed with short-term debt, coupled with a sometimes unjustified assumption that the short-term debt can be rolled over at the same or even better refinancing conditions;
- Floating rate debt that creates interest rate risk;
- Governments that do not consider the allocation of risks properly and ignore the incentives for strategic renegotiation; or
- Refinancing can also create unforeseen benefits for the private operator, in which the government might not share if the contract does not explicitly provide for this possibility.

Value for Money Analysis

A PPP project yields Value for Money if it results in a net positive gain to society which is greater than that which could be achieved through any alternative procurement route (relative to doing no project). It is good practice to carry out a Value for Money analysis – essentially a cost-benefit analysis – as part of the initial preparation of a TEN-T project, regardless of whether it is procured conventionally or as a PPP.

Carrying out a PSC exercise is part of building the business case for a PPP project and it is a legal requirement in many PPP programmes worldwide. Advisers need to make various cost adjustments to be able to do a detailed quantitative comparison between the PPP project and the PSC. These cost adjustments include differences in tax regime, for example.

It is generally assumed that the PPP option will be more efficient in investment, operating and maintenance costs than the PSC. So the key question in assessing Value for Money is usually whether the greater efficiency of the PPP project is likely to outweigh factors that might make the PPP more costly – the main ones being transaction and contract oversight costs (additional bidding, contracting, and monitoring costs in a PPP setting) and financing costs (possible added costs due to private sector financing, especially equity financing).

Experience suggests that the likelihood that a PPP provides Value for Money is higher when all or most of the following exist:

- There is a major investment programme, requiring effective management of risks associated with construction and delivery; this may be a single major project or a series of replicable smaller projects;
- The private sector has the expertise to design and implement the project and is expected to offer Value for Money;
- The public sector is able to define its service needs as outputs, which can be written in the PPP

contract ensuring effective and accountable delivery of transport infrastructure services in the long run;

- Risk allocation between the public and private sectors can be clearly identified and implemented;
- It is possible to estimate the long-term costs on a whole-of-life basis of providing the transport infrastructure assets and services involved;
- The value of the project is sufficiently large to ensure that procurement costs are not disproportionate; or
- The technological aspects of the project are reasonably stable and not susceptible to short term and sudden changes.

The project identification phase therefore involves an early assessment of what payment structure is feasible, what the government or the users can afford to pay (and when), the impact on the project scope, service level, structure, and the associated risks the private sector might be prepared to accept. This exercise should help the public sector to identify and manage any long-term fiscal obligations – implicit and explicit – that may result from a TEN-T PPP.

7.6 Detailed Preparation

Chapter 3

Before the formal procurement phase starts, preparation work is necessary at two levels. Reference is to these as (i) getting organised and (ii) finalising all preparations before launching the tender. Chart 2 summarises these stages and their key steps, which are described in detail in this chapter.

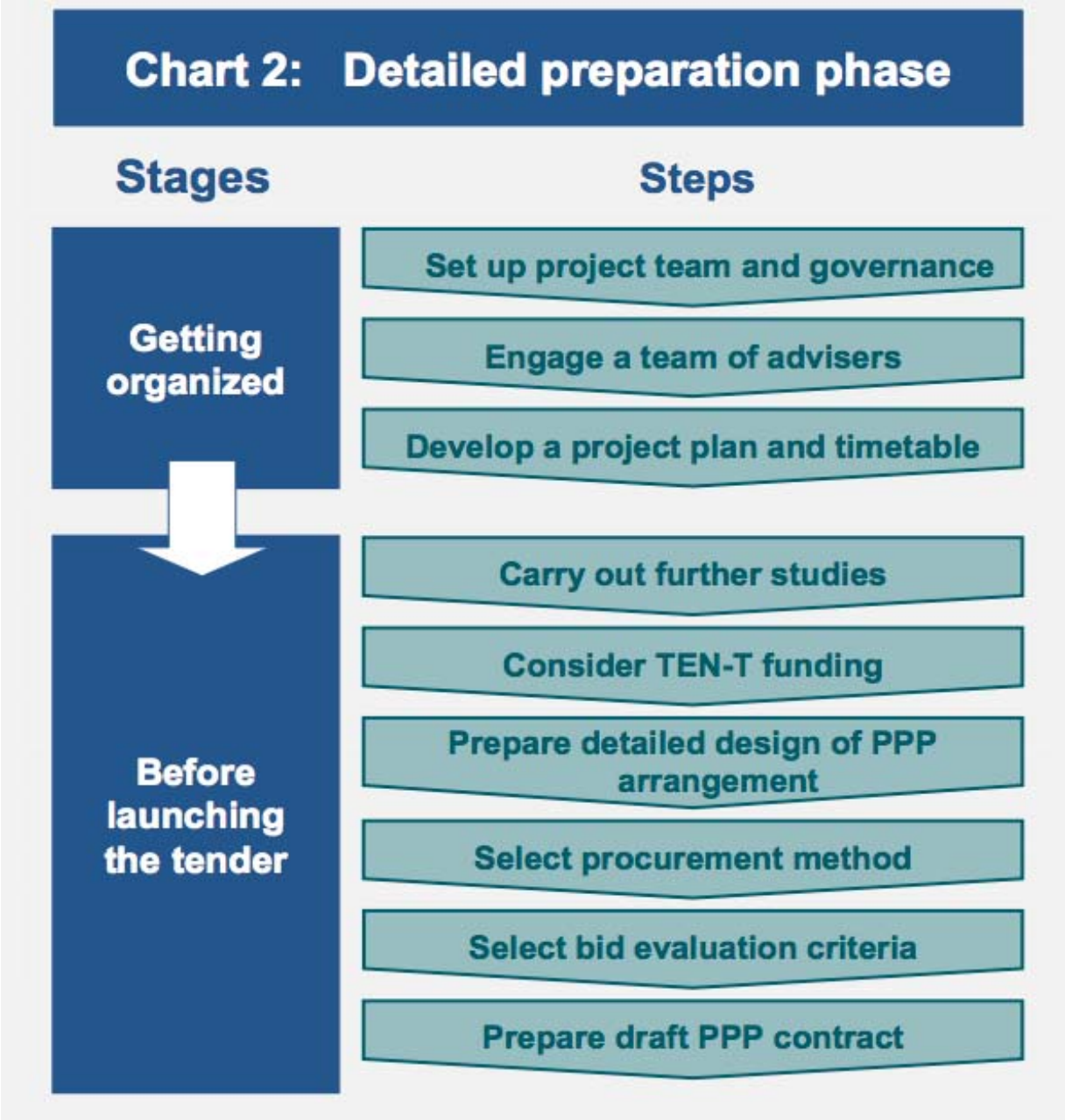


Figure 11:Detailed Preparation phases

7.6.1 Getting Ready

Figure 12:Organisation Steps

The project procurement phase in the PPP cycle begins after the project has received approval by the relevant public authority based on a detailed feasibility report or business case. Such approval would support the development of the project as a PPP. Chapter 2 summarised some of the issues addressed in making the business case.

Approval of the main project features is important as a prerequisite of the start of the procurement phase since detailed project preparation is a resource- intensive undertaking.

The process before engaging with potential bidders involves two stages: getting organised (Stage 7.6.1) and detailed preparations before launching the tender (Stage 7.6.2). Stage 7.6.1 has two goals:

- Put in place the "project management team", including external advisers, and allocate responsibilities; and
- Plan and schedule the tasks for the detailed preparation and procurement phases.

Set up Project Team & Governance structure

The complexity and scale of a TEN-T PPP project will usually justify a team- based management approach to ensure that all the required skills are effectively applied.

A common way of implementing effective project governance for PPP project development is by a system of boards or committees. Different systems can be considered, but they normally include:

- The project board, or steering committee, comprising the main public sector stakeholders and led by a senior officer within the public authority that is responsible for delivering the project; and
- The project management team, responsible for managing the PPP project (including managing advisers) and reporting to the steering committee. Of particular importance is the project director. During the intense procurement phase, this will be a full-time job. The skill set should include familiarity with private business as well as an understanding of how government administration works.

The governance structure of a cross border TEN-T project is likely to be particularly complex. In this case, it will be necessary to consider the following:

- The impact of different approval and accountability arrangements across the two or more jurisdictions;
- The implications of differing legal structures
- Arrangements for chairing the project board or steering committee;
- The language in which the board will conduct its business and, where necessary, translation arrangements for reports;
- The issue of whether there will be one project management team (and project director) or two and, in the latter case, how interface issues will work; and
- In a competitive dialogue, or negotiations, how will it be ensured that the management of information to the bidders is appropriately controlled? A project board, or steering committee and, in certain cases, even a project team, may benefit from the presence of experts from the TEN-T Executive Agency. The options for this engagement can be discussed with the Agency.

Engage the Team of Advisers

The importance of having in place a strong group of expert advisers cannot be overstated. The engagement of PPP advisers requires that sufficient resources are budgeted for that purpose early in the project cycle. The PPP project management team will require different types of advisers for different phases of the PPP project preparation process. Consultants would almost certainly have been used to prepare the various feasibility reports. They may have been hired separately and in a more ad-hoc manner. It is when the procurement phase begins that a comprehensive plan needs to be developed for how advisers will be used:

- The core team of advisers for the procurement phase will usually consist of a financial adviser, a technical adviser, and a legal adviser (each of these composed of more than one individual). Other consultants will be required for specific inputs – e.g. separate consultants for environmental, social impact, regulatory risk and insurance matters. The exact nature of the broad advisory team will depend on the TEN-T project and the in- house resources available. (Article 1 - PPP advice during procurement).
- The public authority with considerable experience in PPP procurement can engage the advisers on separate mandates rather than a consortium mandate, with the project director, normally a public official, managing the entire process. It may be advisable, however, to hire a consortium of consultants, under one contract, led by one of them (often the financial advisor).
- Even if a single consortium of consultants is engaged, it is useful for the project director to be able to discuss issues with each member of the advisory group separately to ensure that any differences of opinion on difficult issues are brought out and solutions are identified .

Public authorities should pay careful attention to the incentives created by different ways of engaging advisers and remunerating them. For example, if the consultants hired to carry out the feasibility work are fairly certain that they will be kept on board to advise on the transaction, they may have a disincentive to disclose major problems with the project for fear that preparation will not continue. Alternatively if the transaction advisers are paid a success fee in full when the PPP contract is signed, they may have an incentive to deliver a project that is not yet bankable and that takes many months (or years) to reach financial close. It may therefore be useful at the outset of the process for the public authority to hire an initial high-level consultant to assist in the planning of all the technical assistance that will be needed during the process, prepare terms of reference, etc.

Develop Plan & Timetable for Project Preparation & Procurement

A key initial task for the project management team or teams (in fact, probably an initial task for the advisers) is to develop a detailed project plan, including a timetable for project preparation and procurement. The plan needs to take into account all the key steps in the process including:

- document development;
- stakeholder consultation;
- bidding process and private sector interface; and
- government approval process.

PPP preparation is a complex undertaking with parallel activities feeding into critical paths. It is important that activities that are on the critical paths be initiated at the planned time and monitored closely to ensure that they proceed as planned and do not cause delays to other activities. It is helpful to use project-planning software to create the timeline in the form of a Gantt chart. The chart can then be easily updated from time to time.

CHECKLIST*: Getting ready*

The project management team, working in the public contracting authority and its group of advisers, will have to address a set of questions regarding organisation before proceeding to the next stage. For example:

- Are all relevant project approvals in place?
- Is a credible and well-resourced team in place to manage project preparations and procurement?
- Are project governance structures and processes established to ensure effective decision making?
- Are credible and experienced advisers appointed?
- Have all relevant stakeholders been identified and consulted to check their commitment to the project?
- Is a realistic procurement timetable in place for the procurement phase?
- Has appropriate care been taken to deal with the impact of TEN-T specific issues, such as coordinating approval processes in multi- jurisdiction projects?

Article 1: PPP advice during procurement

Advisers are normally involved at every stage of the PPP project cycle, including the initial feasibility assessment, project preparations, project procurement, and project implementation. A non-exhaustive list of examples of the legal, financial, technical and environmental assistance typically provided by PPP advisers, in particular during the procurement phase, will include the following:

Legal adviser

- Advise the public sector on the issue of the legal powers (or vires) necessary to enter into the project
- Assist in the assessment of the legal feasibility of the project as a TEN-T (for example, where appropriate, relating to cross jurisdiction issues)
- Advise on the appropriate procurement route
- Advise on, or draft, the initial contract notice
- Advise on, or draft, procurement documentation such as pre-qualification questionnaires, invitation to tender, evaluation criteria etc.
- Assist in the assessment of the powers and legal feasibility of the project
- Develop the contract and bid documentation for the project
- Ensure that bids meet the legal and contractual requirements for submission
- Evaluate and advise on all processes and legal and contractual solutions throughout the procurement phase, including contract negotiation
- Provide support in the clarification and fine-tuning of legal aspects

Technical adviser

- Draft the output requirements and specifications of the PPP project
- Develop payment mechanisms in the PPP contract (with the financial advisers)
- Evaluate and advise on all technical solutions during the procurement phase
- Undertake technical due diligence on bidders' solutions
- Carry out any site condition, planning, and design work

Financial adviser

- Support the development of all financial aspects of the project
- Advise on the applicability of specific sources of TEN-T funding, and how these can be optimized in the funding structure
- Ensure that all financial aspects of the bidders' solutions meet the requirements for submitting a financial bid
- Optimize and scrutinize the financial models submitted by bidders
- Evaluate and advise on financial proposals throughout the procurement phase
- Undertake financial due diligence on bids submitted

Environmental adviser

- Examine the potential environmental impact of the project
- Assist in environmental due diligence, including required permits and certifications
- Identify potential environmental risks and how submitted bids address them
- Consider the mitigation of such risks and the impact on the scope and design project

7.6.2 Before launching the Tender

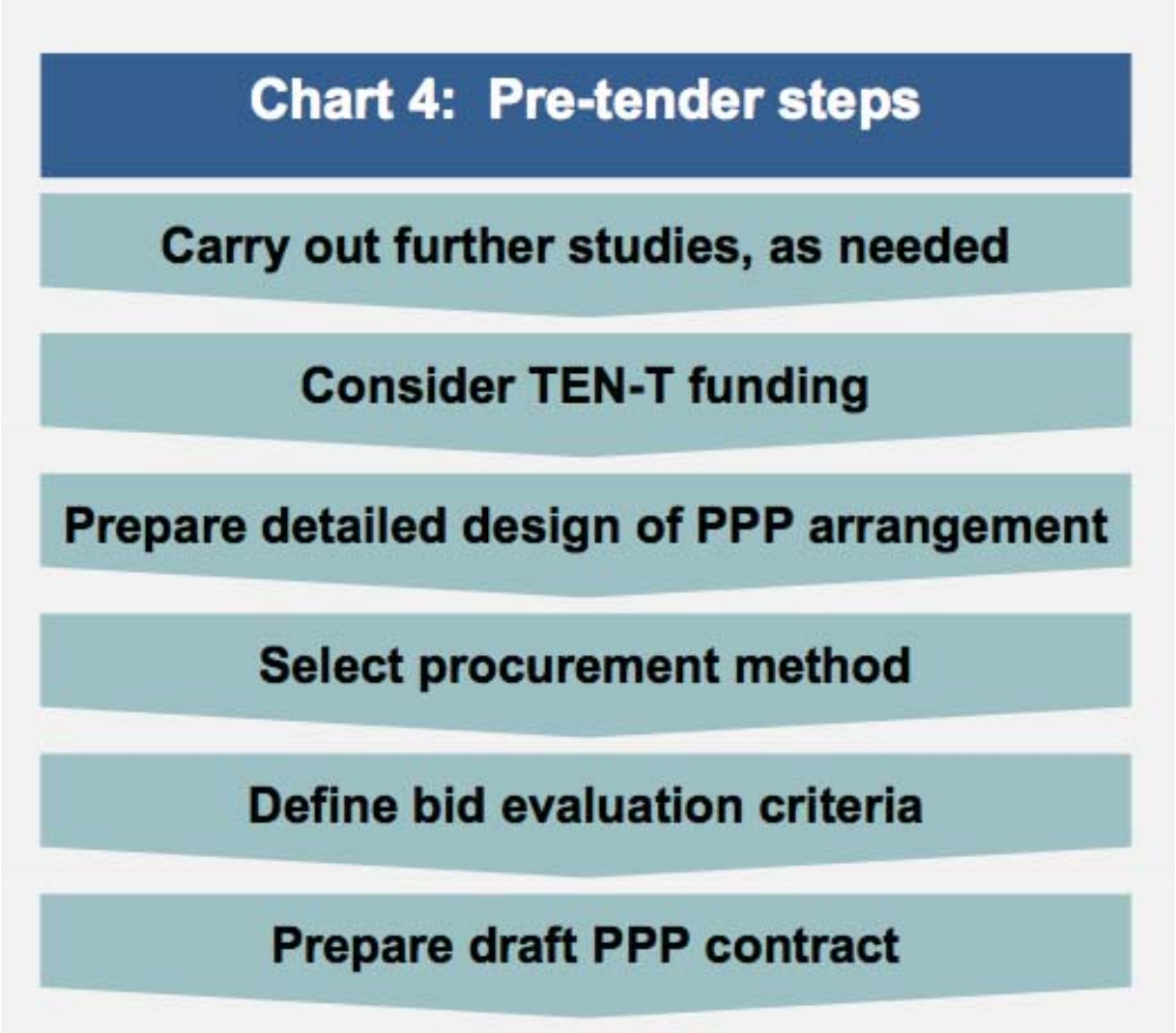


Figure 13:Pre-Tender Steps

Stage 7.6.2 has two main goals:

- further develop all aspects of the PPP design (responsibilities, risk allocation, payment mechanism, etc.) in a progressive and iterative manner, concluding with a full draft PPP contract; and
- select the tendering method, decide on bid evaluation criteria and prepare the complete tender documents. At the end of Stage 7.6.2, the project management team will be ready to prequalify consortia interested in bidding for the TEN-T project and issue the invitation to tender. It is useful to end Stage 7.6.2 at that point because in some jurisdictions a high-level

clearance will be required before publishing the procurement notice and proceeding with the invitation to tender. The end of Stage 7.6.2 is therefore an important milestone in the project delivery phase of the PPP cycle.

Some steps of the PPP cycle may not proceed in the rigid chronological order as Chart 4 implies, and there are often overlaps. For example, the final tasks of detailed PPP design preparation may continue during the later prequalification exercise. This will often be the most efficient way for the advisers to proceed.

Carry out Further Studies

Even though the core technical, financial and economic studies will have been carried out during the feasibility phase, there may be a need for further, more focused studies during the procurement phase.

- Preparing the business case and appraising the TEN-T project may have brought to light aspects where more detailed work is needed – for example, refinement of transport network effects to better understand future travel demand for the services, if this is a high-risk area.
- The studies during the feasibility phase will have been oriented most of all to helping the public authority or authorities take a yes/no decision and select among major project alternatives, not necessarily to refine the TEN-T PPP design in preparation for contract drafting.
- As the PPP design advances, decisions about risk allocation may require additional studies. For example, in some projects (e.g. involving tunnels) it may be useful for the public authority to carry out an initial study of ground conditions and make these available to bidders.
- The public authority and its team of advisers should take great care to ensure a clear delineation of the extent to which the private sector can rely on the results of information given by the public authority. Unintentional warranties given by the public sector can undermine risk transfer. Legal advice should always be sought on potential legal responsibility or liability arising out of the provision of information by the public sector to the private sector. As a general principle, the private sector should be required to do its own due diligence investigations rather than rely on information provided to it.

Consider TEN-T Funding

In a PPP, commercial financing is generally the responsibility of the PPP company, not the public contracting authority. But a TEN-T PPP may offer the potential to benefit from a range of financial instruments established by the EU. These may have the effect of increasing the affordability and / or value for money of the project to the public sector. The TEN-T Executive Agency will be able to advise further on the applicability of the instruments noted in this section to specific projects

Grants from the Cohesion and Structural Funds

EU grant funding may be available for projects located in areas which benefit from the Cohesion or Structural Funds (see Box 2 Combining Cohesion and Structural Funds with PPPs). In these cases, the public authority will often play a significant role in mobilising this financing (e.g. grants must usually be channelled through a sponsoring public sector entity**.**

TEN-T funding instruments

In addition to funding available through the TEN-T Annual and Multi-Annual Programmes' Calls for proposals, there are other financing instruments and initiatives that have been designed to facilitate the procurement and implementation of TEN-T projects using PPP arrangements:

- Construction cost-based grants equivalent to up to 30 percent of the total construction cost to support payment obligations after project completion in availability-based PPPs;
- Provision of loan guarantees: up to EUR 500 million is availableto support a loan and guarantee instrument; and
- Provision of risk capital: up to 1% of EUR 80 billion of the TEN-T budget can be invested as equity or quasi-equity through a dedicated infrastructure fund.

The Community's financial envelope for the implementation of the TEN-T Programme for the period 2007–2013 was approximately €8 billion

EIB finance

The European Investment Bank is also an important source of loans and guarantees for TEN-T projects. Other initiatives, such as the facilitation of the issuance of TEN-T project bonds, are currently being considered by EIB and the EU Commission.

Article 2: Combining Cohesion and Structural Funds with PPPs

A revenue-based TEN-T PPP can be self-supporting if investment costs are funded entirely by private financing and project revenues derive solely from user charges. In many cases, however, full cost recovery through user charges may not be feasible – e.g. because of limited willingness to pay or affordability constraints. In these cases – where the government has to provide financial support to make the PPP financially feasible either at the start or on a recurrent basis – EU grants may be available for TEN-T projects to cover part of the funding gap.

Public authorities pursuing PPPs should be aware of the terms and conditions of EU grant funding to be able to benefit from them to the fullest extent. The European Commission is expected in the near future to issue guidance on the legal and methodological issues involved in combining EU funds with PPPs, in particular in the framework of the JASPERS initiative, in order to facilitate and increase the uptake of PPPs in Structural Fund projects. Some of the issues under review at present include the following:

A) Understanding EU grant eligibility requirements relating to PPPs and how to determine the maximum permitted amount of EU grant funding for a specific.

- The EU grant can cover up to 85% of eligible expenditures. Co-financing by the government (at least 15%) is always required.

If the PPP will generate some revenue from user charges, the "eligible expenditure" for purposes of determining the amount of the EU grant is reduced by the net contribution (i.e. after covering operating and maintenance costs) that such user-charge revenue makes to capital expenditures (determined on a discounted basis). This is the "funding gap" approach.

- The direct beneficiary of the grant must be the public authority responsible for the PPP, generally the public authority contracting party. This makes the procedures somewhat more complicated than if the PPP project company could receive the grant funds directly, but it has been found to be workable.

B) Understanding the procedures (including timing) for the submission of documents and the approval of funding

- Approval of funding before bidding for the PPP takes place. In many ways, this is the preferred solution. The grant arrangements can be thoroughly vetted, planned and specified in advance, and bidders will be asked to bid on that basis. This requires detailed structuring of the PPP project before going to the market, but (as noted elsewhere in this Guide) this is the best approach regardless of the presence of any grant funding.

- Approval of funding after the preferred bidder has been selected. In this approach, although it is well understood at an earlier stage how a EU grant can be incorporated into the PPP and the contract and bidding are well structured to take this into consideration, the approval of the grant is not obtained until after the preferred bidder has been selected. This approach is advantageous where the results of the PPP bidding process need to be clarified in order to enable key elements of the grant application to be filled in (e.g. if there would be significant uncertainty about the size of grant required).

C) Structuring a PPP that includes EU grant funding in a way that does not weaken incentives and reduce Value for Money

- For example, EU grants should not incentivize the private partner to allocate too much of the costs to capital expenditures rather than operation and maintenance expenditures – thus removing one of the benefits of PPPs, namely optimal whole-life costing. Good practice can be maintained by careful structuring of the PPP contract and the bidding process. This should not be difficult if competent advisers are engaged. It will also be less of a problem where the grant funding is modest and there remains a significant amount of private funding.

D) Determining the way (or ways) that EU grant funds can be applied to the PPP

- Parallel co-financing of capex (capital grant). In this method, the private sector and another finance a distinct component of capex by the EU grant and government funds.

- Blended co-financing of capex (capex subsidy, capital grant). This is the most common model. The EU grant and state funds are used jointly with the financing mobilized by the private partner to make payments during the construction period under a single prime construction contract.

- DBO (design build operate) contract. This is an extreme form of the approach above in which private financing has been entirely replaced with EU grant and state budgetary funds, but there is just one prime contract covering both the construction and operating phases.

- Partial grant funding of service fee (payment subsidy). Grant funds could be used during the operating period as full or partial payment of availability payments, that is, time-based payments which would otherwise be made solely by the public authority, as opposed to user charges.

In all cases, it is essential to seek proper advice and discuss the project with the relevant EC authority (e.g. national management authority, DG REGIO, INEA Executive Agency), maintaining a dialogue during project development and procurement, to ensure that the PPP is being designed and procured in a way that will give the greatest assurances that the applicable EU grant will be forthcoming and to avoid later procedural complications. Finally, there are other considerations to be taken into account when incorporating EU grants into a PPP, for example: choice of the right tender evaluation criteria; ensuring that the grant will not be considered to be illegal state aid; or minimizing the risk – through careful contract design – that a "significant modification" might result in a required repayment of the EU grant.

Prepare Detailed design of PPP partnership

All aspects of the PPP arrangement – responsibilities, risk allocation, payment mechanism, etc. – need to be developed in further detail, with the ultimate goal of producing the draft PPP contract. It is advisable to deal with this in smaller sub-steps rather than to try to draft a full PPP contract right away. This simplifies the internal review process: it is better to focus the initial internal discussion and approval on the broad commercial aspects of project design rather than on detailed legal terms.

- The first sub-step might be to prepare a document outlining the principal commercial terms ("heads of terms"), and once the heads of terms have been internally approved, to progressively develop and refine the different topics.Certain aspects (e.g. payment mechanism) might first require the preparation by the advisers of discussion notes presenting and assessing various alternatives.
- The risk allocation of the PPP arrangement will be further developed with the help of advisers and the results checked against prevailing market conditions. Preliminary risk matrices or registers will have been used in the feasibility phase, and they will be further refined in this phase.
- The assessment of traffic volumes and traffic risks is essential in TEN-T projects as in any other large transport infrastructure projects. Experience shows that in many cases the appraisal of transport projects tends to overestimate traffic volumes. The public authority should be aware of this risk. The allocation of traffic risk in a TEN-T project is given effect through the payment mechanism in the PPP contract, which may seek to transfer some, all or none of the traffic risk to the private sector (Article 3 Traffic revenue risk allocation & Article 4 Payment Mechanism).

- The financial model of the expected PPP (sometimes called a "shadow bid" model) – prepared initially by the public contracting authority and its advisers for use in the feasibility analysis – should be further developed and refined and should be used to examine alternative risk allocations and payment mechanisms. (Note that this is not the same financial model that a bidder will prepare and submit with its proposal).

Article 3: Traffic revenue risk allocation

Forecasting traffic demand is crucial in all TEN-T PPPs since traffic influences both project costs – through capital and maintenance expenditures – and project revenues, especially if direct user charges, such as tolls, are the main source of cash flow for the PPP Company. An accurate estimation of the future level and composition of traffic volumes is, however, a difficult task:

- Traffic forecasts tend to overestimate actual traffic levels ("optimism bias");
- Inflated traffic forecasts may be linked to traffic modeling flaws but also to strategic decisions of PPP contractors when they bid. Traffic forecasts commissioned by the lending banks, for example, are less prone to traffic optimism bias.

Given such uncertainty, the allocation of traffic revenue risk is a key decision in the design of the TEN-T PPP contract and it is linked to the choice of payment mechanism (Article 4 Payment Mechanism). There are several options for allocating traffic revenue risk. Consider motorway PPPs:

- At one end is the conventional toll road where revenues derive from toll payments and, thus, the PPP company (and its lenders) are exposed to full traffic revenue risk.
- At the other end lies the "availability"-based option where the PPP Company receives fixed periodic payments from the public budget as long as the road is available for use; in this case, the PPP Company bears little or no traffic revenue risk.
- In between there are several options designed to share the traffic revenue risk, such as:

  a) Revenue sharing bands: lower and upper thresholds to share traffic revenue risk between the PPP company and the government if traffic is outside the thresholds;

  b) Flexible-term contracts: the PPP contract will end when the concessionaire has received a certain amount of revenues from users.

  c) Financial re-balancing: provisions to change the economic balance of the contract if traffic is much lower or much higher than planned.

Recent practice in transport projects has seen the use of a mixed payment mechanism consisting of availability payment – intended to cover operating expenses and debt service – and a direct user charge (e.g. toll) that provides the equity return.

Procurement Method

Before engaging in the formal bidding process, the TEN-T PPP project team will need to select a competitive procurement procedure. Several procedures are permitted under EU legislation. These procedures are not designed specifically for PPPs: they apply to all goods, works or services contracts.

The complexity of a PPP combined with the lack of specific EU legislation in respect of PPPs means that it

is essential for the authority to be well-versed in the EU public procurement legal framework in advance of launching a tender. The authority's team should include a procurement specialist who should work closely with the legal advisors to ensure adherence to the procurement legislation at EU and national level. In addition, it is advisable for senior management and project leaders to have a working knowledge of the relevant EU procurement legislation.

Works and services concessions, in which the right of exploitation of the works or services rests with the concessionaire, must also adhere to the basic principles of the EC Treaty – transparency, equal treatment, proportionality and mutual recognition.

Institutionalised Public Private Partnerships refer to a specific type of PPP where public and private parties establish an entity with mixed capital in which the private party takes part actively in the operation of contracts awarded to the partnership. The European Commission has released a specific Interpretative Communication to address the application of EU procurement law in this instance.

EU legislation allows four procurement procedures: open, restricted (these two are also sometimes referred to as standard procedures), negotiated (an exceptional procedure) and competitive dialogue (the use of which is subject to conditions). The choices may be more limited under national laws and specific legal advice is required for each jurisdiction. Table 7 compares a few key features across the four EU procurement procedures which can be used for procuring PPPs. The public authority should always take legal advice before selecting the procurement procedure.

Procurement Method	**Open Procedure**	**Restricted Procedure**	**Negotiated Procedure**	**Competitive Dialogue**
Possibility to limit **numbers** of bidders	No prequalification or pre- selection is permitted. Any interested company may submit a bid.	The number of bidders may be limited to no less than five in accordance with criteria specified in contract notice (prequalification and shortlisting permitted).	The number of bidders may be limited to no less than three in accordance with criteria specified in contract notice (prequalification and shortlisting permitted).	The number of bidders may be limited to no less than three in accordance with criteria specified in contract notice (prequalification and shortlisting permitted).
Discussions during Process	The specifications may not be changed during the bidding process, and no negotiations or dialogue may take place with bidders.	The specifications may not be changed during the bidding process, and no negotiations or dialogue may take place with bidders.	Negotiations permitted throughout process. Successive stages can be used to reduce the number of bidders	Dialogue with bidders permitted on all aspects (similar to negotiated procedure, including further short- listing).

	Clarification is permitted.	Clarification is permitted.	(further short-listing).	When dialogue is concluded, final complete bids must be requested based on the solution(s) presented during the dialogue phase.
Discussions after final bid is submitted	No scope for negotiations with a bidder after bids is submitted.	No scope for negotiations with a bidder after bids are submitted	Not relevant because the negotiations can continue until the contract is agreed. There need be no "final bid" per se.	Only permitted to clarify, fine tune or specify a bid. No changes permitted to basic features
Basis for award	Lowest price or most economically advantageous tender	Lowest price or most economically advantageous tender	Lowest price or most economically advantageous tender	Most economically advantageous tender

Table 7:Procurement Method Steps

Bid Evaluation Criteria

The EU procurement regime allows some flexibility regarding the criteria that can be used to evaluate bids and select the preferred bidder. The broad aim is to select the "most economically advantageous tender".

The choice of criteria for scoring and ranking alternative competing bids is a key decision in procuring a PPP. The objective is to tailor the contract award criteria to the particular project and contract terms to achieve the best possible results (Value for Money).

Failure to apply award criteria properly can be a source of challenge to the procurement outcome. The public authorities should, therefore, always take appropriate advice before the bid evaluation criteria are finalised.

As a rule, award criteria (and the weighting to be applied to each criterion) should be specified in advance. This may be problematic in the case of a competitive dialogue procedure where detailed award criteria are rarely known in advance. In this instance, EU law allows that the criteria be listed in decreasing order of their importance. In either case, the award criteria must appear in the contract notice or the descriptive document and may not be changed during the award procedure.

Some examples of criteria include:

- the lowest tariffs, service fee or level of grant or subsidy;
- the largest payments to the public authority (up-front or periodic), including the level of tariffs or service fee;
- the shortest duration of the PPP (before handing the assets over to the public authority); or
- the best promised performance, in terms of a key objective indicator, such as service coverage, year by year.

There are a number of examples of imaginative use of award criteria to achieve particular objectives, for example, the Least Present Value of Revenue criterion in toll motorways. In this case, the concession ends once the concessionaire has received cumulative revenue whose net present value equals the value it has bid. This is a way of combining a criterion based on the lowest remuneration with a mechanism for transferring traffic risk to the public sector.

Draft PPP Contract

A full draft PPP contract should be attached to the invitation to tender. It should cover the following topics at a minimum:

- Rights and obligations of the parties
- Risk allocation (including risks related to site issues)
- Payment mechanisms (tariffs, subsidy, grants) and adjustments to payments in response to various contingencies (Article 4 Payment Mechanism).
- Service performance standards and targets and objective and measurable indicators
- Procedure for permitted modifications, as well as their scope and nature
- Penalties (and possibly bonuses)
- Security and performance bonds, insurance
- Term of contract
- Conditions for termination (categorised by party and by type of event) and compensation upon termination (for each type)
- Step-in rights (both for lenders and, in emergency situations, the public sector)
- Definition and impact of force majeure and change in law

- Dispute resolution procedures In the past, it was sometimes the practice to include only a summary of the main commercial terms with the invitation to tender. Nowadays, it is considered better practice to prepare and issue a full draft contract – and this, in effect, becomes necessary in both the restricted and competitive dialogue procedures given the limitation on negotiations after receiving the final bids. Legal advisors should be involved in preparing this full draft of the PPP contract.

Article 4: Payment Mechanism

The payment mechanism lies at the heart of the PPP contract. The primary purpose of the payment mechanism is to remunerate the PPP Company sufficiently so that it will be willing to enter into the PPP contract and provide the service. Beyond that, the payment mechanism is the principal means in a PPP contract to allocate risks and provide incentives.

A useful way to think about designing the payment mechanism is to begin with an extreme or ideal form and then see where certain risks should be shifted back to the public authority or users. Ideally, the public authority might want to pay the PPP Company, in arrears, a fixed price for (and only for) each unit of service that is provided and that meets the service-quality requirements. This captures the key PPP principles that payment should be made only if the service is available and that payment should not be based on the PPP company's actual costs (it is not a "cost-plus" contract); this simple ideal mechanism is one that gives strong incentives to the PPP company for good performance.

Much of the detailed design of a payment mechanism can be conceptualized as moving away from this simple ideal either to take into account more complexities or because this simple mechanism would cause the PPP Company to bear too much risk. "Too much" in this context could mean that the premium that would have to be paid to the PPP Company for it to be willing to take the risk would not be worth the gain that might be obtained from increased efficiency. Or it could mean that there would be too great a probability of excess profits or, alternatively, high losses accruing to the PPP Company – in either case, threatening the viability of the arrangement. In this connection, one key principle in the design of the payment mechanism is that risks that are entirely beyond the control of the PPP Company should generally not be allocated to the PPP Company.

Some of the different ways, then, that adjustments are made to the simple (stylized) payment mechanism outlined above are the following:

- Payments are generally indexed in some manner to compensate for cost increases due to inflation.

- In some cases, certain well-defined costs that are beyond the control of the PPP company are handled on a pass-through basis (i.e. actual substantiated costs for the particular item are passed through into the service fee).

- Deductions that are made to the service fee for poor performance are linked to the degree of deficiency in service quality (set out in objective rules and using verifiable measures). Generally, the amount of the deduction should be in line with the losses that would be expected to be born by the government or users by the shortfall in service quality.

- Demand (volume or traffic) risk – a key issue in PPP design – is often assessed as being at least partially beyond the control of the PPP company, and sometimes wholly beyond its control. A variety of mechanisms exist to shift some or all demand risk away from the PPP company. For example, the unit price could gradually increase as demand falls. Or there could be a minimum payment guarantee (where the company is paid for a certain quantity even if the actual quantity falls below that minimum).

The list above only begins to describe the various adjustments that can be made in designing the payment mechanism in practice. Designers should always be on the lookout for features that could give the PPP operator perverse incentives and features that are complicated and ambiguous in ways that might provoke disputes later on. There are many trade-offs in this exercise. Payment mechanism design is as much an art as a science.

Looking at payment mechanisms that are commonly used in similar types of projects is a good way to begin the design process. In addition, the public authority's advisors should make use of a financial model of the expected PPP to test alternative payment mechanisms, using sensitivity and scenario analysis, and, most important, to calibrate the parameters of the chosen mechanism so that it is likely to perform well under different conditions that might arise. An important consideration is often that, although poor performance should have strong negative impact on returns to equity holders – a strong "bite" – it may be counterproductive if the shortfall in cash flow too easily jeopardizes debt service payments, an outcome that could lead to the bankruptcy of the project company.

Summary

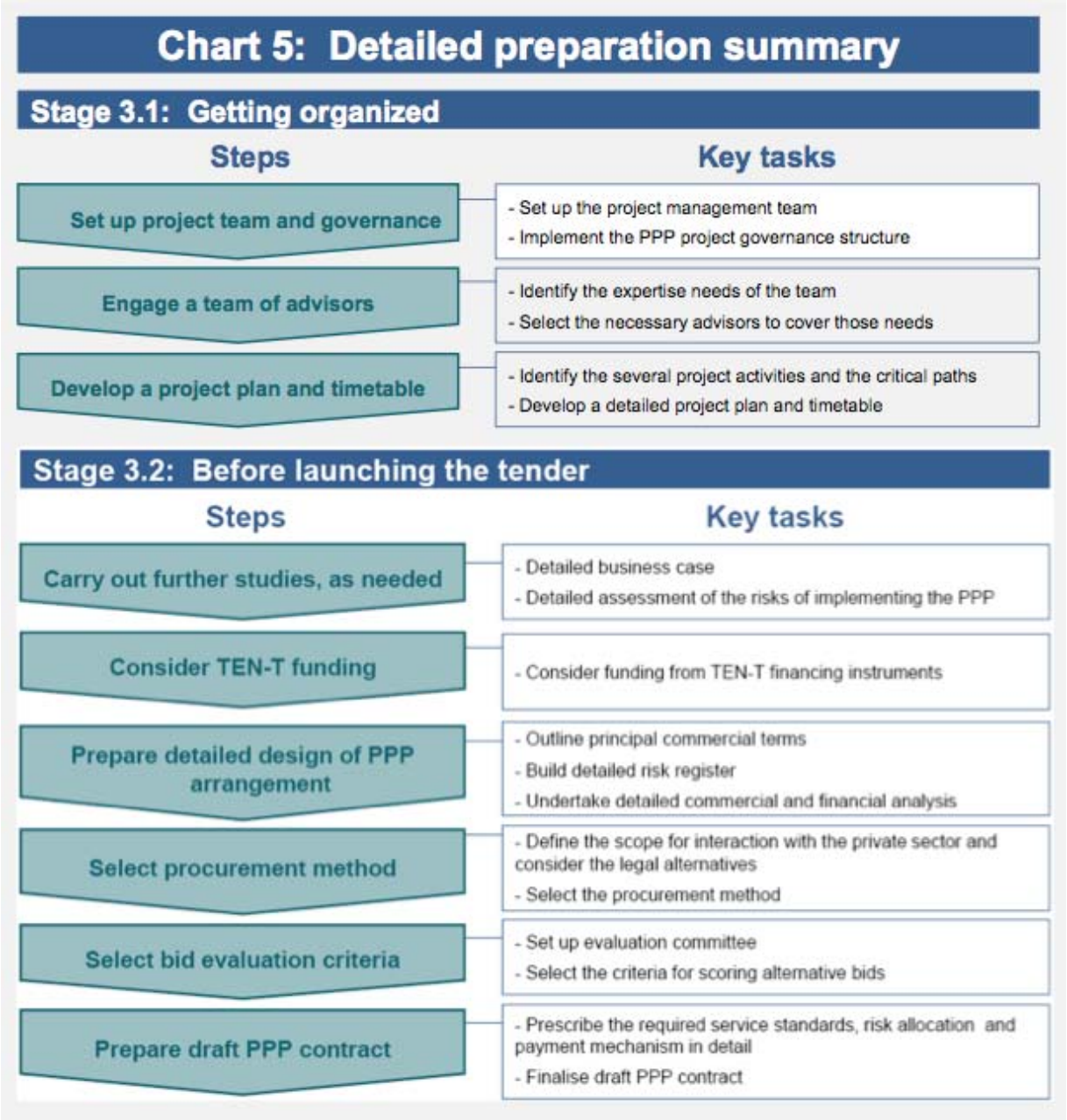


Figure 14: Summary Steps

7.7 Procurement

Chapter 4

The procurement phase, begins with the publication of the procurement notice and ends with financial close, the point at which project activities (beginning with construction) can start up.

It has been broken down for convenience into two stages: (i) the bidding process stage; and (ii) the stage which includes the activities carried out from the award of the PPP contract to financial close. Chart 6 outlines the stages and steps in the procurement phase, which is described in more detail in the sections that follow.

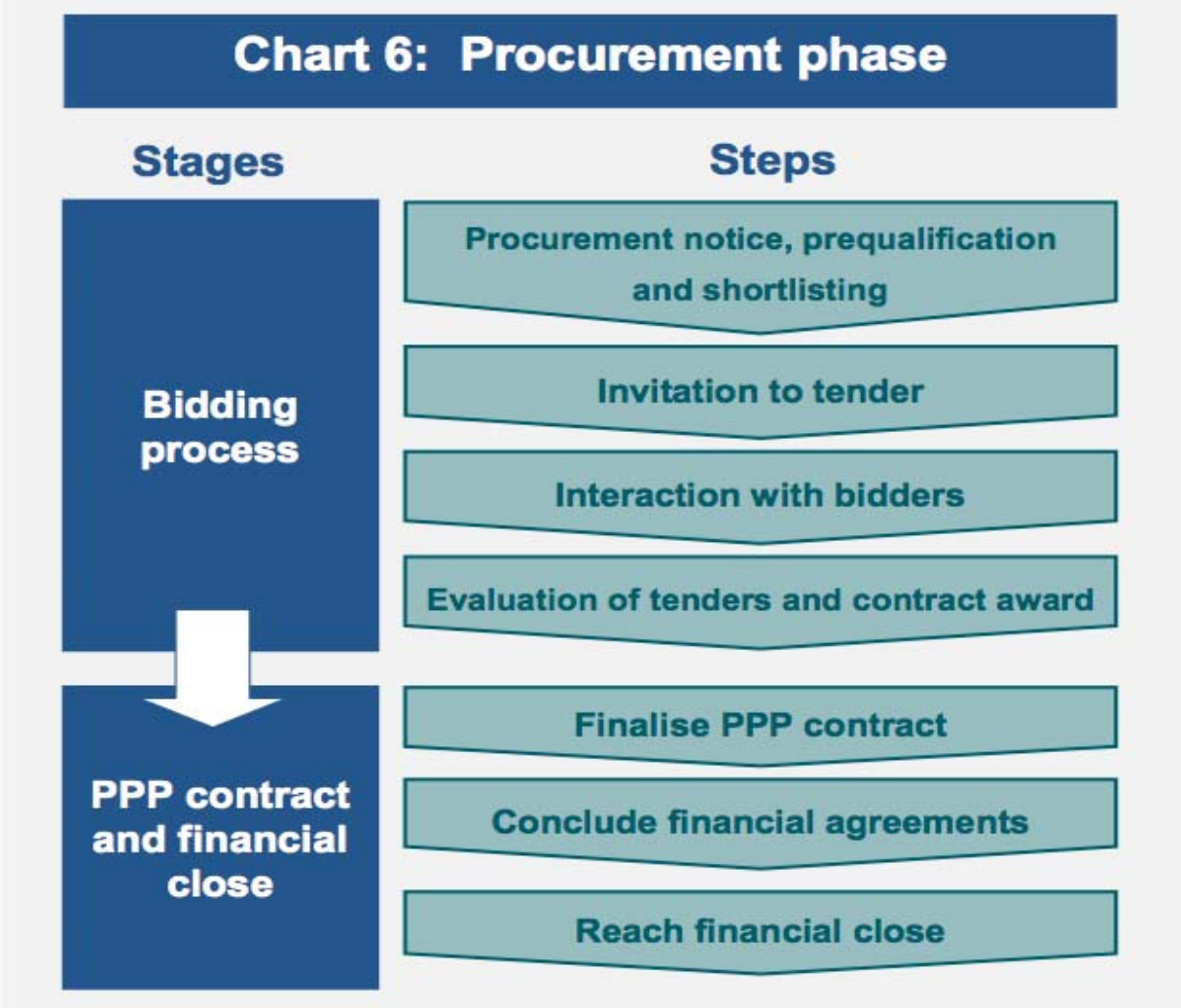


Figure 15: Procurement Phase

7.7.1 Bidding Process

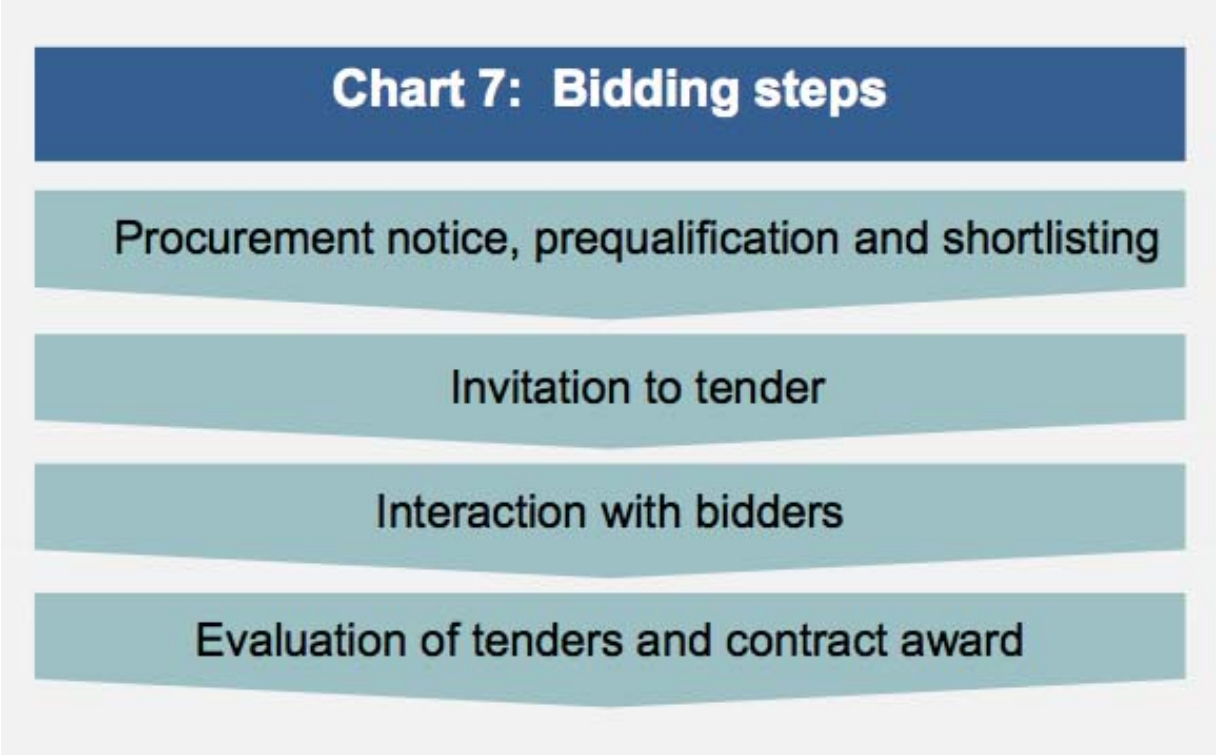


Figure 16: Bidding Process

The PPP bidding process involves a series of steps summarised in Chart 7. The goal of the bidding process is to maximise Value for Money by creating appropriate incentives through a competitive process for the award of the long-term PPP contract.

At the start of Stage 7.7.1 (or earlier), a tender evaluation committee will be established. The composition of the committee will often be prescribed by national law. The role of the evaluation committee is to oversee the procurement process and take (or recommend) key decisions, such as decisions about the short list and the preferred bidder. The tender evaluation committee will generally be advised and supported by experienced and specialised consultants (often the transaction team of advisers).

During the bidding process, sufficient attention during the bidding process should be placed on the key good procurement principles of transparency and equal treatment, which will help bolster the legitimacy of the PPP and acceptance by stakeholders. It should be recognised that in cross border projects, transparency requirements may vary in different countries.

These good procurement principles must be respected from the time the formal tendering process begins. Informal discussions with companies may take place before the process formally begins – and

this is particularly important in respect of TEN-T projects. For example, while keeping in mind that achieving balance amongst potential bidders is the eventual goal, the authority may organise info days, technical briefings, early public release of technical documents, etc. As soon as the procurement notice is published, all potential bidders must be given equal treatment and a careful audit trail of all contacts with potential bidders must be kept.

Notice & Prequalification

Publishing the public procurement notice marks the start of the formal procurement process. The contracting authority must comply with all requirements related to the publication of notices in the Official Journal of the European Union (OJEU). This is followed by a questionnaire to allow interested companies to demonstrate their qualifications, also known as the submission of an expression of interest.

- The purpose of prequalification is to include only those bidders that appear to be capable of carrying out the PPP in an adequate manner.

- The wording of the brief project description contained in the OJEU notice should be broad enough so that it will not need to be subsequently changed – which might then require the notice process to start over again. Typically, interested parties that respond to an initial notice are sent a short statement of information about the project and instructions or a questionnaire. These form the basis of a qualification submission that such parties must make to demonstrate their capacity to implement the project. The invitation to prequalify (or prequalification questionnaire, as it may be called) should contain at least the following:

- The broader context of the project;

- An overview of the project, including the intended allocation of major risks and envisaged responsibilities of each party;

- A list and summary of the major studies that will be made available to bidders concerning the project;

- The intended procurement process;

- The qualifications that companies can put forward (e.g. parent or subsidiary companies' qualifications);

- The criteria and tests that will be used to evaluate the prequalification statement (but not necessarily the precise details to be used in any scoring or ranking since that could lead to strategic manipulation by the candidates); and

- A timetable.

It is standard practice for the contracting authority's legal advisers to draft both the PPP procurement notice and the prequalification questionnaire.

Shortlisting

The purpose of short-listing is to reduce the number of bidders to generally three to five. Bidding for a PPP, especially a complex PPP, is a costly undertaking for a bidder. The aim is to maximise competition, not the number of bidders. The presence of too many bidders on the short list may reduce the interest of some in participating and may cause good bidders to drop out.

In some cases, the public sector has sought to encourage candidacy by agreeing in advance to make a payment to each losing bidder that would partially reimburse it for the costs of bid preparation. Such payment could be made from money that the public authority would receive from the winning bidder (once again, specified in advance). The size of the payment has to be calibrated to discourage frivolous bids. Practice varies widely between countries. The public authority should ask their advisers about current market practice in the relevant sector and jurisdiction.

In evaluating the qualification submission, the public authority will focus on the technical capability, business capability and financial position of the potential bidders. In line with EU public procurement legislation, these capacities must be, in principle, demonstrated jointly, rather than individually, by the members of a consortium.

The prequalification submission will usually be required to describe the following:

- Business activities of the consortium (e.g. how many projects of a similar nature, suitably defined, the consortium has implemented over a specified number of past years);
- Financial information (e.g. thresholds involving turnover and net worth);
- Legal information about the PPP consortium, including any relevant litigation involving the companies; and
- Quality of personnel available to be involved in the project.

The first step of the prequalification and shortlisting process is often to determine which consortia have passed the thresholds on all the relevant dimensions (i.e. pass/fail tests). Most of the criteria (e.g. company revenue) are expressed in terms of clear and objective thresholds. If that determination gives a number of consortia that exceeds the maximum number pre-specified for the shortlist (generally no more than five, depending on the type of project and market), then a systematic and predetermined process for scoring or ranking should be used to narrow down the list to arrive at a shortlist. Sometimes shortlisting is done partly on the basis of responses that are submitted to a set of open-ended questions about how the companies would address certain key issues if they were to win the contract. For example, in the competitive dialogue procedure, initial shortlisting can be based partly on an assessment of the outline or indicative solutions given by the candidates. At the end of the process, a well-substantiated prequalification report should be prepared to have a good audit trail. Unsuccessful candidates should be debriefed.

Invitation to Tender

Preparation of the tender documents will usually have begun during the last step in Stage 7.6.2 (prepare draft PPP contract) but to be time efficient, finalisation often takes place during the prequalification period.

- The invitation to tender documentation should contain all the information that bidders will need

to bid. It is important that advisers devote sufficient time and effort to develop the documentation in enough detail to ensure comparability of the bids and to reduce the need for debate and clarification before signing the contract.

- The tender documentation, which is usually extensive in detail and volume, will normally include (but not be limited to) information such as the following:
  - Detailed information memorandum about the project;
  - Summary of the key commercial principles, including the obligations of each party and risk allocation;
  - Detailed output specifications and minimal required design and technical features;
  - Full draft PPP contract (which, in some countries, would be based on mandatory standard contract terms or on required guidelines of some kind);
  - Instructions to bidders concerning all the information they must submit and the detailed procedures (date and time, etc.) for submission;
  - Evaluation criteria; and
  - Requirements for bid bonds or equivalent security.

Interactions with bidders

Under EU procurement law, the nature and level of communication permissible with bidders will be determined by the procurement procedure chosen (key Step 7.6.2.4, procurement method).

In order to maximise the benefits of PPPs, and obtain maximum Value for Money, it is critical to manage the bid process well.

- Shortly after issuing the invitation to tender it is usual to hold a bidders' conference to explain issues and take questions from the bidders. Written clarifications should be provided to all bidders.
- It is also typical to provide for a "data room" open to bidders where they can access detailed documents concerning all aspects of the project.

The complexity of some TEN-T PPP projects will normally require a high degree of interaction between the project management team and the bidders.

The terms and conditions for an interactive process, including the procedures, protocols and ground rules should be included in the broader set of conditions, rights and obligations to which bidders consent. The objective of developing this iterative process is to improve the quality of the proposals by:

- fostering innovative solutions from different bidders;
- clarifying any technical, financial, and commercial issues; and

- providing direct and specific feedback to bidders on key aspects of their bids.

The project management team has to take particular care to protect each bidder's commercial in-confidence material and intellectual property. More generally, the project management team will have to consider probity principles and rules as part of the implementation of the interactive process.

Contract award

Once the tenders are submitted, they must be evaluated to arrive at the selection of the preferred bidder.

Bids will generally be first assessed on a number of pass/fail criteria before deciding on the single preferred bidder:

- For example, even if the evaluation score is not based on a technical evaluation, a determination must be made that the technical solution proposed by a bidder is feasible, deliverable and robust, that it is based on reliable technologies, that it meets all minimal technical requirements set and that the costs and financial model are consistent with the technical solution.

- It is important to look at the proposed project management also: the bidding consortium must come across as a cohesive entity rather than just a collection of companies thrown together for bidding purposes.

A key issue is the choice of the criteria for the evaluation and scoring of alternative bids (Key Step 7.6.2.5,bid evaluation criteria).

Occasionally only one bidder will submit a tender despite the public authority having issued the invitation to tender to several shortlisted candidates. In good procurement practice, the question of how to proceed should be considered case by case.

- If it appears that bidder interest was low because of deficiencies in the tender documents (including the project specifications or the draft PPP contract) and these can realistically be remedied, then the best solution might be to repeat the tender procedure – this time on a better footing.

- If it appears that the bid was made in the bidder's belief that there would be good competition (and this should be supported by the public authority's advisers carrying out benchmarking of prices and in some cases by insisting on actual market testing of the prices of the major subcontracts), then the best solution might be to continue with the procurement and consider the sole bidder to be the winner, provided that the tender is fully compliant and meets all pass/fail evaluation criteria.

An important issue relating to the PPP contract award concerns the new EU Remedies Directive (2007/66/EC), which was required to be transposed into national law by 20 December 2009.The two most noteworthy elements of this Directive are the following:

- A minimum "standstill period" of 10 days is required between the contract award decision and the actual conclusion of the contract to allow rejected bidders time to conduct their review and decide whether they want to challenge the award. (Such a standstill period had already

emerged in case law; the purpose of the new Directive provision is to standardise the terms across member states); and

- More important, under the new Remedies Directive, an aggrieved bidder can bring an action to have the contract rendered "ineffective" if the procuring authority contravened EU procurement rules in a serious way.

Previously, the sole remedy was to award monetary compensation to the aggrieved bidder, but now the contract would come to an end. This contract termination or cancellation will operate only prospectively. Exactly how the various rights and obligations of the parties at that point will be sorted out is left to national law.

CHECKLIST*: Bidding Process*

To carry out a successful bidding process, the public contracting authority and its team of advisers need to ensure that all key questions related to the bidding process have been adequately addressed. For example:

- Is the institution responsible for awarding and managing the bidding process clearly identified?
- Does the format of the pre-qualification documents allow bidders to present information about themselves and clearly sets out the evaluation criteria and processes applicable in pre-qualification complying with the openness and transparency required by EU legislation?
- Do the pre-qualification evaluation criteria include all relevant features related to the quality and strength of the bidders in terms of their capacity to deliver and their awareness of the TEN-T PPP project?
- Does the invitation to tender document include a draft PPP contract, which should set out, among other things, the payment mechanism and penalty regime, and all necessary project data, and output requirements of the public contracting authority?
- Does the invitation to tender document contain all essential components of the TEN-T project, especially the minimum technical, environmental, legal and financial requirements to be provided by bidders which constitute a compliant bid?
- Have adequate provisions ensuring no warranties and setting rules of access to the data room been included in the invitation to tender document?
- Have all critical processes necessary to manage the interaction with bidders during the bidding process (including a code of conduct, communication with bidders, audit trails and meetings, consortia changes and bidders due diligence) been considered and implemented?
- Have the evaluation criteria and processes been established and evaluation teams and committees appointed before bids are submitted?

7.7.2 PPP Contract & Financial Close

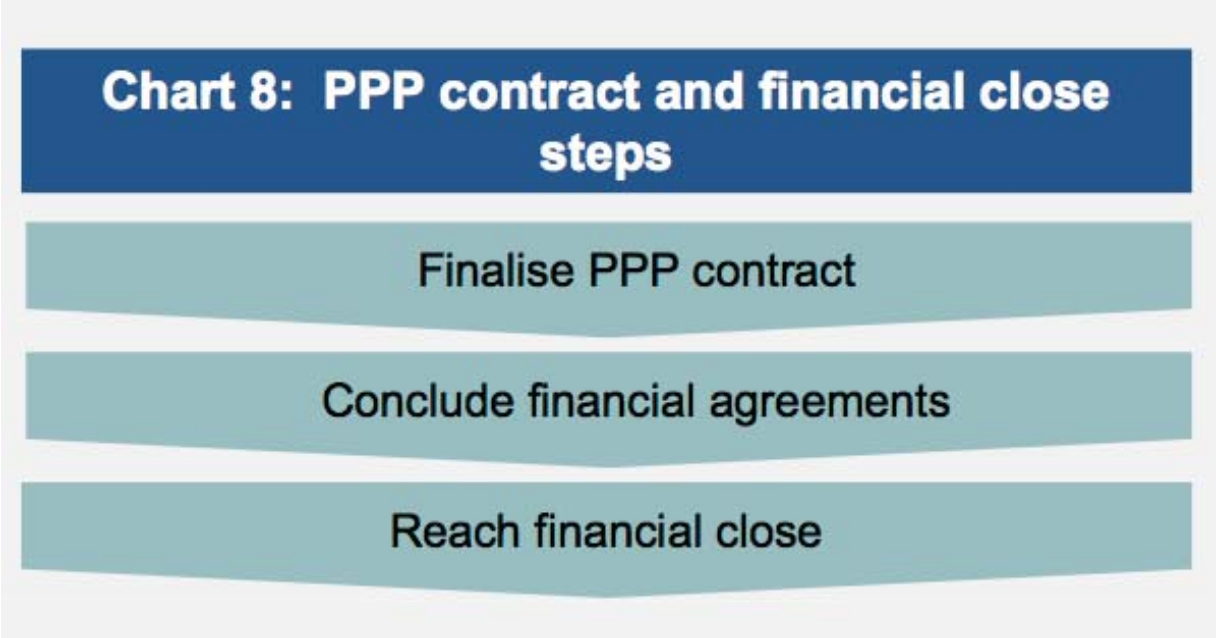


Figure 17: PPP Contract & Financial Close

The finalisation of the PPP arrangements, leading to commercial and subsequently financial close, involves a series of steps summarised in Chart 8. The activities involved in these steps, although concerned in some respects with broad issues, more often deal with highly detailed matters and fine-tuning. Close interaction between the public contracting authority, the private partner and financiers is essential. Stage 7.7.2 in particular requires thorough organisation and management for it to proceed efficiently. It should be planned carefully, generally making use of experienced advisers. Many PPP projects have experienced difficulties, which can last for years, due to lack of adequate planning or expert advice.

Final PPP Contract

As noted in the discussion of Step 3.2.4 (Select procurement method), different procurement procedures allow for different types and intensities of discussion or negotiation after selection of the preferred bidder and before signing the PPP contract.□□1)(2□. For example:

- Under the EU restricted or competitive dialogue procedures, once the final tenders have been received and a preferred bidder has been selected, the final adjustments should be limited to clarification and confirmation of commitments.

Irrespective of specific EU considerations, a basic principle of good procurement is that any changes to the PPP contract agreed with the preferred bidder in final negotiations must not be material to the procurement, in the sense that it must be clear that if these changes had been included in the draft contract and tender documents that was provided to bidders before they submitted their bids, this could not have resulted in another bidder being selected as preferred bidder. For example:

- Changing a fundamental aspect of the risk allocation or the committed finance would clearly go beyond what is permitted in good procurement practice and by EU law.

- The final discussions with the preferred bidder are often referred to loosely as "final negotiations" even if they are not strictly negotiations under the applicable procurement regime. The public contracting authority's negotiating team and the preferred bidder will work together to agree on a framework for final discussions/negotiations. This framework will typically include issues such as:

- timetable;

- definition of remaining issues; and

- the recording of agreed matters.

Financial Agreements

TEN-T PPPs are normally financed in whole or part through project finance arrangements. Where possible, public authorities should seek to secure a fully committed financing package along with their bids. In this case, concluding the financing agreements could take place shortly after, or simultaneously with, signing the PPP contract.

However, in current market conditions (notably during any period of reduced liquidity in the financial markets), it is unlikely that fully committed financing can be provided at the time of bidding. In this event, it is unlikely that the entire package of financing agreements needed for the project can be concluded immediately after the PPP contract is signed.

Prior to the current crisis, PPP financing for major project financed transactions was usually provided via syndication arrangements whereby a single bank, or small number of banks, would take all project debt, then "re- sell" it to a syndicate of banks.

In practice, most current projects are funded by "clubs" of banks which assume they will hold project debt to maturity (i.e. it will not be sold down, or syndicated). In some cases, these club arrangements can only be concluded after appointment of the preferred bidder – so called post preferred bidder "book-building" (see below).

The strength of financier commitment which can be obtained at the time of bidding will depend on the particular project and market. Bidders should at least show a reasonably deliverable financing plan in their proposals – i.e. it should be demonstrated that the debt, equity and grant providers have reviewed and accepted the broad design of the PPP and the major contractual provisions, including the proposed risk allocation. For many projects this commitment will be conditional to some extent since financiers will generally not complete their detailed due diligence until after the PPP contract has been signed.

Sometimes lenders will insist on changes to the PPP contract after they carry out their review and detailed due diligence. There may be limits, however, to how much the public authority can change the PPP contract at that point in response to lenders' requests without going against good procurement principles. Normally, most lenders will also want to see full draft subcontracts and ensure that major subcontracts (e.g. turnkey construction contract and operating and maintenance contract) are pre-agreed and subcontractors are committed to fixed price contracts before they sign the financing agreements.

In some larger PPPs, the public authority has played an active role in ensuring competitive financing terms by requiring a debt funding competition, particularly in the UK. Under this method, the preferred bidder is required to carry out a competition, overseen by the public authority, for third-party debt in order to obtain the best financing terms, and the public authority takes the benefit (in whole or in part) gained by any improvement in financing terms. This method requires intensive involvement of capable financial advisers, and it may not be suitable for projects or in markets where financial innovation is expected to play a significant role in the competitive position of bidders. Moreover, it may not be suitable in conditions of limited financial liquidity.

In these circumstances, the private sector may need to engage in post preferred bidder "book-building".

A large number of financing agreements are needed for a project financed PPP deal. These agreements have three basic purposes:

- First, they are designed to protect the interests of senior lenders vis a vis sub contractors and other providers of finance (for example, equity investors). In particular, senior lenders wish to ensure that considering the total financial risks taken on the private sector, those borne by their borrower (the PPP company) are minimised. In practice this means that to the greatest possible extent, risks taken by the private sector are 'passed down' to sub-contractors (rather than remaining with a thinly capitalised PPP company);

- Second, the agreements need to clearly establish that the servicing of senior of debt takes priority over returns to all other forms of finance – indeed, this is what makes senior debt 'senior'; and

- Third, the suite of financing agreements is designed to ensure that, should things go wrong to the extent that lenders' debt investment is at risk, lenders have the powers to take the actions they deem necessary to protect their investment.

The third point is crucial, and goes to the heart of the benefits that PPP can deliver for the public authority. A well designed PPP aligns the interests of lenders and the public authority in that both require a successful project to meet their objectives. Lenders are incentivised – and empowered - to ensure that problems with the project are addressed in a timely manner. Only in this way can they be certain that their investment is assured. For this reason, the public authority should be able to rely on lenders' incentives to deal effectively with problems in both construction and operation that would threaten the project's performance. This is a major source of risk transfer from public to private sector in PPP projects.

Some of the typical financing agreements to be prepared and concluded are:

- senior loan agreements (agreements between lenders and the PPP company setting out the

rights and obligations of each party regarding the senior debt);

- common terms agreement (an agreement among all the financing parties and the PPP company that sets out the terms that are common to all the financing instruments and the relation between them – including definitions, conditions, order of drawdowns, project accounts, voting powers for waivers and amendments, etc.; a common terms agreement greatly clarifies and simplifies the multi-sourcing of finance for a PPP);

- where subordinated or mezzanine debt is used in the financing structure, subordinated loan agreements may be provided by the project sponsors or third party investors, or both;

- shareholder agreement as part of the constitutive documents of the PPP company;

- direct agreement (allowing the senior lender to take over the project – "step in" – under certain circumstances specified in the tender documents);

- accounts agreement (involving a bank to control the cash flowing to and from the PPP company, to make sure that it is used in the way that has been agreed and that the PPP company's shareholders cannot siphon out cash if disaster is looming);

- shareholder funds and subordination agreement (to ensure subordination to the senior lenders' interests);

- security agreements (share pledge; charge over accounts; movables pledge; receivables pledge, etc.);

- sub-contracts for construction, operations and other services;

- parent company guarantees and other forms of credit enhancement; and

- Legal opinions from the lender's legal advisors on the enforceability of contracts. These agreements often contain many cross-references and therefore will generally have to be prepared as a unified package.

Enforceability of contracts is a key issue for lenders in their due diligence investigations. This includes the issue of the vires, or powers, of the public authority to enter into transactions. This issue is likely to be considerably more complex in cross border transactions where lenders will need to be assured that

Article 5*: Insurance*

Adequate insurance coverage for a wide range of events is especially important for a PPP project because the single-purpose and thinly capitalised nature of the PPP company make it unlikely that the company will be able to self-insure to any substantial extent.

In this regard, the interests of the public authority and the senior lenders for the most part are well aligned and it may therefore seem that the public authority can rely on the lenders to impose adequate insurance requirements on the PPP company. Nevertheless, it is a prudent safeguard for the public authority to require inclusion in the PPP contract of certain minimal insurance requirements (which should not go beyond what the lenders are likely to require). These insurance requirements should be developed and negotiated with the support of professional insurance advisers since project finance- related insurance is a highly specialised area.

The main categories of insurance coverage that the public authority would normally require include the following:

mechanisms are in place to ensure enforceability against public authorities in multiple jurisdictions. The issues of the liability attaching to Authority A on Authority B's default will also be important.

- During the construction phase:
  - ❖ Contractors' "all risks" insurance (physical loss or damage to all works and equipment at the construction site);
  - ❖ Third party liability insurance; and
  - ❖ Possibly: "Delay in start up" (DSU) insurance (loss of revenue or profit due to a delay in project completion).
- During the operation phase:
  - ❖ "All risks" property insurance;
  - ❖ Third party liability insurance; and
  - ❖ Business interruption insurance (similar to DSU insurance).

Special environmental insurance could also be required, depending on the type of project.

For each kind of insurance coverage, requirements should be set out in the PPP contract regarding the basic features, minimum level of coverage, principal exclusions and maximum deductible (i.e. the amount for each event below which the insurance company will not pay).

There will be other issues that will have to be considered. For example, for certain types of coverage, it may be in the public authority's interest to agree to indemnify the PPP company if a risk becomes "uninsurable" (including being insurable only at a prohibitive cost).

Financial Close

Financial close occurs when all the project and financing agreements have been signed and all the required conditions contained in them have been met to enable funds to start flowing (from loans, equity and grants) so that the project can truly start up.

Any remaining "conditions precedent" in the financing agreements need to be fulfilled before funds can be disbursed. Among them typically are the following:

- Permitting and planning approvals have been secured;
- key land acquisition steps achieved;
- clarification of remaining design issues;
- finalising and signing of any remaining key project and financing documents; and

- all funding approvals are in place (e.g. all remaining issues needed to secure release of grant funding from a donor)

Finally, public authorities will need to confirm that requirements of all internal approvals have been met. These could include:

- Confirmation of legality of procurement;
- Approval for derogation from any standard contracting terms;
- Value for Money check; and
- Affordability check.

There is often a considerable amount of detailed work to do to reach financial close by the PPP company and by the public contracting authority. The effort needed should not be underestimated. The public contracting authority should manage its tasks effectively with the help of its team of advisers.

CHECKLIST*: PPP Contract & Financial Close*

To negotiate the PPP contract and reach financial close, the public contracting authority and its team of advisers need to ensure that key questions related to the PPP contract, financing and ancillary agreements have been adequately addressed. For example,

- Has a negotiating team been assembled and empowered to take decisions on most issues pertaining to the PPP contract?
- Have the contracting authority and the negotiating team agreed a negotiating strategy, including an assessment of the position of the contracting authority on key issues and a risk management strategy?
- Have the legal advisers evaluated the marked-up draft PPP contract, assessing it against its risk allocation and Value for Money implications?
- Have the financial advisers assessed affordability, project costs, sources and costs of funding, project "bankability" (including private consortium composition, structure, risk distribution and funding plan)?
- Have the negotiations resulted in terms and conditions that vary substantially and materially from the bid offer and therefore could be open to challenge because they are less favourable or could have resulted in the selection of a different bidder?
- Have all the legal and administrative requirements of contract award been complied with?
- Is the PPP contract still affordable and does it represent Value for Money?

Summary

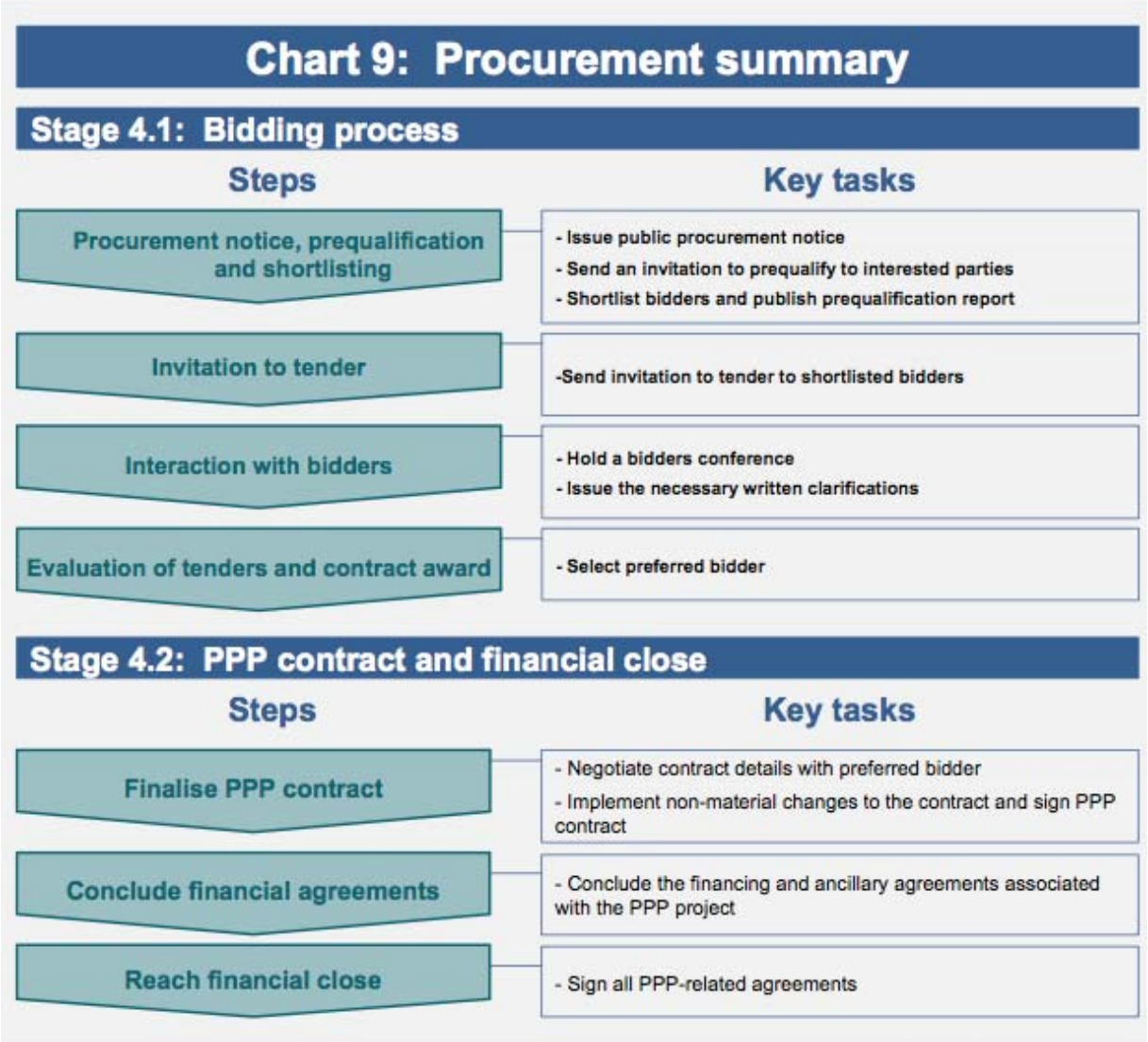


Figure 18: Procurement Summary

7.8 Project Implementation

Chapter 5

This chapter covers the time during which a TEN-T PPP project is being implemented. The chapter presents with the most common issues which officials in the public contracting authority may have to address during the life of the project. This implies regular monitoring of performance and taking appropriate actions as set out in the PPP contract. In some circumstances, it can also include addressing the need for changes to the contract – for example, modifying the performance specifications or the scope of the project. Chart 10 summarises the main stages and steps involved in the project implementation phase of a TEN-T PPP.

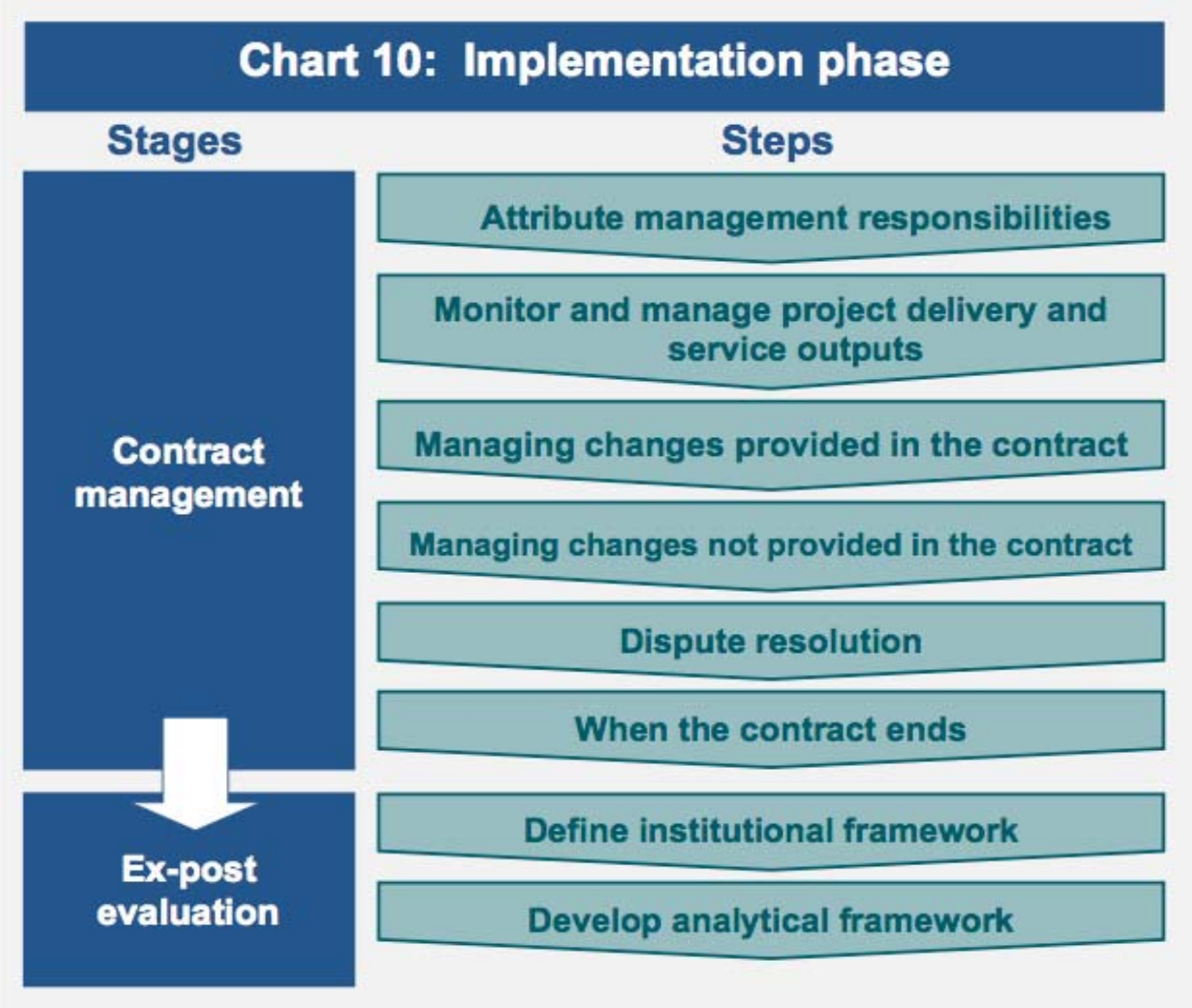


Figure 19: Implementation Phase

7.8.1 Contract Management

Figure 20: Contract Management

The contract management stage involves a series of steps summarised in Chart 11. During the implementation of the PPP project, the public contracting authority should ensure the following:

- separation of project management and contract management responsibilities;
- provision of the contract management team with clearly defined responsibilities and sufficient resources; and
- establishment of management rules to deal with PPP contract monitoring, adjustment to the

contract and dispute resolution to maintain contract integrity.

Although good preparation and procurement of a PPP project are important, the way the PPP contract is overseen and managed during implementation is critical to its success or failure – and to the ultimate determination of Value for Money. The rest of this section develops the rationale and contents of the activities that the public authority will carry out during the implementation of the PPP.

Management Responsibilities

After contract signing, the responsibility for contract management will normally be transferred to a contract management team, established by the public contracting authority. If a roads agency, for example, has more than one PPP contract, it makes sense for efficiency reasons that a single contract management team manages all ongoing PPP contracts.

A contract management team, reporting to a contract director, will carry out many day-to-day contract management activities. It is desirable to include the proposed contract director in the project management team at an early stage of the procurement process, or at least allow her to observe the procurement process and have access to procurement team members. This enables an informed preparation of the contract management strategy, including an understanding of the project and its inherent risks.

Before this transfer of responsibilities occurs, the public authority will need to ensure that:

- there is a clear definition of responsibilities, by separating project management from contract management responsibilities;
- the provisions for handling contract changes and managing contractor failure are in place;
- a system of ongoing contract management review is in place, which includes proper oversight of contract management by public stakeholders; and
- there are sufficient budget and staff resources to undertake the contract management responsibilities.

It is important that the public authorities set the basic framework under which contract management teams will operate prior to choosing the preferred bidder. This will reduce the uncertainty faced by the bidders in terms of the expected costs and required interaction with the public authorities throughout the duration of the contract. Specifically, bidders will need to incorporate monitoring and contract compliance costs into their bids and should therefore be provided with a clear indication of what type of information will be required from them and how often.

At the start of the contract managing phase, the contract management team will need to develop in detail the management tools and processes, including contingency plans and protocols in place to manage changes by means of a contract administration manual.

Monitoring Service Outputs

The contract should have clearly stated the obligations of the PPP company and defined the service characteristics, outputs and quality levels expected.

- Effective contract management depends, in the first place, on getting the contract right. This implies setting out the procedures that guarantee a close monitoring of the PPP company's performance and general compliance with the agreed contract.

  - The contract management team will normally start by agreeing with the PPP company all the tasks and sub-tasks that each party needs to undertake and the appropriate timeframes for their completion. These operational details are generally absent from the PPP and operation & maintenance contracts and need to be set out in a contract administration manual (consistent with these contracts) at the start of the contract management phase.

  - If implemented properly, effective contract management will identify and monitor the PPP company's operations and public authority's responsibilities and manage all risks over the life of the contract to achieve the project objectives.

Regular monitoring

In order to effectively monitor the project implementation, the PPP company will need to provide the contract management team with operational and financial data on an ongoing basis. The PPP contract, and operation & maintenance agreement, should have set out at least the basic items of information required and the timing. Often, more detail will need to be specified at the start of the contract management phase. The contract management team should request only as much data as is necessary for the effective monitoring (and ex-post evaluation) of the project. Excessive data collection imposes unnecessary burdens on the PPP company and on the public contracting authority.

Some examples of the monitoring activities of the contract management team are:

- monitor the achievement of key performance indicators;
- review quality control and quality assurance procedures to ensure that these systems are in place and effective;
- establish and manage the day-to-day relationship with the PPP project company; and
- report regularly to the stakeholders.

Risk management

The risks that the contract management team will need to manage fall into different categories:

- project risks contractually allocated between the parties;
- intrinsic risks borne by the public contracting authority; project risks not contractually allocated; and
- risks associated with changes to the contract.

It is essential that the contract management team has a clear understanding of the requirements of the contract and the rationale for those requirements. The role of the contract management team will be different depending on whether or not these risks have been identified in the contract and contingency

plans established.

Any potential problems should be identified early and acted upon. If problems appear to be persistent, and if the project company's first point of contact cannot deal with them, the issue should be elevated to a more senior level. Procedures like this will usually be specified in the PPP contract administration manual.

Reporting requirements may be more complex for cross border projects, or those that have benefited from public sector capital contributions, either from European Commission or national funds.

Adjustments to the Contract

PPP contract changes are easier to deal with if appropriate procedures are in place. The tender documents and consequently the contract will typically set out the triggers and methodologies for adjustment but may not detail all the steps that need to be undertaken to implement the changes. In the case of changes provided for in the tender documents and in the contract, the contract administration manual, in addition to specifying the responsible departments or staff, should contain clear terms and specific conditions governing:

- who can request a change;
- who should be involved in assessing the impact of the change;
- who can authorise the change; and
- how the implementation of the change is overseen and verified. It is relevant to distinguish between routine changes, extraordinary changes,

and contingency plans provided in the contract:

- Routine changes to the contract will normally be dealt with by the contract management team. In this context, typical changes provided for in the contract are changes in payment amounts through benchmarking, market testing or other mechanisms, such as indexation or adjustments in response to changes in traffic volumes, for example.
- Changes provided for in the contract that are related to extraordinary events are more complex and need in many circumstances to be elevated to a more senior level for the final decision. For example, certain changes in output specifications, the refinancing of the deal or changes in the law are often dealt with as extraordinary events. The contract manual should set out in detail the terms and conditions governing the criteria for pricing, limited output variation in the contract and refinancing, and any grounds on which the concessionaire or the contract management team may refuse to implement a variation. Provision is made in many contracts for refinancing debt or equity. The contract may also cover sharing of gains from refinancing (Article 6 Sharing gains from refinancing). IIt should be noted that the consent of lenders may be required for the types of changes noted in this section.
- For emergency events, that is, unplanned or unexpected events that threaten the ongoing provision of services, a set of protocols developing a contingency plan should be in place. Such a plan has to be consistent with the basic responsibilities set out in the PPP contract. Protocols

can cover scenarios such as:

- ❖ business continuity and disaster recovery planning;
- ❖ public sector step-in planning; and
- ❖ default planning.

In all cases, it is important to exercise best efforts to respect the terms of the PPP contract, taking advice as appropriate.

Article 6*: Sharing Gains from Refinancing*

An important issue in the design and implementation of PPPs, which has gained relevance in the past decade, is the sharing of gains that the PPP company realizes from refinancing the PPP by replacing the original bank debt (or equity) by new debt on more favorable terms. Refinancing can become feasible if the interest rate drops or if risks affecting the project have decreased. Refinancing can take a number of different forms – e.g.:

- o reduction in interest margins;
- o extension of debt maturity;
- o increase in the amount of debt at the expense of equity (e.g. made possible because reduced risk has lowered the lenders' minimum required debt service cover ratio); or
- o reduction in reserve account requirements.

Refinancing will often result in gains to the shareholders of the PPP Company. Part of the gain may be due to the PPP's good performance and the company's efforts in reducing risk. But part of the gain can also be due to greater confidence of lenders in the PPP market in the particular country, or due to macroeconomic factors – all of which are beyond the control of the PPP Company. In that case, gains to the shareholders can appear undeserved and create political difficulties. For this reason, it is considered appropriate to share the gains from refinancing in some way between the company shareholders and the public authority to prevent a windfall to the PPP company shareholders.

Current practice is to include detailed provisions in the PPP contract setting out a mechanical method for determining and sharing the gains from future refinancing – rather than to rely on broad principles and unconstrained renegotiations of the contract when a refinancing takes place.

Refinancing methods are complex and their use requires intensive support from financial and legal advisers. The contract provisions require specialized drafting. The exercise requires several steps:

- o calculate the expected gain to the shareholders from the refinancing (e.g. incremental net present value of the refinancing gain to the shareholders);
- o determine the portion of the gain that goes to each contractual party (e.g. 50:50 or a share going to the public authority with step increases up to a final marginal rate of 70% as is the case currently in the UK); and
- o decide how the sharing should take place (e.g. lump sum payment to the authority, decrease in service fee to the PPP company or another method).

There are many other details about the method that need to be specified in advance to avoid later discussion and disagreements – e.g. about the discount and interest rates to be used and about how to treat the possible impact of a refinancing on the termination payment that the public authority might have to make in the future.

Changes to the Contract

Unforeseen contract changes in services involving both construction and operational changes are not unusual especially considering the length of PPP contracts. The contract management team needs to address these issues and correctly strike the balance between:

- encouraging the contractor to manage its risk; and
- preventing the contractor's poor performance, whatever the reason, from endangering the viability of the PPP contract.

While contract renegotiations may be a common feature of PPPs in some countries, there is a need to acknowledge and limit the risks involved. Contracts can be designed in ways that aim to minimise major renegotiations at a later stage. Contract renegotiations involve careful analysis and dialogue between the parties before contract changes are agreed and implemented. The use of an experienced, trusted and neutral facilitator can be beneficial.

While some renegotiations are efficient, many are opportunistic and should be deterred.

During the first few years of the TEN-T PPP project, it is not uncommon that several minor adjustments are made to the PPP contract. These minor changes, as long as they are in compliance with EU law, are typically beneficial, since they are a way to correct mistakes or gaps, or to clarify issues.

Major contract renegotiations, which typically have considerable implications, are in principle forbidden under EU law and are generally regarded as undesirable for reasons which include:

- Competitive bidding is distorted: the most likely winner is not the most efficient operator but the one most skilled in renegotiation;
- Renegotiation takes place away from competitive pressures when carried out in a bilateral government-operator environment; or
- Renegotiations often decrease the overall economic benefits of the PPP and might have a negative fiscal impact.

It should be noted that lenders may also have rights to prevent changes to the contract which would, in their opinion, alter the credit status of the PPP company, which is their borrower.

Dispute Resolution

Contractual disputes are common in PPPs for a number of reasons, for example:

- the contract is long term and unexpected circumstances are bound to emerge;
- PPP projects involve large investments in immovable assets; or

- PPP projects tend to be large and complex.

These issues are even more relevant in the case of cross border TEN-T projects and, as in the case of any PPP, properly addressing them implies close involvement of legal advisors.

Disputes may occur because of unforeseen outcomes or circumstances. The mechanisms that are available to resolve disputes and conflicts are a major part of the assessment of contract risks by private investors in PPP projects. Some examples are:

- the national court system (litigation);
- arbitration (national or international);
- expert determination of some kind (often used for limited issues – e.g. a specific technical or financial issue in dispute – or used to give an interim decision which can then be appealed in litigation or arbitration);
- mediation or conciliation (where the third party does not give a binding decision but the goal is rather to enable the parties to reach agreement); and
- a decision by a specialised regulatory body or a similar body.

The first three mechanisms generally involve adjudication based strictly on the PPP contract. The last mechanism (decision by a regulatory body) could be based mainly on the PPP contract but some regulators have a tendency to diverge from the PPP contract in certain ways, based on their legal mandate. In some cases, the issues decided by the regulator are not governed by detailed rules in the contract and it is understood that the regulator will exercise a certain amount of discretionary judgment. This may add considerable risk for investors if they do not have confidence in the stability of the regulatory framework or the decisions of the regulator.

Effective relationship management in a PPP project facilitates the easy resolution of disputes in the future. Likewise, if a party resorts to an inappropriate dispute resolution process, the process can worsen the damage to the relationship resulting from the dispute

For this reason, it is vital that an appropriate dispute resolution process is set out beforehand in the PPP contract.

Contract end

A PPP contract should include detailed provisions dealing with the termination of the contract. The main issues to be addressed are:

- the circumstances in which the contract may be terminated by a party;
- the payment (if any) that must be made by the public authority to the PPP company upon termination (depending on the circumstances); and
- the condition of the assets when they are handed over to the public authority following a

termination.

As a general remark, it should be stressed that the early termination should not alter the initial balance of the contract, as this might be considered an unlawful modification.

This sub-section will focus on the second point above but will also briefly discuss the other two topics.

a) Grounds for termination

The typical grounds for termination are:

- Expiry at the end of the contract term
- Default by the PPP company
- Default by the public authority
- Voluntary decision by the public authority ("convenience termination")
- Termination in the case of prolonged force majeure

The contract should describe in detail the circumstances that will allow a party to terminate the contract because the other party has defaulted on its obligations. The contractual breach has to be fundamental in nature. For example, the public authority would normally be entitled to terminate the contract in the case of the insolvency or bankruptcy of the PPP company or an egregious deficiency in service standards (e.g. where health or safety is threatened) that is not promptly remedied. A detailed list should be included of all the breaches that entitle termination.

Especially difficult can be how to handle the common problem of "persistent breach" – the accumulation of many breaches, each of which would not be enough to trigger termination but all of which together constitute fundamental non-performance. It is good practice to try to make the criterion to assess the existence of persistent breach as objective as possible – e.g. by specifying a value of accumulated penalties, deductions or performance points (over a specified period of time) that will be used as the trigger.

The typical example of default by the public authority is non-payment of the service fee (or other payment due to the PPP company), including cases in which the public authority has not adequately adjusted the company's remuneration in accordance with the terms of the contract, in response to various contingencies that have arisen. Another (broad) example is serious interference with ability of the PPP company to perform.

b) Termination payments

The public authority may be required under the contract to make payments to the PPP company if the contract is terminated. These provisions are generally complex and need to be carefully drafted with the assistance of specialized advisors. They require the balancing of a number of considerations, especially:

- fairness;

- incentives; and
- an appropriate trade-off between conceptual correctness and certainty (this will be illustrated below).

The specification of termination payments can be important even if the contract is never terminated. For example, if the public authority is renegotiating the contract with the PPP company, it should not accept an outcome that would be less favorable to it than simply terminating and making the requisite payment. So the termination payment becomes the "reservation price" in the renegotiations.

The following sets out in a simplified way the approaches for calculating the termination payment for different kinds of termination.

Expiry of contract

PPPs are usually structured so that the public authority makes no payment to the PPP company when the PPP expires at the end of its normal term. But under certain circumstances, payments will be provided for. For example, if new assets have been constructed in connection with an extraordinary event, the terms of compensation may include a lump-sum termination payment to be made by the public authority, as well as an increase in the periodic service fee during the remaining term of the PPP.

Termination for default by the PPP Company

Termination for contractor default is the final stage of a process, which commences when a project is failing to perform to expectation. The PPP contract would be expected to set out the various circumstances, which could trigger termination. These will include failure to complete construction, persistent failure to meet performance standards and the insolvency of the private sector partner. The contract will also set out the circumstances in which failure to perform cannot be used to trigger termination (sometimes known as "relief events").

In the first instance of serious failure on the part of a contractor (e.g. insolvency, poor performance, corruption etc.), the PPP company would be expected to replace non-performing sub-contractors and seek termination damages from the replaced contractor. These should be set at a level, which would allow the project company to meet any additional costs associated with the replacement contractor.

In the case of default by the PPP company, lenders would expect to be allowed to step-in to save the PPP project and the public sector would be expected to permit, and rely on, lenders to control the PPP project. The right of step-in is typically foreseen in a direct agreement entered into between the project company, the lenders and the parties to the project's key underlying commercial contracts.

The PPP contract will be terminated only if lenders choose not to step-in, or choose to step out of a non-performing project. It would be normal that in these cases equity would be entirely lost and no compensation would be payable to shareholders. Compensation for transfer of the PPP project assets may be payable to senior lenders. This will be determined either through the provisions of the PPP contract, the applicable legal code, or where the public sector has agreed to guarantee part of the project's senior debt.

As a general principal, the public sector should not be incentivized to seek early termination, but equally lenders should not expect to avoid loss where the public sector is incurring additional costs. In practice,

a number of mechanisms can be employed to achieve a balanced result:

- For example, in a typical PFI arrangement, where there is a liquid market in similar projects and the early termination is due to default by the project company, the procuring authority can choose to "sell" the unexpired period of the project contract and the best bid capital sum obtained as a result of such "sale" will be used to pay compensation to the lenders (so-called "market value based compensation on termination").

- Where there is no liquid market in similar projects the amount of the lenders' compensation will typically be determined by the present value of future cash flow under the project minus present value of future costs minus rectification costs (so-called "fair value based compensation on termination").

The insolvency of the PPP company is an important cause of contractor default. In traffic risk projects, this could occur when the failure of traffic volumes to grow sufficiently in the early post construction years means that the PPP company can no longer service its debt in line with the agreed schedule. In this case, lenders could choose to 'accelerate' their debt (i.e. make the entire debt due and payable) – this would force the PPP Company into insolvency.

It is generally accepted nowadays in PPPs that, if the assets financed under the project remain with the public, the public authority should often make a termination payment to the PPP company even if the contract has been terminated for default by the PPP company. Otherwise, the public will have received an unjustified windfall. Given that most or all of this payment will go to lenders, the shareholders of the PPP company will emerge as losers in this kind of termination – which is as it should be since the PPP company was at fault.

This is a key issue in the PPP contract, and of considerable importance to the bankability of the deal. There are different methods used to calculate the payment that the public authority must make to the PPP company (which must be used as first priority to pay lenders), including:

- repayment of outstanding debt (to the extent it has been properly used for project assets) or a pre-specified percentage of outstanding debt;

- depreciated value of assets financed by debt (there are several variants of this general approach);

- present value of expected future net cash outflow to be avoided by the public authority by terminating the contract (i.e. the service fee less all costs that the public authority will have to incur); and

- open-market sale (the public authority rebids the PPP contract, selects a new company that will continue with the contract and then pays to the original PPP company the proceeds it receives from the sale).

Methods actually used can combine the different approaches in various ways. Each of these methods has pros and cons. For example, it is argued that lenders should not be assured of 100% recovery because that would remove their incentives to conduct thorough due diligence and careful project monitoring. Another example: the open-market-sale method will not work well if there is no liquid market for PPP contracts. Finally, the method involving a net present value calculation may be

conceptually appealing, but making forecasts of future costs and revenues can be highly speculative and lead to disputes. Parties therefore often prefer solutions involving the certainty of easily determined values and clear calculations.

c) Asset Management

The PPP contract should contain provisions to ensure that the assets are handed back to the public authority in good condition. For example, the contract could include provisions such as the following:

- Clear principles describing the condition the assets must be in at contract expiry (e.g. expected useful life to be remaining for each type of asset, or ability to meet certain performance tests)
- Assessment of asset condition and description of works to be completed, made by an independent expert sufficiently in advance of the expiry date
- Possibly, deductions to be made from the service fee during this final period, the proceeds of which to be held in an escrow account
- Verification by an independent expert that the needed works have been completed adequately, and subsequent release of retention money to the PPP company

CHECKLIST*: Contract Management*

In the operational period of a TEN-T PPP project, the focus of the public contracting authority is to manage the contract while maintaining operational performance. To achieve this, the public contracting authority and its team of advisers need to consider all items in the following checklist:

- Has the possibility of engaging the same advisers employed in the procurement phase been considered in terms of their availability, potential engagement, required budget and conflict of interest?
- Have experienced advisers been consulted with to help the contract management team address sensitive changes to the contract, including refinancing?
- Has a contract administration manual been developed to help coordinate information on contract terms with contract management procedures, including allocation of responsibilities and timetables?
- Have guidelines been developed for users to help monitor contract performance in case this is envisaged?
- In availability-based PPPs, are payments to the PPP company being processed properly and in accordance with the PPP contract?
- Have all necessary steps been taken to ensure continuing review and monitoring of project risks using, for example, the risk register developed during the detailed preparation phase?
- In the event of changes to the contract, what steps are envisaged to keep monitoring efforts on operational performance and not just on managing changes to the contract? In particular, what mechanism has been developed to ensure that Value for Money is maintained after the changes if risks are transferred from the PPP company back to the contracting authority?

- Have criteria and procedures been agreed to monitor the residual value of the asset so that the asset management and maintenance practices support the TEN-T PPP project objectives and maximise Value for Money?
- Has a communication strategy been developed to deal with the PPP company, transport users and other relevant stakeholders with regular reviews and updates?

7.8.2 Ex-Post Evaluation

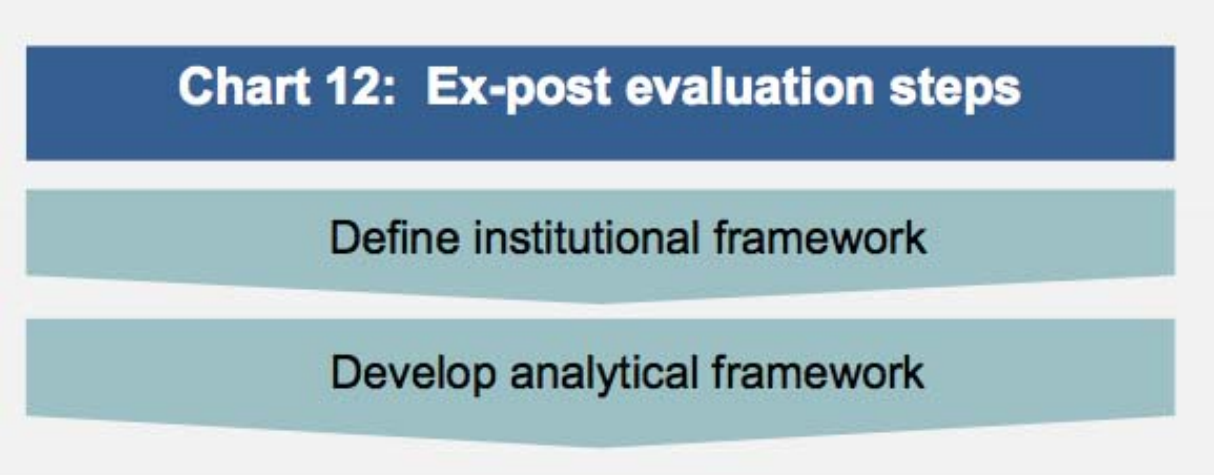


Figure 21: Contract Management

The detailed ex-post evaluation of PPPs involves the two steps summarised in Figure 21. A sound evaluation of a PPP project requires the public sector to:

- identify the public body that will undertake the review of a particular PPP project;
- ensure the independence of that body vis-à-vis the teams responsible for implementing and managing the PPP contract; and
- define the questions that need to be answered in the evaluation exercise.

The rest of this section describes these aspects and their rationale in more detail and suggests relevant examples of ex-post evaluations for further reading.

Institutional Framework

Ex-post evaluation of TEN-T PPP projects facilitates learning lessons from the experience of implemented projects, including successes and failures. These lessons can improve future decisions on

whether to use the PPP route or how to design PPP contracts, for example, and ultimately how best to prepare and implement PPP projects.

It is important that the information needs for ex-post evaluation are thought through carefully and specified in the PPP contract. This ensures that the right information is gathered during the course of the project with the support of the public contracting authority and the project team.

The timing for evaluating a PPP is an open question, although a balance is needed between getting useful information quickly to inform current processes and getting meaningful data on performance. Evaluation around 12–18 months after the commencement of operations will provide information on the bidding process, the delivery of the project asset, and initial performance. Subsequent evaluations will provide better information on operational performance.

The purpose of an ex-post evaluation is twofold:

- Evaluate the merits of PPPs associated with a particular type of project (e.g. TEN-T highway PPP projects).
- Identify potential issues related to the implementation or management of specific PPP contracts (e.g. availability-based PPPs).

Evaluation requires the establishment of relevant criteria and methods and the capacity within the public authority to carry out the process. In order for this process to be successful it is important that the public authorities:

- define the set of questions they would like to see answered; and
- decide on who is best placed to answer those questions.

The type of body most suitable for the ex-post evaluation exercise depends on the objectives of the PPP ex-post evaluation. It is not unusual, for example, that national audit units undertake such studies.

In some instances, for example, ex-post evaluation can be contracted out to a consulting firm, especially when in-house expertise is not available within a public body.

But whatever the nature, the public authority will have to ensure that the body undertaking the evaluation is independent from the teams responsible for delivering and implementing the PPP project subject to evaluation.

Analytical Framework

Once responsibilities have been attributed and the aim of the ex-post evaluation study has been defined, it will be necessary to decide which analytical framework is most adequate to achieve the aims of the study.This implies defining:

- the evaluation criteria and expected outcomes of the project; and
- the appropriate alternative (i.e. counter factual: what would have happened if the project had not been implemented as a PPP?)

A well-designed PPP contract should have provided for sufficient information, collected during the monitoring phase, to support this evaluation exercise.

PPP projects will normally be defined in terms of Value for Money. This implies identifying both the benefits derived from project outputs and the costs to deliver those outputs, both monetary and in terms of timing. However, more qualitative benefits and costs, such as service quality, contract design and risk allocation, need also to be considered in the evaluation.

In addition to examining the costs and benefits, the evaluation will need to identify which alternatives should have been looked at. These can be alternative procurement models to PPP, or different project delivery and implementation procedures. It is common to use the public sector comparator as a relevant alternative. However, depending on the objectives of the study, other comparators can also be considered, such as the expected Value for Money at the start of the project.

CHECKLIST*: Ex-Post Evaluation*

An ex-post evaluation of a TEN-T PPP project can focus on many aspects including, for example, the design and performance of a PPP contract, or an audit of the procurement process. Examples of the type of questions to address when designing and undertaking an ex-post evaluation are:

- Has agreement been reached on the primary focus of the ex-post evaluation? Is it the behaviour and effectiveness of the public contracting authority; the effectiveness of the procurement method chosen (e.g. competitive dialogue?) including negotiations and contract award; or effectiveness in the performance and management of the TEN-T PPP contract; or all of the above?
- Have the information needs for ex-post evaluation been identified and included in the TEN-T PPP contract to allow the gathering of adequate information during the performance phase?
- Have the necessary instructions been given, resources made available and high level support obtained to motivate both the contract management team and the public contracting authority to get the necessary information for an ex-post evaluation assessment?
- Has a timetable for ex-post evaluation been developed and approved balancing the need of getting useful information quickly to inform current processes and getting meaningful data on performance?

Summary

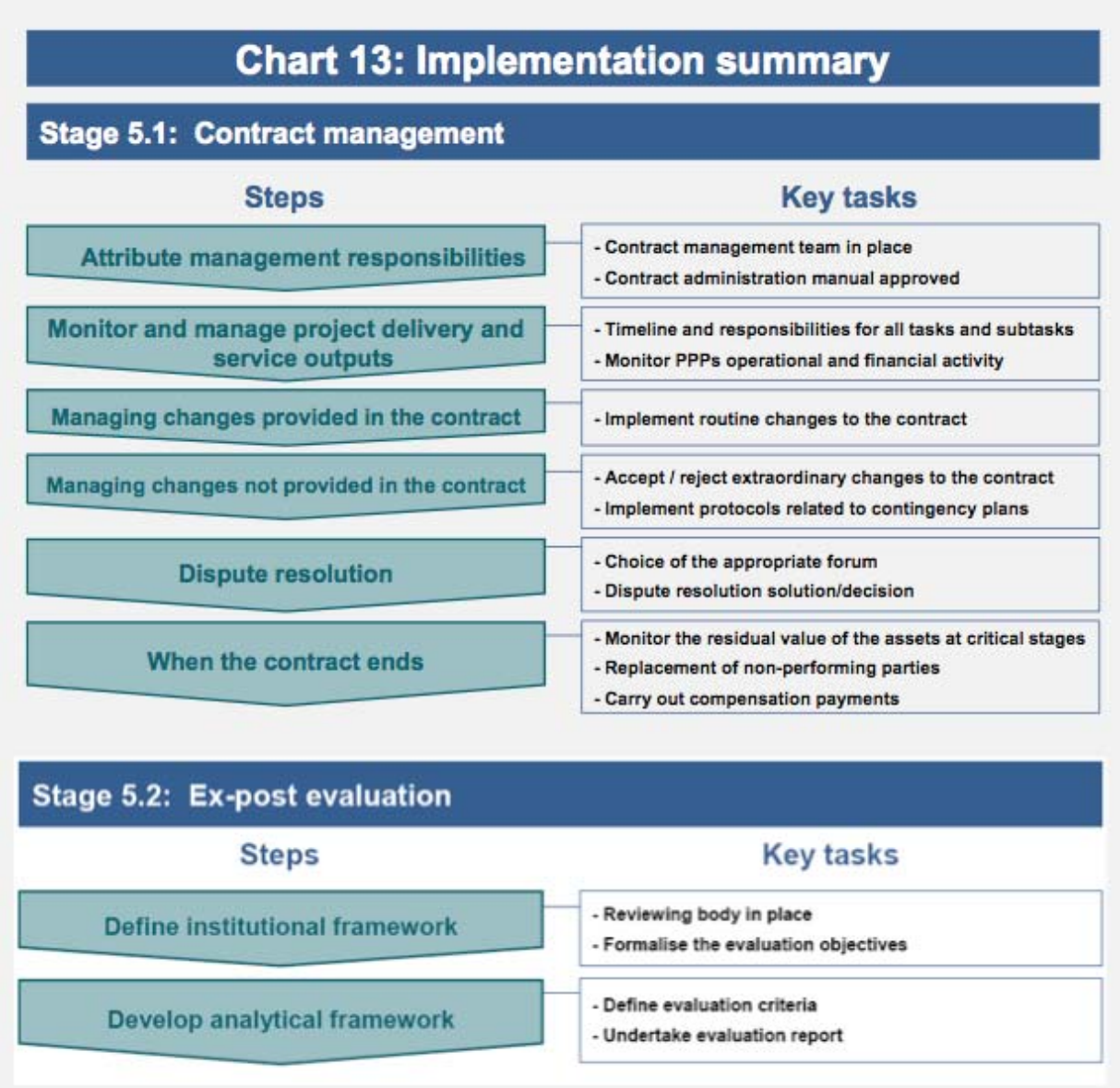


Figure 22: Contract Management

8 PROPOSED ACTIONS FOR THE PREPATORY OF THE FUTURE FREIGHT CORRIDOR SEA2SEA

8.1 Administrative and preparatory actions

The Action Plan [AP] emphasizes on the necessary actions to be taken in order to initialize the steps forward to the development of the Sea2Sea corridor service. The actions to be taken include the creation of coordination/supervision administrative units covering both sides of the corridor, and the preparatory actions, which are prerequisites to allow corridor operations after the completion of Stage 1 investments.

The administrative steps, which should be made, refer to the total process of corridor implementation. Given the very early phase of corridor market development, all structures must be flexible, to allow for adjustments in the future.

The development of the corridor (as a result of coordinated planning and operations of the two rail systems and of cooperation and optimization of custom procedures), is a decision, which is definitely strongly supported by the goals of the TEN-T network policy. However, at this planning stage, as it is indicated from the demand analysis and transport modeling carried out in D.1 of the project, the potential of the SEA2SEA corridor, defined as potential shift container traffic demand from the Bosporus Straights to a land bridge connecting the Greek ports with the Bulgarian ones, is not definitely identified (whilst it is more probable that container traffic to/from South East Bulgaria may shift to Alexandroupolis port, and, consequently, the financial analysis of the project is based on that estimate). The Action Plan for the implementation of the future steps of the corridor must be left flexible, to be determined and adjusted by/to the market developments.

The proposed actions on infrastructure improvement coincide with plans, which are either planned or implemented by the national authorities and the respective organizations at both sides of the corridor. Most of the infrastructure improvements, which are identified as necessary for the operation of the corridor, refer to priority axes of the TEN-T network. In the Bulgarian side, most of the projects of Stage 1 are already in advanced construction phase, whilst, in the Greek side, the decision to improve the Alexandroupolis – Ormenio line and the rail connection to the port of Kavala are made as part of the next generation of major rail infrastructure projects. These developments indicate that the SEA2SEA concept can easily be facilitated on existing or planned infrastructures; thus, it doesn't require major additional investments. However, for the purposes of this report and the sustainability test, it is supposed that the Alexandroupolis – Ormenio project should be attributed to the SEA2SEA

implementation plan, since in the present preparation stage by ERGOSE, alternative line freight demand is not indicated.

The future potential of the corridor will be tested in the "real" container market world. It will highly depend on external factors, related with the regional container transport economics, the competition among regional ports – with which the ports of the corridor compete - and the strategies of the container transporters and forwarders. It is strongly suggested that the planning of implementation of Stages 2 to 4, as far as those actions which are not part of the ongoing planning by the part of the national authorities at each side, must be made in a next stage, based on the grounds of factual achievements of corridor operations.

The technical provisions of the Action Plan are better defined as far as the preparation of Stage 1 of the corridor. All Stage 1 actions are planned to be part of the 2014-20 programming period. Some actions, which are classified as parts of the next implementation stages, have a good possibility to be part of the 2014-20 period as well.

As necessary actions which must be launched for the implementation of the SEA2SEA corridor are considered:

Administrative Actions (2014-20 Programming Period)

1. The establishment of an Executive Committee [ExC] at Ministerial level by the Greek Ministry of Infrastructure, Transport and Networks and the Bulgarian Ministry of Transportation. The ExC will be the political body to coordinate planning and implementation efforts and to take political decisions, which will create a positive environment for the corridor and support its potential.
2. The establishment of a Steering Committee [SC] at the highest administrative level, including representatives from the planning units of the respective Ministries, the rail planning, construction and maintenance bodies, rail operators, port administrators and port operators, as well as custom officers, of both sides. The SC will prepare plans and schedules, will develop proposals on technical issues, referring to the improvement of infrastructure, the optimization of operations, the scheduling, the budgeting and the financing of actions.
3. The establishment of unilateral Coordination SEA2SEA corridor Units [CU] at the suitable strategic planning level by each side, responsible to prepare alternatives, plans and proposals at national level, to be introduced in the SC.

Preparatory Actions (2014-20 Programming Period)

As necessary preparatory actions measures that must be taken within the early times of the 2014-20 programming period are defined. Most of them refer to the Greek side, since the Bulgarian rail system is more developed, offers higher capacity and is well connected with the ports.

Necessary preparatory actions to make possible the launching of SEA2SEA operations are the followings:

- The development of an operational container terminal at the port of Alexandroupolis, - following the completion of the dredging works which are in progress – including the addition of handling equipment and building facilities. The issue is highly political, since the decision on the ownership and operational status of the port (and consequently of the terminal) has been made at the government level and is part of the followed privatization policies, but, by all estimates, there will be quite some time before any final outcome of the tendering procedures takes place. Since it may take considerable time, the issue represents a factor of high risk as far as the launching of operations of the corridor within the 2014-20 period.
- The preparation of the rail operator in the Greek side – for the time being TRAINOSE – to launch regular service from the Greek ports to the borders. This preparation includes the provision for the supply of rolling equipment, the development of fare policy for full customer support from the container yard to the "dry port" station in the neighboring countries, and the agreement with the rail operators of the destination countries as far as the cross-border operations. (It is encouraging that TRAINOSE is currently preparing such a policy as part of its plans to connect the port of Thessaloniki with Skopje).
- The provision for completion of the container terminal at the new port of Kavala and the rail connection to Toxotes.

8.2 Scheduling of interventions

In order to present the description and scheduling of the interventions, which compose the Action Plan of the SEA2SEA project, an "intervention form" is used, to allow comparability. The form contains a description of the intervention, the context of the intervention and the anticipated impacts, external benefits and costs, as well as estimated cost, possible sources of financing and time scheduling (where it is possible or safe).

The individual forms with the information referring to each intervention are presented in the followings.

8.2.1 Stage 1 - Improvement of the Alexandroupolis – Ormenio railway line

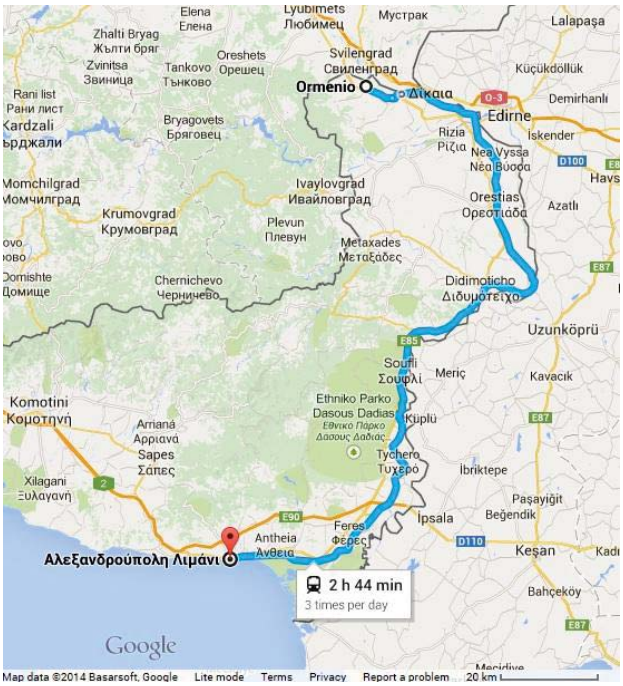
STAGE 1	
TITLE	Core Sea2Sea route
DESCRIPTION	At this stage, a connection is established between Alexandroupolis and Plovdiv. It includes the part of the corridor which is interregional between Greece and Bulgaria and necessary for the formulation of the corridor and its continuation to the Bulgarian ports of the Black Sea and the transport cooperation among the two countries

INTERVENTION 1.1	
Description	Improvement of the 180km single track line with electrification and advanced equipment of signaling
Bottleneck addressed	Lack of electrification and modern signaling of the Alexandroupolis - Ormenio railway line

STATE OF THE ART

Current conditions

- The 180km single-track rail line between Alexandroupoli and Ormenio/Bulgarian border has been recently renovated.
- Nevertheless, there is lack of electrification infrastructure and advanced signaling equipment.
- The passenger demand is serviced by three trains per day in each direction, leaving excess capacity for the freight trains.



Environmental considerations

Main environmental considerations are:

- GR1110006 & GR1110007 located at the Delta of Evros river
- GR1110005 at Evros massif

• GR1110008 at the river margin, ecosystem of Northern Evros and Ardas • National Wetland Park of Evros Delta • National Forest Park of Dadia	

Context provisions

Main policy objective

- Development of safe, consistent and interoperable railway system of high reliance and quality of service

Spatial Planning

- Improvement of the quality of the existing transport infrastructure and the relevant services throughout the country, in order to increase the level of accessibility, reduce the time and cost of transport services, increase the safety of transport / transport services *(General Framework of Spatial Planning and Sustainable Development - GR)*
- Emphasis on the interoperability / interconnectivity of the Greek network with those in Bulgaria … (in the context of upgrading the role of rail) *(Regional Framework of Spatial Planning and Sustainable Development of the Region of East Macedonia and Thrace - GR)*
- Integration of East Macedonia and Thrace in wider international transport networks – it depends on the upgrading of the Alexandroupolis - Ormenio axis (road and rail) and its connection with PETC IX (*Regional Framework of Spatial Planning and Sustainable Development of the Region of East Macedonia and Thrace - GR*)
- Improvement of the rail axis Alexandroupolis – Ormenio and its connection with the port of Alexandroupolis - it is characterized as 'high priority', since it contributes to the development of the Rail-Road Terminal of Alexandroupolis *(Regional Framework of Spatial Planning and Sustainable Development of the Region of East Macedonia and Thrace - GR)*

Development programming

- Development of safe, consistent and interoperable railway system of high reliance and quality of service *(Strategic Investment Programme for Transport 2014-2025 - GR)*
- Upgrading of the railway network of the Region of East Macedonia and Thrace and completion of connections with the other regions and neighboring states *(Strategic Investment Program me for Transport 2014-2025 - GR)*
- Suggested project 'Upgrading of certain segments of the Alexandroupolis - Ormenio (Bulgarian border) rail line, renovation of the railway stations at Pythion and Ormenio, full electrification and deployment of automated control system' *(Strategic Transport Investment Plan 2014-2025 (May 2014) - GR)*

BUDGETING AND FINANCING	
Estimated budget	Approx. 85 million €
Potential sources of financing	National Strategic Framework of Greece for the programming period 2014-2020: Structural Funds

IMPLEMENTATION	
Implementation body	Hellenic Railways Organization (OSE) - ERGOSE
Key parameters	None
Preconditions	None
Implementation schedule	The project is under study / proposed potential delivery 2018

ANTICIPATED IMPACTS	
Anticipated service benefits	• The electrification of this part of the railway network and the upgrading of the signaling systems can improve the interoperability of the corridor, its capacity and safety. • The intervention is expected to increase the commercial speed of the freight trains by 20-30% and the capacity of each freight train due to the increase of the traction power following the electrification of the line. • Along with the implementation of a central management system, the intervention is expected, additionally, to increase safety of rail transport and improve operating conditions, line capacity and service reliability. • The operation and maintenance costs will be significantly reduced.
Anticipated external benefits	• Direct and indirect employment for the construction and operation of the project. • Indirect employment impacts in the shipping industry related to the provision of services at the port of Alexandroupolis. • Transport cost savings.
Main anticipated impacts	Railways have a low emission impact on the environment. Due to the presence of significant environmental areas (River Evros Delta, Dadia forest) project EIA should address possible adverse impacts such us ecological encroachment, reduction of the biodiversity, destruction of the vegetation cover, loss of forest products (fuel wood, timber, non timber forest products, perturbation of wildlife habitats and migration and isolation of animal populations).
Anticipated external costs	The external cost of railway is lower than other modes of transport but the electrification brings it down further if it is sustainable. The lower cost of energy from well to wheel and the ability to reduce pollution and greenhouse gas in the atmosphere according to the Kyoto Protocol is an advantage. Based on the main findings on the positive and negative environmental and social/socio-economic impacts and their

	assessment, measures to avoid, prevent, mitigate or compensate the adverse impacts must be identified and proposed. The mitigation measures proposed must be based on the relevant national, EU and international standards and good practice. At the current conceptual design stage it is estimated that measures will mainly consist of: • a perimeter of protection around sensitive ecosystems, wetlands and unique habitats sheltering endangered species especially during construction works • Minimization of construction works in reproduction areas during the reproduction periods. • Minimization of sedimentation in spawning grounds downstream. • Installation of wide aprons to facilitate animal traction. • Minimization of the disruption of fish habitat by installing proper culverts and maintaining regular water flow all-year round. • Minimization of land clearing areas. In order to guarantee that the measures are implemented and perform adequately, target and evaluation criteria were developed for each measure and incorporated into a Management and Monitoring Program me defining the specific parameters that will be monitored, their method of checking, their monitoring time, period, and frequency, their location, their threshold levels, and the responsible person/institution in charge of the monitoring. Mitigation and monitoring measures are expected to take up to 15% of the overall project budget.

Sources of information:

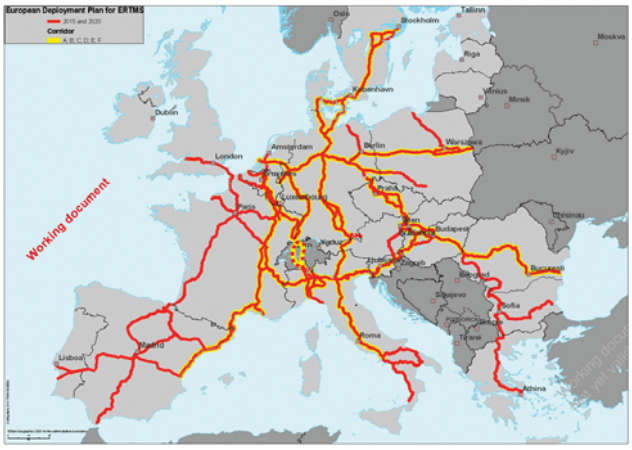
- General Framework of Spatial Planning and Sustainable Development – GR
- Regional Framework of Spatial Planning and Sustainable Development of the Region of East Macedonia and Thrace – GR
- Strategic Investment Program me for Transport 2014-2025 – GR
- Strategic Transport Investment Plan 2014-2025 (May 2014) - GR
- Railway Gazette International, Oct 2014
- "UK Network Rail electrification strategy Report", May 2010
- EIB Environmental and Social Handbook
- Carl E. Hanson, David A. Towers, and Lance D. Meister, (2006) FTA Noise and Vibration Assessment Manual, 2006
- Vegetation Management Guidelines for Rail Corridors, Victorian Rail Industry Environmental Forum, 2007
- ERM GmbH & ELCR Group Ltd: Environmental and Social Impact Assessment for the Eurasia Tunnel Project Istanbul, Turkey, 2011
- European Bank for Reconstruction and Development: ENVIRONMENTAL AND SOCIAL POLICY, London, 2008

- International Union of Railways: Railway Noise in Europe. A 2010 Report in the State of Art, 2010
- Rail Net Denmark: Noise, Vibrations and Electromagnetic Fields, Technical Note, 2011
- EBRD: A Checklist guide to Evaluating Environmental and Social impact Assessments, 2009

8.2.2 Stage 1 - Implementation of ERTMS

STAGE 1	
TITLE	Core Sea2Sea route
DESCRIPTION	At this stage, a connection is established between Alexandroupolis and Plovdiv. It includes the part of the corridor which is interregional between Greece and Bulgaria and necessary for the formulation of the corridor and its continuation to the Bulgarian ports of the Black Sea and the transport cooperation among the two countries

INTERVENTION 1.2	
Description	Implementation of European Rail Traffic Management System (ERTMS) along the Alexandroupoli-Ormenio railway line
Bottleneck addressed	Deficiencies in the seamless freight traffic between Greece and Bulgaria (at border crossing)

STATE OF THE ART	
Current conditions • There are serious deficiencies regarding the seamless freight traffic at borders' crossing. • Train operators do not provide services beyond the border stations. • Locomotives have to be changed at the border.	 http://www.railwaygazette.com
Environmental considerations Main environmental considerations are: • GR1110006 & GR1110007 located at the Delta of Evros river, • GR1110005 at Evros massif, • GR1110008 at the river margin, ecosystem of Northern Evros and Ardas	

• National Wetland Park of Evros Delta • National Forest Park of Dadia	

Context provisions

Main policy objective

- Improvement of the quality / modernization of the transport infrastructure
- Improvement of connectivity and integration in the wider international transport networks

Spatial Planning

- Improvement of the quality of the existing transport infrastructure and the relevant services throughout the country, in order to increase the level of accessibility, reduce the time and cost of transport services, increase the safety of transport / transport services *(General Framework of Spatial Planning and Sustainable Development - GR)*
- Optimum exploitation and targeted development of transport infrastructure and cross-border links of the region through its integration in the wider international transport networks, … *(Evaluation, Revision and Specification of the approved Regional Framework of Spatial Planning and Sustainable Development of the Region of East Macedonia – Thrace - GR)*

Development programming

- Develop safe, consistent and interoperable railway system of high reliance and quality of service *(Strategic Investment Program me for Transport 2014-2025 – GR)*

BUDGETING AND FINANCING	
Estimated budget	Infrastructure equipment needed for the installation of the ERTMS system on the core Sea2Sea route: The approx. cost of 150,000 € per railway kilometer is commonly attached to the budget of the railway upgrade projects. On board equipment needed for the operation of the ERTMS system on the core Sea2Sea route: Approx. 2 million €
Potential sources of financing	1. INEA Call (submission on Feb 2015), 2. National Strategic Frameworks for the programming period 2014-2020: Structural Funds, 3. Cohesion Funds 2014-2020

IMPLEMENTATION	
Implementation body	Hellenic Railways Organization (OSE) - ERGOSE
Key parameters	None
Preconditions	None
Implementation	to be planned / potential delivery 2018

schedule	

ANTICIPATED IMPACTS	

Anticipated service benefits	• The intervention will remove the bottleneck at border crossing for the Sea2Sea corridor.
	• It will enhance cross-border interoperability
	  ○ remove cross-border bottleneck
	  ○ build missing cross-border connection
	  ○ promote modal integration and interoperability
	• It will bring considerable benefits in addition to interoperability:
	  ○ Increased capacity on existing lines and a greater ability to respond to growing transport demands
	  ○ Higher speeds
	  ○ Higher reliability rates
	  ○ Lower production costs
	  ○ Reduced maintenance costs
	  ○ An opened supply market
	  ○ Reduced contract lead time due to the significant reduction of process engineering
	  ○ Efficient infrastructure use from using advanced telematics applications
	  ○ Enhance safety
	  ○ Strengthen territorial, economic and social cohesion

Main anticipated impacts	Railways have a low impact on the environment, particularly in comparison with other transport modes and most notably, roads. Due to the presence of significant environmental areas (River Evros Delta, Dadia forest) project EIA should address possible adverse impacts such us ecological encroachment, reduction of the biodiversity, destruction of the vegetation cover, loss of forest products (fuel wood, timber, non timber forest products, perturbation of wildlife habitats and migration and isolation of animal populations where line refurbishment is required. No adverse impacts anticipated due to ERTMS system radio waves.
Anticipated external costs	The external cost of railway is lower than other modes of transport but the electrification brings it down further if it is sustainable. Minimization of the bottleneck for the seamless freight traffic between Greece and Bulgaria conserves energy and resources. Based on the main findings on the positive and negative environmental and social/socio-economic impacts and their assessment, measures to avoid, prevent, mitigate or compensate

	the adverse impacts must be identified and proposed. The mitigation measures proposed must be based on the relevant national, EU and international standards and good practice. At the current conceptual design stage it is estimated that measures will mainly during installation/implementation of ERTMS system on the line infrastructure, consist of: • a perimeter of protection around sensitive ecosystems, wetlands and unique habitats sheltering endangered species especially during construction works • minimization of construction works in reproduction areas during the reproduction periods. • minimization of sedimentation in spawning grounds downstream. • installation of wide aprons to facilitate animal traction. • minimization of the disruption of fish habitat by installing proper culverts and maintaining regular water flow all-year round. • minimization of land clearing areas. Management and Monitoring can be combined with the Program me installed. Mitigation and monitoring measures can be combined with measures proposed for the electrification of Alexandroupoli – Ormenio reducing cost up to 10% of the overall project budget.

Sources of information:

- http://www.ertms.net/?page_id=44
- General Framework of Spatial Planning and Sustainable Development – GR
- Evaluation, Revision and Specification of the approved Regional Framework of Spatial Planning and Sustainable Development of the Region of East Macedonia – Thrace – GR
- Strategic Investment Program me for Transport 2014-2025 – GR
- Railway Gazette International, Oct 2014.
- "UK Network Rail electrification strategy Report", May 2010
- EIB Environmental and Social Handbook
- Carl E. Hanson, David A. Towers, and Lance D. Meister, (2006) FTA Noise and Vibration Assessment Manual, 2006
- Vegetation Management Guidelines for Rail Corridors, Victorian Rail Industry Environmental Forum, 2007
- ERM GmbH & ELCR Group Ltd: Environmental and Social Impact Assessment for the Eurasia Tunnel Project Istanbul, Turkey, 2011
- European Bank for Reconstruction and Development: ENVIRONMENTAL AND SOCIAL POLICY, London, 2008
- International Union of Railways: Railway Noise in Europe. A 2010 Report in the State of Art, 2010
- Rail Net Denmark: Noise, Vibrations and Electromagnetic Fields, Technical Note, 2011
- EBRD: A Checklist guide to Evaluating Environmental and Social impact Assessments, 2009

8.2.3 Stage 1 - Implementation of SEA2SEA Traffic Control Center

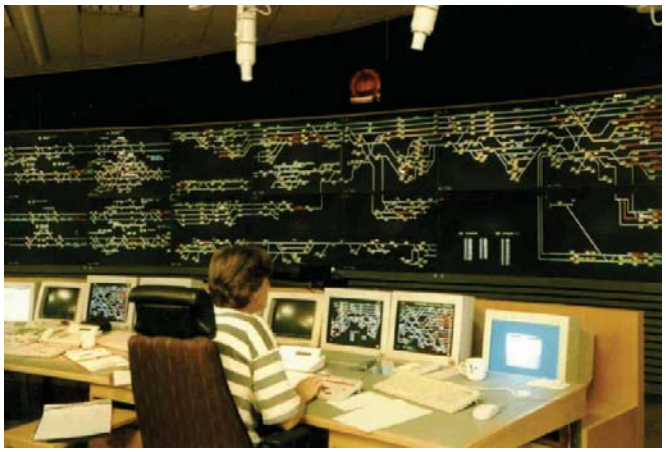
STAGE 1	
TITLE	Core Sea2Sea route
DESCRIPTION	At this stage, a connection is established between Alexandroupolis and Plovdiv. It includes the part of the corridor which is interregional between Greece and Bulgaria and necessary for the formulation of the corridor and its continuation to the Bulgarian ports of the Black Sea and the transport cooperation among the two countries

INTERVENTION 1.3	
Description	Implementation and operation of a Sea2Sea Traffic Control Centre and Observatory
Bottleneck addressed	Lack of coordination from a transport Sea2Sea flows dedicated operational center

STATE OF THE ART

Current conditions

- There is a need of a traffic control center and observatory for the corridor efficient operation.
- There is lack of coordination between responsible authorities.



http://www.lococarriage.org.uk

Environmental considerations

The observa tory will be placed in urbanized areas where protected areas are not present.

Context provisions

Main policy objective

- Collection, transmission and management of information regarding the transport sector
- Improvement of integration and interoperability / achievement of high transport safety

and security
Spatial Planning • Development of information and communication technologies *(for South-Eastern Region - National Regional Development Strategy (NRDS) of the Republic of Bulgaria for the period 2012-2022 - BG)* • Achievement of high transport safety and security – Improvement of the connectivity and integration of Bulgarian regions on a national and international scale (*National Development Program me: Bulgaria 2020 - BG)* • … Creation of nodes at points where optimum performance of the modes can be achieved, … electronic systems for the collection, transmission and management of information regarding the transport sector, in real time *(In respect to the creation of integrated intermodal transport systems - General Framework of Spatial Planning and Sustainable Development - GR)* • Connection of transport nodes (ports, airports, freight transport centers) through autonomously –as far as possible- transport networks (road and/or rail), in order to avoid congestion (conflict with urban land-uses) *(General Framework of Spatial Planning and Sustainable Development - GR)* • The infrastructures which will be promoted in the region will be those which … contribute to the increase of trade flows in a targeted way *(Evaluation, Revision and Specification of the approved Regional Framework of Spatial Planning and Sustainable Development of the Region of East Macedonia – Thrace - GR)* • Emphasis should be placed on the interoperability / interconnectivity of the Greek network with those in Bulgaria *(Evaluation, Revision and Specification of the approved Regional Framework of Spatial Planning and Sustainable Development of the Region of East Macedonia – Thrace - GR)*
Development programming • The strategy for Bulgarian transport aims to … large-scale application of information and telecommunication technologies *(Strategy for the Development of the Transport System of the Republic of Bulgaria until 2020 - BG)* • Integration of the Bulgarian transport system into the European transport system *(OP "Transport 2007-13" - BG)* • Development of safe, consistent and interoperable railway system of high reliance and quality of service *(Strategic Investment Program me for Transport 2014-2025 – GR)* • Improvement of the connections of the Regions to the international trade, production and urban centers *(Strategic Investment Programmed for Transport 2014-2025 – GR)* • Reduction of traffic bottlenecks *(Strategic Investment Program me for Transport 2014-2025 – GR)*

BUDGETING AND FINANCING	
Estimated budget	Approx. 0,7 million €
Potential sources of financing	1. INEA Call (submission on Feb 2015), 2. National Strategic Framework for the programming period 2014-2020: Structural Funds.

IMPLEMENTATION	
Implementation body	Hellenic Railways Organization (OSE) – ERGOSE
Key parameters	None
Preconditions	None
Implementation schedule	to be planned

ANTICIPATED IMPACTS	
Anticipated service benefits	• The TCC will be responsible for monitoring the Sea2Sea traffic. • It will integrate monitoring information on the rail operation, the port terminal operation, and will optimize operations, capacity allocation and traffic management. • It will provide co-ordination of the authorities and the operators involved in the corridor. • It will function as an Observatory of the Sea2Sea corridor.
Anticipated external benefits	• Direct and indirect employment for the construction and operation of the project. • Indirect employment impacts in the shipping industry related to the provision of services at the port of Alexandroupolis. • Transport cost savings.
Anticipated external costs	Minimization of the railway external costs due to the enhancement of its sustainability. During land clearing, it is essential to ensure an archaeological surveillance in the potential areas containing artifacts and in case of a discovery, advise concerning authorities a cost that will be covered by project's budget contingency reserve.

Sources of information:

- National Regional Development Strategy (NRDS) of the Republic of Bulgaria for the period 2012-2022 – BG
- National Development Program me: Bulgaria 2020 – BG
- General Framework of Spatial Planning and Sustainable Development – GR
- Evaluation, Revision and Specification of the approved Regional Framework of Spatial Planning and Sustainable Development of the Region of East Macedonia – Thrace – GR
- Strategy for the Development of the Transport System of the Republic of Bulgaria until 2020 – BG
- OP "Transport 2007-13" – BG
- Strategic Investment Programmed for Transport 2014-2025 – GR

8.2.4 Stage 2 - Rehabilitation of the Plovdiv – Burgas railway line

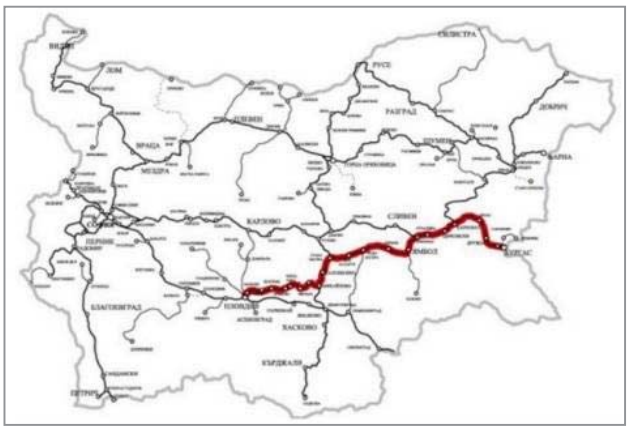
STAGE 2	
TITLE	Functional Sea2Sea route
DESCRIPTION	The second stage of the Sea2Sea implementation can also be considered as the stage that actually connects via railway the Aegean Sea with the Black Sea. At this stage the transport node of Burgas, the major Bulgarian Port in the Black Sea is integrated in the Sea2Sea Corridor establishing a connection with Alexandroupolis, Plovdiv and Stara Zagora.

INTERVENTION 2.1	
Description	Rehabilitation of the Plovdiv-Burgas railway, including the Burgas railway junction
Bottleneck addressed	Poor features of the Plovdiv-Burgas railway line

STATE OF THE ART

Current conditions

- The existing line is electrified with a total length of 292 km, of which 137 km is single line and 153 km is double line.
- There are severe bottlenecks in the sections Mihaylovo-Kaloyanovetz, Stara Zagora-Zimnitza and Tzerkovsky-Burgas.
- Poor features of the Mihaylovo – Dimitrovgrad railway line



Environmental considerations

Main environnemental considérations are:

- BG0000578 – Reka Maritsa SCI area
- BG0000429 – Reka Stryama SCI area
- Chirpanska Koria forest area

• BG0000192 – Reka Tundzha SCI area • BG0002094 – Adata Tundzha SCI area • BG0000196 – Reka Mochuritsa SCI area • BG0000205 – Straldzha SCI/SPA area • BG0002028 – Kompleks Straldzha SPA area • BG0000273 – Kompleks Straldzha SCI/SPA area • Vaya Lake	

Context provisions

Main policy objective

- Modernization and development of the transport infrastructure
- Improvement of the domestic and international connections – Development of Pan-European Transport Corridors

Spatial Planning

- Improvement of connectivity of regions in an international context *(National Regional Development Strategy (NRDS) of the Republic of Bulgaria for the period 2012-2022 – BG)*
- Development of the European Transport Corridors, road and railway infrastructure *(National Regional Development Strategy (NRDS) of the Republic of Bulgaria for the period 2012-2022 – BG)*
- Development of Pan-European Transport Corridors No. 4, No. 8 and No. 9 *(National Regional Development Strategy (NRDS) of the Republic of Bulgaria for the period 2012-2022 – BG)*
- Development of transport networks that are related mainly to the most important axes of the Trans-European Transport Network (TEN-T) and the connections with the neighboring countries and regions, as well as with the directions of the pan-European corridors *(National Concept for Spatial Development for the period 2013-2025 – BG)*
- Construction and reconstruction of transport infrastructure and establishing optimal conditions for economic development, improved market access, … (*National Development Program me 2020 – BG)*
- Effective maintenance, modernization and development of the transport infrastructure *(National Development Programmed 2020 – BG)*
- Improvement of the connectivity and integration of Bulgarian regions on a national and international scale *(National Development Program me 2020 – BG)*
- Construction of railway connections with ports and airports in the country - Priority project for investments: 'Renovation of sections of railway line Plovdiv – Burgos' *(National Development Program me 2020 – BG)*

Development programming

- Development and modernization of the transport infrastructure *(Strategy for the Development of the Transport System of the Republic of Bulgaria until 2020 - BG)*
- Development of railway infrastructure along the major national and pan-European

transport axes *(OP "Transport 2007-13" – BG)*
- Upgrading the railway line along the railway line Plovdiv-Burgos – project included in the *OP "Transport 2007-13" (BG)*
- Completion of the rehabilitation and upgrading of the line Plovdiv-Burgas – project included in the *OP "Transport 2014-2020" (BG)*

BUDGETING AND FINANCING	
Estimated budget	Approx. 340 million €
Potential sources of financing	1. National Strategic Framework of Bulgaria for the programming period 20014-2020: Structural Funds, 2. Cohesion Funds 2014-2020.

IMPLEMENTATION	
Implementation body	National Railway Infrastructure Company (NRIC)
Key parameters	none
Preconditions	Upgrade of the Mihaylovo-Dimitrovgrad section
Implementation schedule	Under construction / 80% completion, completion phase 2 in 2019

ANTICIPATED IMPACTS	
Anticipated service benefits	• Five stations will be delivered with new signaling together with the 177 km of improved rail track. • The upgraded line will enable passenger trains to travel at up to 160km/h and freight trains with 120km/h. • The line's capacity will increase and this will result in significantly shorter journey times for both freight and passenger traffic. • The intervention will benefit the Sea2Sea corridor with the added value of connecting to the TRASECA corridor. • The operation of the Aegean-Black Sea2Sea corridor is expected to contribute in decongestion of the Bosporus strait.
Anticipated external benefits	• Direct and indirect employment for the construction and operation of the project. • Indirect employment impacts in the shipping industry related to the provision of services at the port. • Transport cost savings.
Main anticipated impacts	The project is under construction and all potential beneficial and adverse Impacts are examined thoroughly in the EIA.
Anticipated external	The project is under construction. Plodiv-Burgas railway line

costs	external cost is expected to decrease (energy and resources conservation, reduction in CO_2 and greenhouse gases footprint etc.).

Sources of information:

- National Regional Development Strategy (NRDS) of the Republic of Bulgaria for the period 2012-2022 – BG
- National Concept for Spatial Development for the period 2013-2025 – BG
- National Development Program me 2020 – BG
- Strategy for the Development of the Transport System of the Republic of Bulgaria until 2020 – BG
- OP "Transport 2007-13" – BG
- OP "Transport 2014-2020" – BG

8.2.5 Stage 3 – Doubling and electrification of the Carbonate – Sindel railway line

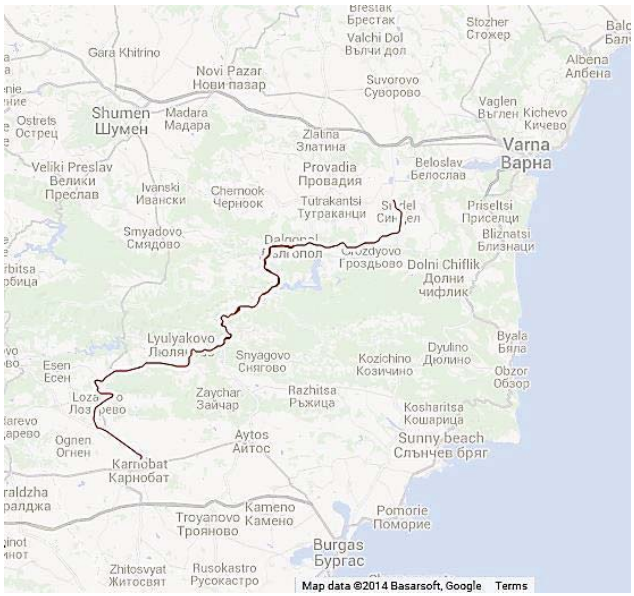
STAGE 3	
TITLE	Full operation Sea2Sea route
DESCRIPTION	With the completion of this stage the Sea2Sea corridor will be close to its full operation potential in connecting via railway the Aegean and Mediterranean Sea with the Black Sea. At this stage the Port of Varna in the Black Sea is integrated in the Sea2Sea Corridor.

INTERVENTION 3.1	
Description	Doubling and electrification of Karnobat-Sindel railway
Bottleneck addressed	Poor features of the Karnobat - Sindel (close to Varna) railway line.

STATE OF THE ART

Current conditions

- The railway line Karnobat – Sindel is the shortest land connection between the two biggest Black sea ports – Varna and Burgas, with a length of 123 km.
- 71 km of the total railway line alignment are doubled and electrified. The rest 52 km are one-way electrified railway line along the existing alignment.



Environmental considerations

Main environmental considerations are:

- BG0000393 - Ekokoridor Kamchia – Emine SCI area
- BG0000104 - Provadiysko-Royaksko plato SCI area
- BG0002038 - Provadiysko-Royaksko plato SPA area
- BG0000133 - Kamchiyska I Emenska

planning SCI/SPA area • BG0000141 - Recha Kamchia SPA areas	

Context provisions
Main policy objective • Constructing sustainable railway transport system through sector reforms • Improving the connectivity and integration of Bulgarian regions on a national and international scale
Spatial Planning • The line, as part of PETC 8, is included in the European Agreement on the most important routes for international combined Transport (AGTC). • *(Strategy for the Development of the Transport System of the Republic of Bulgaria until 2020 – BG)*
Development programming • The line's improvement plays an important role for the development of the region and the operation of the national transport system as a link between Burgas - Varna, Varna - east of the Black Sea and the port of Ruse, and between the European transport Corridor 7 and 8. *(Regional Plan for the Development of the Southeastern Region for the period of 2014 – 2020 – BG).* • Improving transport connectivity and access to markets *(National Development Program me: Bulgaria 2020 – BG)*

BUDGETING AND FINANCING	
Estimated budget	180 million €
Potential sources of financing	Cohesion Funds 2014-2020

IMPLEMENTATION	
Implementation body	National Railway Infrastructure Company (NRIC)
Key parameters	None
Preconditions	None
Implementation schedule	Construction forthcoming when funding is available

ANTICIPATED IMPACTS	
Anticipated service benefits	• The doubling and electrification of the line will improve the connectivity and integration of Bulgarian regions on a national and international scale.

	• The interoperability of the corridor, its capacity and safety will be improved. • The operation of the Aegean-Black Sea2Sea corridor is expected to contribute in decongestion of the Bosporus strait.
Anticipated external benefits	• Direct and indirect employment for the construction and operation of the project. • Transport cost savings.
Main anticipated impacts	The project is under construction and all potential beneficial and adverse impacts are examined thoroughly in the EIA.
Anticipated external costs	The project is under construction. Plodiv-Burgas railway line external cost is expected to decrease (energy and resources conservation, reduction in CO_2 and greenhouse gases footprint etc.).

Sources of information:

- National Development Program me: Bulgaria 2020 – BG
- Strategy for the Development of the Transport System of the Republic of Bulgaria until 2020 – BG
- Regional Plan for the Development of the Southeastern Region for the period of 2014-2020 – BG

8.2.6 Stage 4 – Rail connection of the new port of Kavalla

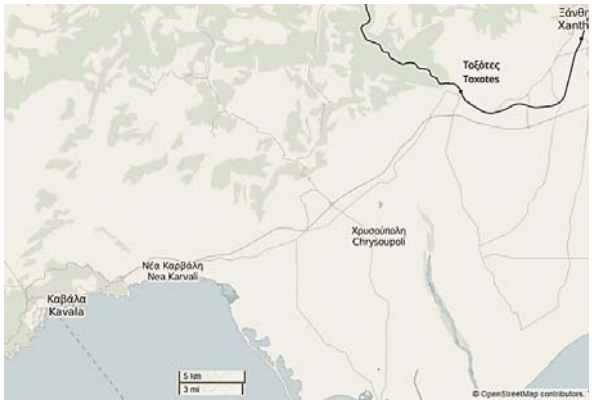
STAGE 4	
TITLE	Added value Sea2Sea extension route
DESCRIPTION	At this final stage the relevant interventions aim at integrating the remote edges of the inland Port of Ruse in the Danube river and the Commercial port of Kavala in the Aegean Sea to the Sea2Sea network. This stage contributes with an added value in the operation of the Sea2Sea Corridor.

INTERVENTION 4.1	
Description	Construction of single-track line of ca. 35km, which will connect the new commercial port of Kavala with the existing railway line Thessaloniki – Alexandroupolis at the existing station of Toxotes – Xanthi.
Bottleneck addressed	Lack of a railway connection between the Port area and the national railway network.

STATE OF THE ART

Current conditions

- The area of the commercial port of Kavala is not connected to the national railway network.
- The adjacent railway axis of Thessaloniki - Turkish border / Bulgarian border is located more than 30km away from the coast.
- The new line is included in the Trans-European Transport Networks.



Environmental considerations

Main environmental considerations are:

- GR1110009 – South Evros Complex –SPA area
- GR1130009 – Thraki lakes, lagoons and coastal areas– SCI area

• GR1130012 – Kompsatou valley • GR1150010 – Nestos Delta & keramoti lagoon – SCI area • GR1120005 – Nestos Forest – SCI area • K802, K26, K808, K59- Wildlife refuges • Forest of Nestos Kavala Ksanthi • National Park of Eastern Macedonia & Thraki	

Context provisions

Main policy objective

- Improvement of the connections of the Regions to the international trade, production and urban centers
- Optimum exploitation and targeted development of transport infrastructure and cross-border links through the integration in the wider international transport networks

Spatial Planning

- This railway connection is required so that Kavala's port can grow into a transit port, complementary / competitive to that of Thessaloniki *(Regional Framework of Spatial Planning and Sustainable Development of the Region of East Macedonia and Thrace – GR)*

Development programming

- Completion of projects that concern the strengthening of Kavala's role as a secondary national pole of trans-regional range and as gateway of trans-regional range with international role *(Regional Framework of Spatial Planning and Sustainable Development of the Region of East Macedonia and Thrace – GR)*
- Upgrading of the railway network of the Region and completion of connections with the other regions and neighboring states *(Strategic Investment Program me for Transport 2014-2025 – GR)*

BUDGETING AND FINANCING	
Estimated budget	250 million €
Potential sources of financing	National Strategic Reference Framework (NSRF) for the programming period 2014-2020: Structural Funds

IMPLEMENTATION	
Implementation body	Hellenic Railways Organization (OSE) - ERGOSE
Key parameters	None

Preconditions	None
Implementation schedule	The project is under study / seeking funding

ANTICIPATED IMPACTS	
Anticipated service benefits	• This connection is one of the important projects that must be implemented in order for the rail transport in Greece to be able to play a new role. • The port of Kavalla will be connected to the international market and strengthen its role.
Anticipated external benefits	• Direct and indirect employment for the construction and operation of the project. • Indirect employment impacts in the shipping industry related to the provision of services at the port. • Transport cost savings.
Main anticipated impacts	Railways have a low impact on the environment, particularly in comparison with other transport modes and most notably, roads. Electrification is the backbone of the environmental record of railways as it reduces CO2 and other greenhouse gases footprint as well as ambient noise. Due to the presence of significant environmental areas (Evros Complex, National Park of Eastern Macedonia & Thraki, Nestos Delta etc) project EIA should address possible adverse impacts such us ecological encroachment, reduction of the biodiversity, destruction of the vegetation cover, loss of forest products (fuel wood, timber, non timber forest products, perturbation of wildlife habitats and migration and isolation of animal populations.
Anticipated external costs	The external cost of railway is lower than other modes of transport but the electrification brings it down further if it is sustainable. The lower cost of energy from well to wheel and the ability to reduce pollution and greenhouse gas in the atmosphere according to the Kyoto Protocol is an advantage. Based on the main findings on the positive and negative environmental and social/socio-economic impacts and their assessment, measures to avoid, prevent, mitigate or compensate the adverse impacts must be identified and proposed. The mitigation measures proposed must be based on the relevant national, EU and international standards and good practice. At the current conceptual design stage it is estimated that measures will mainly consist of: • a perimeter of protection around sensitive ecosystems, wetlands and unique habitats sheltering endangered species

	especially during construction works • minimization of construction works in reproduction areas during the reproduction periods. • minimization of sedimentation in spawning grounds downstream. • installation of wide aprons to facilitate animal traction. • minimization of the disruption of fish habitat by installing proper culverts and maintaining regular water flow all-year round. • minimization of land clearing areas. In order to guarantee that the measures are implemented and perform adequately, target and evaluation criteria were developed for each measure and incorporated into a Management and Monitoring Program me defining the specific parameters that will be monitored, their method of checking, their monitoring time, period, and frequency, their location, their threshold levels, and the responsible person/institution in charge of the monitoring. Mitigation and monitoring measures are expected to take up to 15% of the overall project budget.

Sources of information:

- Strategic Investment Programmed for Transport 2014-2025 – GR
- Regional Framework of Spatial Planning and Sustainable Development of the Region of East Macedonia and Thrace – GR
- Railway Gazette International, Oct 2014
- "UK Network Rail electrification strategy Report", May 2010
- EIB Environmental and Social Handbook
- Carl E. Hanson, David A. Towers, and Lance D. Meister, (2006) FTA Noise and Vibration Assessment Manual, 2006
- Vegetation Management Guidelines for Rail Corridors, Victorian Rail Industry Environmental Forum, 2007
- ERM GmbH & ELCR Group Ltd: Environmental and Social Impact Assessment for the Eurasia Tunnel Project Istanbul, Turkey, 2011
- European Bank for Reconstruction and Development: ENVIRONMENTAL AND SOCIAL POLICY, London, 2008
- International Union of Railways: Railway

8.2.7 Stage 4 – Restoration of design parameters of the Ruse-Varna railway line

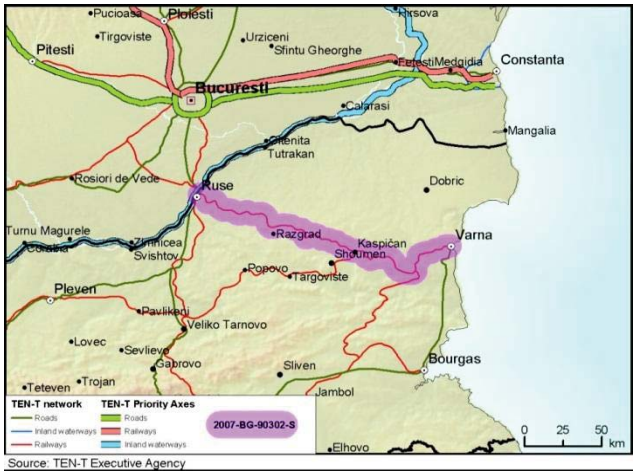
STAGE 4	
TITLE	Added value Sea2Sea extension route
DESCRIPTION	At this final stage the relevant interventions aim at integrating the remote edges of the inland Port of Ruse in the Danube river and the Commercial port of Kavala in the Aegean Sea to the Sea2Sea network. This stage contributes with an added value in the operation of the Sea2Sea Corridor.

INTERVENTION 4.2	
Description	Restoration of design parameters of the Ruse-Varna Railway line
Bottleneck addressed	Poor features of the Varna-Ruse Railway line.

STATE OF THE ART

Current conditions

- This railway link is the main land link of the Ruse port on the Danube river to the port of Varna on the Black Sea.
- It is the shortest link between the Black Sea region and the TRACECA corridor with Central and Western Europe.
- It connects the NE region of Bulgaria with the only existing railway border crossing to Romania.
- It provides transport communication between the Pan-European transport Corridors VII, VIII and IX.



Source: TEN-T Executive Agency

Environmental considerations

Main environmental considerations are:

- BG0000608- Lomovete –SCI area

Context provisions

Main policy objective

- Development of the national transport infrastructure as part of the Trans-European Transport Network (TEN-T), which ensures integration in the European space and connections with the major urban centers of neighboring countries

Spatial Planning

- Through the development of transport networks that are related mainly to the most important axes of the Trans-European Transport Network (TEN-T) and the connections with the neighboring countries and regions the national transport network will gain a more rational spatial organization, ensuring links between different European countries via the territory of the country, connections of Bulgaria with neighboring countries and connections between the main urban centers *(National Concept for Regional Development for the period 2013-2025 – BG)*

Development programming

- The improvement of the connection will ensure the international connections of the country with the neighboring and other EU Member States *(National Concept for Regional Development for the period 2013-2025-BG-)*
- The development of the railway infrastructure will lead to the successful inclusion of the Port of Varna in the increasing freight turnover in the Black Sea making it one of the main logistics and distribution centers connecting Pan-European Transport Corridors VII, VIII, IX and TRACECA *(National Regional Development Strategy (NRDS) for the period 2012-2022 – BG)*

BUDGETING AND FINANCING	
Estimated budget	305 million €
Potential sources of financing	Cohesion Funds 2014-2020

IMPLEMENTATION	
Implementation body	National Railway Infrastructure Company (NRIC)
Key parameters	None
Preconditions	None
Implementation schedule	Construction forthcoming when funding is available

ANTICIPATED IMPACTS	
Anticipated service benefits	• The project will reduce travel times and increase reliability and safety of transportation, which contributes to attract traffic from road transport to rail transport. • The improved railway line will contribute to eliminating bottlenecks in the interconnections in the southeastern region of the EU, as well as those in neighboring EU countries. • The project contributes to an optimal combination and

	integration of the various modes of transport and improvement in the capacity and efficiency of the existing railway line.
Anticipated external benefits	• Direct and indirect employment for the construction and operation of the project. • Indirect employment impacts in the shipping industry related to the provision of services at the ports. • Transport cost savings.
Main anticipated impacts	The project's construction is about to begin (late 2014) and all potential beneficial and Adverse Impacts are examined thoroughly in the EIA.
Anticipated external costs	The project's construction is about to begin (late 2014). Varna - Ruse railway line external cost is expected to decrease (energy and resources conservation, reduction in CO2 and greenhouse gases footprint etc.).

Sources of information:

- National Concept for Regional Development for the period 2013-2025 – BG
- National Regional Development Strategy (NRDS) for the period 2012-2022 – BG

8.2.8 Stage 4 – Improvement of the Ruse – Stara Zagora rail line

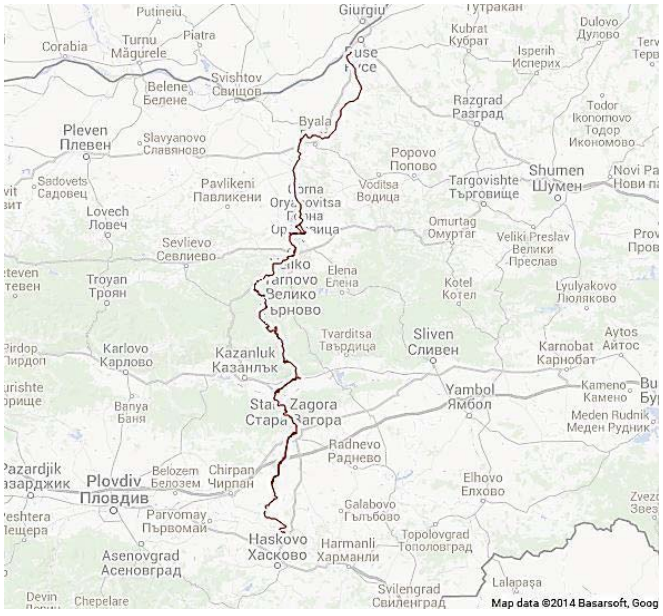
STAGE 4	
TITLE	Added value Sea2Sea extension route
DESCRIPTION	At this final stage the relevant interventions aim at integrating the remote edges of the inland Port of Ruse in the Danube river and the Commercial port of Kavala in the Aegean Sea to the Sea2Sea network. This stage contributes with an added value in the operation of the Sea2Sea Corridor.

INTERVENTION 4.3	
Description	Improvement of the rail section Ruse - Stara Zagora with reconstruction of the line and advanced signaling equipment.
Bottleneck addressed	Lack of modern signaling of the RR section Ruse–Stara Zagora.

STATE OF THE ART

Current conditions

- This specific connection forms the major Bulgarian part of corridor IX.
- The line is part of the central vertical axis of the country.
- The route is currently in poor condition with significant capacity restrictions.



Environmental considerations

Main environmental considerations are:

- BG0000608 – Lomovete – SCI area
- BG0000578 – Reka Maritsa – SCI area
- BG0000213 - Tarnovski visochini – SCI area
- BG0000214 – Dryanovski manastir – SCI area
- BG0000399 – Bulgarka – SCI/SPA area

• BG0000192 – Reka Tundzha 1– SCI area	

Context provisions

Main policy objective

- Improvement of the connectivity between regions and, above all, their links with the major European urban centers
- Creation of unbroken, continuous and permanent transport networks, ensuring rapid and safe travel at longer distances

Spatial Planning

- Development of the road and railway infrastructure of the European transport corridors is promoted *(National Regional Development Strategy (NRDS) for the period 2012-2022 – BG)*
- Expanding the cross-border, interregional and transnational cooperation will enable communication with the Central and Western European and Asian countries. *(National Regional Development Strategy (NRDS) for the period 2012-2022 – BG)*
- The railway line contributes to the integration of the region with the country's railway network and the Southeast Europe *(Regional Plan for the Development of the South-central Region for the period of 2014- 2020 – BG)*

Development programming

- The modernization of the railway line along this major central "north-south" axis will ensure its comprehensive operation (connections of the country with the important urban centers Bucharest, Kiev, Moscow, St. Petersburg and Helsinki to the north and Alexandroupolis to the south). *(National Concept for Spatial Development for the period 2013-2025 (NCSD) – BG)*

BUDGETING AND FINANCING	
Estimated budget	approx. 170 million €
Potential sources of financing	1. National Strategic Reference Framework (NSRF) for the programming period 2014-2020: Structural Funds, 2. Cohesion Funds 2014-2020

IMPLEMENTATION	
Implementation body	National Railway Infrastructure Company (NRIC)
Key parameters	None
Preconditions	None
Implementation schedule	under consideration

ANTICIPATED IMPACTS	
Anticipated service	• The electrification and upgrade of this line (located on the strategic N–S axis and utilizing the existing crossing of the

benefits	Danube to Romania) will improve access to the growing markets in Turkey. • The electrification and upgrade of the line will contribute to the integration of the region with the country's railway network and the Southeast Europe.
Anticipated external benefits	• Direct and indirect employment for the construction and operation of the project. • Indirect employment impacts in the shipping industry related to the provision of services at the ports. • Transport cost savings.
Main anticipated impacts	Railways have a low impact on the environment, particularly in comparison with other transport modes and most notably, roads. Electrification is the backbone of the environmental record of railways as it reduces CO2 and other greenhouse gases footprint as well as ambient noise. Due to the presence of significant environmental areas project EIA should address possible adverse impacts such us ecological encroachment, reduction of the biodiversity, destruction of the vegetation cover, loss of forest products (fuel wood, timber, non timber forest products, perturbation of wildlife habitats and migration and isolation of animal populations.
Anticipated external costs	The external cost of railway is lower than other modes of transport but the electrification brings it down further if it is sustainable. The lower cost of energy from well to wheel and the ability to reduce pollution and greenhouse gas in the atmosphere according to the Kyoto Protocol is an advantage. Based on the main findings on the positive and negative environmental and social/socio-economic impacts and their assessment, measures to avoid, prevent, mitigate or compensate the adverse impacts must be identified and proposed. The mitigation measures proposed must be based on the relevant national, EU and international standards and good practice. At the current conceptual design stage it is estimated that measures will mainly consist of: • a perimeter of protection around sensitive ecosystems, wetlands and unique habitats sheltering endangered species especially during construction works • minimization of construction works in reproduction areas during the reproduction periods. • Minimization of sedimentation in spawning grounds downstream. • Installation of wide aprons to facilitate animal traction. • minimization of the disruption of fish habitat by installing proper culverts and maintaining regular water flow all-year round. • minimization of land clearing areas. In order to guarantee that the measures are implemented and

	perform adequately, target and evaluation criteria were developed for each measure and incorporated into a Management and Monitoring Program me defining the specific parameters that will be monitored, their method of checking, their monitoring time, period, and frequency, their location, their threshold levels, and the responsible person/institution in charge of the monitoring. Mitigation and monitoring measures are expected to take up to 15% of the overall project budget.

Sources of information:

- National Regional Development Strategy (NRDS) for the period 2012-2022-BG
- Regional Plan for the Development of the South-central Region for the period of 2014 – 2020-BG
- Railway Gazette International, Oct 2014.
- "UK Network Rail electrification strategy Report", May 2010
- EIB Environmental and Social Handbook
- Carl E. Hanson, David A. Towers, and Lance D. Meister, (2006) FTA Noise and Vibration Assessment Manual, 2006
- Vegetation Management Guidelines for Rail Corridors, Victorian Rail Industry Environmental Forum, 2007
- ERM GmbH & ELCR Group Ltd: Environmental and Social Impact Assessment for the Eurasia Tunnel Project Istanbul, Turkey, 2011
- European Bank for Reconstruction and Development: ENVIRONMENTAL AND SOCIAL POLICY, London, 2008
- International Union of Railways: Railway Noise in Europe. A 2010 Report in the State of Art, 2010
- Rail Net Denmark: Noise, Vibrations and Electromagnetic Fields, Technical Note, 2011
- EBRD: A Checklist guide to Evaluating Environmental and Social impact Assessments, 2009

8.2.9 Stage 4 – Ruse Regional Intermodal Terminal

STAGE 4	
TITLE	Added value Sea2Sea extension route
DESCRIPTION	At this final stage the relevant interventions aim at integrating the remote edges of the inland Port of Ruse in the Danube river and the port of Kavalla in the Aegean Sea to the Sea2Sea network. This stage contributes with an added value in the operation of the Sea2Sea Corridor.

INTERVENTION 4.4	
Description	Ruse Regional Intermodal Terminal
Bottleneck addressed	Limited capacity and other restrictions in the accommodation of the transhipment to inland waterways at Ruse as the Intermodal node for (Danube river).

STATE OF THE ART

Current conditions

- The planned intermodal terminal comes in two Trans-European corridors:
  Corridor VII- River Rhine-Main-Danube and corridor IX - Giurgiu-Ruse-Dimitrovgrad–Alexandroupolis/ Istanbul.

Environmental considerations

The Terminal will be placed in urbanized areas far from protected areas (nearest area BG0000608 – Lomovete –SCI).

http://www.cfl.lu/espaces/multimodal/EN/offre/op%C3%A9rations-terminal/nouvau-terminal-intermodal

Context provisions

Main policy objective

- Improvement of integration and interoperability / achievement of high transport safety and security

Spatial Planning

- Achievement of high transport safety and security – Improvement of the connectivity and integration of Bulgarian regions on a national and international scale (*National Development Programme: Bulgaria 2020 - BG)*

- Expansion of the European network of cities of national/trans-national functions by the inclusion of major cities such as Ruse *(National Regional Development Strategy (NRDS) for the period 2012-2022 – BG)*

Development programming

- Improvement of the connectivity of regions in an international context, with major urban centers in neighboring countries *(National Regional Development Strategy (NRDS) for the period 2012-2022 – BG)*
- Integration of the Bulgarian transport system into the European transport system *(OP "Transport 2007-13" - BG)*
- Development of transport networks that are related mainly to the most important axes of the Trans-European Transport Network (TEN-T) and the connections with the neighboring countries and regions, as well as with the directions of the pan-European corridors *(National Concept for Spatial Development for the period 2013-2025 (NCSD) – BG)*

BUDGETING AND FINANCING	
Estimated budget	approx. 25 million €
Potential sources of financing	1. National Strategic Reference Framework (NSRF) for the programming period 2014-2020: Structural Funds, 2. Cohesion Funds 2014-2020

IMPLEMENTATION	
Implementation body	To be identified
Key parameters	n/a
Preconditions	n/a
Implementation schedule	The project is currently under discussion and preliminary studies have been completed.

ANTICIPATED IMPACTS	
Anticipated service benefits	• The project in association with the railway connection of Ruse -Varna, will facilitate and improve intermodality in the south-eastern region of the EU. • It will facilitate international transport to/from the countries of the region, the TRACECA countries and the countries of Central and Western Europe, providing better quality service for freight transport. • The port of Ruse on the Danube is between the European transport Corridor 7 and 8 and is included in European Agreement on the most important routes for international combined Transport (AGTC). Its role will be improved. • The project enhances the interoperability and interconnection of the Sea2Sea corridor with the greater Pan European freight corridors.
Anticipated external	Strengthening of Ruse's role in the European network of cities of

benefits	national/trans-national functions.
Main anticipated impacts	No adverse impacts anticipated.
Anticipated external costs	Minimization of the railway external costs due to the enhancement its sustainability. During land clearing, it is essential to ensure an archaeological surveillance in the potential areas containing artefacts and in case of a discovery, advise concerning authorities a cost that will be covered by project's budget contingency reserve.

Sources of information:

- National Development Programme: Bulgaria 2020 - BG
- National Regional Development Strategy (NRDS) for the period 2012-2022 – BG
- National Concept for Spatial Development for the period 2013-2025 (NCSD) – BG

8.3 Conclusions

The Action Plan [AP] emphasizes on the necessary actions to be taken in order to initialize the steps forward to the development of the Sea2Sea corridor service. The actions to be taken include the creation of coordination/supervision administrative units covering both sides of the corridor, and the preparatory actions, which are prerequisites to allow corridor operations after the completion of Stage 1 investments. Given the very early phase of corridor market development, all structures must be flexible, to allow for adjustments in the future.

At this planning stage, the potential of the SEA2SEA corridor (defined as potential shift container traffic demand from the Bosporus Straights to a land bridge of the Greek ports to the Bulgarian ones), is not definitely identified. There is a potential of the port of Alexandroupolis for attracting container traffic to/from South East Bulgaria The Action Plan for the implementation of the future steps of the corridor must be left flexible, to be determined and adjusted by/to the market developments.

The proposed actions on infrastructure improvement coincide with plans, which are either planned or implemented by the national authorities and the respective organizations at both sides of the corridor. Most of the infrastructure improvements, which are identified as necessary for the operation of the corridor, refer to priority axes of the TEN-T network. These developments indicate that the SEA2SEA concept can easily be facilitated on existing or planned infrastructures; thus, it doesn't require major additional investments.

The future potential of the corridor will be tested in the "real" container market world. It will highly depend on external factors, related with the regional container transport economics, the competition among regional ports – with which the ports of the corridor compete - and the strategies of the container transporters and forwarders. It is strongly suggested that the planning of implementation of Stages 2 to 4, as far as those actions which are not part of the on-going planning by the part of the national authorities at each side, must be made in a next stage, based on the grounds of factual achievements of corridor operations.

The technical provisions of the Action Plan are better defined as far as the preparation of Stage 1 of the corridor. All Stage 1 actions are planned to be part of the 2014-2020 programming period. Some actions, which are classified as parts of the next implementation stages, have a good possibility to be part of the 2014-20 periods as well.

As necessary administrative provisions actions, which must be launched for the implementation of the SEA2SEA corridor, the following are considered:

- The establishment of an Executive Committee [ExC] at Ministerial level by the Greek Ministry of Infrastructure, Transport and Networks and the Bulgarian Ministry of Transportation.
- The establishment of a Steering Committee [SC] at the highest administrative level, including representatives from the planning units of the respective Ministries, the rail planning, construction and maintenance bodies, rail operators, port administrators and port operators, as well as custom officers, of both sides.
- The establishment of unilateral Coordination SEA2SEA corridor Units [CU] at the suitable strategic planning level by each side.

Necessary preparatory actions to make possible the launching of SEA2SEA operations are:

- The development of an operational container terminal at the port of Alexandroupolis, an issue, which is highly political, since the decision on the ownership and operational status of the port, has been made at the government level but there will be quite some time before any final outcome. Since a final result may take considerable time, the issue represents a factor of high risk as far as the launching of operations of the corridor within the 2014-20 period.
- The preparation of the rail operator in the Greek side – for the time being TRAINOSE – to launch regular service from the Greek ports to the borders. This preparation includes the provision for the supply of rolling equipment, the development of fare policy for full customer support from the container yard to the "dry port" station in the neighboring countries, and the agreement with the rail operators of the destination countries as far as the cross-border operations.
- The provision for completion of the container terminal at the new Port of Kavala & the rail connection with the National Railway Network at Toxotes cross.