Best practices in transport infrastructure financing

BSRP Transport Cluster report

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Introduction

The “BSR Transport Cluster for sustainable, multimodal & green transport corridors” includes 8 projects from the Baltic Sea Region countries and will last for one year until September 2013. The Transport Cluster co-operation started in 2012 when the Baltic Sea Region Programme provided funding to the cluster. The goals of the co-operation are to share experiences about the development of green transport solutions and together create a common standpoint on future EU and macroregional transport and regional growth policies.
The transport cluster initiative outputs focus on four themes: Corridor investments, Smart logistics and governance, Clean shipping and Business solutions for green transport.This report is one of the Cluster’s outputs and concerns the best practices in transport infrastructure financing.
The creator of this report is The Baltic Institute of Finland, BIF. BIF is participating the transport cluster as a leader of the BSR InnoShip project.
The report is divided into two sections. The first section presents different funding sources and funding types. The chapter includes also subsections concerning the use of different PPP models in infrastructure funding and best transport infrastructure financing practices applied in Finland. The goal of the chapter is to demonstrate the large scale of available funding instruments and the different targets which each instrument or investor has.
The second section consists of case examples of different infrastructure projects around the Baltic Sea region. The case-examples are divided into four categories: Air, Water, Railways and Road. Each example describes the main features of the project and summarizes the used funding sources.

Funding sources

Funding for a massive construction projects comes in small pieces from different sources. As mentioned in the Introduction there are several organizations that provide funding for infrastructure projects. Funding sources and institutions can be seen as tools. It is wise to consider carefully in every project which tools are best for the specific project. Not all the funding sources can be applied at once and it is important to remember the EU legislation that denies cumulative EU financing. There are several examples of different financing combinations and examples of different funding arrangements in the section that examines successful and not so successful examples from the BSR region.
EU funding sources can be combined in a variety of ways in PPP projects and according to EPEC the European Commission has made three different groups of instruments available to projects that are formed using PPP model:

- Financial engineering instruments that leverage private finance in order to enable private finance to be used where it would not otherwise

have been the case. LGTT, Loan Guarantee Instrument for TEN-T projects is designed for this purpose. With LGTT it is possible to get funding from private investors to public related infrastructure. Marguerite Fund has the same goal, it catalysts private funding to projects that try to for example prevent climate change.
• Sectorally focused grants that incentivise promoters to undertake projects in the pan-European interest for example EU's TEN-T grant. When using PPP model it is possible and recommended to combine the EU grants with national funding and private investments.
• Grants that support the cohesion policy of the Union and individual EU Member States. Grants from Regional Development fund or Cohesion fund are part of the funding and rest of the project's funding may come for example from the public and private partners. Also project's own revenues can form a part of project's budget.

Other non-EU related funding instruments are also in an important role when financing transport infrastructure at the Baltic Sea region. For example Nordic Investment Bank has created its own financing instruments in order to fulfill its specific targets and action plans.
In every case it is not wise or financially worthwhile to gather money from several sources. The traditional budget financing is common and it is sometimes the only way to implement a big construction project. On the other hand there are transport infrastructure related projects that are solely privately funded. Sometimes the application process for EU grants or other financial support is too complicated and time consuming when it would be is easier to finance the whole project with private money. All applications and application processes are not successful but the preparation of an application demands time and recourses.
Loans are also a part of the project's finance arrangements and Commercial banks and Investment banks such as NIB and EIB are the main lenders.

Source:

http://www.eib.org/epec/resources/epec-using-EU-funds-in-ppps-public.pdf

EU instruments

TEN-T grants

EU has founded the Trans-European transport network, TEN-T network in order to promote territorial cohesion and economical growth. TEN-T program facilitates and coordinates the implementation of the European trunk network.
TEN-T program is founded and managed by European Comission (DG Move) which defines the policy and takes all the financing decisions. The practical work and implementation of the program is done by TEN-T EA, Trans-European transport

network executive agency. According to the legislation the main task of the program is to start and facilitate important infrastructure projects in the Europe and in The Baltic Sea region. Grants for infrastructure projects are shared out via two different categories, Annual and Multi-Annual call
Annual call is a yearly launched call for infrastructure projects. In year 2012 the applications should be in line with the following priorities:

- Priority 1 - Acceleration and facilitation of the implementation of TEN-T projects
- Priority 2 - Measures to promote innovation and new technologies for transport infrastructure and facilities contributing to decarbonisation or the reduction of external costs in general
- Priority 3 - Support to Public-Private Partnerships (PPPs) and innovative financial instruments
- Priority 4 - Support to the long term implementation of the TEN-T, in particular corridors

Source:
http://tentea.ec.europa.eu/en/apply_for_funding/follow_the_funding_process/2012_annual_programme_call.htm
In year 2012 the budget for the Annual call was 250 million Euros.
Multi-Annual call consists of several different work programs, all of which have their own goal and objective. For example different programs in year 2012 are:

- TEN-T Priority Projects
- European Rail Traffic Management Systems (ERTMS)
- River Information Services (RIS)
- Air Traffic Management (ATM)
- Motorways of the Sea (MoS)
- Intelligent Transport Systems (ITS) including EETS

During the budget period 2007-2013 the TEN-T Program has supported around 350 projects. These projects have involved all EU Member States and covered all transport modes. The projects have varied from feasibility studies to complex and concrete infrastructure works.

Sources:

http://tentea.ec.europa.eu/en/news__events/newsroom/10_more_implementation_successes_show_the_continuous_impact_of_the_ten-t_programme.htm
http://tentea.ec.europa.eu/en/apply_for_funding/follow_the_funding_process/calls_for_proposals_2011_-_map.htm
http://tentea.ec.europa.eu/en/apply_for_funding/follow_the_funding_process/annual_call_2011.htm

Marco Polo grants

Marco Polo is EU funded program for companies which are willing to shift freight efficiently from road to any other transport mode, including water, air and railways. The overall budget for year 2013 is about 60 million Euros and the budget for the whole budgeting period is 450 million Euros. There are several different action types:

Motorways of the Sea

Motorways of the Sea is a funding category in the European Union's TEN-T program, and Marco Polo grant is one of the funding possibilities in TEN-T's Motorways of the sea priority project. Marco Polo program's Motorway of the Sea grant is targeted for private-sector transport services which are willing to create door-to-door transport service using other transport modes than road traffic. In this category the proposed action must lead to an average of 200 million tkm modal shift per contract year. Length of the funding contract is from three to five years. The available subsidy rate is 35%. This action must cover at least two member states or one member state and a nearby third country.

Modal shift

Seventy nine percent (79 %) of all Marco Polo funding goes to this category. Main idea is to take freight off the road and transfer it to other modes of transport. The duration of the contract is up to three years and the amount of shifted freight should be average of 60 million tkm per every contract year. Thirty five percent (35 %) of the eligible costs concerning the Modal shift action can be compensated. Still the maximum amount of the grant is 2 Euros for every shifted 200 km. There must be participants from at least two countries, either member states or member state and a nearby third country.

Common learning

This category is aimed for projects that try to offer an alternative commercial service for road transportation. Main target is to share knowledge and increase co-operation. Funding is for projects that are innovative and last up to three years. The amount of grant is 50% of all the eligible costs. It is highly important that the project creates added value for Europe.

Catalyst action

The idea of catalyst action is to overcome structural barriers when developing new non-road transport modes. These actions are both innovative and shift freight from the road. The minimum quantity of shifted freight per contract year is 30 million tkm and the funding period is from three to five years. There should be at least two partners in the action, either two member states or one member state and a nearby third country. Maximum support is 35% of all the eligible costs.

Traffic avoidance

It is crucial to avoid traffic and transportation in this category. Traffic avoidance is possible by integrating transportation into production process. The goal is to shift 80 million tkm from the road per contract year. As in the categories above, the highest rate of the grant is 35 % of all the eligible costs and the action must involve at least two member states or one member state and a nearby third country. The contract period varies from three to five years.

Sources:

http://ec.europa.eu/transport/marcopolo/getting-funds/index_en.htm

Regional Development Fund grants & Cohesion Fund grants

European Union has its regional policy and during the period 2007-2013 total investments in the regions will be a total of 347 billion Euros and about 82 billion Euros will be spent on transportation. TEN-T projects will receive about 38 billion Euros in all transport modes. During the budget period 2007-2013 investments to transport sector will be concentrated to the Convergence regions.
The Commission negotiates and approves development programs and is in charge of allocating resources. It is member states' responsibility to manage the programs and select projects which are funded. Member states also control and asses the projects. The Commission monitors the program and pays out approved expenditures and verifies the control system.
With the policy EU tries to reach three objectives:

- Convergence
- Regional Competitiveness and Employment
- European Territorial Cohesion

EU is trying to solve the problems in all the three sectors with **European Regional Development Fund (ERDF)**. **The Cohesion fund** was founded in order to improve the Convergence at EU. **The European Social Fund** concentrates on Convergence and Regional competitiveness and Employment objectives but it doesn't support

infrastructure or transportation projects.
The biggest problems in the Baltic Sea region are in the field of Convergence and Regional Competitiveness and Employment. The south coast of the Baltic Sea (some parts of Germany, Poland, Lithuania, Latvia and Estonia) may receive grants from the EU in the field of Convergence. The Scandinavian part of the BSR (Finland, Sweden and Denmark) is a territory which may receive support under the priority of Regional Competitiveness and Employment. The Eastern part of Finland is also a part of the phasing out region; it may get phasing out assistance. The third priority, European Territorial Cohesion, covers the whole European Union and it is implemented with Cross-border co-operation program, Transnational co-operation program and Inter-regional co-operation program.

Sources:

http://ec.europa.eu/regional_policy/how/index_en.cfm
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:210:0079:0081:EN:PDF
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:210:0001:0011:EN:PDF
http://ec.europa.eu/regional_policy/financial/index_en.cfm

European Investment Bank (EIB)

EIB loans

EIB's main financing instruments are medium and long-term loans with fixed or variable interest rates. EIB lends for both public and private borrowers.
Individual project loans are provided for projects of at least 25 million Euros and EIB covers up to 50% of the investment costs, but the average loan amount is approximately one-third. Rest of the financing must come from other sources. The project must be economically, financially, technically and environmentally sound. The lending conditions depend on the investment target and securities that third parties offer.
Indirect lending or intermediate lending is designed for smaller projects than 25 million Euros. Smaller loans are made available through intermediate loans to partner banks. Loan conditions are flexible and vary in time, size and duration. The intermediate institution does the lending decision and EIB has no contractual relationship with the beneficiaries
EIB gives additional support for priority projects, with higher risk profile than normally, in a form of Structured finance. For example trans-European transport and energy networks and other infrastructure, the knowledge economy, energy and SMEs are

priorities that can apply support from Structure Finance Facility (CFF). The facility uses a mix of the following instruments:

- *senior loans and guarantees incorporating pre-completion and early operational risk*
- *subordinated loans and guarantees ranking ahead of shareholder subordinated debt*
- *mezzanine finance, including high-yield debt for SMEs experiencing high-growth or are undergoing restructuring*
- *project-related derivatives*

Source: http://www.eib.org/products/sff/index.htm

Sources:

http://www.icafrica.org/fileadmin/documents/Knowledge/EIB/1%20EIB_climate_action_ENGLISH.pdf
http://www.eib.org/products/sff/index.htm

LGTT guarantees

LGTT is an acronym for Loan Guarantee Instrument for Trans-European Network projects and it is a part of the EU's TEN-T program. With LGTT Commission and EIB try to facilitate and accelerate the private sector's participation to the financing of the big TEN-T projects. Big transport infrastructure projects are often having difficulties in attracting private-sector funding because in the beginning of the project the revenue risk is relatively high. LGTT will improve the viability of the project and partly cover the revenue risk. By improving the risk profile of the senior debt, LGTT facilitates the difficult "ramp-up" period of the projects.
The projects of common interest in the field of transport can benefit from the LGTT instrument. The projects should also be compliant with Community laws and the financial viability of the project should be based on revenues, tolls or other user-charges based income. TEN-T projects that have an appropriate level of private finance participation are eligible for LGTT operation.
Maximum amount of the guarantee is 200 million Euros per project and the guarantee should not exceed 10% of the senior debt. The support is available from five to seven years after the completion of the project.

Sources:

http://europa.eu/rapid/press-release_MEMO-08-12_en.htm?locale=fr
http://www.eib.org/products/lgtt/index.htm
http://www.eib.org/about/press/2008/2008-005-european-commission-and-european-investment-bank-launch-new-instrument-to-finance-european-transport-network.htm
http://ec.europa.eu/economy_finance/financial_operations/investment/europe_2020/documents/annex_2a_en.pdf

The Europe 2020 Project Bond Initiative loans

EIB is searching for new ways of financing infrastructure projects and after the pilot phase Euro bonds will be one of the funding instruments and support the aims of Connecting Europe Facility, CEF. EU tries to create a new class of securities and the pilot phase of 2012-2013 will facilitate their introduction to the markets.
Projects that are relevant according the TEN and CIP policy guidelines may get Project Bond funding. During the pilot phase only a limited number of projects, approximately 5-10, can be funded. The projects should be at relatively developed stage or require refinancing after the building phase.
Bonds will not replace direct grants because some of the project will need financing during their whole life-cycle and are not suitable for private funding. The main objective of Project Bond 2020 is to attract private investors to finance infrastructure projects and close the infrastructure gap in infrastructure project's funding:

> *"by providing credit enhancement to project companies raising senior debt in the form of bonds to finance infrastructure projects ; The improved credit quality of the bonds will facilitate their placement with institutional investors."*
>
> *Source: http://www.eib.org/about/news/the-europe-2020-project-bond-initiative.htm*

Sources:

http://ec.europa.eu/economy_finance/financial_operations/investment/europe_2020/documents/com2011_660_en.pdf
http://europa.eu/rapid/press-release_MEMO-12-370_en.htm
http://www.eib.org/about/news/the-europe-2020-project-bond-initiative.htm

Marguerite Fund equity financing

Marguerite fund is the European 2020 Fund for Energy, Climate change and Infrastructure. It is funded by Europe's leading public financial institutions. The fund is an equity investor and it aims to act as a catalyst in the development of Greenfield infrastructure in the Europe. The fund focuses mainly in new development in construction, portfolio of projects and retrofitting, modernization and capacity increase.
Marguerite fund is a value-adding partner for developers because it has the ability to take construction and ramp-up risk, it has a strong experience in arranging project finance and it doesn't have immediate cash yield requirements during construction period.
Marguerite fund tries to reach geographical diversification in its total commitments; each member country may have a total commitment of 20%. In order to receive support from Marguerite fund the project should have a minimum of 65% total

commitments in Greenfield. 30-40% of the fund's investments go to core transport sector and the size of the funded projects should be over 200 million Euros.

Sources:

http://www.aer.eu/fileadmin/user_upload/Programmes/Training_academy/TA_11_06_21-22/Marguerite_Presentation_20110621.pdf
http://www.eib.org/about/press/2009/2009-242-europes-leading-public-financial-institutions-launch-marguerite-the-2020-european-fund-for-energy-climate-change-and-infrastructure.htm
http://www.margueritefund.eu/index.php?pageid=1

Nordic Investment Bank (NIB)

NIB loans

Nordic Investment bank has several loan products:

- **Corporate loans** are the most common way of lending for NIB. Corporate loans are targeted for NIB's member countries.
- **Loan programmes** are disbursed in several tranches through intermediates and they are granted for both member and non-member countries.
- NIB arranges also **project and structured finance** for projects that make a strong contribution to its mandate. Financing is provided in co-operation with other international financial institutions and with both public and private sector lenders. NIB may arrange financing in a form of non- and limited-resource project financing, structured loans for complex financings and leveraged borrowers, A/B loans, mezzanine financing through funds or private public partnership (PPP) financing.
- **Sovereign loans**
- **Loans to municipalities**
- **Environmental loans** which are provided via following lending facilities:
  - Baltic Sea Environment Financing Facility (BASE)
  - Climate Change, Energy Efficiency and Renewable Energy Facility (CLEERE)
  - Environmental Lending Facility for member countries' neighboring area in Eastern Europe
- NIB may also provide **guarantees**

BSAP Fund grants

The BSAP-fund is managed by NIB, Nordic Investment Bank and NEFCO, the Nordic Environment Finance Corporation. The letters BSAP stand for Baltic Sea Action Plan and the aim of the fund is to support and finance the implementation of the Baltic Sea Action Plan by providing grants for technical assistance. The main target of the fund is to help to restore the ecological status of the Baltic Sea.
The fund tries to facilitate and expedite the preparation of the bankable and viable project. Both public and private bodies may receive a grant from the fund. The main funding sectors are agriculture, wastewater treatment, shipping and ports and in general the reduction of hazardous waste in the Baltic Sea region. The fund awards grants for the following:

- *Expenditures for project preparation and development, including feasibility studies, development of business ideas, and cash-flow models*
- *Technical assistance for institutional support, that is, training and support needed for project preparation, development and implementation*
- *Improving efficiency and quality in project implementation through, for example, supporting the acquisition of equipment for demonstration purposes.*

Source: http://www.nib.int/loans/loan_products/trust_funds/bsap_fund

Sources:

http://www.nib.int/loans/loan_products/trust_funds/bsap_fund
http://meeting.helcom.fi/c/document_library/get_file?p_l_id=18971&folderId=1673242&name=DLFE-49127.pdf

European Bank for Development and Reconstruction (EBRD)

Loans, equity financing, guarantees, grants

The main task of EBRD is to promote transition to market economies. European Bank for Reconstruction and Development has 63 member countries and also the European Union and the European Investment Bank are participating. The EBRD co-operates with other international financial institutions such as the World Bank.

European Bank for Development and Reconstruction provides financing for projects that couldn't gather funding from another source on similar terms. EBRD provides

project financing for banks, industries and businesses and also for publicly owned companies in a form of loan and equity finance, guarantees, facility leasing and trade finance. Direct investments for projects range from 5 million Euros to 230 million Euros. The funding rate is up to 35% of the total project costs.
EBRD may consider participating to the financing if the project is located in an EBRD country of operations, it will be profitable in the future and the project sponsor have significant equity contributions in cash or in kind. The project should also benefit the local economy and satisfy both EBRD's environmental standards and those of the host country.
The EBRD supports projects in 29 countries. At the Baltic Sea region Poland, Lithuania, Latvia and Estonia can benefit from EBRD finance.

Sources:

http://bankwatch.org/our-work/who-we-monitor/ebrd
http://www.ebrd.com/pages/homepage.shtml#&panel1-3

Private funding

One of the important aspects in the EU funding is leverage. The role of private funding has increased at the current economical situation and infrastructure projects need more private investments. Member states' governments have encouraged the private sector to participate in infrastructure funding by privatization, through concessions or now days even more using PPP model, public private partnership. For example in TEN-T financing the EU support is approximately 20% in works and 50% in studies, the rest of the budget must be covered with other funding sources including private funding. It is not easy to define the private funding. For example in state-owned companies and limited companies where the government is the biggest shareholder it is hard to define strictly the funding source.
Private funding consists mainly of loans, bonds and equities. In general, there are three organizational forms in private infrastructure finance: corporate finance, PPP-projects and non-PPP projects.

PPP models

> *'Public-Private Partnership' is a generic term for the relationships formed between the private sector and public bodies often with the aim of introducing private sector resources and/or expertise in order to help provide and deliver public sector assets and services. The term PPP is, thus, used to describe a wide variety of working arrangements from loose, informal and strategic partnerships, to design build finance and*

operate (DBFO) type service contracts and formal joint venture companies.

Source: European Investment Bank, The EIB's role in Public-Private Partnerships

PPP models are often built using project finance. In project finance the legally and economically self-contained project gets loan against its cash-flow. PPP structure can be a project within the company, using corporate debt or it can be set up as a Special Purpose Vehicle (SPV), an independent project which is managed by a sponsor, an equity investor. If PPP is constructed using SPV the transaction costs are relatively high, but with SPV it is easier to raise long-term financing for massive projects. It is also less complicated to raise debt instead of equity. SPV is a safe choice because the problems of the PPP-project don't affect the whole company. The funding source of the project changes during the project's life-cycle, at the beginning the project is financed using equities and bank loans. When the project is at the operational phase it is financed with long-term bonds because bond holders may control only issues that have an impact to the cash flow, but banks are allowed to monitor and control the behavior of the company in general.
Several different PPP types are applied in infrastructure projects. The most important forms of partnerships are:

Types of public-private partnerships	Description
O&M Operations and maintenance	Public partner retains the ownership of the infrastructure and private partner operates and maintains the service/infrastructure
OMM Operations, Maintenance and Management	A public partner retains the ownership of the infrastructure and a private partner operates, maintains and manages the infrastructure. The private partner may invest its own capital and the public partner recompenses that at the end of the contract.
DB Design-Build	A private partner provides both design and building of the project. The public partner takes care of the operation and maintenance. This type of partnership reduces time and saves money and allocates the project risk to the private sector.
DBM Design-Build-Maintain	Similar to DB, except the private partner provides also maintenance during certain period of time. Public sector owns and operates the assets.
DBO Design-Build-Operate	DBO is a method of contracting; the design building and operation of capital improvement are under one single contract. Normally the ownership of the infrastructure remains at the public sector. DBO approach maintains the private sector involvement and facilitates private-sector funding for public projects.
DBOM Design-Build-Operate-Maintain	DBOM is an integrated partnership that combines design and building with operation and maintenance. Private sector provides all the activities; public sector maintains the ownership of the infrastructure and secures financing.
DBFOM Design-Built-Finance-Operate-Maintain	Private sector takes care of design, building, financing, operating and maintaining of the project. Projects are wholly or partly financed with debt leveraging revenue streams, most common direct user fees. Capital and project development costs are funded with issue bonds or other debt. DBFOM is also financed

	with public grants and private equity investments. Life-cycle costing brings value for money for the private sector.
DBFOMT Design-Built-Finance-Operate-Maintain-Transfer	DBFOMT is basically the same as DBFOM except the private sector owns the infrastructure until the end of the contract when the ownership is transferred to the public sector.
BOT Build-Operate-Transfer	The private partner builds the infrastructure and operates it for a certain time period under a contract or franchise agreement and then transfers it to the public agency. The private partner may also provide some or all of the financing and will gain a reasonable return under the contract or franchise agreement.
BOO Build-Own-Operate	The private sector constructs and operates the infrastructure. The ownership remains in the private sector and the public partner has no obligation to purchase the infrastructure.
BBO Buy-Build-Operate	The public party sells the infrastructure to the private sector and private sector makes the necessary improvements in order to operate in a profitable manner.
LDO or **BDO** Lease-Develop-Operate or Built-Develop-Operate	A private party leases or buys already existing facility from a public agency and invests its own capital to renovate and modernize it. The private partner operates it under a contract with the public partner.
Lease/Purchase	Private sector builds and finances a new infrastructure and leases it to a public party which makes scheduled lease payments to the private party. Public party accrues equity in the infrastructure with each payment and at the end of the contract it owns it. The infrastructure may be operated by public or private partner during the contract.
Sale/Leaseback	The owner of the infrastructure sells it to another organization and leases it back from the new owner and continues to operate. The owner/buyer can be either public or private sector.
Tax-Exempt Lease	Public sector finances the infrastructure or capital assets by borrowing funds from a private investor or financial institution. The private partner owns the asset, but transfers it to the public sector either after or before the lease period.
Turnkey	A private investor builds the infrastructure in accordance with certain standards and for fixed price and carries the risks. The private sector may construct the asset in less time and for less cost than the public sector. Either public or private party may keep the ownership of the infrastructure.

http://www.ncppp.org/howpart/ppptypes.shtml

The table is based on the PPP models that are applied in the USA. Even though every PPP-contract is different and consist of various aspects the table covers most of the PPP structures that are used in the Europe. The table and the different PPP types can be seen as good practices or can be benchmarked. The differences in the legislative framework between Europe and USA must be taken under consideration, but still many of the PPP-types mentioned above can be applied also in the BSR region.

Many of the models mentioned above are already applied in Europe for example DBFOM, DBOM, BOT, BOO and DB. Still there are many new options that could be

useful when gathering financial resources for big infrastructure projects.
EIB has founded European PPP Expertise Centre in order to strengthen public sector's ability to engage in Public Private Partnership, it is funded by EIB and European commission. EPEC supports partnerships by sharing expertise, experience, analysis and good practices. EPEC doesn't give advices on individual projects, instead of that it indentifies best practices and provides a helpdesk facility for its members.

Sources:

http://ec.europa.eu/economy_finance/financial_operations/investment/europe_2020/documents/com2011_660_en.pdf
http://www.eib.org/attachments/efs/eibpapers/eibpapers_2010_v15_n02_en.pdf
http://www.ncppp.org/howpart/ppptypes.shtml
http://www.eib.org/epec/resources/guide-to-guidance-en.pdf

National Funding

As the previous chapters indicate, the financing for big infrastructure projects consists of many sources. EU doesn't even try to cover the whole financing gap because one of the important objects for EU grants is to illustrate the economical viability and the importance of the project. The EU grant from TEN-T program may cover approximately 20% of the works and 50% of the studies. Other EU related funding instruments like Cohesion Fund may also participate to the financing. The project may also get a loan from EIB or NIB. Private investors have an important role and the relevance of private investments is increasing. Nevertheless national funding is the backbone for transport infrastructure financing. Nationally substantial projects get a big part of their funding from state's national budget. Budget financing is the old way to build important transport infrastructure and facilities. Funding from the state budget is not the only source of national funding. Regional organizations support projects that promote the balanced development of the region and generate positive effects to the regional economy.
Cities, municipalities or other similar self-governmental regions and local-level players are also giving their contribution to the infrastructure financing. Even though in most of the Baltic Sea region countries States are in charge of transport infrastructure financing and maintenance at least from the economical perspective, local players and cities participate in the financing of projects in order to create advantages for the local community. For example in Finland the city of Espoo will participated to the financing of the highway Ring road 2 in order to speed up the process. In Sweden the municipality of Norrköping was one of the main investors in the renovation of the fairway access in the Port of Norrköping.

Example country: Finland

In Finland the Ministry of Transport and Communications is in responsibility of the planning, construction and maintenance of traffic routes and channels. While Ministry defines the policy the Finnish Traffic Agency is responsible for the maintenance and development of the standard of service in the transport system's traffic lanes. The Traffic Agency is in charge of

- maintaining and developing the traffic system
- maintaining the government's road and rail networks as well as the waterways and to consolidate measures directed at them and directing and supervising waterways maintenance all over the country;
- implementing vital road projects and planning, designing, maintaining and constructing railroads and waterways;
- directing the road maintenance operations of the regional centers for economic development, transport and the environment ;
- participating in reconciling traffic and land use;
- controlling and developing traffic management in the government's traffic lanes and in the waterways;
- ensuring winter navigation;
- developing and promoting transport services and the functioning of the markets for them;
- improving the performance of transport infrastructure management;
- developing the operational preconditions for public transport and granting maritime subsidies and subsidies for the other transport modes;
- updating and developing hydrography;
- safeguarding that the transport system is working also under abnormal conditions and in exceptional situations under normal conditions.

Source: http://portal.liikennevirasto.fi/sivu/www/e/fta

Finnish Transport Safety Agency, Trafi is also a part of the Ministry's organization; it is in charge of developing safety of transport systems, promoting environmentally friendly transport solutions. Trafi takes care also for transport system regulatory duties.

Finnish Transport Agency has created instructions for infrastructure project assessment. Before an infrastructure projects is implemented it is evaluated according to these criteria. The general guidelines for transport infrastructure assessment include cost-benefit analyses and impact assessment. Each transport mode has also own specific evaluation guidelines. The structure of the general guidelines is following:

1. A description of the starting point
2. A description of the effects
3. Evaluation of the project

4. Monitoring and evaluation plan
5. Assessment, reporting and documentation

The general and specific project assessment guidelines in Finnish:
http://www2.liikennevirasto.fi/julkaisut/pdf3/lo_2011-14_liikennevaylien_hankearvioinnin_web.pdf
http://www2.liikennevirasto.fi/julkaisut/pdf4/rhk_b12_ratainvestointien_hankearviointiohje.pdf
http://alk.tiehallinto.fi/thohje/pdf/2100048-v-08tiehankkeiden_arviointiohje.pdf
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The traditional way of infrastructure financing is budget financing. The budget funding is not the most flexible way to construct transport infrastructure because the budget is limited and tied to public objectives. With the assessment guidelines the Traffic Agency can define which projects are important and have a favorable impact on the traffic conditions and weather the project is feasible and economically viable. The Finnish Traffic Agency has created its own PPP model which is being used for example in the construction of motorways. The Finnish PPP model is compatible with Finnish regulatory environment and conditions. The model is called Life cycle model. In Life cycle model the buyer (state) contracts a company to design, build, and finance and maintain the road or other infrastructure during a certain time period. During the concession period the State or buyer is paying a partial payment for the contract company and after the contract period the road or other facility belongs to the State. As mentioned several times above the PPP model have its weaknesses and strengths. On the one hand the implementation phase is often faster and on the other hand financing costs are higher compared with ordinary budget financing. The biggest weaknesses in the Finnish PPP model are the contract issues and the massive paperwork needed. The contract procedures are often very complicated and demanding and consume quite a lot of time.
In Finland the Ministry of Traffic and Communication with Trafi and Traffic Agency, is the main actor in the field of transport. It has created the organizational and regulatory framework for the sector. The Ministry is supporting and encouraging innovative business ideas that are related to traffic and the development of traffic management. In other words The Ministry has created ”a playground” for those who are willing to generate solutions that promote the efficient and smooth traffic.

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Case examples

The funding sources that are applied in the Baltic Sea region are diverse. Even though European Union has done its best in order to integrate the different laws and regulations of the Baltic Sea countries there are still big differences between the different practices in every country. Especially the ownerships of traffic infrastructure vary inside the region.
EU supports different regions and countries with various ways and there are restrictions and rules concerning the country's eligibility of certain support forms. The different case examples from 8 Baltic Sea region countries and also outside the region demonstrate the variation among the countries and give an opportunity to compare and asses different kind of funding sources.

Air

Introduction

Even though air traffic is highly polluting and causes massive amounts of CO2 emissions it is sometimes the best solution for both passenger traffic and cargo transportation.
The airports ownership structures varies in every Baltic Sea region state. For example in Finland government owned service company Finavia Oy owns and maintains 25 airports. There are also few privately owned airports and some military airports. In Sweden the ownership structure is quite similar, state-owned group Swedavia Ab owns, operates and develops 11 airports, rest of the airports are public and privately owned.
Few case examples of airports infrastructure financing:

- Gardermoen airport, Norway
- Vilnius International Airport, Lithuania

Norway

Gardermoen airport became the main airport of Oslo in 1998. It is located in Gardermoen in Ullensaker, 48 kilometers north from Oslo. The construction costs of the airport were approximately $3 billion. Year 2011 21.1 million passengers travelled through the airport. The terminal building was originally designed for 17 million passengers but the passenger volumes have increased.
The construction proposal was accepted in February 2009 and the construction of the new terminal started in 2011. The new terminal will add 117,000m² of space to the existing 148,000m² and increase passenger capacity to 35 million passengers per year. The expansion will also include a new baggage system. The first phase of the project will be completed in 2012 and the whole expansion in 2017.
The cost for the new terminal will be about 700 million Euros. Nordic Investment Bank (NIB) is financing the first phase of the project by granting a loan of 192 million Euros to the Norwegian Avinor. The loan is 20-year maturity loan and it will be used for the construction of the new terminal and a pier.
Avinor is a stated owned limited company. It was established in 2003 and administered by the Ministry of Transport and Communications. Avinor operates 46 airports in Norway and is in charge of planning, developing and operating the Norwegian airport network. Avinor is the owner of the expansion project and Oslo Lufthavn AS, the airport of Oslo is the client.

Sources:

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Lithuania

The Vilnius International airport is a state-owned company and operated by the Ministry of Transport and Communications. The airport is situated 9, 5 kilometers south of Vilnius. The passenger volumes have increased and this has led to various investments and expansions.
The video surveillance system of the terminal was upgraded in 2005. The whole project costs were 1.3 million Euros and the European Regional Development Fund supported it with 0.46 million Euros. A new terminal for non-Schengen flights was planned in 2005 and it was opened in 2007. EU structural fund participated to the financing of the terminal with a share of 0.72 million Euros. The total costs of the terminal were 30.6 million Euros. Also the aircraft parking stands and the expansion of the apron and the baggage claim facilities have been upgraded. The runway was modernized in 2007.
The Vilnius International airport is going through many changes and upgrades also

in the future. In every project the airport finances part of the costs or the whole project, but the EU Cohesion Fund and the Republic of Lithuania are also participating to the investments. Few examples of ongoing projects and future projects:

Project year	Value Euros/LTL	Sources of financing	Term of implementation,
Reconstruction of the apron surface	8 400 000 Euros 29 043 117 LTL	EU Cohesion Fund, Republic of Lithuania, Vilnius Airport	2009 - 2011
Reconstruction of the fire rescue station	1 320 506 Euros 4 559 446 LTL	Cohesion Fund, Republic of Lithuania, Vilnius Airport	2011 - 2013
Passenger terminal galleries reconstruction project	724 050 Euros 2 500 000 LTL	Vilnius Airport	2011 - 2012
Surface wastewater	1 797 097 Euros 6 205 018 LTL	Vilnius Airport	2010 - 2015

Source: http://www.vilnius-airport.lt/en/airport/eu-support/airport-expansion/

Sources:

http://www.airport-technology.com/projects/vilniusinternational/
http://www.vilnius-airport.lt/en/airport/eu-support/airport-expansion/

Evaluation and best practices

The financing sources for airport infrastructure are various and are dependent on the size of the investment. Norway has taken advantage of the Nordic Investment Bank (NIB). Several Norwegian infrastructure projects also in the field of airports have received loans from NIB. The Baltic States Latvia, Lithuania and Estonia have received funding for airport infrastructure from Cohesion Fund and European Regional Development Fund in order to promote the convergence object inside the EU's borders.
The construction of a total new airport is a massive investment and the risks are enormous, because the relevance of an international airport for a State is remarkable. In Berlin Brandenburg airport the investments and risks were transferred to a Special Purpose Vehicle (SPV), Berlin-Brandenburg International Partner (BBIP). The investment consortium collected the necessary funding and carried the risks

caused by the delay.
Airports are also part of the EU's ten-T network and EU is supporting investments in the airports. Because of the fast growth in air travelling, the European Commission is creating a legislative framework for European aviation and developing the common European airspace. In the Single European Sky package the European airspace is divided into functional blocks. The blocks are based on traffic flows, not on the country borders. Every member states have committed to merge their national air control spaces into a functional block.

Sources:

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Water

Introduction

The ownership structure of seaports in the Baltic Sea regions varies in every country which has an impact to the financing arrangements and options. The following table illustrates the different ownership options; Norway is not included in the table.

Country	Ownership structure
Finland	Most of the Finnish seaports are municipality owned and privately operated. There are also both privately owned and operated seaports in Finland. Most of the municipality owned ports function as public commercial enterprises. State's role in port governance is quite limited.
Germany	There are several seaport governance structures: Ports may belong to a limited company or to a public company. Land (state) and municipality may own the port together or the port may be Land's (state's) and partially municipality's property A port can also belong entirely to a municipality Seaports are not independent entities and land and water belong to the territorial authorities.
Sweden	There are two models of seaport governance. 70% of the ports are managed by mostly municipally owned port companies. Port companies may own both the land and the facilities, own the land and rent the facilities or rent both. Rests of the seaports are operated with landlord model, port authority is a part of the municipality's administration and private companies provide cargo services.
Lithuania	The Klaipeda State Seaport Authority manages the port of Klaipeda. The Klaipeda State Seaport Authority is a Government enterprise and Ministry of Transport controls it. The landlord model is applied in the Port of Klaipeda, independent

	stevedoring companies, shipbuilding yards and other companies may operate in the port on the basis of lease agreement. The port of Klaipeda is the only port in Lithuania.
Latvia	Port land is often transferred to the relevant Port Authority. Port land can be owned by the State, the local government or other legal or natural persons. Ports operate as landlord ports, private sector provides services and rents port infrastructure from the port authority which manages the infrastructure.
Poland	There are three kinds of governance structures. Ports can be public companies with shares of Government and Municipalities, ports can be municipalized when municipalities own the port or non-municipalized.
Denmark	There are five possible governance models: state port, municipality port, municipal self-ruling port (independent business), joint-stock port which is jointly or partly owned by municipality or port organized by civil law
Estonia	Seaports are public limited companies. There are three kinds of ownership structures: entirely state owned, privately owned and a mixed ownership structure.

Sources:
http://ec.europa.eu/transport/modes/maritime/studies/doc/2006_06_eu_seaports_study.pdf

Shipping and marine transportation is facing huge challenges in the future. The EU's sulphur directive comes into operation in 2015 and it restricts the sulphur content of fuel used in the shipping industry to 0.1 percent in the Baltic Sea, the North Sea and the English Channel. Ports and shipping companies are struggling with increasing costs and they are constantly developing new ways to adapt to the restrictions of the directive. The new solutions and infrastructure projects which help to adjust to the demands of the sulphur directive require funding and investments but nevertheless the investments have also other targets and goals, few examples of water infrastructure projects:

- The Freeport of Riga, Latvia
- The port of Norrköping, Sweden
- Nynäshamn's LNG terminal, Sweden

Latvia

The main objective of the project is to relocate the Port of Riga because the port activities are causing degradation to the environment at the current location. Currently the Free Port of Riga is situated at Andrejosta and Eksportosta. The location is near the historical centre of Riga on the northern bank of river Daugava. At the moment the Riga Freeport is one of the leading ports in the Baltic Sea. Krievu Island is the new planned location for the port because the northern part of the island is not being used at the moment. The relocation will balance shipment on

both river banks and decrease the amount of vessel traffic in the centre of Riga. The relocation includes also the construction of all necessary access roads and railways and engineer-technical communication within the borders of the port. The project will be developed in two phases. The first phase will be completed by 2012 and concerns the construction of berths. The second phase will be completed by 20115 and it concerns the construction of three more berths. The port activities will begin in Krievu Island in 2014.

According to the financing plan the first phase could be financed with the support of Cohesion Fund of 91 million Euros (61% of all the eligible costs) and the rest of the investments would be paid by the port authority. The second phase of the project would be financed from public and private sources. The amount of public financing is 28 million Euros and it could consist of Cohesion Fund contribution and other forms of financing, for example; direct grants, soft loans, State guaranteed credits and other sources. The port authority would cover the 18.1 million Euros share of private financing with commercial loans, its own revenues or State Treasury loan on market conditions. The total eligible costs of the two phases amount to 195 million Euros.

The project has received funding from the Cohesion Fund approximately LVL 54 million, 77.6 million Euros. Also EIB has supported the project with a loan of approximately 40 million Euros. The total budget of the project is approximately LVL 130 million, 195 million Euros.

The following table illustrates the structure of the funding and the participation of different actors:

1. phase	
Cohesion Fund	EUR 91 325 093
Port authority	EUR 57 884 168
Total eligible costs of the 1. phase	EUR 149 209 261
2. phase	
Public financing ● Additional Cohesion Fund contribution ● Direct grant ● Soft loan ● State guaranteed credit ● Other sources	EUR 28 062 565
Port authority ● Commercial loans ● Freeport's own revenues ● State Treasury loan on market conditions	EUR 18 109 090
Total eligible costs of the 2. phase	EUR 46 171 655
Total costs of the two phases	**EUR 195 380 916**

Source: http://ec.europa.eu/competition/state_aid/cases/235017/235017_1261801_149_2.pdf

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Sweden

Norrköping's access fairway

The port of Norrköping is situated in the south of Sweden and it is one of the most modern ports in the Baltic Sea Region. The objective of the project was to broaden and deepen the access fairway to the Pampus terminal. It contributes to safer navigation and allows larger vessels to use the port.
The 3.8 kilometers long access fairway was deepened to 14. 9 meters and broadened to 100 meters. Also the fairway markings were improved and the berths were reinforced. The construction works led to improved safety, higher capacity and better accessibility to the port. The project increased also the competitiveness of local and regional trade and industry.
The project is a part of the Norrköping's Intermodal infrastructure package which aims to increase the competitiveness of the region and develop Norrkoping as an intermodal traffic node. The project will also raise the intermodality of the region in the future. Norrköping is one of the Sweden's main intermodal nodes in the EU's priority project Nordic Triangel. Nordic Triangel links the Scandinavian countries and their capitals and boosts connections to the rest of the Europe.
The main financers of the project are Swedish Maritime Administration and the Municipality of Norrköping. The cost of the fairway improvement was about 30 million Euros, SEK 260 million and the Swedish Maritime Administration and the Municipality of Norrköping were both financing 50% of the project's costs. Decisions on organization, operations and investments are made at local level, because almost every port is owned by a municipality in Sweden. The EU financed also the widening and deepening of the access fairway, the project has received funding from the TEN-T program. EU's financing rate was 3.5 million Euros.

Sources:

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Nynäshamn's LNG terminal

The production of LNG started in 2011 in Nynäshamn, 60 km south of Stockholm. The terminal has the capacity to store 20,000 cubic meters of LNG and it can supply gas to industrial and marine markets. The origin of the gas is in Norway and Central Europe and it is transported to Nynäshamn in double hulled tankers or tank trucks. Aga is the single owner of the project and in charge of the production process. Aga is a subsidiary to the multinational Linde Group. At the beginning of the process the LNG terminal was jointly managed by AGA, Fortum and Nynas. Nynäs is still doing close co-operation with AGA, it has contributed the land for the plant and it will also purchase approximately 35,000 tonnes of LNG per year. Also Fortum is still involved in the project; it will replace petroleum with LNG for city-gas-production in Stockholm. The LNG terminal has also a huge impact to shipping and maritime transport. At the moment and especially in the future vessels are using LNG as a fuel in order to reach the goals of the EU's sulphur directive. Viking line has already planned and ordered a LNG fueled vessel.
Nynäshamn's LNG terminal has been designed and constructed by Gothenburg company CRYO AB and molded by NCC. AGA has commissioned NCC Construction Sweden AB to construct a terminal for liquid natural gas, LNG. The assignment will be implemented as a partnering project. Cryo AB and NCC have made a general contract concerning the construction of the LNG tank itself. The value of the contracts will be about SEK275 million, 31.8 million Euros. Aga invested SEK1.2 billion, 138.8 million Euros, to the terminal. EU has not supported the project.

Sources:

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Conclusion and best practices

One common financing source for port infrastructure is state budget, funding can also come from some regional or local public institution. In the Swedish LNG terminal

the project was funded solely by Aga. The LNG terminal is business and it attempts to collect revenue for its owner but still it serves also the public interest and helps the Baltic Sea region to cope with the Sulphur directive. State has done the groundwork and Nynäs, the company that supplies gas for Stockholm,is one of the biggest clients for the Nynäshamn's LNG terminal.
Extensive and strategic partnership arrangements and alliances are not so common when constructing port infrastructure. In the road projects it is possible to make a DBFOM contract because the service concept provided is more simple and easier to define while ports are producing a wide variety of different services. Building and service provisions are often separated in the harbor sector and so called DB (design build) partnerships are applicable.
Shipping, both passenger and cargo transportation, is receiving different kinds of EU supports and grants. The Baltic States Lithuania, Latvia and Estonia and also Poland are receiving EU support from various sources including Regional development fund, Cohesion Fund, European bank for Reconstruction and Development and TEN-T program. Those states are a part of the convergence region and they are eligible for several support actions. For the Scandinavian countries the support or grant selection is a bit more narrow, but projects that are important enough and promote the common European interest are eligible for TEN-T funding.

Railways

Introduction

Modern and practical railway network is one of the European Union's major priorities. It is economical and environmentally friendly to transport the flows of freight by rails. EU has made an enormous contribution towards integrated and extensive rail network and the European railway agency's ambition is to assist in the creation of the network by paying attention to safety and interoperability.
The financing options for railway infrastructure are diverse. Few examples of different ways of creating and financing a railway project:

- The Femarn Belt Fixed link, Germany
- Ring rail Line, Finland
- Rail Baltica, Valga-Tartu, Estonia
- Channel tunnel, England and France

Channel Tunnel is not situated in the Baltic Sea Region but it is a good example of difficulties in a massive construction project.

Denmark

The Fehmarn Belt is an immersed tunnel that connects Scandinavian to the Central Europe. At the moment Scandline ferries are operating between Rodby, Lolland in Denmark to Puttgarden, Fehmarn in Germany. The tunnel will replace ferries when it is completed. There will be a double-track electrified rail line and a four-lane motorway. The project started in year 2008 and will be completed in year 2021. The Fehmarn fixed link project has already delayed several years.
According the predictions, traffic across the belt will continue to increase in the years up to the opening of the fixed Link, and in 2020, rail traffic will be approximately 3,800 train passengers. In year 2020 the Fehmarn fixed link will be the main route for all freight transported by rail between Scandinavia and the continent.
The project will cost 5.5 billion Euros for Denmark. Denmark will finance and operate the project and also guarantee the loans from international market with a payback time of 30 years. The loan will be paid back with user-charges from the road and rail operators. Germany participates in the project by renovating its existing infrastructure. Fehmarn Belt railway axis is a global project and EU has defined it as its priority project number 20. EU has already co-financed the project with 267.5 million Euros. Interreg IV has also supported the project with DKK 170 million, 22.8 million Euros during the budget period 2007-2013.
Sund & Bælt Holding, a state-owned company is in charge of the investigation and designing of the coast-to-coast link. The Danish Fehmarn Belt is a subsidiary of the Sund & Bælt Holding and it will construct and operate the link.
Construction cost estimates from year 2011 by Femern A/S:

Construction costs	EUR 3.8 billion
Other works	EUR 0.3 billion
Total construction costs	**EUR 4.1 billion**
Project management, operational preparations, etc.	EUR 0.7 billion
Reserves	EUR 0.6 billion
Total gross costs	**EUR 5.5 billion**
Expected EU subsidy	EUR 0.6- 1.2 billion
Total net costs	**EUR 4.3-4.9 billion**

Source:
http://www.femern.com/material-folder/documents/2011-publications/consolidated-construction-estimate-for-the-fehmarnbelt-fixed-link-august-2011

Sources:

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Finland

Ring Rail Line is a 2-track passenger line that connects the city of Helsinki to the Helsinki-Vantaa airport. The length of the line is 18 kilometers. In the first phase there will be five stations, Vehkala, Kivistö, Aviapolis, Airport and Leinelä. The Ring Rail Line project connects the Helsinki-Vantaa international airport to the EU's TEN-T priority project number 12, to the Nordic Triangle railway, which links the capitals of Scandinavia to each others. The construction work of the Ring Rail started in 2009 and the traffic will start in 2015.
The total costs of the Ring Rail Line project are approximately 655 million Euros. Financing is shared between the State and the City of Vantaa. The EU support for this project is approximately 17.8 million Euros at this stage. The cost estimate includes also the improvements at Highway 3 between Ring Road III and Keimola and the first construction stage of the Tikkurila travel center.
The Ring Rail project is implemented by the Finnish Traffic Agency, Rail. Other contractual partners are the City of Vantaa, Traffic Agency, Road and Finavia. Finavia is a public limited company and fully owned by the State. Finavia Corporation maintains a network of 25 airports in Finland. Helsinki Region Transport is in charge of the planning of the traffic arrangements in the future.

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Estonia

Railway Tartu-Valga
Cross-border section Tartu-Valga railways reconstruction is a part of the EU's priority project number 27, the Rail Baltica. The Rail Baltica is a trans-European railway linking Helsinki – Tallinn- Riga – Kaunas – Warsaw and it continues to Berlin. The Rail Baltica tries to promote economic growth and integration in the Baltic region. The project Rail Baltica and especially pre-studies and development phase have received support from two EU funds.

- Interreg IIIB – for the field of regional development;
- The Cohesion fund – for the research of infrastructure development

In November 2005 the company COWI was chosen to carry out the Rail Baltica pre-feasibility study funded by the Cohesion fund. The study evaluates the feasibility and defines the main steps of the construction of the Rail Baltic corridor.
The Interreg IIIB financed part of the project had two goals; to define the most favorable route for the railway link and to raise the awareness of the important stakeholders: national and regional administrations and decision makers and also

the awareness of industry and the public. There are 22 partners from Germany, Poland, Lithuania, Latvia, Estonia and Finland involved in the project. The Partners represent regional development institutions, ministries and railway companies and NGO from Germany, Poland, Lithuania, Latvia, Estonia and Finland. ERDF supported the project with 863,774 Euros.

Source: http://w w w .rail-baltica.com/pub/?id=2

The construction and upgrading of railway in the cross-border section Valga-Tartu was implemented between September 2007 and December 2010. The total budget for the action was 39.8 million Euros and the funding came from the national budget and other financing sources, including EU's TEN-T grant which was approximately 10.8 million Euros. The project consisted of:

- renewal of track in Estonian
- upgrading tracks and reconstruction work at the Valga station

The implementing body of the project is Estonian Railways and Finnish railway company VR-Track Ltd will be responsible for the construction work. VR-Track Ltd signed an agreement that includes rebuilding the superstructure on 66 kilometers of track and replacing 25 turnouts. The track substructure construction was also included to the agreement. The value of the contract is 5 million Euros and it is the most valuable contract for VR-Track in Estonia.

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England and France

Even though England and France are not part of the BSR program the Channel tunnel is a useful example of a big infrastructure project.
The Euro Tunnel is one of the biggest privately financed construction projects by a long time. What comes to return on investments it is a great failure. The Channel Tunnel consists of three tunnels connecting Britain to the Continental Europe. The tunnels are 38 kilometers under the water surface and the length of the tunnel is 50 kilometers. The tunnel is being used by four types of train. The idea of a tunnel that goes under the sea is quite old. The first time the construction of the tunnel was discussed was in 1802.
In year 1985 England and France sent jointly a plan concerning Euro tunnel. The plan included both financing and construction and the amount of paper was massive. The two main interest groups were banks and construction companies and in total the project had 15 shareholders, a consortium of 10 construction companies, TransManche link (TML) and 5 banks. The shareholders were evenly from France and England. The construction consortium made a design and build contract with Eurotunnel, the concession period was originally 55 years but it was lengthened to 65 years. In year 2025 the contract ends and the tunnel must be transferred in a good shape. The contractual arrangements were extremely complex because in the beginning of the project the Euro tunnel Company did not exist.
The first equity package came from the original 15 shareholders in the beginning of the project. The tunnel project and the shareholders went through critical times when Equity package 2 was accepted, and it made the original project promoters minor shareholders. Before equity package 3 could be accepted the project needed more financing. European Investment Bank provided the tunnel project a loan, the deal was signed by a group of 50 banks which syndicated it to over 200 banks. The management of Credit agreements had become very complicated.
The construction project was in trouble and the reasons were diverse. The project didn't progress as quickly as planned because of incomplete design. There were problems in the terminal and fixed equipment work. Also the rolling stock costs had been underestimated.
In 1990 the project got its 4. equity after the banks of Midland, Natwest, Credit Lyonnaise and Banque Nationale de Paris participated and gave the project an additional loan. Also EIB participated to the loan package. The tunnel got the 5. equity, but that wasn't enough to complete the project. The last financing package consisted of Senior Loan. Part of the financing comes in a form of user charges; the train companies pay a fixed charge and tolls for Euro tunnel and participate to the operating costs of the tunnel. The project didn't receive any direct funding from the government.
The loans are currently divided into 12 tranches in order to accommodate different currencies and several loan types. Over 200 banks are involved in the project and the contractual arrangements are highly complex. This is a good example of not so successful project.

Sources:

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Evaluation and best practices

The importance of railways is different in every country. In Sweden the State supports and encourages the use and construction of railways. In Finland railways and trains has a strong position but the rail network is not as extensive as in Germany for example. Every country has a right to decide whether it finances or not the construction of railway lines. The problems occur at the cross-border sections because every State has its own financing practices. For example in the Femarn Belt Finxed link railway connection Denmark and Germany are doing co-operation. The responsibilities are shared between the two countries but Denmark is the lead partner and bare most of the costs and risks.
EU supports the construction works at the cross-border sections with approximately 10% higher grants because international railway lines enable the free flow of people and goods. The Rail Baltica is an interesting example of international railway line that crosses country borders. Rail Baltica forms the missing railway link from Northern Europe via the Baltic States to Southern Europe and it has received funding from several EU sources. European Regional Development Fund has financed both Rail Baltica and Femarn Belt fixed link.
The ownership of the railway lines varies in every country and it causes differences in funding sources. For example in Finland the State owns the rail transport infrastructure and Rail administration controls the traffic. The State is not the only financer in Finland. The Ring Railway Line benefits also the city of Vantaa and it participates to the financing. In Finland there are only few railway companies but for example in Germany the railway infrastructure is used by several companies. Railway projects don't attract private investors because planning and construction takes a long time and railway lines generate profit slowly.
The Channel tunnel demonstrates the difficulties in a project that no one really owns. Different kind of PPP structures would be useful in railway infrastructure construction and facilitate the participation of private investors and clarify the sharing of risks and costs.

Roads

Introduction

Road network is still very essential to inland cargo transportation and passenger traffic despite EU's attempts to shift freight of the roads for example with Marco Polo II – program. Within the framework of EU's TEN-T program the Commission has planned and started to implement the construction of the core road network which covers the whole Europe. The Baltic Sea region is also a part of this roadmap. Not all the roads are part of the TEN-T trunk network and cannot be funded via EU's budget, and that makes the funding possibilities extremely wide and diverse. Public Private Partnership is a key word in road infrastructure financing and many innovative PPP solutions have been applied in the Baltic Sea region. Few examples of innovative road infrastructure financing arrangements:

- Grimstad-Kristiansand E18 motorway, Norway
- A2 motorway, Poland
- E6 motorway Trelleborg-Vellinge, Sweden
- E18 motorway Koskenkylä-Kotka, Finland

Norway

> "Public Private Partnership (PPP) is being tried out in three projects in the road sector. The purpose is to achieve efficiency gains. In the view of the Ministry of Transport and Communications, PPP shall only be used to the extent that this form of contract involves the transfer of risk and where the total cost of the project is lower than in traditional development."
>
> Source: National Transport Plan 2006–2015 (English summary)

The government of Norway has started a pilot phase in the implementation of PPP structures. The E18 motorway from Grimstad to Kristiansand is one of the three pilot projects which the government of Norway has started in the road sector. The E18 road is an important link between Southern Norway and the continent, the new road includes 40 km of four lanes road. The operation period of the road is 25 years. The project is a part of Norway's national Transport Plan for the time frame 2006-2015. The Norwegian Public Roads Administration has signed a contract with Agder OPS Vegselskap AS (hereinafter Agder OPS). Agder OPS will finance, design, build, maintain and operate the E18 road from Kristiansand to Grimstad. The construction phase takes three years and after that it is opened for traffic. Agder OPS does not receive any remuneration during the construction phase. The operation phase is 25-year long and after the road is opened to traffic will Agder OPS receive an annual payment from the Norwegian Public Roads Administration. In the Norwegian PPP model the project company designs, finances, constructs, operates and maintains the road, it is so called DBFOM model.
Administration signed a contract with the toll company Aust Agder AS Vegfinans to collect tolls on the E18 road. The tolls will be part of the annual remuneration from

Norwegian Public Road Administration to Agder OPS.
The total costs of the whole three year motorway Krimstad-Kristiansand project will be approximately 3.3 million and the financer is Agder OPS. The company's capital consists of equity which is paid by owners and debt capital. The debt capital is loans from domestic and international banks. The European Investment Bank finances nearly half of loan demand and it granted loans from the Nordic Investment Bank, Nordea and other commercial banks. The tripartite agreement protects the lenders interests, because under certain conditions the lenders have a right to stop the PPP contract and fulfill it on behalf of Agder OPS.
The Norwegian PPP model emphasizes high road availability and traffic safety standard, high environmental and aesthetical standards and good road user services. Annual compensation from Norwegian Public Roads Administration to Agder OPS should reflect how Agder OPS successfully fulfill the objectives of the Public Road administration. High degree of security and few accidents could provide bonus compensation.

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Poland

The polish section of the A2 motorway's western part is a part of the Berlin-Warsaw-Minsk-Moscow TEN-T project and it was finished in December year 2012. The second segment of the A2 toll motorway between Nowy Tomyśl in western Poland and Świecko on the German border is built as a PPP project and it was constructed by Austrian construction company Strabag. The Strabad-led consortium built 106 kilometers of motorway between the summer 2009 and the autumn 2011. The expected completion day was in May 2012, but the A2 motorway was completed earlier than planned, which caused savings.
Strabag and its subsidiaries held the overall responsibility of planning and construction with a volume of 1.6 million Euros. Strabag has the concession for the road until year 2037 and it will take care of the operation and maintenance of the motorway. After that the road will be a property of the Polish State. During the contract period the state will pay a fixed availability fee for the operating company for the maintenance of the A2 motorway.
The financing consortium for the A2 motorway is composed of 11 international banks led by the European Investment Bank, which alone will take on over 1 billion Euros of the financing. The other banks were Deutsche Bank of Germany, WestLB, Calyon

and Société Générale of France, Caja Madrid of Spain; there were also a number of Polish banks in the consortium. There will be no tolls until the mid-may 2012, but after that a per-kilometer toll will be charged
The type of the PPP used in the construction of the polish A2 motorway is DBFOMT. The construction consortium owns the road during the concession period and the road is transferred to the Polish State in 2037.

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Sweden

The Swedish motorway project E6 Trelleborg-Vellinge was funded by EU's TEN-T program because it is part of the priority project 12, The Nordic triangle road axis. The project has strong links to Motorway of the Sea activities between Sweden and Germany. The project includes rebuilding of motorway between Trellebog and Vellinge. The motorway was built mostly in existing alignments but some parts had to be constructed from the beginning. The start date for the construction works was in September 2009 and the road was completed in November 2011.
The main partners in the project were the region of Skåne, the municipality of Vellinge, the municipality of Trelleborg and the port of Trelleborg and the Swedish Road Administration. The total budget for the project was SEK 360 million, 42 million Euros and the financing shares were following:

- The region of Skåne 3 million Euros (SEK 25 million)
- The municipality of Vellinge 5, 8 million Euros (SEK 50 million)
- The municipality of Trelleborg 27 million Euros (SEK 235 million)
- The port of Trelleborg 5, 8 million Euros (SEK 50 million)

The Swedish Road Administration helped the Trelleborg municipality to finance municipality's share of the project with a loan up to maximum of SEK 260 million, 30 million euros. The Road Administration has also given a SEK 55 million loan, 6.4 million Euros, to the Port of Trelleborg. European Union financed a part of the project by compensating 19 % of the works costs, with a share of 5.3 million Euros.
The road was built by Construction company Hifab Groub AB.

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Finland

Finnish Transport Agency and Tieyhtiö Valtatie 7 Ltd have made a contract concerning the design, construction, maintenance and financing of the E18 motorway. The contract concerns the section of Koskenkylä-Kotka and the agreement was signed on December 2011. Construction works will be completed in 2015 and the length of the section is 53 kilometer. Tieyhtiö Valtatie 7 is a project company and the motorway project will be carried out using life cycle model. The PPP contract type is DBFOM model. Tieyhtiö Valtatie 7 is in charge of the motorway and its maintenance until 2026.
The owners of the Tieyhtiö Valtatie 7 are YIT Construction Ltd, Destia Ltd, Meridiam Infrastructure Projects S.á.r.l and Ilmarinen Mutual Pension Insurance Company. YIT Construction Ltd. holds 10.05 percent of the company; Destia Ltd. has also a share of 10.05 percent. Ilmarinen Mutual Pension Company holds 19, 90 percent of the company and Meridiam Infrastructure Projects S.á.r.l holds 60 percent. European Investment Bank provided a 14-year-maturity loan for the project. Also Pohjola Pankki Plc is participating in the financing of the E18 motorway. The value of the contract is approximately 623 million Euros.
The E18 links Helsinki to Continental Europe and to Russia. The project is a part of the EU's priority project number 12, the Nordic triangle. The project has received TEN-T funding for studies concerning the construction of the E18 motorway.

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Evaluation and best practices

The different partnership models and consortiums are common when financing massive road infrastructure projects. The Norwegian PPP pilot phase is a great example of systematic use of PPP.
Managerial methods are proven to be more effective than the traditional public way of building and maintaining roads. In many cases also the construction time is shorter than in the traditional way of building. It is a well known fact that the financing arrangements and costs may rise higher than in the traditional budget based financing. On the other hand State or other public body or organization may guarantee the loan or take part in the financing arrangements and facilitate the lending process. There is not just one way to build a PPP. The Swedish example from Trelleborg and Vellinge demonstrates a different way to finance road sections. The project is financed using more traditional funding source, government's budget and other public funding sources. Still it combines financing from different sources and from different players. In the Swedish road project the responsibility of the construction and financing is shared so the risks won't be too high for any participant.
In Poland the road project was implemented by a consortium that took care of the whole project during a concession period of approximately 30 years. The contract is a DBFOM type PPP and it gives a lot of freedom to the consortium. Also the Finnish E18 motorway section was build using DBFOM- model and the concession period was approximately 15 years. When creating large and valuable PPP and co-operation contracts the contracting costs and arrangements can be rather high, but mature contract is a solid base for a big infrastructure project.

Conclusion

Even though transport infrastructure is constructed to serve everybody, funding sources of the transport infrastructure and the allocation of EU funding are under discussion. The European Commission has created the White Paper which acts as a roadmap for future's transport infrastructure investments. According to the EU's White Paper the infrastructure financing is moving towards full application of "user pays" and "polluter pays" principles. EU is also increasing the engagement of the private sector. The object is to eliminate distortions and to generate revenues for future transport investments.
The aim of this report was to describe different and available funding sources and institutions that are willing to participate in infrastructure financing. Traditional funding channels are still relevant and in use, but new and innovative funding instruments are complementing them. Some of the new instruments are still in the pilot phase and future will show their usefulness and effectiveness in action. User charges are one option and highly supported by Commission. The structure of user bases varies in every transport mode and that has an impact to user charges applicability and usefulness. That must be taken into consideration when user

chargers are being discussed. Even though road tolls are a good practice at roads, it is much more difficult to gather user charges for example in railways because the user base is more restricted and constructed differently.
One of the EU's solutions for transport infrastructure financing is PPP. The increased engagement of private sector is one of the actions that promote competitive and resource efficient transport system. If EU wants to increase the exploitation of co-operation and partnerships, a common framework for the development of PPPs at the EU level is required as mentioned in the EU's White Paper. As the case examples demonstrate user charges are already applied in road sector and they create a vital part of PPP projects' revenues. A project that has natural incomes is economically viable which makes it an attractive investment target for private sector. One goal for this report was to represent a wide range of different PPP models and describe the possible funding structures.
According to the White Paper there are several aspects that should be considered before funding decisions are made. Infrastructure that is co-funded with EU should reflect the citizens' and industry's real needs for infrastructure and at the same time increase the added value for EU. Also a minimal negative impact to the environment and safety and security of users are crucial factors when EU funds are allocated.

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