



This project is funded by the  
European Union



PL-BY-UA  
2007-2013

Cross-border Cooperation Programme  
Poland - Belarus - Ukraine 2007-2013

**ANNEX II: TERMS OF REFERENCE**  
**FOR DEVELOPMENT OF FEASIBILITY STUDY OF E40 DNIEPER-  
VISTULA WATERWAY RESTORATION**

<b>1.</b>	<b>BACKGROUND INFORMATION .....</b>	<b>2</b>
1.1.	Beneficiary country .....	2
1.2.	Contracting Authority .....	2
1.3.	Background.....	2
1.4.	Current situation in the sector .....	2
1.5.	Related programmes and other donor activities .....	3
<b>2.</b>	<b>OBJECTIVE, PURPOSE &amp; EXPECTED RESULTS .....</b>	<b>4</b>
2.1.	Overall objective .....	4
2.2.	Purpose .....	4
2.3.	Results to be achieved by the Contractor .....	4
<b>3.</b>	<b>ASSUMPTIONS &amp; RISKS .....</b>	<b>4</b>
3.1.	Assumptions underlying the project.....	4
3.2.	Risks .....	5
<b>4.</b>	<b>SCOPE OF THE WORK.....</b>	<b>5</b>
4.1.	General .....	5
4.2.	Specific work.....	13
4.3.	Project management .....	14
<b>5.</b>	<b>LOGISTICS AND TIMING .....</b>	<b>14</b>
5.1.	Location.....	14
5.2.	Start date & Period of implementation of tasks.....	15
<b>6.</b>	<b>REQUIREMENTS .....</b>	<b>15</b>
6.1.	Staff .....	15
6.2.	Office accommodation .....	17
6.3.	Facilities to be provided by the Contractor .....	17
6.4.	Equipment.....	17
<b>7.</b>	<b>REPORTS .....</b>	<b>18</b>
7.1.	Reporting requirements .....	18
7.2.	Submission and approval of reports .....	18
<b>8.</b>	<b>MONITORING AND EVALUATION.....</b>	<b>18</b>
8.1.	Independent evaluation of results.....	18

# **1. BACKGROUND INFORMATION**

## **1.1. Beneficiary country**

Belarus, Poland, Ukraine

## **1.2. Contracting Authority**

Republican unitary maintenance and construction enterprise "Dnipro-Bug Waterway", 20 Lenin sq., 225710 Pinsk, Republic of Belarus

## **1.3. Background**

Waterway connection E40 River Wisla (Vistula) from Gdansk to Warszawa – Brest – Pinsk – river Dniro (Dnieper) via Kyiv to Kherson passes through the territory of 3 countries. Some parts of the waterway in Belarus, Poland and Ukraine are included into the list of most important strategic bottlenecks and missing links of the E waterway network which hinder development of water transport not only in the border regions of Poland, Belarus and Ukraine but in Europe in general (Resolution No 49 “Inventory of Most Important Bottlenecks and Missing Links in the E Waterway Network”, adopted by the Working Party on Inland Water Transport of the UNECE on October 24, 2002 with amendments, adopted by Resolution No 74 dd. October 12, 2012). This problem is acknowledged on the European and national level but actual restoration of the E40 waterway, which should begin with development of the feasibility study, has not been launched yet. The issue of the Dnieper-Vistula (Wisla) waterway restoration has been discussed and analysed by Belarusian, Ukrainian, Polish scholars since 1960s, but no common strategy has been developed so far. The Action plan on implementation of decisions of European Conference on internal water transport (Bucharest, September 13-14, 2006), approved by Resolution the Working Party on Inland Water Transport of the UNECE No 258 dd. February 8, 2007 foresees the development of feasibility study for restoration of the waterway E40. This study needs to comply with national and international standards, to be developed by the experts from three countries with involvement of international experts and with appliance of modern scientific methods and approaches to large infrastructure projects.

## **1.4. Current situation in the sector**

The issue of the E40 Dnieper-Vistula waterway restoration is included in National Programme of the Inland and Sea Transportation Development of Belarus for the period of the 2011 – 2015. The National Programme of the Inland Water Transportation of Ukraine for the period of 2014-2021 foresees only activities aimed at the integration of the existing inland waterways into network of European and international waterways. Both Belarus and Ukraine signed the European Agreement on Main Inland Waterways of International Importance (AGN), Geneva, January 19, 1996. This idea is not sufficiently promoted on the national level in Poland. Restoration of the E40 waterway is mentioned in the Program of the inland water transport infrastructure development in Poland till 2027 as a project which needs further investigations and will be realised in a long term perspective till 2047. . Poland has also not signed the AGN but in process of its discussion on the level of parliament.

The Communication from the European Commission to the Council and the European Parliament “Extension of the major trans-European transport axes to the neighbouring countries. Guidelines for transport in Europe and neighbouring regions” 31.1.2007 COM (2007) 32 recognizes increasing importance of cooperation between border regions of EC and neighbourhood countries on the issues of transport development. Belarusian, Polish and Ukrainian border regions with support of the governmental bodies and EU CBC Programme Poland-Belarus-Ukraine 2007-2013 started the project “Restoration of the E-40 waterway on the Dnieper-Vistula section: from strategy to planning”. The action is a first step towards a better transport accessibility of the region. In the long term perspective, restoration of the Dnieper-Vistula waterway will make it possible for the border regions of Poland, Belarus and Ukraine to become a multimodal transportation centre which will be of utmost importance not only for the Berlin-Moscow corridor, but also for the corridor connecting the Black Sea with the Baltic Sea.

For implementation of activities of the project a permanent Cross-border Commission on the development of the Dnieper-Vistula waterway with a permanent Secretariat was formally established

within an international conference on restoration of the E40, which took place in Brest (Belarus) on 27-28 March 2014. The Commission consists of representatives of ministries, water management departments, regional and local authorities, research institutes, civil society organizations from Belarus, Poland and Ukraine. There are 4 working groups of the Commission which should facilitate the expertise of the subcontractor and recommend on priority scenario of E40 waterway restoration:

- Working group 1. Development of water transport and cross-border economic development;
- Working group 2. E40 waterway in the context of spatial planning of cross-border regions;
- Working group 3. Cross-border water resources and ecology;
- Working group 4. Promotion of idea of the E40 waterway restoration at the European, national and regional level.

The permanent Secretariat of the Commission acts in Brest, Belarus and coordinates the activities of the working groups and is a contact body for contractor in all issues related to cooperation with Commission's working groups.

The activities of the Secretariat are managed by the Steering Committee of the Project "Restoration of the E-40 waterway on the Dnieper-Vistula section: from strategy to planning", being implemented within CBC Programme Poland-Belarus-Ukraine 2007-2013 of the European Partnership and Neighbourhood Instrument. The Steering Committee consists of representatives of the project partners:

- Republican unitary maintenance and construction enterprise "Dnepro-Bug Waterway" (Belarus),
- Brest Regional Executive Committee (Belarus),
- Local Foundation for Promotion of International Dialogue and Cooperation "Interakcia" (Belarus),
- Volyn Regional Department of Water Resources (Ukraine),
- Public Organization "Volyn Association of Scientists and Innovators" (Ukraine),
- Marshal Office of the Lubelskie Voivodeship in Lublin (Poland),
- Association for regional and local development "Progress" (Poland).

The Steering Committee take a decision on acceptance of the contractor's services and payment of service fees to the contractor.

### **1.5. Related programmes and other donor activities**

- National Programme of the Inland and Sea Transportation Development of the Republic of Belarus for the period of the 2011 – 2015
- National Programme of the Inland Water Transportation of Ukraine for the period of 2014 – 2021
- National Strategy of Social and Economic Sustainable Development of the Republic of Belarus till 2020
- Strategy of the Environmental Protection of the Republic of Belarus till 2025
- Water Strategy of the Republic of Belarus till 2020
- State Program on Water Resources Management and Environmental Rehabilitation of the Dnipro River for the period until 2021
- Program for the Wisla and its basin in 2020 of the Polish Republic
- National Spatial Development Concept 2030 of Poland
- Transport Development Programme of Poland till 2020
- Programme of the inland water transport infrastructure development in Poland
- Water Management Plan for Vistula River Basin
- Strategy of the Environmental Protection of Poland
- Other related international, national and regional strategies.

## **2. OBJECTIVE, PURPOSE & EXPECTED RESULTS**

### **2.1. Overall objective**

The overall objective of the project of which this contract will be a part is as follows:

to contribute to greater economic attractiveness and transport accessibility of the Polish, Belarusian and Ukrainian regions through successful implementation of Phase 1 “Analysis and preparation” and laying a foundation for implementation of Phase 2 “Planning” and Phase 3 “Construction” of the big-scale infrastructure project on restoration of an important international arterial waterway E40 on the section Dnieper – Prypiac – Dnerpo-Bug waterway – Muchaviec – Zachodni Buh – Vistula.

### **2.2. Purpose**

The purposes of this contract are as follows:

- The Feasibility Study shall review previous work and undertake the required investigations and analysis of the technical, environmental, socioeconomic, institutional, legal and financial viability and sustainability of the E40 waterway development and operation while taking into account the needs of the riparian countries (water transport infrastructure development for the needs of industry, safe navigation, borders security, draught mitigation and flood protection, irrigation, hydropower generation, tourism, recreation and environmental services).
- The Feasibility Study will provide and analyse 3 optimal and realistic alternative scenarios of the Dnieper-Vistula waterway restoration (with special focus on the elimination of the E40’s “bottlenecks” and sections with insufficient parameters according to the European Agreement on Main Inland Waterways of International Importance (AGN). The Cross-border Commission on the development of the Dnieper-Vistula waterway will take the final decision on selection of the priority variant of the waterway restoration.
- One priority scenario of the Dnieper-Vistula waterway restoration that would consider the interests of all stakeholders will be determined and approved by Cross-border Commission on the development of the Dnieper-Vistula waterway.
- The Feasibility Study will provide the international organisations, governments of the three countries and regional authorities with recommendations on measures to be undertaken in order to restore and develop the E40 waterway in an ecologically, environmentally, and economically sustainable manner. It is expected that the proposed measures of restoration of the Dnieper-Vistula waterway will be implemented into European, national and regional strategies and development programmes for the next programming period.
- The Feasibility Study should lay down a foundation for implementation of Phase 2 “Planning” of the E40 project which should result the preparation of the planning and construction documentation for the infrastructure construction works.

### **2.3. Results to be achieved by the Contractor**

The main result to be achieved by the Contractor is the comprehensive Feasibility Study, consisting of following parts:

- Transport Economic and Market Analysis Report;
- Environmental and Socio-Economic Impact Assessment Report;
- Navigability Report and Technical Specifications of the E40 Waterway;
- Financing and legal/institutional arrangements Report.

## **3. ASSUMPTIONS & RISKS**

### **3.1. Assumptions underlying the project**

- Intention to develop a common scenario of the Dnieper-Vistula waterway restoration and to continue its implementation (from planning to actual construction) remains a priority for Polish, Belarusian and Ukrainian governments and international organisations, e.g. EU and UNECE;
- Continued interest of all target groups participating in meetings of the 4 working groups of the Commission towards common solving of questions related to the development of E40 waterway.

### **3.2. Risks**

- Readiness of national governments and strategic investors to provide financial support to further activities (Phases 2 and 3);
- Difficulties in obtaining quality data and information for the Feasibility Study;
- Inadequate coordination and cooperation between 4 working groups of the Commission or between partners involved in the implementation of the project and elaboration of the study;
- Public opinion especially taking into consideration environmental risks.

## **4. SCOPE OF THE WORK**

### **4.1. General**

#### **4.1.1. Description of the assignment**

##### **4.1.1.1. Review of Previous Work**

As part of the assignment, during the inception phase, the Contractor should collate and review the existing studies and data and provide as part of their Inception Report recommendations on possible adjustments to the scope of study and methodology. The Contractor should ensure that the Feasibility Study takes into account respective upcoming development programs in the regional and national programmes of Belarus, Poland and Ukraine Region as well as upcoming Programmes and strategies of EU.

##### **4.1.1.2. Two stages of the study**

The study will be undertaken in two stages as follow:

#### Stage 1: Analysis of technical, economic and environmental viability

This first stage will include the following:

- Identification of existing rail/road transport corridor options in the region to assess their potentials, weaknesses and possible solutions to meet regional, national and European transport demands;
- Social and environmental impact assessment
- Data collection and analysis in order to determine the navigability of the waterway. Development of 3 scenarios for restoration of the E40 waterway for navigation with special focus on the elimination of the E40's "bottlenecks" and sections with insufficient parameters according to the European Agreement on Main Inland Waterways of International Importance (AGN) and assessment of their technical, socio-economic, environmental feasibility. The project impacts, will be assessed for each of the three countries involved (Belarus, Poland and Ukraine) separately and for the region as a whole;
- Submission of the 3 realistic alternative scenarios for restoration of the E40 waterway to a review by the Cross-border Commission on the development of the Dnieper-Vistula waterway and acceptance of the technical, socio-economic and environmental feasibility and definition of the one priority scenario of the E40 restoration.

#### Stage 2: Financial Appraisal, Legal Frameworks and Stakeholders Involvement

For the scenario selected by the Commission on the development of the Dnieper-Vistula waterway and competent institutions of the three countries at the end of Stage 1 of the study, the Contractor will undertake:

- Financial appraisal of 3 project scenarios, testing the viability of procuring the project under a public, private, or a PPP arrangement and definition of the one priority scenario of the E40 restoration;

- Analysis of BY, PL, UA national, bilateral/trilateral and international legal frameworks and agreements which regulate issues of inland water transportation, border-crossing points, spatial planning, water resources management, navigation rules. Development of recommendations for the common agreement(s) regulating issues of E40 restoration and operation principles based on experience of similar projects implemented in Europe.
- Development of proposal of an institutional framework for the restoration, sustainable and safe operation of transport services on the E40 waterway.

#### **4.1.1.3. Components of the Feasibility Study**

##### **Component 1. Transport economic and market analyses**

###### Objective of the component

The main objective of this component is to assess the feasibility of the development of E40 waterway that can contribute to the implementation of an overall efficient multimodal transport system for Belarus, Poland, Ukraine, EU as whole and EU's neighbouring countries.

Hence the feasibility should consider E40 waterway mode that:

- is fully integrated with the existing modes, namely road, rail and sea transport;
- contributes to the reduction of both time and money elements of transport costs to users and hence cost of commodities to end consumers;
- improves the reliability of the transport system;
- reduces the transport externalities such as accidents, and carbon emissions.

###### Activities of the component:

###### **1) Market Analysis**

###### *a) Assessment of E40 potential future market capture*

The forecasting of demand for the E40 waterway mode should follow from the assessment of the baseline demand for transport in the region, and its current distribution between the various corridors and modes of transport. The study will produce forecasts of the future demand for freight transport between the main origins and destinations in the Baltic Sea – Black Sea region, for key commodities, including raw, intermediate and finished products. In this regard, the study shall produce an origin-destination demand matrix per commodity, for the main commodities traded in the region, and for with and without project scenarios.

The matrices will be produced for the following horizons:

- baseline year 2012, or earlier years if data is not available;
- waterway scheme opening (WSO) year
- WSO + 5;
- WSO + 10;
- WSO + 20;
- WSO + 30.

The demand growth between the above horizons will need to take into consideration:

- background economic growth, translated in terms of growth in production and demand for commodities, both for the local, regional and international markets;
- induced growth in demand for commodities transport due to new investments along the waterway encouraged by the improved access to the transport system;
- transferred traffic, from competing corridors and modes, to take advantage of the reduced cost, carbon pollution, time of travel along the E40 waterway alternative.

The latter would naturally include demand transferred from international through (transit) traffic making use of the new facilities to link up industries with markets beyond the waterways in the three countries. In this regard, the study shall also explore potential for future economic developments not only along the waterway corridor, but also other corridors and waterways that could benefit from the E40 waterway (e.g. E70 waterway offering direct connection with Middle and Western Europe, i. e. with the countries with important and busy waterways (Germany, the Netherlands, Belgium etc.).

###### *b) Demand Assignment to Corridors and Modal Share*

The study shall then, for each horizon assign such demand between the various transport corridors and modes available, namely, waterway, road and rail. The assignment will be on the basis of transport generalised costs, including monetary and non-monetary costs (e.g. time saving, reliability, safety, emissions etc). Other considerations such as logistical (e.g. availability of storage facilities, etc) and non-logistical (special requirement of some commodities, e.g. perishable products), will have to be taken into account when identifying alternative routes and modes for the assignment.

*c) Optimisation*

The Contractor should then undertake a sensitivity analysis of the forecasts to derive an estimate of the optimal transport unit tariffs that future operators of the waterway should charge in order to optimise the project revenues. These transport tariffs should then be compared, using a Benchmark analysis, with the tariffs currently practiced:

- in other similar modes in the region;
- in competing corridors from the region;
- internal tariffs used in Belarus, Poland and Ukraine.

The forecasts will be presented year on year, by interpolation between the above forecasting horizons, taking into consideration the ramp up effects. The forecasts will be detailed for both, the new waterway project, the competing modes and the feeder modes. The forecasts will also be broken down by commodity type. For the waterways, the Contractor will, depending on type of commodity and destination, propose an optimal logistical chain that is likely to be adopted by the trading clients and the freight forwarders which would include the type of flux (just in time or extensive use of warehousing) and containerised vs. bulk transport.

**2) Economic analysis**

Based on the traffic forecasts, the Contractor should undertake an economic assessment of the impacts of each project scenarios on the economies and population of each of the three countries separately and for the entire region (the project area of influence). The Contractor should undertake a quantitative assessment for the monetised impacts and a qualitative one for the wider economic impacts.

*a) Quantitative assessment (transport efficiency)*

The Contractor should undertake a Cost Benefit Analysis (COBA), taking into considerations at least the following monetised costs and benefits for each proposed scenario of the project:

Costs	Benefits
1) project construction costs, irrespective of sources of funding, including the costs of land expropriation, and environmental mitigation measures; 2) waterway operation and maintenance costs throughout the appraisal period.	1) time savings for both commodities using the waterway mode, as well as for the existing modes, due to reduced congestion on them; 2) transport costs saving due to a more efficient transport system, including savings in road and rail maintenance costs; 3) potential accidents and loss/damage of commodities' savings, savings from reduction of accidents on road and railway transportation; 4) environmental benefits.

*b) Qualitative assessment (socio-economic impacts)*

The Contractor will assess in this section identify and appraise all socio-economic impacts of the project that are not easily quantifiable in monetary terms. Thesis should include both impacts directly related to the project, as well as wider socio-economic impacts of the project. As part of the assignment the Contractor shall also propose complementary measures to the investments in waterway infrastructure that will play a catalytic role in the achievement of the countries development objectives: access to energy, communication, tourism, health and education services.

The costs and benefits will be presented for each of the three countries separately and for the region as a whole. The appraisal period should be for 30 years. Then for each proposed scenario of the project the Contractor will then compute the project Net Present Value (NPV, using a discount rate to

be proposed by the Contractor and approved by the Commission), and Economic Internal Rate of Return (EIRR), for each of the three countries separately and for the region as a whole.

The socio-economic impacts of the project will be presented as follow:

Impacts directly related to the project	Wider socio-economic impacts of the project
1) number of new jobs created, directly linked to the project: in project construction, project operation, project maintenance; 2) number of jobs lost, as a direct consequence of the project, including in the transport industry (competing corridors and modes), in the fishing industry, agriculture, transportation etc.; 3) number of people and communities affected.	1) impact on the incomes as well as the incremental economic benefits to the project; 2) impact on the costs of living, including the costs of housing, food, and other commodities; 3) impact on local industries of competition from new commodities coming to market (enabled by the new project); 4) number of jobs created, indirectly linked to the project: passing by trade; tourism in the region; catering; renewable energy, new businesses along the waterway corridor induced by the project; including new commodities, whose production was not viable prior to the project due to high transport costs.

Output of the component:

Transport Economic and Market Analysis Report

**Component 2. Social and environmental impact assessment**

Objective of the component

The study should identify impacts (positives and negatives) of the proposed project on the economy, ecology, environment, and sociology of the E40 regions. The study should pay attention to the risk of negative social impacts and the need to preserve the ecological system of the rivers, lakes, wetlands of E40 regions, bearing in mind that the Dnieper, Pripet, Dnepro-Bug waterway, Western Bug, Vistula rivers are rich in biodiversity and part of NATURA2000, Belarusian and Ukrainian protected zones which need to be preserved, and has many sensitive areas. The environmental and social impact assessments shall be undertaken in accordance with the requirements of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki Water Convention), Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991), Convention on Wetlands of International Importance (Ramsar Convention), Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention), legislation and policies Belarus, Poland Ukraine, several EU directives and other international treaties, as well as experience of similar projects (please see Report of European Conference of Ministers Transport “Inland Waterways & Environmental Protection” ISBN 92-821-1346-9, “Manual on Good Practices in Sustainable Waterway Planning” developed in frame of PLATINA initiative).

Activities of the component:

**1) Socio-Economic Impact Assessment**

The study shall evaluate the demographic situation of the riparian communities and how they perceive it as a means of bringing development to their area. Socio-economic data to be collected would have as the main objectives the following:

- Provide technical information on the various activities engaged by the inhabitants adjacent to the waterway corridor;
- Identify land use patterns and land tenure issues;
- Establish a socio-economic profile of the project with respect to family size, age distribution and education, employment and community organisation;



- Identify wealth/poverty indicators i.e. possessions, housing condition and transport;
- Determine present composition of household income, expenditure and savings, etc.;
- Determine the cultural background of the people in the area and their religions;
- Gender Impact Assessment e.g. involvement of women in addressing issues of income generation, effects on women's domestic and social life, economic and social impact on gender, health related issues, optimise and maximise the gender gains of the water transport;
- Change in disease incidence, way of life, changes to well-being, changes to quality of life;
- Present and potential use of natural resources;
- Employment opportunity and economic development;
- Survey for and advice on possible involuntary resettlement of communities due to project activity.

The study should make proposal of possible mitigation measures to the social-economic risks identified.

## 2) *Environmental Impact Assessment (EIA)*

The study should estimate the impact on the different components of the environment including emissions of air and sound pollutants before and after the project implementation (based on proposed scenarios of implementation and assessed transport) as well as estimate volumes of pollutants into water bodies as well as greenhouse gas emission before and after the project implementation (based on proposed scenarios of implementation and assessed transport), taking into consideration climatic adaptation.

A comprehensive environmental study of the E40 waterway restoration shall be carried out taking into account the international, EU and national standards. The key issues to be addressed by the study will include environmental, and ecological impacts of the proposed waterway project, over the Dnieper, Pripet, Dnepro-Bug waterway, Western Bug, Vistula river basins, rich in biodiversity, with a number of ecologically sensitive areas, that are physically and biologically linked to fishing, agriculture, tourism and other activities aiming to improve the local and national economies, and the livelihoods of the local people.

The study should assess the status and outlook of quantitative and qualitative characteristics of water bodies (hydrological and hydraulic characteristics, water quality, hydro chemical and hydro biological indicators); evaluate changes in the hydrological and hydrogeological regime of riparian territories after the project (for each of the proposed scenarios).

The study should assess the water supply resources for the whole water way from Gdansk to Kherson (with the definition of existing and necessary for construction water supply systems especially for sections with shortages of water supply).

The study shall also take into account nature and type of affected ecosystems and species, extent of the area affected, probability, nature, duration, intensity and significance of potential impacts on aquatic species.

EIA should demonstrate technical and environmental viability of the waterway and the consequences of its navigability in the economic and social activities along the E40 waterway. Modern tools should be used to show the short, medium and long term effects. EIA should also demonstrate technical, environmental and ecological measures to be undertaken to turn the navigable rivers, lakes and channels stable and keep the negative impacts at minimum.

EIA should assess impacts (positives and negatives) of the proposed project to the ecology and environment of the included river basins and consequences of future development (construction of new channels, ports at potential landing sites, waterway infrastructure etc.) namely on:

- Loss of biodiversity, disturbance of aquatic habitat, disturbance of plant habitat, impact of threatened species, changes in species population;
- Land use changes, visual aspect and impact on sensitive lands;
- Impact of the project on water quality and aquatic life;
- Menace and impact of water hyacinths on the ecosystem and waterway;
- Potential impact on plants, aquatic life and wetlands from dredging along E40 waterway;

- Impact from competing resource use for irrigation;
- Impact from competing resource use for hydro power use;
- Baseline for carbon emissions and estimation of carbon savings as a result of the project;
- Migratory changes of birds and fish;
- Soil contamination and river bank erosion;
- Changes in ambient noise levels, risk of surface water contamination;
- Changes to historical sites and archaeological changes;
- Impact on economy of the regions i.a. fishing industry, tourism, agriculture, water supply, power generation, complimentary and competitive transportation modes.

The study should provide estimations of necessary volume of expenses for compensatory ecological activities.

Outputs of the component:

Environmental and Socio-Economic Impact Assessment Report

**Component 3. Navigability Report and Technical Specifications of the E40 Waterway**

Objective of the component

The study should analyze existing stand and quality of waterways forming the E40 route and specification of bottlenecks, as well as differences in operation conditions and assess the possibility to achieve the target parameters set by the European Agreement on main Inland Waterways of International Importance (AGN) and create best conditions for the progressive goods and container transport. The Feasibility Study should provide and analyse 3 realistic alternative scenarios of the Dnieper-Vistula waterway restoration (with special focus on the elimination of the E40's "bottlenecks" and sections with insufficient parameters according to the European Agreement on Main Inland Waterways of International Importance (AGN).

Activities of the component:

*1) Hydrographic and Hydrological Surveys*

The study will undertake hydrographic and hydrologic survey which will indicate and guide the determination of the navigability of the waterway. The activities involved in the hydrographic and hydrological study will encompass the following: Conduct information collection and prepare drawings of longitudinal profile of the waterways at a scale of at least 1:200000 including hydrometric information about the characteristic cross sections of stream flows, including for problem areas colors;

- Undertake detailed investigations of conducted hydrometric measurements at the end of the high water season and end of the low water season and assess the impact on the navigability of the waterways and propose mitigation measures to counter sedimentation;
- Prepare a summary of results including data in tables and graphs in a form adequate to serve as detailed planning criteria for the design of a safe and navigable waterway;
- Collate and process existing hydrological data together with the review of all previous hydrological reports related to the project area and determine the effects of climate change and variability in the data;
- Compile Dnieper, Pripet, Dnepro-Bug waterway, Western Bug, Vistula rivers flow data;
- Determine the adequacy of the source of water for the sustainable navigability;
- Determine the competing needs for water resource (Energy, Agriculture, Domestic and Transportation);
- Indicate planned future development and usage of such water resource by the community for domestic, agricultural and industrial purposes;
- Assess overall cumulative effects of the multiple water resource uses on short- and long-term yield and water quality;
- Determine and analyse the baseline water quality for parameters that are likely to impact the water course during the construction and operation of the E40 waterway project;

- Provide physical, chemical and biological characteristics of the water resources;
- Determine and recommend measures to mitigate the rate of siltation of the E40 Waterway.
- Collect and process all rainfall and climatic data together with all existing climatological reports, investigate medium and long-term fluctuations in rainfall and estimate water availability for navigation season; examine assess the probability of winter breaks in different sections of the route, possibility to solve the ice obstacles, perspective influence of climatic change etc.;
- Collect and analyze existing hydrological data, provide a review of previous hydrological reports related to the project territory and estimate the consequences of climate change and the differences in data.

## 2) *River works, architecture and technical specifications*

As a sequel to the hydrographic and hydrologic studies, the Contractor shall make proposals on the options of the type and sizes of barges that can optimally ply the waterway and consistent with the recommendations 3 realistic alternative scenarios of the Dnieper-Vistula waterway restoration.

The Contractor shall carry out the following activities:

- The Contractor shall investigate port infrastructure development options to ensure the efficient transportation of goods on the waterway, including facilities of smaller intermediate ports along the waterway accessible to enterprises of riparian regions. The investigations will also include options for river-going vessel types as well as combined river and sea-going vessel types that could transport goods directly from Kherson or Gdansk to bigger ports on Dnieper, Pripet, Vistula;
- The Contractor provide proposals of dredging, river training works or channel construction works that need to be undertaken to optimise the navigability of the E40 waterway consistent with social and environmental impact assessment;
- The Contractor shall also prepare preliminary list of the facilities that need to be built, including quays, docking, navigation equipment and other facilities to make the E40 navigational for water transport not less than IV class
- The Contractor shall compile technical information on the availability of the actual and required water flows in the Waterway in line with the existing water management authorities taking into account the other uses of water (e.g. water for irrigation, consumption, industry, existing and planned power plants);
- The Contractor shall prepare topographic maps covering the areas proposed by him for the elimination of the E40's "bottlenecks" and sections with insufficient parameters according to the European Agreement on Main Inland Waterways of International Importance (AGN);
- The Contractor shall investigate the clearance (air draft and width) of all bridges existing at and bridges planned to be constructed as well as electricity lines, if any, in the course of the waterway;
- The Contractor shall examine options of types and sizes of barges that should ply the waterway in order to optimise the economic benefits and minimise the environmental impacts;
- The Contractor shall prepare preliminary plan of river works including dredging and river training requirements for sustainable navigation;
- The Contractor shall determine the locations and prepare the preliminary technical characteristics of various facilities to be built to operationalise the waterway, including the appropriate navigational aids;
- The Contractor shall assess the volumes and costs of deepening and widening the waterway as proposed in the project taking into account the limitations as a result of natural variation of water depth over the year as well as determine the frequency and level of future interventions to maintain the rivers and channels navigable;
- The Contractor shall propose options for optimising the operation of the infrastructure constructed.

The planning and preliminary engineering design studies are required to determine the costs of future investments as well as operations and maintenance costs of the waterway. The Contractor shall therefore prepare cost estimates of river works and facilities to be realized to

make the waterway navigable and these costs shall be required as inputs into the economic and market analysis. Summary of results including data in tables and graphs should be prepared in a form adequate to serve as detailed planning criteria for the design of a safe and navigable waterway.

#### Outputs of the component:

Navigability Report and Technical Specifications of the E40 Waterway

### **Component 4. Financing, Legal and Institutional Aspects**

#### Objective of the component

The component shall only be undertaken after the review and acceptance of the technical, socio-economic and environmental feasibility by the E40 Commission. For the recommended project scenarios, the Contractor shall undertake investments and transaction analysis to determine the most viable investment scenarios for operationalising the waterway. This work shall include public sector facilitation and investments requirements, private sector investments and a combination of public and private sector investments. The study should also propose funding possibilities and the strategy for mobilising resources to fully operationalise the waterway.

#### Activities of the component:

##### ***1) Financial Feasibility Study***

The financial feasibility of the project should assess its viability from monetary terms, taking into account all cash flows involved as direct or indirect consequence of the project. The Contractor should undertake a detailed business case including the following:

- Based on the project costs and revenues cash flows, develop a financial model that can model various procurement methods and that computes the project financial IRR, and NPV;
- Using the financial model appraise for each project scenario, the viability of procuring both the capital investments (physical facilities to be constructed under the project, e.g. dredged waterway, new ports, navigation aids, any feeder road/rail connections, storage facilities, etc.), and the services (procurement of vessels, operation of services), under public, private, or a PPP arrangement, and propose the option with best Value for Money;
- Assess the impacts of the current financial crisis on the costs of borrowing; and hence on the financial viability of the project;
- Undertake a stress analysis, on the project costs and revenues to assess the stability of the outputs;
- Based on the estimate of the capital investments required for the project, the Contractor should undertake a review and consultation with the various financial institutions, both the commercial and the development institutions to assess the appetite for the project and the likely lending terms, applicable to similar projects in the region;
- Consult with the potential private sector investors to assess the interest on this project and the required returns on equity.

##### ***2) Legal and Institutional Feasibility Study***

This study should at least include the following three components:

- Review the legal frameworks in the three countries in relation to privatisation and concession laws and assess the feasible structures of the project;
- Discuss the feasibility within the legal framework of each of the three countries, of the private sector involvement in the construction and operation of the waterway project;
- Review the legal frameworks in the three countries and propose an optimal institutional set up for the oversight and the smooth trans-border operation to take place. These arrangements should also ensure safety, the respect of environmental regulations and healthy competition amongst vessel operators on the waterway.

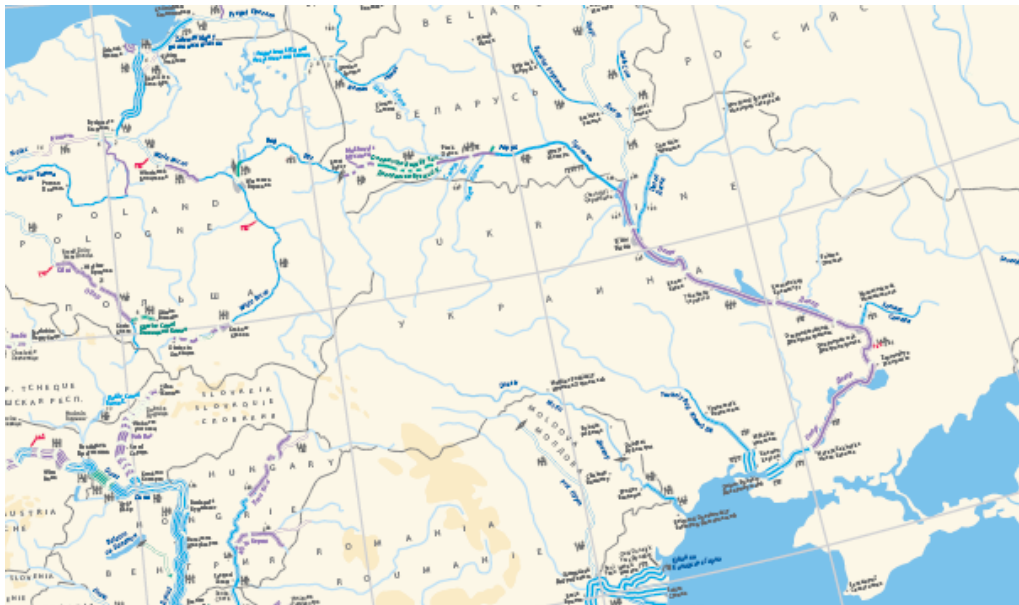
- Analysis of BY, PL, UA national, bilateral/trilateral and international legal frameworks and agreements which regulate issues of inland water transportation, border-crossing points, spatial planning, water resources management, navigation rules. Development of recommendations for the common agreement(s) regulating issues of E40 restoration and operation principles based on experience of similar projects implemented in Europe;
- Development of proposal of an institutional framework for the restoration, sustainable and safe operation of transport services on the E40 waterway.

Outputs of the component:

Financing and legal/institutional arrangements Report.

**4.1.2. Geographical area to be covered**

Belarus, Poland, Ukraine



**4.1.3. Target groups**

- Regional authorities;
- Corresponding Ministries and State Agencies of Transport, Infrastructure, Natural Resources and Environment, Economy, Finances of Poland, Belarus and Ukraine;
- Research institutions;
- Transport and logistics enterprises;
- Environmental organisations and Water Management Bodies;
- International organisations (UNECE and European Commission);
- Investors and banks;
- Mass media.

**4.2. Specific work**

**Time schedule for completing the various tasks should be agreed with the Contracting Authority during the preparation of the Inception report Taking into consideration meetings of the Commissions working groups and other activities of the EU funded project.**

Taking into account cross-border location of the E40 waterway, the priority in selection of the Contractor for Feasibility study will be given to the consortia with the involvement of relevant research institutions / individual experts from Poland, the Republic of Belarus and Ukraine.

The working languages for this contract are English and Russian. All reports prepared in one these languages shall be translated into the second language by the Contractor. In addition, knowledge of local languages will be an added advantage.

The Contractor must also comply with the latest Communication and Visibility Manual for EU External Actions concerning acknowledgement of EU financing of the project. (See [http://ec.europa.eu/europeaid/work/visibility/index\\_en.htm](http://ec.europa.eu/europeaid/work/visibility/index_en.htm)).

### **4.3. Project management**

#### **4.3.1. Responsible body**

The permanent Secretariat of the Commission acts on facilities of the Republican unitary maintenance and construction enterprise "Dnipro-Bug Waterway" and coordinates the activities of the working groups and is a contact body for contractor in all issues related to cooperation with Commission's working groups.

#### **4.3.2. Management structure**

The activities of the Secretariat are managed by the Steering Committee of the Project "Restoration of the E-40 waterway on the Dnieper-Vistula section: from strategy to planning", being implemented within CBC Programme Poland-Belarus-Ukraine 2007-2013 of the European Partnership and Neighbourhood Instrument. The Steering Committee consists of representatives of the project partners:

- Republican unitary maintenance and construction enterprise "Dnipro-Bug Waterway" (Belarus),
- Brest Regional Executive Committee (Belarus),
- Local Foundation for Promotion of International Dialogue and Cooperation "Interakcia" (Belarus),
- Volyn Regional Department of Water Resources (Ukraine),
- Public Organization "Volyn Association of Scientists and Innovators" (Ukraine),
- Marshal Office of the Lubelskie Voivodeship in Lublin (Poland),
- Association for regional and local development "Progress" (Poland).

The Steering Committee take a decision on acceptance of the Contractor's services and payment of service fees to the contractor.

#### **4.3.3. Facilities to be provided by the Contracting Authority and/or other parties**

Contracting authority provides meeting facilities for Contractor's experts with members of Commission's working groups. No further facilities will be provided.

## **5. LOGISTICS AND TIMING**

### **5.1. Location**

Location of the operational base for the project is: Republican unitary maintenance and construction enterprise "Dnipro-Bug Waterway", 20 Lenin sq., 225710 Pinsk, Republic of Belarus

## **5.2. Start date & Period of implementation of tasks**

The intended start date is 01.10.2014 and the period of implementation of the contract will be <12> months from this date. Please see Articles 19.1 and 19.2 of the Special Conditions for the actual start date and period of implementation.

## **6. REQUIREMENTS**

### **6.1. Staff**

Note that civil servants and other staff of the public administration of the partner country, or of international/regional organisations based in the country, shall only be approved to work as experts if well justified. The justification should be submitted with the tender and shall include information on the added value the expert will bring as well as proof that the expert is seconded or on personal leave. The Contractor should possess not less than 10 experts listed below on the moment of application submission. Experts can combine the roles of several experts listed below in case they can possess necessary qualification and prove this in their CVs.

#### **6.1.1. Key experts**

Key experts must submit CVs and signed Statements of Exclusivity and Availability. All experts who have a crucial role in implementing the contract are referred to as key experts.

The experts required for this assignment are expected to have appropriate qualifications and professional experience in Hydrography, Hydrology, Survey, Navigation, Naval Architecture, Civil Engineering, Geology, Economics, Fisheries, Environmental and natural resource sciences as profiled below. A bidder comprising a consortium which includes firms and experts from the three member states shall have an added advantage.

The profiles of the key experts for this contract are as follows:

#### **1) Team Leader**

The Team Leader shall have at least 20 years experience in the field relevant to the assignment. The team leader shall have a minimum of Masters Degree in Civil Engineering and its equivalent and be a full member of a professional institution such as Institute for civil Engineers (ICE) or its equivalent.

He/she shall be experienced in infrastructure analysis of river transport projects in developing countries.

#### **2) Hydrographer**

The Hydrographer shall have at least 15 years experience in the field relevant to the assignment. The Hydrographer shall have a University Degree and experience in planning and execution of field surveys and the evaluation of survey data towards the formulation of design criteria, in particular for training works, of waterways for commercial navigation in the confines of river systems.

#### **3) Navigation Specialist**

The Navigation Specialist shall have at least 15 years experience in the field relevant to the assignment. He/she shall have a minimum of University Degree in Maritime Studies, or Hydrography and Oceanography, and possess sector specific experience particularly in:

- Data on types of ships and their navigational requirements;
- Review of existing data and identification of additional data requirements;
- Collection of additional data and subsequent analysis of the bathymetric characteristics of the navigational routes,
- Inventory of existing transport and navigational routes including assessment of navigational constraints; and

- Assessment of possibilities for alleviating navigational constraints for each route, and associated costs.

#### **4) Hydrologist**

The Hydrologist shall have at least 15 years experience in the field relevant to the assignment. He/she shall have experience in planning and execution of field surveys and the evaluation of survey data towards the formulation of design criteria, in particular for training works, of waterways for commercial navigation in the confines of river systems. In addition, the Hydrologist shall have experience in analysing meteorological data.

#### **5) Field Surveyor**

The Field Surveyor shall have at least 15 years experience in the field relevant to the assignment. The Surveyor shall have a minimum of University Degree and experience in planning and execution of field surveys and the evaluation of survey data towards the preparation of topographic maps and GIS the formulation of design criteria of port structures and engineering works along waterways.

#### **6) Naval Architect**

The Naval Architect shall have at least 15 years experience in the field relevant to the assignment: The Naval Architect shall have a minimum of an MSc in Architecture, and experience in design and construction supervision of commercial cargo vessels for the navigation in coastal waters and for river transport. The expert shall have particular experience in the planning of shallow draft vessel systems optimized for commercial river navigation.

#### **7) Dredging Expert/Civil Engineer**

The Dredging Expert/Civil Engineer shall have at least 15 years experience in the field relevant to the assignment. The Expert shall have experience in planning and design of river training works including dredging works in complex river systems of larger magnitude for commercial waterways. The expert must have experience in formulation of terms of reference for subsoil investigation works. In addition, the Dredging Expert /Civil Engineer shall have experience in the design of waterway facilities, such as ports and ancillary facilities.

#### **8) Geologist**

The Geologist shall have at least 10 years experience in the field relevant to the assignment. The Geologist shall have experience in geomorphology, hydrogeology, sedimentology and seismology. The expert must have strong knowledge in structural and geological setting in Europe. He/she shall have a university degree. He / (she) should be familiar with the methods of sampling and analysis of water and sediment specimens.

#### **9) Environmental Expert**

The Environmental Expert shall have a minimum of Masters Degree and at least 15 years experience in the field relevant to the assignment. The expert shall be an environmentalist with extensive experience in EIA studies preferably on the developments and river environments of eastern part of Europe. He shall be conversant with water sampling techniques and sedimentation profiling.

#### **10) Aquatic and Terrestrial Biologist or Ecologist**

The Aquatic and Terrestrial Biologist or Ecologist shall have at least 15 years experience in the field relevant to the assignment. He/she shall have a minimum of an MSc in Biological Sciences and experience in planning and sustaining the fishing industry. He/she shall have experience in Management of river and Marine ecosystems.

#### **11) Sociologist**



The sociologist shall have a University Degree in Sociology or related studies and 10 years working experience. He/she shall have wide experience working in Eastern Europe environment, with particular reference to resettlement and other social impacts of large transportation infrastructure projects.

#### **12) Economist**

The Economist shall have at least 15 years experience with Masters of Arts or Science Degree in Economics or equivalent. He/she should demonstrate a detailed understanding of regional economics especially with reference to transport and logistics.

#### **13) Transport Modeling and forecasting expert**

The expert shall have at least a Masters degree in Transport Modeling and Engineering. He/she shall have at least 10 years of experience modeling and forecasting, involving maritime and multimodal transport.

#### **14) Legal/Institutional Expert**

The Expert shall have at least a Masters degree in International Law or Hydro-Politics with at least 10 years relevant experience in handling trans-boundary water related projects.

#### **15) Logistics Expert**

The Logistics Expert shall have at least a Masters degree in Transport Economics or Engineering, with at least 10 years of relevant experience in transport logistic projects and operations, involving river and or maritime transport.

#### **16) Public Private Partnerships (PPP) Expert**

The PPP Expert shall have at least a Masters degree in Business Administration or a related discipline and at least 10 years experience in structuring PPP options for transport related investments.

All experts must be independent and free from conflicts of interest in the responsibilities they take on.

#### **6.1.2. Other experts, support staff & backstopping**

CVs for experts other than the key experts should not be submitted in the tender but the tenderer will have to demonstrate in their offer that they have access to experts with the required profiles. The Contractor shall select and hire other experts as required according to the needs. The selection procedures used by the Contractor to select these other experts shall be transparent, and shall be based on pre-defined criteria, including professional qualifications, language skills and work experience. The costs for backstopping and support staff, as needed, are considered to be included in the tenderer's financial offer.

#### **6.2. Office accommodation**

Office accommodation for each expert working on the contract is to be provided by the Contractor.

#### **6.3. Facilities to be provided by the Contractor**

The Contractor shall ensure that experts are adequately supported and equipped. In particular it must ensure that there is sufficient administrative, secretarial and interpreting provision to enable experts to concentrate on their primary responsibilities. It must also transfer funds as necessary to support their work under the contract and to ensure that its employees are paid regularly and in a timely fashion.

#### **6.4. Equipment**

No equipment is to be purchased on behalf of the Contracting Authority / partner country as part of this service contract or transferred to the Contracting Authority / partner country at the end of this

contract. Any equipment related to this contract which is to be acquired by the partner country must be purchased by means of a separate supply tender procedure.

## **7. REPORTS**

### **7.1. Reporting requirements**

The Contractor will submit the following reports in English, Russian, Polish and Ukrainian in one original and electronic copy.

- **Inception Report** of maximum 12 pages to be produced after 10 days from the start of implementation. The Inception Report shall provide details of the activities, strategies, concept scenarios, milestones and time-phased action plan which the consultant intends to use to fulfill the Terms of Reference, and if necessary, indicate those areas of the Terms of Reference that require modification. This Report shall include detailed performance schedules and personnel deployment for both phases. The Contractor should proceed with his/her work unless the Contracting Authority sends comments on the inception report.
- **Interim Feasibility Study Reports.**

The Contractor shall prepare and submit the following interim reports:

1st Interim Report: this report shall contain the results of the transport economic and market surveys as well as the initial EIA scoping activities; this report shall be submitted by the consultant three (03) months from the date of commencement of the study.

2nd Interim Report: this report shall comprise the findings of the navigability and technical investigations and shall be submitted by the consultant six (06) months from the date of commencement of the study.

- **Draft Feasibility Study Report**

The consultant shall incorporate the comments on the interim reports and compile the Draft Feasibility Study Report, which shall include the completed Navigability & Technical Investigations; the Transport Economic & Market Analyses; and the Social & Environmental Impact Assessment components of the Feasibility Study. This report shall be submitted by the Consultant eight (08) months from the date of commencement of the study and it will be discussed by the working groups of E40 Commission at a meeting to take place not later than 60 days after the submission of the Draft Report.

- **Final report** with the same specifications as the draft final report, incorporating any comments received from the parties on the draft report. The deadline for sending the final report is <30> days after receipt of comments on the draft final report. The detailed analyses underpinning the recommendations will be presented in annexes to the main report. The final report must be provided along with the corresponding invoice.

### **7.2. Submission and approval of reports**

The report referred to above must be submitted to the Secretary of the E40 Commission. The Secretary is responsible for transfer of the report to the Commission's for final approval.

## **8. MONITORING AND EVALUATION**

### **8.1. Independent evaluation of results**

The final version of the Feasibility Study will be evaluated on achieving of expected results and correspondence to the modern standards by an experienced contracted expert before approval of the final report of Contractor.