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Terms of Reference

Selection of company/research institute/team of experts
for conducting the study on Dniester Hydro Power Complex social and environmental impact assessment

Moldovan Government/UNDP/Embassy of Sweden Project:
The Dniester Hydro Power Complex Social and Environmental Impact Study

A. Project Title

The Dniester Hydro Power Complex Social and Environmental Impact Study

B. Background and rationale of the project

The Dniester River is the ninth largest river in Europe with total length of 1,350 km and basin area of more than 72,000 km^2. Approximately 8.5 million people (5.5 in Ukraine and 2.7 in Moldova) live in the river basin. In addition to the Moldovan users of the Dniester water, including city of Chisinau, the river is used as a source for drinking water for about 3,5 million peoples in cities, situated out of the Dniester River basin - Chyrnivtsy and Odesa (both, in Ukraine). It is the fourth largest river in Ukraine and the largest one in the Republic of Moldova, meeting about 70 percent the Moldova's water consumption needs, being thus considered as a strategic surface water resource for environmental and socio-economic security of the Republic of Moldova.

The first Hydro Power Station on the Dniester River was built in Moldova in the Dubasari town in 1954. Starting 1973, Ukraine is continuously constructing on the river the second hydropower facility, known as Dniester Hydro Power Complex (HPC). The initial technical design of the HPC was modified in 2000's in terms of increasing the electricity generation capacity. It was followed by installation of additional turbines and subsequent change of the initial role of the water accumulation reservoir (buffer water reservoir), constructed in the riverbed.

Currently, the Dniester HPC consists of two Hydropower Stations (HPS-1 and HPS-2) and Pumped Storage Power Plant (PSP) situated upstream of the Moldovan state border. Dam of the HPS-1 has formed the main water reservoir. Construction of HPS-1, with total power capacity of 702 MWt lasted from 1973 to 1983. Construction of HPS-2, with designed capacity of 40,8 MWt, was commenced in 1983. It is situated twenty kilometers downstream of HPS-1, near village Nagoryany in the Vinnytsia region in Ukraine and the Moldovan village Naslavcha. Its dam has formed the buffer water reservoir with a length of 19,8 kilometers. The dam of the HPS-2 buffer reservoir was initially designed to mitigate hydropeaking and to ensure uniform water flow downstream but not for the hydro power generation as it occurs now. The Dniester HPC is mainly situated on the territory of Ukraine, except HPS-2 that occupies around 20 ha of the Moldovan territory.

The construction of Dniester PSP began in 1988. However the construction was suspended in 1991. The first generation unit was commissioned in 2009 (out of a total of seven planned turbines). The Dniester PSP is expected to become after finalization the largest pumped-storage HPP in Europe with 2,268 MW in

generating mode and 2,947 MW in pumping mode. It is to be mentioned that the latest installed generation units and the ones to be installed are reversible units, being able to pump water from downstream to upstream in off-peak hours, in order to increase the volume of water available for producing electricity in peak hours.

Further plan of Ukraine includes installation of additional 4 (four) generation units (hydro power turbines) what implies increase of water level by 7 meters in the buffer reservoir. Following to above plan, within last several years Moldova and Ukraine are negotiating about official hand over of 17 ha of the Moldovan territory to Ukraine for its further use for hydropower generation. This area represents the river bank bordered by the steep slope that shall be regularly filled in by water.

In addition, construction of 6 (six) new hydropower plants in the upper Dniester stretch is envisaged in the Ukrainian National Program on Hydropower Development until 2026, approved in 2017.

The Dniester HPC is functioning for many years and various negative environmental impacts and other consequences of its operation were registered by State Hydrometeorological Service in the Dniester River downstream. Generally, the critical pressures generated by HPC are well known. These are hydropeaking, altered water flow and fluctuating water level, sharp decrease of the natural water temperature values in the downstream river stretch which can be traced up to the Dubasari water reservoir, non-typical high transparency of water and reduced self-purification capacity of the river, drastic slow up of the gravel and sand sediments movement, extensive growth of aquatic vegetation in some river stretches, loss of valuable fish biodiversity and decline of fish population due to both blockage of migratory pattern, and changed features and loss of aquatic habitats, etc. Joint Dniester Expeditions have also indicated severe water quality problems, declining biodiversity and deteriorating ecosystems along the river.

To address cooperation on the hydro-energetics issues, currently, the Agreement on functioning of the Dniester HPC is being developed and negotiated between the Governments of Moldova and Ukraine. It aims to provide the legal background for functioning of Dniester HPC and it further upgrading for full scale operation, as well as to establish responsibilities of both contracting parties in terms of ensuring safety of the HPC functioning, parties' rights, use of properties, leasing of land, etc. The negotiation process on the Agreement was accelerated within last 2 (two) years, and in 2017, the parties came up with a revised draft of the Agreement, where some articles, addressing environmental issues still is a main obstacle for its signing.

In order to understand the implications of the further development of the Dniester HPC on ecosystems and the population of Moldova, as well as to ensure that the position of the Moldovan negotiation team is based on scientific evidence, the Ministry of Agriculture, Regional Development and Environment of the Republic of Moldova requested support in elaboration of a study on the current and potential impacts of the functioning of the Dniester HPC on the territory of Moldova.

A comprehensive impact assessment Study covering a wide range of issues linked to the hydropower shall be carried out. Finally, the Study shall provide both the Government and broad public with scientifically based assessments and data to be used for negotiation of the Agreement, particularly, addressing environmental, social and legal implications of such an Agreement.

C. Scope, objectives and expected results of the project

The overall scope of the project is to support sustainable management and protection of the Dniester River.

The specific objectives are:

1. To ensure that Government of the Republic of Moldova understands of the impacts of the functioning of the Dniester HPC and is fully prepared in negotiations on the Agreement on functioning of the Dniester HPC.

2. To provide the public with science-based information on the current and potential impacts of the functioning of the Dniester HPC.

The expected outputs of the project are: i) detailed Study on current and potential environmental and socio-economic impacts on the territory of Moldova resulting from operation of the hydro power generation facilities on the Dniester River elaborated; ii) understanding of the Moldovan negotiation team with regards to environmental and social impacts of the Dniester HPC enhanced, as well as their negotiation capacity and iii) public is informed and transparency of the transboundary management of the Dniester River increased.

D. Approach and methodology

The contractor will consist from a **mixed Team of international and national consultants** that would apply under the umbrella of one bidder. The bidder might be **a company, a research institute or a team of individual experts**.

The international company that will be selected will be responsible for the selection of national consultants. Project Management Unit may facilitate the process for this recruitment.

The work of the contractor will be dedicated to the first component of the project. The scope of the first component of the project is to conduct a detailed study on current and potential environmental and socio-economic impacts on the territory of Moldova resulting from operation of the hydro power generation facilities on the Dniester River in order to provide the Moldovan Government and broad public with scientifically based information regarding the impacts and their potential consequences followed by construction and operation of the Dniester HPC. This information shall be obtained within a comprehensive study of impacts and potential damage assessment and will comprise a range of sequential activities.

This component is aiming for two objectives:

- To identify significant direct and indirect impacts originated by the Dniester HPC on the river properties, functions and services to justify required releases from HPS-2 of the Dniester HPC, and

- To establish a methodology and assess damages generated by the Dniester HPC (if any) on the basis of the agreed methodology to provide the Moldovan Government with costs to be recovered by compensation measures (or other options) to be possibly negotiated with the Ukrainian party.

In order to reach the objectives of this component of the project the selected company/research institute/team of individual experts would be expected to conduct the following key activities:

1. Collect and analyze available information and to collect the missing data addressing hydro-morphological pressure generated by the Dniester HPC and pertaining environmental and socio-economic impacts.

2. Localize and map the major impacts, and to determine their magnitude, frequency, distribution and consequences.

3. Design the environmental survey program and carry out field research to obtain missing or clarify available contradictory and/or fragmentary information about pressures and impacts

4. Evaluate the impacts resulting from (1) upgrading of the Dniester HPC and (2) planned construction of 6

(six) new HPC in the upper stretch of the Dniester River.

5. Formulate conclusions on minimum water flow parameters, parameters of spring (ecological) and other seasonal flows from HPS-2 to ensure healthy functioning of aquatic and other river dependent ecosystems and full satisfying of the socio-economic needs downstream, also taking into consideration climate change scenarios, seasonality and different hydrological conditions (dry years, wet years).

6. Define or elaborate appropriate damage assessment methodology with use of both available data and information and those to be developed.

7. Coordinate proposed methodology on damage assessment with Ministry of Agriculture Regional Development and Environment (MARDE), Apele Moldovei Agency and Ministry of Economy and Infrastructure and assist the MARDE in the process of its approval by the Government.

8. Following the methodology, to calculate environmental, social and economic damages (if any).

9. Develop approach and procedure for the yearly damage assessment in the case of non-compliance with minimum water release from HPS-2.

10. Conduct Training on Damage Assessment with concerned stakeholders.

11. Elaborate possible compensation measures based on the appropriate best international practices.

12. Determine which should be the minimum water debits and ecological/spring debit released from HPS-2 downstream to Moldovan segment Dniester in different hydrological conditions.

E. Expected Outputs/Deliverables and schedules

The work of the contractor will be dedicated to the first component of the project. The first component of the project will consist from a two parts study (**study of impacts and study of damages**) and related sub-studies. The first part of the study (study of impacts) will cover the existing and potential impacts of Dniester HPC. The expected deliverables of this part are described in the table below under the outputs 1 – 7 and will consist from several sub-studies. The second part of the study (study on damages) is described in the table below in the outputs 8 – 14 as follows:

Deliverables/ Outputs	
Part 1 Study on existing and potential impacts This part of the study will scrutinize and assess the existing and potential impacts of Dniester HPC. More specifically it will focus on river hydrology and river morphology, water quality, hydro-geology issues, environment hydro-biology, hydro-technical infrastructure (civil engineering issues), social and economic impacts. This part of the study will be conducted by a team of technical experts consisting from a hydrologist, water quality specialist, hydro-geologist, hydro-biologist, hydro-technical infrastructure engineer (or civil engineer) and an economist.	**Time/Schedule**

Output 1 – Producing of a River hydrology and river morphology sub-study that will cover the following key items: a. Historical overview of the Dniester hydrological regime on the territory of Moldova before and after construction of the Dniester HPC; b. Comparison of the hydrological regime before and after construction in typical years of the different water probability; c. determination the effects of permanent downstream river flow modification (e.g., daily flow changes from peaking releases, seasonal flow changes, etc.) as a result of the existing infrastructure operation, its extension and planned new hydropower plants; d. evaluation of significance and magnitude of the hydrological regime alteration in different river stretches and identification the most affected (critical) stretches from the point of view of the river functions and services provided to Moldova; e. identification of major hydro-morphological impacts generated by the altered hydrological regime (e.g., bank erosion, transport of sediments, substrates deposition/ siltation of riverbed, etc.), their description and mapping; f. revealing the dependence of hydrological parameters downstream on the operation patterns of the Dniester HPC (hydro peaking, seasonal flow, etc.); g. evaluation of potential hydrological and morphological impacts due to planned upgrade of the Dniester HPC and construction of new hydro-power generation facilities. The Consultant may use the appropriate tools for analysis of large data sets like GIS/Matlab/Excel, etc. and apply mathematical simulation models (hydrology/hydraulics/sediments) to execute system analyses, where needed.	**Plan of Actions - 15 January 2018** **Monthly progress reports for each sub-study and output** **Mid-term report end of May 2019** **Final report – August/September 2019**
Output 2 – Producing of a Water quality sub-study that will cover the following key items: a. evaluation of impact of the Dniester HPC on the physico-chemical and microbiological parameters of the Dniester River based on comparison of water quality data in the Ukrainian and Moldovan river stretches (i.e., closest to HPC unmodified river stretch in Ukraine and in selected sites in the river stretch on the territory of Moldova); b. evaluation of magnitude and distribution of the water quality changes provoked by HPC in different river stretches and identification the most affected (critical) stretches from the point of view of the river functions and services provided to Moldova;	

c. identification of major impacts generated by changed water quality, their description and mapping;

d. revealing the dependence of water quality parameters downstream on the operation patterns of the Dniester HPC (hydro peaking, seasonal flow, etc.);

e. evaluation of potential impacts on water quality due to planned upgrade of the Dniester HPC and construction of new hydro-power generation facilities.

Output 3 – Producing of a Hydro-geology sub-study that will cover the following key items:

a. An overview of zones of ground water interactions with the Dniester River and identification the most dependent aquifers;

b. establishing of dependence of the aquifer conditions with multi-annual hydrological regime of the Dniester River after construction of HPC, and if established, determination of impacts' magnitude on the aquifer status, critical river stretches and impacts mapping;

c. revealing the dependence of the aquifers' status on the operation patterns of the Dniester HPC (seasonal and annual flow, water level, etc.);

d. evaluation of potential impacts on the aquifer status due to planned upgrade of the Dniester HPC and construction of new hydro-power generation facilities.

Output 4 – Producing of an Environment and hydro-biology sub-study that will include the following items:

a. evaluation of multi-annual trends in the valuable fish spices biodiversity and abundance, fish spawning grounds and other biota representing the fodder base before and after construction of HPC;

b. identification valuable fish species that had suffered the most as result of the Dniester HPC construction;

c. analysis of effects linked to the HPC operation (e.g., altered water flow, water level, temperature, etc.) affecting the valuable fish communities and if determined, assessment of impacts' significance, magnitude and distribution on fish;

d. establishing of dependence of the water dependent ecosystems, including wetlands and terrestrial ones (e.g., forests) with multi-annual hydrological regime of the Dniester River after construction of HPC, and if established, determination of impacts' magnitude on the ecosystems conditions;

e. identification of impacts on fish and ecosystem conditions resulting from operation patterns of the Dniester HPC (seasonal and annual flow, water level, etc.), and if identified, recognizing critical river stretches and impacts mapping; f. evaluation of potential impacts on fish and ecosystems conditions due to planned upgrade of the Dniester HPC and construction of new hydro-power generation facilities.	
Output 5 - Producing of an Hydro-technical infrastructure sub-study that will be including the following key items: a. Identification of significant impacts on hydro-technical infrastructure on the operation patterns of the Dniester HPC (seasonal and annual flow, water level, etc.) and critical river stretches; b. Review the structural designs of hydro-technical structures and their earthquake-resistant properties based on international experience and assess the applicability of prospective contextually appropriate earthquake -resistant structural designs and assess the risks posed by induced seismicity around these structures downstream on Dniester; c. Reviewing engineering studies to determine vulnerability of the Dniester Pumped Storage Power Plant buildings and structures to earthquakes and triggering of associated consequences such as result water loss through karst formations and floods on Moldova's territory; d. Overview of existing hydro-technical infrastructure in the Moldovan river stretch dependent from river hydrology (drinking, technical and irrigation water intakes, navigation channels, piers, flood protection dykes, bridges, artificial spawning, bank strengthening facilities, etc.).	
Output 6 – Producing of a Socio-economic impacts sub-study that will include the following key items: a. analysis of the Dniester HPC operational impacts downstream and on lowland areas, including artificial floods and hydrological droughts, and revealing the affected population, localities, economic activities (through gender perspective), as well as altered river functions and ecosystem services (e.g. drinking water, fish, recreation, irrigation, etc.), to determine direct and indirect costs resulting from operation of existing, upgraded and planned hydropower infrastructure in Ukraine; b. develop scenarios for current and future fresh water demand by various water consumption sectors - agriculture, aquaculture, domestic and industrial water use and judge potential concurrence between water use in case of different hydrological scenarios in dependence on water flow releases from HPS-2. These scenarios must consider climate	

change impacts, trends of economic development, population dynamics, taking into consideration gender issues, etc.;

c. There shall be applied deterministic and probabilistic models to understand to what extent the core functions and services of the Dniester River, like water flow and sediments transport, ecosystems running, safe and efficient navigation, land-use in flood plains, water supply for various purposes, recreation, etc. will be affected as a result of both existing and planned upgraded/ new infrastructure.

Output 7 – Estimation of minimum debits and ecological debits

Based on the collected and analyzed data in the first 6 outputs of the study there should be determined:

a. The minimum water debits or daily debits in meters per second (m/s) that should be released from the Ukrainian to the Moldovan segment of Dniester at HPS-2;

b. The ecological debits (spring debits) in terms of meters per second (m/s) and number of days;

c. The Rules for the Exploitation of Dniester Hydropower Complex (the Rules) should assess and identify to what extent they comply with European best practices of hydropower infrastructure with cross-border impact. The assessment should also take into consideration the findings of the impacts sub-studies and take care the Rules respond and protect the interests of all water users.

Part 2 Study on damages.

The study on damages will estimate the possible direct and indirect costs, disasters and lost ecosystem services as a result of the existing and planned hydropower infrastructure in Ukraine. In collaboration with other consultants, the study on damages will quantify within a cost-benefit framework the investment needed to mitigate the annual costs of clean water supply for the population, flood hazards, droughts, soil degradation, industrial and agricultural loss, health impact, tourism industry and other potentially incurred losses. This part of the study to indicate the lost GDP of Republic of Moldova as a result of the existing and planned hydropower infrastructure of the Upper Dniester. It will also determine a methodology (a compensation mechanism) for the lost ecosystem services.

This part of the study will be conducted by a team of experienced economist(s) and sociologist in close cooperation with the technical experts that have contributed to the first part of the study. It will contain the following deliverables:

Output 8 – Estimation of direct water supply, agricultural, industrial, public health, and tourism costs

i. Water supply costs
   a. Cost of identifying alternative sources of water for subsistence purposes of Moldovan population;
   b. Cost of identifying sufficient amount of water for commercial activities;
   c. Cost of water treatment and improvement of water quality up to the drinkable levels.

ii. Health economics (healthcare costs):
   a. Cost of health-related problems as a result of water borne diseases (dysentery, cholera, and hepatitis A, cyanobacteria;
   b. Health impacts may also arise in the long term owing to the loss of medicinal plants, reduced food security arising from lower farm productivity;
   c. Health Impacts Associated with Reduced Access to Natural Resources: (e.g. Health impacts of loss of medicinal plants, increase in malnutrition).

iii. Agricultural economics costs:
   a. Cost of annual lost agricultural production as a result of induced drought (crops, animal husbandry);
   b. Cost of soil degradation as a result of lack of freshwater and penetration of ground and deep underground waters from aqcuifers and are full of minerals and salts and that lead to soil compacting/stoning and sidelining it from the economic circuit.

iv. Tourism economics (tourism economics impact analysis)
   a. The consultant will assess how tourism in the country will be affected as a result of reduced resources of fresh water and high variation of the water levels in Dniester River;
   b. What costs will be incurred as a result of lost prospective of water/nautical tourism;
   c. Cost of lost historic, cultural, religious resources, scenic areas (if any).

Output 9 – Estimation of lost ecosystem services

Cost of lost ecosystem services that will include:

i. Costs associated with loss of fishery;

ii. Costs associated with other aquatic life that is key for maintaining alive a freshwater dependent ecosystem such as freshwater mollusks, crustaceans, and other benthic organisms are even more sensitive to these changes than most fish species, due to their limited mobility;

iii. Costs associated with erosion control, protection from natural disasters and regulation of air, water, and soil quality;

iv. Costs of lost/diminished vegetation and alluvia, forests and wildlife areas, mineral resources;

v. Losses produced by dam induced seismicity including:

a. Floods and destruction of physical assets downstream to Dniester hydropower complex
b. Floods as a result of mismanagement of dam reservoirs and production of damage on Moldovan territory

Output 10 – Estimation of indirect and other costs

Downstream losses produced by dams may include other substantial costs. In this regard the consultant would take into account:

i. Potential conflict generated costs.
There is a large amount of cases and literature documenting the regional (e.g. interstate) and civil related conflicts as a result of unfair water usage with the emergence of hydropower infrastructure. Lack of water and lost economic opportunities may in result in significant social tension, which will affect all the communities living in and around the project area, and, could last for many years.

In this regard the consultant should document the relevant cases and elaborate a scale with probability of a conflict escalation internally in Moldova as well as between Moldova and Ukraine as a result of operation of Dniester HPC. Potential losses, costs and mitigation measures should be proposed.

ii. Women and Economic Activities.
Women play a significant role in the economic life of the families. Their contribution generally goes towards children's school fees, health care needs, food and clothing. They do represent also an important manufacturing workforce, particularly owner-operated micro-enterprises in such sectors as dressmaking, food processing and handicrafts. The consultant should assess which are the economic sectors of Moldova where women represent a significant workforce and particularly were water represents a key resource for running these sectors.

The overall task would be to assess how will be women wellbeing and their economic opportunities affected in in Moldova by the expansion and finalization Dniester HPC.

iii. Depression of local economy, forced migration, depopulation.
Dams and hydropower infrastructure may lead to lost economic opportunities and induce forced migration of local population

downstream to the hydropower dams. In the specific case of Moldova it has been already observed in villages that are located in the Dniester Basin that the ground water significantly decreased with the lowering of water volume in the Dniester River (according to the principle of "communicating vessels"). In some cases, the wells got dry because of decrease of water level in Dniester. This lead to the fact that many households were forced to sacrifice their animals (that is a key source of subsistence and income in villages) since they had no water resource to breed them. Other examples such as the decrease of fishing in Dniester at local level may also be associated with the existence and operation of Dniester HPC. These phenomena may multiply in the future and induce migration. In turn the forced migration may have a snow ball/spill-over effects and result in the depression of the local economy as the market for local goods and services will decline as well. Moldova is already affected by migration. The construction and expansion of Dniester HPC may accelerate this pattern and put additional strain on local communities and development.

In this regard the task of the consultant would be to identify and map out the risks, lost GDP and lost economic opportunities in Moldova's local communities as a result of finalization and expansion of Dniester HPC.

iv. Intangible assets loss downstream to hydropower infrastructure. Besides of loss of labor/workforce capital (e.g. people forced to emigrate since water shortage may deprive them from job/business/economic opportunities) additional loss of intangible assets could be generated by the operation and expansion of Dniester HPC. These may include the loss of cultural skill and rolling capital, loss of historical cultural legacy, loss of social capital, loss of social networks.

Therefore, the consultant would assess, quantify and estimate these possible losses.

Output 11 – Elaboration of the methodology for damage assessment

i. The methodology shall define the legal background for damage assessment, the reference year/years, and the river stretches affected by Dniester HPC;

ii. The methodology should include but not limited to assessing the damage to fish and other wild water dependent biodiversity, water quality and availability due to loss of the ecosystem services and functions;

iii. The methodology, should allow the transfer of environmental, social

and economic aspects of the impacts into the point system or monetary terms; iv. The expression of damage in monetary terms will allow the Moldovan Government to assess and weigh damage on environment, and social-economic conditions in the Dniester region. This methodology is used to assess the impact of the HPC compared with the hypothetical situation of no Dniester HPC.	
Output 12 – Elaboration of the procedure for damage assessment i. Approach and procedures for the yearly damage assessment in the case of failure to comply with the agreed hydrological regime and volume of discharges from Dniester Pumped Storage Accumulation Station shall consider at least in critical river sections, responsible institutions, cost, sources of financing, etc. ii. The procedure shall also include mechanism of control over water discharges from HPS-2. iii. The developed approach and procedures of the yearly damage assessment shall be coordinated with all interested parties and could be included in Annex of the Agreement. This procedure is used to establish a way to coordinate the water use in Dniester HPP and to establish a penalty system for non-compliance.	
Output 13 – Delivering a Training on Damage Assessment with concerned stakeholders Under this output a training of 1-2 days will be conducted with relevant Governmental institutions in order to present the Methodology and increase the capacities and expertise of national institutions in the field of damage assessment. The workshop could be jointly organized by the technical, economic and legal experts.	
Output 14 – Producing a set of compensation measures. The compensatory measures have to be clearly reasoned and evaluated by the cost-benefit framework of the investment needed to mitigate the damage costs of access to clean water supply, ecological losses, industrial losses, agricultural loss due to shortage of water resources, including fishery, health impact, tourism and recreational industry losses. In this regard the consultant will elaborate: i. A list of possible compensation measures that shall include but not be limited to the following: construction of the bypass channel(s) for replenishing the upper reaches of small rivers in Moldova, construction of artificial spawning grounds, fish stocking and those	

	protecting water intakes from low water levels in the river.	
ii.	A monetary compensation system/measures and other cost recovery options.	

E. Institutional Arrangement

The contractor will report to the Project Manager and will work in close coordination with the project team, national partners and nationally hired expert who will monitor and facilitate the work. The contractor will provide monthly reports of the progress work achieved.

F. Duration of the Work

Tentative duration of the assignment will be 9 months (January 2018 – August/September 2019).

G. Duty Station

Duty station of the Project will be Chisinau (Republic of Moldova). Occasional field trips outside Chisinau and in Ukraine (if relevant) for the collection of missing data may be needed.

H. Qualifications of the Successful Contractor

The contractor will consist from a Team of international and national consultants that would apply under the umbrella of one bidder (**company, research institute, team of individual experts**) and will consist from key experts having the following qualifications:

Team Leader

- Master's degree or equivalent in any of a wide range of disciplines including ecology, water resources management, hydrology, biology, law, geography, forestry, social sciences, economics or any relevant to the assignment field;
- 10 years of proven professional experience in the field of water sector, including hydrology, ecology and environmental impact assessment;
- 7 years of demonstrated experience in the project management;
- 5 years of demonstrated experience in projects with similar tasks, with preference for experienced gained on cross-border projects;
- Ability to establish and maintain productive partnerships with government executive officers, and other national and international partners and stakeholder, and ability to identify beneficiaries' needs, and to match them with appropriate solutions;
- Excellent organizational and analytical skills, high capacity to solve challenging issues, experience in planning, organizing and facilitating of round tables, public hearings or similar public multi-stakeholders events;
- Ability to plan and produce quality results to meet established goals, generates innovative, practical solutions to challenging situations;
- Ability to interact, establish and maintain effective working relations within the team to build trust, and to manage in a deliberate, transparent and predictable way;
- Deals openly, honestly and transparently with issues, resources and people;
- Excellent communication skills, including the ability to convey complex concepts and recommendations, both orally and in writing, in a clear and persuasive style tailored to match different audiences;
- Ability to plan, implement and monitor project activities by applying management skills;
- Ability to communicate and work effectively with a wide range of counterparts;
- Proven experience in developing of reports and strategic papers;
- Full professional English proficiency. Knowledge of Romanian or Russian is an advantage.

(1) Hydrology and river morphology expert

- Master's degree or equivalent in hydrology or another related field;
- 10 years of work experience in the field of hydrology (hydrological modelling, hydrological data acquisition and processing, water resources accounting, etc.);
- 5 years of experience in providing support during the implementation of the water infrastructure projects;
- Sound knowledge of river morphology;
- Sound knowledge of impacts on the rivers hydrological regime due to operation of hydro power installations;
- Experience in analysis and use of data sets using several tools (GIS/Matlab/Python/Excel);
- Experience in development and use mathematical simulation models;
- Excellent analytical skills;
- Ability to organize, analyze, interpret, and utilize studies and program performance data;
- Knowledge of Romanian or Russian is an advantage

(2) Water quality expert

- Master's degree or equivalent in biochemistry, biology, chemistry, environmental science or another related field;
- 7 years of working experience in conducting of research related to water quality and setting up field surveys;
- Ability to analyze statistical data on water quality samples;
- Ability to investigate deterioration of water quality from a scientific and legal viewpoint;
- Proven experience in providing solutions to water quality problems and water quality regulation;
- Knowledge in the EU environmental acquis;
- Knowledge in how activities and structures around a water supply affect the water quality;
- Ability to organize, analyze, interpret, and utilize studies and program performance data;
- Knowledge of Romanian or Russian is an advantage

(3) Environmental expert

- Master's degree or equivalent in any of a wide range of disciplines including ecology, biology, geography, environmental economics, water resources management, etc.;
- 10 years of experience in carrying out Environmental Impact Assessments or similar studies;
- 7 years of experience in providing support related to assessment of ecological functions and/or services
- 5 years of working experience in environmental damage assessment;
- 5 years of working in wildlife and vegetation surveys;
- In-depth knowledge of the water resources management and planning;
- In-depth knowledge of ecosystems ecology and water quality services;
- Experience in mitigation planning and implementation;
- Ability to organize, analyze, interpret, and utilize studies and program performance data;
- Knowledge of Romanian or Russian is an advantage

(4) Hydro-biology expert

- Master's degree or equivalent in ecology, eco-hydrology, hydrobiology, biology, water resources management or other relevant fields;
- 7 years of demonstrated experience in conducting fresh water hydro-biological studies;
- 5 years of working experience in Aquatic surveys and assessments;
- Knowledge in in-stream aquatic habitat inventories, Phyto and zooplankton, and macro-invertebrate analyses, algae monitoring, aquatic plant surveys and management, fish stocking, population dynamics studies and management, aquatic impairment studies, etc.
- Ability to organize, analyze, interpret, and utilize studies and program performance data;
- Knowledge of Romanian or Russian is an advantage

(5) Hydro-technical (civil engineering) expert

- Master's degree or equivalent in hydro-technical, hydrological, environmental, or civil engineering or another related field;
- 7 years of professional experience in hydrological engineering design;
- Experience in developing of hydro-technical compensation measures;
- Proven experience in carrying out of technical and feasibility studies;
- Knowledge of hydro-technical standards, rules, requirements, and guidelines;
- Strong analytical thinking;
- Knowledge of Romanian or Russian is an advantage

(6) Economic expert

- Master's degree or equivalent in any of a wide range of disciplines including economics, environmental economics, water economics, agricultural economics, industrial economics other relevant social sciences.
- 10 years of professional experience in environmental and/ or social economics;
- 7 years of experience in conducting of socio-economic analysis;
- 5 years of experience in conducting of cost-benefit analysis
- Proven knowledge of relations between environmental features and economic and social benefits;
- Proven experience in development of mitigation and/or adaptation measures and strategies;
- Ability to organize, analyze, interpret, and utilize studies and program performance data;
- Work experience in economic valuation of environmental and ecosystem services would be an advantage
- Knowledge of Romanian or Russian is an advantage
- Working in assessing the economic impact downstream to hydropower infrastructure would be an advantage

(7) Social sciences expert (sociologist)

- Master's degree or equivalent in any of a wide range of disciplines including sociology, social economics, social anthropology or other relevant discipline
- At least 5 years of professional experience in conducting applicative studies, data collection and interpretation
- At least 5 years of application of qualitative and quantitative methods, conducting of sociological surveys, conducting of focus groups and interviews
- Proven knowledge of relations between environmental features and economic and social benefit
- Work experience with vulnerable groups (women, old people, and minorities) would be an advantage
- Prior project/work experience with Local Public Authorities would be an advantage
- Team work within national international teams would be an advantage
- Knowledge of Romanian or Russian is an advantage

I. Schedule of Payments

Payments will be provided in two tranches. The first disbursement will account for 10% of the budget negotiated for the impact study, upon the presentation of the Plan of Activities intended to be implemented by the consultant. The second disbursement will be issued after the satisfactory completion of the study.

J. Application process

Interested **companies, research institutes** and **teams of independent experts** shall submit the following documents:

a) Offeror's Letter of Confirmation of Interest and Availability;

b) Company's/Research Institute/team's CV, including the CVs of its members
c) Brief description of why the Company's/Research Institute/team's considers themselves as the most suitable for the assignment, and a methodology and approach to complete the assignment.
d) Financial Proposal that indicates the all-inclusive fixed total contract price, supported by a breakdown of costs, as per template provided.
e) Copies of registration documents
f) Samples of a similar impact studies developed/conducted
g) References

K. Criteria for Selection

The decision to award the contract to the winner will take into account the following criteria:

- Bidder qualification – 25%
- Proposed Methodology, Approach and Implementation Plan – 30%
- Management Structure and Key Personnel – 45%