



This project is funded by
The European Union

**Environmental Protection of
International River Basins Project**
Contract No. 2011/279-66



A project implemented by a
Consortium led by Hulla & Co.
Human Dynamics KG

Term of Reference

Pilot project “Preliminary assessment of the impact planned construction hydropower stations on the hydrological regime and preparation necessary amendments to RBMP of Upper Dnieper”

I. Background and Objectives

The consultant will assist Human Dynamics to fulfil its requirements under the EU technical assistance contract ‘Environmental Protection of International River Basins (EPIRB)’ (Terms of Reference given in Annex 1). The overall objectives of the EPIRB project are:

- To improve availability and quality of data on the ecological, chemical, and hydro-morphological status of trans-boundary river basins including groundwater; and
- To develop River Basin Management Plans for selected river basins / sub-river basins according to the requirements of the WFD.

The project is being implemented in six countries (Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine) and five pilot river basins:

- Akhurian Basin District (Armenia),
- Central Kura (Azerbaijan),
- Upper Dnieper Basin (Belarus, Ukraine),
- Chorokhi-Adjaristskali Basin (Georgia),
- Prut Basin (Moldova, Ukraine)

As part of the River Basin Management Plan development process the project will implement selected number of improvement measures from the overall Programme of Measures (PoM), as defined under the Water Framework Directive. The selected measures have been agreed with the beneficiaries in each country and will be executed in accordance with the EC contractual conditions.

In accordance with the State program of construction of hydropower plants in the Republic of Belarus in 2015-2020 (approved by Council of Minister of the Republic of Belarus) the construction of a cascade of four hydropower plants (HPP) on the Dnieper river (see fig. 1) with a total capacity of 20.3 MW is planned, namely:

1. Orsha hydropower station, capacity 5,7 MW, construction 2017;
2. Shklov hydropower station, capacity 4,9 MW, construction 2018;
3. Mogilev hydropower station, capacity 5,1 MW, construction 2019;
4. Rechitsa hydropower station, capacity 4,6 MW, construction 2018 year. .

At the current time there are no HPP on the river Dnieper in Belarus.. After construction the above mentioned HPPs the hydrological regime of river Dnieper likely will be changed significantly, and part of

the territory may be subject to increased flood risk.. In this connection, the the RBMP of Upper Dnieper recently prepared will need to be amended.

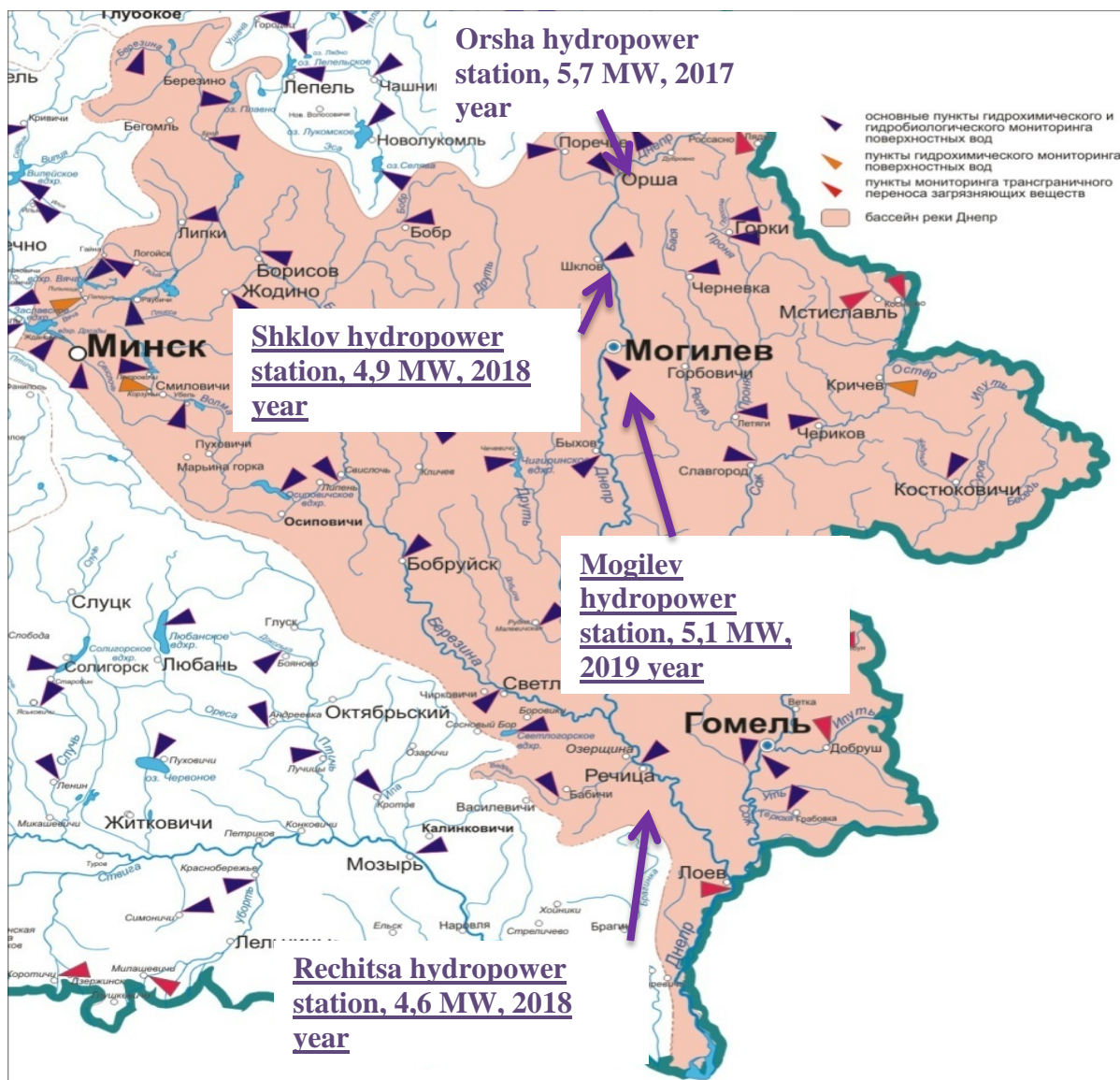


Fig 1.

Assuming that these schemes are approved, amendments to the RBMP would need to be made including to delineation the surface water bodies, assessment of ecological status of water bodies (possibly new water bodies), the revision of the pressures and impact assessment on water bodies, basin-wide monitoring programme, the programme of measures.

The following Terms of Reference are to develop a preliminary assessment of impact planned building hydropower stations to the hydrological regime and preparation necessary amendments to RBMP of Upper Dnieper. These studies would be a precursor to a more formal EIA and would be included in the existing RBMP as a technical annex only. The studies will identify all impacts but will only investigate the flood risk impacts in detail.

II. Scope of Work and Deliverables

The major steps/phases and deliverables for each phase are described below:

Phase 1 Inception phase

Deliverable 1: Inception report, containing implementation strategy and data needs

Phase 2: Development of mathematical model of the river Dnieper in Belarus to allow hydrological calculations of the water regime under natural conditions and after construction of the HPP, in the first instance, to develop maps of flood hazard and risk.

Deliverable 2: Report with main results of hydrological calculations of the water regime for different hydrological conditions - maximum water discharges of spring floods of 0.5%, 1%, 10% probability. Set of flood maps for territory of the HPP. The report will contain a review of impacts on the hydrological regime change on the water use, water quality and overall ecology of the river.

Phase 3: Correction of the delineation of water bodies and development new map of water bodies for Upper Dnieper basin. Revision of the ecological status of water bodies (including results of 4-th field survey). Revision and amendment of the Programme of measures.

Deliverable 3: Report containing description of the receiving results and amendment to PoM.

III. Schedule and Implementation Modality

Duration of the assignment is 6 months. The expected commencement date for implementation of the assignment is January 25, 2016, and completion date – July 30, 2016. The assignment is divided into 3 phases with following general schedule:

Assessment of the impact planned construction hydropower stations for hydrological regime and preparation necessary amendments to RBMP of Upper Dnieper	20116					
	Feb	Mar	Apr	May	Jun	Jul
<u>Phase 1</u> : Inception phase						
<u>Phase 2</u>						
<u>Phase 3</u>						

Summary of the work schedule and deliverables for the preliminary assessment of the impact planned building hydropower stations for hydrological regime and preparation necessary amendments to RBMP of Upper Dnieper is presented in following table:

Deliverable	Language of deliverable	Start date	Due date for draft version	Finalization
<u>Deliverable 1</u> : Inception report, containing implementation strategy and data needs	Russian / English	25.01.2016	05.02.2016	22.02.2016
<u>Deliverable 2</u> : Report with main results of hydrological calculations of the water regime for different hydrological conditions - maximum water discharges of spring floods of 0.5%, 1%, 10% probability. Set of flood maps for territory of the HPP. Plus a preliminary overall assessment of the HPP schemes.	Russian / English	08.02.2016	22.04.2016	06.05.2016

<u>Deliverable 3</u> : report containing description of the receiving results and possible amendments to PoM	Russian / English	09.05.2016	23.06.2016	15.07.2016
--	-------------------	------------	------------	------------

The contractor shall hold following public consultation meeting:

- Consultation meeting – due date 30.05.2016

IV Management Arrangements and budget

The contractor shall report to the EPIRB Team leader, regarding overall deliverables and EPIRB Country Water Management Expert (CWME), for all day-to-day management issues.

In implementation of the above deliverables, development teams will be established with representatives from the beneficiary, the contractor and the EPIRB CWME. The EPIRB CWME will ensure coordination between the EPIRB project team.

The development teams will have collective responsibility for data collection and provision and will provide day-to-day project guidance and coordination. The draft deliverables reviewed by the beneficiary and the project team members and final approval of deliverables will be given by the EPIRB Team Leader.

Drafting, reporting and implementation of above deliverables will be coordinated, advised and monitored by the EPIRB project team, led by Team Leader. In addition, the target and other beneficiary institutions, as well as members of the National Coordination Committee (NCC), Regional Committee of the Natural Resources and Environmental protection will take an active part in collecting data, reviewing of deliverables.

Payments shall be made on approval of deliverables and divided into three (3) tranches given below:

Tranche 1: 20% on acceptance of Phase 1 deliverables.

Tranche 2: 40% on acceptance of Phase 2 deliverables.

Tranche 3: 40% on acceptance of Phase 3 deliverables.

The total budget of works is estimated to be 20,000 euro.

IV. Qualifications and requirements to the service provider/contractor

- Experience in mathematical modeling of water regime, flood risk assessment and mapping
- Experience in basin planning and demonstrated working relationship with the main beneficiary
- Demonstrated knowledge of WFD and IWRM principles and experience of implementing these principles in the country/region
- Existence of qualified staff able to fulfill above mentioned tasks and demonstrated commitment to involve other national/international professional consultants

The assignment shall be implemented by a company or consortia of companies that are NOT representing the project beneficiaries.