TERMS OF REFERENCE (ToR)

For consulting services related to the performance of the assignment of the Consultant - Member of the International Dam Safety Panel of Experts under the Odra-Vistula Flood Management Project

I. Introduction

The objective of the **Odra-Vistula Flood Management Project** is to increase access to flood protection for people living in selected areas of the Odra and the Upper Vistula river basins and to strengthen the institutional capacity of the government to mitigate floods more effectively. The project will provide three distinct areas with flood management infrastructure and related measures:

1) the Middle and Lower Odra basin;
2) the Kłodzko Valley (the Nysa Kłodzka basin);
3) the Upper Vistula basin.

The project is built on the lessons learned in the ongoing Odra River Flood Protection Project (ORFPP). The implementation of the OVFMP will also help gain new practical experiences arising from the obligation to implement the provisions of the EU Water Framework Directive and Flood Risk Directive. Through the further development of the national flood monitoring and warning system and the construction of mathematical simulation models that will be able to better inform about flood hazards, the Project will further strengthen the national flood forecasting and operational capability, in particular in southern and western Poland. The **OVFMP** consists of the following components:

Component 1. Flood Protection of the Middle and Lower Odra

This Component covers a wide section of the river within the so-called free-flowing Odra from km 300+000 (below Malczyce water barrage under construction) to approx. km 740+200 (beginning of Lake Dąbie below the city of Szczecin). This Component aims to enhance protection against summer floods and winter floods to the cities of Szczecin and Słubice, to the town of Gryfino, as well as other smaller towns along the river. Within Lower and Middle Odra River the most significant flood risk is posed, in winter conditions, by ice backup created when flowing ice is stopped by existing obstacles such as shallow areas in the riverbed, narrowing of the riverbed and other obstacles caused by a result of sudden changes of the river current, backwater from sea waters and northern winds, which contribute to creation of ice backup. This in turn causes damming of water and flooding of adjacent areas. The main aim of proposed tasks is to reduce possibility of creation of ice backup and to enable icebreaking which is the most efficient tool for minimizing risks of winter floods. These tasks will ensure safe passage of ice down the river and at the same time reduction of flood risk to adjacent areas. It is also necessary to protect existing residential buildings and infrastructure in selected places on the Middle and Lower Odra River by constructing new and modernizing existing flood banks. The activities will include the (re)construction of dikes, river training works, that is, (re)construction of groynes, and protection of banks. To facilitate safe passage of the icebreakers underneath, bridges also need to be reconstructed. To provide safe navigation, docking and mooring facilities will also be constructed.

Component 2. Flood Protection of the Nysa Kłodzka Valley

This Component will protect Kłodzko town and other small valley towns, as well as the city of Bardo at the outlet of the valley. The component comprises the construction of four mid-sized dry polders (active protection), dike rehabilitation and construction, and reconstruction of the river alignments and embankments, as well as of bridges and other structures (passive protection), to allow the temporary retention and safe passage of flood waves. In addition, the works will have significant downstream benefits because the four new dry polders will increase the buffer capacity in the valley which will cause reduction of the crest of peak flows in the two downstream reservoirs, and lower the crest along the Nysa Kłodzka river downstream towns as well as the Wrocław conurbation; the Nysa Kłodzka river is the main tributary of the Upper Odra river.

Component 3. Flood Protection of the Upper Vistula

This Component intends to protect the Cracow and Nowa Huta conurbation and industrial area, the Sandomierz-Tarnobrzeg area, and selected towns on tributaries in the sub-basins of the San River. The works comprise:

1) reconstruction and extension of dikes and embankments along the Vistula river in order to replace the old unreliable embankments;
2) bank stabilization and strengthening with rip-rap and revetments;
3) construction of dry polders and overflow areas to increase upstream water retention;
4) interventions for river training;
5) adjustment of existing hydraulic structures (weirs and barrages) to pass larger flood waves.

Planned tasks include the following:

1) Flood protection of Cracow and Wieliczka;
2) Protection of Sandomierz and Tarnobrzeg;
3) Passive and active protection of the San, Wisłoka and Dunajec sub-basins.

Through this Component, additional support will be provided for the preparation of main parts of the River Basin Management Plan and the investment prioritization plan for the Upper Vistula, applying the methodologies for integrated water resources management to complex investments with large footprint.

Component 4. Institutional Strengthening and Enhanced Forecasting

This Component selectively support the strengthening of institutional capacity in priority areas:

1) enhancing the emergency preparedness along the main rivers and their tributaries in south and west Poland by enhancing the forecasting and operational water management capacity;
2) strengthening the procedures and capacity to prepare River Basin Management Plans and investment prioritization plans that are compliant with the EU WFD and FD;
3) strengthening the impact monitoring;
4) enhancing the communication capabilities.

The assistance to applying integrated water resources management and investment scenario analysis for river basin management planning and management and investment prioritization will be focused on the Bóbr-Kwisa River, the Upper Vistula part that is upstream of Cracow (including the Cracow passage). Impact monitoring will take the form of developing procedures and guidelines for and conducting surveys for disaggregated analysis of flood

impacts and flood protection impacts. The forecasting capability and the establishment of operation centers will be carried out at the RZGWs of Wrocław and Cracow, and the IMGW-PIB (Cracow Office). The operations centers are control rooms that on one hand will mine forecasting data, simulate likely run-off scenarios, and support early warning and decision support processes for emergency response; and on the other, operate hydraulic infrastructure (weirs, reservoirs, and dry polders) to manage the containment and release of flood waves.

Component 5. Project Management and Studies

This Component funds the operation of the Project Coordination Unit (PCU) and Technical Assistance teams for the PCU and PIU's operation, office equipment, and incremental operating costs. As part of the component is planned to prepare follow-up investments and the preparation and implementation of a project-based communication strategy.

II. Scope of responsibilities of the Consultant

The responsibilities of the Consultant – a member of the International Dam Safety Panel of Experts – will include providing advice in matters important to the safety of the dry polders constructed in the Kłodzko Valley and of large hydraulic infrastructure works carried out under the Odra-Vistula Flood Management Project. The Consultant's assignment will include the following, in particular:

A) At the design stage:

A1) Review design assumptions, with particular reference to the geotechnical parameters used for characterizing shear strength and deformability of soil types used for the construction of foundations and embankments; as necessary commission, supervise, and interpret laboratory tests aimed at validating design assumptions.

A2) Review and check design documentation (construction designs, detailed designs, other) prepared by the designers and prepare recommendations covering the design solutions, construction work methods, the construction procedure, and risk assessment.

A3) Review the operation manuals and prepare recommendations to improve them.

A4) Review the operational rules of the dry polders and of other hydraulic structures as well as to prepare recommendations.

A5) Review the Operation and Maintenance Plan (OMP), and the Emergency Preparedness Plan (EPP) and make any necessary recommendation pertaining to the adequacy of such plans.

A6) Prepare recommendations and opinions ("on an ad hoc basis") if any problems arise that need to be resolved.

B) At the contractor selection stage:

B1) Review bidding documents with respect to technical specifications and requirements set to contractors as well as to prepare recommendations.

B2) Prepare recommendations and opinions ("on an ad hoc basis") if any problems arise that need to be resolved.

C) At the construction stage:

C1) Participate in meetings organized at the construction site.
C2) Evaluate work progress and quality.
C3) Prepare recommendations and opinions ("on an ad hoc basis") if any problems arise that need to be resolved.

D) At the construction completion and operation stage:

D1) Participate in meetings organized at the construction site.
D2) Review the operational rules of the dry polders and other hydraulic structures.
D3) Make recommendations for the finalization of the OMP and of the EPP and review the final versions of such plans.
D4) Prepare recommendations and opinions ("on an ad hoc basis") if any problems arise that need to be resolved.

E) During the Project implementation:

E1) Review and analyze flood protection and emergency preparedness plans as well as to prepare recommendations.
E2) Participate in meetings related to the preparation and implementation of the Odra-Vistula Flood Management Project.
E3) Prepare recommendations and opinions ("on an ad hoc basis") if any problems arise that need to be resolved.
E4) Provide technical support to the PCU Consultants with regard to issues related to the operation of hydraulic structures as well as control and management of water management facilities.
E5) Provide technical support in assessment of the technical condition of hydraulic infrastructure.
E6) Provide support to the PCU in analyses and proposals to initiate the preparation of assumptions for concepts of new projects and activities.
E7) Present opinions and recommendations regarding activities supervised and coordinated by the PCU.
E8) Give opinion on new investments and projects proposed by the entities cooperating with the PCU.
E9) Participate in working meetings at the Client's invitation.

III. Facilities to be provided by the Client.

The Client will not provide any facilities to the Consultant.

IV. Duration of the assignment

The Consultant will perform the assignment during the period commencing ……, 2020 and ending on December 15, 2023 or any other period as may be subsequently agreed by the parties in writing – in the form of an amendment to the Contract. During this period, the Consultant will deliver to the Client outputs of his activities and statements of time spent on the provision of consulting services and identifying areas of activities performed during the reporting period. The Client expects that the Consultant's total commitment will not exceed …… days.

V. Outputs of the Consultant's work:

The Consultant is obliged to perform and/or provide to the Client:

- Recommendations provided to the Client during meetings.
- Written reports summarizing missions and meetings.

- Written expert opinions confirming the correctness of materials provided to the Client or expressing a professional opinion on them.
- Occasional needed advice presented in the form of written reports or recommendations.

In the case of any ambiguity or discrepancy in the Consultant's outputs presented above, among others, the Client will be entitled to request the Consultant to make corrections and rectifications in them.

VI. Consultant selection method

The Consultant will be selected based on the method for the selection of individual consultants, in accordance with the World Bank's procedures. The selection process based on the selection of individual consultants specified in para. 5.3 (Selection of Individual Consultants) of the World Bank's "Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers", January 2011, revised July 2014.

The Client reserves the right to accept or reject any Application and to cancel the selection process and reject all Applications at any time without any liability to the Candidates.

VII. Requirements for the Consultant:

General qualifications:

- At least a Master Engineer's degree in water management and/or hydraulic/hydrotechnical engineering and/or geotechnical engineering within the meaning of the regulations on higher education.

Qualifications and experience adequate for the Project:

- Knowledge of and experience in the area of hydraulic engineering, water management, and geotechnical engineering;
- Knowledge of issues related to flood protection and environmental protection;
- Knowledge of and experience in design and/or management of civil works with a general contractor and/or in a Contract Engineer team with respect to earthen damming structures (knowledge of FIDIC procedures will be an additional advantage);
- More than 20 years of professional experience that includes participation in international projects (holding a designer's license and/or a license to manage civil works or other documents confirming professional qualifications necessary to design and/or manage civil works will be an additional advantage);
- Experience in cooperation with government agencies implementing investments related to hydraulic/flood protection structures;
- Knowledge of and experience in investment process preparation, including analysis of investment costs;
- Knowledge of structural solutions for flood risk reduction as well as of earthworks technologies.

Knowledge of English

VIII. The procedure for contracting out consulting services and documenting services provided

1. The assignment specified in these Terms of Reference (ToR) will be commissioned on a once-only basis for the whole duration of the Project implementation.
2. The Client will each time inform the Consultant by correspondence, email or phone (to be subsequently confirmed in writing) about the need of his involvement.
3. The Consultant warrants that the assignment will be performed in accordance with the Client's requirements and rules applicable to the performance of contracts for the provision of World Bank-financed services.
4. The Consultant's reports and recommendations will be documents used to account before the Client for the time spent on the provision of services. Each time before issuing an invoice, any Report will require the Client's acceptance.
5. With each Report, the Consultant will submit timesheets to be accepted by the Client.
6. The Consultant will be remunerated only for the time spent on the provision of services, which will be documented in a satisfactory manner and accepted by the Client.