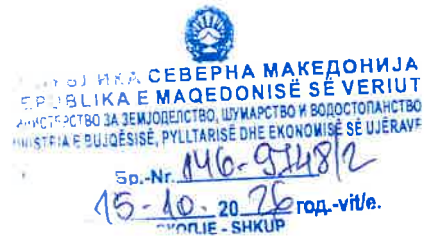


**Senior Irrigation Engineer**  
(Local consultant)  
Terms of Reference (TOR)



## 1. Background

The Zletovica Hydrosystem (HS Zletovica) is a multipurpose water infrastructure system located in the northeastern and eastern parts of North Macedonia, primarily within the municipalities of Probištip and Kratovo. The system was designed to harness the water and hydropower potential of the Zletovska River for the integrated benefit of Kratovo, Probištip, Zletovo, Štip, Karbinci, Sveti Nikole, and Lozovo, collectively serving a population of approximately 100,000 people.

The Zletovica Hydrosystem has been conceived as a phased development:

- Phase I (Completed): Construction of the Kneževo Dam and Reservoir, access roads, and regional transmission mains for drinking water supply. This phase is fully operational.
- Phase II (Planned): Modernization and expansion of irrigation services over approximately 4,500 hectares of agricultural land in the municipalities of Probištip (3,606 ha) and Kratovo (957 ha), including the construction and rehabilitation of primary and secondary irrigation infrastructure, conveyance pipelines, pumping stations, and distribution networks.
- Phase III (Planned): Development of hydropower generation capacity of approximately 9–9.5 MW (around 45.5–48 GWh per year) through the construction of small hydropower plants integrated into the existing water system.

The Government of North Macedonia (GNM) is preparing a World Bank–financed investment operation to support Phases II and III of the Zletovica Hydrosystem. To support project preparation, a Grant Facility for Project Preparation (GFPP) grant in the amount of US\$2.0 million, covering the period July 2026 to December 2027, has been secured. The GFPP will finance preparatory activities, including the updating of technical and hydraulic studies, dam safety documentation, transboundary water analyses, and preparation of environmental and social instruments in accordance with the World Bank’s Environmental and Social Framework (ESF).

The GNM has decided to implement the GFPP through the existing Project Implementation Unit (PIU) of the Agriculture Modernization Project (AMP) housed within the Ministry of Agriculture, Forestry and Water Economy (MAFWE), in close partnership with PS Zletovica. While the PIU will be responsible for fiduciary, procurement, and environmental and social coordination aspects of the grant, PS Zletovica will lead the technical preparation and prioritization of activities financed under the GFPP. Within this arrangement, a qualified Senior Irrigation Engineer will be engaged to provide dedicated technical leadership for project preparation and, subsequently, implementation.

## 2. Objective of the Assignment

The objective of the assignment is to provide continuous local engineering support for the preparation, review, and completion of the technical documentation for Phases II and III of the Zletovica Hydrosystem. Working under the overall technical coordination of the international Senior Hydraulic and Water Resources Engineer/Technical Team Leader, the Senior Irrigation Engineer will help ensure that the proposed irrigation investments are technically sound, construction-ready, suitable for World Bank financing, and supported by complete civil works bidding documents.

The Senior Irrigation Engineer shall ensure that the relevant technical documentation complies with applicable legislation, technical regulations, standards, permitting requirements, and institutional procedures of North Macedonia and incorporates applicable World Bank technical, procurement, environmental, social, health, and safety requirements. The assignment will also support the timely preparation of information needed for project appraisal, including implementation readiness, economic and financial analysis, job-creation reporting, and transboundary-water compliance, as applicable.

### **3. Scope of Work and Responsibilities**

The Senior Irrigation Engineer will work closely with the Senior Hydraulic and Water Resources Engineer/Technical Team Leader, the PIU, PS Zletovica, designers, and other specialists, and will be responsible for:

- Supporting the review of all existing and updated Phase II and Phase III documentation, including feasibility studies, surveys and investigations, hydraulic and water-balance analyses, detailed engineering designs, technical specifications, bills of quantities, cost estimates, implementation schedules, and civil works bidding documents.
- Preparing and periodically updating a register of applicable national laws, bylaws, technical regulations, design standards, permitting requirements, competent authorities, and institutional procedures.
- Preparing and maintaining a National Regulatory and Technical Compliance Matrix that records each requirement, evidence of compliance, responsible party, outstanding action, and target date.
- Verifying that the designs are prepared at the legally required level and are sufficiently complete and coordinated for procurement and construction, including calculations, drawings, specifications, bills of quantities, cost estimates, surveys, design-review records, revisions, approvals, and interfaces with existing facilities.
- Supporting the detailed review of irrigation designs, including intake and conveyance systems, pipelines, pumping stations, pressure-management facilities, distribution networks, hydrants, flow measurement and control, automation, drainage requirements, energy efficiency, operational flexibility, and on-farm interfaces.
- Confirming compliance with national requirements concerning water rights and use, construction, spatial and urban planning, environmental protection, land access, occupational and community health and safety, fire safety, energy, and other relevant matters, and identifying any gaps requiring corrective action.
- Contributing to the definition and prioritization of irrigation and drainage investments, including technical scope, alternatives, climate resilience, implementation arrangements, cost and schedule estimates, operational requirements, and readiness for appraisal, procurement, and construction.
- Identifying data gaps and, where required for the development or updating of investment designs, supporting the collection, verification, organization, and digitization of relevant technical, spatial, asset, land-use, water-use, and irrigation-service data. This may include compiling data from existing records, field surveys, consultations, and other sources; converting available information into usable digital formats; documenting data sources, assumptions, limitations, and quality-

control checks; and coordinating with designers and relevant institutions to ensure that the datasets are complete, consistent, georeferenced where applicable, and suitable for design development.

- Providing engineering inputs to environmental and social instruments, including relevant ESIA/ESMP and other ESF documents, and verifying that required environmental, social, labor, occupational health and safety, community health and safety, and climate-resilience measures are incorporated into designs, specifications, bills of quantities, and implementation arrangements.
- Serving, when formally appointed, as a technical member of evaluation committees for procurement processes related to irrigation, drainage, and water-resources activities, and supporting clarifications, technical evaluations, and responses in accordance with applicable procurement procedures and requirements on confidentiality and conflicts of interest.
- Supporting consultations and technical coordination with ministries, municipalities, regulatory bodies, water-management entities, utilities, affected communities, and other competent institutions.
- Preparing and maintaining a permitting and approvals roadmap identifying, for each permit, consent, license, or approval, the responsible authority, legal basis, required documentation, prerequisite actions, responsible party, submission date, status, and anticipated timeline, including construction and other permits required under North Macedonian regulations.
- Providing technical inputs, data, assumptions, quantities, costs, operating requirements, and benefit parameters needed for the project's economic and financial assessment and for reporting expected direct and indirect jobs, in coordination with the relevant specialists.
- Providing technical inputs required to support the project's compliance with the World Bank's policy on projects on international waterways (OP 7.50), including confirmation of water sources, abstraction and release arrangements, system balances, and consistency across technical documents, as requested.
- Ensuring the accuracy and consistency of Macedonian-language technical terminology and supporting reconciliation of discrepancies between Macedonian and English versions of technical documentation.
- Supporting site visits, field verification, consultations with water users, and coordination with designers and other consultants, and documenting findings, agreed actions, responsible parties, and deadlines.
- Participating in World Bank missions and technical meetings, preparing requested briefing materials, maintaining an action tracker for matters within the Engineer's area of responsibility, and following up on agreed actions.

#### 4. Deliverables

- **Inception note and initial work plan**, submitted within two weeks of contract commencement, confirming the assignment methodology, priority tasks, document-review schedule, coordination arrangements, and initial list of information gaps.

- **National Regulatory and Technical Compliance Matrix and permitting roadmap**, initially submitted within one month and updated thereafter as required.
- **Technical review memoranda** for each assigned feasibility study, investigation, hydraulic assessment, design package, technical specification, bill of quantities, cost estimate, and bidding document, identifying material gaps, required corrections, responsible parties, and recommended actions.
- **Design and procurement readiness assessments** confirming whether assigned packages are complete, coordinated, compliant, and suitable for appraisal, bidding, and construction, together with a register of unresolved issues.
- **Design data inventory and digital datasets**, as required, comprising the data collected, verified, organized, or digitized to support investment design development, together with metadata describing sources, formats, dates, assumptions, limitations, quality-control checks, and any remaining data gaps.
- **Monthly progress reports** summarizing activities completed, documents reviewed, decisions required, risks and delays, permitting status, actions due, and the work plan for the following month.
- **Field visit and mission notes**, submitted within five working days of each visit or mission, recording observations, decisions, agreed actions, responsible parties, and deadlines.
- **Technical inputs** to environmental and social instruments, economic and financial analysis, jobs reporting, OP 7.50 documentation, procurement evaluations, commissioning, testing, handover, and completion documentation, as requested.
- **Completion report**, submitted at the end of the assignment, summarizing work performed, status of designs and permits, outstanding technical and implementation risks, and recommended next steps.

All deliverables shall be submitted electronically in English, with Macedonian versions or supporting material where required for national review and approval. Draft outputs will be reviewed by the Director of PS Zletovica and the PIU Coordinator/Project Director, with technical input from the Technical Team Leader and other relevant specialists. The Consultant shall address consolidated comments and submit final versions within the agreed review period.

## 5. Qualification and Experience Requirements

- University degree in irrigation engineering, civil engineering with specialization in water resources or hydraulic engineering, or a closely related field; an advanced degree would be an advantage.
- At least 10 years of relevant professional experience, including substantial experience in the planning, design, technical review, construction, or rehabilitation of medium- or large-scale irrigation infrastructure.
- Demonstrated knowledge of legislation, technical regulations, design standards, permitting procedures, and institutional requirements applicable to water and irrigation infrastructure in North Macedonia.

- Proven experience reviewing detailed designs and bidding documents for irrigation systems, including pressurized pipelines, pumping stations, distribution networks, hydraulic structures, flow-measurement systems, automation, bills of quantities, and cost estimates.
- Experience coordinating with national and local authorities and supporting technical approvals, consents, water-related authorizations, and construction permits.
- Experience with World Bank or other international financial institution-financed infrastructure projects, procurement processes, and environmental and social requirements would be an advantage.
- Strong analytical, technical-writing, coordination, and communication skills, with ability to work effectively in a multidisciplinary team.
- Fluency in Macedonian and working proficiency in English.

## **6. Reporting and Duration**

- The Senior Irrigation Engineer will report contractually and administratively to the PIU Coordinator/Project Director and technically to the Director of PS Zletovica. Day-to-day priorities and technical outputs will be coordinated with the international Senior Hydraulic and Water Resources Engineer/Technical Team Leader. Instructions and comments affecting scope, schedule, or deliverable acceptance will be consolidated through the PIU to avoid conflicting directions.
- The assignment is expected to be full-time during the GFPP-funded preparation period, with an anticipated commencement date and contract duration to be specified in the procurement documents. Any continuation into project implementation will be subject to satisfactory performance, project needs, financing availability, and a written contract extension.

## **7. Duty Station**

- The position will be based at the Zletovica Hydrosystem (HS Zletovica), with frequent field visits to project sites as required.