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**REQUEST FOR QUOTATION (RFQ 35/2020)**

**(services)**

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| **RFQ 35/2020 Adjustment/amendment of existing technical documentation for regulation of Upper Vardar in the Municipality of Jegunovce** | DATE: May 8, 2020 |
| REFERENCE: **UNDP 00105326 Improving Resilience to Floods in Polog Region** |

Dear Sir / Madam:

We kindly request you to submit your quotation in mkd, VAT excluded for **Adjustment/amendment of existing technical documentation for regulation of Upper Vardar in the Municipality of Jegunovce**, as detailed in Annex 1 of this RFQ. When preparing your quotation, please be guided by the form attached hereto as Annex 2.

Quotations may be submitted on or before May 27, 2020 by 11:00am via dedicated email: [offers.mk@undp.org](mailto:offers.mk@undp.org)

Subject: MKDRFQ35 - 2020 for Upper Vardar in the Municipality of Jegunovce

It shall remain your responsibility to ensure that your quotation will reach UNDP before the deadline. Quotations that are received by UNDP after the deadline indicated above, for whatever reason, shall not be considered for evaluation.

Please take note of the following requirements and conditions pertaining to the supply of the abovementioned works

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| --- | --- | --- |
| Delivery Terms  [INCOTERMS 2010]  *(Pls. link this to price schedule)* | ☐FCA  ☐CPT  ☐CIP  ☐DAP  ☒ **n/a** | |
| Customs clearance, if needed, shall be done by: | ☐UNDP  ☐Supplier/Offeror  ☐Freight Forwarder  **n/a** | |
| Exact Address/es of Delivery Location/s (identify all, if multiple) | **UNDP** | |
| UNDP Preferred Freight Forwarder, if any | n/a | |
| Distribution of shipping documents *(if using freight forwarder)* | n/a | |
| Latest Expected Delivery Date and Time *(if delivery time exceeds this, quote may be rejected by UNDP)* | ☒ **10 months**  from the issuance of the Contract  ☒ As per Delivery Schedule attached  Time:  Time Zone of Reference: | |
| Delivery Schedule | ☒Required, Defined in the TOR (estimated at 10 months)  ☐Not Required | |
| Packing Requirements | n/a | |
| Mode of Transport | ☐ AIR | ☐LAND |
| ☐SEA | ☒ n/a |
| Preferred  Currency of Quotation | ☒**United States Dollars for foreign bidders**  ☐Euro  ☒Local Currency: **MKD for domestic bidders** | |
| Value Added Tax on Price Quotation | ☐ Must be inclusive of VAT and other applicable indirect taxes  ☒ **Must be exclusive of VAT** | |
| After-sales services required | ☐Warranty on Parts and Labor for minimum period of Click to type  ☐Technical Support  ☐Provision of Service Unit when pulled out for maintenance/ repair  n/a | |
| Deadline for the Submission of Quotation | *Wednesday, May 27, 2020 and 11:00am* | |
| All documentations requested, (including catalogs, instructions and operating manuals), shall be in this language | ☒ English (except copies of original documents shall be submitted in Macedonian, no translation required)  ☐ French  ☐ Spanish  ☒ Macedonian | |
| Documents to be submitted | Following Documents Establishing Offeror’s Eligibility & Qualifications must be submitted and include the following:  Required documents:  ☒ Duly Accomplished form as provided in Annex 4  ☒ Company Profile including details of past experience of at least 8 (eight) years’ experience in developing project documentation (e.g. preliminary, basic, detailed designs), particularly in the domain of river engineering (regulation of rivers and torrents, construction of dams and other river engineering structures, implementation of protection measures for erosion, etc.);  ☒ Latest Business Registration Certificate (a copy of Tekovna Sostojba for domesic bidders);  ☒Authorisation A for designing structures in civil engineering issued by the Ministry of Transport and Comminications  ***(For international companies:***  ***If selected for an award of contract, international companies shall obtain a permit/ consent for preparation of technical documentation for construction works in the country by the relevant national authorities, as per the requirements of the Law on Construction, Article 42)***  ☒Authorisation A for designing civil engineering structures for the Chief design engineer/civil engineer  ☒ Authorization A for designing in the field of geotechnics for the Geotechnical engineering expert  ☒ List of at minimum 5 (five) completed and positively reviewed projects of similar scope and complexity (development of a basic design for regulation of rivers/torrents, construction of dams and other complex river engineering structures).  ☒ CVs of the four (4) experts reflecting qualifications requirements required in the TOR as well as Table 2 of Annex 2  ☒ Statement of Availability for each expery (Annex 2)  ☒ Financial Offer as enclosed in Annex 4. The offer must be expressed in MKD for domestic bidders and in USD for international bidders | |
| Way of submission of documents **by Email:** | |  | | --- | | Documents to be submitted by email to dedicated email: [offers.mk@undp.org](mailto:offers.mk@undp.org)  **SUBJECT: OFFER MKDRFQ35 - 2020 for Upper Vardar in the Municipality of Jegunovce**  Format: PDF files  **All files must be in PDF and free of viruses and not corrupted.**  **Technical and Financial OFFER must be separately uploaded.**  **Max. size of uploaded files (per document) must not exceed: 30 MB**  **ONLY FINANCIAL offer will be submitted as PDF “password protected file”, DIGITALLY signed and** or signed and scanned in the .pdf format.  **Password for Financial OFFER SHALL be provided to UNDP ONLY after the DEADLINE latest the NEXT day by 11am**  **(Password protection of a PDF document can be done using Adobe Reader. Open the PDF and choose Tools > Protect > Encrypt > Encrypt with Password)** | | |
| Period of Validity of Quotes starting the Submission Date | ☐ 60 days  ☐ 90 days  **X** **120 days**  In exceptional circumstances, UNDP may request the Vendor to extend the validity of the Quotation beyond what has been initially indicated in this RFQ. The Proposal shall then confirm the extension in writing, without any modification whatsoever on the Quotation. | |
| Partial Quotes | ☒ Not permitted  ☐ Permitted [*pls. provide conditions for partial quotes, and ensure that requirements are properly listed to allow partial quotes (e.g., in lots, etc.)]* | |
| Payment Terms | ☒ As per the following schedule:   |  |  | | --- | --- | | **Activities/outcomes** | **Time** (after the contract is signed) | | Collecting the necessary data from the site and inspecting the existing documentation | 4 months | | Analysis and presentation of possible approaches | 6 months | | Submission of working draft of the basic design | 8 months | | Submission of final version of the basic design (after revision) | 10 months |   Based upon Invoices submitted by the Contractor, UNDP shall make payments. Invoices shall indicate the output completed. Invoices shall be paid within 30 (thirty) days of the date of their receipt and acceptance by UNDP. | |
| Liquidated Damages | n/a | |
| Evaluation Criteria  *[check as many as applicable]* | ☒ Technical responsiveness/Full compliance to requirements and lowest price  Comprehensiveness of after-sales services  ☒ Full acceptance of the Contract General Terms and Conditions  ☐ Earliest Delivery / Shortest Lead Time  ☐ Others *[pls. specify]* | |
| UNDP will award to: | ☒ One and only one supplier  ☐ One or more Suppliers | |
| Type of Contract to be Signed | ☒ **Contract for Professional services/minime contract**  ☐ Long-Term Agreement *(if LTA will be signed, specify the document that will trigger the call-off. E.g., PO, etc.)*  ☐ Other Type/s of Contract *[pls. specify]* | |
| General Terms and conditions | <http://www.undp.org/content/undp/en/home/procurement/business/how-we-buy.html>  Non-acceptance of the terms of the General Terms and Conditions (GTC) shall be grounds for disqualification from this procurement process. | |
| Special conditions of Contract | ☒ n/a  ☐ Others | |
| Conditions for Release of Payment | ☐ Passing Inspection verification of works by the Supervising Engineer  ☐ Written Acceptance of works based on full compliance with RFQ requirements  ☐ Passing all Testing *[specify standard, if possible]*  ☐ Completion of Training on Operation and Maintenance *[specify no. of trainees, and location of training, if possible*  ☒ Others:**Delivered Outputs accepted by licensed reviewer and UNDP** | |
| Annexes to this RFQ | ☒ TOR (Annex 1)  ☒ Tables reflecting relevant projects to be filled in and statement of availability for the enginers (Annex 2)  ☒ Evaluation Criteria (Annex 3)  ☒ Form for Submission of Quotation (Annex 4) | |
| Contact Person for Inquiries  (Written inquiries only) | *Procurement Official*  *Procurement.mk@undp.org*  *Written inquiries only Written inquiries only*  Any delay in UNDP’s response shall be not used as a reason for extending the deadline for submission, unless UNDP determines that such an extension is necessary and communicates a new deadline to the Proposers. | |

Goods offered shall be reviewed based on completeness and compliance of the quotation with the minimum specifications described above and any other annexes providing details of UNDP requirements.

The quotation that complies with all of the specifications, requirements and offers the lowest price, as well as all other evaluation criteria indicated, shall be selected. Any offer that does not meet the requirements shall be rejected.

Any discrepancy between the unit price and the total price (obtained by multiplying the unit price and quantity) shall be re-computed by UNDP. The unit price shall prevail and the total price shall be corrected. If the supplier does not accept the final price based on UNDP’s re-computation and correction of errors, its quotation will be rejected.

After UNDP has identified the lowest price offer, UNDP reserves the right to award the contract based only on the prices of the goods in the event that the transportation cost (freight and insurance) is found to be higher than UNDP’s own estimated cost if sourced from its own freight forwarder and insurance provider.

At any time during the validity of the quotation, no price variation due to escalation, inflation, fluctuation in exchange rates, or any other market factors shall be accepted by UNDP after it has received the quotation. At the time of award of Contract or Purchase Order, UNDP reserves the right to vary (increase or decrease) the quantity of services and/or goods, by up to a maximum twenty five per cent (25%) of the total offer, without any change in the unit price or other terms and conditions.

Any Purchase Order that will be issued as a result of this RFQ shall be subject to the General Terms and Conditions attached hereto. The mere act of submission of a quotation implies that the vendor accepts without question the General Terms and Conditions of UNDP herein attached as Annex 3.

UNDP is not bound to accept any quotation, nor award a contract/Purchase Order, nor be responsible for any costs associated with a Supplier’s preparation and submission of a quotation, regardless of the outcome or the manner of conducting the selection process.

Please be advised that UNDP’s vendor protest procedure is intended to afford an opportunity to appeal for persons or firms not awarded a purchase order or contract in a competitive procurement process. **In the event that** you believe you have not been fairly treated, you can find detailed information about vendor protest procedures in the following link:

<http://www.undp.org/content/undp/en/home/operations/procurement/protestandsanctions/>

**UNDP encourages every prospective Vendor to** avoid and prevent conflicts of interest, by disclosing to UNDP if you, or any of your affiliates or personnel, were involved in the preparation of the requirements, design, specifications, cost estimates, and other information used in this RFQ.

UNDP implements a zero tolerance on fraud and other proscribed practices, and is committed to identifying and addressing all such acts and practices against UNDP, as well as third parties involved in UNDP activities. UNDP expects its suppliers to adhere to the UN Supplier Code of Conduct found in this link : <http://www.un.org/depts/ptd/pdf/conduct_english.pdf>

**Thank you and we look forward to receiving your quotation**

**ANNEX 1**

**Terms of Reference**

**for adjustment/****amendment of existing technical documentation for regulation of Upper Vardar in the Municipality of Jegunovce**

1. **BACKGROUND**

Due to the greater frequency and intensity of floods in the Upper Vardar river basin (Polog region) and their link to socio-economic consequences, the United Nations Development Program (UNDP), with the support of the Swiss Development and Cooperation Agency (SDC) and the State Secretariat for Economic Affairs of Switzerland (SECO), established a *Progamme for improving the resilience to floods in the Polog region*, which develops and implements various complementary measures for reducing the impact and the consequences of floods. The Programme’s objective is to instigate changes in the flood risk management in a river basin, accelerating the shift from a purely reactive response to floods to a comprehensive and systemic management of hazards, vulnerability and exposure of communities.

In the previous phases of the Programme’s implementation a *Flood Risk Management Plan for the Upper Vardar River Basin* (FRMP) was developed, which established the priorities and the investments for improving resilience to flood risks. The plan was developed with the use of numerous data (topographic, climate-meteorological, land cover and use, economic, analysis of damages and losses from floods in the past, etc.), used to make adequate and recommended hydrological and hydraulic modellings, as well as flood risk modelling for the main watercourses in the basin (rivers and torrents).

The plan identified the critical river sections (mostly urban) where flood risk management has significant constraints, due for example to intensive urbanization of the river flood corridors. These measures are of highest priority for the local authorities, having in mind the intensity of the risks and the consequences from the past. At the same time, these measures also require the greatest investments. The local authorities have already undertaken certain activities, developed several technical projects and began their implementation.

For dozens of years Upper Vardar has frequently overflowed in the municipality of Jegunovce (from the village of Tudence to Jegunovce), causing damages to populated areas and agricultural land. In order to solve the problems of frequent floods, a Basic design for regulation was drafted in 2004/2005 with the support of the Ministry of Agriculture, Forestry and Water Economy (MAFWE), however it was not implemented. In 2017 a new Basic design was developed, with similar goals and terms of reference, as well as concepts and a technical solution as the previous project, this time with the support of the Ministry of Environment and Physical Planning (MOEPP). Geodetic surveys were innovated for the needs of this project.

The Programme for improving the resilience to floods in the Polog region envisages for this technical documentation to be adjusted and amended using the best practices and experiences from Switzerland (as the Programme’s main donor), as well as European standards .This involves the design of contemporary and recommended practices for regulation of rivers and torrents with ecosystem-based methods and concepts.

The recommended methods for regulation and restoration of riverbeds and their ecosystems use a nature-based approach. This means that the following principles should be taken into account: (1) the measures and the activities should clearly address the main reasons for the degradation of the streambed and the surroundings, (2) the measures should be consistent with the physical and biological potentials, (3) the measures should be proportionate with environmental issues, and (4) the measures should clearly articulate the expected results about the dynamic process in the river ecosystem.

Respecting these principles and practices would ensure many benefits, such as reduction of flood risks, improving the status of hydro-morphological elements, reduction of erosion, protection of biodiversity, etc. These principles and positive practices particularly recommend the preservation of meanders or re-meandering of streambeds where they are canalized.

These Terms of Reference define the obligations and the tasks for adjustment and amendment of the 2017 technical documentation with modern and recommended methods and techniques with the aim of reducing flood risks and ensuring sustainable development of the river ecosystem.

The technical documentation should implement the results and the recommendations included in:

* the Flood Risk Management Plan for the Upper Vardar River Basin (FRMP). PointPro Consulting (2018).
* the Feasibility Study on Basin-Scale Sediment Management Options for the Polog Region. Faculty of Civil Engineering (2020).

The basic principles on which the current project documentation should be updated are the following: **a)** prioritization of the measures which derive from the contemporary approaches to river regulation (e.g. ecosystem-based approach, application of bio-engineering measures)[[1]](#footnote-1); **b)** use of all relevant surveys and information included in existing UNDP projects and studies on hydrology, hydraulics, flood risk analysis, simulations of sediment transport, as well as the new Digital Terrain Model; **c)** maximum use of all useful surveys and information included in the existing project documentation (e.g. geodesy, geotechnics); **d)** flexibility in the selection of the technical solution depending on risk (e.g. adopt different referent water flows in different river sections, depending on the value of the soil and the infrastructure at risk of flooding[[2]](#footnote-2)); **e)** develop a modular solution (solution in phases), where sections will be prioritized based on flood risk (priority should be given to the sections with highest risk, i.e. potential losses and damages from floods).

1. **SCOPE OF WORK**
   1. **EXISTING TECHNICAL DOCUMENTATION**

The design engineer/the company should review in detail the existing technical documentation entitled *Basic design for regulation of River Vardar in the Polog region* developed by the Faculty of Civil Engineering with the University of Ss. Cyril and Methodius (2017) and to give a commentary on the surveys and analyses carried out (hydrological, hydraulic, geotechnical, static). This project proposes a classic solution with traditional river engineering measures and structures whose design is primarily based on geodetic field surveys and hydraulic analyses in order to ensure the necessary cross profile of the streambed for safe evacuation of the adopted referent water flow (maximum water flow with a return period of 20 years). In the current design the natural meanders are cut/canalized, which in principle is avoided when ecosystem-based principles and restoration methods and practices are applied.

* 1. **ADJUSTED/AMENDED TECHNICAL DOCUMENTATION**
     1. **Geodetic surveys**

After the detailed revision and analysis of the geodetic surveys in the 2017 technical documentation, it is recommended for the design engineer to check their scope, precision and applicability and to conclude whether it is necessary or not to carry out new geodetic surveys for the river section in question (approximately 7 km)[[3]](#footnote-3).

The accepted and/or updated geodetic surveys should include:

* situation of the surveyed band in a 1:2500 scale
* longitudinal cross-section of the streambed in a 1:200/2500 scale and adequate number of cross sections
* detailed surveys in the zone of newly designed structures and develop site plans in 1:100 or 1:2500 scale
  + 1. **Hydrological and hydraulic analyses**

The hydrological analyses in the current technical documentation are made with recommended statistical methods. Historically measured data for daily water flows were used from the stations in Radusha and Jegunovce. The minimum, medium and maximum long-term water flows were analyzed. The characteristic maximum water flows with different return period (2 to 10,000 years) were used, i.e. probability of occurrence from 50% to 0.01%. In the new innovated and/or adapted technical documentation these hydrological analyses can be taken in full and when necessary supplemented with data about maximum waters with a return period of 300 and 500 years. The regulated streambed is dimensioned for a maximum water flow with a return period of 20 years (228 m3/s)[[4]](#footnote-4).

The hydraulic analyses in the current technical documentation are made with recommended software tools (HEC-RAS), but are not sufficient to assess the level of flood threats, do not include terrain simulations of the flood paths and do not contain analyses for sediment transport.

**А. Hydrological analyses**

The hydrological analyses in the new, innovated technical documentation should include:

* Analysis of the Upper Vardar river basin. Determine all geometric and physical geographic characteristics of the basin (form, size, inclination, height distribution, river network development, geology and soils, land use, vegetation, bodies of water). These characteristics should be determined with digital terrain data (DТM, ArcGIS)[[5]](#footnote-5) and maximum use of existing technical documentation and the results should be compared with the above-mentioned studies (*Flood Risk Management Plan* – FRMP, *Sediment Management Study*).
* Characteristic water flows with different return periods (2, 10, 20, 50, 100, 300 and 500 years). These data can be taken from the existing technical documentation and when necessary supplemented with information and results that are missing. The results should be compared with the hydrological modellings in the Plan for flood risk management in the Upper Vardar river basin (FRMP). The data about high waters with low probability of occurrence are exceptionally important for designing control and protection measures and for ensuring they do not have an adverse impact on the risk of the event/flood that exceeds the accepted referent flow for streambed dimensioning.

**B. Hydraulic analyses**

The hydraulic analyses in the current technical documentation for regulation of Upper Vardar (municipality of Jegunovce) are deemed insufficient and refer only to dimensioning the designed cross profile of the streambed with the main goal of conveying the referent adopted water flow (conveyance principle). Also, the technical documentation does not include hydraulic analyses of sediment transport. The activities for innovation of the existing technical documentation require new hydraulic analyses based on the aims and strategies set out in the Flood Risk Management Plan and the EU Directives’ requirements.

Hydraulic analyses should be made: (a) for the existing/natural streambed, and (b) for the newly designed streambed with measures for flood protection. Risk and safety levels should be taken into account, which depend on what needs to be protected (population, buildings, agricultural land, infrastructure, etc.). Thus, the adoption of the referent flow in the planning and designing of the technical measures should be carefully defined and the decision should be based on analysis of consequences from past floods, simulated floods with terrain model and the investments needed for implementation of the measures.

The basic concept in risk management is to find an answer to the question *“What is acceptable to happen?”* This means that within the boundaries of the river section that is being regulated, first there should be prioritization of measures or adoption of different design floods for different types of land use (e.g. populated areas, agricultural land). Financial analyses should be submitted for these two concept solutions or strategic goals[[6]](#footnote-6).

It is recommended that hydraulic analyses use sophisticated software tools (1D/2D HEC-RAS, SWAT, FLO-2D, WMS 11) which simulate floods in high resolution and an unlimited number of structural elements in the basin and the streambed.

The following task should be performed:

* Hydraulic terrain modelling of floods (*flood propagation, flood paths)* for the current state of the streambed and the projected situation. This analysis is necessary to assess the risk and the effects of the proposed measures. These hydraulic simulations should show which part of the flood wave volume is evacuated in the basic streambed and which part overflows and is retained in the wider terrain (agricultural areas). These analyses should help with the selection of alternative solutions to technical protective measures.
* Identification of relevant risk processes in conditions of simulated static and dynamic floods with and without sediment transport.
* Hydraulic analyses of the streambed for relevant water flows (depths, speeds, flow regime) for the natural state and for the designed streambed. These analyses identify critical zones/sections of the streambed.
* Hydraulic analysis of existing and newly designed bridges and their optimization

**C. Morphological processes and sediment transport**

The existing technical documentation for regulation of Upper Vardar does not include analyses of the morphological changes in the streambed, the erosive processes and sediment transport. The results from these analyses provide exceptionally important information about the level of risk, streambed stability, selection of technical measures for protection and reduction of geomorphological changes, as well as for the need to plan structures for sediment retention and driftwood rack.

The sediment transport analysis has to be made with the above-mentioned hydraulic analyses and models (1D/2D HEC-RAS, SWAT, FLO-2D, WMS 11), while the simulation results should provide answers to the following:

* identification of streambed sections with manifested vertical erosion.
* identification of streambed sections with deposited alluvial sediments.
* identification of morphological structural changes as a result of dynamic processes in the streambed which occur during floods.
* the quantity of transported sediment in the streambed for relevant flows.
* Granulometric composition of sediment.

In relation to sediment transport, the design engineer should use the guidelines from the Sediment Management Study which is currently being developed by the Faculty of Civil Engineering in Skopje[[7]](#footnote-7). This will ensure that the technical solution for regulation will correspond with the long-term measures for sediment management in the Upper Vardar basin that would be recommended as part of this study.

* + 1. **Technical measures**

The current technical documentation for regulation of Upper Vardar in the municipality of Jegunovce proposes a classic hydro technic solution with canalization of the streambed, cutting of meanders and dimensioning of the cross sections for conveying of the adopted referent flood with a return period of 20 years (228 m3/s). The documentation does not prioritize the designed measures. It is recommended for the measures in the settlements (the villages of Raotince, Tudence and Kopance) to be categorized as *high priority,* while those for protection of agricultural land as *low or medium priority.* In the sections of high priority there are usually limited number of opportunities for implementation of ecosystem-based and restoration measures. Namely, the natural river corridor has been greatly narrowed and the natural flood corridor is lost due to the construction of different types of infrastructure. Measures for ensuring the transport of referent water flow (*conveyance-based concept)* can be planned here.

With innovation and/or adaptation of the current technical documentation analysis should be made of the possibility for reduction of flood quantities in the streambed in settlements with: a) construction of a secondary canal (*diversion system)* to bypass the protected area and an overflow weir upstream from the settlement, and b) formation of a floods corridor through the agricultural land to evacuate part of the flood wave volume, Figure 1. This reduces the referent maximum flow for dimensioning the measures in the river section that is regulated, which in turn reduces the investments for their implementation. These possible solutions should be taken into account for the river sections near the villages of Raotince and Tudence. The alternative solutions for protection of populated areas depend on the situation at the specific locations, the future plans for the site and the conditions for expropriation of agricultural land, which requires close cooperation with the local community[[8]](#footnote-8).



**Figure 1**: Protection of a settlement with a secondary streambed or floods corridor

The measures that have priority for implementation should refer to the following activities:

* make a new streambed near the village of Tudence. The proposed technical solution should be adapted with ecosystem-based methods and materials.
* construct a new bridge in the village of Tudence. The new, adapted technical documentation should draft a design for a new bridge.
* make a new streambed near the village of Kopance. The proposed technical solution should be adapted with ecosystem-based methods and materials.
* make a new streambed near the village of Raotince. The proposed technical solution should be adapted with ecosystem-based methods and materials.
* construct a new bridge in the village of Raotince. The new, adapted technical documentation should draft a design for a new bridge.
* The concrete riverbanks to be replaced with natural materials. The gabions to be replaced with other bioengineering materials.
* make a new streambed near agricultural areas. The proposed technical solution should be adapted with ecosystem-based methods and materials

The above-mentioned activities and the decision-making process require additional hydrological and hydraulic analyses and research. The proposed possible measures per sections in the terrain covered by the regulation design are shown in Figure 2.

This part of the design should include:

* ecosystem-based streambed regulation, where natural materials and bioengineering methods and techniques have priority.
* the restrictions for expansion of the cross profile to be solved with designing earth embankments which do not have to be of same height and distance from the riverbank on both sides of the streambed. Depending on the level of risk and the level of protection, such embankments can be designed for protection of both populated areas and agricultural land.
* Sediment control measures. For greater protection of settlements (Tudence, Raotince, Kopance), technical measures should be envisaged for retention and control of sediment upstream of the project perimeter.
* Measures for preservation, stabilization and restoration of meanders. In the current technical documentation, the meanders are cut. Cutting meanders and streambed canalization are not recommended with the concepts for restoration and ecosystem-based methods and techniques.
* the newly designed technical measures for flood control and sediment control should be dimensioned hydraulically, geo-technically and statically for the relevant adopted water flow.
* Draft a monitoring plan. The plan’s goals are monitoring during implementation of the measures, monitoring after the implementation and monitoring for adaptive management. The monitoring plan should include methods, target values, timeframe and responsibilities.
* draft a maintenance plan. This plan should also include techniques, timeframes and responsibilities. The activities in this plan are closely linked to the adaptive management and flood risks



**Figure 2**: Possible prioritization of measures in the terrain covered by the design for regulation of Upper Vardar in the municipality of Jegunovce (HOLINGER, 2019)

An overview of the basic legal framework for the development of the project documentation is given in Annex A of these ToR, while the recommended literature is given in Annex B.

1. **MAIN OUTPUTS/DELIVERABLES**

* Draft adjusted and amended technical documentation for regulation of Upper Vardar in the Municipality of Jegunovce – not later than 8 months upon signing of contract
* Final adjusted and amended technical documentation for regulation of Upper Vardar in the Municipality of Jegunovce – not later than 10 months upon signing of contract

1. **QUALIFICATION REQUIREMENTS**

The minimum requirements for the company’s qualifications are:

* 1. Minimum 8 (eight) years’ experience in developing project documentation (e.g. preliminary, basic, detailed designs), particularly in the domain of river engineering (regulation of rivers and torrents, construction of dams and other river engineering structures, implementation of protection measures for erosion, etc.);
  2. License A for designing structures in civil engineering;

**NOTE: If selected for an award of contract, international companies shall obtain a permit/ consent for preparation of technical documentation for construction works in the country by the relevant national authorities, as per the requirements of the Law on Construction, Article 42.**

* 1. Minimum 5 (five) completed and positively reviewed projects of similar scope and complexity (development of a basic design for regulation of rivers/torrents, construction of dams and other complex river engineering structures).

The minimum requirements for the expert team are given in the table below:

|  |  |  |
| --- | --- | --- |
|  | **Necessary expertise** | **Minimum qualifications** |
| **1.** | Chief design engineer/civil engineer | * Minimum 8 years of relevant professional experience in designing, developing studies in the area of river engineering * Authorization A for designing civil engineering structures * Experience of at least 5 projects of similar scope and complexity (drafting preliminary, basic/main or detailed design for regulation of rivers/torrents, construction of dams and other complex river engineering structures) * Experience of at least 2 projects in the role of chief design engineer (drafting preliminary, basic/main or detailed design for regulation of rivers/torrents, construction of dams and other complex river engineering structures) |
| **2.** | Expert in modern approaches to watercourse regulation  (e.g. ecosystem-based approaches, application of bioengineering techniques….) | * Minimum university degree diploma for relevant area of expertise (e.g. engineering, watercourse regulation, bioengineering, geomorphology, hydrology, hydraulics) * Minimum 8 years relevant profesional experience in developing and implementation of projects in the area of modern approaches to watercourse regulation/restoration (e.g. ecosystem-based approachesriver restoration, application of bioengineering techniques) * Experience in minimum 5 similar projects (e.g. ecosystem-based approaches to river regulation, river restoration, application of bioengineering techniques). |
| **3.** | Hydrology, hydraulics and flood modeling expert | * Minimum university degree diploma in the field of civil engineering, hydrology and related disciplines * Minimum 8 years relevant professional experience in hydrologic/hydraulic modelling, drafting technical documentation in the area of river engineering, floor risk assessment * Experience in at least 5 relevant projects in the field of hydrologic and hydraulic modelling |
| **4.** | Geotechnical engineering expert | * Authorization A for designing in the field of geotechnics * At least 8 years relevant professional experience in geotechnics, engineering geology, geo-mechanical investigations) * Experience of minimum 5 relevant projects in the field of geotechnics (designs in geotechnics, geotechnical/geo-mechanical investigations) |

* **TERMS AND CONDITIONS**
* *Documentation language*

All documents should be submitted in Macedonian.

* *Data sources*

The Contractor is obliged to use official sources of data, whenever possible, as well as existing studies developed with UNDP support. The Contractor is obliged to review the data in terms of their quality and application in the drafting of the design.

* *Review and evaluation of documents*

The developed project documentation will be subject of review in line with the legislation in the country, by a licensed company and authorized design auditors. At the same time it will also be subject to expert assessment in terms of the application of modern approaches to river regulation by international and/or local external experts, engaged by UNDP.

* *Duration*

The timeframe for drafting the documentation is 10 months from the date of signing the contact.

* *Travel and other expenses*

All expenses related to site activities and the provision of necessary data (except those acquired with UNDP support) are the obligation of the Contractor and should be included in the offer. UNDP will not accept additional such expenses in the design phase.

* *Ownership of produced documentation and submission*

The ownership of all documents produced is of UNDP. UNDP reserves the right to use the results in various publications. The drafted technical documentation should be submitted in print (at least 5 copies) and electronic form. The Contractor has the obligation to support the process of approval of the documentation by the local authorities.

* *Payment schedule*

Payment will be done in accordance with the following schedule:

|  |  |
| --- | --- |
| **Activities/outcomes** | **Time** (after the contract is signed) |
| Collecting the necessary data from the site and inspecting the existing documentation | 4 months |
| Analysis and presentation of possible approaches | 6 months |
| Submission of working draft of the basic design | 8 months |
| Submission of final version of the basic design (after revision) | 10 months |

**ANNEX A. PLANNING AND LEGAL DOCUMENTS**

**Relevant National Legislation**

* *Law on Waters* (Official Gazette of RM no. 87/2008) and in particular the paragraphs in article 131 (Regulation and maintenance of surface waters). This law is fully harmonized with the EU Water Directive (2000/60/EC).
* *Law on Construction* (Official Gazette of RM no. 51/2005) as well as the Law on amending the Law on Construction (Official Gazette of RM no. 82/2008).
* *Law on Environment* (Official Gazette of RM no. 53/2005) and the Law on amending the Law on Environment (Official Gazette of RM no. 24/2007).
* *Law on Local Self-government* (Official Gazette of RM no. 5/2002). This law also regulates several very important competences of the local self-government, such as: urban and rural planning, nature and environmental protection, local economic development, public utilities, protection of cultural heritage, recreation and other social, healthcare and educational activities.
* *Regulation on strategies, plans and programmes for environmental impact assessment* (Official Gazette of RM no. 153/2007). This regulation covers all short-, mid- and long-term planning documents in agriculture, forestry, fishing, energy, industry, mining, transport, regional development, telecommunications, waste management, water management, tourism, spatial planning and land use.
* *Rulebook on the methodology for river basin assessment* (Official Gazette of RM no. 148/2009). This rulebook covers analyses of important pressures and impact by man on ground and surface waters in the basin, as well as economic analysis of water use. These analyses are the basis for establishing the goals and the measures for environmental promotion.
* *Law on Physical and Urban Planning* (Official Gazette of RM no. 199/14, 44/15, 193/15 and 31/16) and the Rulebook on standards and norms for urban planning (Official Gazette of RM no. 142/15, 217/15 and 222/15)

**European Union Legislation**

River Basin Management (RBM) and Flood Risk Management (FRM) in the European Union are regulated with the following documents:

* EU Water Framework Directive – WFD, 2000/60/EC
* EU Flood Directive – FD, 2007/60/EC

**ANNEX B. RECOMMENDED LITERATURE**

1. Implementation nature-based flood protection: Principles and implementation guidance. World Bank Group, 2017. [http://documents.worldbank.org/](about:blank)
2. Nature-based solutions: A cost effective approach for disaster risk and water resources management. World Bank, 2019. [http://documents.worldbank.org/](about:blank)
3. Мanual on River Restoration Techniques. The River Restoration Center (RRC). [https://www.therrc.co.uk/manual-river-restoration-techniques](about:blank)
4. Improving resiliance to floods in the Polog Region: Dvelopment of design concepts for ecosystem-friendly urban river flood management. HOLINGER, 2019.
5. Поповска Ц., Крстиќ С. Прирачник за реставрација на реки. ГЕФ & УНДП, 2010.
6. Kathrin Schmidt et al. River bank stabilization by bioengineering: Potentials for ecological diversity. Journal of Applied Water Engineering and Research, 2018.
7. George N. Zaimes et al. New tools and approaches to promote soil and water bioenginering in the Mediterranean. ELSEVIER: Science of Total Environment, 2019.
8. Natural Water Retention Measures (NWRM). EU Policy Document. European Commission, 2014. [http://ec.europa.eu](about:blank)
9. River Maintenance Methods Attachment. Joint Biological Assessment, Part II.

[https://www.usbr.gov/uc/albuq/envdocs/ba/MRG/Part2/Attach-RivMaintMeth.pdf](about:blank)

1. Middle Rio Grande River Maintenance Program, Comprehensive Plan and Guide. RECLAMATION Managing Water in the West.

[https://www.usbr.gov/uc/albuq/envdocs/reports/mrgRivMaint/CompPlan/Plan\_Guide.pdf](about:blank)

1. Water Strategy of the Republic of Macedonia, 2010. Hidroinzenering & RIKO, Slovenia

**ANNEX C. PROPOSED CONTENTS OF TECHNICAL DOCUMENTATION/BASIC DESIGN**

1. Technical report
   1. Goals and objectives of the project
   2. Surveys
      1. Geodetic
      2. Climate-meteorological
      3. Hydrological
      4. Hydraulic
      5. Geo-morphological
      6. Land use & Land cover
      7. Urban planning
   3. Description of possible technical measures and good practices
      1. Classification of measures with priorities
      2. Measures of very high priority (Type 1)
      3. Measures of high priority (Type 2)
      4. Measures of low and medium priority (Type 3)
2. Hydrological analyses
   1. Basin characteristics
   2. Lowand medium water flows
   3. Maximum water flows
3. Hydraulic analyses
   1. Hydraulic terrain modelling
   2. Identification of relevant risk processes
   3. Hydraulic characteristics of natural streambed
   4. Hydraulic characteristics of designed streambed
4. Geomorphological analyses
   1. Identification of sections in the streambed with manifested vertical erosion
   2. Identification of sections in the streambed with deposited alluvial sediments
   3. Quantity of transported sediment in the streambed for relevant flows
   4. Granulometric composition of sediments
5. Technical measures for protection
   1. Classification of measures with priorities
   2. Measures of very high priority (Type 1)
   3. Measures of high priority (Type 2)
   4. Measures of low and medium priority (Type 3)
   5. Sediment control measures
   6. Hydraulic dimensioning
   7. Static dimensioning
   8. Geotechnical dimensioning
   9. Monitoring plan
   10. Maintenance plan
6. Specification of works and conditions for implementation
7. Bill of quantities. This part of the project should be made based on the type of measures and by sections. The recommended priority/pilot section for implementation to be agreed with the investor.
8. Graphics
   1. Topographic maps
   2. Layouts
   3. Longitudinal profiles
   4. Cross sections
   5. Details

**Annex 2**

**Table 1- List of relevant projects for the company:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name of project** | **Client** | **Status or Date Completed** | **References Contact Details (Name, Phone, Email)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Table 2 - Please fill in the table below as per the requirements of the ToR, for the proposed experts (in addition to CV)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***No.*** | ***Position[[9]](#footnote-9)*** | ***Relevant projects (as per requirements in TOR )*** | **Relevant educational background** | ***Authorisation (if required)*** | ***Years of experience*** |
| *1.* |  | *1.*  *2.*  *3.*  *…..* |  |  |  |
| *2.* |  | *1.*  *2.*  *3.*  *…* |  |  |  |
| *3* |  | *1.*  *2.*  *3…….* |  |  |  |
| *4.* |  | *1.*  *2.*  *3.*  *…..* |  |  |  |

***2.1 Availability confirmation form*** (to be filled by all experts)

I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (name, last name), agree that the entity \_\_\_\_\_\_\_\_\_\_\_\_\_ (name of the applicant entity) will use my CV for the tender application under this RFQ.

I declare that the information provided in my CV is accurate, and I am able to provide relevant evidence (reference letters, job contracts, etc.) upon request.

If the entity \_\_\_\_\_\_\_\_\_\_\_\_\_ (name of the applicant entity), is selected for contract, I agree to be available under the conditions given in the ToR.

Name and last name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(as in your ID document)

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ANNEX 3**

**Evaluation criteria**

**Contract will be awarded to the Bidder that meets the criteria based on pass/fail method and offers the lowest offer.**

|  |  |  |
| --- | --- | --- |
| **Minimum Requirements** | **Document to be submitted** | **Pass/Fail** |
| **For the Company:** | | |
| * Valid Authorisation A for designing structures in civil engineering   *NOTE: If selected for an award of contract, international companies shall obtain a permit/consent for execution of construction works in the country by the relevant national authorities, as per the requirements of the Law on Construction, Article 42.* | Copy of Authorisation A | YES/NO |
| * At least 8 (eight) years’ experience in developing project documentation (e.g. preliminary, basic, detailed designs), particularly in the domain of river engineering (regulation of rivers and torrents, construction of dams and other river engineering structures, implementation of protection measures for erosion, etc.); | Company profile | YES/NO |
| * List of minimum 5 (five) completed and positively reviewed projects of similar scope and complexity (development of a basic design for regulation of rivers/torrents, construction of dams and other complex river engineering structures). | List of projects in Table 1 in Annex 2 | YES/NO |
| **Chief design engineer/civil engineer:** | | |
| * Minimum 8 years of relevant professional experience (designing, developing studies in the area of river engineering) | CV and Table 2 in Annex 2 | YES/NO |
| * Authorization A for designing civil engineering structures | Copy of Authorisation A | YES/NO |
| * Experience of at least 5 projects of similar scope and complexity (drafting preliminary, basic/main or detailed design for regulation of rivers/torrents, construction of dams and other complex river engineering structures) | CV and Table 2 in Annex 2 | YES/NO |
| * Experience of at least 2 projects in the role of chief design engineer (drafting preliminary, basic/main or detailed design for regulation of rivers/torrents, construction of dams and other complex river engineering structures) | CV and Table 2 in Annex 2 | YES/NO |
| **Expert in modern approaches to watercourse regulation:** | | |
| * Minimum university degree diploma for relevant area of expertise (e.g. engineering, watercourse regulation, bioengineering, geomorphology, hydrology, hydraulics) | Copy of diploma | YES/NO |
| * Minimum 8 years relevant professional experience in developing and implementation of projects in the area of modern approaches to watercourse regulation/restoration (e.g. ecosystem-based approaches in river restoration, application of bioengineering techniques) | CV | YES/NO |
| * Experience in minimum 5 similar projects (e.g. ecosystem-based approaches to river regulation, river restoration, application of bioengineering techniques). | CV and list of projects | YES/NO |
| **Hydrology, hydraulics and flood modeling expert:** | | |
| * Minimum university degree diploma in the field of civil engineering, hydrology and related disciplines | Copy of diploma | YES/NO |
| * Minimum 8 years relevant professional experience (hydrologic/hydraulic modelling, drafting technical documentation in the area of river engineering, floor risk assessment) | CV and list of projects | YES/NO |
| * Experience in at least 5 relevant projects in the field of hydrologic and hydraulic modelling | CV and list of projects | YES/NO |
| **Geotechnical engineering expert** | | |
| * Authorization A for designing in the field of geotechnics | Copy of diploma | YES/NO |
| * At least 8 years relevant professional experience (geotechnics, engineering geology, geo-mechanical investigations) | CV and list of projects | YES/NO |
| * Experience of minimum 5 relevant projects in the field of geotechnics (designs in geotechnics, geotechnical/geo-mechanical investigations) | CV and list of projects | YES/NO |

**NOTE**: Failure to meet any of these requirements is considered grounds for disqualification

**ANNEX 4**

**FORM FOR SUBMITTING SUPPLIER’S QUOTATION**

***(This Form must be submitted only using the Supplier’s Official Letterhead/Stationery***

We, the undersigned, hereby accept in full the UNDP General Terms and Conditions, and hereby offer to deliver services in conformity with TOR under **RFQ 35/2020 for** **Adjustment/amendment of existing technical documentation for regulation of Upper Vardar in the Municipality of Jegunovce**

**TABLE 1: Offer to Supply services compliant with TOR**

|  |  |  |
| --- | --- | --- |
| **Item No.** | **Description of services** | **Price in MKD or USD, VAT excluded** |
| 1. | **Adjustment/amendment of existing technical documentation for regulation of Upper Vardar in the Municipality of Jegunovce** |  |

All other information that we have not provided automatically implies our full compliance with the requirements, terms and conditions of the RFQ.

The Offer must include a detailed cost breakdown of all services to be provided. Separate figures must be provided for each functional grouping or category, if any.

**Table 1: Summary of Overall Prices**

|  |  |
| --- | --- |
|  | **Amount(s)** |
| **Cost of expertise** (from Table 2) |  |
| **Other costs** (from Table 3) |  |
| **Overhead** (from Table 2) |  |
| **Total Amount of the Bid** |  |

**Table 2: Breakdown of Price**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Deliverable/**  **Activity description** | **Time**  (person days) | **Expertise cost** | **Other Costs (travel, subsistence allowance, transportation costs, miscellaneous etc, please list)** | **Overheads** | **Total** |
| Geodetic survey and maps |  |  |  |  |  |
| Hydrological analyses |  |  |  |  |  |
| Hydraulic analyses |  |  |  |  |  |
| Morphological analyses: Sediment transport |  |  |  |  |  |
| Analysis of technical measures/alternatives |  |  |  |  |  |
| Development and revision of basic design |  |  |  |  |  |

**Auxiliary table 3: Breakdown of Professional Fees**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Position*** | ***Expertise cost per day*** | ***No. of Days*** | ***Total Amount*** |
|  |  |  |
| *Chief design engineer/civil engineer* |  |  |  |
| *Expert in modern approaches to watercourse regulation* |  |  |  |
| *Hydrology, hydraulics and flood modeling expert* |  |  |  |
| *Geotechnical engineering expert* |  |  |  |
| ***Subtotal Expertise Cost:*** | | |  |

*[Name and Signature of the Supplier’s Authorized Person]*

*[Designation]*

*date*

1. The recommendation is to use the design guidelines in the Handbook for river restoration, developed by prof. C. Popovska and prof. S. Krstic, through a UNDP project. [↑](#footnote-ref-1)
2. In accordance with the new approaches, it is often acceptable to allow flooding of areas of smaller value in order to reduce downriver flooding that might affect areas/infrastructure of greater value [↑](#footnote-ref-2)
3. It is recommended to use to the maximum the existing geodetic surveys that the Municipality of Jegunovce and/or the Ministry of Environment and Physical Planning will put at the disposal of the design engineer. However, in case of significant changes in the streambed geometry from the time of the first design, or changes in the overall design approach (e.g., by introducing a new riverbed/flooding corridor as presented under Figure 1), the design engineer could propose additional geodetic surveying. UNDP will provide this with a separate contract with a competent geodetic company. The preparation of the specification of the necessary surveys will be the obligation of the design engineer. [↑](#footnote-ref-3)
4. In accordance with the EU Flood Directive (2007/60/EC) it is necessary to take into account at least three scenarios of flood risks, where floods with a return period of 100 years have a medium possibility of occurrence. [↑](#footnote-ref-4)
5. For these purposes, the design engineer will have at his/her disposal excerpts from the new Digital Terrain Model (DTM) about the Upper Vardar basin, developed as part of the wider campaign for surveying regions in the country with the support of LiDAR technique (a project by the Agency for Real Estate Cadaster). This DTM has high precision with 5 points per m2.  [↑](#footnote-ref-5)
6. The design engineer can use more detailed information about the assessment of possible damages during floods of different categories of land from the current Flood risk management plant. [↑](#footnote-ref-6)
7. The results from the study on sediment management should be used as the starting point for the detailed analysis of sediment transport, necessary for the design. [↑](#footnote-ref-7)
8. Before selecting the solution that would be developed into a basic design, it is necessary to get the approval of the competent authorities in charge of the procedures for issuing various licences. The consultations will be carried out with UNDP support. For these consultations the design engineer should make a comparison of the possible technical solutions in terms of feasibility (in accordance with financial, technical, legal and other possibilities and constraints) [↑](#footnote-ref-8)
9. *CVs in English with clear and relevant information about engineer’s involvement in stated projects.* [↑](#footnote-ref-9)