



REQUEST FOR PROPOSAL (RFP)

To: Companies/ Organizations	DATE: August 11, 2022
	REFERENCE: 175-2022-RFP-UNDP-SCRC Hazards analysis and flood risk mapping with remote sensing data for Tebalay watershed, Tajikistan Анализ опасностей и картирование рисков наводнений с использованием данных дистанционного зондирования для водораздела Тебалай, Таджикистан

Dear Sir / Madam:

We kindly request you to submit your Proposal on Hazards analysis and flood risk mapping with remote sensing data for Tebalay watershed, Tajikistan.

Please be guided by the form attached hereto as Annex 2, in preparing your Proposal.

Proposals may be submitted on or before **Thursday, August 25, 2022, by 12:00 local time** via email address below:

elbids.tj@undp.org (for offers only)

All queries for the proposal should be sent to the attention of Procurement Unit at procurement.tj@undp.org

Your Proposal must be expressed in Russian or English and valid for a minimum period of 90 days

In the course of preparing your Proposal, it shall remain your responsibility to ensure that it reaches the address above on or before the deadline. Proposals that are received by UNDP after the deadline indicated above, for whatever reason, shall not be considered for evaluation. If you are submitting your Proposal by email, kindly ensure that they are signed and in the PDF format, and free from any virus or corrupted files.

Services proposed shall be reviewed and evaluated based on completeness and compliance of the Proposal and responsiveness with the requirements of the RFP and all other annexes providing details of UNDP requirements.

The Proposal that complies with all of the requirements, meets all the evaluation criteria and offers the best value for money shall be selected and awarded the contract. Any offer that does not meet the requirements shall be rejected.

Any discrepancy between the unit price and the total price shall be re-computed by UNDP, and the unit price shall prevail and the total price shall be corrected. If the Service Provider does not accept the final price based on UNDP's re-computation and correction of errors, its Proposal will be rejected.

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 Proposal. 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 Contract or Purchase Order that will be issued as a result of this RFP shall be subject to the General Terms and Conditions attached hereto. The mere act of submission of a Proposal implies that the Service Provider accepts without question the General Terms and Conditions of UNDP, herein attached as Annex 3.

Please be advised that UNDP is not bound to accept any Proposal, nor award a contract or Purchase Order, nor be responsible for any costs associated with a Service Providers preparation and submission of a Proposal, regardless of the outcome or the manner of conducting the selection process.

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/procurement/protest.shtml>.

UNDP encourages every prospective Service Provider to prevent and avoid 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, cost estimates, and other information used in this RFP.

UNDP implements a zero tolerance on fraud and other proscribed practices, and is committed to preventing, identifying and addressing all such acts and practices against UNDP, as well as third parties involved in UNDP activities. UNDP expects its Service Providers 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 Proposal.

Sincerely yours,

Firuz Khamidov
Operations Manager/ARR
11/08/2022

Description of Requirements

Context of the Requirement	Hazards analysis and flood risk mapping with remote sensing data for Tebalay watershed, Tajikistan.
Implementing Partner of UNDP	“Strengthening community resilience to climate-induced disasters through nature-based solutions in Tajikistan” project
Brief Description of the Required Services ¹	The main objective of the assignment is to conduct a comprehensive and detailed analysis of the watershed of Tebalay river through hazards analysis with remote sensing data to identify past, active, and potential floods and landslides and their impact areas, as well as for development of a forecasting model for landslides and mudflows, to guide local warning efforts and to prioritize on-the-ground risk reduction interventions. The results will be provided in the form of maps and descriptions that will enable local governments to identify, assess, and plan for future flooding and mudflows. This analysis is important to ensure that risk reduction and resilience building efforts are effective in reducing risk and do not inadvertently increase risk by initiating activities located in hazardous areas or activities that may exacerbate the frequency or impact of existing hazards. The assessment results will be used for further supporting to apply two-folded approach aiming at: (i) reduction/removal of hazards’ triggering factors and (ii) re-shaping local agricultural practices to create positive impact on disaster dynamics.
List and Description of Expected Outputs to be Delivered	Please refer to the Annex 3 - TERMS OF REFERENCE
Person to Supervise the Work/Performance of the Service Provider	UNDP, Team Leader on Climate Change, DRR, Energy and Environment
Frequency of Reporting	Interim and final reports
Progress Reporting Requirements	Contractor is responsible for submitting the interim and final reports. Programmatic reports must conform to the requirements specified in the Contract and Annexes, signed between the contractor and UNDP. In addition, the Contractor should provide to UNDP, as evidence of delivered services, all photos and other visual materials, participants satisfaction survey etc collected/made during this project. Printed and electronic versions of reports should be delivered to UNDP. Electronic version of the report should be saved as MS Word. All reports must be typed in ARIAL, size 11, Size A4. The title page, with the title of the project and the author, should contain UNDP logos.
Location of work	☒ Target areas: Republic of Tajikistan ☐ At Contractor’s Location
Expected duration of work	October - November 2022

Target start date	October 2022
Latest completion date	November 2022
Travels Expected	Targeted areas n/a
Special Security Requirements	N/A ☐ Security Clearance from UN prior to travelling ☐ Completion of UN's Basic and Advanced Security Training ☐ Comprehensive Travel Insurance ☐ Others <i>[pls. specify]</i>
Facilities to be Provided by UNDP (i.e., must be excluded from Price Proposal)	N/A ☐ Office space and facilities ☐ Land Transportation ☐ Others <i>[pls. specify]</i>
Implementation Schedule indicating breakdown and timing of activities/sub-activities	☒ Required ☐ Not Required
Names and curriculum vitae of individuals who will be involved in completing the services	☒ Required ☐ Not Required
Currency of Proposal	☒ United States Dollars ☐ Euro ☒ Local Currency (TJS)
Value Added Tax on Price Proposal ²	☐ must be inclusive of VAT and other applicable indirect taxes ☒ must be exclusive of VAT and other applicable indirect taxes
Validity Period of Proposals (Counting for the last day of submission of quotes)	☐ 60 days ☒ 90 days ☐ 120 days In exceptional circumstances, UNDP may request the Proposer to extend the validity of the Proposal beyond what has been initially indicated in this RFP. The Proposal shall then confirm the extension in writing, without any modification whatsoever on the Proposal.
Partial Quotes	☒ Not permitted

	☐ Permitted												
Payment Terms ³	<table border="1"> <thead> <tr> <th>Outputs</th><th>Timing (tentative, subject to revision)</th><th>Condition for Payment Release</th></tr> </thead> <tbody> <tr> <td> Deliverable 1 • Inception report, including work plan with a timeframe and breakdown of assignments, other related documentations to initiate the main work. </td><td>By 15 October 2022</td><td rowspan="4"> Within fifteen (30) days from the date of meeting the following conditions: a) UNDP's written acceptance (i.e., not mere receipt) of the narrative report and the quality of the outputs; and b) Receipt of invoice </td></tr> <tr> <td> Deliverable 2 • Report includes GIS maps with at risk to floods that includes population, critical infrastructure including croplands, roads, bridges etc. </td><td>By 30 October 2022</td></tr> <tr> <td> Deliverable 3 • High-resolution images of watershed of Tebalay satellite images including risk zones with safe heavens </td><td>By 15 November 2022</td></tr> <tr> <td> Deliverable 4 • Final report and presentation of the results to key stakeholders </td><td>By 30 November 2022</td></tr> </tbody> </table>	Outputs	Timing (tentative, subject to revision)	Condition for Payment Release	Deliverable 1 • Inception report, including work plan with a timeframe and breakdown of assignments, other related documentations to initiate the main work.	By 15 October 2022	Within fifteen (30) days from the date of meeting the following conditions: a) UNDP's written acceptance (i.e., not mere receipt) of the narrative report and the quality of the outputs; and b) Receipt of invoice	Deliverable 2 • Report includes GIS maps with at risk to floods that includes population, critical infrastructure including croplands, roads, bridges etc.	By 30 October 2022	Deliverable 3 • High-resolution images of watershed of Tebalay satellite images including risk zones with safe heavens	By 15 November 2022	Deliverable 4 • Final report and presentation of the results to key stakeholders	By 30 November 2022
Outputs	Timing (tentative, subject to revision)	Condition for Payment Release											
Deliverable 1 • Inception report, including work plan with a timeframe and breakdown of assignments, other related documentations to initiate the main work.	By 15 October 2022	Within fifteen (30) days from the date of meeting the following conditions: a) UNDP's written acceptance (i.e., not mere receipt) of the narrative report and the quality of the outputs; and b) Receipt of invoice											
Deliverable 2 • Report includes GIS maps with at risk to floods that includes population, critical infrastructure including croplands, roads, bridges etc.	By 30 October 2022												
Deliverable 3 • High-resolution images of watershed of Tebalay satellite images including risk zones with safe heavens	By 15 November 2022												
Deliverable 4 • Final report and presentation of the results to key stakeholders	By 30 November 2022												
Person(s) to review/inspect/ approve outputs/completed services and authorize the disbursement of payment	UNDP, Team Leader on Climate Change, DRR, Energy and Environment												
Type of Contract to be Signed	☒ Purchase Order ☐ Institutional Contract ☒ Contract for Services ☐ Long-Term Agreement ☐ Other Type of Contract												
	☐ Lowest Price Quote among technically responsive offers												

³ UNDP preference is not to pay any amount in advance upon signing of contract. If the Service Provider strictly requires payment in advance, it will be limited only up to 20% of the total price quoted. For any higher percentage, or any amount advanced exceeding \$30,000, UNDP shall require the Service Provider to submit a bank guarantee or bank cheque payable to UNDP, in the same amount as the payment advanced by UNDP to the Service Provider.

Criteria for Contract Award	☒ Highest Combined Score (based on the 70% technical offer and 30% price weight distribution) ☒ Full acceptance of the UNDP Contract General Terms and Conditions (GTC). This is a mandatory criterion and cannot be deleted regardless of the nature of services required. Non acceptance of the GTC may be grounds for the rejection of the Proposal.
Criteria for the Assessment of Proposal	<u>Technical Proposal (70%)</u> ☒ Expertise of the Firm (200 points) ☒ Methodology, Its Appropriateness to the Condition and Timeliness of the Implementation Plan (300 points) ☒ Management Structure and Qualification of Key Personnel (200)
	<u>Financial Proposal (30%)</u> The Offeror shall seal the Proposal in one outer and two inner envelopes. Both inner envelopes shall indicate the name and address of the Offeror. The first inner envelope shall contain the information specified in Annex 2 (Proposal form), with the duly marked "Original". The second inner envelope shall include the price schedule duly identified as such. Upon submission through e-mail, the file with the "FINANCIAL PROPOSAL" must be encrypted with a password so that it cannot be opened nor viewed until the proposal has been found to pass the technical evaluation stage. UNDP shall request via email the proposer to submit the password to open the Financial Proposal. A two-stage procedure is utilized in evaluating the proposals, with evaluation of the technical proposal being completed prior to any price proposal being opened and compared. The price proposal of the Proposals will be opened only for submissions that passed the minimum technical score of 70% of the obtainable score of 700 points in the evaluation of the technical proposals. The technical proposal is evaluated on the basis of its responsiveness to the Term of Reference (TOR). In the Second Stage the contract will be awarded to the Contractor who obtained the highest combined scoring for technical and financial proposals.
UNDP will award the contract to:	☒ One and only one Service Provider ☐ One or more Service Providers, depending on the following factors:
Annexes to this RFP ⁴	☒ Form for Submission of Proposal (Annex 2) ☒ Detailed TOR (Annex 3) ☒ General Terms and Conditions / Special Conditions (Annex 4) ⁵
Contact Person for Inquiries (Written inquiries only) ⁶	Procurement.tj@undp.org 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.

⁴ Where the information is available in the web, a URL for the information may simply be provided.

⁵ Service Providers are alerted that non-acceptance of the terms of the General Terms and Conditions (GTC) may be grounds for disqualification from this procurement process.

⁶ This contact person and address is officially designated by UNDP. If inquiries are sent to other person/s or address/es, even if they are UNDP staff, UNDP shall have no obligation to respond nor can UNDP confirm that the query was received.

Other Information <i>[pls. specify]</i>	The Proposal should include methodology with detailed Working plan on proposed activities.
Fraud & Corruption, Gifts and Hospitality	UNDP strictly enforces a policy of zero tolerance on proscribed practices, including fraud, corruption, collusion, unethical or unprofessional practices, and obstruction of UNDP vendors and requires all bidders/vendors observe the highest standard of ethics during the procurement process and contract implementation. UNDP's Anti-Fraud Policy can be found at http://www.undp.org/content/undp/en/home/operations/accountability/audit/office_of_audit_andinvestigation.html#anti Bidders/vendors shall not offer gifts or hospitality of any kind to UNDP staff members including recreational trips to sporting or cultural events, theme parks or offers of holidays, transportation, or invitations to extravagant lunches or dinners. In pursuance of this policy, UNDP: (a) Shall reject a bid if it determines that the selected bidder has engaged in any corrupt or fraudulent practices in competing for the contract in question; (b) Shall declare a vendor ineligible, either indefinitely or for a stated period, to be awarded a contract if at any time it determines that the vendor has engaged in any corrupt or fraudulent practices in competing for, or in executing a UNDP contract. All Bidders must adhere to the UN Supplier Code of Conduct, which may be found at http://www.un.org/depts/ptd/pdf/conduct_english.pdf

Joint Venture, Consortium or Association	• If the Bidder is a group of legal entities that will form or have formed a Joint Venture (JV), Consortium or Association for the Proposal, they shall confirm in their Proposal that : (i) they have designated one party to act as a lead entity, duly vested with authority to legally bind the members of the JV, Consortium or Association jointly and severally, and (ii) if they are awarded the contract, the contract shall be entered into, by and between UNDP and the designated lead entity, who shall be acting for and on behalf of all the member entities comprising the joint venture. • After the Deadline for Submission of Proposal, the lead entity identified to represent the JV, Consortium or Association shall not be altered without the prior written consent of UNDP. • The lead entity and the member entities of the JV, Consortium or Association shall submit only one proposal. • The description of the organization of the JV, Consortium or Association must clearly define the expected role of each of the entity in the joint venture in delivering the requirements of the RFP, both in the Proposal and the JV, Consortium or Association Agreement. All entities that comprise the JV, Consortium or Association shall be subject to the eligibility and qualification assessment by UNDP. • Previous contracts completed by individual experts working privately but who are permanently or were temporarily associated with any of the member firms cannot be claimed as the experience of the JV, Consortium or Association or those of its members, but should only be claimed by the individual experts themselves in their presentation of their individual credentials. • JV, Consortium or Associations are encouraged for high value, multi-sectoral requirements when the spectrum of expertise and resources required may not be available within one firm. • Team Leader has to be employed by the Lead Agency
---	---

Technical Evaluation Criteria

Summary of Technical Proposal Evaluation Forms			Score Weight	
1	Expertise of Firm / Organization		20%	200
2	Proposed Methodology, Approach and Implementation Plan		30%	300
3	Management Structure and Key Personnel		20%	200
Total			70%	700
Technical Proposal Evaluation Form 1				
Expertise of the Firm/Organization				Points obtainable
1.1	Reputation of Organization and Staff Credibility / Reliability / Industry Standing			50
1.2	General Organizational Capability which is likely to affect implementation			40
	- Financial stability		10	
	- age/size of the firm		10	
	- strength of project management support		10	
	- project financing capacity		5	
	- project management controls		5	
1.3	Relevance of:			110
	- Specialized Knowledge		30	
	At least 5 years of past experience in producing remote sensing products/maps and remote watershed analysis (preferably experience of completing such works in Japan)		20	
	Proven working experience of 5 years in designing and building linked databases.		15	
	Experience and ability in report writing and remote sensing data interpretation.		15	
	Sufficient skills of assigned staff including specialists in remote sensing, geoinformatics, machine learning, hydrological modeling, GIS and related fields.		20	
	Experience working and collaborating with partners, donors		10	
Total Part 1				200
Technical Proposal Evaluation Form 2				
Proposed Methodology, Approach and Implementation Plan				Points Obtainable
2.1	To what degree does the Bidder understand the task?			40
2.2	Have the important aspects of the task been addressed in sufficient detail?			40
2.3	Are the different components of the project adequately weighted relative to one another?			30
2.4	Is the Bid based on a survey of the project environment and was this data input properly used in the preparation of the Bid?			30
2.5	Is the conceptual framework adopted appropriate for the task?			50

2.6	Is the scope of task well defined and does it correspond to the TOR?		50
2.7	Is the presentation clear and is the sequence of activities and the planning logical, realistic and promise efficient implementation to the project?		60
Total Part 2			300
Technical Proposal Evaluation Form 3			
Management Structure and Key Personnel			Points Obtainable
3.1	Remote sensing scientist/Team Leader		70
	General Qualification		
	Suitability for the Project		
	At least 3 years of experience in the field of producing remote sensing products/maps and remote watershed analysis.	30	
	Professional experience in the area of specialization	20	
	Knowledge of the region	5	
	Proficiency in both spoken and written English and/or Russian	10	
	Experience with similar programs / projects	5	
3.2	Machine learning expert		60
	General Qualification		
	Suitability for the Project		
	At least 3 years of experience of work in the field of machine learning, modeling of watersheds, flooding and related fields.	25	
	Professional Experience in the area of specialization	15	
	Experience in designing, developing, and researching Machine Learning systems, models, and schemes for prediction purposes.	15	
	Proficiency in both spoken and written English	5	
3.3	Hydrologist/Hydraulic Modeler		35
	General Qualification		
	Suitability for the Project		
	At least 2 years of experience in monitoring, management and protection of water and water resources. Experience in forecasting floods, designing methods to decrease environmental impact from erosion. Writing reports and presenting results	20	
	Professional Experience in the area of specialization	10	
	Language Qualifications of English and/or Russian	5	
	3.4	GIS Specialist- International	
General Qualification			
Suitability for the Project			
At least 2 years of experience in designing, developing, and implementing systems and databases to access and store geospatial data. Experience of producing maps with multiple layers.		20	

	Professional Experience in the area of specialization	10	
	Language Qualifications of English and/or Russian	5	
Total Part 3			200

Company can offer more staff, but only abovementioned staff will be included in technical and financial evaluation.

FORM FOR SUBMITTING SERVICE PROVIDER'S PROPOSAL⁷

(This Form must be submitted only using the Service Provider's Official Letterhead/Stationery⁸)

[insert: Location].

[insert: Date]

To: Mr. Lenni Montiel, UNDP Resident Representative, UNDP Tajikistan;

Address: 39, Ayni Street, Dushanbe UNDP office

Dear Sir/Madam:

We, the undersigned, hereby offer to render the following services to UNDP in conformity with the requirements defined in the RFP 175-2022-RFP-UNDP-SCRC dated 8/11/2022, and all of its attachments, as well as the provisions of the UNDP General Contract Terms and Conditions:

A. Qualifications of the Service Provider

The Service Provider must describe and explain how and why they are the best entity that can deliver the requirements of UNDP by indicating the following:

- a) *Profile – describing the nature of business, field of expertise, licenses, certifications, accreditations;*
- b) *Business Licenses – Registration Papers, Tax Payment Certification, etc.*
- c) *Latest Audited Financial Statement – income statement and balance sheet to indicate its financial stability, liquidity, credit standing, and market reputation, etc.;*
- d) *Track Record – list of clients for similar services as those required by UNDP, indicating description of contract scope, contract duration, contract value, contact references;*
- e) *Certificates and Accreditation – including Quality Certificates, Patent Registrations, Environmental Sustainability Certificates, etc.*
- f) *Written Self-Declaration that the company is not in the UN Security Council 1267/1989 List, UN Procurement Division List or Other UN Ineligibility List.*

B. Proposed Methodology for the Completion of Services

The Service Provider must describe how it will address/deliver the demands of the RFP; providing a detailed description of the essential performance characteristics, reporting conditions and quality assurance mechanisms that will be put in place, while demonstrating that the proposed methodology will be appropriate to the local conditions and context of the work.

C. Qualifications of Key Personnel

⁷ This serves as a guide to the Service Provider in preparing the Proposal.

⁸ Official Letterhead/Stationery must indicate contact details – addresses, email, phone and fax numbers – for verification purposes

If required by the RFP, the Service Provider must provide:

- a) Names and qualifications of the key personnel that will perform the services indicating who is Team Leader, who are supporting, etc.;
- b) CVs demonstrating qualifications must be submitted if required by the RFP; and
- c) Written confirmation from each personnel that they are available for the entire duration of the contract.

D. **Cost Breakdown per Deliverable***

	Deliverables [list them as referred to in the RFP]	Percentage of Total Price (Weight for payment)	Price (Lump Sum, All Inclusive)
1	Deliverable 1		
2	Deliverable 2		
3	Deliverable 3		
4	Deliverable 4		
	Total	100%	

*This shall be the basis of the payment tranches

E. **Cost Breakdown by Cost Component [This is only an Example]:**

Description of Activity	Remuneration per Unit of Time	Total Period of Engagement	No. of Personnel	Total Rate
I. Personnel Services				
1. Services from Home Office				
a. Team Leader				
b. Senior Project Staff				
c. Administrative/Junior Staff				
2. Services from Field Offices				
a. Team Leader				
b. Senior Project Staff				
c. Administrative/Junior Staff				
3. Services from Overseas				
a. Team Leader				
b. Senior Project Staff				
c. Administrative/Junior Staff				
4. Cost of additional staff				
II. Out of Pocket Expenses				
1. Travel Costs				
2. Daily Allowance				
3. Communications				
4. Reproduction				
5. Equipment Lease				
6. Others				
III. Other Related Costs				
TOTAL COSTS				

Total costs of both tables should be equal.

[Name and Signature of the Service Provider's Authorized
Person]
[Designation]
[Date]

TERMS OF REFERENCE

Title:	Hazards analysis and flood risk mapping with remote sensing data for Tebalay watershed, Tajikistan
Programme/Project:	Strengthening community resilience to climate-induced disasters through nature-based solutions in Tajikistan
Reporting to:	Team Leader on Climate Change, DRR, Energy and Environment
Duty Station:	Remote
Duration:	2 months (October – November 2022)

a. Purpose

UNDP in Tajikistan is seeking for qualified company/firm, who, in close coordination with UNDP CO team on Climate Change, Disaster Risk Reduction, Energy and Environment will provide high-quality services hazards analysis using remote sensing data to identify past, active, and potential floods and landslides and their impact areas, as well as for development of a forecasting model for landslides and mudflows, to guide local warning efforts and to prioritize on-the-ground risk reduction interventions.

Managing risks associated with floods and developing long-lasting mitigation measures requires the estimation of flood hazards and the impacts that they can cause. A well conducted flood hazard and risk assessment can provide valuable support for a range of decisions such emergency response preparation, land-use planning and design of infrastructure.

In view of this, an assessment is envisaged that will contain historical risk map through different models including hydrological and probabilistic models through remote sensing technologies.

Current project is financed by the Government of Japan to assess the risk of flood- and climate-change-induced hazards of the Tebalay watershed. As a result of substantial and effective expertise with remote sensing technology used in Japan, current assignment aims to use Japanese testing methods to be adapted and replicated to the realities of Tajikistan.

b. Objective

The main objective of the assignment is to conduct a comprehensive and detailed analysis of the watershed of Tebalay river through hazards analysis with remote sensing data to identify past, active, and potential floods and landslides and their impact areas, as well as for development of a forecasting model for landslides and mudflows, to guide local warning efforts and to prioritize on-the-ground risk reduction interventions. The results will be provided in the form of maps and descriptions that will enable local governments to identify, assess, and plan for future flooding and mudflows. This analysis is important to ensure that risk reduction and resilience building efforts are effective in reducing risk and do not inadvertently increase risk by initiating activities located in hazardous areas or activities that may exacerbate the frequency or impact of existing hazards. The assessment results will be used for further supporting to apply two-folded approach aiming at: (i) reduction/removal of hazards' triggering factors and (ii) re-shaping local agricultural practices to create positive impact on disaster dynamics.

c. Background Information

In May 2021, torrential rains triggered floods, landslides and mudflows across much of the country. The largest losses were experienced in the east of Khatlon Province, including the loss of life in Kulob city and significant damage in surrounding districts.

Most of the damage was caused by uncontrolled massive water discharge through Tebalay River, which watershed is home to some 310,000 people. Tebalay watershed is a hilly area with steep inclinations, comprised mainly of loose soils and limited vegetation, intensely used by local communities for uncontrolled livestock grazing and being actively deforested for fuel purposes. Seasonal emergencies in the area are further affected by changing precipitation patterns, adding an unpredictability factor to the localized weather forecasts and early warning.

These factors together with unfavorable geological conditions like glide planes pave the way for natural hazards like floods, landslides and mudflows. These hazards are heavily fostered when human-made factors come on top like land-use alterations, inappropriate drainage structures, overgrazing and effects of urbanization. In addition, climate change increases the number of very intensive rainfall events and thus exacerbate flash floods, erosion, landslides and mudflows.

Through this project, UNDP aims to support local communities and authorities in the East Khatlon (Kulob city, Sh. Shohin and Muminabad districts) province with eco-based solutions for the effective watershed management of the Tebalay River to reduce incidence and impact of the hydro-meteorological hazards (flash floods, landslides, mudflows) on local habitation (shelter, public infrastructure), agricultural livelihoods (fields and pastures) and local ecosystems. Livelihoods-centered eco-based solutions are expected to reduce financial burden of disaster damage and self-recovery of the communities and increase their financial standing to withstand external shocks, e.g., those linked to COVID-19 pandemic.

In the frames of this project, UNDP will strengthen community resilience to climate-induced disasters through nature-based solutions in the watershed of Tebalay River.

d. Scope of Work or Description of duties/tasks:

The tasks and responsibilities :

The objective of this consultancy is to support the remote sensing data analysis to identify past, active and potential floods and landslides and their impact areas, as well as development of a forecasting model for landslides and mudflows, to guide local warning efforts and to prioritize on-the-ground risk reduction interventions in Tebalay watershed area. If the company will need a hydrological data from Tebalay watershed zone, UNDP will provide the data. The company will be responsible for the following tasks:

1. Using the remote sensing technologies, develop a historic mapping of flood risk that will be used to assess the probability that a flood of a particular intensity will occur over an extended period of time
2. Develop GIS maps that contains data about at risk to floods that includes population, critical infrastructure including croplands, roads, bridges etc. The company should provide one unified GIS map including district of Shamsiddin Shohin, Muminobod and Kulob across the Tebalay watershed and separate GIS maps for each target zone. All targets should include Tebalay watershed area.
3. Develop hydrological and probabilistic models with multiple return periods for pluvial and fluvial floods of Tebalay watershed.

4. Provide high-resolution satellite images of watershed of Tebalay, which enables the land use map that would be an input for Tebalay watershed management planning and prediction of hydrology characteristics of a watershed by relevant government agencies and community-based organizations.
5. Summarize the results of the analysis in the format of narrative report and maps and descriptions that will enable local governments to identify, assess, and plan for future flooding and mudflows/landslide. The report should include the risks analysis as well.
6. Conduct an online presentation of the results to UNDP and partners

e. Deliverable and Timelines

Deliverables	Timeline
Deliverable 1: Inception report, including work plan with a timeframe and breakdown of assignments, other related documentations to initiate the main work.	15 October 2022
Deliverable 2: Report includes GIS maps with at risk to floods that includes population, critical infrastructure including croplands, roads, bridges etc.	30 October 2022
Deliverable 3: High-resolution images of watershed of Tebalay satellite images including risk zones with safe heavens	15 November 2022
Deliverable 4: Final report and presentation of the results to key stakeholders	30 November 2022

Qualifications for Company:

1. Company meets minimum 5 years of past satisfactory experience
2. Experience in producing remote sensing products/maps and remote watershed analysis already put into practice (preferably experience of completing such works in Japan). Company has previously conducted similar work.
3. Company is properly registered a/o has required certifications, memberships, etc.
4. Proven working experience of 5+ years in designing and building linked databases.
5. Proven ability in report writing and remote sensing data interpretation.
6. Experience working and collaborating with partners, donors
7. Staff size is sufficient to meet all deliverables in a timely manner

Key staff requirements:

The consultancy firm/institution is expected to propose a team of experts consisting of a team leader and other experts/specialist listed below (for evaluation). The CVs have to provide relevant past experience, highlight comparative advantages, and provide the details in English Language.

Key Position 1 –	Remote sensing scientist/Team Leader
Academic qualification in field of:	Degree in geography, environmental science, agronomy, geo-informatics or a closely related field
Experience	- Experience related to land cover and forest cover mapping and monitoring using remote sensing; - Excellent technical knowledge on RS/GIS software; - Experience in natural resource monitoring and geography; -
- Language Qualifications	Proficiency in both spoken and written English;
Key Position 2 –	Machine learning expert
Academic Qualifications in field of:	MA in Computer Science or similar relevant field
Experience	Design and develop machine learning algorithms Perform explanatory data analyses Generate and test working hypotheses Prepare and analyze historical data and identify patterns Develop algorithms which can “learn” from or adapt to the data and make predictions.
Language Qualifications	Proficiency in both spoken and written English
Key Position 3 –	Hydrologist/Hydraulic Modeler
Academic Qualifications in field of:	Hydrology, water resources management, hydrometeorology, hydraulics, or closely related field
Experience	Experience in river basin flood and/or drought hazard mapping Progressive professional experience in hydrodynamic analysis, river hydraulics and hydraulic and hydrology modelling with experience in flood risk assessment and mapping Experience in using different hydraulic modelling software
Language Qualifications	Proficiency in both spoken and written English
Key Position-4	GIS Specialist
Academic Qualifications in field of	Geography, Geodesy, Natural Resources Management, Data Management, Information Technology or in a related field relevant to climate change adaptation and/or disaster risk management coupled with a combination of professional training, certification and experience in GIS mapping/remote sensing.
Experience	Progressively responsible experience in the field of GIS which includes digitizing, mapping and data analysis, preferably in hazard mapping, watershed management, forestry or a related field Experience in working with the government in the sphere of GIS and remote sensing technology

	Experience in climate hazard mapping, climate change adaptation, agroforestry, watershed and catchment management Proficiency in using GIS, remote sensing and other relevant geospatial software packages
Language Qualifications	Proficiency in both spoken and written English
Additional requirements 8. Team member(s) should meet required technical expertise and demonstrate proven experience in flood warning techniques that have been put in place (preferably in Japan), including its adaptation.	