

Flood Consultancy REOI: Response to queries

Project: Assam Integrated River Basin Management Program (AIRBMP)

Ref. no.: WRD_HIU_CS1_FLOOD FORECASTING

Assignment Title: Consultancy Services for Flood Forecasting and Integrated Flood Risk Management Planning for Beki, Buridehing and Jiadhhal sub-basins of Brahmaputra River in Assam.

Clause ref. no.	REOI Conditions	Bidder's Queries	Response from WRD
E. Abbreviated Scope of Services	<p>Task A: Development of Water Resources Baseline Information. Point No. 3 Collection and storing water resources baseline information.</p> <ul style="list-style-type: none"> • LiDAR derived DTM and/or satellite-based DRM for the floodplain areas of the three target sub-basins. • Topographic and infrastructure surveys for important features such as embankment profile. Dimensions of all kinds of flow control structures. • Human intervention information on levees. • Cross-sections for selected locations for the three sub-basins. • Bathymetric surveys for Beki and Buridehing Rivers. 	<p>It is requested to clarify whether the surveys mentioned in bullets 1 to 5 have already been done and the consultant only need to collect, perform necessary analysis and utilization or those all surveys need to be performed by the consultant.</p>	<p>Consultant shall need to collect existing available data mentioned in point 1 to 5 from the client / different other sources through the client and then should analyse and utilise.</p> <p>The full TOR at RFP stage will include a provisional sum for carrying out additional surveys above and beyond those that will be undertaken by WRD under separate assignments (RTDAS. LiDAR, bathymetry etc, to specified in detail in the full TOR). The provisional sum can also be used for the purchase of commercial data should this be considered necessary in the event that results from said surveys (1) to (5) are not available to the Consultant in a timely manner.</p>
E. Abbreviated Scope of Services	<p>Task A: Development of Water Resources Baseline Information. Point No. 3 Collection and storing water resources baseline information.</p> <ul style="list-style-type: none"> • Real-Time Data Acquisition System (RT-DAS) installation, involving extra automatic water level monitoring stations and Automatic Weather Stations (additional to the stations 	<p>It is requested to elaborate the RT-DAS installation like manpower, location, maintenance etc.</p>	<p>RTDAS is being commissioned under a sperate contract. Should under this assignment it become clear that additional RTDAS stations are needed, it will be the responsibility of WRD (i.e., not under this consultancy).</p>

	installed under the National Hydrology project (NHP).		
		In case a Lead Consultant is submitting a bid with subconsultants: do the references and/or CV's of the subconsultants count in your evaluation of EoI's and proposals? Or is it in this case necessary to submit a proposal as a Joint Venture?	CV has not been requested at the REOI stage. In case of JV please refer clause ref. no 5 of the corrigendum – 1, which is self-explanatory
Clause no.5	Point 5. Consultants may associate with other firms in the form of a joint venture or a sub-consultancy to enhance their qualifications. The Consultants shall clearly state the role of each member in the association (Lead, JV partner, or Sub-consultant) in their expression of interest.	The Consultants' requests the Client to confirm the number of members that can form the Consortium.	It should be limited to maximum three firms.
Clause no. 1	Required Expertise of Consulting Firm and Key Experts: The consultancy will be overseen by a Team Leader with support from a resident Deputy Team Leader for each sub-basin. The Consultant team is composed of a multi-disciplinary team of experts with International and Indian background.	The Consultants' requests the Client to confirm if its required to submit CVs of both Key (International + National/Regional) & Non-key experts for Evaluation purpose.	CV has not been requested at the REOI stage.
A. Project Description	Component 2.5: WRD Project Management and Incremental Costs including: i) communication and outreach; ii) specialized individual consultants; iii) equipment; and iv) WRD incremental operating costs.	Please clarify whether this clause asks for the services of estimating budget or methodology.	NO. This describes Component 2.5 of the Project and not the services required for this Consultancy.
A. Project Description	Component 3.3: Revenue Circle Disaster Management: consisting of training and equipping revenue circle quick response teams. A revenue circle is the lowest administrative unit of the Department of Revenue and Disaster Management (DR&DM) which has front-line responsibility for responding to disasters. Training	We understand that Client wants training program for the staffs. However, the upgradation of equipment for the program is not clear on exact places, equipment or facilities. Please clarify.	NO. This describes Component 3.3 of the Project and not the services required for this Consultancy.

	facilities at the Assam Civil Defense and Home Guard Central Training Institute will also be upgraded.		
E. Abbreviated Scope of Services – Task B: Operational Flood Forecasting System Sub-tasks 4.	Complete the automation of flood forecasting including download of (deterministic) meteorological forecast, real time observations, modelling and dissemination of results using latest real time flood forecasting platform. To test the model performance over the monsoon season (two monsoons) using standard hydrological and forecasting performance measures (model efficiency, hit rates, kappa statistics etc.). Model development will be progressive, 1D only or 2D only and gradually to linked 1D/2D models by increasing 2D areas. The full basin (India part) hopefully will be ready prior to the 2nd monsoon and thus, two monsoons forecast efficient to be done.	Owing to the hydrological uncertainty two monsoon seasons 'records are not enough to forecast the flood. In these aspects, please confirm that this could be revisited if possible.	Two monsoons will be used to test the performance of operational forecasts under this consultancy using the calibrated and validated models that will be developed under this consultancy. However, number of years for calibration and validation will be different and will be specified at the RFP stage and can be adjusted during the assignment with the concurrence of WRD.
E: Abbreviated Scope of Services – Task C: Integrated Flood Risk Management Planning Sub- activities 3.	Development of advanced modelling toolsets: Based on the recommendations of the modelling system assessment and model design report, a comprehensive IFRM planning and design toolset will be developed, comprising of a series of coupled numerical models (hydrodynamic, sediment transport, and morphological models, economic models) using the state-of-the art appropriate technology enabling quantitative assessment of development scenarios and support the design of interventions in the river and floodplain to reduce flood and river erosion risk in the three sub-basins. The models, high resolutions sub models, must be developed at a scale (spatial and temporal) and purpose (planning & design) appropriate for application in all stages of the assignment. To support the modelling, planning, and design works, morphological analysis to be carried out using the satellite imageries to gain understanding of river planform dynamics by deriving planform parameters such as sinuosity, lateral changes, radius of curvature, meander wavelength, amplitude, and	The Consultant believes that this toolset is the only hydrological model to see results of calculations regarding flood/sedimentation. However, please clarify the specific definition of "economic models" in this clause.	Economic models are needed to support the planning process and undertake cost-benefit analysis of proposed investments. Ecological model may also potentially be employed.

	meander belt width. The outcome of morphological analysis shall include possible near future changes such as the identification of location of cut-offs etc.,		
E: Abbreviated Scope of Services – Task C: Integrated Flood Risk Management Planning Sub- activities 7.	Prepare associated ESIA and RAPs for each Basin DPR. A comprehensive ESIA and associated ESMP should be prepared for each basin. The ESIA should incorporate the planning rationale for the selected investments, including medium and long-term objectives, and action plan, as well as minimizing the environmental impacts of the selected investments. The DPRs, ESIA, and RAPs should be prepared in parallel to ensure environmental and social considerations are taken into account. Additional documents required by the World Bank ESF policies shall also be prepared as part as required, such as Gender Action Plan, Labor Management Plan, Indigenous Peoples Framework, Labor Management Plan, and Grievance Redress Mechanisms, including assisting WRD in carrying out the required consultations necessary to prepare these documents.	The consultant understands that the term “comprehensive ESIA” is a specific task which is varied from “ESIA”. Please confirm.	The term comprehensive ESIA is intended to mean an ESIA that meets the World Bank’s ESF requirements.
		we request you to extend the due date of EOI submission by at least 3 weeks from the reply of pre-bid queries so that to prepare a comprehensive quality document.	Please refer to corrigendum – 1 The REOI submission has been extended for 14 days till, 28 th February 2023, 14.00 HRS (IST)
E: Abbreviated Scope of Services Task A	Development of Water Resources Base Line Information. 1. Information Management System (IMS) Development: The consultant shall develop/adopt the appropriate platform to store spatial and temporal data on sub-basin, district, and circle revenue level. The platform should have data storage, data management, model management and user management capabilities with a user interface to access and visualize the stored information.	We understand a Information Management System (IMS) will be developed by the Consultants to store spatial and temporal data on sub-basin, district, and circle revenue level. For developing this software Information Management Specialist/Database expert has been kept. But for this Developer and System analyst will also be	The abbreviated TOR provides an indicative list of key and non-key staff, necessary to carry out the services under the assignment successfully and is non-exhaustive. The consultant is encouraged to propose additional expertise necessary at the RFP stage for the Firm to carry out the assignment successfully.

		required for which no provision has been kept	
E: Abbreviated Scope of Services Task A	Development of Water Resources Base Line Information. Collection and storing water resources baseline information: Using the developed standard data protocols and QA/QC mechanisms the consultant shall collect and store available information which will be the basis for flood risk management planning and operational flood forecasting activities. In addition to the existing data at the implementing agencies under Phase 1 of AIRBMP several data collection activities are under preparation or ongoing. The following initiatives may be relevant for this assignment:	We understand that the existing available data will be directly available from Client or will be collected from other relevant agencies with the assistance from client. We understand that the following data is collected, developed, derived and accumulated as ongoing activities under Phase 1 of AIRBMP and those data will be made available to the Consultants.	Client will facilitate the consultant in collecting the existing data from relevant agencies
E: Abbreviated Scope of Services Task A	LiDAR derived DTM and/or satellite-based DRM for the floodplain areas of the three target sub-basins.	Kindly clarify if the LiDAR derived DTM and/or satellite-based DRM for the floodplain areas of the three target sub-basins are already available or the Consultants has to prepare it	LIDAR data are being surveyed under a separate assignment. Once surveyed and processed, data for these three basins shall be made available to the consultant The RFP TOR will clarify how the Consultant has to deal with the situation should the LiDAR dataset not be available during the assignment.
E: Abbreviated Scope of Services Task A	Topographic and infrastructure surveys for important features such as embankment profile. Dimensions of all kinds of flow control structures.	Kindly clarify Topographic and infrastructure surveys for important features such as embankment profile, control structures are already carried out by other agencies under Phase 1 of AIRBMP or the Consultants have to carry out the same.	Consultant shall need to collect existing available data from the client / different other sources through the client and then should analyse and utilise as appropriate. The full TOR at RFP stage will include a provisional sum for carrying out additional surveys above and beyond those that will be undertaken by WRD under separate assignments.
E: Abbreviated Scope of Services	Human intervention information on levees.	Kindly clarify this information is already available through the agencies under Phase 1 of AIRBMP	Consultant shall need to collect existing available data from the client / different other sources through the client and then should analyse and utilise. The full TOR at

Task A		or the Consultants have to carry out the same.	RFP stage will include a provisional sum for carrying out additional surveys above and beyond those that will be undertaken by WRD under separate assignments.
E: Abbreviated Scope of Services Task A	Cross-sections for selected locations for the three sub-basins.	Is the Bathymetric surveys data for Beki and Buridehing Rivers is available with Client or the Consultants have to carry out Bathymetric surveys. If the Bathymetric surveys data for Beki and Buridehing Rivers are already available does the Consultants have to carry out survey of Jiadhal River.	WRD is implementing cross-section surveys and bathymetric surveys on Beki and Buridehing and this information will be shared with the consultant. The status of the surveys for Jiadhal river will be further defined at the RFP TOR stage.
E: Abbreviated Scope of Services Task A	All known records of historic flooding including the extent of flooding (will help model calibration and validation)	We understand that the existing available data will be directly available from Client or will be collected from other relevant agencies with the assistance from client.	Client will facilitate the consultant for collection of existing available data from different agencies.
E: Abbreviated Scope of Services Task A	Riverbed and bank material sampling along the river course (20 transect lines) in the main river of each sub-basin to establish sediment size gradation by lab analysis.	Is the Sediment data available or the Consultant have to carry out this?	The sediment data including bed and bank material is currently not available. The arrangements for the collection of this data will be specified at the RFP stage.
E: Abbreviated Scope of Services Task A	ADCP discharge measurements at five cross-sections during 2023, 2024 and 2025 monsoon in the main river of each sub-basin.	Is the ADCP has to hired by consultants to do these or Client has already procured ADCP under NHP which may be used for these?	The arrangements for ADCP discharge measurements will be specified at the RFP stage.
E: Abbreviated Scope of Services Task A	Geotechnical boring/sampling and analysis in bed and bank of the river to establish soil profile, their mechanical and hydraulic properties.	Does the Consultants need to carry out this geotechnical investigation to collect the samples? No provision geologist is in the proposed team.	Consultant shall have to carry out this investigation if deemed necessary, which can be paid from the provisional sum for additional surveys. The Consultant shall outsource this survey to capable firms.

<p>E: Abbreviated Scope of Services Task A</p>	<p>Real-Time Data Acquisition System (RT-DAS) installation, involving extra automatic water level monitoring stations and Automatic Weather Stations (additional to the stations installed under the National Hydrology project (NHP).</p>	<p>Does the Consultants need to identify the requirement of additional RT-DAS installation and install those or its being done by PMTC Consultants for Assam Integrated River Basin Management Project ?</p>	<p>See item no.2 on page 1.</p>
<p>E: Abbreviated Scope of Services Task B Sub task-6</p>	<p>Develop capacity of Assam WRD in setting up and further developing a state-wide flood forecasting system for other basins under Phase 2 of AIRBMP. The objective of flood forecasting modelling is to issue with 72-to-120-hour lead time of river levels and flows and generate flood inundation maps.</p>	<p>1.It is anticipated that the most efficient Hydrological and hydrodynamic models of such river basin may capable to show high performance in shorter lead time (1-day) only since available rainfall forecast in such Hindukush Himalaya region is still not satisfactory. Thus, forecast lead time 72 to 120 hour in the said flashy river basins appears to be a very high target and likely to be unreachable. 2.Is there any recommended weather/rainfall forecast dataset available with WRD/ASDMA? 3.How satellite imageries will be available to consultant to gain understanding of river planform dynamics by deriving planform parameters?</p>	<p>Point 1: Lead forecasting time goals are aspirational and may vary per sub-basin, to be adjusted and agreed upon during the assignment. This will be further elaborated at the RFP stage.</p> <p>Point 2: Consultant shall need to identify appropriate weather/rainfall forecast dataset in consultation with WRD and NESAC.</p> <p>Point 3: The Consultant is tasked with assessing the best dataset for carrying out the services under this assignment. This may involve the purchase of commercial data or undertaking additional surveys, paid through a provisional sum available for these purposes.</p>
<p>E: Abbreviated Scope of Services Task B Sub task-2</p>	<p>Develop (or upgrade of existing) suit of hydrological models: Based on the review of the FLEWS and the recommendations of the modeling system assessment and model design report, develop/upgrade hydrodynamic models for Beki, Buridehing and Jiadhal sub-basins. The models should build upon on the existing system which uses HEC-HMS.</p>	<p>Will WRD allow to use commercial modelling software like MIKE BY DHI or any if consultant desire to use in developing hydrological, hydrodynamic and morphological model?</p>	<p>The baseline for this Consultancy is the use of open-source software and building upon what already exists. The RFP will clarify that consultants have the freedom to propose additional complementary software. The final decision on what software package to utilize will be made in the early stages of the assignment.</p>

<p>E: Abbreviated Scope of Services Task H</p>	<p>Implementation arrangement. Day-to-day collaboration with WRD. The Consultant will be working closely with the WRD project team and PMTC to transfer knowledge and experience and strengthen the institutional capacity of WRD. After the Consultant's assignment, the WRD must have the capacity and skills to operate and maintain the modelling toolset. Therefore, the Consultant will need to establish a close working arrangement with WRD.</p>	<p>Is there any deployment plan/schedule of WRD professionals (available/will provide) to receive training/technology from the consultants?</p>	<p>WRD professionals have already been deployed and will be available for capacity building.</p>
<p>E: Abbreviated Scope of Services Task I</p>	<p>Required Expertise of Consulting Firm and Key Experts</p>	<p>The team list has been provided and it is mentioned that the total estimated man month including Staffs with International Experience, Staffs with National/Regional Experience and Non- Key staff is 589.If the break up of all the staffs are provided at RFP stage it will be better for bidding purpose to keep all the Bidder in same page.</p>	<p>The RFP will provide more detailed information on the expected set of skills to be provided by the Consultant. However, since this will be a lump-sum contract the Consultant will be free to propose what they consider to be the most appropriate team, and this will be taken into account at the technical evaluation stage.</p>
<p>E: Abbreviated Scope of Services Task I</p>	<p>Staffs with International Experience</p>	<p>Does the "Staffs with International Experience" mean non – Indian national only or they may be Indian national also with sufficient International Experience?</p>	<p>"International Experience" is defined as experience gained outside India, which is substantial, diverse and relevant for this assignment.</p>
		<p>We would request you to kindly extend the Expression of Interest submission date upto 21st February 2023 for your kind consideration and confirmation.</p>	<p>Please refer to corrigendum – I The REOI submission has been extended for 14 days till, 28th February 2023, 14.00 HRS (IST)</p>
<p>Component 2.2 (Page 6). Task B (Page 3)</p>		<p>Is there a specific source (e.g., NESAC) for the meteorological projections that feed into the "existing Assam Flood Early Warning System (FLEWs)", and is it foreseen that the same (NESAC or another please specify) source will be used for the to be developed</p>	<p>NESAC will be one of the sources for meteorological projections. However, the consultant will need to decide in consultation with WRD the most appropriate sources for meteorological projections.</p>

		“Operational Flood Forecasting System” under Task B? Will the source remain responsible for the quality of their projection?	
Task C (Page 3)		Can the types of “priority WRD investments” for which engineering designs need to be developed under task C be specified further (e.g., measures for flood protection, erosion protection, wetland restoration, flood retention, other?)?	The RFP will further elaborate that the goal is to prepare priority investments for the next five years with an overall cost of around US\$150 million for Phase 2 of AIRBMP. The investment priorities will come through the IFRM planning process which will evaluate a menu of options similar to this listed in the question.
Page 3, Third point (sub point ‘d’).		Environment & social studies (like EIA, RAP) is an important part in the for the EOI requested project references, if this also becomes a relatively large work component in the forthcoming ToR for this assignment could it be considered to also add a local & international Social Expert to the Expert Team?	The TOR includes a requirement for a social specialist. The consultant will be free to propose the level of social support required in their technical proposal.
Page 3, Third point (eligible criteria)		Will the project experience of all members of a consortium be evaluated as part of the EOI and subsequent bid, whether they are in a JV with the lead member or a sub-consultant to the lead member? Please clarify.	The project experience of the JV firms will be the primary consideration in the evaluation of qualifications and the value added by the sub consultant in terms of any key consultant will also be taken into consideration. However, the sub consultant will have less weightage in the evaluation than the JV partners
		We note that the reports we prepare in this project will be received by multiple parties with whom we would not have a contract including World Bank, AIRBMP, WRD, WRD-AWRMI (under WRD), ASDMA, NESAC and GoA. We would like to	The response can be divided into three parts following standard international practices. For operational flood forecasting, the Consultant is contractually responsible to WRD. However, ASDMA is an important stakeholder as they will utilize the flood

		<p>know whether it is possible to obtain confirmation that the consultant will only owe duty of care to its client and no other party and that our reports would not be relied upon by third parties or used by any parties other than the client to make any investment decisions. If this was not possible, we would need the third parties to sign a letter of reliance that would limit our obligations to them and their use of our reports. Can you please advise whether any of the two solutions would be acceptable?</p>	<p>forecasting information for their early warning and dissemination system (EWDS)</p> <p>For IFRM planning, the Consultant is contractually responsible to WRD. Similar to any planning exercise, there are multiple stakeholders that will provide input that must be taken into account in the planning process. The Consultant's task is to assist the Government of Assam in preparing the IFRMP. Investment decision based upon the IFRMP are not the responsibility of the Consultant.</p> <p>For engineering design work, the Consultant is contractually responsible to WRD. The Consultant will not need to develop engineering designs for other entities.</p>
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