

(175)

GOVERNMENT OF ASSAM

FLOOD AND RIVER EROSION MANAGEMENT AGENCY OF ASSAM, (FREMAA)

Address: 4th floor, Assam Water Centre, Basistha Chariali NH-27, Guwahati-29, Phone/Fax
(0361)2309896,

Email: ceo-fremaa@assam.gov.in, Website: www.fremaa.assam.gov.in

No. FREMAA(P)/TECH/09/ADB/2023/175

Date: 05.06.2023

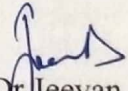
Name of Project: Climate Resilient Brahmaputra Integrated Flood and Riverbank Erosion
Risk Management Project in Assam (CRBIFRERMP)

Assignment Title: Orthomosaic drone survey under CRBIFRERMP

The Government of India has applied for financing from Asian Development Bank (ADB) towards cost of the Climate Resilient Brahmaputra Integrated Flood and Riverbank Erosion Risk Management Project in Assam (CRBIFRERMP). Under the project, Chief Executive Officer, Flood & River Erosion Management Agency of Assam (FREMAA), Govt. of Assam invites "Request for Quotation (RFQ)" through Open Competitive process from eligible firms/agencies. Complete documents of the RFQ are available on website <https://assamtenders.gov.in> and www.fremaa.assam.gov.in. Prospective Services Providers are required to register free of charge at e-tender portal of the Assam Govt. <https://assamtenders.gov.in> and participate through e-tender portal only.

A pre-bid meeting is scheduled to be held on 14/06/2023 at 1 pm (13:00 hours (IST)) in the Conference Hall of FREMAA, 4th Floor, Assam Water Center, Near Basistha Chariali, NH 27, Guwahati, Assam, 781029.

The deadline for the online submission of the Quotation is on 21/06/2023 at 14:00 hours (IST).

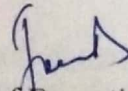

(Dr Jeevan B, IAS)
Chief Executive Officer
FREMAA

No. FREMAA(P)/TECH/09/ADB/2023/175-A

Date: 05.06.2023

Copy forwarded for information to:

1. The Director of Information and Public Relation, Government of Assam, Dispur, Guwahati-6 for arranging publication of the above notification in leading English local Daily & one Assamese Daily.
2. PA to Additional Chief Secretary, Water Resources Department, GoA.
3. Technical Officer (C), FREMAA, for uploading in e-portal of Govt. of Assam viz. www.assamtenders.gov.in, & FREMAA website www.fremaa.assam.gov.in
4. The Office Notice Board.


Chief Executive Officer
FREMAA

REQUEST FOR QUOTATION –NON-CONSULTING SERVICES (RFQ-NCS)

(Through E Procurement using Single Envelope)

Project Title: Climate Resilient Brahmaputra Integrated Flood and Riverbank Erosion Risk Management Project in Assam

Source of Funding: Asian Development Bank (ADB)

1. The Chief Executive Officer, FREMAA (Client) hereby requests you to submit price quotations for the performance of the services described **in the Scope of Services attached as Appendix A in these documents**. If you, however, have been associated with the preparation of this Scope of Services that is the subject of this request, you shall be disqualified.

To assist you in the preparation of your price quotation we enclose, in addition to the Scope of Services, the Form of Quotation and form of Contract. A pre-bid meeting is scheduled on **14/06/2023 at 1300 hours in the Conference Hall of FREMAA, “4th Floor of Assam Water Centre (AWC), Near Basistha Chariali, Guwahati -781029. E-Link will be shared to the intending bidders who would like to attend virtually. The bidder should send email request to the FREMAA by 13/06/2023.**

2. If you/your firm, however, falls under any of the following conditions, your quotation will not be considered:

- (a) you/your firm are/is not a citizen/national of an ADB member country, or
- (b) you/your firm have/has been associated with the firm that prepared the terms of reference or engaged in the preparation of the Project for which the contract that is subject of this request for quotations was identified, or
- (c) you/your firm are/is owned by the Client, or
- (d) you/your firm are/is currently sanctioned or temporarily suspended by the Asian Development Bank for a violation of its Anticorruption Policy (1998, as amended to date) or
- (e) the contracting of services from your country or any payment to persons or entities in your country is prohibited in compliance with a decision of the United Nations Security Council under Chapter VII of the Charter of the United Nations.

3. To be qualified, you must have qualification and experience as a Service Provider of the Services covered by this Request for Quotation as follows:

a) Qualifications of the Service Provider.

The Service Provider shall provide qualification information which shall include:

a) The Service Provider is to have a valid Unique Identification Number/ Unmanned Aircraft Operator Permit /DAN from DGCA.

b) Security Clearance from Home Department/Competent authority, Govt of Assam.

c) Average annual turnover fees received from Aerial Drone Surveys for the last 3 Preceding years (2019-20,2020-21,2021-22): Rs.6 Lakhs. (Copy of Chartered Accountant’s certificates for last 3 years are to be submitted);

- d) Details of any litigation, current or during the last 3 years in which the Service Provider is involved, the parties concerned, and disputed amount in each case;
- e) Remote pilot shall have attained 18 years of age, having passed 10th exam in English, and undergone ground/ practical training from any DGCA approved Flying Training Organization (FTO).
- f) The Service Provider needs to demonstrate that it has successfully carried out at least 2 orthomosaic drone surveys of same nature and complexity as this Scope of Services in India during the last 5 years (preceding the day this Request for Quotation is advertised). As evidence, you must attach documents of your experience.
- g) The service provider shall furnish the availability of Micro drone: 250 gm to less than or equal to 2 kg and a small drone: above 2 kg to less than or equal 25 Kg. Lease agreement or ownership copy (Invoice) to be submitted.

Similar nature means experience in successful completion of orthomosaic drone surveys in India.

Documentary Evidence: *Work order, Contract copy containing scope of services of the assignment & Completion certificate/100% payment receipt certificate in case of completed contract & minimum 90% payment receipt certificate (in case of ongoing contracts) issued by the authorized representative of the client shall be submitted to demonstrate the similar nature of services successfully executed.*

4. Clarifications & Amendments:

If FREMAA receives any request for clarification up to 5 days prior to the deadline of the submission of the quotations, FREMAA's response together with any amendment to this document will be uploaded on the e-procurement portal for information of all prospective services providers. Interested Services Providers should check regularly the e-procurement system for any clarifications or amendments related to this RFQ.

Your quotation should be submitted in accordance with the following instructions, procedures, and the terms and conditions of the Contract.

5. Preparation of Quotations:

- (a) Your price quotation shall be for all the items as described in the Scope of Services, and submitted only in the attached Form of Quotation. The currency of quoted prices and payment shall be Indian Rupees (INR).
- (b) You shall submit only one set of quotation for the above items.
- (c) You shall submit the Form of Quotation through e procurement portal of Assam viz. www.assamtenders.gov.in.
- (d) Your quotation should be valid for 30 days from the deadline for submission of the quotation. If you withdraw your quotation during the validity period and/or refuse to accept the award of a contract when and if awarded, then you will be excluded from the list of Service Providers for the project for two years.

6. Submission and Opening:

Your Form of Quotation with the required documents shall be submitted electronically through the web portal www.assamtenders.gov.in only.

Quotations shall be opened online through e-procurement portal of Government of Assam in public in the presence of participating Service Providers' representatives who choose to attend, **on 21/06/2023 at 16:00HRS and at the following address:**

Chief Executive Officer
Flood and River Erosion Management Agency of Assam
4th Floor of Assam Water Centre (AWC), Near Basistha Chariali, Guwahati-781029

7. Evaluation and Comparison:

Quotations determined to be substantially responsive to this Request for Quotation will be evaluated by the Client by comparison of their offer prices. A quotation is not substantially responsive if it contains material deviations or reservations to the terms, conditions, and specifications in this Request for Quotation.

In evaluating the quotations, the Client will adjust for any arithmetical errors as follows:

- (i) where there is a discrepancy between amounts in figures and in words, the amount in words will govern; and
- (ii) Where there is a discrepancy between the unit rate (where applicable) and the line-item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern.

If you refuse to accept the correction/(s), your quotation will be rejected.

8. Award of Contract:

The Client shall award the contract to the Service Provider whose quotation has been determined to be substantially responsive to this Request for Quotation and who has offered the lowest price quotation.

The Service Provider whose quotation has been accepted will be notified by the client within 15 days from the date of submission of quotation through the return of a copy of the Form of Quotation with acceptance signed by the authorised representative of the Client.

The successful Service Provider shall sign the Contract governed by the annexed Contract Terms and Conditions. In addition to the quoted price, the contract price shall include Goods & Services Tax (GST) as applicable in India.

9. Further information till 5 days prior to proposal submission date can be obtained from:

Shri Rupak Kumar Mazumdar, Deputy Chief Executive Officer, FREMAA
4th Floor, Assam Water Centre, Basistha Chariali, Guwahati-781029
Email: eont-fremaa@assam.gov.in
Phone: 7086056499

10. The Client intends to apply funds from the Asian Development Bank (ADB) for eligible payments under the Contract resulting from this Request for Quotation.

11. Under ADB's Anticorruption Policy (1998, as amended to date) Service Providers shall observe the highest standard of ethics during the procurement and execution of such contracts. ADB may reject a proposal for award, and may impose sanctions or other remedial actions on parties involved, if it determines that the Service Provider recommended for award or any other party, directly or through an agent, has engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations in competing for, or in executing, the Contract. At the time of submission of your quotation, you should not be in ADB's sanctions list. A firm/individual shall not be eligible to participate in any procurement activities under an ADB-financed, - administered, or -supported project while under temporary suspension or debarment by ADB pursuant to its Anticorruption Policy, whether such debarment was directly imposed by ADB, or enforced by ADB pursuant to the Agreement for Mutual Enforcement of Debarment Decisions.

12. You/your firm, joint venture partners, associates, parent company, affiliates or subsidiaries, including any subcontractors or suppliers for any part of the Contract, are not, or have never been, temporarily suspended, debarred, declared ineligible, or blacklisted by the Client's country, any international organization, and other donor agency.

If so debarred, declared ineligible, temporarily suspended, or blacklisted, please state details (as applicable to each joint venture partner, associate, parent company, affiliate, subsidiaries, subcontractors, and/or suppliers):

(a) Name of Institution:

(b) Period of debarment, ineligibility, or blacklisting (start and end date):

(c) Reason for the debarment, ineligibility, or blacklisting:

13. You/your firm's, joint venture partners', associates', parent company's affiliates or subsidiaries', including any subcontractors' or suppliers', key officers and directors have not been charged or convicted of any criminal offense (including felonies and misdemeanours) or infractions/violations of ordinance which carry the penalty of imprisonment.

If so charged or convicted, please state details:

(a) Nature of the offense/violation:

(b) Court/Area of jurisdiction:

(c) Resolution (i.e. dismissed; settled; convicted/duration of penalty):

(d) Other relevant details:

14. You/your firm understands that it is your obligation to notify FREMAA and ADB should you/your firm, joint venture partners, associates, parent company, affiliates or subsidiaries, including any Subcontractors or Suppliers, be temporarily suspended, debarred or become ineligible to work with ADB or any other multilateral development banks, the client's country, international organizations, and other donor agencies, or any of your key officers and directors be charged or convicted of any criminal offense or infractions/violations of ordinance which carry the penalty of imprisonment.

15. Any misrepresentation that knowingly or recklessly misleads, or attempts to mislead may lead to the automatic rejection of the quotation/bid or cancellation of the contract, if awarded, and may result in remedial actions, in accordance with ADB's Anticorruption Policy (1998, as amended to date) and Integrity Principles and Guidelines (2015 as amended from time to time).

16. A bidder shall not have a conflict of interest. All bidders found to have a conflict of interest shall be disqualified.

Faithfully,

Sd/-
(Dr Jeevan B, IAS)
Chief Executive Officer,
FREMAA

**FORM OF QUOTATION
(Non-Consulting-Services)**

To,
The Chief Executive Officer
FREMAA
4th Floor, Assam Water Centre,
Basistha Chariali Ghy 29

We offer to execute the — __[name and number of Contract] in accordance with the Contract Terms and Conditions and the Scope of Services accompanying this Quotation for the Contract Price of.....[amount in words and numbers] (Name of currency]

We propose to complete the performance of the services described in the Contract within the Completion Period indicated in the priced Scope of Services.

This Quotation and your written acceptance will constitute a binding Contract between us. We understand that you are not bound to accept the lowest or any Quotation you receive.

We hereby confirm that this Quotation complies with the Validity of the Offer condition imposed by the Request for Quotation document.

We:

- (a) are a national of an ADB member country;
- (b) have not been associated with the firm that prepared the terms of reference or engaged in the preparation of the Project for which the contract that is subject of this request for quotations was identified;
- (c) are not owned by the Client;
- (d) are not currently sanctioned or temporarily suspended by the Asian Development Bank; and
- (e) to the best of our knowledge, is not prohibited from being contracted in compliance with a decision of the United Nations Security Council.

Name of Service Provider:.....

Authorized Signature:.....

Name of Signatory :.....

Title of Signatory:.....

Address:.....

Telephone Number:.....

Fax Number, if any:.....

Email address:

ACCEPTANCE

The Client accepts the Service Provider's offer to provide the Services.

Name of Client:

Authorized Signature:

Name of Signatory:.....

Title of Signatory:.....

Date:

CONTRACT

Name of Country: INDIA

Project Name: Climate Resilient Brahmaputra Integrated Flood and Riverbank Erosion Risk Management Project in Assam

Name of Contract:

Contract Number:

This Contract entered in to on day of,2023, between Flood and River Erosion Management Agency (hereinafter called “the Client”) on the one part, and(hereinafter called “the Service Provider”) on the other part.

Whereas the Client has requested a quotation for to be performed by the Service Provider in accordance with the **Contract**, and has accepted the Quotation by the Service Provider in the amount of *Rs*/- *including GST* [.....including GST] hereinafter called “the Contract Price”.

The Client and the Service Provider agree as follows:

1. The following documents shall be deemed to form and be read and construed as part of this Contract, viz:
 - a) **Form of Quotation**, with **Scope of Services** and **Appendix** and
 - b) **Contract Terms and Conditions**;
2. Taking into account payments to be made by the Client to the Service Provider as hereinafter mentioned, the Service Provider hereby enters into this Agreement with the Client to execute and complete the performance of services under the Contract.
3. The Client hereby agrees to pay, in consideration of the successful performance of the services, the **Contract Price** as indicated and accepted in the **Form of Quotation**, under payment terms stipulated in the **Contract Terms and Conditions**

IN WITNESS whereof the parties hereto have executed the **Contract** under the laws of India on the date indicated above.

Signature and seal of the Client:

For and on behalf of

Name of Authorized Representative

Signature and seal of the Service Provider:

For and on behalf of

Name of Authorized Representative

CONTRACT TERMS AND CONDITIONS

Project Name: Climate Resilient Brahmaputra Integrated Flood and Riverbank Erosion Risk Management Project in Assam

Client:

Contract No.

1. Definitions

- (a) “Contract” means the agreement entered into between the Client and the Service Provider, together with the Contract Documents referred to therein, including all attachments, appendixes, and all documents incorporated by reference therein.
- (b) “Contract Documents” means the documents listed in the Contract, including any amendments thereto.
- (c) “Contract Price” means the price payable to the Service Provider as specified in the Contract, subject to such additions and adjustments thereto pursuant to the Contract.
- (d) “Completion” means the fulfilment of the committed services by the Service Provider in accordance with the terms and conditions set forth in the Contract.
- (e) “Client” means the entity purchasing the Services.
- (f) “Services” means the services the Service Provider will perform as specified in the Scope of Services in Appendix A.
- (g) “Service Provider” means the natural person, private or government entity, or a combination of the above, whose bid to perform the Contract has been accepted by the Client and is named as such in the Contract.
- (h) “ADB” is the Asian Development Bank.

2. Applicable Law

The Contract shall be interpreted in accordance with the laws of the Client's country.

3. Language

All communications and documents related to the Contract shall be in English.

4. Assignment

Any assignment of this Contract or of any rights hereunder, in whole or in part without the prior written consent of the Client shall be void.

5. Fraud and Corruption

This Contract shall be covered by the provisions of [ADB’s Anticorruption Policy](#)(1998, as amended to date) and [Integrity Principles and Guidelines](#) (2015, as amended from time to time) that requires Borrowers (including beneficiaries of ADB-financed activity), as well as Service

Providers and Contractors under ADB-financed contracts, to observe the highest standard of ethics during the procurement and execution of such contracts.

6. Performance of the Services

The Service Provider shall carry out the Services with due diligence and efficiency and shall furnish to the Client such information related to the Services as the Client may from time-to-time reasonably request. The Service Provider shall at all times cooperate and coordinate with the Client with respect to the performance of the Services.

7. Required Performance Standards (with attachments as necessary to be prescribed by Client.)

(a) as per Sl. no.C under Appendix-A

Service Provider confirms compliance with above standards and parameters.

8. Service Completion Schedule

The services should be completed as per schedule indicated in the **Scope of Services** but not exceeding 30 days from the date of signing of contract.

9. Fixed Contract Price

The prices indicated in the **Form of Quotation** are firm and fixed and not subject to any adjustment during contract performance, subject to Clause 11 [Payment] below.

10. Taxes and Duties

The Service Provider shall be entirely responsible for all taxes, duties, license fees, etc., incurred until completion of the services to the Client.

11. Payment

Upon submission by Service Provider of claim and subsequent verification of the claim by Client, payment of the contract price shall be made in the following manner:

Sl. No	River	Type of Services	Reach Length in meter along with width of 200 m from the centre of Embankment for both sides	Payment on completion (%) of all the deliverables mentioned in the scope of services
1	Brahmaputra	Orthomosaic Drone survey	64,225 m	100%

All the surveys to be submitted to the Client are to be supplied in 3 copies both printed and soft copies as detailed in the scope of services.

100% of the Payment will be made on full completion of all the Services duly certified by the Client.

12. Resolution of Disputes

The Client and the Service Provider shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute between them under or in connection with the Contract. In the case of an unresolved dispute, the dispute shall be settled in accordance with the provisions of the Arbitration and Reconciliation act 1991.

13. Independent Service Provider

Nothing contained in this Contract shall be construed as establishing or creating the relationship of master and servant, employer and employee or principal and agent between the Client and the Service Provider, or his employees or agents or other persons engaged by the Service Provider to perform any of the services.

14. Intellectual Property Rights

Intellectual Property Rights: (a) the Service Provider shall indemnify the Client from and against any and all claims, liabilities, obligations, losses, damages, penalties, actions, judgments, suits, proceedings, demands, costs, expenses and disbursements of whatsoever nature that may be imposed on, incurred by or asserted against, the Client during or in connection with the Services by reason of: (i) infringement or alleged infringement by the Service provider of any patent or other protected right, or (ii) plagiarism or alleged plagiarism by the Service provider.

15. Failure to Perform

The Client may terminate the Contract if the Service Provider fails to perform the services, in accordance with the above terms and conditions, in spite of a 07-day notice given by the Client, without incurring any liability to the Service Provider. In the event of such termination, the amount due under the Contract shall be subject to equitable adjustment.

16. Termination Due to Integrity Violation

The Client may terminate this Contract, in whole or in part, if the Service Provider, in the judgment of the Client has engaged in integrity violations in accordance with Clause 5 [Fraud and Corruption], in competing for or in executing this Contract.

17. Other Grounds for Termination

The Client may also terminate this Contract, in whole or in part, if the Service Provider becomes insolvent, bankrupt or gives the Client reasonable evidence of its inability to complete the Services as specified, or fails to correct any non-conformity in the Services or performs in bad faith by willfully not observing the terms and conditions of this Contract.

18. Force Majeure

The Service Provider shall not be liable for penalties or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

(a) For purposes of this Clause, “Force Majeure” means an events beyond the control of the Service Provider and not involving the Service Provider’s fault or negligence and not foreseeable. Such events may include, but not restricted to, act of Client in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

(b) If a Force Majeure situation arises, the Service Provider shall promptly notify the Client in

writing of such condition and the cause thereof. Unless otherwise directed by the Client in writing, the Service Provider shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by Force Majeure event.

19. Accounts and Records

- (a) The Service Provider shall keep accurate and systematic accounts and records in respect of the Services in such form and detail as are customary in its profession and are sufficient to establish accurately that the costs have been duly incurred.
- (b) Notwithstanding anything to the contrary stated herein, the Service Provider shall maintain accounts and records, including original receipts, invoices and other supporting documents evidencing payments made by the Service Provider under this Contract, for the period of the Services and for a period no less than 3 years after the expiration or termination of this Contract.
- (c) The Service Provider shall permit ADB to inspect the accounts, records, and other documents relating to the submission of bids and contract performance of the Service Provider and to have them audited by auditors appointed by ADB.

20. Suspension of ADB Loan or Credit.

In the event that ADB suspends the Loan or Credit to the Client, from which part of the payments to the Service Provider are being made, the Client is obligated to notify the Service Provider, with copy to the Client's representative, of such suspension within 7 days of having received ADB's suspension notice.

21. Termination Notice Due to Non-payment

If the Service Provider has not received payments due within the 28 days as provided for in Clause 11[Payment], the Service Provider may immediately issue a 14-day termination notice.

Scope of Services

Project Background:

1. Since the early years of the 21st century, the Government of India has given high priority to develop effective flood and river erosion management systems along major rivers. In Assam, the State Government of Assam (SGoA) is committed to manage floods and protect riverbanks from erosion in the Brahmaputra River valley with its strategic partner in this sector, the Asian Development Bank (ADB).

2. The proposed Climate Resilient Brahmaputra Integrated Flood and Riverbank Erosion Risk Management Project in Assam (CRBIFRERMP) of a total cost estimated around \$250 million is in preparation. The project is planned to be financed through a ADB loan of about \$200 million and SGoA's counterpart funds. The project is anticipated to start to be implemented before the end of 2023.

3. CRBIFRERMP will build upon the experience from the recently completed ADB-financed Assam Integrated Flood and Riverbank Erosion Risk Management Investment Program (2010-2020)(AIFRERMIP). It will focus on the Main Stem of the Brahmaputra River in Assam and follow a climate-resilient holistic, integrated, systematic, and reach-wise approach to flood and river bank erosion risk management.

4. Incorporating structural and non-structural measures in selected river reaches in Assam, the proposed project aims to

- (i) reduce economic vulnerability and social disruption induced by flood and riverbank erosion in four selected flood-prone subproject areas along the main stem;
- (ii) strengthen the institutional capacity for climate change-oriented flood and erosion management;
- (iii) develop further the knowledge base for informed decision-making on preventive measures and preparation of river stabilization guidelines and plans;
- (iv) stabilize selected river reaches by integrating climate-resilient riverbank erosion and flood protection works to ultimately enhance navigation and recover lost floodplain land ('land and/or charland reclamation'); and
- (v) enhance the livelihoods of the most vulnerable of the riverine population.

5. In particular, the project will build cost-effective long-guiding geotextile sand-filled bag river bank revetments in a climate-resilient adaptive way to cope with the dynamic riverbank erosion, contributing to a more significant river stabilization enabling ultimately navigation. Also, climate resilient modern flood embankments will be built and/or rehabilitated and will have openings (ie: sluice gates with fish passes) to enable river-floodplain interconnectivity and enhance biodiversity.

6. It is anticipated that CRBIFRERMP will have the following three broad outputs:

- (i) **Output 1.** Climate resilient flood and riverbank erosion risk mitigation measures implemented and maintained in subproject areas. The project will combine structural and nonstructural measures in four subproject areas to stabilize their river reaches by applying an integrated river stabilization approach that was developed and refined under the earlier ADB-financed JMREMP, AIFRERMIP, and the ongoing Flood and Riverbank Erosion Risk Management Investment Program (FRERMIP) in Bangladesh. Specifically, this output will include: (i) constructing about 62 km of riverbank erosion protection and 14 km of adaptation/emergency works to stabilize the river and improve the river's navigability; (ii) placing about 32km of pro-siltation measures such as porcupines to induce sediment deposition thereby reclaiming riverine land; and (iii)

constructing/rehabilitating/widening about 4.4km of climate resilient flood embankments including regulators, fish passes and drainage structures in critical areas to maintain river-floodplain interconnectivity to enhance biodiversity. As learned from prior investments, construction contracts will include provisions for five years of monitoring, adaptive maintenance, and emergency works from construction completion, to improve sustainability. Nature-based solutions, such as reed plantations that promote sediment deposition and reduce rain cuts on slopes, will be pilot tested, with possible involvement of the private sector.

(i) **Output 2:** Knowledge-based FRERM planning strengthened. This output will further develop key agencies' knowledge bases by improving various decision support tools initiated under AIFRERMIP and will strengthen the state's institutional capacity to deliver FRERM, thereby promoting disaster resilience of the state and affected communities. Specifically, Output 2 will: (i) strengthen flood forecasting and early warning systems in close collaboration with others; (ii) undertake flood mapping to identify people and infrastructure at risk of flooding and facilitate better land use planning and management on risk-sensitive land; (iii) improve erosion prediction and embankment breach models to prioritize maintenance; (iv) enhance asset management systems and conduct life-cycle reliability analyses to improve budget and maintenance decisions; (v) gather data through topographic and bathymetric surveys, flow and sediment measurements, and asset condition surveys; and (vi) strengthen existing guidelines for flood and riverbank protection design to address climate impacts and resilience, update river stabilization principles, and document the effectiveness of nature-based solutions. These outputs will also contribute to an update of the 2020 Flood and Erosion Management Plan.

(iii) **Output 3:** Vulnerable people's livelihoods and resilience improved. This output will directly improve the livelihoods and disaster resilience of poor and destitute people living on the flood embankments and charlands within the project areas and who are routinely severely affected by floods and riverbank erosion. It will specifically target women. Interventions will: (i) establish modern weaving centers, provide sewing machines, and train female headed households and female self-help groups to spin, weave, and market silk; (ii) increase vegetable production by providing climate resilient seeds, promoting improved agricultural practices, and extending marketing support; (iii) provide vocational training for unemployed youth; (iv) raise awareness on flood and riverbank erosion; and (v) strengthen disaster preparedness and emergency response (through provision of equipment at district/regional level). Support for subsistence and small farmers will include: (i) assistance creating agriculture and fisheries businesses; (ii) identifying alternative income opportunities associated with the nature-based solutions in Output 1; and (iii) improving roadside markets. Further, the graduation approach will be piloted to complement the various state-led initiatives that strengthen beneficiaries' wellbeing by providing livelihood assistance through agriculture, livestock, fisheries, industries, and vocational training activities. Beneficiaries will be producer collectives registered as Farmer Producer Companies (FPC) in the vicinity of the Brahmaputra River

7. CRBIFRERMIP will be implemented within four priority subprojects, namely Dibrugarh, Palasbari- Gumi/Guwahati West, Morigaon and Goalpara. The main project benefits comprise:(i) reduced riverbank erosion; (ii) mitigation of flood damage; (iii) increased agricultural production;(iv) land reclamation and development; and (v) improved access to ferry ghats.

8. Similarly to the recently completed ADB-financed AIFRERMIP (2010-2020), the Flood and River Erosion Management Agency of Assam (FREMAA) will be the executing agency of the proposed project. FREMAA is the Client for these non-consulting Services.

A. Objectives of the Services:

The objective of the drone survey is to identify the structures, tress and any other immovable property falling under within the Right of Way (Right of Way) to ensure no new structure/property etc will be constructed after Zirat enumeration and census survey is completion.

B. Scope of Services:

The list of the reach's locations requiring Drone Survey in which protection measures including construction and strengthening works of embankments will be undertaken under 05 (five districts) and under 5 W.R. **Divisions are given in the Table: A.** Also refer to sl. No C of this Appendix for detailed specific standards.

(Subcontracting any part of this Scope of Work to a third party is not allowed)

C: Specific Standards

(i) Drone: Drone here means **Remotely Piloted Aircraft (RPA)** only. **Remotely Piloted Aircraft (RPA):** It is an unmanned aircraft, which is piloted from a remote pilot station. A remotely piloted aircraft, its associated remote pilot station(s), command and control links and any other components forms a Remotely Piloted Aircraft System (RPAS).

RPA in this survey should have a 20MP camera for still photography as well as motion picture. Both the cameras (Still and motion picture) should be of Full HD. It should be able to capture in vertical, Oblique (high and low) as well as Combination (Three Axis Camera). The Drone should be able to remain airborne for a minimum period of 30 minutes.

(ii) Drone type:

(i) Micro: 250 gm to less than or equal to 2 kg.

Or

(ii) Small: above 2 kg to less than or equal 25 Kg

Whichever is needed to perform the perform the survey. Only one type of RPA shall be used for all the surveys.

(iii) Photography: The camera should capture/cover an area with a width of at least 100 m on the ground area and the pixel data should be not more than 20cm per pixel. If needed the drone should be able to climb to higher altitude so that the desired area is captured both in still photography as well as motion picture.

RPA in this survey should have a camera for still photography as well as motion picture. Both the cameras (Still and motion picture) should be of Full HD quality. It should be able to capture in vertical, Oblique (High Oblique and Low Oblique) as well as Combination.

(iv) Videography:

a) Should be rendered in a highly engaging format

b) Should be made in a Ultra High-Resolution format which is compatible for both small and large screens and can be viewed without any stuttering

c) Should be done with voiceover in English and Assamese language. The contents should be as directed by Engineer I/C or representative of Engineer I/C.

d) Should be high resolution video and provided in suitable format to WRD/FREMAA.

The service provider will also be responsible for editing the clips to put together a video.

(v) Approvals/Clearances:

- a) The Service Provider, should have UIN/ UOAP/DAN, as applicable from **Directorate General of Civil Aviation (DGCA)**.
- b) Security Clearance from Home Department/Competent authority, Govt of Assam.
- c) Remote pilot shall have attained 18 years of age, having passed 10th exam in English, and undergone ground/ practical training from any DGCA approved Flying Training Organization (FTO).
- d) Clearance from Forest office as and when required.
- e) Clearance from Defence establishment as and when required.
- f) Clearance from nearest airport as and when required.
- g) Information and Clearance from local police station.

The service provider will arrange and prepare the tools for aerial drone survey and ensure all clearances required to conduct these videos and surveys in necessary location. **However, FREMAA will provide necessary logistic support to get clearances for drone survey from Govt authority as per law if required &the same should be communicated in writing by both the parties.** The service provider will visit selected field sites and other locations for drone survey.

D. Outputs (Deliverables)

- a) **Mapping Survey Report:** The Service Provider is to submit a report on the Orthomosaic Mapping Survey work including methods, timeline, devices used, etc. at different stages of the work in different districts including a map template (in Landscape or portrait), probable number of maps against each location (based on different reach length) under the 4 zones at prescribed scale i.e. 1: 1000, as a document for output/deliverables. Index Map showing survey locations for each zones to be submitted in A1 Size separately in the report.
- b) **Video Clips of Individual Reaches:** Video of individual reaches/sites along with adjacent area up to 100 m which shall include the necessary details like location/village name, 100 m countryside markings, reach alignments, start &end points, river flow direction, etc., or as instructed by the Engineer in Charge/representatives of Engineer I/C of respective Water Resources Divisions (WRD). The video should enable a detailed assessment for land acquisition and flood and erosion damage compensation. The contents of video should be as per direction of the Engineer in Charge/representatives of Engineer I/C of respective Water Resources Divisions (WRD) as mentioned at a) above.
- c) **Orthomosaic Data in .tiff format of each reach under different zones**
- d) **High-resolution orthomosaic maps** (soft copy in pdf format & hard copy in A3 Size):
 - The Service provider needs to be designed a Standard Map Template in A3-format page and same to be used for submission of all the maps with scale at 1: 1000 to serve the purposes of land acquisition, and damage compensation. Each map is to have space for Executive Engineer's verification/ signature / approval. Index map of reaches under different district, title of map, legends, scale, northing etc., need to be depicted. Standard Template may be verified by FREMAA & WRD before finalization using a reach as sample.
 - Keeping in view of length of reaches, multiples maps need to be prepared at the prescribed scale for specific reaches.

- Reach details up to 100 m towards countryside from the reach/alignment are to be mapped which is required for land acquisition and damage compensation.
- A minimum of 2000 m details beyond the Start/End point of the alignment need to be mapped.
- Chainage at 50 m to be marked from the start point to enhance readability of length at ease of the reaches.
- Start /End should be marked with different color or different symbols in legend.
- Start /End Coordinates (in Degree Minutes Second) with Reach Length should be provided in a table in the map to avoid loss of information due to labelling (Coordinates not to be labelled with Start/End Points)
- At least four control points to be depicted for area calculation i.e. needs to generate 2 northings and 2 eastings for each map.
- Northing should be oriented at 90° for all maps.
- River flow direction should be indicated by arrows.

E. Implementation Arrangements:

FREMAA will administer the Contract and supervise the Service Provider's outputs. The Service Provider will be based in Guwahati with field work being conducted within the four priority subprojects areas. Over the whole duration of the Services, the Service Provider will work closely on a daily basis with FREMAA staff.

E. Completion schedule.

SL No	Brief Description of services	Period of Completion (Days)
1	Orthomosaic mapping using UAV drone for assessment of land acquisition and flood and erosion damage compensation.	30

The Service Provider is expected to implement a methodology and work plan that will enable all expected tasks of this Scope of Services to be accomplished within the completion schedule. The service provider has to submit a mobilisation plan, methodology and time line along with the quotation.

TABLE A

DETAILS OF REQUIREMENTS FOR THE DRONE SURVEY											
Name of Sub-Project	Name of Division	District	Sl no.	Location	LAC	Revenue Circle	Length (m)	Co-ordinates			
								Start of Reach	End of Reach		
Dibrugarh, Tinsukia Sub Project. (Zone-A)	DIBRUGARH	DIBRUGARH	Anti Erosion MEASURES								
			1	Nagaghuli to Kachari Line	Lahowal	Dibrugarh East	900.00	27°31'33.22"N 95° 0'42.29"E	27°31'17.46"N 95° 0'14.83"E		
			2	Filunuguri to 7400 ft Spur	Lahowal	Dibrugarh East	1700.00	27°30'56.78"N 94°58'49.86"E	27°30'43.76"N 94°57'54.93"E		
			3	DTP Dyke (Dibrugarh Town Area)	Dibrugarh	Dibrugarh East	3925.00	27°30'24.30"N 94°57'7.84"E	27°29'32.94"N 94°55'6.29"E		
			4	DTP Dyke (Amoraguri)	Dibrugarh	Dibrugarh East	265.00	27°28'48.73"N 94°53'34.94"E	27°28'42.67"N 94°53'28.25"E		
			5	Mohanaghat	Dibrugarh	Dibrugarh East	780.00	27°28'28.43"N 94°53'8.96"E	27°28'10.05"N 94°52'50.66"E		
			6	Nagakhelia	Dibrugarh	Dibrugarh East	600.00	27°28'1.81"N 94°52'35.46"E	27°27'49.82"N 94°52'19.13"E		
			7	Chaulkhowa at D/S of Bogibeel Bridge	Moran	Dibrugarh West	3690.00	27°23'6.66"N 94°46'22.89"E	27°21'13.75"N 94°46'6.40"E		
				TOTAL=				11860.00			

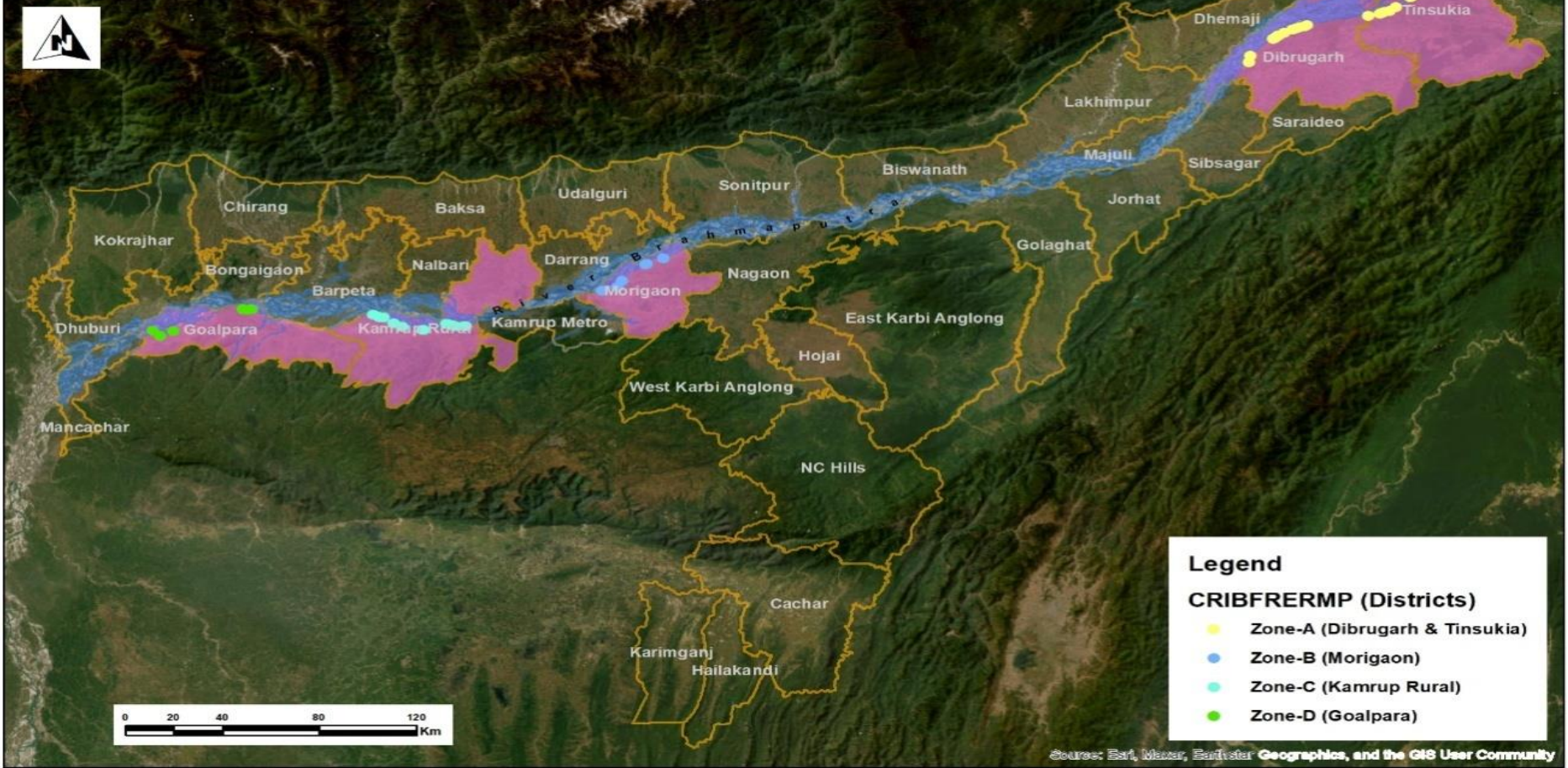
			NEW EMBANKMENT						
			1	Maijan			1,200.00		
	DIBRUGARH	TINISUKIA	Anti Erosion MEASURES						
			1	Milanpur to Hatighuli	Doomdooma	Doomdooma	1500.00	27°45'46.39"N 95°33'50.15"E	27°45'26.90"N 95°32'49.86"E
			2	Pheliai to Naokota	Doomdooma	Doomdooma	2000.00	27°45'16.73"N 95°32'13.43"E	27°44'45.44"N 95°30'57.67"E
			3	Gariating Gaon	Doomdooma	Doomdooma	400.00	27°39'29.64"N 95°27'34.50"E	27°39'22.15"N 95°27'23.41"E
			4	SimaluguriS atra	Doomdooma	Doomdooma	400.00	27°39'9.11"N 95°27'8.71"E	27°38'59.37"N 95°26'55.99"E
			5	Bahjan to Notun Gaon	Chabua/ Doomdooma	Doomdooma / Tinsukia	2100.00	27°36'21.94"N 95°23'9.01"E	27°35'12.21"N 95°21'37.47"E
			6	u/s Guijan	Chabua	Tinsukia	300.00	27°34'54.44"N 95°20'10.15"E	27°34'51.20"N 95°19'56.34"E
			7	Rungagorah to Dinjan	Chabua	Tinsukia	2700.00	27°34'33.28"N 95°19'9.72"E	27°33'55.28"N 95°16'16.64"E
				TOTAL=			9400.00		
Morigaon, Sub Project. (Zone-B)	MORIGAON	MORIGAON	Anti Erosion MEASURES						
			1	Mikirgaon-Kathani-Tengaguri area	Laharighat	Laharighat/B huragaon	7500.00	26°26'21.70"N 92°19'46.07"E	26°24'47.63"N 92°15'44.74"E
			2	Balidunga-Kuptimari-Bhuragaon-Baralimari	Laharighat	Bhuragaon	4150.00	26°24'41.12"N 92°15'16.60"E	26°20'15.79"N 92°9'33.39"E

			5	Gagalmari-Garubandha area	Jagiroad	Mayong	4000.00	26°18'24.96"N 92°8'22.9"E	26°17'19.64"N 92°4'40.56"E	
				TOTAL=			15650.00			
			Earthwork in Embankment for recoupment of shank of Spur or Shifting/widening of existing embankment							
			1	Chutiagaon	Laharighat	Laharighat	450.00			
			2	Kuptimari	Laharighat	Bhuragaon	700.00			
				TOTAL=			1150.00			
Guwahati West, PGP Sub Project. (Zone-C)	GUWAHATI WEST	KAMRUP	Anti Erosion MEASURES							
			1	Gumi	Chaygaon	Goroimari	850.00	26°5'55.4"N 91°20'26.1"E	26°5'56.5"N 91°20'18.7"E	
			2	Borakhat	Chaygaon	Goroimari	3900.00	26°6'45.31"N 91°15'6.97"E	26°7'40.31"N 91°12'57.75"E	
			3	Panikhaity	Boko	Chamaria	1100.00	26°9'15.87"N 91°10'25.72"E	26°9'22.19"N 91°9'40.51"E	
			4	Lotordia NC	Boko	Chamaria	2600.00	26°9'28.28"N 91°9'10.73"E	26°9'59.59"N 91°7'48.01"E	
				TOTAL=			8450.00			
						Anti Erosion MEASURES				
		PGP	KAMRUP	1	At Dakhala (Kalitapara) area	Palashbari	Palashbari	800.00	26°07'03.1"N 91°30'49.7"E	26°07'01.08"N 91°30'24.82"E
	2			At Guimara	Palashbari	Palashbari	200.00	26°07'02.3"N 91°28'09.7"E	26°07'01.9"N 91°28'13.8"E	
	3			At Simina area	Palashbari	Palashbari	640.00	26°07'17.9"N 91°27'23.6"E	26°07'21.5"N 91°27'08.4"E	
	4			In between Makadhuj spur and Land spur	Palashbari	Palashbari	1450.00	26°07'41.6"N 91°26'03.3"E	26°07'28.5"N 91°26'43.8"E	

				No-1 at Futuri					
				TOTAL=			3090.00		
Goalpara, Sub Project. (Zone-D)	GOALPARA	GOALPARA	Anti Erosion MEASURES						
			1	Goalpara Town	Goalpara East	Balijana	5350.00	26°11'8.30"N 90°37'44.49"E	26°11'11.49"N 90°37'19.69"E
			2	Chunari to Jaleswar	Goalpara West and Jaleswar	Lakhipur	6000.00	26° 4'36.58"N 90°18'25.27"E	26° 4'39.78"N 90°13'18.31"E
				TOTAL=			11350.00		
			NEW EMBANKMENT						
			1	Embankment Goalpara town	Goalpara East	Balijana	2075.00	26°10'55.46"N 90°36'43.82"E	26°11'4.35"N 90°35'31.42"E
				Sluice 1	Goalpara East	Balijana		26°10'56.53"N 90°36'30.09"E	
				Sluice 2	Goalpara East	Balijana		26°11'5.36"N 90°35'32.77"E	
				Sluice 3	Jaleswar	Lakhipur		26° 3'6.80"N 90°15'15.17"E	
				TOTAL=			2075.00		

Total Reach Length= (11860+1200+9400+15650+1150+8450+3090+11350+2075) = 64225 mtr

Locations of Climate Resilient Brahmaputra Integrated Flood & Riverbank Erosion Risk Management Project (CRIBFRERMP) in Assam



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

