

Government of Himachal Pradesh, India
Through
Society for Improvement of Forest Ecosystems Management &
Livelihoods in Himachal Pradesh

Invites

Proposals

For

Outsourcing the work on
Aerial Mapping, Planning and Monitoring of Intervention Area
Under

JICA Assisted
Project for Improvement of Himachal Pradesh Forest Ecosystems
Management & Livelihoods (PIHPFEM&L)

Himachal Pradesh Forest Department (HPFD),
Government of Himachal Pradesh

January 27, 2021

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**Himachal Pradesh Forest Department (HPFD),
Government of Himachal Pradesh
Through
Society for Improvement of Forest Ecosystems Management & Livelihoods in Himachal Pradesh
for the JICA assisted
Project for Improvement of Himachal Pradesh Forest Ecosystems Management & Livelihoods,
Potters Hill, Shimla, Himachal Pradesh**

Ref. No. JICA/General/Vol. 10

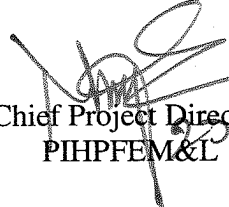
Dated: January 27, 2021

**{Notice for Invitation of Proposal for Aerial Mapping, Planning and Monitoring of
Intervention Area}**

Society for Improvement of Forest Ecosystems Management & Livelihoods in Himachal Pradesh of PIHPFEM&L now solicits proposals (Technical & Financial) from competent Firms/Organizations, specializing in GIS, Remote Sensing, Differential GPS Surveys and Drone application, for Aerial Drone Survey and Mapping of Intervention Areas of VFDS sites and BMC sub-committee sites under the JICA assisted PIHPFEM&L. Duration of this outsource work will be one year (2021-2022).

Eligible organizations may submit their Bid Proposal, with supporting documents in the prescribed formats only. The Bid Proposals should be sent by registered post/courier service, along with Demand Draft of Rs 5000/- as tender/bidding document fee (non-refundable) and Rs. 500000/- (Rupees Five Lakh only) in the form of FDR of any nationalized Bank, as Bid Security (refundable), payable to CPD cum CEO of Society for Improvement of Forest Ecosystems Management & Livelihoods in Himachal Pradesh, Potters' Hill, Summer Hill, Shimla-5, Himachal Pradesh payable at Shimla, in a sealed cover, so as to reach this office on or before 4.00 pm on February 17, 2021. Proposals received in formats other than the Prescribed Formats will not be entertained.

The scope of the Services, and other relevant details including prescribed formats, which are required for submission of the proposals are available on the website: www.hpforest.nic.in.


Chief Project Director
PIHPFEM&L
25/1/2021

Date:

Instructions to Bidder

I. General Instructions

- The organization (bidder) shall bear all costs associated with the preparation and submission of its proposal and PIHPFEM&L will in no case be responsible or liable for these costs, whether the proposal is finally accepted or not.
- Proposal validity shall be for 120 days.
- The organization (bidder) should submit their Bid Proposal, with supporting documents in the prescribed formats only. The Bid Proposals should be sent by registered post/courier service, along with Demand Draft of Rs 5000/- as tender/bidding document fee (non-refundable) and Rs. 500000/- (Rupees Five Lakh only) in the form of FDR of any nationalized Bank, as Bid Security (refundable), payable to CPD cum CEO of Society for Improvement of Forest Ecosystems Management & Livelihoods in Himachal Pradesh, Potters' Hill, Summer Hill, Shimla-5, Himachal Pradesh payable at Shimla.
- Proposal is to be submitted in a sealed envelope. The documents are to be arranged systematically into Section A (Technical Proposal) and Section B (Financial Proposal). Section A (Technical Proposal), and Section B (Financial Proposal) are to be kept in separate sealed envelopes, which further should be kept inside an outer envelope and sealed as per instructions and formats provided for the purpose. **The envelope containing Financial Proposal should be clearly marked, "Financial Proposal; and do not open with Technical Proposal".**
- All the three envelopes must show the name of the participating firm, address and should be superscripted as **"Proposal for Aerial Mapping, Planning and Monitoring of Intervention Areas" under Project for Improvement of Himachal Pradesh Forest Ecosystems Management & Livelihoods (PIHPFEM&L)".**
- The Technical Proposals should not include any information related to financial proposal. Such proposals would be summarily rejected. All the inputs, which are part of the Technical Proposal, should be included in arriving at the total Project cost in financial proposal. If not, it will be presumed to have been included.
- After evaluation of Technical proposals, unsuccessful firms would be intimated and their financial proposals would be returned unopened. Successful bidders would be intimated about date and time of opening of their financial proposals. Their attendance during opening of the financial proposals would be voluntary.
- The Bid Security of unsuccessful bidders will be returned within 28 days after opening of financial Proposal.

- The Bid Security of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security.
- Complete offers/bids are to be addressed to **Chief Project Director Project for Improvement of Himachal Pradesh Forest Ecosystems Management & Livelihoods (PIHPFEM&L) Cum CEO Society for Improvement of Forest Ecosystems Management & Livelihoods in Himachal Pradesh**, Potters Hill near Summer Hill, Shimla, H.P. Pin 171005.
- Offers duly filled and accompanying all supporting documents, should reach the above address by Registered Post/ Courier/by Hand by **4 PM on or before February 17, 2021 after which no Proposals would be accepted.**
- Incomplete, illegible and unsealed Proposals will be summarily rejected. Telegraphic Proposals will not be accepted and no correspondence will be made in this regard.
- All offers should be made in English. Conditional offers, and offers qualified by such vague and indefinite expression such as “Subject to immediate acceptance”, “Subject to prior sale” etc. will not be considered.
- Participating firms shall carefully examine the Proposal documents and the technical specification and fully inform themselves as to all the conditions and matters, which may in any way, affect the work or the cost thereof.
- Submitted forms, with overwritten or erased or illegible rate or rates not shown in figures and words in English, will be liable for rejection. In case of discrepancy between words and figures noted against each items of the tender and between unit rates and the total amount, amount quoted in words shall be considered and the decision of the evaluating authority in this regard will be final and binding. Clerical and arithmetical mistakes may result in rejection of the proposal.
- Chief Project Director, PIHPFEM&L reserves the right to accept or reject any proposal/all the proposals, without assigning any reason thereof.

II. Particular Instructions:

- The Intervention area in Himachal Pradesh is situated in tough hilly/ mountainous terrain. Bidders are requested to get them acquainted with general topography/ terrain conditions of the project area, meticulously go through the scope/ deliverables and correctly assess the project requirements while submitting their offer.
- The firm well versed with contemporary Drone forest survey for generation of ortho images vegetation mapping having sufficient experience of carrying out such assignments would be

preferred for the job. Preference shall also be given to firms having experience in the field of vegetation mapping in forestry-sector projects in India.

- The selected firm is to deploy all necessary resources such as **Drone based** survey equipment DGPS for generation of Reference point, Arc GIS for creation of spatial layers, GIS mapping facility, trained and experienced man power with local transport as may be required for smooth and timely execution of the tasks.
- The bidding firm will have to specify the methods of data collection & generation. The firm would be required to submit, in detail, the methodology proposed to be adopted by the firm in carrying out the assignment, to meet the desired objectives.
- Drone Survey will be done in all the project divisions except Lahaul Territorial Forest Division and Spiti Wildlife division, which share international border with China, for smooth and effective planning and monitoring.

The proposal must be submitted in two sections as per prescribed format mentioned below:

Section A: Technical Proposal

The Technical Proposal must include the following:

- a) Technical Proposal should be in 4 copies, one original and other 3 marked as copy.
- b) Technical Proposals should be page numbered with different sections clearly separated. Quality of proposal has been given separate marks.
- c) Each numbered page should be duly signed by the authorized signatory.
- d) Drone based Forest Survey, GIS Mapping and Geo Database Development/Similar experience in forestry sector projects in the last three years. Supporting documents (work order/completion certificates) are mandatory. No marks will be given if supporting documents are not provided. The bidder shall have experience of successfully completing drone survey and similar related projects of value not less than 15 Lakh each. The bidder shall have executed long term contract of duration not less than 6 months of similar nature in the past. (**Tech I**)
- e) Details of Drone, with the firm as per format (**Tech II**). Supporting documents (challans/invoices) indicating equipment serial numbers are mandatory as proof of ownership. Without this information, zero marks will be given in evaluation. Bidder shall provide the number of DGCA approved Drones in their inventory and shall provide the number of visual cameras (payloads/sensors) equipped with RTK/PPK with a minimum resolution of 20 MP to be deployed for survey work

- f) CV of Key Resource Persons proposed for the assignment with their experiences in forest survey, mapping using Drone/ GIS/ DGPS for monitoring and planning. (**Tech III**) Details of Full time professionals on company payroll.
- g) Proposed approach, methodology, work process, resource deployment, deliverables and time line to fulfill the desired objective and scope of work within the specified time schedule (**Tech IV**). Enclose supporting documents such as methodology, technical papers, etc. developed by the vendor for such forest survey and mapping using drone based data, GIS and DGPS.

Section B: Financial Proposal

- Prices shall be quoted entirely in Indian Rupees (INR) and must be arrived at after including all expenses, rates, and applicable taxes, including Goods and Service Tax (GST) which is also to be indicated separately as per prevailing rate.
- Financial Proposal to be submitted **in the Prescribed format (Fin I)**. The cost break-up/ justification and all taxes and levies may be submitted on separate sheet on organization letter head.
- The Price and conditions of the offer should be valid for at least a period of 120 days from the date of opening. Proposals with validity of less than 120 days shall be rejected
- Each page of the Financial Proposal should be numbered clearly and duly signed by the authorized signatory.

Technical Proposal- Sample Forms

Form TECH-I: Service Providers' Organization and Experience

A – Service Providers' Organization

[Provide here a brief (two pages) description of the organization and general experience of the professional for this assignment.]

B – Service Providers’ Experience

(Drone survey, DGPS and GIS mapping related assignments)

[Using the format below, provide information on each assignment for which your firm and each joint venture member for this assignment, was legally contracted either individually as a corporate entity or as a lead firm or one of members within a joint venture, for carrying out consulting services similar to the ones requested under this assignment. Use about 20 pages.]

Assignment name:	Approx. value of the contract (in INR):
Country: Location within country:	Duration of assignment (months):
Name of Client:	Total No. of man-months of the assignment:
Address:	Approx. value of the services provided by your firm under the contract (in INR):
Start date (month/year): Completion date (month/year):	No. of professional man-months provided by the joint venture members or Sub-consultants:
Name of joint venture member or Sub-consultants, if any: Narrative description of Project:	
Description of actual services provided in the assignment:	
Firm’s Name: _____	

Form TECH-II: Details of Required Drone Available**Form Equipment**Date: *[insert day, month, year]*Bidder's Legal Name: *[insert full name]*Joint Venture Party Legal Name: *[insert full name]*IFB No. *[insert number]*Page *[insert page number]* of *[insert total number]* page

[The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment. A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder.]

Item of equipment		
Equipment information	Name of Manufacturer	Model and power Rating
	Capacity	Year of Manufacturer
Current Status	Current Location	
	Detail of Current Commitments	
Source	Indicative Source of the equipment	
	<div style="display: flex; justify-content: space-around;"><div><input type="checkbox"/> Approved from DGCA</div><div><input type="checkbox"/> Not Approved from DGCA</div></div>	

Omit the following information for equipment owned by the Bidder.

Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and title
	Fax	Telex
Agreements	Details of rental / lease / manufacture agreements specific to the project	

Note: Details of Drone with the firm as per format. Supporting documents (challans/ invoices) indicating equipment serial numbers are mandatory as proof of ownership. Without this information, zero marks will be given in evaluation.

Form TECH-III: Curriculum Vitae (CV) for Proposed Key Experts**1. General**

Position Title and No.	[e.g., K-1, Key Expert] [<i>Note: Only one candidate shall be nominated to each position.</i>]
Name of Key Expert	[Insert full name]
Name of the Firm proposing the Key Expert	
Date of Birth	[day/month/year]
Nationality	
Country of Citizenship/Residence	

- 2. Education:** [List college/university or other specialized education, giving names of educational institutions, dates attended, degree(s)/diploma(s) obtained]
- _____
- _____

3. Employment record relevant to the assignment:

Period	Employing organization and your title/position. Contact information for references*	Country	Summary of activities performed relevant to the Assignment
[e.g., May 2010-present]	[e.g., Ministry of, advisor/Professional to... For references: Tel...../e-mail.....; Mr. Hbbbb, deputy minister]		

4. Certification:

I, the undersigned, certify to the best of my knowledge and belief that:

- (i) this CV correctly describes my qualifications and my experience;
- (ii) I am committed to undertake the assignment within the validity of Proposal;
- (iii) I am not part of the team who wrote the terms of reference for this consulting services assignment;

I understand that any misstatement described herein may lead to my disqualification or dismissal, if engaged.

Date: _____

*[Signature of Key Expert or authorized representative of the firm]*¹ Day/Month/Year

Full name of authorized representative: _____

¹ This CV can be signed by an authorized representative of the professional provided that if the Service Providers proposal is ranked first, a copy of the CV signed by the Key Expert and/or specialist must be submitted to the Client prior to the commencement of contract negotiations.

Form TECH-IV: Description of Approach, Methodology, Technical presentation and Work Plan for Performing the Assignment.

[Technical approach, methodology and work plan are key components of the Technical Proposal. You are suggested to present your Technical Proposal (about 50 pages, inclusive of charts and diagrams) divided into the following three chapters:

- a) Technical Approach and Methodology,*
 - b) Work Plan, and*
 - c) Organization and Staffing,*
-
- a) Technical Approach and Methodology. In this chapter you should explain your understanding of the objectives of the assignment, approach to the services, methodology for carrying out the activities and obtaining the expected output, and the degree of detail of such output. You should highlight the problems being addressed and their importance, and explain the technical approach you would adopt to address them. You should also explain the methodologies you propose to adopt and highlight the compatibility of those methodologies with the proposed approach. Staffing for training should also be explained, if so required in the TOR. Please do not repeat/copy the TOR in here.*
 - b) Work Plan. In this chapter you should propose the main activities of the assignment, their content and duration, phasing and interrelations, milestones (including interim approvals by the Client), and delivery dates of the reports. The proposed work plan should be consistent with the technical approach and methodology, showing understanding of the TOR and ability to translate them into a feasible working plan. A list of the final documents, including reports, drawings, and tables to be delivered as final output, should be included here. The work plan should be consistent with the Work Schedule.*
 - c) 3D platform demonstration of features and analytical capability and demonstration. Bidder will give technical presentation of drone to captures data of an area for giving 3D demonstration.*
 - d) Organization and Staffing. In this chapter you should propose the structure and composition of your team. You should list full time professional on company payroll. And you shall also specify if you will be the lead firm in a joint venture or in an association with Sub-consultants. For joint ventures, you must attach a copy of the joint venture.*
-

Financial Proposal- Sample Forms

To: [Name and address of Client]

Dear Sirs:

We, the undersigned, offer to provide the services for [insert name of assignment] in accordance with your Invitation of Proposal dated [insert Date] and our Technical Proposal. Our attached Financial Proposal is for the sum of [insert amount(s) in words and figures¹].

Our Financial Proposal shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Proposal.

We understand you are not bound to accept any Proposal you receive.

We remain,

Yours sincerely,

Authorized Signature [in full and initials]: _____

Name and Title of Signatory: _____

Name of Firm: _____

Address: _____

-
- 1 Amounts must coincide with the ones indicated under Total. This amount is inclusive of the local indirect taxes, which shall be confirmed during negotiations, and included in the Contract price.

QCBS - Data Sheet

Sr. No.	
1	The Guidelines (Service Providers' guidelines) published in April 2012 by JICA can be referred.
2	Amount of the Loan Agreement: JPY ¥ 11,136,000,000 Signed date of the Loan Agreement: 29-03-2018 Name of Project: Project for Improvement of Himachal Pradesh Forest Ecosystems Management and Livelihoods
3	Name of the Client: Himachal Pradesh Forest Department (HPFD), through Society for Improvement of Forest Ecosystems Management and Livelihoods in HP
4	Name of the assignment: "Aerial Mapping, Planning and Monitoring of Intervention Area"
5	<p>The Client's representative is: Chief Project Director, Project for Improvement of Himachal Pradesh Forest Ecosystems Management and Livelihoods Cum Chief Executive Officer Society for Improvement of Forest Ecosystems Management and Livelihoods in HP</p> <p>Address: Chief Project Director Project for Improvement of Himachal Pradesh Forest Ecosystems Management & Livelihoods (PIHPFEM&L) Cum CEO Society for Improvement of Forest Ecosystems Management & Livelihoods in Himachal Pradesh, Potters Hill near Summer Hill, Shimla, H.P. Pin 171005 Telephone: 91-177-2830217, 2831217, 2832217 E-mail: cpdjica2018hpfd@gmail.com</p>
6	The Client will provide Terms of Reference for the work to be outsourced
7	A list of debarred firms and individuals is available at the World Bank's website: www.worldbank.org/debarr
8	Proposals shall be submitted in the following language: <u>English</u>

9	Proposals must remain valid 120 days after the submission deadline date.						
10	The Financial Proposal should be in Lump sum including everything.						
11	Clarifications on proposal documents may be requested on e-mail and telephone numbers given above within ten days from advertisement. However the final date of submission will not be extended under any circumstances.						
12	<p>The Client warrants that the Client shall pay the amount for the work done as per the schedule to be decided during contract negotiations</p> <p>“Information on the Service Providers’ tax liabilities in the Client’s country can be found at http://dor.gov.in , www.incometaxindia.gov.in and www.cbec.gov.in.”</p>						
13	Number of copies of the Technical Proposal: One (1) original and three (3) copies						
14	<p>Time and date of the Proposal submission deadline:</p> <p>- Time: 16:00 (Indian Standard Time)</p> <p>- Date: February 17, 2021</p>						
15	<p>Service Providers’ must submit the original and all copies of the Technical Proposal, and the original Financial Proposal to the Client.</p> <p>Proposals must be submitted no later than date and time stated above.</p>						
16	<p>Technical evaluation, based on past experiences and technical expertise, shall be carried out for eligible bidders by assigning Technical Scores as specified below:</p> <table><tr><th>Sr. No.</th><th>Technical Credential</th><th>Max Score</th></tr><tr><td>1</td><td>The bidder shall have experience of successfully completing drone survey and similar related projects in</td><td>15</td></tr></table>	Sr. No.	Technical Credential	Max Score	1	The bidder shall have experience of successfully completing drone survey and similar related projects in	15
Sr. No.	Technical Credential	Max Score					
1	The bidder shall have experience of successfully completing drone survey and similar related projects in	15					

	forestry sector projects in the last three years of value not less than 15 Lakh each.	
2	The bidder shall have executed long term contract of duration not less than 6 months of similar nature in the past.	15
3	Proposed Key Experts.	15
4	Relevant quality certificate from a recognized institution for software product or process.	10
5	Bidder shall provide the number of DGCA approved Drones in their inventory.	15
6	Bidder shall provide the number of visual cameras (payloads/sensors) equipped with RTK/PPK with a minimum resolution of 20 MP to be deployed for survey work.	05
7	Methodology, Technical presentation and Work Plan for Performing the Assignment.	25
Minimum marks for qualifying in Technical Evaluation would be 60 marks.		
17	Expected date (month/year) for public opening of Financial Proposals: February 2021.	
18	The single currency for price conversion is: <u>Indian Rupee</u> .	
19	Quality-Cost Ratio: 80:20.	
20	Expected date and address for contract negotiations: March 2020 at the office of Chief Project Director Project for Improvement of Himachal Pradesh Forest Ecosystems Management & Livelihoods (PIHPFEM&L) Cum CEO Society for Improvement of Forest Ecosystems Management & Livelihoods in Himachal Pradesh, Potters Hill near Summer Hill, Shimla, H.P. Pin 171005 (INDIA).	
21	Expected date for commencement of consulting services April 2021 in Himachal Pradesh, India.	

Evaluation and Selection Criteria/Methodology

The Proposal evaluation will be a Quality and Cost based Selection, giving Weightage as per following details: -

- Technical Proposal: 80%
- Financial Proposal: 20%

The Proposal shall be evaluated in a two-stage process.

Stage 1:

Technical evaluation, based on past experiences and technical expertise, shall be carried out for eligible bidders by assigning Technical Scores as specified below:

Sr. No.	Technical Credential	Max Score
1	The bidder shall have experience of successfully completing drone survey and similar related projects in forestry sector projects in the last three years of value not less than 15 Lakh each.	15
2	The bidder shall have executed long term contract of duration not less than 6 months of similar nature in the past.	15
3	Proposed Key Experts.	15
4	Relevant quality certificate from a recognized institution for software product or process.	10
5	Bidder shall provide the number of DGCA approved Drones in their inventory.	15
6	Bidder shall provide the number of visual cameras (payloads/sensors) equipped with RTK/PPK with a minimum resolution of 20 MP to be deployed for survey work.	05
7	Methodology, Technical presentation and Work Plan for Performing the Assignment.	25

Minimum marks for qualifying in Technical Evaluation would be 60 marks.

Stage-2

Financial Proposals shall be evaluated only of those bidders who score at least 60 marks out of 100 in Technical Proposal evaluation. The lowest evaluated Financial Proposal will be given the maximum financial score of 100 points. The financial scores (F_n) of the other technically qualified Financial Proposals will be computed as per the formula given below:

$$F_n = 100 \times (F_{\min} / F_b)$$

Where,

F_n = financial score for the bidder under consideration

F_b = price quoted by the bidder under consideration

F_{\min} = minimum price quoted by any bidder

Bids will be ranked according to their combined technical (T_n) and financial (F_n) scores using the

weights $W_T = 0.80$ (the weight given to technical proposal); $W_F = 0.20$ (the weight given to the financial proposal). The combined technical and financial score (S) for the bidder under consideration shall be computed as per the formula given below:

$$S = (0.8 \times T_n) + (0.2 \times F_n)$$

The bidder achieving the highest combined technical and financial score (S) shall be considered for award of the contract.

Terms of Reference (ToR)

For

Aerial Mapping, Planning and Monitoring of Intervention Area

About the Project

Project for Improvement of Himachal Pradesh Forest Ecosystems Management & Livelihoods (PIHPFEM&L), aims at addressing forest degradation by improving livelihoods and income generating activities of the people. The Project is being implemented in Society mode. A Society by the name, **Society for Improvement of Forest Ecosystems Management & Livelihoods in Himachal Pradesh** has been registered under Society Registration Act, 2006, with the Registrar of Societies, Himachal Pradesh. To oversee Project implementation at the State level, a Project Management Unit (PMU) has been established. The project area falls in Kinnaur, Shimla, Bilaspur, Mandi, Kullu and Lahaul & Spiti districts covering 61 Ranges of 18 Divisions falling in jurisdiction of 7 Forest Circles of Himachal Pradesh. Project would be implemented in participatory mode by Village Forest Development Societies (VFDS) and Biodiversity Management Committees (BMC) sub-committees. Drone survey will be done in all the project divisions except Lahaul Territorial Forest Division and Spiti Wildlife Division, which share international border with China, for smooth and effective planning and monitoring.

Project Management Unit (PMU). Implementation of the Project at Forest Division level and Forest Range level would be facilitated by Divisional Management Units (DMUs) and Field Technical Units (FTUs) respectively.

The project components in these areas will mainly include Sustainable Forest Ecosystem Management, Biodiversity Conservation, Livelihoods Improvement Support and Institutional Capacity Strengthening.

The activities will be carried out in **400** Village Forest Development Societies (VFDS) site and **60** Biodiversity Management Committees (BMC) sub-committees sites involving approximately **5km²** areas per VFDS/BMC sub-committees. The scope of work can be increase or decrease during assignment period.

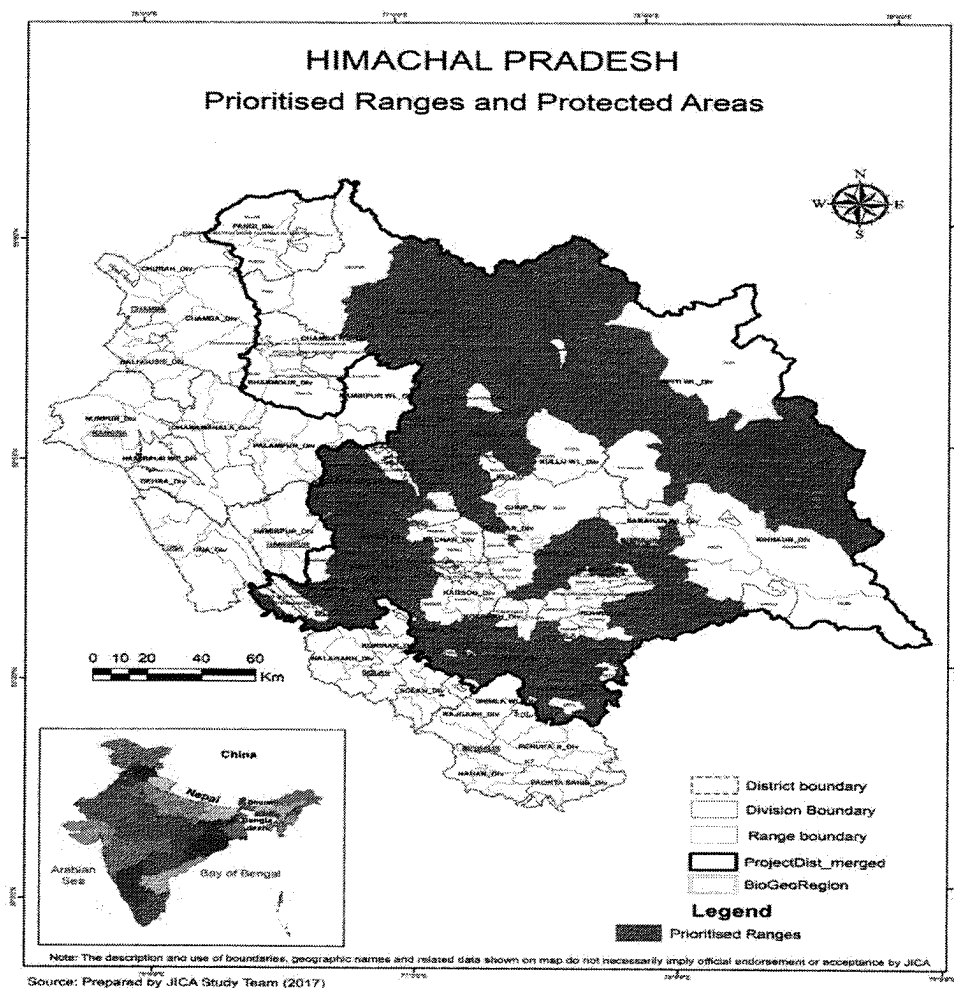
The project area includes Kinnaur, Shimla, Bilaspur, Mandi, Kullu and Lahaul & Spiti districts covering 61 Ranges of 18 Divisions falling in jurisdiction of 7 Forest Circles as below.

Table: Project Area

Division	Range	Division	Range
Bilaspur	Sadar, Ghumarwin Swarghat, Jhanduta	Lahaul	Pattan Keylong
Mandi	Drang, Kotli, Mandi, Kataula	Kinnaur	Katagaon, Nichar, Bhabanagar, Malling, Pooh
Nachan	Nachan	Shimla	Mashobra, Taradevi, Koti
Suket	Baldwara, Jhungi, Kangoo, Sarkaghat, Jaidevi, Suket	Theog	Balson, Theog, Kotkhai
Jogindernagar	Dharmpur, Ladbharol, Jogindernagar, Urla, Kamlah	Rohru	Jubbal, Khashdhar, Saraswatinagar, DodraKwar

Kullu	Kullu, Patalikuh, Manali, Naggar, Bhutti	Chopal	Bamta, Nerwa, Chopal, Sarain, Kanda, Throach
Parbati	Bhuntar, Jari, Hurla	Rampur	Sarahan
Banjar (Seraji)	Sainj, Tirthan	Kullu Wildlife	Sundernagar Wildlife Range (Bandli WLS)
Ani	Arsoo, Nither	Kullu Wildlife	-Manali Wildlife Range (Kias and Manali WLS) -Kullu Wildlife Range (Khokhan WLS)
		Spiti Wildlife	-Kaza Wildlife Range (excluding Chandertal WLS) -Tabo Wildlife Range

Map showing Forest Divisions and Ranges covered under JICA Assisted Project for Improvement of Himachal Pradesh forest ecosystems management and Livelihoods



Assignment- Aims and Objective:

- ◆ Survey and Mapping for the purpose of Micro planning of the intervention area.
- ◆ Establishing base line data for Monitoring and Evaluation of Project activities mainly plantation survival assessment, forest management, soil and water conservation works and other civil works in the project area.
- ◆ Baseline data collection to compare the change detection for different activities in the intervention area in subsequent years.
- ◆ To Generate the Digital Surface Model (DSM), Digital Elevation Model (DEM), Digital Terrain Model (DTM), Point Cloud, 3D model, Ortho mosaic and Contours from those single blocks.
- ◆ Delineate the forest fire burnt area.
- ◆ Training and capacity building of technical staffs in using drone data for mapping, point cloud data analysis, DEM generation, and monitoring and evaluation.

Scope of Work

A. Pre-Requisites

The agency shall ensure that the necessary permissions and clearances for drone operations are obtained from respective authorities wherever applicable such as, including, but not restricted to the following:

- i. Directorate General of Civil Aviation(DGCA)
- ii. Ministry of Defense (MoD)
- iii. Ministry of Home Affairs(MHA)
- iv. Air Traffic Control(ATC)
- v. Local Police and District Administration etc.

The above clearances, and permissions shall have to be mandatorily obtained prior to commencement of the flight operation and the agency shall have to also mandatorily submit a copy of the permissions and clearances received, to the CPD JICA office.

It shall be the responsibility of the agency to ensure that the drone operations do not take place without obtaining the relevant permissions from respective authorities.

The agency shall be responsible for engaging required manpower to complete the work within the specified period.

Prior to commencement of flight operation, the agency shall conduct necessary field visits for the study of the area for flight planning and establish Ground Control Points (GCPs), if required. (Agency shall establish GCPs depending on the requirement to meet the desired specifications of the deliverables)

Agency shall ensure that accuracy of the Differential GCPs shall be less than 5cm. The GCPs should be clearly visible on drone images.

B. Drone Operation for Data Acquisition

Agency shall deploy required number of drones at multiple sites i.e., either fixed wing or multi-rotor Drones with mini or micro weight class, as per DGCA's latest regulations for data acquisition, few parameters of which are illustrated, (non-exhaustive) below

- Drone Pilot Certificates/Licenses
- DGCA Approved Survey grade Drone etc.
- Every flight should be recorded in the digital sky platform

Agency shall ensure that base station is established for each Drone flight.

Agency shall ensure that endurance of each Drone for data acquisition shall not be less than 30 minutes.

Applicants shall acquire the data with high resolution (**20MP or above**) RGB digital camera in-built RTK or PPK GPS in order to capture geo-tagged images.

While acquiring the data, the Agency shall ensure that it.

- i. Maintains a GSD of 5 cm or better with RGB digital camera and agency shall perform the data acquisition through **normal** flight, **cross** flight as well as **Perpendicular** flight so that no object is missed while collecting the data, if required.

Agency shall ensure that the communication range of each Drone shall not be less than 3 km radius.

The recommended minimum overlap shall be:

- i. 75% frontal and 60% side overlap in general cases.
- ii. 85% frontal and 70% side overlap for forests, dense vegetation and fields.
- iii. 85% frontal overlap for single track corridor mapping.
- iv. 60% side overlap if the corridor is acquired using two flight lines.

C. Data Processing and Analysis

The Agency shall deploy required number of resources on project to process the data and generate required outputs within the shortest possible time, as the outputs are expected on real- time or near real-time.

The data processing and its analysis shall have to be carried out in a manner to maintain the confidentiality of the data. No data shall be shared to any third party and it will remain solo property of JICA project.

The Agency shall ensure that all flight data be brought into a single block and it shall be in the desired correction range.

The Agency shall generate Digital Surface Model (DSM), Digital Terrain Model (DTM), Point Cloud, 3D model, ortho mosaic and Contours from those single blocks. The acquired drone images shall be adjusted together with a bundle adjustment process along with the image matching process and point cloud generation. The accuracy report of such adjustment shall be submitted with respect to the established ground control points.

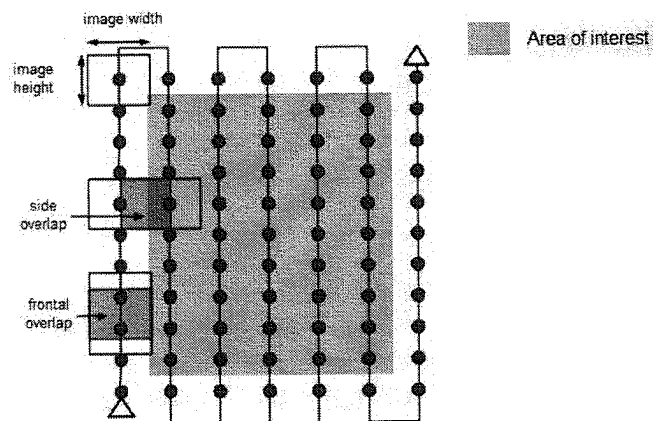
The ortho mosaic shall be generated after achieving the vertical accuracy of DTM and the image adjustment report. The ortho mosaic shall be seamless and color balanced with no artifacts.

General Guidelines

For most cases it is recommended to acquire the images with a regular grid pattern. The recommended overlap is at least 75% frontal overlap (with respect to the flight direction) and at least 60% side overlap (between flying tracks). The camera should be maintained as much possible at a constant height over the terrain / object to ensure the desired GSD.

The overlap and flight height have to be adapted depending on the terrain.

For forest, dense vegetation areas and flat terrains with agricultural fields it is recommended to increase the overlap to at least 85% frontal overlap and at least 70% side overlap and fly higher so that it is easier to detect similarities between overlapping images. Projects with thermal images require at least 90% frontal and side overlap.



For projects with multiple flights there should be overlap between the different flights and the conditions (sun direction, weather conditions, no new buildings, etc.) should be similar.

(The detailed approach and methodology for Drone survey and mapping of intervention areas will be required from the bidding agencies)

Assignment Coverage

- ◆ Survey and Mapping for the purpose of Micro planning of the intervention area.
- ◆ Establishing base line data for Monitoring and Evaluation of Project activities mainly plantation survival assessment, forest management, soil and water conservation works and other civil works in the project area.
- ◆ Baseline data collection to compare the change detection for different activities in the intervention area in subsequent years.
- ◆ To Generate the Digital Surface Model (DSM), Digital Elevation Model (DEM), Digital Terrain Model (DTM), Point Cloud, 3D model, Ortho mosaic and Contours from those single blocks.
- ◆ Delineate the forest fire burnt area.

Tentative Batch wise coverage of VFDS and BMC sub-committees for Arial Mapping and Monitoring in the year 2021-22.

Batch I:	75VFDS and 30 BMC sub-committees
Batch II	175 VFDS and 30BMC sub-committees
Batch III	150 VFDS in Batch III

Assignment Period

One time data (2021-22) will be required for the project area for planning and monitoring the intervention area.

Deliverables

The selected agency is expected to submit two time data of following deliverables/ outputs to PMU as per the time schedule.

1. Ortho mosaic images of Intervention area.
2. Digital Surface Model (DSM), Digital Elevation Model (DEM), Digital Terrain Model (DTM).
3. Contour Map with all the natural and Man-made features indicated.
4. Report/Plan with deep analysis of the intervention areas with all the necessary steps to be taken for restoration of the Intervention Area.
5. Different Indexes generation for the plantation viz NDVI data Map.
6. Minimum Six Benchmarks per Sq km should be visible in aerial photographs with Triangulation Network Report and Error Computation sheets needed to be submit.
7. Size of each Benchmark should be of 500mmx500mmx1000mm (cross checked by measuring on aerial images) marked with Unique ID engraved in Steel plate.
8. Aerial triangulation Report with maximum $\frac{1}{4}$ of pixel RMSE error.
9. Training and capacity building of technical staffs in using drone data for mapping, point cloud data analysis, DEM generation, and monitoring and evaluation.

Note:

In addition, all the final products, i.e., maps database and vector and raster/image layers generated during the assignment, will have to be submitted in both hard and soft copies (database and raster and vector layers in soft copy formats) in view of the project targets for different Batches.

Conditions of Contract

The General Conditions of Contract governing this Contract are the “General Conditions of Contract for Time-Based Contract, Annex I-II, Section 6” of the Standard Request for Proposals (version 1.1) published by JICA in October 2012. Those General Conditions of Contract are available on the JICA’s web site shown below

http://www.jica.go.jp/english/our_work/types_of_assistance/oda_loans/oda_op_info/guide/tender/index.html

A copy of these General Conditions is not attached to this document

Special Conditions of Contract

Serial no.	Conditions of Contract
1	The Guidelines (Service Providers' guidelines) published in JICA in October 2012 can be referred.
2	The Contract shall be executed in: English
3	<p>The addresses are: Client: Himachal Pradesh Forest Department (HPFD), through Society for Improvement of Forest Ecosystems Management and Livelihoods in HP</p> <p>Attention: <u>Chief Project Director, Project for Improvement of Himachal Pradesh Forest Ecosystems Management and Livelihoods</u> <u>Cum</u> <u>Chief Executive Officer Society for Improvement of Forest Ecosystems Management and Livelihoods in HP</u> <u>Potters' Hill near Summer Hill, Shimla-5, H.P.</u></p> <p>Ph. No.: +91-177-2830217, 2831217, 2832217 E-mail: cpdjica2018hpfd@gmail.com</p> <p>Service Providers': _____</p> <p>Attention: _____</p> <p>Facsimile: _____</p> <p>E-mail: _____</p>
4	<p>The Lead Member is <i>[insert name of member]</i></p> <p><i>Note: If the Service Providers' consists of a Joint Venture the name of the entity inserted here. If the Service Providers' consists only of one entity, then only details of lead member be provided.</i></p>
5	<p>The Authorized Representatives are:</p> <p>For the Client: <u>Chief Project Director, Project for Improvement of Himachal Pradesh Forest Ecosystems Management and Livelihoods</u> <u>Cum</u> <u>Chief Executive Officer Society for Improvement of Forest Ecosystems Management and Livelihoods in HP</u></p> <p>For the Service Providers': _____</p> <p>_____</p>
6	The time period of assignment shall be One year (2021-22)
7	The ceiling on Service Providers' liability shall be limited to the amount of this contract
8	The risks and the coverage like third party motor vehicle liability, professional

	liability insurance, employer's liability and workers' compensation insurance, Insurance against loss of or damage to (i) equipment purchased in whole or in part with funds provided under this Contract, and (ii) the Service providers' property used in the performance of the Services will be all service providers' liability
9	The Client is entitled to use the documents prepared by the Service Providers' under this Contract for other projects, without prior written permission of the service providers'.
10	Any local indirect taxes chargeable in respect of this Contract for the Services provided by the Service providers' are included in the ceiling amount of this Contract.
11	The Contract amount is lump sum and fixed.
12	The client would pay the fix contract amount as per schedule decided during contract negotiations. The Contract amount is lump sum and fixed.
13	The currency of payment shall be INR <i>Note: The currency (ies) shall be the same as in the Financial Proposal.</i>
14	Commitment Procedure and Reimbursement Procedure for Japanese ODA loans will be applied for the payment to the service providers' Commitment Procedure and Reimbursement Procedure shall be used and managed in accordance with JICA's "Brochure on Commitment Procedure for Japanese ODA Loans", dated August 2012 and "Brochure on Reimbursement Procedure for Japanese ODA Loans", dated August 2012 respectively, as may be amended from time to time. The bank charges can be borne by the project however will be finally negotiated at the time of contract negotiation.
15	The amount of the advance payment is: -15% of the Contract amount in local currency. The advance payment securities shall be in the amounts and in the currencies of the advance payment. The advance payment will be set off by the Client in equal installments until the advance payment has been fully set off.
16	The service providers' shall submit to the Client itemized invoices at time intervals to be decided in contract negotiations.
17	All the payments are subject to statutory deductions under the income tax act/GST & any other applicable law.
18	The accounts are: - For local currency: <i>[insert account]</i> .
19	Applicable Law: Apart from the JICA General conditions of contract, the applicable guidelines/law on Contracts in Himachal Pradesh would be applicable.