

**National Mission for Clean Ganga (NMCG)  
Department of Water Resources, River Development & Ganga Rejuvenation  
Ministry of Jal Shakti**

F.No: A-12011/6/2011-NRCD-VI (Tender ID: 2021\_NMFCG\_648123\_1)

Dated: 28 September 2021

**Responses to Pre Proposal/Bid Queries**

**Sub: Request for Proposal for Selection of Agency for ‘Aerial Acquisition & Delivery of High Resolution DTM and extraction of all physical feature under River Corridor Mapping: Using LiDAR mounted Unmanned Aerial Vehicle (UAV)/Drone**

S.No.	RFP Clause No.	Subject/RFP Clause	Bidder's Query	Response
1.	iii (E&EC) 1, Page No. 9	The surveying agency must be an experience in GIS/UAV drone flying service at least one assignment having done RGB/MS flying and UAV data processing work in the past three years. Having carried out high resolution survey to generate ortho photo for a minimum be 800 sq km with any government organization.	The surveying agency must be an experience in GIS/UAV drone flying service at least one assignment having done RGB/MS flying and UAV data processing work on High resolution based digital terrain model generation in the past three years. Having carried out high resolution survey/high resolution satellite image data to generate DTM and ortho photo of 0.5 meter, for a minimum be 500 sq km with any government organization/Govt appointed consultants.	RFP clause shall prevail.
2.	iii (E&EC) 2, Page No. 9	The agency should have post processing kinematic (PPK) UAV equipped with high grade on board GPS & IMU for the surveying activity. Documentary evidence for proof of ownership of the equipment shall be submitted.	The agency should have post-processing kinematic (PPK) UAV equipped with high grade on board GPS & IMU for the surveying activity. Documentary evidence for proof of ownership /lease of the equipment shall be submitted.	RFP clause shall prevail.
3.	iii (E&EC) 4, Page No. 9	The minimum annual turnover should be INR 2 crores in any one financial year during the last three financial years i.e. 2018-19 to 2020-21.	The minimum annual turnover should be INR 2 crores in any one financial year during the last 3 financial years i.e. 2017-18 to 2019-20 (As many company has not yet filled Audited BS for FY 2020-21)	RFP clause shall prevail.

<b>S.No.</b>	<b>RFP Clause No.</b>	<b>Subject/RFP Clause</b>	<b>Bidder's Query</b>	<b>Response</b>
4.	iii (E&EC) 7, Page No. 9	Department for Promotion of Industry and Internal Trade recognized start-ups will be given preferences in selection.	Department for Promotion of Industry and Internal Trade recognized start-ups / MSME will be given preferences in selection.	RFP clause shall prevail.
5.	iii (E&EC) 8, Page No. 9	The agencies must have in-house developed interface to display entire dataset.	The agencies must have in-house developed interface/ will give undertaking to develop interface to display entire dataset in this project.	It will be acceptable.
6.	IV (ToR), (O of P) Page No 10	Expected outcomes are high resolution DTM, DSM, DEM, point cloud, contour, mosaic orthorectified images, thematic layer of drain, sand mining, illegal dumping, mainly encroachment in riverbed, land use/land cover map (level 1, II & III) and Cadastral map	Please do state whether Cadastral map shall be provided by NMCG or will be collected from Revenue Department. The Overlaying Cadastral Map with new acquisition of LIDAR/Photogrammetry data may not fit, as both are different source and scale. What is acceptance criteria of Cadastral mapping accuracy.	Drone data - LiDAR & optical sensor based cadastral mapping will be acceptable.
7.	IV (ToR)/(S of W) 1, Page No 10	Planning and provision of planimetric ground control points by dual frequency GNSS receivers in relative static positioning mode required for LiDAR survey and photogrammetric block control in plain terrains. It includes field work, processing and computation. Survey of India spatial reference frame to be used for establishing ground control point in planning & exhibition	How many Ground Control Points are specified AOI 292.24 Sq km.	Minimum 20 ground control points/ 100 sqkm are necessary with 24 hours of Observations.
8.	IV (ToR)/(S of W) 2, Page No.10	The Professional Survey Grade Unmanned Aerial Vehicle /Drone shall have all necessary permits and flying clearance from DGCA/MoD/MHA/ATC/ local police/ district administration or any other authority if applicable	It is requested to provide certain authorisation for the security clearance and Permission from NMCG for the flight path etc	NMCG will provide authorization letter for the security clearance & permission for flying & aerial data acquisition.
9.	IV (ToR)/(S of W) 4, Page No.10	Minimum 20 check points are necessary for 100 sq km area acquisition.	How the check points are measured, what is accuracy variance of check points and LIDAR data elevation accepted.	Check points should be based on dual frequency DGPS surveying

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				equipment. Base DGPS should be establish for 24 hr observation and later rover should collect the Ground control point. Check point data must be post processed. The check points will be randomly analysed by NMCG expert team.
10.	IV (ToR)/(S of W) 9, Page No.11	Overall XY accuracy should be 10 cm and z accuracy should be 20 cm with the 95% of confidence level.	The Standard of Accuracy Assessment is XY 10 Cm CE90 and Z 20 Cm LE90 (with 90% of Confidence level), Could you please review and amend it.	<p><b>a.</b> Fundamental Vertical Accuracy: With a normal error distribution, the vertical accuracy at the 95% confidence level will be computed as the vertical root mean square error (RMSEz) of the checkpoints x 1.9600.</p> <p><b>b.</b> Supplemental Vertical Accuracy at the 95% confidence level equals the 95th percentile error for all checkpoints in that particular land cover category.</p> <p>RFP clause shall prevail.</p>
11.	IV (ToR)/(S of W) 10, Page No.10	Feature extraction, identification of drain, sand mining, illegal dumping, mainly encroachment in riverbed, land use land cover map (level 1, II & III) assessment and Cadastral map.	What is Scale of Feature Extraction?	Scale will be best fit on ortho imagery resolution.
12.	IV (ToR)/(S of W) 11, Page	Capacity building on ground for drone flying & on site for LiDAR data processing.	How many days for Drone flying and How many people?? Similarly, How many days	Capacity building on ground for drone flying &

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	No.10		for Lidar Data processing and how many people?? Is it required remote or on site	on site for LiDAR data processing during 30 days for minimum 10 official.
13.	III (E&EC) 1, Page No. 9	The surveying agency must be an experience in GIS/ UAV drone flying service at least one assignment having done RGB/MS flying and UAV data processing work in the past three years. Having carried out high resolution survey to generate ortho photo for a minimum be 800 sq km with any government organization.	As per the name of work, there is mentioned about the Drone based LiDAR Technology whereas in the section of Eligibility criteria, there is mentioned only Orthophoto. So we would like to suggest you to mention deliverables related to Drone based LiDAR Survey and should ask for credentials of Drone based LiDAR Survey projects. Kindly consider.	Bidders who are experienced for the UAV photo / aerial photo / very high resolution satellite data processing for DTM generation and Ortho generation are considered in order not to restrict specific for UAV and LIDAR. However, any one of LiDAR or Optical data acquisition, handling & processing experience are encouraged to apply.
14.	III (E&EC) 1, Page No. 9	The surveying agency must be an experience in GIS/ UAV drone flying service at least one assignment having done RGB/MS flying and UAV data processing work in the past three years. Having carried out high resolution survey to generate ortho photo for a minimum be 800 Sq km with any government organization	Kindly clarify if required experience of Generation of Orthophoto is for minimum 800 Sqkm in a single work order or cumulative work order? Further, do we need to conduct survey twice as Drone Based LiDAR System does not generate Orthophoto. Kindly clarify?	Generation of ortho photo, DTM through LiDAR/optical/stereo sensor is for minimum 800 sq km in a single work order will be considered. UAV can be mounted with both sensor as LiDAR & Optical at one time on a single flight path.
15.	III (E&EC) 2, Page No. 9	The agency should have post-processing kinematic (PPK) UAV equipped with high grade on board GPS & IMU for the surveying activity. Documentary evidence for proof of	Only proof of UAV/Drone is asked where as project is associated to Drone Based LIDAR system. So we suggest you to kindly ask for Proof of Drone based LiDAR	Both i.e., UAV & LiDAR will be acceptable.

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		ownership of the equipment shall be submitted.	system ownership.	
16.	III (E&EC) 3, Page No. 9	All service providing agencies must be having in-house GIS/RS/ photogrammetry/ortho photo data handing capability.	As per our understanding only in-house GIS/RS/ photogrammetry/ortho photo data handing is asked in tender. So we suggest you to kindly ask for the inhouse LiDAR Data handling capability (Professionals, softwares and necessary System setup) as it's a Drone based LiDAR Project	Both i.e., GIS/RS/Photogrammetry/ orthophoto & LiDAR Data handling capability (Professionals, softwares and necessary System setup) will be acceptable.
17.	IV (ToR), (O of P), Page No. 10	Expected outcomes are high resolution DTM, DSM, DEM, point cloud, contour, mosaic ortho rectified images.	As per our understanding all deliverables are possible except mosaic ortho rectified images as Drone Based LiDAR System does not generate Orthophoto/Images. So do we need to conduct UAV /Done Survey for photogrammetry processing separately. Kindly suggest.	Orthophoto/aerial image will be generate using optical sensor.
18.	IV (ToR), (O of P) Page No. 10	Thematic layer of drain, sand mining, illegal dumping, mainly encroachment in riverbed, land use/land cover map (level 1, II & III) and Cadastral map.	Kindly specify Which cover map (Level I, II, III) of Land use, land Cover will use? who will provide cadastral maps and Land use/land Cover Maps?	Drone data - LiDAR & optical sensor based cadastral mapping will be considered. LULC will be derived from optical imageries.
19.	IV (ToR), (S of W), 2, Page No. 10	The Professional Survey Grade Unmanned Aerial Vehicle /Drone shall have all necessary permits and flying clearance from DGCA/MoD/MHA/ATC/ local police/ district administration or any other authority if applicable	Kindly clarify Who will arrange the necessary permissions of Drone based LiDAR system as LiDAR sensor will increase the weight of DRONE and shall be considered in Mini category which require specific permission for flying?	NMCG will provide authorization letter for the security clearance & permission for flying & aerial data acquisition.
20.	III (E&EC), 1, Page No. 9	The surveying agency must be an experience in GIS/ UAV drone flying service at least one assignment having done RGB/MS flying and UAV data processing work in the past three years. Having carried out high resolution survey to generate ortho photo for a minimum be 800 sq km with any	Is this minimum 800 sq km mandatory for Department for Promotion of Industry and Internal Trade start-ups or MSME as well?	RFP clause shall prevail.

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		government organization.		
21.	IV (ToR), R, Page No. 10		One shape file is being uploaded with the tender? This is not accessible why the e procurement portal. But no shape file is available for download in the government e procurement portal. Kindly share the shape file of the project area.	Shape file of the project area will be share through e-mail on request.
22.	III (E&EC), 1 & 4., Page No. 9	Clause 1 and 4 as stated in the RFP.	<p>We request for exemption of Prior Experience and Turnover as per Office Memorandum released (Reference Document No. DPE/7(4)/2017-Fin.) in favour of relaxation of norms for Startups Medium Enterprises. In case of submission of data / give demonstration on the completed projects, authority may conduct trials to confirm the capability of the bidder.</p> <p>This will enable MSMEs / Startups having apt solutions with Drone technology can competitively bid and execute the projects.</p>	RFP clause shall prevail.
23.	III (E&EC) 7, Page No. 9	Department for Promotion of Industry and Internal Trade recognized start-ups will be given preferences in selection.	<p>We request you to also exempt clauses of prior experience and turnover for Start-Ups recognized under DPIIT so as to promote them.</p> <p>This will enable Startups having apt solutions with Drone technology can competitively bid and execute the projects.</p>	RFP clause shall prevail.
24.	III (E&EC) 1-4 & 7, Page No. 9	(1) The surveying agency must be an experience in GIS/ UAV drone flying service at least one assignment having done RGB/MS flying and UAV data processing work in the past three years. Having carried out high resolution survey to generate ortho photo for a minimum be 800 sq km with any	We request that, in line with the relaxation of prior turover and prior experience given to 'StartUp's having technical skills and equipment be permitted to participate vide office memorandum No. F.20/2/2014-PPD	RFP clause shall prevail.

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		government organization. AND (4) The minimum annual turnover should be INR 2 crores in any one financial year during the last three financial years i.e. 2018-19 to 2020-21	(Pt.) dated 25 <sup>th</sup> July, 2016 issued by Ministry of Finance. The copy of office Memorandum is attached herewith for your ready reference.	
25.	III (E&EC) 2 Page No. 9	The agency should have post processing kinematic (PPK) UAV equipped with high grade on board GPS & IMU for the surveying activity. Documentary evidence for proof of ownership of the equipment shall be submitted.	Kindly modify the clause as: The agency (Lead Member / Consortium Partner) should have post-processing kinematic (PPK) UAV equipped with high grade on board GPS & IMU for the surveying activity. Documentary evidence for proof of ownership of the equipment shall be submitted.	RFP clause shall prevail.
26.	IV (ToR), (D of S) Page No. 10	Provision of services for acquisition, processing & delivery of high resolution DTM, DSM, DEM, point cloud, contour, mosaic orthorectified images, thematic layer of drain, sand mining, illegal dumping, mainly encroachment in riverbed, land use/land cover map (level I, II, III), Cadastral map using airborne LiDAR & optical sensor in area of NCT Delhi and parts of Gautam Budh Nagar, Ghaziabad & Bagpat District of Uttar Pradesh.	As per eligibility Criteria, no any LIDAR experience is asked. But in the Description of Services includes "Cadastral map using airborne LiDAR & optical sensor". Requesting you to kindly consider both Lidar / optical sensor since the deliverables asked in scope of work can be obtained by Lidar /optical sensor.	Both i.e., GIS/RS/Photogrammetry/ orthophoto & LiDAR Data handling capability (Professionals, softwares and necessary System setup) will be acceptable.
27.	IV (ToR), (S of W), 1 Page No. 10	Sl. No. 1 Planning and provision of planimetric ground control points by dual frequency GNSS receivers in relative static positioning mode required for LiDAR survey and photogrammetric block control in plain terrains. It includes field work, processing and computation. Survey of India spatial reference frame to be used for establishing ground control point in planning & exhibition.	Requesting you to kindly modify the clause as: Planning and provision of planimetric ground control points by dual frequency GNSS receivers in relative static positioning mode required for LiDAR survey or photogrammetric block control in plain terrains. It includes field work, processing and computation. Survey of India spatial reference frame to be used for establishing ground control point in planning & exhibition.	RFP clause shall prevail.
28.	IV (ToR), (S of W), 3	Sl. No. 3 Flight planning, data acquisition, data validation, re-	Requesting you to kindly modify the clause as: Flight planning, data acquisition, data	RFP clause shall prevail.

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	Page No. 10	flying in gap areas, processing & post processing, LiDAR point classification, minimum 5-point density per sq meter for areal acquisition, 0.5 m DEM with reference to mean sea level as defined by Survey of India, and ortho photo generation under 5 cm/pixel.	validation, re-flying in gap areas, processing & post processing, Lidar/photogrammetry point cloud classification, minimum 5- point density per sq meter for areal acquisition, 0.5 m DEM with reference to mean sea level as defined by Survey of India, and ortho photo generation under 5 cm/pixel.	
29.	IV (ToR), (S of W), 11 Page No. 11	Sl. No. 11 Capacity building on ground for drone flying & on site for LiDAR data processing.	Requesting you to kindly modify the clause as: Capacity building on ground for drone flying & on site for Lidar/photogrammetry data processing.	RFP clause shall prevail.
30.	General		Whether, International Experience will be counted as we have great amount of Drone flying and data processing experience, if yes, whether it would be from Govt only or any private agency would work, Also should it be within India or any other Country.	RFP clause shall prevail.
31.	General		We are a company located in Hong Kong with parent company in China. Whether International formed JV with Indian Company is allowed to participate, Or Can International company participate with having India Entity Registered or with India branch.	RFP clause shall prevail.
32.	General		Can International company having no GST participate. Or Can International company having JV with Indian company which has GST, participate.	RFP clause shall prevail.
33.	iii (E&EC) 4, Page No. 9		Kindly accept a CA certificate for certifying the turnover under point 4 of eligibility & evaluation criteria under RFP.	It will be acceptable.



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34.	General		there is no exemption or any opportunity for startup-india & Msme Holders, Sir we request you to kindly provide us exemption in Experience, our core services are Surveying and we also want to help for the better Nation.	RFP clause shall prevail.