

Request for Empanelment

(Empanelment is method/procedure/way to seek technical & financial or financial quotation from eligible firm/organization/academic institute to short list eligible contender for undertaking the desired services. However, it does not guarantee award of work)

**To Serve as a Partner Institute/Organisation/Agency/ in
Inventory, Data Collection, Field Survey, Digitization of Maps
and Preparation of GIS Shapefiles of
Canal Alignment and Command Area of Some Major Canal
Systems in Ganga River Basin**



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UTTAR PRADESH, INDIA**

Background

IIT Kanpur has successfully led a Consortium of 7 IITs in preparing Ganga River Basin Management Plan (GRBMP) that was submitted to the Government of India in January 2015. The institute has now entered into an agreement with the Government of India to create and lead a Consortium of Science and Technology Institutions to evolve and detail GRBMP and provide technical support in its implementation. The institute is also committed for capacity building in River Science and Management Studies through partnership with the academic world and practitioners by undertaking joint field surveys and investigations. At this stage the following projects are under consideration.

- Study on Improved Utilization of Water Abstracted from Ganga-Yamuna Canal System (Upper Ganga Canal System - Left and Right; Lower Ganga Canal System; and Yamuna Canal System - East and West) and Provisioning Sustainable Flows in Rivers. This involves (i) extensive information and data collection through secondary sources and field work, (ii) digitizing the data/information using state-of-the-art tools and techniques, and (iii) holistic analysis. Initially the work on Upper Ganga Canal (UGC) System will be taken up and the work on other canal systems may be taken up based on the progress, output quality and experience of working together with the team.
- Sustainable Sand Mining in the Ganga River System. This work also involves extensive field work and GIS Mapping using state-of-the-art tools and techniques and will also be taken up based on the progress, output quality and experience of working together with the team on UGC system.

Therefore proposals are invited to serve as a Partner Institute/Organisation/Agency/Group in Inventory, Data Collection, Digitization of Maps, Preparation of GIS Shapefiles of Canal Alignment & Catchment Area and Field Survey for Upper Ganga Canal System. The scope of work can be extended to other canal system and projects based on performance by the Firm as stated above.

Request for Proposals

- Proposals are invited from Indian Institutes/ Organisations/ Agencies/Company/ (hereafter referred as Firm) for undertaking the services as elaborated in the Scope of Work in a two bid system i.e. Technical and Financial.
- Minimum Eligibility Criterion:
 - The Firm, if it is a Private/Non-Governmental Organization, should be registered under the Indian Companies Act (1958/2013)/Societies Act;
 - The Firm should have competent key professionals available with it as listed in the Scope of Work.
- Technical and financial proposals for services required by the Indian Institute of Technology Kanpur hereinafter called IITK are to be submitted separately, which could form the basis for a contract between the Firm and the IITK to conduct this work.
- Technical Proposal Content:
 - Brief Profile of the Firm;
 - Certificate of Registration;
 - PAN/TAN/Service Tax Number;

- Power of Attorney of Authorized Signatory
- CVs of Key Professionals duly signed by both Key Professionals and Authorized Signatory;
- Experience of having conducted at least 2 works of similar nature, may not be necessarily in the same field, in last 10 years giving synopsis and some evidence of satisfactory completion;
- Any desired addition/change/detailing in the Scope of Work.

- Financial Proposal Content:

Financial offer is to be given in two ways: (a) Lumpsum Offer and (b) Offer on Retainership Basis.

(a) Lumpsum Offer:

- A lumpsum offer for UGC system (with a break-up of offer price under main heads) for providing the key professional and survey team to provide the requisite services. Firm has to develop a field office at the designated location with all the facilities to carry out the services.
- Travel, boarding & lodging shall be reimbursed as per actual and hence are not required to be included in the financial offer. However, an estimate of such expenses for various categories of persons involved that will serve as an upper limit of such reimbursements should invariably be included in the financial offer.

(b) Offer on Retainership Basis:

- Firms are required to quote the item rate price as per following Table. The rate quote should be inclusive of office setup, facilities including computer/laptop/printers, licensed software, etc.

S No	Items/Particulars	Unit	Quantity	Unit Rate	Amount (in Rs)
1.	Hydraulic Data, maps & drawings collection & analysis of complete canal system up to outlet point	Km	6500		
2.	Digitization & GIS Shapefile and various Engineering layer development (viz. soil profiling, flooding, drainage, agriculture pattern etc) for Complete Canal System & Catchment Area	Km/sqkm	6500/		
3.	Field verification of canal characteristics (dimensional measurement and flow measurement)	Km	6500		
4.	Field Surveys for Agricultural/ Soil data from primary as well as from secondary sources (100% from secondary sources and 5-10% as primary field surveys)	LS			
Total Amount (in Rs.)					

Consultant should also propose a maximum limit for duty travel to site, boarding & lodging, and other miscellaneous expenses for various categories of persons involved for conducting the field surveys.

- IITK reserves all the right to annul the scope of work at any time before or during the award of the work without assigning any reason thereof.

Scope of Work

The scope of work shall include, but not limited to the following:

- Literature Review and Analysis thereof for better understanding of objective of assignment;
- Collection, analysis of maps and drawing of complete canal systems (main canal, branch canal and distributaries) including GIS marking of gauge stations, water supply system, Hydro power plants, etc. from/on the canal system;
- Conducting Field Inventory of canal system (length, width, depth and maximum depth, slope, etc.) to obtain the channel dimension including GIS co-ordinates of major attributes including gauge stations etc;
- Procuring and utilizing the appropriate satellite images for supplementing the field data for map digitization task;
- Digitization of Maps of Complete Canal system including all the attributes;
- Development of GIS Shapefile of complete canal system utilizing GIS Arc Map and other relevant software;
- Development of GIS Shapefiles of complete catchment area including development of GIS Shapefiles for each sub-catchment area;
- Collection and Analysis of irrigation data (canal system and groundwater), cultural command area and their geographical extent, irrigated area by season, irrigation potential created and utilized, cropping pattern, Soil data, etc.;
- Collection and Analysis of Flow Data (minimum 10 years period data) from secondary sources;
- Collection of Gauge data - GIS co-ordinates, period of installation, frequency of flow measurement, extent of area serviced;
- Field verification of flow data at major points in the complete canal system including measurement of flow at outlet level (i.e. discharge into the field).
- Data Collection and Analysis of agricultural data – cropping pattern, crop production, market value, etc.;
- Data Collection and Analysis of irrigated Soil from secondary sources and performing infiltration tests at key locations for establishing infiltration rate and sub soil conditions;
- Field surveys and market survey – crop pattern, crop production, crop market value, irrigation water utilization and their sources, irrigation water availability and utilization, soil types, etc. (min. 10% of volume of data);
- Assist IIT Kanpur in developing various reports, maps, drawings etc;

Outcome/Reports:

- Digitization of Complete Canal System;
- Development of command area maps including canal systems with complete information/attributes;
- Prepare Canal Network diagram with all attributes attached and types of canal structures marked along with chainage;

- Development of GIS Maps/ Shapefiles;
- Digitization of flow data;
- Water Mass Balance Study;
- Suggest Suitable Methodology for prediction of water losses in the canal system, Improved utilization of water, developing irrigation systems, integrated water supply systems, integration of recharge of small water bodies (which further can be utilized as source of water supply), prediction of best practices for crop pattern and productivity (crop per drop); development of drainage pattern of area (mainly in semi urban areas), etc.
- Diagnose constraints and suggest remedial measures for irrigation potential created and irrigation potential utilized.
- Suggest suitable methodology for prediction of groundwater recharge/ groundwater condition;

Minimum Key Skills Required of Key and Other Professionals:

The firm should deploy following key staff on full time basis to work directly under the guidance of IITK to complete the services and objective of the assignment. The qualification and competence of key professional is elaborated below. A suitable number of Field Survey Team (5 Numbers, each team comprises of minimum 2 Engineering Graduate) should be also deployed in the field to carry out the requisite surveys.

S No	Title of Position	Min. Educational Qualification	Min. Length of Experience	Specific Requirement
1	Team Leader	Post Graduate Qualification in Environment Engineering/Water Resources Engineering	Minimum 15 years	- Should have extensive experience in irrigation and Water Resources Management sector
2	Dy. Team Leader	Post Graduate Qualification in Environment Engineering/Water Resources Engineering	Minimum 10 years	- Should have experience in irrigation, water resources, etc.
3	GIS Expert	Post Graduate in Engineering in Remote Sensing Techniques and GIS Mapping or related fields	Minimum 10 years of Experience	- Should have experience in water resources and irrigation
4	GIS Engineer	Post Graduate in Engineering in Remote Sensing Techniques and GIS Mapping or related fields	Minimum 8 years of experience	- Should have hands on experience in GIS field
5	Consultant	Post Graduate/ Graduate in Civil Engineering	Minimum 20 years of Experience	- Should have minimum experience of 30 years in the field of irrigation
6	Project Coordinator/Data Management Expert	MBA (Finance)	Minimum 7 years of Experience	- Should have relevant experience in large size data management
7.	Computer Operator	- Suitable number of computer operators with qualified skill should be placed for transforming data to suitable formats		

Duration of Assignment: The duration of assignment shall be initially for 6 months from the date of award to carry out the work on UGC System. The same may be extended to other canal systems and sand mining sites as per the requirements of the project and satisfactory progress/attaining the specific milestones in the earlier assigned work. Overall the engagement may extend well beyond 18 months.

Payment: The payment for carrying out work on UGC system shall be made in 3 to 6 installments against the submission of project progress report and/or relevant results and achieving specified milestones on approval from the concerned authority. Payment for extended engagement shall be made in similar such installments over every six months. Project initiation/inception/mobilization payment shall not be applicable.

Other: In case of any clarifications, the Firms can contact the undersigned through mail or seek an appointment at least three days in advance of the last date of submission of the offer.

Last Date: Last date for Submission of Proposals – September 9, 2016

August 22, 2016

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