

**TERMS OF REFERENCE (TOR) FOR GIS EXPERT IN
UTTARAKHAND CLIMATE RESPONSIVE RAIN FED FARMING PROJECT
PROJECT NUMBER- P179357**

Ref No. 02/11-12(5) /UCRRFP/2022-23

1. Project Overview

Uttarakhand Climate Responsive Rain-fed Farming Project (UCRRFP) will be implemented by the Watershed Management Directorate, Uttarakhand. The project development objectives are to improve resilience of production system to make mountain farming GHG Emission competitive and profitable in selected micro-watersheds of Uttarakhand. UCRRFP is a six-year project to be operational from 2023 to 2029. The project cost is USD 138.39M (IBRD: USD 100M, State Govt. USD 32.82M & Beneficiary: USD 5.56M).

1.1 Project Description

Uttarakhand being a hilly state agriculture is pre- dominantly rain-fed and remains vulnerable to moderate to extreme weather conditions. Sustaining increased agriculture outputs in a rapidly changing climate will require adaptation at a faster pace. Enhancing food security while reducing GHG Emissions from farming practices will require transition to production systems that are more productive, use input more efficiently, have greater stability in outputs and are resilient to short- and long-term climate variability.

Uttarakhand Climate Responsive Rainfed Farming Project (UCRRFP) will be implemented in 06 hilly districts and 02 plain districts of Uttarakhand covering about 1200 villages and comprising of 56 Micro watershed clusters.

1.2 Result Indicators

The following Key Performance Indicators (KPI) are proposed for measuring the core outcomes of the project: -

- ◆ **KPI #1:** - Reduction in GHG emissions from representative cropped land parcels.
- ◆ **KPI #2:** - Increase in productivity of selected crops.

- ◆ **KPI #3:** - Increase in net income of sampled households adopting improved agricultural technology.
- ◆ **KPI #4:** - Increased water discharge in the identified spring- sheds.

1.3 Project Components

Component A- Participatory and Science based Planning (USD 20.91million)

Given the science-based focus of the project the Project Management Unit (PMU) setup under the WMD will constitute a consortium that will engage researchers/scientist from leading institutes to handhold the project implementation. The project implementation at ground level would involve a community demand driven approach where in through participatory approach climate resilient Gram Panchayat Plans will be developed. This would involve community mobilization, sensitization and their awareness building to the climate change mitigation and adaptation strategies.

Component B – Building Climate Resilient Watersheds and Production Systems (USD 76.64 million)

To build the climate resilient watersheds with the support of participating communities, watershed and spring-shed management interventions shall be carried out. These initiatives would help in resolving the issues of availability of water for irrigation and other purposes which is critical for building the resilience of the marginal mountain farmers whose farming is totally rain-fed.

To increase the productivity the project will give both technical and farming inputs to the farmers in agriculture, horticulture, allied sectors and small ruminants. In the endeavor to make farmers climate resilient integrated farming systems shall be promoted, organic farming, integrated pest management, integrated nutrient management and protected farming systems shall be developed. In the process the project will support interventions that reduce GHG emissions from farming systems.

Component C- Improving Income Resilience (USD 17.57 million)

The projects priority is to increase the income resilience of the mountain communities for this effort shall be made to strengthen the Agri-marketing systems of the farmers by organizing them into farmers federations and by

providing them value addition services, developing end to end supply chains and by making agro-logistics carbon neutral. The project shall support the development of agri-enterprise hubs by setting up of Agri Business Growth centers in the remote areas.

With the objective of the ensuring inclusiveness and equity various non-farm based livelihood initiatives will be provided to the marginalized households in the project villages.

Component D –Knowledge, ICT and Project Management (USD 23.27 million)

The project with the support of the consortia will set up a knowledge hub in the PMU. This knowledge hub will analyze, synthesize and document the various methods/ practices/approaches/strategies/required in the efficient use of the natural resources, GHG emission reduction, development of resilient integrated farming systems and marketing inputs. The project will work towards enhancing the staff's capacity at the WMD and inter- departmental levels to mainstream climate resilient approaches at the state level.

This component would also cover the institutional setup, coordination, monitoring and evaluation of the project and overall management of the project by the PMU.

NEED FOR CONSULTANCY SUPPORT

Watershed Management Directorate has a well-established GIS Lab having all important data such as spatial data i.e. all watershed boundaries, MWS, SWS, WS and Catchments. WMD also procures satellite data from NRSA at different time intervals, covering whole of Uttarakhand, digital data of Uttarakhand at 1:50,000 scale. Advanced GIS software and Hardware is available at WMD office. This office regularly requires to extract different GIS and remote sensing-based information from the available resources.

GIS based planning and monitoring is an essential part of all land-based development projects, different kinds of thematic maps are required for planning and implementation of the project on day to day basis. Web based MIS, Mobile application and small GIS utilities are an essential part of Monitoring &

Evaluation of project activities. For this purpose, the UCFRRP project needs to have the services of GIS experts.

SCOPE OF WORK

- Short listing of project sites (using RS/GIS) based on different parameters finalized by the project management.
- Planning, implementation and progress of project activities through various RS and GIS tools.
- To prepare thematic maps of divisions/units/MWS in UCRRFP to facilitate projects official as and when required.
- Coordinate with institutes applying RS-GIS tools into various thematic areas of land resource assessment, climate change studies, meteorological observations, etc. like NRSC, USAC, FSI, IIRS, IMD, ICAR, and CSIR institutes, or any other institutes/departments for the collection and compilation of various geospatial data and non-spatial data related to the result framework and to fulfill the needs of the project.
- To assist in developing ICT tools for UCRRFP.
- To prepare periodical reports on project activities on GIS platform.
- Monitoring of project activities captured through ICT tools.
- Support in preparation of capacity development training modules and provide training on the field on the use of RS/GIS/ICT tools for project monitoring and implementation to project officials.
- Any other project-related work assigned by WMD.

DATA, SERVICES AND FACILITIES TO BE PROVIDED BY THE CLIENT

As consultant has to work at the premises of this office, at Dehradun, all Spatial and non-spatial data will be available to him at this office. (In no case he or she will be allowed to carry any data outside the premises without written permission of authorities).

JOB DESCRIPTION

Location of Job: - PMU, UCRRFP, WMD, Dehradun, Uttarakhand.

Reporting Line: - Project Director, UCRRFP, WMD.

WORK STATION

The consultants would be based in the Watershed Management Directorate, Dehradun and would make field visits to all project area as needed.

OWNERSHIP

Watershed Management Directorate of Uttarakhand will have ownership of the data/maps etc. The consultants will have no right of claim to the products developed and shall not replicate them without prior consent of WMD.

ESSENTIAL QUALIFICATIONS

- B.E. with Specialization in Geo Informatics/Master in Computer Application (MCA) or M.Sc. with Post Graduate Diploma in Computer Application/RS & GIS or B.Sc. with Post Graduate Diploma in Computer Application/ RS & GIS with more than 5 years, more than 10 years and more than 15 years of working experience in GIS/RS respectively.
- At least three years' experience of working in externally funded projects for candidates having B.E. specialization in Geo Informatics and for other candidates at least five years' experience will be considered.

DESIRABLE QUALIFICATIONS

- Candidates having M.Tech in Geo Informatics)/Ph.D in Computer Science Engineering will be preferred.
- Relevant trainings in the Application of RS/GIS in development projects.
- Certificate/Working experience in RDBMS and Data Structure will be preferred.

REMUNERATION:

Depending on the qualification, experience and competency of the candidate, the salary is negotiable.

PERIOD OF SERVICE:

The contract shall be initially for a period of minimum 1 (one) year with a provision of further extension on an annual basis up to the end of the project, subject to satisfactory performance as assessed by the Project Director, UCRRFP.
