Terms of Reference

Study: Quantification of Forest Fires and CO\textsubscript{2} emissions in Khyber Pakhtunkhwa (KPK), Pakistan through the integration of in-situ measurements with geospatial techniques

Project: Pakistan Early Warning Forest Fire Detection System

Location: Khyber Pakhtunkhwa
Type of Contract: Individual / Firm
Type of Language: English
Duration of Assignment: 3 months

1. Brief Introduction of WWF-Pakistan:
WWF-Pakistan, founded in 1970, is the largest independent conservation NGO in Pakistan, with over 20 offices nationwide. WWF-Pakistan's mission is to conserve the country's vast biodiversity and natural resources. To this end, it works in the areas of food, climate & energy, freshwater, wildlife, forests, and oceans. Since its inception, WWF-Pakistan has implemented more than 200 projects and programs. WWF-Pakistan works closely with local and national partners, government, private partners, research, and communities.

2. Background of Project & Assignment:
Forest fires have become a common occurrence in Pakistan and existing methods of combattng fires have proven to be ineffective. To address this issue, WWF-Pakistan seeks to develop and design an early warning system (EWS) to detect forest so that they can put out before increasing or aid in creating an effective evacuation plan for the communities residing in the area.

For the purpose of designing the EWS, WWF-Pakistan requires data on the forest fire incidences in KPK from the period ranging from 2017-2022, and quantification of CO\textsubscript{2} emissions.

3. Specific Tasks
   I. Satellite image processing for identification of forest fire hotspots from the study area
   II. Field data collection, compilation, and analysis for carbon stock mapping and CO\textsubscript{2} emission quantification and future scenario
   III. Spatial identification of forest fire hotspots in the study area using spectral indices for burnt area mapping and multicriteria Analytic Hierarchy Process (AHP) between 2017-2022
   IV. Field-based data collection of identified potential forest fire areas in the study area
   V. Carbon stock mapping and approximation of carbon dioxide (CO\textsubscript{2}) emissions due to a forest fire in the study area by incorporating field-based data

4. Deliverable(s)
I. Research Study

5. Eligibility Criteria of the Consultant:
   I. M. Phil/Ph. D in Remote Sensing and GIS/Imagery and analysis, GIS/Remote Sense processing, Basic programming skills, Report writing
   II. Candidates having research publications or relevant experience in the quantification of Carbon Stock using Geospatial Technology will be preferred

6. Guideline for submission of proposal/expression of interest:
   Interested consultants should submit the following documentation to Zohaib Qadir (zqadir@wwf.org.pk), and Muhammad Waseem (mwaseem@wwf.org.pk):
   I. Brief introduction of consultant (attach detailed CV with references)
   II. Understanding of the context
   III. Methodology
   IV. Work plan
   V. The consultant will submit the cost of assignment in lump sum including all applicable taxes of the Government of Pakistan and the Government of Khyber Pakhtunkhwa

7. Period of assignment:
   • Start Date: Jul 1, 2022
   • End Date: Sep 30, 2022

8. Conditions:
   • WWF-Pakistan reserves the right to accept any proposal or reject all proposals.
   • Only shortlisted consultants will be contacted for further consideration.

9. Criteria of Evaluation
   • Applicant’s proposal shall be evaluated based on the Quality and Cost Based Selection (QCBS) method. Under QCBS both technical and financial proposals shall be evaluated as per following criteria against a maximum score of 100 points.
     • Technical Proposal 70%
     • Financial Proposal 30%
   • The following criteria shall be used as a basis for evaluation of technical proposals:
     • Qualifications (maximum 30 points)
     • Experience relevant to the assignment (maximum 30 points)
     • Adequacy of the proposed methodology and work plan (maximum 20 points)
• Skills & Competencies for the assignment (maximum 10 points)
• Prior experience with WWF-Pakistan (maximum 10 points)

**Note:** Late/ incomplete submissions will not be accepted. Only three (03) top ranked firms will be included in the comparative process.