Terms of Reference
for Geo-Hydrological study and capacity building in four FES demonstration sites of the HP-FES project in Himachal Pradesh

1.0 General Information

Project:	Forest Ecosystem Services in Himachal Pradesh
Project No.	112210000300
Duration of the consultancy	8 months

2.0 Background Information

The German Federal Ministry for Economic Cooperation and Development (BMZ) has commissioned Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) to work with Himachal Pradesh Forest Department on integration of forest ecosystem services (FES) approach into forest management in Himachal Pradesh. Project activities have started from April 2016. Demonstration site selection and baseline survey were two key project activities to be accomplished before microplanning. The process of using FES approach in micro planning is being an entry point for institutionalizing FES approach in management and planning processes of HPFD.

Rationale of the Assignment

HP-FES project is preparing FES oriented micro plan for 12 demonstration sites in Himachal Pradesh using participatory approaches. In 4 of the demonstration sites water resource has been identified one of the most important FES as per the baseline survey. In these sites the focus will be to develop forest management prescriptions to enhance the water recharge with an aim to sustain water sources which are main source of water for various downhill stakeholders. For this aim, geo hydrological mapping of the area needs to be carried out to identify water and soil conservation interventions to be undertaken. To sustain these efforts the capacities of the key stakeholders (HPFD and communities) needs to be developed. The outcome of this assignment will be included in the micro plan being prepared under the project.

Description of Assignment:

This assignment is about mapping springs and their recharge zones in four demonstration sites. A plan for treating these recharge zone and/or areas in the catchment to augment the water supply in downstream sources must be prepared. This plan should include

- Spring maps and their recharge zones
- Choices and location of water and soil conservation structures that are proposed
- Detailed design of water and soil conservation interventions.
- Costing of these interventions must be provided as per the existing cost-norms/rates of HPFD.
- Plan to monitor water flow / discharge from water sources and activities during the implementation phase.
- Capacity building of local community/HPFD staff

For one of the sites (Bohal), geo hydrological mapping has been done and the outputs are available in the public domain.

Objectives of Assignment

Objective 1: To prepare geo-hydrological maps of four sites: Alha, Bohol, Baichri and Ghanduri

Objective 2: To identify soil and water conservation interventions and their mapping and prepare monitoring system for efficiency of measures

Objective 3: To develop capacities of the HPFD and communities on geohydrology, recharge zones, selection of site/points for soil and water conservation measures for recharge of springs

Scope of Work and Requested Services
The work includes the following activities

Objective 1: To prepare geo-hydrological maps of four sites

- Characterization of spring based on geohydrological and geomorphological features in the selected sites.
- Prepare geo – hydrological maps for the sites with identification of recharge zone characteristics conducive to spring discharge particularly during lean months
- Mapping of all Existing and proposed spring/stream water sources and their recharge catchments on the geo-hydrological map
- Prepare a user-friendly Google images overlaying such geo-hydrological map showing recharge zone/s of springs, location of different spring/stream water sources.

Objective 2: To identify soil and water conservation interventions and its monitoring plan

The details of proposed activities delineated on the google map (Objective 1) should be elaborated. As the micro planning in these sites are ongoing, results from the field will be shared with the consultants in charge of the Micro Planning. Following activities should be carried out to meet this objective:

- Based on field observation and hydro geological assessments, suggest measures for conservation and augmentation of spring discharge to the user community
- Propose number, type and location of soil and water conservation measures / structures
- Provide technical feasibility for the soil and water conservation structures
- For identified soil and water conservation structures prepare detailed designs and cost estimates
- Prepare cost estimates for the soil and water conservation structures using HPFD cost norms.
    - Mapping locations of soil water conservation measures for augmenting spring recharge
    - Identify areas / zones for afforestation / reforestation related to augmenting recharge
    - Identify areas / zones for catchment protection mainly from grazing and fire
    - Prepare a timeline for the implementation of proposed measures and its monitoring plan.

Objective 3: To develop capacities of the HPFD and communities

- Develop training material for capacity development of HPFD front line staff and communities building at village level to undertake hydrological assessment (basics of geohydrology, recharge zones, selection of site/points for soil and water conservation measures for recharge of springs
- Conduct 1 training (for HPFD and for communities) at each demonstration site

Eligibility criteria of firms: The firms should have the following criteria:

- Minimum of 10 years' experience in geo – hydrological assessment and mapping
- Experience in planning and implementation of soil and water conservation works
- Experience working with communities and frontline government staff including training
- Experience in GIS
- Experience working with GIZ will be an advantage

Expertise Required

The following are desirable of individual or agency involved in microplanning:

- One senior expert having more than 10 years of experience in hydrological assessment – 3 person days
- One expert having experience in undertaking geo-hydrological mapping and hydrological assessments for 10 years, especially in mountainous areas. – 15 person days
- One soil and water conservation expert with minimum 5 years' experience – 15 person days
- One GIS expert with minimum 5 years of relevant experience – 7 person days
- One trainer with good communication skills and a minimum 5 years of experience in imparting training to front line staff and communities – 4 person days
- Good documentation skills and familiarity with preparing financial estimates for works

Expected Deliverables

The individual or agency should:

1. Inception report submission 2 weeks after signing the contract. The report should include:
    - Concept and Methodology to be followed
    - Schedule of activities
    - Outline of training material and report
    - Presentation at Shimla office

2. Four months after signing of contract
    - Submission of final training material
    - Conduct training for 2 sites (Alha and Bihal)
    - Draft report of Alha Site and Bohal Site

3. Seven months after signing of contract
    - Final report for Alha and Bohal
    - Conduct training for 2 sites Baichri and Ghanduri
    - Draft report for Baichri and Ghanduri
4. Eights month after signing the contract
    - Submission of Final report

Location and duration

Preliminary work will be carried out at the consultants place. Major work will be in each site. Schedule for one Demonstration Site:

S. No	Activity	Person days	Travel days
1.	Inception meeting at Shimla	3	6
2.	Data Collection in the site an field work for geo-hydrological mapping, Identification of recharge zone	15	6
3.	Preparation of training materials – this is one time activity	2	
4.	Training of HPFD officials and communities	2	2
5.	Prepare a plan for augmenting water supply – field work, designing SWC measures. Preparation of monitoring plan	13	
6.	Report writing	9	
Total person days		44	14

Location

Name of Site	Forest Division	Location	No. of Person Days	Travel days
Alha	Dalhousie	Within 20 km from Dalhousie	44	14
Bohal	Palampur	Within 20 km of Palampur	44	14
Baichri	Shimla	Within 30 km of Shimla	44	14
Ghanduri	Renuka	Within 80 km of Solan	44	14
Total			**178**	**56**

Payment Schedule

- **First instalment:** upon signing of the contract.
- **Second instalment:** upon approval of draft reports for Alha and Bohal
- **Final instalment:** upon submission of final report for Alha, Bohal, Baichri and Ghanduri