

## Terms of Reference (ToR) for Subject Matter Specialist (SMS) - Hydrology

### 1. PROJECT BACKGROUND:

The Government of Himachal Pradesh (GoHP) is implementing the Integrated Development Project for Source Sustainability and Climate Resilient Rainfed Agriculture (IDP) in the selected Gram Panchayats of the State, with financing from the World Bank. IDP carries forward the ideas and learnings of H.P. Mid Himalayan Watershed Development Project (HPMHWDP). This project started in the year 2005 and completed on 31<sup>st</sup> March 2017. HPMHWDP exhibited increase in real income by 20.70%, increase in biomass production by 46.25%, increase in yield of Wheat, Maize & Milk by 25.92%, 28.94% and 10.72% respectively. Under Institutional strengthening a total of 3,098 Self Help Groups (SHGs), 6,977, Users Groups and 5,967 Common Interest Groups (CIG) were established. Further details about the project are available at: [www.hpidp.org](http://www.hpidp.org)

The Project will invest in measures in upstream catchment areas to improve sustainable land and watershed management to promote the sustainability of perennial water sources. It will also support continued diversification and commercialization of agricultural value chains in downstream areas by supporting production and value addition including promoting efficient water use thereby increasing the productivity of water in agriculture. It will adopt a spatial approach by (i) applying a landscape approach to individual high-risk micro-watersheds within select river basins in Himachal Pradesh; and (ii) overlaying this with a cluster approach to target value chain investments in specific locations to leverage economies of scale and network externalities. In parallel, the project will develop and demonstrate the application of an analytical evidence base to inform strategic policy choices viz. the trade-offs between alternative water uses and will pilot a new institutional arrangement for addressing complex multi-sectoral concepts such as sustainable landscape management that involves several sectors and multiple Government departments.

### 2. Project Development Objective [PDO]

The PDO is to improve upstream watershed management and increase agricultural water productivity in selected Gram Panchayats in Himachal Pradesh.

<i>Objective</i>	<i>Indicators</i>
To improve upstream watershed management in selected Gram Panchayats (GPs) in Himachal Pradesh	Land area under sustainable landscape management practices
	Area managed for improved soil
	Number of reforms recommended by the institutional assessments that are implemented
To increase agricultural water productivity in selected Gram Panchayats (GPs) in Himachal Pradesh	Share of participating farmers adopting climate smart agriculture practices
	Share of participating farmers adopting climate smart practices that are female
	New farm area brought under higher efficiency irrigation through project support

	in targeted GPs
	Share of participating farmers who give a rating of “Satisfied” or above on process and realized benefits of project interventions
	Share of participating female farmers who give a rating of “Satisfied” or above on process and realized benefits of project interventions

### 3. COMPONENTS

#### *Component 1: Sustainable Land and Water Resource Management*

This component promotes participatory and sustainable land and water management through financing the planning and implementation of upstream investments in selected micro-catchments. Site-specific Gram Panchayat resource management plans (GP-RMPs) will be prepared within each micro-catchment to specify detailed activities by location and GP. In parallel to the GP-RMPs, a network of hydrological monitoring stations will be established within the watershed to monitor the quality and quantity of water on a continuous basis, to assess the potential impact of project interventions, whilst laying the foundation for future water budgeting, and hydrological modelling to identify the highest priority sites for future activities. Hydrological watershed modelling in conjunction with landscape analysis can help identify the most critical sites to prioritize investments to ensure the greatest impact for source sustainability and water quality. The main implementers and beneficiaries will be Himachal Pradesh Forest Department (HPFD) staff and relevant community organizations such as sub-groups of the GP user groups set up (or strengthened, where appropriate) under the project. This support will lead to improved forest cover (and hence carbon capture), increased water and sediment regulation, reduced erosion, and improved community participation (including women, youth, and disadvantaged groups) in and benefits from sustainable land and water management that are expected to serve as a model for other states through the Lighthouse India approach (see Component 3).

#### *Component 2: Improved Agricultural Productivity and Value Addition*

This component would support interventions in downstream areas where the primary (existing or potential) water use is for irrigation in agriculture. It would seek to augment the use of irrigation as a principle strategy for shifting from low-value cereal production to climate resilient crop varieties, higher-value fruit and vegetable production but would do so with a focus on increasing climate resilience and water productivity to maximize the financial returns for water use. The project will seek to leverage additional support from other government programs and projects, particularly that of the agriculture, horticulture, and animal husbandry departments. Key interventions include infrastructure to increase high-productivity water utilization (drip and sprinkler irrigation) – essential elements of CSA – plus the necessary primary and secondary distribution systems. This component will also support the identification and development of agricultural value chains. In addition to improving local livelihoods, the proposed activities will reduce pressure on forests and contribute to increased carbon sequestration and reduced erosion.

### ***Component 3: Institutional Capacity Building for Integrated Watershed Management***

The long-term objective of this component is two-fold: firstly, to support a more comprehensive and holistic approach to managing the state's water resources while recognizing competing uses both within HP and downstream in other states, in particular Punjab; secondly to facilitate better alignment of institutional mandates for Integrated Watershed Management (IWM) and strengthen the HPFD's institutional structure and capacity for improved service delivery. In the short term, this component will focus on building the institutional capacity of the HPFD as the key government institution responsible for managing roughly two-thirds of the state's land area and identifying possible future reforms through a comprehensive IWM institutional assessment. It will also produce and share knowledge on these critical topics through a Lighthouse India approach.

### ***Component 4: Project Management***

The objective of project management component is to facilitate overall coordination, implementation, and management of the project at State Project Management Unit (SPMU), District Project Management Unit (DPMU) and Assistant Project Management Unit (APMU) levels.

The project implementation relies on a management and governance structure from the State down to the Gram Panchayat level, with clear-cut roles and responsibilities for staff members at each level. All staff positions will be filled during the pendency of the project with qualified people. This component will support the strengthening of the institutional capacity and knowledge management of the project implementing entity SPMU for the implementation and management of the project. This would include the establishment of the SPMU and 10 DPOs, and 10 APOs for supervision of project activities etc. The implementation arrangements will cover the details regarding financial management, disbursement and procurement, which are covered in subsequent chapters.

## **4. SCOPE OF POSITION:**

Subject Matter Specialist Hydrology will facilitate in developing Climate resilient Water Infrastructure in the Project area. Promote and strategize water use efficiency in project areas. Work with local, state, agencies on water resource issues including convergence and networking with respective line department, universities and resource organizations.

### **Specific tasks among others will include the following:**

- SMS Hydrology will responsible to select/search hydro/geologically sites regarding the possibilities of water resources, periodicity etc.
- Plan and collect surface or groundwater water and monitor data to support projects and programs.
- Will conduct hydrological assessment of clusters.
- Conduct watershed and storm water studies in the Project.

- Process/ obtain meteorological, snow, and hydrological data in the Project.
- Prepare various maps and figures including: contour maps of groundwater elevations, geologic structure, cross-sections, isopach, water quality, and other hydro-geological data.
- He/She will guide the staff and impart knowledge and technical knowhow to Project including trainings.
- He/ She will responsible to finalized of technical reports, maintenance and updated of record and data.
- He/ She will be responsible to process and preparation of briefs, notes & material and appraising the same to the Project authority.
- He/ She will be also responsible to ensure achievements of targets in the field, both in terms of quantity and quality and providing guidance of water component under hydrology.
- He/ She will be responsible to assist the Project to provide technical assistance in connection with carrying out of hydrological investigation relating to the tapping of water resources, sub-surface water resource through construction of suitable structures.
- He/ She will be responsible for various scientific studies related to water resource estimation, availability and impacts.
- Any other duty assigned by the Chief Project Director and Executive Director.

## 5. **ESSENTIAL QUALIFICATIONS:**

**Essential:** Post Graduate in Geology//Applied Geology/Hydrology or relevant field from a recognized University.

**Working Experience:** Minimum 3 years experience of working in water related sectors in State/National level

### **Desirable Professional Work Experience::**

- Persons with relevant experience of working in Externally Aided Projects (EAPs) will be given preference.
- The candidate should have good social, analytical and planning skills; and he must show initiative, synthesis, organization and personal dynamism, be self-motivated and ability to work independently as well as in teams.
- Should have Knowledge of local customs and dialects of the State of H.P.

### **Desired Competencies**

- Should have good social, analytical and planning skills; and must show initiative, synthesis, organization and personal dynamism, be self-motivated and have the ability to work independently as well as in teams.
- Strong verbal and written communication skills in presenting, discussing and resolving various procurement issues, drafting various procurement documents, and in procurement reporting.
- Strong sense of integrity.
- Good team player and interpersonal skills.
- Knowledge of local customs and dialects of the State of H.P.

**6. COMPUTER SKILLS:**

Must have experience of using GIS internet based applications, using and working with advanced word processing/spreadsheet including MS Word, MS Excel and MS Power Point and other related applications.

**7. LANGUAGE:**

Fluency in English and Hindi

**8. DUTY STATION:**

The headquarter of SMS Hydrology will be at Solan. However his/her services may be taken throughout the Project area.

**9. DURATION:**

Initially for a period of one year. The contract may be renewed from time to time, if the performance of the appointee is satisfactory and depending upon the requirement in the Project.

**10. REPORTING:**

SMS Hydrology shall be reporting to the Chief Project Director and Executive Director or any authorized officer of IDP.