



International Center on Small Hydro Power

TERMS OF REFERENCE FOR PERSONNEL UNDER INDIVIDUAL SERVICE AGREEMENT (ISA)

Title:	International Green SHP Technical Consultant to provide technical recommendations on green SHP technologies and safety measures and assist in finalizing the official reports for “Upgrading of China SHP Capacity Project” Project number: SAP 140196 - 04
Main Duty Station and Location:	Remote work with regular travels to China as necessary
Mission/s to:	Domestic travel to be defined based on work plan
Start of Contract (EOD):	tbc
End of Contract (COB):	tbc
Number of Working Days:	6 months
Apply By:	ASAP, no later than 15 July, 2019

1. BACKGROUND

UNIDO in association with the Ministry of Water Resources (MWR) is currently implementing the project entitled Upgrading of China Small Hydropower (SHP) Capacity. The Project will focus on environmental upgrading of rural SHP stations in China, in line with the priorities of the Chinese Government, as outlined in the 12th FYP (five-year plan) 2011-2015.

For the first time, the Outline of 12th FYP for National Economic and Social Development has taken the reduction of CO₂ emission intensity per unit of GDP by 17% as a binding target, and further specified the key tasks for GHG emission control among other aspects. Since 2004, the central Chinese Government has listed rural hydro power development in its rural infrastructure construction tasks to further increase investments and loan input to support rural hydropower development.

The Project aims at supporting the SHP capacity expansion programme of the MWR, by reducing the environmental impact of SHP plants to better meet the challenges imposed by climate change. The objective of this project is to reduce GHG emissions and dependence on fossil fuels through the promotion of upgrading, greening and improving the management of existing SHP stations, contributing to the competitiveness of China's industries. Alongside important social and economic benefits, the project will improve local river ecology, hence contributing to adaptation of SHP plants to climate change. It is estimated that additional electricity of about 154,193 MWh per year will be obtained through the project activities, resulting in emission reductions of 2.16 m tCO_{2e}. The project will transfer knowledge and technology in the field of green hydropower within China, leading to positive environmental impacts.

More specifically the project is structured in three technical components, plus a monitoring and evaluation component, as set out below:

Component 1: Policy and institutional framework. This component will strengthen the policy and regulatory framework to effectively promote and support green SHP upgrading by the development of a Ministerial Standard on green SHP, through support for incentive measures as well as assisting in the roll out of the Safe Production SHP standards.

Component 2: Technology Demonstration. This component will demonstrate technical feasibility and commercial viability of 24 green and safe upgraded SHPs at different capacities demonstrating a variety of environmental measures and safe production measures. Technical assistance and grants will be provided to facilitate the projects' development. These will build the confidence of both industry and the finance sector, create best practice examples to pave the way for replication, on the basis of experience gained reduced (perceived) risk and increase capacity and awareness at multiple levels, i.e. industry (both at operational and decision-making level) and finance.

Component 3: Capacity building and increasing knowledge base. This component will strengthen the institutional capacity as well as address the insufficient technical capacity training, awareness and the development of knowledge products. Activities under this component will be implemented in parallel with components 1 and 2 on policy framework and technology demonstration in order to prepare for the scale up / mainstreaming of green and safe SHP within and beyond the project.

Component 4: Monitoring and Evaluation. A two pronged approach will be followed: 1) monitoring and evaluation against the GEF's strategic indicators and 2) monitoring and evaluation project specific technical indicators for outputs per component (components 1-3 as listed above). Ultimately this will provide an indication of the achievement of the goals that the project has set out to be achieved.

Primary target beneficiaries of the project are SHP owners, designers, policy-making and implementing institutions, primarily MWR and MEP, SHP associations, installers, training institutes, energy professionals and service providers and the financial sector.

International and National Consultants at ICSHP

ICSHP will recruit international and national consultants to support the implementation of the project through their expertise in the field of green SHP technology, policy and regulation, as well as capacity building. Contributing to component 2, the consultant will provide technical recommendations on green SHP technologies and safety measures and assist in finalizing the Project Design Reports (PDRs)/feasibility studies for the 24 SHP demonstration projects. The consultants will report to the National Project Manager at the ICSHP. Coordination between international and national consultants will be facilitated through ICSHP. For this purpose, the international consultant will be required to regularly report on the progress of his/her work (see section 5. Reporting). The key roles of the international consultant are detailed below:

Post	Green SHP Technical Expert	Expected duration
Objective	Successful provision of recommendations on international technology for specific green measures for the SHP demonstration projects and review of PDRs.	
Scope of Work	<ul style="list-style-type: none"> • Review existing drafts of PDRs/feasibility studies; • Conduct research on international and national green SHP technologies as well as specific green and safety measures applicable to the 24 SHP demonstration projects within budget constraints; • Provide tailored technical recommendations on green SHP technologies and safety measures to SHP owners and design institutes; • Assess the opportunity of integrating fish ways/fish ladders into ecological flow facilities, including an exact number of facilities and their location; • Assist in finalizing PDRs/feasibility studies including technical and economic assessments, final design and capital costs of the proposed measures. 	100%

2. QUALIFICATION, REQUIRED SKILLS AND EXPERIENCE

- Established technical expertise in small hydropower with over 10 years of experience;
- Experience providing technical advice in relevant sector;
- Advanced university degree in engineering with thorough understanding of green hydropower technology and mitigation of environmental impacts caused by hydropower;
- Good understanding of the small hydropower sector in China (preferred);
- Very good technical writing skills;

Required Competencies

Core values:

1. Integrity
2. Professionalism
3. Respect for diversity

Core competencies:

1. Results orientation and accountability
2. Planning and organizing
3. Communication and trust
4. Team orientation
5. Client orientation
6. Organizational development and innovation

Minimum Organizational requirements

General:

- Master degree in engineering or other related discipline;
- Full command of Microsoft Office software package (Word, Excel and Power Point);

Professional:

- At least 10 years of working experience in the hydropower sector, particularly in the field of green small hydropower and safety management;
- At least 7 years of experience in conducting and writing feasibility studies;
- Experience in advising and recommending on technical design of hydropower plants;

Specific:

- Excellent knowledge of international and national hydropower technology, specifically regarding fish ways, ecological flow and environmental monitoring;
- Excellent knowledge of environmental and social impacts of small hydropower and appropriate technical mitigation measures;
- Knowledge of environmental and safety management in Chinese context, including environmental impact assessment and safety assessment (grade A and B);

Assets:

- Knowledge of Chinese environmental laws and regulations on small hydropower;
- Good understanding of the small hydropower sector in China, including its key institutions and industries;

3. LANGUAGES

The candidate should have an excellent command of written and spoken English. Knowledge of Chinese would be an asset.

4. DELIVERABLES

The consultant shall deliver the following outputs:

- 1) Developed tailored technical recommendations on green SHP technologies and safety measures for upgrading SHP demonstration projects, including an assessment of all ecological flow facilities and possibility of integrating fish passes/ladders into the facilities.
- 2) Technical and economic assessments, final design and capital costs of the proposed measures to be included in the PDRs/full feasibility studies.

5. REPORTING

In addition to the “Deliverables”, the consultant shall meet the following milestones and reporting requirements towards his own work:

- 1) Monthly progress report: summarizing findings, issues, challenges and recommendations related to the execution of the tasks.
- 2) Duty travel: the consultant will have to submit mission reports and related deliverables no later than three weeks after completion of the mission.
- 3) At the conclusion of the assignment the consultant shall submit a final report comprising of a summary of activities carried out with all deliverables prepared within the scope of his/her assignment attached to the report.

The reports and related documents must be in English and presented in electronic format.

6. APPLICATION PROCEDURE

Submit the cover letter and a detailed CV to secretariat@inshp.org copying recruitment@inshp.org with project number as the subject of the email. Shortlisted candidates will be notified and asked to send the further documents as required. For any queries about this job, please contact sagar.dhakal@icshp.org or ynzhang@icshp.org.