

Terms of Reference for the Irrigation Engineer

Background

Bhutan is a mountainous and landlocked country where most people live in remote villages subsisting on agriculture. To improve crop productivity and rural livelihoods the Royal Government of Bhutan (RGoB) continues to provide, besides other farm subsidies, technical and financial support in building and maintaining irrigation infrastructures. Recognizing its importance the RGoB has recently committed Nu.500 million under the Accelerating Bhutan's Socio-economic Development (ABSD) Initiatives for irrigation and water management programs and activities of the Tenth Five-Year Plan. One of its major outputs will be the improvement of irrigation water supply for some 19,130 acres of paddy land in Samtse, Sarpang, Samdrup Jongkhar, Wangdue, Punakha, Tsirang, Dagana, Lhuentse and Trashigang dzongkhags.

The two major activities that will be implemented under the ABSD Initiatives are; (1) rehabilitation of 114 existing irrigation schemes (443.61km) and (2) construction of 23 new irrigation schemes (136.50 km). Other minor activities include groundwater exploration in Southern lowlands, water harvesting and Irrigation Master Plan development. These activities will be implemented concurrently by the respective Dzongkhag Administrations and the Department of Agriculture (DoA) with the latter also being responsible for coordination of the entire program under ABSD.

Given the huge target and the current lack of technical manpower within the Ministry of Agriculture and Forests the RGoB has approved recruitment of 10 additional irrigation engineers on a Contract basis. These engineers will be mainly responsible for implementation of those activities that have been assigned to the Department of Agriculture. In addition to this responsibility they will also facilitate and assist the dzongkhags administration in carrying out their ABSD irrigation activities.

Objectives

The main objective of the Irrigation Engineer is to implement the irrigation activities assigned to the Department of Agriculture and to facilitate and assist the dzongkhags administrations in implementation of their irrigation activities. Broadly, he/she will be responsible, together with the Program Manager, in successful implementation of the irrigation activities, such that these schemes are built as per specifications, within the estimated time and cost. His/her main input will be in outsourcing the feasibility study of few new schemes, survey and design, and construction supervision of the all the irrigation schemes under DoA and those under dzongkhags that need MoAF's support. He/she will assist and advise the Program Manager not only in the implementation of the ABSD irrigation activities but also other Central construction activities in general.

Scope of Services

The Irrigation Engineer will be based at and working from the regional Research and Development Centres (RDC) of the Department of Agriculture. He/she will be mainly working with and reporting to the Program Manager, Engineering Division, DoA, but Program Director, RDC will provide the day-to-day administrative oversight. Total duration of his/her input is 30 months i.e. till the end of Tenth Plan or completion of the ABSD activities whichever is earlier. The Irrigation Engineer's main responsibilities are but not limited to:

- Conduct survey, design and feasibility studies of the selected irrigation schemes;
- Mobilize labour and construction materials;
- Maintain financial records such as invoices, bills, payment receipts etc. for all materials purchased;
- Maintain proper Muster Roll record for skilled labour payment;
- Liaise with local Agriculture Extension Officer for mobilization of unskilled labour from the beneficiary communities;
- Provide construction supervision and quality control;
- Backstop Dzongkhag Engineers and consulting supervisors in the supervision, assist them in interpreting contract clauses, monitor works progress, variations and change orders;
- Preparation of tender documents for procuring services and works related to irrigation;
- Assist in tender evaluation and award services and works;
- Verify construction bills submitted by contractors;
- Assist beneficiary communities on formation and or strengthening of Water User Associations based on National Irrigation Policy (NIP) manuals;
- Review Irrigation Engineering Manual and provide suggestions and recommendations for revision;
- Prepare and submit monthly progress report to Program Manager, Engineering Division, DoA;
- Provide training to Geog Agriculture Extension Officers on NIP manual;
- Provide civil engineering services for central (MoAF) construction projects as and when directed by the Chief Engineer, Engineering Division, DoA.

Knowledge management/professional development

The Irrigation Engineer contributes in a demonstrable manner to the development of knowledge, approaches, methods and techniques. He/she actively contributes to sharing his/her knowledge with partner/clients, colleagues with the engineers in the Department of Agriculture and the Dzongkhags.

Contacts, partners

- Department of Agriculture (DoA), Ministry of Agriculture and Forest (MoAF)
- Program Manager (ABSD), Engineering Division, DoA
- Program Director, regional RDC
- Dzongkhag Engineers, Dzongkhag Agriculture Officers, Site Engineers, Agriculture Extension staff.

Authorities

The Irrigation Engineer is accountable to partners/clients as per ToRs. Within the ABSD program he/she reports to the Program Manager, Engineering Division, DoA.

Qualification and knowledge competencies

A minimum of Bachelor's Degree in civil engineering with at least 5 years of professional experience in irrigation design and construction, part of it in mountainous environment; should have experience in survey and design, quality control, construction management, and contract supervision, blasting, ability to train other persons.

Languages: Good English (both written and spoken)

Skills:

- Survey and design knowledge using relevant computer aided softwares
- Construction management
- Knowledge and experience in participatory techniques.
- Knowledge and experience in workshop facilitation, training and presentations.