



ESTABLISHMENT OF THE FIRST COMMUNITY MANAGED GROUNDWATER IRRIGATION PILOT TRIAL: *Ekxang Village, Vientiane Province, Lao PDR*

Background and Scope:

Groundwater is being recognized as an important water resource for agricultural development in Laos. Expansion of small-scale groundwater irrigation offers an attractive option to smallholder farmers to overcome losses due to erratic rainfall and enhance dry-season food production. However, groundwater use for agriculture in Laos has been limited to irrigation from agro (open dug) wells in fields or for home gardens the wells primarily constructed for domestic use. These domestic dug wells are not adequate for irrigating larger plots (>1 Ha) and subject to water level fluctuation in the dry season (*cf. figure 1*).

The first community-managed groundwater irrigation trial is being established at Ekxang village on the Vientiane Plains. The use of deep tube wells holds a key for a reliable and flexible access to irrigation allowing farmers to grow dry-season cash crop and overcome drought, which according to the farmers has become a norm recently. Harnessing benefits from groundwater however requires careful management to ensure sustainable operations and prevent resource degradation from potential unplanned groundwater abstraction in future.

This project aims to set up and test community-managed groundwater irrigation and full understand impacts on the livelihoods of farmers and on the underground resources.

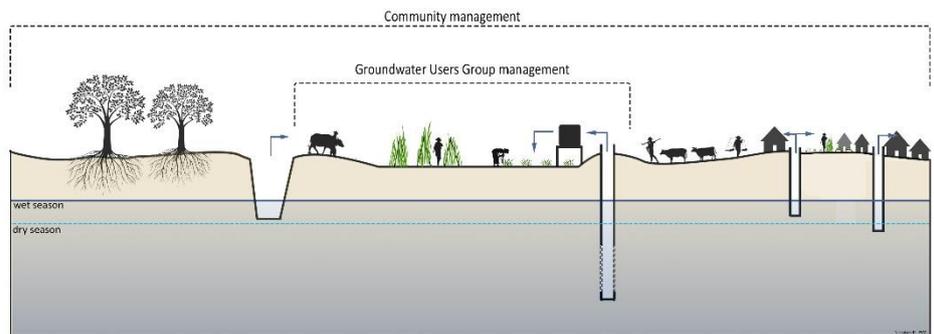


Figure 1: Groundwater uses and community management of the resource.

Trial Site:

Ban Ekxang:

This trial is located in Ekxang village (*cf. fig. 2, left*), Phonhong district of the Vientiane Plain which is about 50 km north from Vientiane Capital. There are two pilot sites (referred to as the School and Nadon sites) with respective command areas. This trial targets 20 agricultural plots selected in consultation with local farmers (*cf. fig. 2, right*).

Pilot Design:

At both sites, the irrigation system consist of an elevated water storage tank linked to each tubewell. This tank delivers water, by gravity, to agricultural fields through a main pipe equipped with gates. Farmers access to the water by opening the gate at their field. Characteristics are presented in table 1.

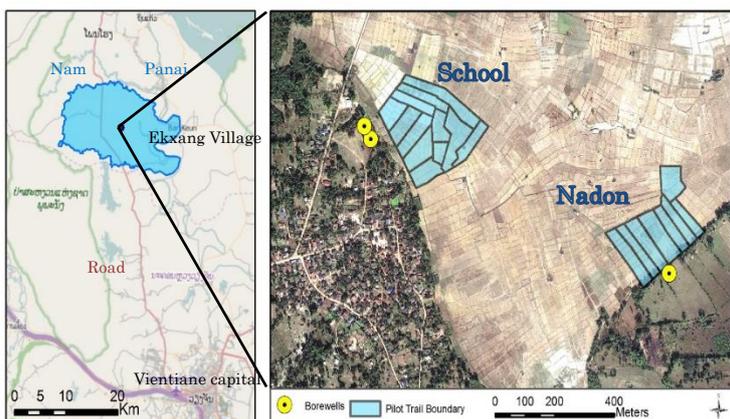


Figure 2: Pilot trial map. Left: Ekxang village location; Right: Pilot site location

	SCHOOL	NADON
No. of tube wells	2	1
Tank Capacity (m ³)	6	3
Pump outflow (L/sec)	2 / 2	4.5
Intake depth (m)	25 / 20	25
No. of gates	11	8
Energy source	Electricity	Diesel

Table 1: Sites characteristics



Participatory Community Management:

Participatory approaches are being used to facilitate inclusion and better management of groundwater. In May 2015, the project team established the Groundwater User Group (GWUG), elected the management heads and trained the users to the system principles. Once fully functional, this group will be responsible for the proper functioning, maintenance and the economic viability of the system. At the initial stage the group will consist of three major units: water management, crop production and administration.

Farmers which are willing to use this resource needs to join the GWUG and to fully endorse their role as a community member (cf.

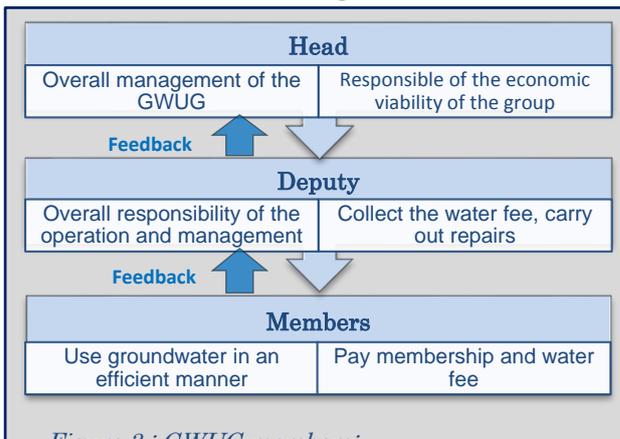


figure 3). They will have a full autonomy on accessing water without any restriction within the limit of the system and the groundwater capacity. The water fee is based on the amount of water used complemented with a group functioning fee.

Monitoring and Outcome:

Environmental data are monitored with a meteorological station and groundwater level datalogger. Hydrological, social and agricultural records/information are collected by the GWUG members and the project team. A research plan was established to define the boundaries of this research activities.

Figure 3 : GWUG members:
Role & Responsibilities

The major expected outcomes of this research will be:

- ◆ Pilot and test community level groundwater irrigation and understand impacts on the livelihoods of farmers and on the groundwater resource
- ◆ Trial community / participatory approaches to managing the irrigation system and groundwater resources
- ◆ Characterizing the groundwater system and determining the opportunities for scaling up

Project and Major Partners:

This research activity forms part of ACIAR Project LWR 2010-81: *Enhancing the resilience and productivity of rainfed dominated systems in Lao PDR through sustainable groundwater use*. The project also contributes to the CGIAR Research Programs on Water, Land and Ecosystems (WLE) and Climate Change, Agriculture and Food Security (CCAFS).

Partners



Sponsors



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