

WATER USER SCHEME IN HAOR AREA OF BANGLADESH - A SURVEY

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ABSTRACT

Study and survey was conducted to examine the impact of group irrigation in haor areas of Bangladesh. Five villages Rampur, Gajaria, Sharifpur, Alipur, Rajapur of Pagnar haor in Fenarbak union of Sunamganj district was selected for the study. People were interviewed who involved in Water User Association that is popularly known as Water User Scheme with structured questionnaire. Under those Scheme several Water User Groups are working. Bangladesh Agricultural Development Corporation (BADC) is mainly operated the schemes. They make an agreement with the Scheme Managing Committee that has a guideline and agreement to be signed. Each scheme pay Tk. 20000 per year to use a 2 or 5 cusec electric operated pump and scheme need to bear the maintenance cost. Apart from yearly payment individual farmer pays Tk 1500/ acre/ year. It was observed that in Fenarbak union, out of 22 scheme 17 are in operating condition. Main livelihood of that area is dry season rice and wet season fish catching. People have diversified their cropping pattern by growing tomatoes, red chili, potato, cauliflower, sweet gourd etc. Water user scheme would be more benefitted to more people to improve their livelihood by reducing the rental charge and maintenance cost

Keywords: *Haor* area, Water User Scheme

1. INTRODUCTION

Haor is local name of saucer shaped naturally depressed areas of northeastern region of Bangladesh. It constitutes 17% (approx) of the country's land area and the total number of haors is around 414. The haor areas are distributed in the districts (administrative unit) of Sylhet, Sunamganj, Moulavibazar, Habiganj, Mymensingh, Netrokona, Kishoreganj and Brahmanbaria (CEGIS, 2012).

The hydrological and hydraulic characteristics, soil characteristics, land use pattern as governed by the hydraulic regimes. The development of natural resources can be done with the community based haor resources management and the agricultural development should be done by the development of irrigation system (Choudhury and Nishat, 2005).

This community based water management is termed worldwide as Water User Association (WUA). The organizational concept was first introduced by Ostrom *et al.* (1994) to propose how to govern scarce resources at the lowest level of decision making and use. In the development sector, the WUA concept has found widespread acceptance amongst many leading organizations involved in water governance strategies, such as GIZ, FAO, IWMI, and the World Bank, in order to effectively govern water resources pressurized by climate change and over allocation. Results from the field have shown that if water users themselves directly decide the use of water, the performance of irrigation schemes increases, thus providing social and economic incentives to farmers to manage water more effectively.

A Water Users Association (WUA) is a non-profit organization that is initiated, and managed by the group of water users along one or more hydrological sub-systems regardless of the type of farms involved. The term "water user" means the ordinary cultivators of land, individual members of lease-holding farms and shirkers, owners of private and rental farms. They are the potential members of the WUA, who pool financial, material, technical and human resources for the operation and maintenance of the irrigation and drainage system within their jurisdiction for the benefit of all the members. The membership in the WUA is based on contracts and/ or agreements between the members and the WUA. Likewise, the supply of water and payment of fees to the water service provider is also based on contracts and/ or agreements between the WUA and the irrigation service provider, where rights and obligations of both parties to the contract, time of delivery and agreed-on volumes are specified (IWMI, 2003). Typically, a WUA has the following organizational structure (Figure 1).

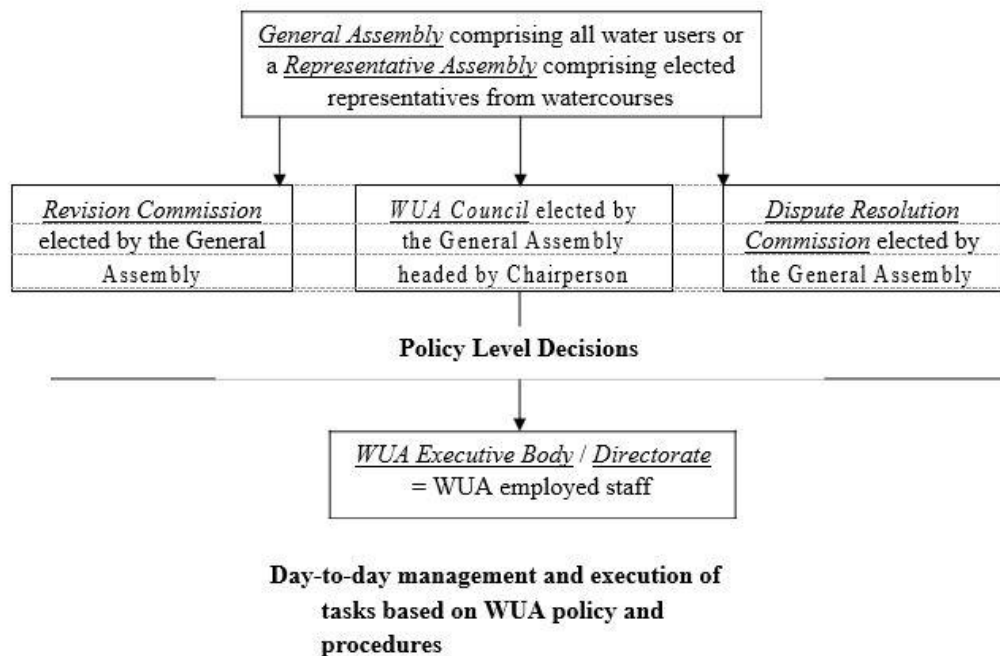


Figure 1: Organizational Structure of WUA (IWMI, 2003)

Quassem, 2003 states that in the late 1970s, the concept of beneficiaries’ participation and for that purpose formation of water institutions with the beneficiaries first came up in the Land Reclamation Project (LRP, 1978) and the Delta Development Project (DDP, 1981), two projects under the Netherlands Technical Assistance Program. DDP, for example, was a pilot project for rehabilitation, with the introduction of a new component i.e. water management at farm level and establishment of water institutions with the beneficiaries were the focus. Consequently “Inlet Groups” for planning, execution and operation and maintenance of the water infrastructures and the system as a whole.

Bangladesh Experience with various Water Institutions. The evolutionary process as water management, particularly irrigation, in Bangladesh is as old as the “Gangetic Civilization”. It is learnt from the Vedic literature and epics of the time that about 3000 years ago, the rulers of Bengal introduced irrigation and handed over the responsibility of distribution of water to the local boards. The local boards worked through the peasantry to ensure that water reaches to every field, although existence of permanent water institutions cannot be traced back in history.

According to the hydrologic regime of *haor*, farmers adjusted their cropping practices. These areas are traditionally well-known for single-cropped area during agricultural seasons in dry periods. High yielding irrigated boro rice, covered about 60%, is the main dry season crop grown

in the *haor* areas (BBS, 2011). Only 32% of cultivable areas are brought under irrigation there. Boro alone contributes 8% of total rice production in Bangladesh (BBS, 2011). Saleh and Mondal (2007) found that both HYV boro coverage area and production have increased with average annual growth rates of 10.7% and 14.9% respectively.

The area coverage of HYV boro rice in *haor* area can be increased through increasing irrigation water use for irrigation. In dry season *haor* area farmers use water for crop cultivation through Water User Scheme (WUS) (another term of WUA) controlled by a scheme managing committee with around 40 to 45 members including president & a manager. Considering the above mention importance of WUS s in aspects of Bangladesh especially in *Haor* areas, a study was carried out with the objective to know about the management and operation of WUS and benefits of farmer from those WUS.

2. METHODOLOGY

There are about 11 Upazillas in Sunamganj district. Among them highest agricultural activities are done at Jamalganj Upazilla. The 6 unions of Jamalganj upazilla is surrounded with lots of *haors* and *bills* (*small haor*). In this project, Fenarbak union was selected surrounded by the largest Pagnar *haor*.

This study is based on a comprehensive literature review on water management and WUAs in the *haor* area. All relevant documents on this projects in the region that included a component on setting up or strengthening WUAs were also examined.

Initial information was collected from Bangladesh Agricultural Development Corporation (BADC) and Department of Agricultural Extension (DAE) office of Jamalganj upazila. After that survey was conducted with structured questionnaire, with sampling of individual units from a population of the selected village's water user association is active. The survey was conducted in Fenarbak union, surrounded by Pagnar *haor* having an area of 8100 ha & many other bill's including 22 villages with a population of around 12000. About 40-50 representatives were gathered for conducting the survey. Among them 5% were female representative.

Primary and secondary data were collected for the study of livelihood of the people. As location Fenarbak union was selected. Five villages named as Rampur, Gajaria, Sharifpur, Alipur and Rajapur where Pagner *hoar* spread across were selected. Survey was conducted seating in a specific area under those villages. Information were generated by interviewing people who lives there and involved in Water User Association. In that location, the association is popularly known as Water User Scheme. Under those Scheme there are several Water User Groups.

3. RESULTS

In the study area the Water User Association (WUA) is called as “Water User Scheme (WUS)”. Some agreements are signed before approval of any Scheme Managing Committee. BADC has prepared the guideline that all groups have to follow:

- a. A selected number of farmers informed that 40-50 farmers have to register with their name & land amount to form a WUS of a particular area before the committee was formed,
- b. One or more farmers of different area can be included in a same scheme.
- c. Two or five cusec low lift pump is used to irrigate crop.
- d. The charge for 2 or 5 cusec electrical power driven pump for the approved Scheme was fixed to be Tk. 20,000. Charge must have to submit every year to BADC by the scheme farmers before delivering the pump set.
- e. Before delivering the pumping set, the benefited farmers have to pay Tk .7000 one time to BADC for every 2 or 5 cusec electrical pimp
- f. Every 2 or 5 cusec electrical power driven pump covers at least 100-acre land
- g. Only elected scheme manager will contact to BADC for further report or any issue.
- h. At the area of scheme, cost for conveyance, installation and necessary infrastructure establishment have to carry out by the farmers.
- i. Necessary oil or electricity cost also have to bear by the farmers.
- j. BADC will provide pump parts for repair at low cost. Farmers can also repair the pump by their own.

3.1 Water User Scheme in study areas

Water User Scheme is active in all 5 villages that surveyed. Every village has 3 to 7 schemes. Almost all schemes has 40 to 50 members. Female participation is not found in any scheme. All schemes uses electric motor to irrigate dry season crops. Scheme members pay irrigation cost hourly basis that costs about Tk.1500 / acre / year. Farmers of almost all scheme member expressed that they are benefitted by the project except the maintenance cost.

From the villages surveyed, it was observed that different village has different scheme numbers. It varies from 3 to 7 depending on the area coverage (Table 1). Scheme member also varies with the size of a scheme. Every scheme member’s family size also varied, some has very large family (up to 35 person) and some has medium (10-12). Members cultivated land does not relate with the family size.

Table. 1: Water user Scheme in Pagner haor, Sunamganj, Sylhet, Bangladesh.

Village	Scheme	Head of the scheme	Member in Scheme	Family members	Land cultivated/ Farmer (acre)
Rampur	07	Abdul Mannaf	45	12-35	4-12
Gajaria	04	Khayrul Islam	40	18-22	2-6
Sharifur	03	Md Awal	65	20-30	4-8
Alipur	04	Amir Ali	50	15-30	8-10
Rajapur	04	Sabuj Mia	42	17-30	6-8

3.1.1 General Findings:

There are Schemes having:

Land/scheme between 100-150 acre	82 %
President aged above 50 years	72 %
Chairman working for more than 2 years	76 %
Irrigation throughout the stretch of the canal	69 %

After transfer of management to Scheme, it has shown that there is:

- Improvement in irrigation efficiency in 50-60 % Schemes.
- 20-30% Schemes have diversified their cropping pattern by growing tomatoes, red chili, potato, cauliflower, sweet gourd, eggplant, nut etc.
- Water charge recovery in 30 % schemes has increased
- The Operation and Maintenance grants are partially disbursed to about 50 % of Schemes.
- As much as 25-30% of Schemes have balance amount at their disposal.
- Accounts of around 30% Schemes had been audited

3.1.2 Current Condition of Water Association Scheme:

- In Fenarbak union, the study location of the project, it was found that there are 22 scheme manager & number of LLP they have.
- Among those 22-scheme managing committee 17 are currently active and 2 are under maintenance.

- Three schemes are inactive now. Managers of those schemes are Yusuf Ali, Soheli and Haq Mia.
- There are 41 villages in whole Fenarbak Union & currently these 17 Scheme Managers operate all water User schemes of the union.
- All These pumps are driven by electrical power.
- Among these pumps a small amount was operate under Rural Electrification Board (REB) and the rest are governed by BADC.

3.2 Livelihood

Dry Season:

- In dry season, boro rice is the main crop in *haor* areas of Jmalganj Upazila and majority of the crop lands are devoted for irrigated rice production.
- Boro rice is well adapted to floods, since the stalk is taller than other varieties and do not be submerged in the flood water easily.
- The trend of vegetables is growing fast because of increasing demand and short duration.
- People are also growing tomatoes, red chili, potato, cauliflower, sweet gourd, eggplant, nut etc.

Wet Season:

- Fishing is the major economic activity in *haor* region, which meets a great nutritional demand of the locality as well as the whole region.
- Beside fishing, people rear duckling that is also a source of protein

4. CONCLUSION AND RECOMMENDATION

Study and survey was conducted to examine the impact of group irrigation in *haor* areas It was found that group irrigation is economically effective for farmers in rural areas. However, besides of many advantages, there are some limitations too. Identifying and isolating the benefits achieved exclusively through participation is complicated. Because the casual linkage between Water User Schemes (WUSs) activity and actual gains derived from the scheme is not distinctly separated from other factors, such as better farm management, a sound environmental policy and more favorable market conditions. However, to the extent that Water User Schemes (WUSs) contribute to improvements in management or to the sustainability of physical system improvements, a careful and systematic evaluation of the contribution of Water User Schemes (WUSs) in the overall management transfer process are still needed, ideally using a combination

of cross-sectional comparisons between systems with and without strong Water User Schemes (WUSs) and time series of the same system before and after transfer.

Further work is required to observe as the survey was conducted in limited areas. More participation is required as there was less participation of people besides female participation was less also.

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