

Needs of FMIS in Bangladesh

Bangladesh has approximately 3.35 million hectares (ha) of irrigated land of which 97 percent uses modern irrigation methods of varying degrees of sophistication. Of these, 70 percent is irrigated with shallow tubewells and deep tubewells with designed discharges from 0.5 to 2 cusecs. Most of these pumps are diesel-driven and can irrigate from 8 to 30 ha. These small-scale irrigation systems are managed by formal or informal groups of farmers who are responsible for almost all important irrigation management functions.

One of the major problems of tubewell irrigation (as well as of canal systems) is under-exploitation. A series of nine field workshops were conducted in nine villages of the Upazila subdistrict in order to determine remedial measures. Field workshop participants included farmers, farmer leaders, local

government leaders, subdistrict officials and faculty members.

The following problems were identified as causes for the under-exploitation of shallow and deep tubewells and appropriate recommendations were then discussed. Field observations reveal that the nature and dimension of the problems as identified in the workshops have not changed much since 1988.

1. **Insufficient supply of spare parts:** The Bangladesh Agricultural Development Corporation (BADC), which contributed most to the development of small-scale irrigation systems in the country, deliberately limits the supply of spare parts in pursuance of the government policy of turning over irrigation systems to

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farmers. The local market, however, has not been able to meet the demand, partly because of its inexperience and inability to estimate the demand and partly due to the multiplicity of makes and models of machines available.

2. **Insufficient service facilities:** Service personnel to meet the increased service demands are inadequate. The government's policy is to minimize the role of the BADC, promote private sector involvement, and encourage privatization of the farming system.
3. **Increase of O&M costs:** The per hectare O&M cost has been rising mainly due to: a) increases in the prices of fuel/lubricants and the cost of services; b) reduction in the irrigated area because of violation of established rules in spacing tubewells by influential farmers who indiscriminately sink new wells within the command areas of existing wells; and c) loss of water by seepage and percolation from unlined open irrigation channels.
4. **Theft of shallow tubewell (STW) engines** by organized gangs of thieves.
5. **Inadequate groundwater availability:** This happens due to sinking of STWs in unsuitable sites with no consideration to aquifer conditions resulting in a low groundwater table, and also due to violation of rules with reference to spacing of wells.
6. **Problems of farmer organizations:** Since most farmer organizations managing deep tubewells (DTWs) are credit oriented they lack experience in irrigation management. Positions of leadership are dominated by rich farmers and the rights of the average farmer are not protected.
7. **Underdeveloped communications:** Most roads were constructed before the irrigation channels were planned and channels cut across roads (there are no proper culverts yet). This has created problems, especially during the monsoon, in transporting fuel/oil and fertilizers as well as officials and extension workers on field visits.

Solutions to the problems

Although farmers need government support to solve their problems, they did not wish to remain dependent

on the government. The areas of public support needed are:

- a) **Supply of spare parts.** The BADC should continue providing spare parts till such time as the private sector can takeover supply in a phased-out program.
- b) **Training.** Unemployed youth should be recruited and given training in repairing and servicing of pumps. Also, they should be provided the initial capital to purchase tools to start their own business. Training in management, accounts and book keeping, channel construction, maintenance procedures, etc. should be provided to leaders.
- c) **Transfer of technology.** Farmers should be given technical guidance on the selection of technology appropriate for the aquifer and soil characteristics of the area, as existing facilities for transfer of such technology are inadequate.
- d) **Strengthening farmer organizations.** Necessary legislation should be enacted to make farmer organizations irrigation-community based rather than village-community based and to ensure small farmers are represented at management level.
- e) **Protection against theft.** Farmers should organize night watch teams and vigilance teams on a voluntary basis to prevent theft of tubewell engines.
- f) **Lining of irrigation channels.** The feasibility of obtaining long-term interest-free bank loans or government funds for the lining of irrigation channels or for laying underground pipelines should be explored.
- g) **Developing communications.** The government should construct new roads, improve existing roads, and provide culverts at appropriate places to enable free movement of people and machines.
- h) **Irrigation and water management cells** should be created at subdistrict level, to plan and contain the increasing demand for water from limited resources without seriously affecting the ecology of the system.

[M.A.Hakim, Researcher/Economist, IIMI-IRRI Project, Bangladesh.]