

IRRIGATION MANAGEMENT NETWORK

**GRAMEEN KRISHI FOUNDATION
A Multifunction Organisation**

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A MULTI-FUNCTION ORGANISATION**

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GRAMEEN KRISHI FOUNDATION A MULTI-FUNCTION ORGANISATION

Edward Mallorie

Introduction

The Grameen Krishi Foundation (GKF) is a subsidiary of the Grameen Bank, a large Bangladeshi NGO. GKF was primarily established as an irrigation organisation to operate deep tubewells (DTW) and supply farmers with water. However economic pressures, together with a wish to provide farmers with a wider range of services, are leading it to widen its activities into more general contract farming and agricultural support.

This paper briefly describes the background of groundwater irrigation in Bangladesh and the activities of the Grameen Bank. It then examines the operational experience of GKF and explains how it has evolved into a multi-function organisation (MFO). Finally its future prospects are reviewed and consideration given as to what extent its experience is typical or replicatable.

The information in this paper is largely drawn from the first review mission of the Grameen DTW Project funded by UNCDF and the Dutch Government. The author is a member of the Mott Macdonald International team responsible for these review missions and acknowledges the contribution of his colleagues, Martin Gillam and Catherina van Heel, have made to the information in this paper.

Groundwater Irrigation

The green revolution, coupled with rapid expansion of irrigation, has enabled Bangladesh to achieve a high degree of self-sufficiency in rice, its staple food. This is despite an extremely high population density, rapid population growth, and extreme vulnerability to flooding with consequent loss of crops. Irrigation has enabled farmers to increase the area of HYV paddy grown in the dry season (known as boro). Not only does this yield more than HYV paddy grown in monsoon (the aus and aman crops), but it is less at risk from flood damage. The area of HYV boro paddy tripled in the 1980's and by 1989/90 accounted for 21% of the total paddy area and half the HYV paddy area (World Bank).

The expansion of irrigation has almost entirely involved minor irrigation, mostly groundwater although surface water is also utilised via low lift pumps (see Table 1). Widespread groundwater development started in the early 1970's with the installation of DTWs. Approximately 28,000 have now been

installed, almost all by government organisations, mostly the Bangladesh Agricultural Development Corporation (BADC), but also by the Bangladesh Water Development Board (BWDB). The output of these wells (2 cusec) is well above the requirement of an individual farmer. BADC wells are mainly operated by farmers groups who initially rented, and later purchased (via a bank loan), the well. BWDB operates its own wells and charges farmers a water fee.

Table 1: Irrigated Area in Bangladesh ('000 acres)

	1970	1978	1988	1990
Large-scale gravity schemes	300	544	527	658
Minor Irrigation				
low-lift pumps (surface)	24	63	115	200
tubewells	33	127	1,466	1,676
shallow (STW)			868	1,046
deep (DTW)			554	593
hand operated			44	37
Traditional methods	725	770	353	400
Total irrigated	1,082	1,514	2,461	2,934

Source: World Bank

Although a large area of irrigated crops have been produced by these DTW, there are substantial problems in organising farmer groups, and in collecting sufficient user charges to cover operating costs and to service loans. As a result some groups have collapsed leaving wells unused, while others have, de-facto, been taken over by an individual who finances well operation and sells water to farmers.

Government policy towards minor irrigation has changed in the last five years with the private sector taking over the prime role in development, operation and ownership. As well as developing most DTW, BADC had supplied virtually all pumps and engines for the smaller shallow tubewells (STW) and low-lift pumps (LLP). This has now been opened up to the private sector and since 1988 controls and duties on the import of small diesel engines have been removed. As a result the market price of equipment for STW fell below the previously subsidised BADC price: in fact in the 1993 cost of a STW was about Tk20,000 - about the same as the BADC price in 1980 - a fall of over 50% in real terms (Gisselquist). The availability and support for such equipment has also improved as thousands of machinery dealers have established themselves in every town and many

villages. STW are a more affordable alternative to DTW over most of Bangladesh where the water table is close to the surface.

Subsidies on government supplied irrigation equipment have now been phased out. Subsidies used to account for well over half the cost of DTWs installed by BADC and sold to farmer groups. With development being left to the private sector, BADC is no longer installing significant numbers of DTW, or supplying STW/LLP equipment. BADC is divesting itself of its remaining DTWs still on hire to farmer groups, and BWDB has been encouraged to make similar moves.

The result of these policy changes is an explosion in the number of STW and the total irrigated area increased by over half a million hectares in the two years 1988-1990. According to the Water Resources Planning Organisation of the Ministry of Irrigation, Water Development and Flood Control, STW now supply 40% of the irrigated area, compared with 23% covered by DTW. In future DTWs are likely to be restricted to areas with a water table inaccessible to STW, and be scaled down to be within the resources of private individuals.

Grameen Bank

The prime activity of the Grameen Bank (GB) is lending to the rural poor and supporting income generating activities aimed at this group. It was registered as a bank in 1988, although it had existed as a project since 1976. GB is jointly owned by customer shareholders and the government, and is usually classified as an NGO although its part government ownership and scale of operations sets it apart from other NGOs.

GB is a remarkable success story. It is presently disbursing over \$100 million per annum, and has over \$45 million in accumulated savings from its clientele of 1.6 million borrowers, 90% of whom are women. The Bank's loan recovery rate is more than 95%, which is remarkable given the rate of no more than 30% in the government owned commercial rural banking system.

In recent years the government has been eager to dispose of poorly performing development projects, and Grameen has been asked to take over a number of these, and has set up commercial enterprises based on fish and shrimp farming, cold storage facilities, and irrigated agriculture.

Grameen's principal agricultural ventures are in DTW operation, where it took over the Tangail Agricultural Project in 1987, and the Rangpur-Dinajpur Agricultural Project in 1988. They were grouped together as the Grameen Agricultural Project (GAP). In terms of resources this is the

most significant Grameen non-banking activity, with GB having invested \$7m to date.

Grameen Krishi Foundation

In December 1991 GB formally established, as a separate entity, the Grameen Krishi (agricultural) Foundation, to take over the GAP tubewells in the Rangpur-Dinajpur area. It is licensed under section 26 of the companies act and is a non-profit making NGO, wholly owned by GB, which also provides its senior staff on secondment.

A total of 2,460 DTWs had been made available to GAP in the Rangpur-Dinajpur area. These included 1,500 ex-BADC DTWs and 960 ex-BWDB DTWs that had been installed with external funding from ADB and the Saudi Development Fund. Almost all of these wells had never been operated, having been installed and the tail-end of the 'DTW era' in Bangladesh.

The number of DTW actually acquired by GKF and available for operation, is about 790: 565 ex-BADC and 225 ex-BWDB. GKF purchase the BADC wells is on credit provided by BADC at a cost of Tk175,000 each - which was the current sale price for new wells (net of subsidy) at the time of the take-over by GKF.

GKF Operational Experience

Each DTW is organised as a 'primary farm' (PF) with a resident manager employed by GKF. GKF enters into contracts with farmers to provide irrigation water. As well as supplying irrigation water, GKF also provides some farmers with crop inputs, hires out machinery, and may market crops on behalf of farmers. Farmers pay GKF for water and inputs by agreeing to hand over a share of the resulting crop to GKF.

Initially GKF took a share of 25% of the boro crop for the supply of water alone, and 33% for water plus seed and fertiliser. Experience in the first season of operation indicated that this was insufficient to cover GKF's costs and the share was increased to 30%/40%. The proportional share arrangement encouraged farmers to under-report yields to minimise the amount handed over to GKF. GKF have therefore now switched to a flat rate share arrangements for most paddy: farmers pay 12 maunds (448kg) per acre for water and 20 maunds (746kg) for water and inputs. This switch to flat rate has dramatically increased the average reported yield of boro from 1.1 t/acre to 1.7 tons (which is typical for the region). Those farmers still on

the proportional share arrangements are mostly those with whom GKF have a good relationship and who can be relied upon to report genuine yields.

Table 2 shows the number of DTW's operated, and areas of crops grown, by GKF each year since it commenced operations in 1989/90. Operations in 1989/90 were limited by delays in handing over BWDB wells and other initial teething problems. Well numbers and crop areas increased sharply in 1990/1 as farmers gained confidence in GKF. This was despite the fact that GKF increased its charges and suspended operations at some DTW where sandy soil makes irrigation uneconomic. The switch from proportional shares to flat rate water charges met with considerable resistance from farmers and resulted in a sharp fall in well numbers and crop area in 1991/2. There was a further drop in well numbers in the last season due to a continuing tough stance taken by GKF management over payment of its share by farmers and increasing discrimination by GKF in the selection of potentially viable DTW. However overall crop area increased with a substantial amount of non-rice crops. For this coming season it is expected that both well numbers and crop areas will increase. There is a growing acceptance by farmers of GKF's share arrangements, and a realisation that water and services must actually be paid for. There has been particular resistance in the ex-BWDB well areas where BWDB water fees were not only extremely low (covering only 7% of O and M costs), but non-payment was widespread, with only 24% of fees being collected (Parker, 1992).

The viability of GKF operations in the 1992/3 cropping season was adversely affected by a sharp fall in rice prices. Growth over some years in rice production has resulted in the gradual increase in the level of national self-sufficiency, with Bangladesh becoming a marginal net exporter. This underlying growth in production had a sudden impact on prices in late 1992 and 1993 when a series of bumper harvests combined with the effective collapse of government support buying. In addition wet weather during the 1993 boro harvest meant that the crop was difficult to store or market. At this time prices were reported to be a low as half of those in the previous boro season, although statistics collected by IFDC suggest a fall of around 30%. Although it is likely that prices will recover to some extent as farmers respond by reducing input levels and the area of irrigated paddy, it is likely that prices will, in the medium term, remain depressed.¹

¹World Bank Projections suggest a surplus of rice production over demand growing from 5-6% now to over 15% by the end of the decade, before starting to decline about 5 years later. If trade and exchange rate policies are adjusted, this could allow rice prices to fall by about 15% so stimulating a 12% increase in consumption. The prices used in the financial projections in this paper represent a 17% decline from mid-1992 budget assumptions.

Table 2: GKF Operations

Crop	1989/90	1990/1	1991/2	1992/3	1993/4 (plan)
No. DTW operating	534	629	541	496	647
	Crop area (acres)				
Rabi season					
boro paddy	20,936	25,328	19,325	15,424	20,000
aus paddy	213	86	240	429	250
wheat	50	172	1,407	3,205	4,000
soyabean	0	6	0	950	2,000
pulses	0	6	49	139	400
oilseeds	0	3	37	223	450
cotton	0	0	7	20	10
other (veg.etc.)	19	67	302	317	1200
sub-total	21,218	25,715	21,530	22,072	28,310
Kharif season					
aman paddy	284	446	3,558	15,192	18,000
Perennial crops					
sugarcane	0	2	175	2,861	5,000
bananas	0	25	84	43	200
sub-total	0	27	259	2,904	5,200
Total rabi	21,218	25,742	21,789	24,976	33,510
Total kharif	284	473	3,817	18,096	23,200
Grand total	21,502	26,188	25,347	40,168	56,710
Rabi acres per DTW	39.1	40.9	40.3	50.3	51.8

This fall in prices has reduced the income GKF obtains from its crop share so the area of paddy needed for a Primary Farm to break-even has increased. Even if prices recover to Tk4.56/kg, the area of boro needed to cover PF overhead costs of Tk40,000 is 42 acres. This compares with the 29 acres needed when prices were Tk5.50 as assumed in budgets made prior to the fall in paddy prices (see Figure 1). Although 42 acres is compares favourably with the 1992/3 average irrigated area of 50 acres, an additional Tk46,300 per primary farm is needed to cover other GKF management and administration costs at the unit, regional and headquarters levels. This increases the area of boro required total overheads to about 90 acres - well above the target set in the UNCDF project of 60 acres per DTW. These calculations are based on boro grown on heavier soils: much of the area has lighter soils which require more irrigation water. Although GKF has tried to reduce its operations where soils are lighter, the extra irrigation cost on light soils means that 75 acres would be needed to cover PF overheads and 163

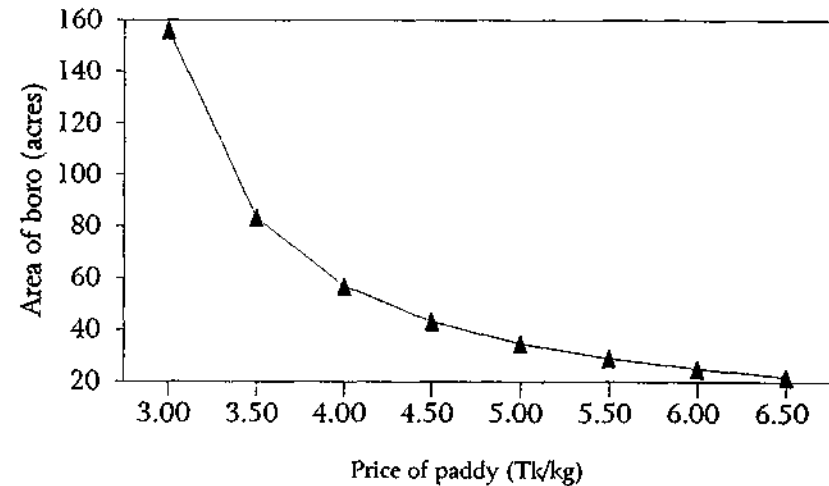


Figure 1: Area of boro to cover Primary Farm Overhead Costs (assumes share of 448kg/acre, overhead cost f Tk40,000/year)

acres to cover total overheads.

GKF continues to operate at a loss and will find it difficult to sustain its operations unless it is able to increase its income. Although it covers its variable costs on the production of irrigated boro (Table 3), net income per acre is too low to cover overhead costs on current command areas, and it would be both expensive (in terms of improved distribution systems) and impractical (given the poor siting of many wells and land tenure/institutional factors) to enlarge command areas to grow sufficient boro to cover total overheads. One option to increase GKF income would be to increase the share of the crop taken as a water charge. However analysis of overall costs and returns indicates that the current 12 maunds (448kg) per acre water charge splits both variable costs and income 70% to the farmer and 30% to GKF (see Table 3). Any increase in water charges would mean that GKF would get a disproportionately large share of income relative to its contribution to total costs, and farmer resistance would result in a fall in the irrigated area. Another possibility is to increase the total crop area per primary farm by producing aman paddy outside the main irrigation season. Although a substantial area of aman is now produced (GKF supply inputs

Table 3: Summary of over crop gross margins and GKF share income

Taka per acre	Share system	Overall gross margin	GKF margin over variable cost	Share of farmer	
				income (%)	var. cost (%)
Boro - heavy soil	12 maunds	3518	953	76.1	78.3
Boro - light soil	12 maunds	1459	530	70.6	72.4
Boro - heavy soil	30%	3518	1371	70.4	76.9
Boro - light soil	30%	1459	469	70.4	71.1
Boro - heavy soil	20 maunds	3518	384	60.1	40.3
Boro - light soil	20 maunds	1459	-40	51.0	37.7
Boro - heavy soil	45%	3518	706	55.5	38.9
Boro - light soil	45%	1459	-435	55.6	36.4
Aman (unirrigated)	6 maunds	3758	-14	85.9	73.0
Aman (irrigated)	12 maunds	3414	642	71.8	63.6
Aus	10 maunds	1474	23	76.5	59.3
Sugarcane	60%	18758	10680	40.4	37.1
Maize - hybrid	60%	1720	896	40.6	39.2
Maize - composite	50%	1085	679	50.8	53.8
Wheat	13 maunds	247	-2	46.2	43.3
Soyabean	60%	5017	3355	40.0	48.9
Mustard	60%	2547	1939	40.0	54.0
Banana	60%	21024	13367	40.0	45.1
Potato	65%	2197	852	35.0	30.6

(note: one maund = 37.5kg)

and, if rainfall is inadequate, supplementary irrigation), the profit for GKF is limited as it does no more than breakeven on the supply of inputs while irrigation is often not needed. The other alternative, that GKF is pursuing, is to grow other crops which yield a higher income per acre.

Non-rice crops that are widely grown in north-west Bangladesh include pulses, oilseeds (mustard) and wheat. Mustard and pulses are normally grown on residual moisture with minimal inputs and the potential for GKF involvement is limited. Wheat does benefit from irrigation, but recent crops have suffered from widespread sterility and yields have been low. Wheat prices have also been depressed by the fall in rice prices, and it is even less profitable for GKF than boro paddy. GKF is therefore looking to develop other alternative crops that are not now widely grown. These include sugarcane, maize, soya beans and bananas. These crops can generate more income per ha for both farmers and GKF, and enable GKF to cover its overhead costs within a realistic area of PF.

If a PF grows a mix of 80% boro and 20% soya beans (assuming a flat rate share of 446 kg/acre for boro irrigation and a proportional 60% for soya bean water and inputs) then the area required to breakeven can be sharply reduced. Figure 2 shows that if only boro is grown, irrigated from a DTW, about 40 acres is needed to cover farm overheads and 90 acres to cover total overheads. However if a mix of 80% boro and 20% soya beans are grown the breakeven areas drop to 27 and 60 acres.

Crop diversification is even more important on light soils. Figure 3 shows that 75 acres of boro would be needed just to cover farm overhead costs. Although the combination of 20% soya, 80% boro would cover farm overheads on under 40 acres, to cover total overheads would need over 75 acres, and a more appropriate combination would be 30% soya and 70% boro (as shown in Figure 3) which cover farm overheads in 29 acres and total overheads in 63 acres.

Other non-rice crops other than soya beans could also be grown. The profit margins for sugarcane and banana suggest that only a few acres would be needed to cover total overheads. On the other hand maize is little more profitable than boro.

GKF as a Multi-Function Organisation

Although GKF has always aimed to have a broad role in agricultural development, the rationale behind its establishment was the existence of a large number of DTWs and the need to find a competent organisation for their operation. From the outset GKF provided crop inputs of seed and fertiliser in addition to water, so effectively taking on the roles of credit agency and input supplier. The objective here was to provide a package of inputs for irrigated paddy to those farmers who could not otherwise afford them, and who might therefore not be able to participate in the irrigation. This would both constrain irrigated areas and be less equitable. However in practice GKF has found it difficult to charge a large enough share to cover the cost of these inputs, and farmers resist paying more. The proportion of paddy to which inputs are supplied has fallen from over half the boro crop in 1990/1 to only 7% in 1992/3. In practice farmers do not appear to use less inputs if they have to fund them from their own or other non-GKF sources.

However GKF firmly sees its future as an MFO. Although for the boro crop it is increasingly just providing water, falling paddy prices mean it is giving an increasing emphasis to non-rice crops. However inadequate technical advice, a poor supply of seed and other specialised inputs, as well as a lack of assured market outlets, constrains the development of potentially profitable non-traditional crops such as maize, soya and

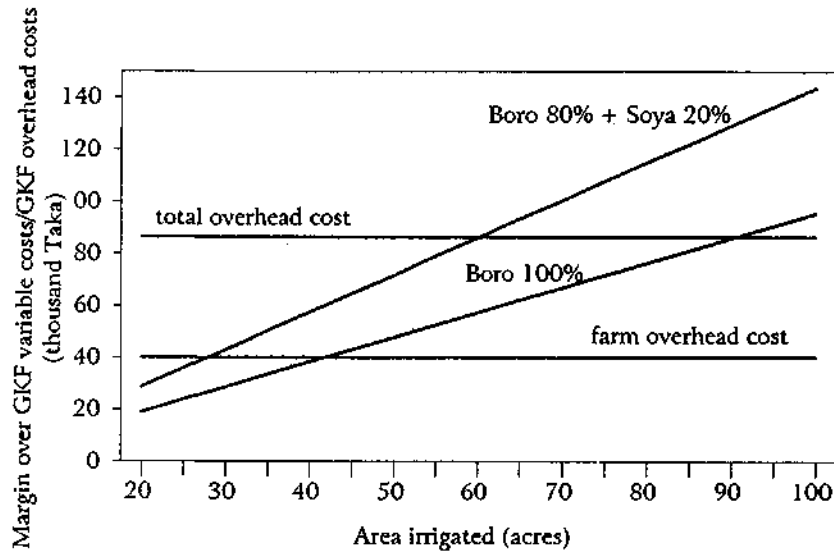


Figure 2: Area of crops to breakeven - heavy soil for one primary farm

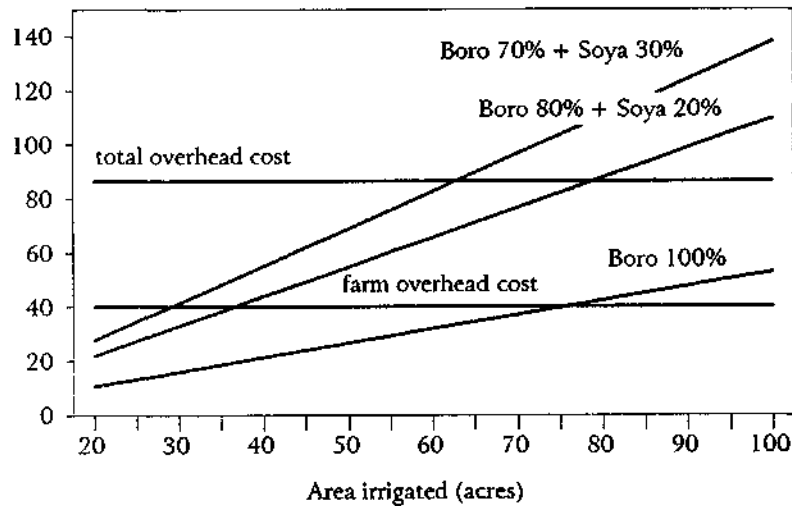


Figure 3: Area of crops to breakeven - light soil for one primary farm

sugarcane. To overcome this GKF must provide farmers with a wide range of services.

To promote sugarcane production GKF has made direct marketing arrangements with sugarmills which have established buying depots for GKF's exclusive use. GKF has also bought in the Sugar Cane Research Institute to assist in introducing improved production methods (especially regarding crop establishment) which means that yields are almost twice the average for Bangladesh. GKF has made a major effort to introduce maize and soya beans: both new crops to most farmers. This has involved the import of hybrid maize seed from Thailand, soya seed multiplication and procurement of soya inoculum as part of a comprehensive input/technical advice package, that also included the supply of maize shellers and crop sprayers. Demonstration plots have been established in cooperation with the Crop Diversification Project of the Ministry of Agriculture.

Previous efforts in Bangladesh to popularise maize and soya have floundered on the problem of marketing. There is no tradition of processing and consuming these crops at the village level and, with only small volumes produced, it has not been worthwhile for traders and processors to become involved. This is a 'chicken and egg' situation in that there was no market, without which farmers were unwilling to produce, while lack of production meant there was no trade. GKF has unblocked this log jam by offering farmers in advance a guaranteed price for any part of the farmer's share of the crop that they wish to sell. GKF has thus been able to market a significant volume. Maize has been sold to modern sector poultry farms, which may mean organising transport to Dhaka. Although maize prices have also been depressed by the overall fall in grain prices, its yield potential is better than that of wheat. The volume of soya beans produced is still too small to interest oil extraction industries, but GKF have found that, by parboiling and drying soya beans in a rice mill, it is able sell the crop for fish and poultry feed and for confectionary. There is a ready market and the processing cost is low. Net returns are little, if any, below that if oil had first been extracted.

Non-rice crops require much less irrigation than boro, and irrigation is less of a central issue in their production. These crops grow best on lighter soils and the heavy soils (which are best for paddy) in many DTW commands may not suit them. On such PFs non-rice crops are best grown on higher ground with lighter soils away from the DTW command area using a STW to provide irrigation water. Although STW are relatively less efficient in terms of energy use, they are cheap to buy and their small size means they can be moved between well-heads to irrigate an area of up to 30 acres.

Lower energy efficiency is of less significance when only a small quantity of water is being pumped.

The use of STW to grow non-rice crops enables the crop area of a PF to be expanded with enlarging the command area of the DTW, which may be difficult in terms of topography or expensive if lined channels or pipes are needed. The numbers of STW operated by has grown sharply as the following figures show:

	number of STW
1989/90	22
1990/1	52
1991/2	98
1992/3	268
1993/4 (planned)	295

In addition to diversifying into non-rice crops, GKF is expanding PF activities into the fields of aquaculture and livestock production. It has taken over a number of fish ponds located at PFs on a lease or share basis, and is stocking these ponds which previously were almost all disused. The area of ponds in 1992/3 was 70 acres and it is planned to increase this to 302 acres in 1993/4. GKF has also purchased some cattle for milk and meat production, but this activity is at a pilot stage.

Linkages with farmers and other organisations

GKF is planning to establish farmer committees at each PF. However where these do exist they seem to have little control of management decisions and, for practical purposes, the key decision-maker at the PF level is the farm manager who is a GKF employee. To a large extent the relationship between farmers and GKF is that of a customer and supplier, and farmers appear to perceive GKF as an external organisation much like BWDB and BADC.

GKF, as part of GB, has wider social objectives that are, to some extent, aimed at the rural poor rather than at participating farmers. Grameen Bank was created to assist this group and owners of more than half an acre are excluded from its primary credit and group activities. To assist this target group GKF is planning to hand over the operation of some DTWs to groups of landless poor. These people would then sell water, or enter into share cropping arrangements with farmers and landowners. To date 33 groups have been formed and 15 DTW are now operated by them (or earmarked for operation as the groups are still undergoing training). GKF, through GB,

has also funded the redemption of mortgages on an area of 120 acres. This land can now be farmed again by its owners who had lost possession when they raised the mortgage to borrow money.

GKF grew out of GB and, as many of its staff have a rural banking rather than agricultural background, GKF has had to look elsewhere for the expertise it needs. It claims to have had some difficulty in getting general agricultural advice from agricultural extension and soil science organisations, and prefers to enter into contracts with specialised agencies for specific services. It has had such agreements with the Bangladesh Livestock Research Institute, the Crop Diversification Project of the Ministry of Agriculture, and the Sugar Cane Research and Development Institute. Many of its technical staff are provided via a contract with a Bangladeshi consulting company, Kranti Associates, who have in turn obtained staff on secondment from government organisations such as BADC and Bangladesh Agricultural Research Institute.

GKF is likely to continue moving away from its role as an irrigation water supplier towards that of a broader multi-function and contract farming organisation. To survive it needs to be commercially viable and irrigation of paddy does not generate sufficient income to cover its overhead costs. The supply of groundwater for irrigation purposes is something that can be done by privately owned STW. Although GKF can write off the original cost of its DTW, and DTW are more energy efficient than STW, these advantages have to be set against GKF's considerable overhead costs.

Some of GKF's activities compete with those of other organisations, such as banks, the Department of Agricultural Extension, BADC seed production farms and private traders involved in input supply and crop marketing. However GKF has found itself able to compete, partly through more efficient management, and partly because of the integration of its activities. In particular the formal banking sector has not been effective as a supplier of agricultural credit in Bangladesh, and is dogged by problems of collateral and difficulties in supervising many small loans. By tying credit to an irrigation contract, and by maintaining close contact via the primary farm manager, GKF has not required formal security and has generally been able to recover its due share of the crop from the farmer.

The agricultural extension service has been accused of not having good contact with farmers and not being able to provide them with relevant advice. GKF not only has better contact with (albeit a limited number of) farmers, but it also has a direct financial incentive to provide the best advice possible.

Conclusions

In conclusion it is worth mentioning that GKF is not the first attempt to establish an irrigation based MFO in Bangladesh. The original model for the operation of DTWs installed by BADC was that of a multi-purpose farmers' cooperative. Farmers groups were to be formed (known as 'KSS') which were to hire/own and operate the DTW. In turn these groups were to be members of a higher tier cooperative union (the Thana Central Cooperative Association - TCCA). These organisations had originally been conceived as the 'Comilla model' of development and expanded as 'Integrated Rural Development Projects' in the 1970's and 1980's. They channelled loans for fertiliser and other inputs from commercial banks to farmers and were to act as input suppliers and marketing agencies. Although heavily supported by a specialised government agency, the Bangladesh Rural Development Board, the farmer-members of the KSS lacked the management skills and cohesion to form genuine cooperatives, and most collapsed when they defaulted on loans.

GKF's future role would seem to be in the development and promotion of new crops where farmers need a complete package of know-how, inputs and, most important, market outlets. The private sector does not have the resources and is not prepared to take the risk, while government organisations have been unable to efficiently undertake the trading role (and in any case such trading is no longer seen as a government activity in Bangladesh as in many countries). Irrigation may well not always be a central part of GKF's activities. Farmers could supply their own water using STWs. Alternatively, for crops with limited water needs, manually operated tubewells and pumps can help small farmers maximise the returns to their labour inputs.

Parallels can be drawn between this path that GKF is going down, and other organisations. Tobacco companies in Bangladesh and other countries provide a similar input/market service to contracted farmers. In Zambia Lintco, a parastatal, was set up to develop smallholder cotton production, and later has moved into a similar venture in soya beans. Unless market outlets are highly specialised and controlled by an MFO such as GKF, once a new crop has been popularised, private buyers and input suppliers may find it worthwhile to compete, and may benefit from having lower overhead costs. In such a situation GKF may need to move on to develop other new crops, such as horticulture for processing or export, or develop its own food processing facilities. Alternatively it may choose to place more emphasis on its social rather than commercial role by assisting the poor earn a living from agriculture, and move closer to its parent organisation.

There seems to be a growing interest in the development of organisations, such as GKF, that are able to provide farmers with a range of services on a commercial basis. Such 'agribusiness' is often viewed as a more appropriate route for delivery of services than traditional government agencies which not only place a burden on public resources, but may also be less responsive to the needs of farmers. However to survive agribusiness organisations like GKF need to be commercially viable in the face of competition from subsidised or free services from government agencies, and services offered by private traders with minimal overhead costs. To survive in this environment organisations may need to find and exploit market niches where their higher levels of management input can find sufficient rewards.

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