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THE ROLE OF USER ORGANISATIONS IN THE MANAGEMENT OF SMALLHOLDER IRRIGATION SCHEMES: THE CASE OF THE BINDURI WATER USERS ASSOCIATION OF THE BAWKU MUNICIPALITY

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ABSTRACT

Irrigation is a system that consists of a set of elements including water, land and established infrastructure such as canals, tanks and pumping machines as well as people and institutions. The effective functioning of any irrigation system depends largely on the level of interaction among these elements. This requires putting in place arrangements that facilitate and regulate the use of the water and the resolution of conflicts arising from its usage. This paper examines the way in which the Binduri Water Users Association (WUA) plan, direct and control the use of the dam for irrigation farming. The Water Users Association was formed to ensure active community involvement in the management of the community dam. The data for this exercise was obtained from a field survey carried out in the Binduri Irrigation Scheme in March, 2006. The study made use of a varied set of field data including spatial data and time-related data. Since the study required the collection of both qualitative and quantitative data, a combination of flexible and less flexible data collection techniques and/or tools including focus group discussions, semi-structured interviews, observation and structured questionnaires were used. The study revealed that the Binduri community has moved from being passive participants in the management of the community dam in the 1960s to active participants in the utilisation and management of the community dam resources since the mid 1990s, through the formation of the Water Users Association (WUA). The Binduri Water Users Association has made some gains. It has been able to promote community participation from a "zero" level to a level where the community now takes full responsibility for the maintenance of the dam infrastructure, catchment area protection, land allocation and water distribution among other things. The study also revealed a need to strengthen the financial base of the Association and build its capacity to enable it to improve upon its current performance.

KEY DESCRIPTORS: Water Users Association, Community Participation, Community Management, Irrigation, Dam Management.

INTRODUCTION

The Binduri Dam is located in the Bawku Municipality in the Upper East Region of Ghana. It was constructed in 1960 by the Government of Ghana. The area currently

occupied by the dam was part of a stream which was converted into the dam. The stream was the main water source to the people before it was converted into the dam. After its completion in 1960, the dam was used by farmers in the community for irrigation farming, watering of livestock, and for domestic use. Farmers at the time cultivated vegetables during the dry season. Tomato was the dominant vegetable grown at the time. The cultivation of vegetables however came to a halt in the mid 1980s following the blockage of the inlet/outlet valve of the scheme which prevented the passage of water to the irrigable land. Despite its importance in the socio-economic lives of the people, the cost of rehabilitating the dam was far beyond the reach of the local community. In 1995 however, the International Fund for Agricultural Development (IFAD) in collaboration with the Government of Ghana came to the aid of the community by rehabilitating the dam.

To ensure sustainable use of this resource, the dam has since its rehabilitation been put under the management of the community. This brought about the formation of the Binduri Water Users Association (WUA). The Binduri Water Users Association was first formed in 1993 to assist in mobilising the people to render labour for the rehabilitation of the dam. The Association has since gone through a series of restructuring including the broadening of membership and changes in leadership. The Water Users Association is responsible for the overall management of the dam, including the collection of water/ plot levies, protection of the dam catchment area and maintenance of the dam infrastructure.

This paper explores efforts made to fully engage the Binduri Community in managing the Irrigation Scheme. It examines the organizational structure of the Binduri Water Users Association and the activities taken by the Association to sustain and ensure effective functioning of the scheme. The paper also examines the challenges confronting the Association and offers some suggestions for improving the management of the scheme.

METHODOLOGY

The data for this exercise was obtained from a field survey carried out in the Binduri Irrigation Scheme in March, 2006. The study made use of a varied set of field data including spatial data and time-related data Since the study required the collection of both qualitative and quantitative data, a combination of flexible and less flexible data collection techniques and/or tools were used. Flexible data collection techniques and/ or tools such as focus group discussions, semi- structured interviews, and observation were used to generate qualitative data. Similarly, structured questionnaires were used to generate quantitative data from the field. The structured questionnaire contained so many closed ended questions and a few open-ended ones. The closed ended questions in the questionnaire offered a range of possible options or answers from which respondents were required to choose. The few open-ended questions were designed to provide an opportunity for the respondents to express their views freely on certain specific issues.

COMMUNITY INVOLVEMENT IN DAM MANAGEMENT

Background

Efforts to fully involve the Binduri community in the management of the irrigation scheme started in the early 1990s. The process started with negotiations among all key stakeholders in the scheme including the donors, community leaders and the Bawku Municipal Assembly. The Bawku Municipal Assembly facilitated the discussions and negotiation between the Ministry of Food and Agriculture, which was responsible for the rehabilitation of the scheme and the various community leaders (*Tindanas*) for the rehabilitation of most of the irrigation schemes in the Municipality which begun in 1990. These discussions culminated in the signing up of an agreement by the various stakeholders that set up the framework for community management of the irrigation scheme. This agreement was conveyed to the people by the then PNDC District Secretary in the following words: "...after some discussions and clarifications on the issues raised by the attendants, the following conditions were agreed upon:

a that the catchment and irrigable areas of any dam or dug-out developed by IFAD will be the property of the entire community but not for the individual land owner(s);
b. that individual users of the irrigated land shall be levied fourteen thousand cedis (¢14,000.00) per hectare per each dry season gardening;
c. that owners of livestock will pay the following rates for the use of dam or dug-out facilities (drinking from dam) by their animals;
(i). cattle – fifty cedis (¢50.00) per head per annum;
(ii). Sheep and goats – ten cedis (¢10.00) per head per annum;
d. that each of the twelve communities shall establish Dam Management Committees to be responsible for the maintenance and utilisation of the dams;
e. that the Dam Management Committee shall be responsible for the collection of all levies which shall be used for the realization of the objectives set in (d) above."

This perhaps marks the starting point in the formation of Water Users Associations in the Bawku Municipality and the ushering in of an era of active community participation in irrigation management. As noted by Shepherd (1998), decentralisaton within large irrigation schemes and the development of new small schemes entails the creation of new set of property rights for farmers (Shepherd, 1998). Similarly, Ellis (1993) noted that the management of these resources is sometimes a household matter as in the conservation of soils which are directly under the control of the farm family, and sometimes a community matter as in village rules governing the distribution of water from an irrigation canal. The existence of an appropriate institution like the Binduri Water Users Association that clearly defines access and rules in the use

of resources constitutes a key pillar in the management of community resources. It is clear that in the absence of such institutions the sustenance of community resources hangs in a balance since their use can not be monitored and regulated.

Structure of the Binduri Water Users Association (WUA)

The Binduri Water Users Association was formed in 1993 to facilitate the rehabilitation of the Community Dam and to ensure its management. It is the institution responsible for monitoring and regulating the use of the Community Dam. According to Woodhouse and his associates (2000) a complex web of institutions – 'customary', induced community organisations, local state, national state and private sector – are involved in determining who has access to the area's resources, how they are utilized and how use is co-ordinated and regulated (or not). The formation of the Binduri Water Users Association is part of efforts to involve the community in the active management of the Binduri Irrigation Scheme.

The Binduri Water Users Association was initially made up of four key sets of local stakeholders, namely the gardeners, the fisher folk, the livestock farmers and the *pito* (local drink) brewers. Members were registered on the following basis:

- One's involvement in farming or gardening at the irrigable site before the rehabilitation of the dam;
- One's involvement in farming or gardening at the dam catchment area before the rehabilitation of the dam;
- Contribution of labour during the dam rehabilitation;
- Living in the dam area with interest in gardening, fishing, pito brewing, and livestock watering facilities.

Initially, elected representatives from the above four sets of local stakeholders formed the Binduri Water Users Association Council. However, at its council meeting on 11th December, 1999, it was agreed that since the fisher folk, the *pito* brewers and the livestock farmers were the same gardeners, there was no need to have representatives from these sub-groups. Instead, the Council agreed that its members should be drawn from the eight beneficiary sections/communities in Binduri in the Bawku Municipality, namely Binduri Natinga, Zuuri, Asintapeliga, Bankango, Sakpari, Azabrabogo, Pouyamiri and Sarabogo.

The Council is currently composed of a chairperson, a vice chairperson, secretary, vice secretary, treasurer, women's leader and other eight community representatives. The tenure of a Council is four years, but an officer can serve a maximum of two terms. At the time of the data collection, the Binduri Water Users Association had had two complete sets of officers; the first set serving a longer period of about seven years. The second set of officers came into office in 2002. The Association has a constitution and a set of bye-laws to guide its operations. The existing practices so far

demonstrate the existence and/or growth of a democratic culture in the community, at least with respect to the management of the community dam.

The WUA Dam Management Practices

Decisions on resources distribution, utilization and preservation are the major preoccupations of the Binduri Water Users Association. In the view of Fisher and Ponniah (2004), water is a fundamental resource for life and is thus the common heritage of all. Therefore, it can not be privatised or converted into a tradable commodity. The right to water is an inalienable social, economic and human right. Many rights-based organisations continue to make a case for free access to water for all. However, water can not readily be made available to everybody for all purposes. This calls for prudent management of available supplies. According to Fekade (1994) resource management is the efficient and provident use of resources with the future in mind. The task of making irrigation schemes, especially smallholder irrigation schemes is increasingly becoming the responsibility of community or farmer organisations. Upton (1996) observed that there were persuasive arguments in support of greater farmer participation in irrigation scheme management. To Upton, the main managerial tasks relate to: the allocation and distribution of water to the users; the maintenance and upkeep of the physical structures, canals etc; conflict management and the resolution of disputes between users. The study revealed that the Binduri Water Users Association has also been performing similar managerial tasks as part of efforts to ensure full utilisation and effective maintenance of the dam. The various forms of contribution made by the community members towards the management of the dam are shown in Table I below.

Table I: Contribution of Community Members

Form of Contribution	Frequency	Percentage
Taking part in planting trees and grasses around the dam.	24	23.8
Paying dues for the maintenance of the dam.	47	46.5
Taking part in planting trees and paying dues.	29	28.7
Offering sacrifices to the gods.	1	1.0
Total	101	100.0

Source: *Field Study, March, 2006.*

The participation of the people looks encouraging. The people appeared to be aware of the effects of their contributions. Though all respondents knew that they were contributing in various forms to sustain the scheme, some were quick to state the reasons for their contributions. For instance, 46.5 % of the respondents in Table I above who contribute in the form of paying dues openly said they were doing so for the mainte-

nance of the dam. They were also conscious that the management of the dam has a spiritual dimension and continue to offer sacrifices for the sustenance of the dam.

THE COMMUNITY AND DAM REHABILITATION

The rehabilitation of the Binduri community dam started in 1992/93 and was completed in 1995. It formed part of the Upper East Land Conservation and Smallholder Rehabilitation Project (LACOSREP), an IFAD funded project. The community provided labour as their contribution to the project. Apart from their long quest for the rehabilitation of the scheme, the community was motivated to provide labour through the food-for-work programme provided by the World Food Programme (WFP). Participants were given a token of rice, oil and sardines at the end of every month in appreciation of their labour. Apart from the labour, the community also assisted the engineers in designing the infrastructure by providing local knowledge to the project designers. In addition, the community through the *Tindana* offered sacrifices to the gods of the land to seek their support for a successful rehabilitation.

Allocation of Land

The allocation of land earmarked for irrigation to prospective farmers was perhaps one of the first and most difficult management tasks of the Binduri Water Users Associations. The study revealed that people in the community were very much attached to their land, especially the irrigable area where they obtained economic returns through dry season irrigation farming. Dunkerley (1983) observed that institutions for defining the rights of ownership and use of land (tenure) have been a concern of every organized human society and have frequently been interwoven with fundamental social structure and religious belief. He noted that in all socio-economic classes in all countries, land tenure touches deep emotions. With the existing arrangements in the Binduri Community, the irrigable area is put under communal use and management during the dry season. Under the same arrangements, the lands in the irrigable area are also returned to the original individual land owners during the rainy season.

With these arrangements in place, the Binduri Water Users Association has over the years developed its own guidelines for the allocation of plots to prospective farmers. The guidelines among other things defined the boundaries of the dam in terms of its use for irrigation purposes. The guidelines also recognized the land owners and those who turned out for communal labour during the rehabilitation of the dam. The development of criteria for the allocation of land is critical in determining who gets land and who does not get land. After the development of the criteria for land allocation, an announcement was made in the Binduri market urging all potential and interested farmers to register with the WUA officers. This was preceded by the demarcation of plots, which was facilitated by staff from the Bawku Municipal Agricultural Development Unit. A plot was measured 25m by 25m, to give a total plot size of 625 square metres.

Despite these elegant arrangements, some farmers operating within the scheme have been able to obtain their plots outside the existing framework. The response by such group of farmers to a question of whether they own a plot is in the negative.

Table II: Plot Ownership

Do you own a plot?	Frequency	Percentage
Yes	90	85.7
No	15	14.3
Total	105	100.0

Source: *Field Study, March, 2006.*

Out of the 105 farmers interviewed, 14.3% of them as shown in Table II above said they did not own a plot in the irrigable area. According to this group of people, they only had access to their plots through friends, relations and subletting. To this category of farmers, their access and continuous use of the irrigable area was not guaranteed as their benefactors could withdraw their generosity and any time. The existence of such 'illegal arrangements' for individual land transfers can serve as a potent source of conflict in the use of the irrigable land. It is also capable of eroding or undermining the power of the Water Users Association, which is supposed to be the only mandated organ responsible for the allocation of land to prospective farmers.

Water Distribution and Regulation

Water distribution and regulation is one of the key management practices of the Binduri Water Users Association. This involves the daily opening and closing of the outlet valves as well as the turn out controls. In the view of Upton (1996), "the allocation of available supplies between individuals and communities is an important issue affecting both efficiency of production and equity of social justice." However, the question of equity in water distribution appears to be a global problem and not only limited to the Binduri scheme. As noted by Miller (1988), if we could distribute water equally, there would be enough to provide every person on earth with 292 trillion litres or 77 trillion gallons. The issue of equity or fair water distribution in the Binduri Irrigation Scheme appears to be an unattainable goal, at least for now. The manner in which the water is regulated determines who gets what degree of access within the irrigable area.

Table III: Access to the Dam Water

Have you ever had a problem using the water?	Frequency	Percentage
Yes	35	33.3
No	70	66.7
Total	105	100.0

Source: *Field Study, March, 2006.*

The findings presented in Table III above indicate that about 33.3% of the farmers had ever had a problem relating to the use of the water. This problem has had to do with fairness in to farmers within the scheme. In an attempt to ensure some amount of fairness or equity in the distribution of water among farmers within the defined irrigable area, the WUA officers decided to run a shift system by opening the water at two different times in a day. The first session of six hours (6am to 12noon) is for farmers nearer the water point (laterals 1-9); whiles the second session, meant for farmers far from the water point (laterals 10-14), also runs for four hours (2pm to 6pm). The differences in the service hours between the two blocks is due to their sizes, that is, the first schedule serves nine laterals, whiles the second schedule serves only five laterals. The use of a shift system is a management response to the water problems faced by farmers located far from the water point.

Catchment Area Protection

The ability of the scheme to continue to generate benefits to the people of Binduri will largely depend on how the dam and its infrastructure and catchment area are maintained. Pickford (1987) asserted, "In our desire to do 'good' for the people of the developing world, we often forget that the purpose of building water supplies and sanitation system is not the construction and/or installation of a set of physical devices, but to have these things installed in such a manner that the user can and will use, operate and maintain them over a long period of time." It is actually not enough to simply construct an irrigation scheme, but it is equally important to ensure that the users are able to maintain such a facility. The sustenance and long term viability of the Binduri Irrigation Scheme can only be guaranteed by regular maintenance of the dam facility and effective catchment area protection. The groups interviewed during the focus group discussions observed that the stock of water in the dam decreases in quantity as a result of siltation. They blamed farming activities at the dam's catchment area as being responsible for this incidence. In response to this negative incidence, the community/WUA has carried out a number of activities aimed at protecting the dam's catchment area:

Tree Planting and Grassing

In an attempt to halt the above incidence, the WUA undertook tree planting to protect the dam's catchment area. A nursery was established by the dam for this purpose. The WUA was provided with barbed wire to fence the nursery and newly transplanted trees. The planting of vertvera grasses was also vigorously pursued by the WUA as part of efforts to rescue the dam from siltation. The culture of planting vertvera grasses has been with the people of Binduri since the early 1960s. In line with their farming practices, the people often plant these grasses during the rainy season to spare them the ordeal of watering the grasses daily. It has however been observed that the spirit of tree planting and grassing has diminished quickly. No efforts have been made in recent years to plant more trees and grasses though a large portion of the dam's catchment area has not yet been covered.

Bunding

Contour bunds were also created at the sloppy areas of the dam as part of measures to protect the dam from siltation. The bunds were raised by the people with technical assistance from the Bawku Municipal Agricultural Development Unit. The bunds were expected to measure about a metre high and up to 3 m wide, spaced at distances of 15 to 30 m. The erection of the bunds was facilitated by the availability of a community tractor. Grasses were also planted on each side of the bunds to stabilize them and to protect them from being washed away by rains. It has also been observed that most of the bunds have been eroded and no attempts have been made in recent years either to raise the existing ones or to raise new bunds.

Maintenance of Dam and Irrigation Facilities

The Binduri Water Users Association also carries out routine maintenance on the dam infrastructure as well as the distribution system. These include embankment maintenance, canal cleaning and maintenance among other things.

Dam Embankment Maintenance

Maintenance works are carried out by the community on the dam wall during the rainy season. It takes the form of filling of pot holes on the dam wall. The Association is also making sure that footpaths are not created on the dam wall. The Association attaches more importance to this exercise because the dam wall holds the water in balance, and the height of the dam makes it capable of storing more or less water.

Renovation and Cleaning of Canals

The cleaning of canals is one of the routine management activities of the community. The canals and other water distribution channels are regularly cleaned to allow for a free flow of water to the farms. Prior to the commencement of gardening, the WUA officers make an announcement in the village market requesting all farmers to turn out for the cleaning of the canals so as to give way to the opening of water for actual garden work to begin. Apart from cleaning the canals, the community also carries out repair works on the canals. The WUA uses its internally generated funds to purchase cement to carry out repair works on the canals. This appears to be a yearly activity of the WUA as the rains continue to cause some amount of damage to the canals. The WUA makes use of local artisans in the community whiles the rest of the farmers provide labour for the repairs. Major structural maintenance of the dam including the outlet infrastructure is however expected to be undertaken by the government through the Irrigation Development Authority.

Construction of a Fence Wall

The erection of a fence is considered necessary by the Association as it helps ward off animals from destroying farm produce especially onions. In the absence of a

barbed wire to fence the irrigable area, the Association has decided to encourage its members to build a mud wall around the irrigable area as a fence. To facilitate and give meaning to this exercise, the Association has tasked farmers at each lateral to see to the erection of a wall in that lane to an appreciable height that will make it difficult for an animal to jump over. Water is always made available in the canals to facilitate the construction of the wall, which is located a few metres from the main canal.

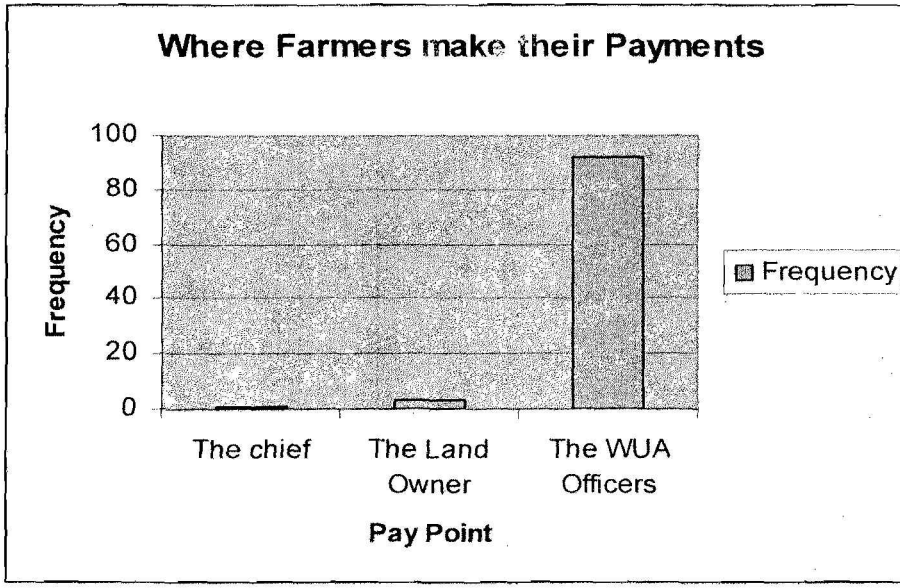
Financing Operations

Another key management task of the Binduri Water Users Association is the mobilization of funds to finance the operations of the scheme. Gopalakrishnan (1980) noted that a vital problem in the transfer of water between uses and users is the formulation of a system or method of pricing that adequately reflects the costs of supplying the water and the value of alternative uses that are forgone. Financial resources are needed by the Binduri Water Users Association to carry out a number of activities especially the minor routine maintenance works on the dam infrastructure including the canals. The main source of funds to the Binduri Water Users Association is the water or plot levies. This is raised by levying every farmer who is given a plot a fixed amount of money to be paid annually. The rate is often determined at a general meeting of the Association. The rate was ¢5000.00 (i.e., GH¢ 0.50Gp) per farmer until 2001 when it was increased to ¢10,000.00 (i.e., GH¢1.00). The levies are paid to the WUA officers who deposit it in the Association's Account with the Bawku Branch of the Ghana Commercial Bank Limited. Apart from levying the regular farmers, the Association also generates some revenue through the release of water to the negotiated access holders who are located outside the irrigable area.

Studies on the financing of operations in small-scale farmer-managed irrigation schemes in Kenya by Woodhouse et al (2000) show that in order to meet the costs of maintaining and developing each irrigation system (such as cement to line the furrows), furrow-group leaders often collect monthly contributions from members. However, effective financial mobilization still remains a challenge to the Binduri Water Users Association. Some farmers within the Binduri Irrigation Scheme still do not pay their levies. This problem seems not to be limited to Binduri alone. As noted by Rees (1990), the view is often that access should be 'freely' available to all and that it would be inequitable to allow entrance only to those willing and able to pay. There are currently no measures in place to compel people in the Binduri scheme to pay their levies. Though the WUA bye-laws provide that defaulting beneficiaries should have their plots re-allocated to other people, such provisions have never been enforced. The decision to pay is the discretion of the beneficiaries, at least for now.

The situation where people claim ownership of land and receive payments for the use of such lands is another challenge to the revenue mobilization efforts of the Binduri Water Users Association. Figure I below shows that some farmers pay their levies to certain people other than the mandated WUA officers.

Figure 1: Pay-point of Farmers



Source: Author's Field Study, March, 2006

Accounting on the part of the WUA leadership also leaves much to be desired. Records available during the data collection period showed that the first ever financial statement of the Association was rendered in 2002, that was, after seven years of operation. This maiden financial statement did not even cover the entire period of operation, as it limited itself to the period 1996 to 2000 instead of 2002. Besides, the total amount of ¢2,817,350.00 (i.e., GH¢2,817.35) being revenue realized from plot fees for the period 1996 – 2000 constitutes an under declaration. Given that the scheme has as many as 458 beneficiaries, with each paying ¢5,000.00 (i.e., GH¢ 0.50Gp) per year, the total revenue for the period 1996 – 2000 would have been ¢ 11,450,000.00 (i.e., GHC1,145.00); and that for the period 1996 – 2002 would have amounted to ¢16,030,000.00 (i.e., GH¢ 1,603.00). Despite the non-payment on the part of some beneficiaries, the level of default could not have solely accounted for this low amount. Proper accounting on the part of the WUA officers is essential as it has the potential of encouraging or discouraging people from making regular payments to the WUA leadership.

Resolution of Conflicts

Conflict is an inherent daily phenomenon among the gardeners. It is common to hear the gardeners either shouting or raining insults at one another on daily basis. The

common sources of conflict in the use of the dam include the seizure of plots by land owners and the unequal access to water by the farmers. Conflicts erupt because some people lose access to their plots. The data presented in Table IV below show that 20% of the 105 farmers ever had a problem relating to the use of land in the irrigable area. It has become an annual incidence where some farmers often have their plots ceased by the land owners. This has always been fiercely resisted by the affected farmers and has always been at the heart of conflict in the area.

Table IV: Usage of the Irrigable Land

Have you ever had a problem using this parcel of land?	Frequency	Percentage
Yes	21	20.0
No	84	80.0
Total	105	100.0

Source: Author's Field Study, March, 2006.

This is confirmed by the findings of Huggins et al (2005) that limited access to land exacerbated by its inequitable distribution, and by tenure insecurity have been described as key aspects of the 'structural conflict' – patterns of economic domination and exclusion that create deprivation and social tension, and prepare the way for violence. They noted that many people still consider land disputes to be at the heart of most conflicts between households.

The use of water by farmers near the water point and the struggle for fair access by farmers away from the water point has been another leading cause of conflict in the irrigable area. While farmers near the water point will like to relax and use the water satisfactorily, the distant farmers often get angry with them and accuse them of 'wasting' the water and denying them access. It is a common sight to notice some of the distant farmers tracing up the water to a point that they feel the water is being 'wasted' and begin to confront such perceived inefficient water user(s).

The institutions or legal framework for conflict resolution available to the people include the WUA officers, the Association's Constitution and Bye-laws, the *Tindana*, the Assemblyman, and the Bawku Municipal Agricultural Development Unit. Apart from these mechanisms, the individual farmers often help their quarrelling colleagues to resolve their conflicts. In a question to find out what action the farmers often take when they are involved in conflict over the use of the resource, it was realized that 81.3% of the affected farmers reported it to the WUA officers for resolution while 18.7% of the affected farmers solved such differences among themselves. The use of laid down procedures by the farmers to resolve their conflicts can be described as a positive development. It is a demonstration by the farmers that they have some degree of confidence on the institutions that govern the use of the scheme.

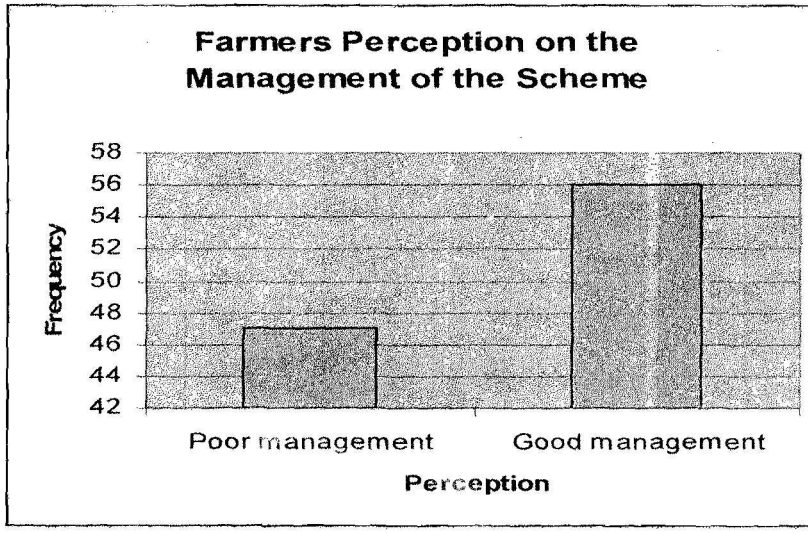
The WUA officers rule on the cases brought before them using the Association's Constitution and Bye-laws as guides. At times, certain cases are referred to the Bawku Municipal Agricultural Development Unit for settlement. All the above institutions recognize negotiation as an effective instrument in conflict resolution and have been making good use of it. For instance, through the use of the instrument of negotiation, it has been possible for farmers outside the access zone to have negotiated access to water for their onion production devoid of conflict.

CHALLENGES

The management of the dam is faced with a myriad of challenges and threats, including the challenge posed by the high demand for water for dry season onion production, interference of land owners in the allocation of plots, poor communal spirit on the part of the community, poor revenue mobilization and poor leadership among other things.

Good leadership is a pre-requisite in the management of community resources. The Binduri WUA leadership is expected to provide guidance and direction through the effective mobilization of the community's human and material resources for the common good of all. However, as shown in Figure II below, farmers' perception of the WUA leadership at the moment is far from being ideal.

Figure II: Farmers Perception on Management of the Scheme



Source: Author's Field Study, March, 2006.

A good number of the farmers (about 47%) as shown in Figure II above believe that the management of the scheme is poor; citing lack of transparency on the part of the leadership, unfair plots distribution by the leadership and the inability of the leadership to see to the erection of a fence wall as indicators of poor management. This has in one way or the other resulted in the loss of confidence on the WUA leadership.

The existing financial situation of the Binduri Water Users Association was major source of concern to members. Given that the Association has to use its internally generated funds to carry out minor repairs on the dam infrastructure, it would have been expected that the Association would position itself to generate something substantial than it currently does. Similarly, complacency on the part of the community with regards to the catchment area protection was also a source of concern. Apart from the unwillingness of some farmer to stop farming activities at the dam's catchment area, the tree planting, bunding and grassing spirit of the community was gradually dying out.

CONCLUSION

The management of the dam revolves around the community, which is represented by the Water Users Association (WUA). Initial attempts to ensure active community participation in the management of the Binduri dam took the form of enticement or inducement. The community was given an incentive package in exchange of the labour they rendered during the dam rehabilitation. Though the people currently derive more real benefits from the scheme now than ever before, the period of "incentive-giving" actually witnessed more active community participation than now. This attitude confirms the assertion by Howell (1985) that communities are much more able to assist with the initial provision of a service than they are with maintaining it. According to him, villages can mobilize to build a road, a market or a water system but they have great difficulty providing for repair or recurrent cost.

The sustenance and long term viability of the dam now depends on the existence of a strong Water User Association capable of regulating the use of the facility and mobilising the community for action. The Binduri Water Users Association has responded to this challenge by overseeing the day-to-day operation of the scheme through the initiation of various management tasks. Some of the management tasks undertaken so far by the Binduri WUA include the provision of labour during the dam's rehabilitation, the allocation of plots to farmers, water distribution and regulation, catchment area protection involving the planting of trees and grasses and the raising of contour bunds; maintenance of the dam infrastructure involving the filling of potholes on the dam wall, as well as canal cleaning and repairs; the resolution of conflicts and the mobilization of funds. The Binduri Water Users Association is confronted with a series of challenges ranging from poor finances to weak enforcement of rules. The WUA for instance finds it difficult to ensure compliance to the shift system meant to provide fair access to the distant farmers. Though there are challenges, the commu-

nity through the Water Users Association appears to be making headway. The mere existence of organized body of users is at least an achievement.

RECOMMENDATIONS

The allocation of plots by the WUA officers should be an annual event where farmers will be required to register annually and make full payment of their plot/ water levies before a plot is allocated to each farmer. This will ensure prompt and regular payment of plots/water levies and eliminate the current high rate of default in payment by the farmers. It will also enforce the authority of the WUA officers as the only group mandated to allocate plots within the scheme to prospective farmers and halt the interference of individual land owners in the appropriation of land within the scheme.

The Municipal Agricultural Development Unit should organise more capacity building programmes for the Water Users Association members on group dynamics, cohesiveness, financial mobilizations, water management and management of the facility in general. This would minimize conflicts and also improve upon the management practices of the Water User Association.

District and/or regional governing bodies in the form of WUA Councils should be set up to facilitate continuous interactions and networking by the various Water Users Associations. This will promote the sharing of ideas and community experience for the development of strong Water Users Associations.

The Bawku East Municipal Assembly should provide financial assistance to the WUA to undertake repair works on damaged dam/irrigation facilities. This will complement what the WUA is able to do with its internally generated funds.

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