Farmers' Attitudes towards Participatory Resource Management for Sustainable Farming Development
- a study from Bangladesh –

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1. Introduction

As social, natural and human capital have been lost in rural areas, with consequential increases in deprivation, stress and unhappiness, so they now need to be re-created, with new approaches to policy and practice (Pretty and Hine [16], Probst [17]). Nevertheless, any development must be sustainable and for this to occur, new partnerships and connections between a wide variety of different stakeholders are needed. It is also important that all processes and technologies must be locally grounded if they are to be effective. Those that are simply imposed on people often do not work in the long term, even though they may be both productive and sustainable.

Differences in definitions and methods aside, there is some common ground among researchers concerning what constitutes authentic participation in development projects by local people. "Participation" is generally taken to refer to involvement by local populations in the creation, content and conduct of a program, or policy, designed to change their lives. Built on a belief that citizens can be trusted to shape their own future, participatory development uses local knowledge to aid decision making and to steer and define the nature of a specific intervention (Pretty [14], Pretty [15]).

In an attempt to ensure the participation of local people in sustainable rural development, the Bangladesh Rural Development Board (BRDB) launched a pilot scheme; known as the Participatory Rural Development Project (PRDP), in 2000. It was launched in four Unions (local administrative level) of the Kalihati sub-district of the Tangail region, with technical assistance from the JICA (Japan International Cooperation Agency). The PRDP was based on the results of previous research, undertaken from 1985 to 1995, by Kyoto University-BRDB (Bangladesh Rural Development Board) and the Bangladesh Agricultural University (supported by the JICA) (Anonymous [3], Anonymous(a) [1]).

Thus, an environment of participation in local development, by local people, has been established in the study area for some time. The population is now well acquainted with the participatory mode of development and has witnessed the successes that have already been achieved through this system. This has caused improvements in natural resource management; increased production of natural resource goods and services; greater added value for local communities; reduced dependence on external resources; and technological improvements based on local resources. The resources that have been managed mostly in participatory ways by the people in the study area are common ponds and their water, village roads and road-side plantations, culverts, local markets, livestock, and community organizations like the village library, post office, clubs and others.

Although the people have witnessed the overall benefits of the participatory way of resource management or in another name rural development, they might have some blocks to join this participatory approach to development. It is also thought that people's attitudes towards this participatory development process need to be assessed to reveal their real feeling about it. Even though people may think the participatory approach good for their own benefit, their impediments to participating in the process should be explored to suggest ways for better and effective participation. This may also highlight the pitfalls of the participatory rural development process to revise the program. With this view, the present study emphasized the attitude of farmers towards participatory resource management and their perceived blocks to join the participatory development practice.

2. Objectives

The specific objectives of the study were as follows,

a) To ascertain farmers' attitudes towards participatory resource management for sustainable agricultural development.
b) To explore the relationship between farmers attitudes towards participatory resource management and their personal traits.
c) To identify the causes that stop farmers from taking part in participatory community development.

3. Methodology

3.1) Data collection

The survey was conducted in the same area as the PRDP. As previously mentioned, this was the village of Dakkhin Chamuria in the Tangail district of Bangladesh. There were a total of 200 families in the village studied, including all the members of the Village Committee (VC) of PRDP. A total of 80 family heads were randomly selected and interviewed to ascertain their attitudes towards the scheme. A structured schedule was used for all interviews (Dick [6], Kitginzer [12]).

Scored causal diagrams (SCDs) were constructed with the farmers to help identify barriers to the use of participatory community development in sustainable agricultural development. SCD is a technique that helps the farmer and researcher to identify the linkages and relationships between different problems together (Galpin *et al.* [8]). The addition of a scoring method helps to clarify the nature of problems faced on the ground and to identify their fundamental cause(s). The scoring process also helps to analyze and prioritize the relative importance of problems and their origins.

3.2) Variables and their measurement

Eight personal traits of the farmers were considered as independent variables in the study. These were, age, education, family size, annual income, farm size, organizational participation, training and attitude towards agro-environmental issues. Farmers' attitudes towards participatory resource management for achieving sustainability in agricultural development were considered as the only

dependent variable. For the purposes of the study 'participation' was taken to mean the "developing processes of collective learning that change the way that people think and act" and 'attitude' was considered as "the farmers' summative expression of knowledge, belief and action toward participatory resource management in the locality" (Morris [13], Banyard and Hayes [5]).

Fifteen statements relevant to participatory resource management for sustainable agriculture were formulated to measure the attitudes of the farmers. A 3-point Likert type scale (Edwards [7], Garret and Woodworth [9]) was used to rate their expression as 'agree', 'undecided' and 'disagree' with a corresponding score of '2', '1' and '0'. Thus, the attitude score for a respondent could vary from 30 to 0 depending on the highest and lowest possible scores respectively.

3.3) Data management

Descriptive statistics were used to describe the personal traits of the farmers. Pearson's Correlation Coefficients (r) were computed to explore the relationship between the farmers' attitude towards the scheme and the selected personal traits. The null hypothesis considered for this study was that "There is no relationship between the eight selected personal traits of the farmers and their attitude towards participatory resource management" and a five percent level of probability was used to accept or reject the null hypothesis. SCDs were carefully constructed and scored to establish the farmer's problems in participating in collective community development efforts.

4. Results and Discussion

4.1) Personal traits of the farmers

Personal traits of the farmers were determined in order to explore the possible relationships with their attitude towards participatory resource management for attaining sustainable agriculture. More than half (52%) of the farmers in the study area were over 50 years of age (Table 1). Indeed the mean age of the farmers was 55. Thus it may be assumed that the heads of the farming families were, for the most part, relatively old. More than two-thirds (70%) had been in education from 1 to 10 years. However, 14% was without any formal education at all, even though this is thought to be a basic need for development. Nonetheless, the study area has a high literacy rate of 86%, which compares well with the national average of 55% (Anonymous [2]). The average family had 7 members which were just higher than the national average of 5.5 (BBS [4]). Due to the efforts of the Link Model of the PRDP, married couples in the study area have adopted family planning methods in recent years. Yet their family size has not been reduced since, for the most part, their parents already have large families. Indeed most of the farmers (69%) had families consisting of 5 to 16 members.

Three-quarters of the farmers had a low to medium level of annual income and poverty was thought to be a considerable barrier to development in the region. However, while the average annual income in the study area was only US$ 903.00 per family, about four-fifths (79%) of the farmers had small land holdings (<1ha).

Table 1. Salient features of the personal traits of the farmers

The traits (*measuring unit*)	Score range		Mean	SD	Categories of the farmers (range of scores)	Farmers	
	Probable	Observed				No.	%
Age (*year*)	Unknown	27-80	55	12.5	Young (□29) Middle aged (30-49) Old (50)	1 27 52	1.2 33.8 65.0
Education (*year of schooling*)	Unknown	0-14	6.7	4.1	No education (0) Primary (1-5) Secondary (6-10) Higher secondary (□11)	12 26 30 12	14.3 33.2 37.5 15.0
Family size (*no. of member*)	Unknown	2-16	6.5	2.5	Small (□4) Medium (5-6) Large (□7)	18 29 33	22.5 36.3 21.2
Annual income (*'000' Taka**)	Unknown	17-166	55.7	28.6	Low (□35) Medium (>35-75) High (>75)	25 37 18	31.3 46.2 22.5
Farm size (*hectare*)	Unknown	0.06-6.3	0.8	0.9	Small(□1) Medium (>1-3.03) Large(>3.03)	63 13 04	78.8 16.2 5.0
Organizational participation (*rated score*)	Unknown	0-21	6	4.4	No (0) Less (□15) Medium (16-25) High (□26)	15 63 01 0	17.9 80.9 1.2 0
Training (*rated score*)	Unknown	0-60	10.2	13.3	No (0) Less(□5) Medium (6-10) Much (□9)	18 25 14 23	21.4 27.4 17.5 33.7
Attitude toward agro-environment (*rated score*)	0-20	6-18	13.3	3.2	Unfavorable (□7) Moderate (8-14) High (□15)	04 43 33	5.0 53.8 41.2

*[*Note: US$1=Taka 60.00]*

The majority (80%) also had low participation rates in local organizations. Additionally, 15% had no affiliation with any organization at all. This may have been due to a lack of community organization in the district. Almost a fifth of the farmers (18%) did not receive any kind of training at all in their lifetime and only 25% received training on rural development issues. This indicates that farmers did not receive sufficient training in resource management or in overall rural development in the locality. In spite of all this, most of the farmers in the study area possessed favorable to highly favorable attitudes towards various issues of agro-environmental developments. This, at least, is a good sign that the farmers had a good idea of the benefits of modern agriculture as well as its impact on the environment.

4.2) Farmers' attitude towards participatory resource management

What has become obvious in a range of sectors in recent years is that interactive participation can lead to improvements in both performance and outcomes (Pretty and Hine [16]). Thus, farmers' attitudes towards participation in community development activities, including resource management, were chosen as the focal issue in this research. As previously mentioned, the attitude score of a farmer of the study could range from 0 to 30. However, the observed score of attitude ranged from 6 to 28 with a mean of 16.

Table 2. Distribution of farmers according to their attitude level

Category of farmers (*unit of measurement = rated score*)	Farmers		Range of score	Mean	Standard deviation
	No.	%			
Less favorable (□10)	13	16.3	6-28	15.74	5.56
Moderately favorable (11-20)	45	56.2			
Highly favorable (□21)	22	27.5			

Data in Table 2 clearly indicate that more than four-fifths (84%) of the farmers possessed a moderately to highly favorable attitude towards participatory issues of resource management.

The PRDP has been working in the area for the last two decades to organize people to assess their own problems and to plan and implement programs themselves (with both technical and financial assistance from external sources). Due to the PRDP, local people understood that participatory approaches to development have enhanced their social, human and natural capital. These participatory actions also increased cohesiveness, both amongst and between groups, encouraged a greater motivation to act, increased personal empowerment (through changes in skills, knowledge and actions), improved natural resource management and increased the capacity of the community to negotiate with external bodies and development agencies. Thus, the respondents in the study area showed a favorable attitude towards the participatory approaches of developing the region.

4.3) Correlation between farmers' personal traits and their attitude

Correlation coefficients (r) show that only the farmers' education is significantly positively related to their attitude towards participatory resource management (Table 3). Thus, the null hypotheses are supported except for education. That means that the higher the educational attainment of the farmers, the more favorable their attitude towards participatory resource management. Similar studies in Bangladesh and other countries have also shown that farmers' education is positively correlated to a favorable attitude towards the different development issues of agriculture, environment and resource management (Hossain [9], Singh and Kunjroo [19], Kaur and Singh [11], Rahman [18]).

Table 3. Relationship between farmers' personal traits and their attitude

Independent variables (i.e. Personal traits of the farmers)	Correlation coefficient (r)
1. Age	0.04
2. Education	0.28*
3. Family size	0.18
4. Annual income	0.14
5. Farm size	0.22
6. Organizational participation	-0.05
7. Training attended	0.03
8. Attitude toward agro-environment	0.19

** Significant at 0.05 probability*

Education helps individuals gain knowledge and skills in a variety of different subjects. This ultimately increases their decision-making abilities and enables them to use information from a wide range of sources to solve their daily working problems. Educated farmers receive the additional benefit of access to printed materials, which the non-educated do not (Jahan [10]).

With all these benefits, it is perhaps unsurprising that the educated farmers showed a more positive attitude towards participatory resource management than non-educated farmers did.

Farmers' age, family size, annual income, farm size, organizational participation, training and

attitude towards agro-environmental issues were found not to be significantly related to their attitude towards participatory resource management. However, the reasons for this are unclear and further investigation is needed to determine the reasons behind it.

4.4) Major problems of collective resource management

The work on scored causal diagrams started by identifying an end problem, which was agreed by participants as "lack of participation in participatory community development" (Figure 1). The group then identified the main root causes of the lack of participation to be "Less motivation to join participatory works". Two main causes were also identified; these were "poverty" and "lack of community based organization". There were also intermediary causes such as "lack of money to share participatory works" and "lack of group feelings". From these linkages it was determined that lack of community organizations and the poverty of those that do exist, hinder the participation of such groups in participatory community development activities.

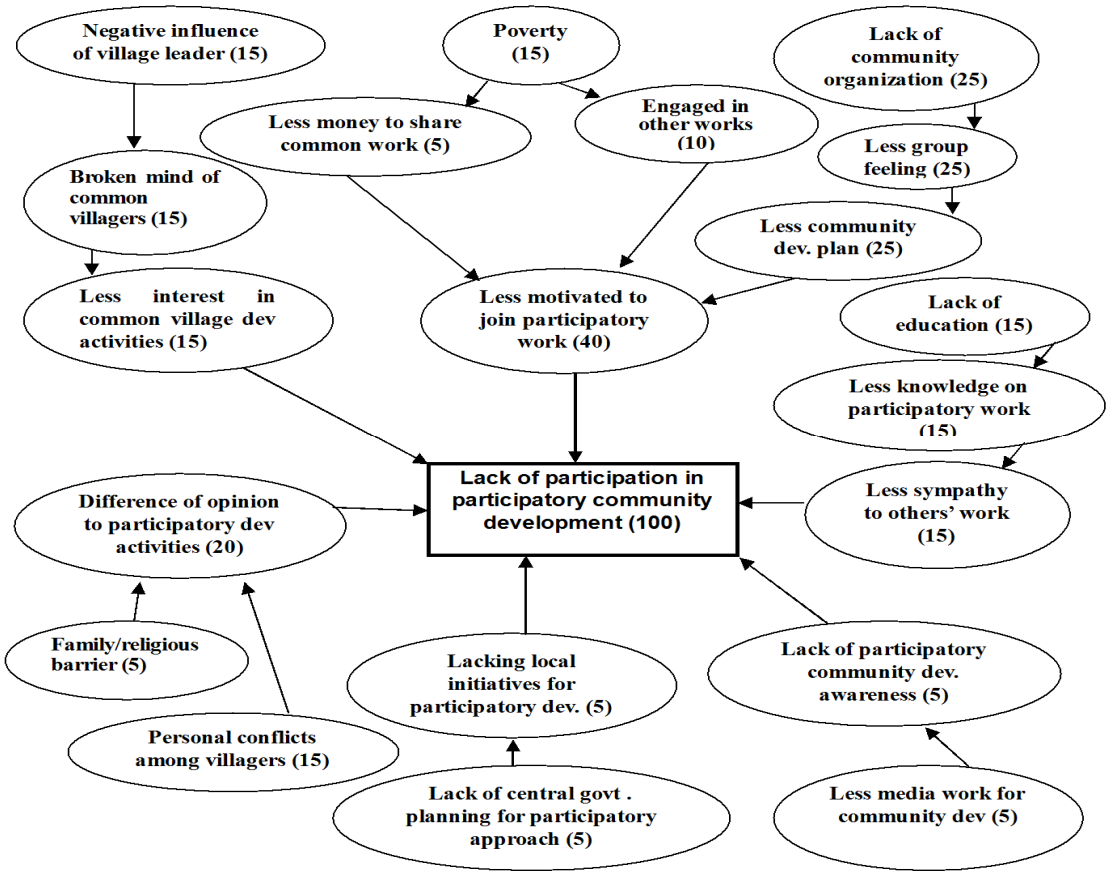

Figure 1. SCDs to identify the blocks to participatory actions in the community.

There was another proximal cause for the lack of participation in the project, which was identified as low understanding of the work of others. The root cause of this problem was determined to be a

lack of education. This often hinders people's ability to recognize the contribution of others in the community. The negative influence of a village leader may also cause people to be disinterested in participatory works since the traditional village leadership often controls the joint-ventures, and sometimes even personal initiatives of the villagers. Thus, in most cases a negative impact from the leadership is seen. Other issues identified in the SCDs were "personal conflicts among villagers", "lack of government central planning" and "lack of media effort to promote the scheme". All of these issues were found to divert people away from participatory activities in their local area.

After discussing the problem issues, possible solutions were debated through open dialogue in the community. The main focus of the debate was placed on methods to get people together at a place/forum to help gain positive attitudes towards participatory issues. It was suggested that villagers could try collective actions such as the maintenance of village roads and roadside plantations, the formation of a 'hat' (local weekly market), the creation of a youth club, the arrangement of a common date for livestock vaccination for all villagers and the formation of night schools for adults. It was also suggested that people should cooperate with the Village Committee members of the PRDP to distribute local plans to government development agencies and NGOs.

5. Conclusions

The majority of the farmers in the study expressed a favorable attitude towards participatory resource management for sustainable agricultural development in the community. This is not that surprising, since the PRDP has been working in the area for the last two decades to motivate people to plan, and implement community development activities themselves, with little assistance from outside agencies. This program has also been trying to socially empower local people and to establish social capital for sustained community improvements. Similar approaches from the central government are also needed to formalize comprehensive rural development plans for attaining sustainable agricultural development.

The educational achievements of farmers were found to be significantly related to their attitude towards the use of participatory resource management in sustainable agricultural development. Therefore increased education of farmers, and others in the local population would be likely to increase the local take up of participatory methods of local resource management. Educated farmers should also be among those first targeted to start any development process in rural communities.

Farmers in the study area possessed a favorable attitude towards participatory resource management for sustainable agricultural development. Yet they faced various problems in their efforts to take part in the participatory management of local resources. A lack of motivation was found to be a major block to participation in collective community development process. Other problems were differences of opinion, due to personal and social conflicts and a lack of government initiatives and community-level organizations to motivate people to share participatory processes within the community. These problems should be addressed, since after the formation of local organizations at the community level, people can start to collectively plan and execute small works in community. This may ultimately help bring together different groups within the population with

the common goal of developing local areas for the benefit of all.

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