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Full Length Research Paper

Performance of smallholder dairy farmers' groups in the east and west central regions of Bhutan: Members' perspective

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Collective action through farmers' groups is increasingly being recognized as a positive force for rural development in Bhutan. The present study describes an assessment of the performance of smallholder dairy farmers' groups (N=7) in the west and east central regions of Bhutan. The data were collected from 176 respondents through a structured questionnaire survey supplemented by open participatory group discussions. Six functional tasks associated with the dairy groups' performance were identified and evaluated; i) production support ii) marketing support iii) processing efficiency iv) members' representation v) records and accounting and vi) group management, using a Likert-type rating scale. The limited group capacity, poor sense of ownership and inactive participation by the members, heavy dependence on government support, dispersed location and complacent members' attitude were found affecting performance of dairy groups.

Key words: Collective action, functional tasks, performance and members' perceptions.

INTRODUCTION

The smallholder dairy farmers' groups (SDFGs) in Bhutan are formed with the multiple objectives: efficient delivery of dairy development services, increase the income of smallholder dairy farmers by promoting market oriented dairy production and attainment of dairy development goals. The emphasis to orient smallholder dairy producers to a more market oriented production has placed a renewed policy attention on development of institutions of collective action such as dairy farmers' groups, cooperatives and associations as a mechanism for enhancing smallholders' market access and their income.

Unlike the countries with long history of farmers' groups, the concept of smallholder dairy groups is relatively new in Bhutan popularly introduced just over ten years back. The number of dairy groups has increased remarkably but little is known or documented about their performances and effectiveness, benefits to members and what structural factors or characteristics contribute to effective performance of the groups with very few studies being done.

Lack of good practices and ethics of managing group enterprises by the group leaders, often carrying out their functions with little or no respect for accountability and transparency principles, misuse of authority and group finances by the leaders inducing mistrust were alleged to be some of the main reasons for ineffectiveness/failure of some groups in Bhutan (Norbu, 2008).

This exploratory study therefore, attempts to develop an understanding of the factors and processes that affect group performance for finding better ways to support sustainable development of groups. The specific objectives were to:

1) Assess the performance of dairy groups as perceived by the members' based on their satisfaction regarding the execution of functional tasks by the dairy groups.
2) Identify the factors impacting the performance of the smallholder dairy farmers' groups It is hypothesized that the older dairy groups are expected to perform better

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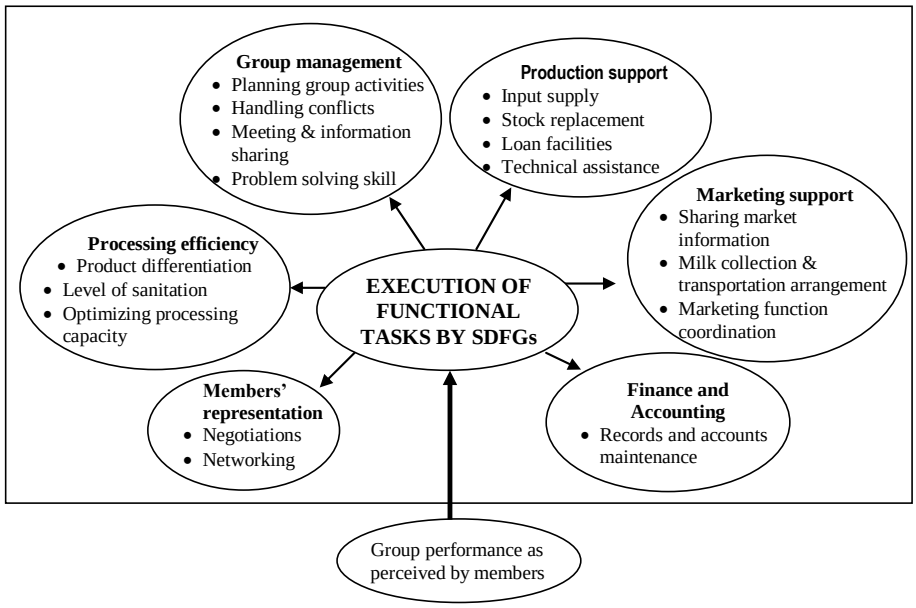

Figure 1. Smallholder dairy farmers' groups functional task performances.

than newly established ones.

CONCEPTUAL FRAMEWORK

There are several ways to assess the group performance. Davis et al. (2004) used the size of the group, amount of member participation, homogeneity of members, jealousy within the group, group capacity, number of linkages, and type of groups to assess the success of dairy goat groups' dissemination of technologies in Kenya. The member participation, linkages and type of group variables affected the success of dairy-goat groups' dissemination of information and technologies while the size of the group, member homogeneity, degree of jealousy and group capacity had little or no effect on the success, but groups played important roles in disseminating information and technologies.

Barham and Chitemi (2009) focused on certain characteristics and assets endowments of smallholder farmers groups to assess how groups facilitate collective action initiatives to improve group marketing performance in Tanzania. The more mature groups with strong internal institutions, functioning group activities, and a good asset base of natural capital were found to improve the market situation.

Ruengdet and Wongsurawat (2011) identified members' drive for business ownership, systematic division of work, regular accounting records, intelligent marketing plans, and achievement of some kind of quality certification as the important determinants of success of farmers' business enterprises in Thailand.

The output or direct benefits oriented measurements are often considered as the most important approach as they directly influence the welfare of group members (Place et al., 2002). The direct benefits from dairy groups include such as easy market for milk, timely cash income, credit facility, production supports, member representation and members capacity development opportunities.

Therefore, based on the literature review and preliminary data collected, six functional task factors; i) production support; ii) marketing support; iii) processing efficiency; iv) members' representation; v) finance and accounting and vi) group management, were identified and considered for their binary effect on members' satisfaction level and groups' performance.

The functional tasks were measured by identifying sub tasks under each functional task (Figure 1). Equal weight age was given to all the functional tasks and were assumed to be positively related to each other as indicated by the boundary. The functional tasks represent the composite tasks of any smallholder dairy farmers' group to perform once established and become operational. Logically execution of functional tasks are expected to improve with the maturity and experiences gained over the years by the groups.

RESEARCH METHODS

This study was carried out in the west and east central regions of Bhutan (Figure 2), in the high agriculture potential zone, where dairy farming is an important component of the integrated farming system both in terms of inputs and outputs. The farming in the area is mostly subsistence, dominated by mixed crop livestock system.

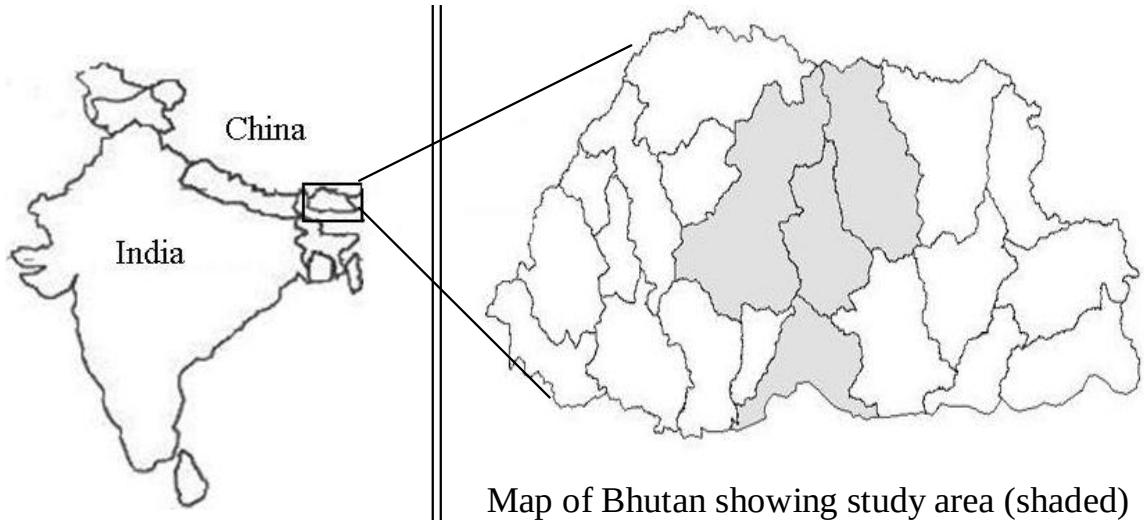

Figure 2. Location of Bhutan and study area.

The dairy groups' formation aims to assist the subsistence smallholder dairy farmers to commercialize dairy production activities by collecting fresh dairy milk for group processing and marketing of processed milk products.

The study used a cross-sectional research design and covered seven smallholder dairy farmers' groups (63.6% of the total dairy groups in the study area) selected by a multistage purposive sampling technique and from which 176 respondents were randomly selected. The data from the group members and office bearers were collected through structured questionnaire interview supplemented by personal observation and participatory group and individual discussions, and self-administered questionnaires for the extension agents. A post test evaluation was carried out through individual and group discussions mainly for confirmation and clarification of unclear information collected earlier.

The functional tasks were assessed through a Likert-type rating scale; 1=very poor, 2=poor, 3=good, 4=very good and 5=excellent rated by the members. To draw the overall inferences of functional tasks factors, mid interval mean scores were calculated based on the number of interval levels each Likert-type rating scales were composed[1].

RESULTS AND DISCUSSION

The main activities of the sample dairy groups include collecting fresh dairy milk for group processing and marketing of processed dairy products, except Gorgon group where processing and marketing activities were privatized and the group only supplying milk to the processing unit. The shortage of manpower for group processing and difficulty in transportation of products (lack of transportation facilities) being the main reasons for privatization.

In general the overall performance of the dairy groups was rated poor (M=2.47) with low member satisfaction (Table 1). The poor performances of the dairy groups were mainly attributed to poor production and marketing supports to the members, poor representation of members and management of group activities. However, in general members appreciated the higher level of sanitation achieved through group processing and also the time saved for other farm works with no household level processing. Majority of the members (78.4%) also found the small loan facility from the monthly group saving scheme very useful and effective especially in solving urgent cash requirements on the farm such as purchase of farm inputs, payment for school expenses and other emergencies. But in general, high members' expectations particularly supply of some dairy inputs like concentrate feeds and equipment, assistance in accessing good dairy cattle breeds and provision of more competitive prices for the milk remained unfulfilled.

Performance of individual SDFGs

Table 2 shows the performances of the sample dairy groups as perceived by the members. Many researchers have reported a linkage between the group task accomplishment and group members' satisfaction. As stated by Marquis et al. (1951) groups that completed a larger percentage of activities were more satisfied than those groups that did not. As such better performances of Chokhor, Chumey and Gorgon groups were mainly linked to the consistent and timely payment of milk bills,

[1]

Mid score calculation and	Satisfaction level
4.20 + 0.80 = 5.00	4.21 – 5.00 = Excellent
3.40 + 0.80 = 4.20	3.41 – 4.20 = Very good
2.60 + 0.80 = 3.40	2.61 – 3.40 = Good
1.80 + 0.80 = 2.60	1.81 – 2.60 = Poor
1.00 + 0.80 = 1.80	1.00 – 1.80 = Very poor

$$Intervallevel = \frac{Highestlevelscore - lowestlevelscore}{Numberoflevels} = \frac{5-1}{5} = 0.80$$

Table 1. Frequency distribution and means scores on overall performance of the dairy groups (N=176).

Variable	Ex	VG	G	P	VP	Mean score	SD	Meaning
	%	%	%	%	%			
Production support	7.8[1]	11.7	26.7	17.8	36.1	2.37[3]		Poor
Input supply	1.7	7.4	11.4	29.0	50.6	1.81	1.018	Poor
Help for replacement	2.8	8.0	27.3	18.8	43.2	2.09	1.130	Poor
Loan facilities	11.9	21.6	44.3	11.9	10.2	3.13	1.106	Good
Technical assistance	14.8	9.7	23.9	11.4	40.3	2.47	1.466	Poor
Marketing activities	2.1[1]	8.4	27.1	30.2	32.2	2.18[3]		Poor
Conveying market information	1.1	8.5	27.8	27.8	34.7	2.14	1.029	Poor
Milk collection and transportation	2.8	10.2	23.9	31.2	31.8	2.21	1.086	Poor
Coordinating marketing functions	3.4	6.8	31.2	28.4	30.1	2.25	1.026	Poor
Members market engagement	1.1	8.0	25.6	33.5	31.8	2.13	.989	Poor
Processing efficiency	5.1[1]	20.1	33.1	21.6	20.1	2.77[3]		Good
Product differentiation	2.3	11.9	36.4	27.8	21.6	2.45	1.025	Poor
Sanitation level	10.2	33.0	27.8	13.6	15.3	3.09	1.210	Good
Optimizing processing capacity	2.8	15.3	35.2	23.3	23.3	2.51	1.090	Poor
Members' representation	2.6[1]	9.7	34.7	24.7	28.4	2.33[3]		Poor
Negotiations	1.7	8.0	29.5	30.1	30.7	2.20	1.018	Poor
Linkage Development	3.4	11.4	39.8	19.3	26.1	2.47	1.095	Poor
Finance and accounting	9.7[1]	19.4	39.2	10.8	21.1	2.86[3]		Good
Records and accounts	9.7	18.8	38.6	12.5	20.5	2.85	1.218	Good
Level of Transparency	9.7	19.9	39.8	9.1	21.6	2.87	1.230	Good
Group management	4.1[1]	10.4	34.4	25.4	26.4	2.40[3]		Poor
Planning group activities	3.4	11.9	31.8	25.0	27.8	2.38	1.111	Poor
Handling conflicts	2.8	11.9	32.4	25.0	30.7	2.30	1.089	Poor
Meeting and information management	5.7	11.4	42.0	21.6	19.3	2.62	1.093	Poor
Problem solving skill	4.5	6.2	31.2	30.1	27.8	2.30	1.078	Poor
Overall performance	5.2[2]	13.3	32.5	21.7	27.3	2.47[4]		Poor

EX=Excellent; VG =Very good; G=Good; P=Poor; VP=Very poor and SD=Standard deviation. [1]Individual functional task percentage = sum of all % of items divided by number of items under each functional task;[2]Overall performance percentage = sum of % of six functional tasks divided by 6 tasks; [3]Each task mean score = sum of all individual mean scores of each task divided by number of items of each task; [4]Overall mean score =sum of all task mean score divided by 6.

maintaining clear records and accounts, ability to share profit, provision of timely production and marketing supports, efficient management of group activities and presence of a relatively better milk collection and transportation system supplemented by good leaderships.

As reported by Heslin and Dunphy (1960) member satisfactions were low in those groups with low score on perceived task accomplishment and goal attainment. Thus the failure of groups to provide efficient production supports, untimely or non payment of the milk bills and inability to implement group activities on time due to lack of good and committed leadership and also scattered settlement of the members have resulted in poor performance of the other four groups.

The difficult physical terrain and scattered settlement of the members and absence of proper milk collection and transportation system have also made the delivery of milk to the processing unitdifficult and uneconomic especially with some members requiring walking daily four to five hours to reach one to two liters of milk affecting the total volume of milk collection and group business.

The very poor performance (M=1.5) of Busa group was mainly attributed to the non payment of the milk bills and unclear group records and accounts, further disadvantaged by the large number of members not

Table 2. Mean comparisons of the functional tasks of the sample SDFGs.

Functional Tasks	Sample SDFGs						
	Chokhor	Chumey	Trashiling	Busa	Rukubji	Gorgon	Umling
Production support	2.7	2.8	2.9	1.6	2.0	2.8	2.4
Marketing support	3.0	2.7	2.5	1.2	1.7	3.0	2.5
Processing efficiency	3.3	2.6	2.7	1.7	2.9	2.3	2.4
Members' representation	2.6	2.7	2.3	1.4	2.2	2.9	2.7
Finance and accounts	3.6	2.9	2.8	1.9	3.1	2.9	3.3
Group management	3.1	3.1	2.6	1.4	1.9	2.9	2.5
Individual SDFG mean	3.1	2.8	2.6	1.5	2.3	2.8	2.6

Scale: [4.21-5 = Excellent; 3.41- 4.20 = Very Good; 2.61 – 3.40 = Good; 1.81-2.60 = Poor; 1.00 – 1.80 = Very poor.

effectively committed to group activities as most of them are located far away from the processing unit hindering their participations. The high level of dissatisfaction among members presents a threat to the long run sustainability of the group.

Performance of SDFGs based on age categories

The sample dairy groups were classified into three categories to find the relationship between the age of the group and its performance: i) less than 3 years old, ii) 3 to 6 years old and, iii) above 6 years old for conducting F tests to determine the level of significance of group age or experiences on the performance of the groups.

Table 3 shows statistically significant differences especially between the third and other two groups almost on all the tasks levels such as; input supply, F= (2,173) 12.869, p=0.000; help to purchase stock replacement, F = (2,173) 21.344, p=0.000; loan facilities, F= (2,173) 6.403, p=0.002; technical assistance, F= (2,173) 13.410, p=0,000; conveying market information, F= (2,173) 29.174, p=0.000; milk collection and transportation arrangement, F= (2,173) 23.799, p=0.000; optimizing processing capacity, F= (2,173), 43.266, p=0.000; negotiations F=(2,173) 25.637, p=0.000; maintenance of group accounts, F=(2,173) 13.634, p=0.000 and planning group activities F=(2,173) 26.809, p=0.000.

Based on the Scheffe' post hoc comparison, the less than three years old and above six years old differed significantly on all tasks performance (p=0.000). While the performance of older groups supports the study assumption, better performance of new groups can be attributed to the strong support and inputs received from the government and projects in the early stages of the group formation. The low level performance of 3 to 6 years old group thought to be due to the inclusion of a weak group (non functional) distorting the overall performance of the category. However, in general the age of the group is not a determining factor of the group performance at least in this study.

Factors impacting group performance

The factors affecting the dairy groups' performances are summarized below:

i) Members' participation and commitment-The commitment and participation of members in the management of group activities was observed as a common problem in all the sample groups affecting the performance of the groups. The members' participated in the meetings and group activities simply to legitimize their membership and to avoid penalties and fines, and not out of interest backed by strong sense of ownership. As stated by Buckley (2007), a strong sense of ownership and trust of the leadership among members is said to be critical for effective functioning of the groups. The groups with active members' participation and strong commitment (Chokhor and Chumey) were found to be performing successfully. Since members' participation is determined by the level of benefits and incentives enjoyed through their membership, it is important for the groups to focus on fulfilling members' needs and expectations related to the group activities. Similarly the ability to offer economic benefits to members is essential to sustain any farmers' groups (FAO, 2006).

ii) Sense of Ownership-As stated by Rouse (2006) the inherent conflict between the roles of the member as a "user of the group's services" and "as an investor in group business" a common problem of all group enterprises (both large and small) can also be observed in the SDFGs. The complacent attitude of members, largely seeing themselves as the users rather than owners of the group, little concern about the group's success and failure with little or no motivation to invest in the group capital development by the members is affecting the performance of the SDFGs.

iii) Age of the group –The age of the group was not a determining factor of the group performance as assumed. While the oldest groups performed better, at the same time newer groups ere also equally performed well. Therefore, it is difficult to establish a relationship between the group performance and group age as the data is not

Table 3. Performance of the SDFGs by year of establishments.

Functional tasks factors	< 3 yrs old (n=33)		3 to 6 yrs old (n=35)		Above 6 yrs (n=108)		F Value
	M	SD	M	SD	M	SD	
Production support							
Input supply	2.33[a]	1.216	1.17[b]	0.618	1.85[a]	0.955	12.869**
Help to purchase stock replacement	2.21[a]	0.927	1.09[b]	0.507	2.37[a]	1.157	21.344**
Loan facilities	3.12[a]	1.083	2.57[b]	1.335	3.31[a]	0.963	6.403**
Technical assistance	2.82[a]	1.357	1.40[b]	0.775	2.71[a]	1.517	13.410**
Marketing activities							
Conveying market information	2.67	0.890	2.67	0.355	2.67	1.007	29.174**
Milk collection and transportation	2.52[a]	0.972	1.20[b]	0.406	2.44[a]	1.088	23.799**
Coordinating marketing functions	2.64[a]	0.994	1.20[b]	0.406	2.47[a]	1.027	28.140**
Members engagement in market	2.64[a]	0.783	1.09[b]	0.284	2.31[b]	0.963	35.772**
Processing							
Product differentiation	2.45[a]	1.063	1.54[b]	0.701	2.75[a]	0.939	22.648**
Sanitation	2.67[a]	1.291	2.23[b]	1.352	3.50[a]	0.942	20.563**
Optimizing processing capacity	2.39[a]	0.788	1.31[b]	0.631	2.94[a]	0.998	43.266**
Members' representation							
Negotiations	2.33[a]	0.924	1.23[b]	0.490	2.47[a]	0.990	25.637**
Development of linkages	2.97[a]	1.104	1.49[b]	0.853	2.63[a]	0.982	23.270**
Finance and accounting							
Records and accounts	3.12[a]	1.495	1.94[b]	1.434	3.06[a]	0.895	13.634**
Level of transparency	3.09[a]	1.487	1.94[b]	1.434	3.10[a]	0.917	14.074**
Planning and management							
Planning group activities	2.85[a]	1.064	1.31[b]	0.631	2.58[a]	1.042	26.809**
Handling conflicts	2.67[a]	1.137	1.31[b]	0.631	2.50[a]	1.019	22.298**
Meeting and information management	3.00[a]	1.118	1.63[b]	0.973	2.83[a]	0.932	23.084**
Problem solving skill	2.70[a]	1.237	1.29[b]	0.622	2.50[a]	0.952	24.749**

**Significant at 0.05 confidence level. Scheffe' post hoc comparison represented with superscript [ab]: means followed by same letters are not significantly different from each other; M= Mean; SD= Standard deviations.

supportive of the study assumptions.

iv) Government support-The formation and development of SDFGs are strongly supported (technically and financially) and guided by the government as such reliance on the government was found to be very high even several years after the establishment, retarding the development of sense of ownership among members where government is often being perceived as the co-owner of the groups by most of the members. As stated by Boas and Goldey (2001), the danger with groups created through external help, without the real commitment of the members and managers, run a great risk of falling apart if the external assistance is completely removed, and this is no different for some of the SDFGs. Therefore, for promoting sustainable smallholder dairy farmers' groups as recommended by Abaru et al. (2006) is essential first to focus on developing the group, and a marketable product, not the other way round.

v) Volume of milk collection – Adequate volume of milk is required for profitable functioning of the groups. However, low volume of milk is a common problem threatening the economic sustainability of the groups and creating a series of interrelated marketing weaknesses. The low productivity of dairy cattle, difficulty in acquiring good stock replacement breed, unavailability of concentrate feeds, shortage of fodder especially in winter and limited or no land for pasture development are the major factors responsible for low milk production by the members. The dispersed location of members in difficult terrains with limited road networks also makes the milk collection and transportation difficult and uneconomic for some members and groups.

Conclusions

The results of this exploratory study show that heavy support and involvement of government in the formation and development of farmers' groups retards the sense of ownership development in the group members. In other words strong government support without adequate and appropriate programs to strengthen members' awareness on their roles and overall cohesion, groups are made heavily reliant on the government, with members simply clinging to the facilities and membership structure without serious commitment and sacrifices, and low motivational drive to invest into group activities.

For the continued growth and sustainability in an ever increasing competitive environment, dairy groups cannot remain self satisfied merely executing the prescribed activities but need to constantly
focus on mechanisms to improve the delivery of services to the members and strengthening group cohesion. As stated Boas and Goldey (2001) one of the most important Goldey (2001) one of the most important factors that motivate farmers to take part in associations is the expectation that they get benefits from their membership, or the main function of any organization is the provision of collective goods for their members (Olson, 1971). Therefore, it is essential that the dairy groups ensure significant member benefits atleast supplying dairy inputs at competitive price as well as providing competitive milk price to the members.

The implication of these findings for the rural extension and other stakeholders working for the development of rural communities and farmers' organizations is to focus on provision of technical knowledge on management of collective business. Building members' capacity becomes important to help them meet both the membership roles and managerial responsibilities for effective functioning of the dairy groups. As members' managed and operated group enterprises, active members' participation becomes an invaluable asset for the effective performance of dairy groups. It is therefore, important for the rural extension to help create and sustain the cooperative mentality among the group members and overcome farmer individualism through the use of various participatory methodologies with programs and strategies to enhance members' participation and cooperation.

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