*Indian Journal of Extension Education*
*Vol. 51, No. 1 & 2, 2015 (26-31)*

# Perceived Effectiveness of Self Help Groups in Dairy Sector

**Sajesh V K** [1]

**ABSTRACT**

A study was conducted among members of SHGs in Chittoor district of Andhra Pradesh to assess the perceived effectiveness of SHGs in dairy sector in terms of resource, technology, extension, marketing and capacity development. Considerable improvement was observed in all the aspects studied, indicating that group mobilization have potential to overcome the multiple constraints faced by small farmers at individual level. Major factors affecting the effectiveness of dairy SHGs were found to be functional linkage, support from promoting institution and amount of credit availed.

**Keywords:** Self Help Groups, Effectiveness, Dairy sector

## INTRODUCTION

Collective action is often hailed as an important strategy to overcome the multiple constraints faced by the small and marginal farmers at individual level. In recent years Self Help Groups (SHGs) have emerged as an important form of collective action especially in the rural settings. Though the original intention of SHG mobilization was financial intermediation between formal financial system and those who did not have access to financial institutions, its developmental potential was soon realised by various developmental agencies and practitioners. Pathak (1992) observed that the SHG, being group of persons, gets empowered to solve most of their problems of non-financial nature like, raw materials and input supply, marketing, better adoption of technology, education and training for realizing the human potential for development. When several members are able to share their empowering experiences, a collective self-efficacy emerges. Goals that are visualized by community members as external to their control are then viewed as within the grasp of their collective force (internalised).

In Andhra Pradesh, SHGs were formed under Indira Kranthi Patham Programme as a strategy for livelihood improvement of small and marginal dairy farmers. Indira Kranthi Patham is a Self Help Group based women oriented initiative launched in 2005 by the Society for Elimination of Rural Poverty (SERP), a State Government agency in Andhra Pradesh, by converging erstwhile poverty eradication projects, central and state sector schemes. Chittoor district of Andhra Pradesh has a long history of livestock farming since ages. Dairying is practiced by small and marginal farmers as means to sustain their livelihood in the wake of unstable income from agriculture, since it was easier for them to access the resources for dairy production than for crop production. Important institutional development related to dairy farming in Chittoor district was the formation of the Chittoor District Milk Producers' Cooperative Union (CCDU), commonly known as Chittoor dairy in 1969. The Chittoor dairy became defunct in 2002 owing to various socio-political, governance and marketing constraints. This in turn left the dairy farmers to the clutches of private dairies, which syndicated to exploit the dairy farmers by offering only minimal remuneration. The predicament continued up to 2005, till the DRDA intervened with a novel partnership model. An Agreement has been reached between 'Zilla Mahila Samakhya'(SHG federation at district level), DRDA and Balaji dairy, an outfit of National Dairy Development Board. Later on, Vijaya dairy (Andhra Pradesh Dairy Development Cooperative Federation; APDDCF) was also got involved in this partnership. Bulk Milk Cooling Units (BMCUs) were established at selected mandals with DRDA assistance. Maintenance and operational aspects of BMCUs were handed over to 'Mandal Mahila Samakhyas' (federation of SHGs at mandal level). Initially two BMCUs established in Gangavaram and V. Kota mandals during March, 2005 and the number was increased to eighteen by 2006. Presently, there are twenty eight BMCUs operated by 'Mandal Mahila Samakhyas'. For each BMCU, milk was collected from villages within 9-10KM radius by “palmitras”, in stainless steel milk cans and transported to BMCUs through small tempos. Under each BMCU 25 to 40 Palamitras are working in the villages. At village level, milk producers from various SHGs were organised under milk producers' institution (MPI). The milk collected from villages was cooled at $4^0$C at BMCUs at mandal level and then transported to the Balaji dairy and APDDCF by the road tanker. From Balaji dairy milk is further transported to mother dairy outlets in different cities. The present study was undertaken to assess the effectiveness of dairy SHGs in terms of resource, technology, extension, market and capacity building.

[1] PhD. Scholar, Division of Agricultural Extension, ICAR- Indian Agricultural Research Institute, New Delhi-110012.

## METHODOLOGY

The study was conducted in Chittoor district of Andhra Pradesh. The units of analysis of the study were individual members of exclusive women Self Help Group under Indira Kranthi Patham project involved in dairy activities. From the district fifty SHGs and from each SHG five members were selected following a multi stage random sampling procedure. The method of personal interview with structured questionnaire was used for collection of primary data. To assess the perceived effectiveness of SHGs, before-and-after research design was used and effectiveness was assessed for both the periods by using effectiveness index. In before-and-after design, effect of the treatment (SHG mobilization) would be equal to the level of the phenomenon after the treatment minus level of the phenomenon before treatment (Kothari, 2004) The effectiveness index was developed for the study based on five components which were selected based on literature review and expert opinion and are discussed below.

(i) Resource mobilization: Resource mobilization was opertionalised as the extent to which various resources like credit, inputs and animals were available to the respondent

(ii) Extension orientation: Extension orientation was measured as the extent to which the respondent was aware of various extension programmes, access to and availability of public and private extension services and participation in extension activities.

(iii) Marketing effectiveness: Marketing effectiveness refers to respondents' perception about availability of market information, presence of intermediaries, collective marketing facilities, bargaining power of producers, transparency in marketing operation and marketing transaction cost.

(iv) Capacity development: Capacity development refers to the extent to which respondent have knowledge and skill to undertake diversified activities, to diagnose and solve the problems and to learn and use innovations. In case of the four components mentioned above, respondents were categorized into following categories based on their responses using an ordinal scale of measurement.

| Response | Score |
|---|---|
| Nil | 0 |
| Low | 1 |
| Medium | 2 |
| High | 3 |

(v) Technology adoption: Technology adoption was evaluated as the degree to which the respondent has adopted various dairy technologies. Adoption of dairy technologies by the respondent was measured on a nominal scale based on the responses; as below:

| Response | Score |
|---|---|
| Yes | 1 |
| No | 0 |

For each of these components separate index was calculated as follows for both periods (before and after SHG formation):

$$\text{Effectiveness index} = \frac{\text{Actual score obtained for that component}}{\text{Maximum possible score for that component}} \times 100$$

Combined effectiveness index was also calculated for both the periods by taking equal weight for all the sub components *viz.* resource mobilization, technology adoption, extension orientation, marketing effectiveness and capacity development.

Factors which are significantly related to the effectiveness of SHGs were analysed by simple correlation analysis. Discriminant function analysis (DFA) was used to find out the factors which discriminate the SHGs as less effective and more effective. Discriminant function analysis (DFA) is a statistical technique to study difference between two or more groups with respect to many variables at the same time (Klecka,1980). Zibaei and Bakhshoodeh (2008) have used DFA to find out the determinants of sprinkler irrigation technology discontinuance in Iran. Jayaram and Indumati (2010) used DFA to analyse the determinats of adoption of sericulture technologies. Self Help Groups were classified into two groups of almost equal number based on the value of the combined effectiveness index (high and low) and coded as 1 and 2.

Socio economic and psychological variables considered for analysis include age, education, annual income, land holding, livestock holding, social status, social participation, economic motivation, support from IKP, group dynamics, functional linkage, credit availed, self reliance and risk taking ability.

A linear discriminant equation, $D=v1_{X1}+v2_{X2}+v3_{X3}+\ldots+vi_{Xi}+a$ , is constructed such that the two groups differ as much as possible on D.

Where D = combined effectiveness index after SHG introduction

$_{X}$ = respondent's score for the socio economic and psychological variable as discussed above

v = the discriminant coefficient or weight for that variable

a = a constant

i = the number of predictor variables.

Those variables with the largest standardized discriminant coefficients are the ones that contribute most to effectiveness of SHGs.

**Perceived effectiveness of dairy SHGs**

Perceived effectiveness of dairy SHGs was studied at individual level. Five components were identified and improvement in these components was analysed and mean score for all the components was presented in table 1. The results of the paired t-test showed that difference in the mean score for all the components of effectiveness index were statistically significant at 1 per cent level of significant. There was considerable difference between the mean score of components in both the periods. All the SHG members perceived a significant improvement in their access to and availability of various resources like milch animals, credit and other inputs. The score for resource mobilization has increased from 37.88 in pre SHG period to 74.15 during SHG period. Hassle free access to required finance made through group saving and SHG-bank linkage played an important role in easing the resource constraints of SHG members. The score for extension orientation has increased to 80.08, which was 59.15 before SHG.

**Table 1: Mean score obtained by SHG members on the components of effectiveness index.**

| Components of SHG effectiveness index | Score | | Paired difference | t-value |
|---|---|---|---|---|
| | Pre-SHG | SHG | | |
| Resource mobilization | 37.88 | 74.15 | 36.2696** | 16.9587 |
| Extension orientation | 59.15 | 80.08 | 20.935** | 8.6449 |
| Marketing effectiveness | 51.58 | 76.33 | 24.8419** | 10.0089 |
| Technology adoption | 38.46 | 68.86 | 30.4029** | 6.59434 |
| Capacity development | 46.34 | 80.97 | 34.6341** | 10.4874 |

**Significant at the 0.01 level of the probability.

It was observed that SHG members' awareness about and access to public extension service as well as the participation in extension activities have increased. There was no considerable improvement in the access to private extension service mainly due to marginal presence of private service providers.

The effectiveness in marketing of milk considerably improved due to the coordinated efforts of SHG federations, DRDA and NDDB. This is evident from the increase in mean score of marketing effectiveness from 51.58 to 76.33. Mean score for capacity development, which include knowledge and skills of SHG members was improved from 46.34 to 80.97. It can be attributed to the trainings provided on clean milk production, collection and transportation of milk and operation of BMCUs. It was also observed that there was considerable improvement in the awareness about and adoption of various dairy technologies and practices by SHG members like washing udder before milking, timely vaccination, artificial insemination, balance feeding and use of milking machine.The effectiveness of Dairy SHGs was reflected in the economic condition of SHG members. Before SHG, 10 percent of members were in low income group and 68 percent of members were in medium income group (Table 2). After SHG intervention most of them (66%) were found to be in high income group and none was found in low category. On an average, annual income of the members have increased by 79.82 percent. Factors like availability of credit at lower interest rate, lesser dependence on money lenders, better remuneration from dairying, better planning of activities and economies of scale achieved through group mobilization have contributed significantly to the economic empowerment of SHG members. These factors are the outcome of effective functioning of SHGs.

**Table 2: Impact of Dairy SHGs on the income of the members**

| Category | Before | After |
|---|---|---|
| Low | 10 | 0 |
| Medium | 68 | 34 |
| High | 22 | 66 |
| Mean | 40975.61 | |
| S.D | 23392.83 | |

**Influence of socio economic and psychological characteristics on the effectiveness of SHGs**

To analyse the correlation between socio economic and psychological variables and SHG effectiveness, Karl Pearson's correlation analysis was carried out. Among the fourteen variables identified, seven variables namely economic motivation, group dynamics, support of promoting institution (IKP), functional linkage, risk taking ability, self-reliance and credit availed were found to be positively and significantly correlated with effectiveness of dairy SHGs.

**Table 3: Correlation of characteristics of SHG members with SHG effectiveness**

| Independent Variables | r value |
|---|---|
| Age | 0.017 |
| Education | 0.016 |
| Annual Income | 0.039 |
| Land Holding | 0.043 |
| Livestock holding | 0.065 |
| Social Status | 0.132 |
| Social Participation | 0.177 |
| Economic Motivation | 0.385* |
| Group dynamics | 0.508** |
| Support of SHPI | 0.766** |
| Functional Linkage | 0.727** |
| Risk Taking Ability | 0.358* |
| Self Reliance | 0.448** |
| Credit availed | 0.443** |

* Significant at the 0.05 level of probability. **Significant at the 0.01 level of the probability.

It can be inferred from the correlation analysis that SHG members' personal traits as well as group and social activities were the major correlates of effectiveness (Table 3). The profile characteristics like age, education, annual income, land holding and social status were not significantly related to the effective functioning of SHGs. This results are in line with observation of Singh *et al.,*(2007) that the individual and the group characteristics had positive and significant relationships with their group performance. Joy *et al.,* (2008) have also observed that variables like market perception, economic motivation, risk-orientation, attitude towards self-employment, management-orientation, innovativeness and information-seeking behaviour influence the group performance of SHGs. SHG members with higher level of personal attributes like economic motivation, risk taking ability, and self reliance could better interact with relevant institutions, organizations and people to articulate their needs as well as were able to better participate in the social sphere, when facilitated by congenial group functioning and supported by promoting intuition. This, in turn was reflected in their higher level of effectiveness.

**Discriminating factors of SHG effectiveness**

Discriminant function analysis was used to find out the factors which discriminate SHGs as high and low effective. Respondents were classified into two groups based on their perceived effectiveness score (High and Low). Appropriateness of this classification was verified using classification table results. The classification results revealed that 98 per cent of original grouped cases correctly classified and 92 per cent of cross validated groups are correctly classified (Table 4).

**Table 4: Classification results of discriminant function analysis.**

| | | Effectiveness Index | Predicted Group Membership | | |
|---|---|---|---|---|---|
| | | | High | Low | Total |
| Original | Count | High | 25 | 0 | 25 |
| | | Low | 1 | 24 | 25 |
| | % | High | 100.0 | 0 | 100.0 |
| | | Low | 4.0 | 96.0 | 100.0 |
| Cross-validated | Count | High | 23 | 2 | 25 |
| | | Low | 2 | 23 | 25 |
| | % | High | 92.0 | 8.0 | 100.0 |
| | | Low | 8.0 | 92.0 | 100.0 |

The major factors discriminating the SHGs into high and low effective as revealed from results of discriminant function analysis are functional linkage, support from promoting institution (IKP) and amount of credit availed (Table 5). Other variables like economic motivation, group dynamics, risk taking ability and self-reliance were also found to be positively and significantly correlated with effectiveness of dairy SHGs. But lack of statistical significance for the discriminant function coefficients of these variables implies that they did not discriminate SHGs as high and low effective.

Functional linkage with relevant institutions and stake holders like District Rural Development Agency (DRDA), Balaji dairy, financial institutions, veterinary service providers, feed and other inputs dealers, other SHGs, and SHG federations at different levels was very crucial for the effective functioning of dairy SHGs in Chittoor district.

**Table 5: Results of discriminant function analysis of factors affecting effectiveness of dairy SHGs.**

| Variables | Discriminant function coefficient | Significance. |
|---|---|---|
| Age | .092 | .231 |
| Education | .372 | .162 |
| Annual Income | .565 | .189 |
| Land Holding | -.561 | .168 |
| Livestock holding | -.068 | .239 |
| Social Status | .187 | .593 |
| Social Participation | .106 | .691 |
| Economic Motivation | .147 | .686 |
| Group dynamics | .132 | .259 |
| Support of Promoting Institution | .308** | .001 |

| | | |
|---|---|---|
| Functional Linkage | .463** | .001 |
| Risk Taking Ability | .642 | .796 |
| Self Reliance | .072 | .680 |
| Credit Availed | .403** | .001 |

**Significant at the 0.01 level of the probability.

This observation is in line with the findings of Narainaswami *et al.,* (2007), who have reported that functional linkage of SHGs along with other variables like economic activity, social status and conflict management is positively related to the performance of SHGs at community level. They also have observed that degree of functional linkage depends on the existence of various agencies in the proximity and the exposure of SHG member to the existence and use of various agencies. Efforts of the concerned Self Help Promoting Institution, Indira Kranti Patham (IKP), were instrumental in group mobilization as well as forging these linkages. This finding was substantiated by various studies like Namboodiri and Shiyani (2001), and Satish (2001) who have highlighted the importance of constant and regular assistance from promoting agencies along with other factors like social cohesion among group members and lower transaction costs for effective performance of SHGs. Sukhdeep Kaur Mann *et al.,* (2011) also have pointed out that the self help group's performance, to a large extent, is dependent on the promoting agency in the initial stages and in the long run on the resources that its members generate and accumulate for the group.

Amount of credit availed has also contributed significantly to the effectiveness of SHGs by easing the capital constraints faced by the small and marginal dairy farmers. Access to credit, the core objective of SHG mobilization, has facilitated the timely access to productive resources and development of required infrastructure. Such a relationship was corroborated by Lalitha and Nagarajan (2002) who have noed positive profit levels and short payback periods with increase in loan amount in case of groups dealing with dairy farming. In this context of relation between credit and SHG performance, Bharamappanavara *et al*., (2011) have observed that effectiveness of the SHGs was related to the purpose for which the loan amount was utilized. If loan amount was utilized for income-generating activities like animal husbandry, which earns more income for the members, the performances of respective SHGs were found to be good in terms of loan repayment and income improvement. But, if the loans by members were taken to meet their emergency needs like meeting education expenditures of children, for marriages, for hospital expenditures, and less for production activities then performance was found to be deteriorating.

To sum up, the major factors discriminating the dairy SHGs as high and low effective as revealed by discriminant function analysis (Functional linkage, support from promoting institution and amount of credit availed) points to the need for strong support system to facilitate and network the SHGs, especially in the initial phase.

## CONCLUSIONS

The assessment of effectiveness of dairy SHGs in Chittoor district revealed that dairy SHGs in Chittoor district could prove considerable effectiveness in terms of resource, technology, extension, marketing and capacity development. Significant improvement was observed in the income of the dairy SHG members also. Scope for further improvement still exists. Seven variables namely economic motivation, group dynamics, support of promoting institution (IKP), functional linkage, risk taking ability, self-reliance and credit availed were found to be positively and significantly correlated with effectiveness of dairy SHG. Out of these seven variables, three variables namely functional linkage, amount of credit availed and support from the promoting institution were found to discriminating the SHGs as high and low effective. The coordination with other agencies and institutions like DRDA, NDDB, Balaji dairy, financial institutions, veterinary service providers, feed and other inputs dealers, other SHGs, and SHG federations at different levels played an important role in realizing the potential of group mobilization. Role of concerned promoting institution (Indira Kranti Patham) was found to be instrumental in forging these linkages. These linkages facilitated the SHGs in accessing resources and market as well as developing the capacities of SHG members in handling the dairy related activities. Hassle free access to required finance made through group saving and SHG-bank linkage played an important role in easing the resource constraints of SHG members. Potential of SHGs should be harnessed in agriculture and allied activities to address the multiple constraints faced by small, marginal, women and tenant farmers. Also it should be noted that, to achieve inclusive development, groups of women and other disadvantaged sections of society should be extended hand holding in the initial phase, and later on focus should be on the development of their own institutions.

*Paper received on : February 10,2015*
*Accepted on : February 16,2015*

## REFERENCES

Bharamappanavara, Saikumar C. Hanisch, M. Shetty, N.K and Kumar, P.N.O. 2011 Self-Help Group

Microcredit Delivery Models In Karnataka (India): An Econometric Study of Factors Influencing Performance. *International Journal of Microfinance Institutions* 1(1), 90-101.

Joy Lina, Prema A and Krishnan S (2008) Determinants of Group Performance of Women-led Agro-processing Self-help Groups in Kerala, *Agricultural Economics Research Review*, Vol. 21 (Conference Number), 2008, pp 355-362

Klecka,W.R (1980) *Discriminant Analysis*. SAGE publications, California.

Kothari,C.R (2004) *Research Methodology: Methods and Techniques*, New Age International Publishers, New Delhi

Lalitha, N. and Nagarajan. B.S. (2002) *Self-help Groups in Rural Development,* Dominant Publishers and Distributors, New Delhi.

Sukhdeep Kaur Mann, Varinder Randhawa and Kanwaljit Kaur (2011) Role Performance and Associated Problems of SHG Leaders, *Journal of Community Mobilization and Sustainable Development* Vol. 6(1), 050-054, January-June, 2011

Namboodiri,N.V and Shiyani (2001). Potential Role of Self·Help Groups in Rural Financial Deepening. *Indian Journal of Agricultural Economics*, 56 (3): ·W 1-09.

Narayanaswamy, B., Narayana Gowda, K., and Nagaraja, G.N.( 2007) Performance of Self Help Groups of Karnataka in farm activities. *Karnataka Journal of Agricultural Sciences*, 20(1): 8588.

Pathak, P.A. (1992). Self help groups and their linkages with banks. *National Bank News Review*. pp 9-10.

Satish, P. (2001). Some Issues in the Formation of Self-Help Groups. *Indian Journal of Agricultural Economics*, 56 (3): 410-18.

Singh, Y.K., Kaushal, S.K., and Gautham, S.S.(2007) Performance of women's Self Help Groups (SHGs) in Moradabad district, Uttara Pradesh. *International Journal of Rural Studies*. 14(2).

Zibaei,M and Bakhshoodeh (2008). Investigating determinants of sprinkler irrigation technology discontinuance in Iran: Comparison of logistic regression and discriminant analysis, American-Eurasian Journal of Agricultural and Environmental Sciences, 2 (Supple 1), 2008