

# Reviving dairy co-operatives in Kashmir: what has been achieved?

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## ABSTRACT

Dairy cooperatives that are mandated to be an instrument of rural development have transformed the rural economy in several parts of the country. The present investigation was carried out to study the performance of dairy cooperatives in Kashmir region. The study is based on secondary data collected from J&K Milk Producers Cooperative Limited. The performance of dairy cooperative societies (DCS) was assessed in relative terms using indexing technique. The results indicated that the physical and financial performance of most of the DCS was far from satisfactory, primarily due to reduced membership and hence, low level of milk procurement. Out of 344 DCS analysed in the study, only a handful of 15 DCS had registered moderate to good level of performance.

**Keywords:** Cooperative sector, dairy, milk, price, Kashmir

The modern day dairy co-operative structure in the country has stemmed from the Kheda District Co-operative Milk Producers Union Limited organised in Gujarat in the pre-independence period. Over time, the dairy co-operatives have played a significant role in the

production, marketing and processing of milk and milk products (Candler and Kumar, 1998; Cunningham, 2009) and thereby contributing towards livelihood security of the millions of milk producers in the country (Singh and Pundir, 1998).

In 1983, during the Operation Flood period, the institution of dairy co-operative was introduced in the state of Jammu and Kashmir. The two prevailing Milk Supply Schemes in the country that were under the administrative control of the State Animal Husbandry Department were converted into two federations, namely Kashmir Valley Milk Producers Co-operative Federation in Kashmir and Jammu Milk Producers Co-

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operative Federation in Jammu. Both these Federations registered Dairy Cooperative Societies and established a network of Societies that started supplying milk to these Federations. However, due to mounting losses both these Federations could not sustain the regular operations of procurement and processing and were liquidated. In 2004, the J&K Government initiated efforts to revive the liquidated Federations with the help of Gujarat Co-operative Milk Marketing Federation Limited (AMUL). Subsequently a new organization in the name of Jammu & Kashmir Milk Producers Co-operative Limited (JKMPCL) came into existence for dairy development activities in J&K state with the proactive support of AMUL. The two dairy plants under JKMPCL are claimed to be running profitably (JKMPCL, 2012).

This paper evaluates the performance of the village level dairy co-operative societies (DCS) in Kashmir region to examine whether the dairy co-operatives in the region are showing improvement regarding coverage and financial aspects.

**DATA AND METHODOLOGY**

The study is based on the secondary data for the period of three years from 2009-10 to 2011-12 collected from the records of the JKMPCL. The performance of the DCS was assessed in relative terms by constructing an average performance index for TE 2011-12. Two types of performance indicators were considered in the study: physical indicators, comprising of 2 variables, quantity of milk procured annually and number of members of a DCS and the financial indicator comprising of 4 variables, price received per litre of milk, annual bonus, net profit received by a DCS and commission earned by Secretary of DCS. For the construction of performance index, this study follows the approach developed by Iyengar and Sudarshan (1982) which is the generalization of relative approach underlying the Human Development Index developed by UNDP (1990). Its advantages are it is simple to use and is free from the restrictive assumption of linearity in the relationship of indicators.

The first step is to construct the index ( $Y_{is}$ ) for each of the six variables and  $s^{th}$  DCS;

$$Y_{is} = \frac{X_{is} - MinX_{is}}{MaxX_{is} - MinX_{is}} \quad i = 1, \dots, 6; s = 1, \dots, n \quad (i)$$

Where,  $X_{is}$  represents the triennium average value of  $i^{th}$  performance variable of  $s^{th}$  society.

The numerator in equation measures the extent by which the  $s^{th}$  society is better in the  $i^{th}$  variable as compared to the society having worst performance. The denominator is the range, i.e., the difference between the maximum and a minimum value of given indicator across the societies, which is a simple statistical measure of total variation presented in the variable.

After calculating the  $Y_{is}$  for all the variables, the second step is to calculate the physical, financial and finally, composite performance indices for each society. The indices for each society were worked out using arbitrary weights reflecting the relative importance of variables.

$$\text{Physical index: } Y_s^P = w_1 Y_{1s} + w_2 Y_{2s} \quad (ii)$$

$$\text{Financial index: } Y_s^F = w_3 Y_{3s} + w_4 Y_{4s} + w_5 Y_{5s} + w_6 Y_{6s} \quad (iii)$$

$$\text{Composite index: } Y_s^C = Y_s^P + Y_s^F = w_1 Y_{1s} + w_2 Y_{2s} + w_3 Y_{3s} + w_4 Y_{4s} + w_5 Y_{5s} + w_6 Y_{6s} \quad (iv)$$

The weights were taken as varying inversely as a variance in the respective performance indicators.

$$w_i = \frac{k}{\sqrt{\text{var}(Y_i)}} \quad 0 < w_i < 1 \text{ and } w_1 + w_2 + w_3 + \dots + w_6 = 1 \quad (v)$$

$$k = \left[ 1 / \left[ \sum_{i=1}^6 \frac{1}{\sqrt{\text{var}(Y_i)}} \right] \right] \quad (vi)$$

The choice of the weights in this manner ensures that large variation in any one of the indicators will not unduly dominate the contribution of the rest of the indicators and distort inter-society comparisons. It is well known that, in statistical comparisons, it is more efficient to compare two or more means after equalising their variances. The composite index  $Y_s^C$  varies from zero to one.

## RESULTS AND DISCUSSION

The present study covers all the dairy co-operative societies in Kashmir region that existed in one or more years during 2009/10 to 2011/12. Over the years, their number has been fluctuating as some societies were closed down and some new ones were created. Although dairy co-operative movement in the state has been revived since 2004, the AMUL model of the three-tier structure is not yet fully operational. The village level milk producers' co-operative societies are procuring milk in 9 districts of the state, but due to low procurement levels, at present, there is hardly any concept of milk union at the districts. There are only two processing plants, one at Cheshme Shahi, Srinagar and another at Satwari, Jammu. The products of JKMPCL are marketed under the brand name of "Snow Cap". It produces a very limited range of the products like pasteurized double toned, toned milk, full cream milk, dahi, ghee and flavoured milk.

In the span of three years, there was a marginal net increase in the number of village level societies under JKMPCL in the Kashmir region. In 2009-10, there were 220 societies (Table 1), of which 45 closed down due to low and irregular milk procurement. In an attempt to

increase the coverage of dairy co-operatives, 48 new societies were created and hence in 2010-11 their total number remained more or less unchanged. During 2010-11 the number of newly created societies (76) was more than closed down (48) and hence by 2011-12 their number rose to 255. There are 11 milk routes in Kashmir valley covering all the districts except the far flung district of Kupwara. The maximum number of milk routes (6) and societies (99) are in Pulwama district, followed by district Anantnag. Pulwama is the largest milk producing district in the state, and is popularly called as "*Dudha-Kul of Kashmir*".

The dairy co-operative societies were very few (9) in the Srinagar district. Hence it has been shown with neighbouring district of Baramulla. Like Srinagar, the coverage of co-operative network is very scanty even in Budgam district. The proximity of the area to Srinagar city perhaps provides greater alternative milk market outlets to the dairy farmers and hence, in both, Srinagar & Budgam, the co-operatives have not succeeded in expanding their network. In the other districts of the state, the dairy co-operative network covers less than one third of the villages (Table 2) indicating that there is vast potential of future expansion in the region.

**Table 1:** Number of Dairy Co-operative Societies in Kashmir Valley

Particulars	Year	District									Total		
		Anantnag			Pulwama						Budgam	Baramula	
		Bijbehara	Sirhama	Yaripora	Chakora	Litter	Newa	Tral	Shopian	Pulwama	Budgam	Sonawari/ Pattan	
No. of DCS	2009-10	24	20	14	13	6	4	24	-	37	35	43	220
Closed DCS	2010-11	3	5	1	1	2	3	5	-	8	8	9	45
Created DCS		8	3	-	2	1	1	4	-	7	8	14	48
No. of DCS		29	18	13	14	5	2	23	-	36	35	48	223
Closed DCS	2011-12	4	4	1	1	1	-	6	-	7	6	14	44
Created DCS		4	12	2	7	-	-	2	12	13	9	15	76
No. of DCS		29	26	14	20	4	2	19	12	42	38	49	225
Total		69 (27.05)			99 (38.82)						38 (14.90)	49 (19.22)	225

Note: Figures in parenthesis are % of total no. of DCS

DCS-Dairy Co-operatives Societies

**Table 2:** Percentage of villages covered by cooperatives: District Wise (2011-12)

Sl. No.	District	Total no. of villages	% of villages covered by DCS
1.	Anantnag	361	19
2.	Pulwama	329	30
3.	Budgam	482	8
4.	Baramulla	172	29

Notwithstanding the marginal increase in the number of societies, the average membership has stagnated at low level of 24 members per DCS. The average annual milk procurement was only 15232 litres per DCS indicating that a very small proportion of milk produced is being supplied to the co-operatives (Table 3). Milk is procured only once in a day (morning) hence, in summer season when despite of cool weather, the chances of spoilage of raw milk milked during the evening hours are high, the farmers supply milk to the alternate market outlets. The average annual procurement decreased in 2010-11 compared to previous year, due to higher frequency of law and order problems in the Valley during the year.

**Table 3:** Average Value of Performance Indicators

Sl. No.	Indicators	2009/10	2010/11	2011/12	Overall
Physical indicators					
1.	Membership (no./DCS)	24	24	24	24
2.	Annual milk procured (lt/DCS)	15882	13240	16575	15232
Financial indicators					
1.	Price received (₹/lt)	13.20	14.20	17.62	15
2.	Annual bonus received (₹/DCS)	7623	6220	8287	7376
3.	Annual net profit (₹/DCS)	2906	3362	3604	3291
4.	Annual commission received (₹)	2858	2648	3315	2940

**Note:** DCS – Dairy Co-operative Society

The average prices received by the farmers have shown rising trend over the years with increase being particularly notable (> ₹ 3/litre) in 2011-12 as compared to 2010-11. The milk purchase rate of co-operatives in Kashmir region is comparable to procurement price in other parts of the country. For instance, in Maharashtra presently (June 2013) farmers are getting ₹ 18.50/litre for milk with 3.5% fat and 8.5% SNF. In Kashmir also, as the farmers are mostly rearing cross-bred cattle the fat content in milk is low.

The JKMPCL is also distributing annual bonus to the society. The bonus is spread at the end of the financial year and depends on upon the total milk procured by a given society. During the period of study, the average annual bonus per society was about ₹ 7400 (Table 3).

The dairy co-operative societies were not giving full-time salary to the secretary who was responsible for their milk collection, but the commission was paid depending upon the milk supplied to the milk plant. Both the Commission and the price payment of the milk collected were provided after ten days to a given society. During the period of study the average annual commission paid was about ₹ 3000 per DCS.

During the period of study, all DCS had positive net profit, however, in some the amount was very meager. The annual net profit for the societies ranged from ₹ 0.65 to 27400, with the overall average of ₹ 3300 per society.

There were wide variations in the performance index of the societies, with values ranging from as low as 0.039 to 0.950 for a minimum and maximum possible composite score of 0 and 1, respectively. The DCS have been classified into five categories based on their composite performance index<sup>1</sup>, (i) Very poor (0.04-0.154); (ii) Poor (0.155-0.269); (iii) Fair (0.270-0.383); (iv) Moderate (0.384-0.500); (v) Good (0.501-0.950). As stated earlier since during the three years span of study period, a number of societies were closed down and hence some new societies were created, the distribution of DCS according to their operational and performance status is discussed as follows (Table 4).

**Table 4:** Classification of DCS according to Composite Performance Index

(nos.)

Performance Status & Index	Av. Value of Index	Operational Status			Total No. of Societies
		Functioning from 2009/10-2011/12	Created after* 2009-10	Closed after* 2009-10	
Very Poor (0.04-0.154)	0.122	15	39	79	133 (38.67)
Poor (0.155-0.269)	0.200	91	59	9	159 (46.22)
Fair (0.270-0.383)	0.317	30	7	1	38 (11.05)
Moderate (0.384-0.500)	0.439	8	-	-	8 (2.32)
Good (0.501-0.950)	0.673	6	-	-	6 (1.74)
Total	0.197	150	105	89	344

**Note:** Figures in parenthesis are % of total

\*Performance index computed based on average value of financial & physical indicators for the years the DCS was functional

The performance status of about 85% DCS in the region was poor to very poor. A large number of these societies (88) were closed down after 2009-10. The predominant percentage (93%) of DCS that had been created after 2009-10 and those functioning for all the three years (71%) also have low-performance indices ranging from 0.039 to 0.269. Just a handful of 15 DCS have registered moderate to good level of performance, and another 37 can be considered as fair performers. The reason for low

performance are low membership and hence little milk procurement.

Across districts, the Baramulla & Srinagar show the relatively better status of DCS followed by Anantnag (Figure 1). Out of top 15 DCS first four are from Baramulla (Table 5); 6 societies from Anantnag; 4 from Pulwama and 1 from Budgam.

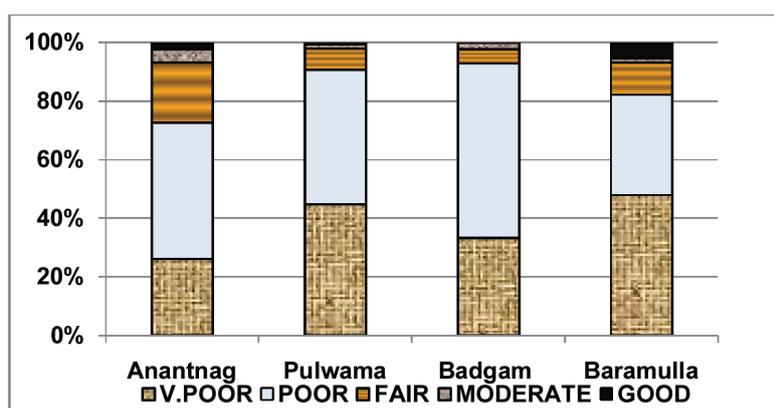


Figure 1: District Wise Performance of DCS

The district of Pulwama had a maximum number of milk routes but on the Chakora, Litter and Newa milk routes the performance index of DCS was in general low, perhaps because the private processors were also operating in this milk-shed area. In relative terms, the

performance of Shopian milk route was better followed by Tral and Pulwama milk routes. In Anantnag the Yaripora milk route had a lower number of DCS but its performance was relatively better than the two other routes of Bijbehara and Sirhama.

**Table 5:** Top Fifteen Societies According to Performance Index

Name of DCS	District	Route	Av. Performance Index		
			Composite	Financial	Physical
Nowpora	Baramula	Sonawari	0.93	0.62	0.31
Baliharan			0.77	0.52	0.25
Anderkote 12			0.61	0.41	0.20
Sultanpora			0.61	0.40	0.20
Bonura	Pulwama	Pulwama	0.57	0.35	0.21
K-Kalan	Anantnag	Sirhama	0.56	0.38	0.18
Satkipora			0.50	0.34	0.15
Keygam	Pulwama	Pulwama	0.48	0.32	0.16
Autin	Budgam	Budgam	0.46	0.33	0.12
Hydergund	Anantnag	Bijbehara	0.45	0.33	0.12
Bonapora	Pulwama	Pulwama	0.44	0.32	0.12
Mehand	Anantnag	Sirhama	0.40	0.29	0.11
Mehand (B)			0.39	0.28	0.12
Krandigam			0.39	0.27	0.12
Hariparigam	Pulwama	Tral	0.38	0.26	0.11

A cross-classification of DCS on the basis of physical and financial performance status shows high degree of association between the two aspects (Table 6). This means that a low physical performance index also leads to a low financial performance index. Hence, it is imperative that the DCS expand their membership so that milk procurement can go up and financial performance follows suit.

Based on the growth rates in milk procurement, the 150

DCS which continued for all three years were classified into expanding (showing positive growth), stagnant (no growth) and contracting (negative). Among the 150 societies more than 41% were growing, about 24% were inactive and 35% were contracting type (Table 7).

Further among the districts Pulwama had 57% societies in the expanding class, while as Anantnag was having 43% contracting DCS, indicating good percentage of growing societies in the former district.

**Table 6:** Cross Classification of Societies on the Basis of Physical and Financial Performance

Class		Physical		
		Poor (0.04)	Moderate (0.15)	Good (0.28)
Financial	Poor (0.14)	312	-	-
	Moderate (0.28)	16	14	-
	Good (0.57)	-	-	2

**Note:** Figures in parenthesis are average scores.

**Table 7:** Distribution of DCS according to Trend in Milk Procurement (2009/10-2011/12)

Trend	Anantnag	Pulwama	Budgam	Baramula	Total
Expanding	14	28	8	12	62 (41.33)
Stagnating	13	11	6	5	35 (23.34)
Contracting	20	10	6	17	53 (35.33)
Total	47	49	20	34	150

**Note:** Figures in parenthesis are percentage of total

## CONCLUSION

The results indicate that even after nearly a decade of rejuvenation of the institution of dairy cooperative in the state, the performance of most of the societies was far from satisfactory which can be attributed to their low membership and hence lower milk procurement.

In order to strengthen the institution of cooperative in the state, there is a need to launch an aggressive membership drive, particularly focusing on younger and progressive dairy farmers in the region, who can in turn be important extension contacts for other farmers in the future. Increasing the density of milk collection centres in the existing area of operation may not be economically viable hence, the provisioning of input services should be made a priority. The JKMPCL should coordinate with the line departments of the government and other non-government agencies for providing efficient breeding, feeding, health care and extension services to its members. The input support services can condition the increase in membership, number and productivity of dairy animals and hence, milk procurement of the cooperatives.

The JKMPCL also needs to improve the infrastructure to enhance procurement and avoid milk losses. At present, milk procurement by the societies was carried only once a day. The installation of bulk milk coolers can make it possible to collect milk twice daily and prevent storage of milk in the hot months of the year as well as in eventuality of delay in supply to the dairy plant. The farmers also informed due to frequent law and order problems the milk vans were not able to deliver milk to the dairy plant and it was returned to them thus, making them wary of participation in the cooperative market channel.

The payment of remunerative prices of milk are an incentive for the farmers but, from the long run perspective, payment of higher procurement prices would not be a suitable proposition for the DCS unless the level of milk supply increases. Well-coordinated efforts of animal husbandry department, agricultural district of the state and JKMPCL are the need of the hour to hasten the process of dairy development in the state in general, and cooperative network in particular.

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## FOOTNOTES

- 1 The societies were categorised into 5 classes based on their composite performance index and in 3 categories based on the physical and financial indices. The class intervals of each category were determined on the basis of the range of data. The difference between maximum and minimum value across societies for the relevant index was worked out and then divided by number of classes (fixed as 5 or 3), to get the estimate of appropriate class interval. The smallest value in the series was then added to the class interval obtained above to get the first class. Rest classes were computed following the same pattern.

