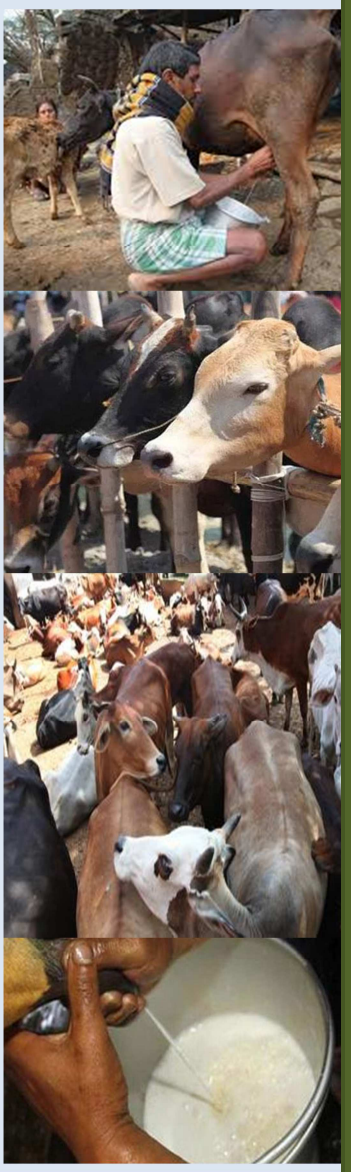
Study Number – 187

Assessment of the Status of Dairying and Potential to Improve Socio-Economic Status of the Milk Producers in West Bengal



Debanshu Majumder
Ranjan K. Biswas
Bitan Mondal
Ashok Sinha

Study sponsored by Ministry of Agriculture and Farmers Welfare
Government of India, New Delhi

Agro-Economic Research Centre
(For the States of West Bengal, Sikkim and Andaman & Nicobar Islands)
Visva-Bharati, Santiniketan
West Bengal

October 2017

Study No –187

Assessment of the Status of Dairying and Potential to Improve Socio-Economic Status of the Milk Producers in West Bengal

Debanshu Majumder
Ranjan K. Biswas
Bitan Mondal
Ashok Sinha

Study sponsored by Ministry of Agriculture and Farmers Welfare
Government of India, New Delhi

Agro-Economic Research Centre
(For the States of West Bengal, Sikkim and Andaman & Nicobar Islands)
Visva-Bharati, Santiniketan
West Bengal

October – 2017

Citation:

AERC (2017). Assessment of the Status of Dairying and Potential to Improve Socio-Economic Status of the Milk Producers in West Bengal; Study No. - 187, Agro-Economic Research Centre (For the States of West Bengal, Sikkim and Andaman & Nicobar Islands), Visva-Bharati, Santiniketan, West Bengal, pp.- xxiv+139

Project Team:

Team Leader

Debanshu Majumder

Drafting and Report Writing

Debanshu Majumder
Ranjan K. Biswas
Bitan Mondal

Field Survey and Tabulation

Ashok Sinha
Vivekananda Datta
Debajit Roy
Nityananda Maji
Munsi Abdul Khaleque
Ranjan K. Biswas
Debanshu Majumder

Secretarial Assistance

Dibyendu Mondal
Parag Mitra
Debsankar Das
Amulya Ratan Patra

Coordinator

Agro-Economic Research Centre, Sardar Patel University, Vallabh Vidyanagar, Anand, Gujarat.

Preface

The study on "Assessment of the Status of Dairying and Potential to Improve Socio-Economic Status of the Milk Producers in West Bengal" is an All India Coordinated Study and was carried out at the Agro-Economic Research Centre, Visva-Bharati, Santiniketan, West Bengal at the instance of Ministry of Agriculture and Farmers Welfare, Government of India, New Delhi. The task of coordination has been entrusted with Agro-Economic Research Centre, Sardar Patel University, Vallabh Vidyanagar, Anand, Gujarat.

Dairying is an important and integral part of the rural economy of West Bengal, which is perceived to be an effective instrument for bringing socio-economic transformation in the state. It contributes nearly one-fifth to the agricultural value of output and provides employment to about 2 million people, the majority of whom are resource-poor. Production of total milk in the state has increased from a mere 35 lakh metric tones in 2000-01 to over 50 lakh metric tones in 2015-16. However, organized dairying is yet to achieve its full potential in the state. Despite of impressive growth in milk production, productivity of dairy animals continues to remain very low and milk marketing system is mostly dominated by unorganized sector. The major share of milk production of the state is used for the manufacture of traditional dairy products (channa) by unorganized sector. Further, not only the state has predominantly indigenous cows, mostly non-descript, the infrastructure for milk procurement and milk processing in the state is also very poor. Therefore, the state needs special attention as it seems to be lagging behind in dairying as compared to several states in India. The present study provides a detailed documentation of the dairy landscape in West Bengal.

The task of completion of this study was assigned to Debanshu Majumder, as Team Leader. He was assisted by Ranjan Kumar Biswas, Ashok Sinha, Dabajit Roy, Vivekananda Datta, Munshi Abdul Khaleque and Nityananda Maji in field survey, data entry and tabulation. Secretarial assistance was provided by D. Mondal, D. Das, P. Mitra and A.R. Patra. B. Singh and S. Hansda helped in the office maintenance. Dr. Bitan Mondal, Institute of Agriculture also helped in compiling secondary information as well as in drafting the report.

We acknowledge the generosity of Prof. Swapan Kumar Dutta, Vice Chancellor (Officiating) Visva-Bharati, and Madam Ms. Sangeeta Verma (Economic and Statistical Adviser) and Shri P. C. Bodh (Adviser-AER Division) of Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare, Government of India, New Delhi for their guidance and necessary support in completion of the study. We also thank Prof. Bidhan C. Roy, Hony. Deputy Director, AER Centre, Visva-Bharati, for his support and comments on the draft of the present study.

We are extremely indebted to Ms. Dora Saha, Manager, SAS, National Dairy Development Board (NDDB), Kolkata, for her guidance and active support in course of the study without which the present project would not have been completed.

We are equally indebted to Dr. Amrita Patel, Former Chairman, NDDB, Anand and for her guidance and useful suggestions/comments during the National Workshop cum Seminar held in AER Centre, VVN, Anand. We thank our respected colleagues from the participating AER Centres for their comments during the workshop. A word of appreciation is also to Mr. Biswajit Bhattacharya, NDDB, Anand for his valued opinion and supplying secondary information regarding dairying in the state.

We are deeply grateful to the Managing Directors, District Milk Unions of Bankura, Nadia, North and South Twenty Four Parganas for providing the necessary data and support in course of primary data collection.

We are particularly thankful to Prof. S. S. Kalamkar, Hon'ble Director, AERC, Vallabh Vidyanagar, Anand, Gujarat for his effective coordination of the study and for his valuable suggestions and comments which he rendered from time to time in course of the study.

Last but not the least; thanks are due to innumerable respondents in the villages who ungrudgingly took the pain of answering to our questions for hours at end. We thank each one of them for their invaluable support.

Prof. Amit Kumar Hazra
Registrar (Acting)
&
Hony. Director
Agro-Economic Research Centre
Visva –Bharati, Santiniketan

Contents

List of Tables

List of Figures

List of Maps

Executive Summary

E1.1 Introduction

Dairying plays a vital role in rural economy by providing employment and income generating opportunities particularly for small, marginal and women farmers and landless labourers.

Bullocks and milch animal are the main support of agricultural operations and also a major source of supplementary income to the marginal and small farmer and landless agricultural labourers. On the other hand, the by-products of agricultural produce happen to be the chief ingredients of food for cattle and milch animals. The requisite labour for keeping dairy animals is also available from within the farmer's family. A very large portion of female labour force of cultivator households gets self-employment in several occupations allied to cattle and buffalo rearing.

E1.2 Need of the study

Over the periods since independence shift from cultivators to agriculture labourers has been significant in West Bengal. There is a critical need for generating adequate employment opportunities for these groups of population. Dairy farming may become an alternative way of livelihood. However, the productivity levels of milch animals are quite low and that the genetic pool of the milch animal population is of low quality, despite the fact that this region has relatively superior resource endowment.

The dairy cooperative structure has been rather weak in these parts of the country in terms of coverage of dairy cooperatives in villages, milk producers and share of milk procurement in surplus milk. But there is immense potentiality for using agricultural wastes as cheap and economical cattle ration. Moreover, preponderance of indigenous animals in the study area could minimise the impact of climatic variability as they are more resilient to such changes.

It is in this light we had taken up the study with following objectives.

E1.3 Objectives of the study

a) To assess the present status of dairying with reference to animal distribution, milk production, consumption and marketable surplus.

b) To identify the constraints in dairy development from supply side, institutional deficiency and processing infrastructure.

c) To identify different central and state government schemes related to dairy development at district level and document technical as well as operational details of the schemes and understand how convergence is ensured.

d) To highlight the facilitating factors that could help promoting dairy development to improve socio economic status of the milk producers.

e) To suggest broad areas for focussed interventions for promoting dairy development in the selected state and the way forward.

f) To suggest suitable policy measures to ensure compliance of effective convergence of various schemes for the benefits of dairy farmers.

E1.4 Data and Methodology

The study is based on both, the secondary and primary level data. The secondary data pertain to dairy development efforts and information as regards to various schemes implemented by the government while primary data from villages were collected using a multistage sampling procedure.

Four districts (viz. Bankura, Nadia, North 24 Parganas and South 24 Parganas) were selected from 3 respective agro-climatic regions of the state in consultation with National Dairy Development Board (NDDB), Kolkata. In each district two CD blocks (one having close proximity with District HQ and the other one a far-away) were chosen at the second stage. In the next stage, two villages were so selected that one having Dairy Cooperative Society and the other did not come under such coverage (henceforth DCS & NDCS villages). Thus, total numbers of selected villages in the State were 16. From each selected village, 15 milk producers (5 from each category of small, medium and large milk producers) were selected randomly adding to a total sample of 240 milk producers in the State. All milk producers were interviewed with a structured questionnaire. In addition, data on parameters related cost of milk production were collected from 03 milk producers from each village (one each from three categories), thus total 48 milk producers.

Officials of every District Milk Union (DMU) and Primary Dairy Cooperative Society (PDCS) were interviewed and data were collected with a structured schedule.

E1.5 Limitation of the Study

The most important limitation of this study is that published information for Animal Husbandry and Dairying in West Bengal state is too scanty than the requirement of the study. This restricted us to analyse few important dimension of the study, as compared to other states, which requires comparable and continuous time-series data on several variables related to dairying and animal husbandry in West Bengal.

E1.6 Findings from Secondary Data

E1.6.1 Trend in Contribution of Dairy in GSDP in West Bengal

Animal husbandry plays an important role in rural economy of West Bengal state. The contribution of Livestock was 4.30 per cent to the state GSDP in 2013-14. On the other hand, the contribution of agriculture to total GSDP was 12.35 per cent. The contribution of agriculture and livestock to total GSDP was estimated to be 16.64 per cent, while contribution of livestock to agriculture and livestock together was nearly 26 per cent. Thus, more than one fourth of the agriculture sector output comes from livestock sector. The share of GVO from livestock to agriculture sector has remained between 20.57 - 25.81 per cent with some little fluctuation during the last one and half decade.

Livestock contributes more than 20 per cent to the agricultural GDP of West Bengal and is one of the biggest sectors for supporting livelihood in the state. Livestock output at constant prices was reported at Rs. 288.75 billion in 2011-12 (at constant prices), of which milk contributes about 47.15 per cent or Rs. 136.16 billion.

E1.6.2 Composition of Livestock & details on Cow and Buffalo Breeds in West Bengal

However, over the period, share of cattle population in total livestock population has declined from 65.45 per cent in 1961 to 54.42 per cent in 2012. The share of buffalo population has also decreased considerably (5.62% to 1.97%) during the corresponding period. In absolute term, the rate of cattle population increases by 43.90%, while the rate of buffalo population

decreases by 39.45 %. In case of small ruminants, sheep population has increased by 101 per cent and goat population increased by 154.95 per cent in 2012 over 1961. Total livestock population in West Bengal has increased by 73.07 per cent during last five decades period.

The State has some high-quality and high-yielding breeds of cattle and buffaloes. Sahiwal, Gir, Jersey and Holstein Friesian breeds in cows, and Murrah breed in buffaloes were known for their high milk yielding capacity. The Jersey breed is found in all over the state of West Bengal. But till today, indigenous breeds are predominant in the state.

E1.6.3 Plan wise Outlay and Expenditure under Dairy Development

The State Government policy has been providing necessary support for dairy development in the state through cooperative sector. However, percentage share of expenditure on dairy development to total expenditure has declined considerably. As compared to around 41.29 per cent share of total expenditure on dairy development during 1974-1978, it has declined to 10.69 per cent during the period of 2002-03 to 2011-12.

E1.6.4 Growth in Milk Production and Productivity in West Bengal

Most of the animals in West Bengal are Zebu cattle i.e. non descriptive cow whose productivity is very low. In order to improve the productivity of Bengal *desi* cow, Artificial Insemination (AI) with frozen semen of quality breeds is being extensively carried out. The entire breedable cow population in the state is being tried to be brought under the coverage of AI at the Gram Panchayat (GP) level. Moreover co-operative unions are also responsible for performing AI under their care. They also supply feed, fodder seeds etc. to the beneficiary farmers which in turn help to improve the milk production of the state.

The milk production has increased from 35 lakh tonnes in 2000-2001 to 49.6 lakh tonnes in 2014-15 registering a growth of 41.71 per cent over base year. As a result, the per capita availability of milk in the state increased from 116 gms/day in 2000-01 to 145 gms/day in 2014-15.

Out of total bovine milk production in 2015-16, 62.32 per cent share accounts for Indigenous cattle, 32.79 per cent share accounts for Crossbred cows and remaining 4.89 per cent was of Buffalo breed.

E1.6.5 Milk Consumption and Marketable Surplus

On the basis of availability of data on milk utilisation pattern in West Bengal, it has been found that out of total production of milk at home, about 65 per cent was sold, while 22 per cent milk was consumed at the home and remaining 13 per cent milk was converted into milk products in 2014-15.

E1.6.6 Status of Availability of Feed and Fodder

As against the estimated animals' requirements of dry matter, feed resources available in West Bengal are lower. In the last almost one and half decade (1997 to 2011), shortage of dry matter in the State reduced from 57.86 per cent of the requirement to 46.91 per cent.

Green fodder is a comparatively economical source of nutrients. However, the availability of green fodder is also lower than estimated requirement in West Bengal. The estimation in 2007-08 regarding area under fodder crops indicated that only 0.04 per cent area to the gross sown area of 9752 thousand hectare was under fodder cultivation in West Bengal.

In West Bengal, there is absence of regulated and organized fodder market. Small scale marketing of fodder exists in all rural areas where fodder is sold by producers to traders or directly to the consumers.

E1.6.7 Infrastructure Development

For veterinary Services, 110 State Animal Health Centre (SAHC) & District Veterinary Hospital (DVH), 341 Block Animal Health Centre (BAHC), 273 Additional Block Animal Health Centre (ABAHC), 3248 Animal Development Aid Centre (ADAC) and 5744 Artificial Insemination Centre (AIC) are working at present. Still these facilities are not available in the interior villages. The state has no any facility for Mobile Animal Health Centre. In case of Cattle Breeding Farm, the West Bengal state has 7 Breeding Farms in Haringhata, Kurseong, Salboni, Suri, Kharagpur,

Kalyani, and Beldanga. These Breeding Farms are operating since 1990-91. There are seventeen Co-operative Milk Unions as well as Co-operative Dairy Unions in West Bengal.

E1.6.8 Dairy Development Institutions in West Bengal

A. Directorate of Dairy Development:

Directorate of Dairy Development, Government of West Bengal is engaged in the processing of raw milk to produce pasteurised and homogenised market milk and various milk products, and sells them through its own network of Milk booths, Suravis, Agents and Distributors in safe and wholesome condition. With the implementation of Operation Flood Programme in the mid-1970s, the extension, procurement and other farmer related activities on Dairy Development have been handed over to the Co-operative sector, i.e.; West Bengal Co-operative Milk Producers' Federation Limited.

B. West Bengal Co-Operative Milk Producers' Federation Ltd.

West Bengal Co-operative Milk Producers' Federation Ltd. (Federation) was formed as an apex body of milk cooperatives in West Bengal for developing the dairy industry.

The Federation has implemented the Women Dairy Co-operative Project (WDCP) funded by the Ministry of HRD, Govt., of India and thereby empowering the Women economically and socially.

Funded by the Ministry of Agriculture, Govt. of India the Federation is also implementing Integrated Dairy Development Project (IDDP) in the hilly, Non-OF and backward areas of West Bengal.

C. Mother Dairy Calcutta (MDC)

Apart from Directorate of Dairy Development and West Bengal Co-operative Milk Producers Federation, Mother Dairy Calcutta is also providing necessary support towards dairy development in the state through its own infrastructural and managerial capabilities. Today Mother Dairy has become a household name in case dairy products to the urban consumers of the state especially greater Kolkata and neighbouring towns.

E1.6.9 Policies and Programmes / Schemes for Dairy Development

In West Bengal, the Animal Resources Development Department is responsible for the formulation and implementation of Livestock and Poultry policies and programmes of the state. The following participatory branches including a university under this department are looking after the successful implementation of all the projects and schemes of the Department (NDDB, 2017):

1. Directorate of Animal Resources & Animal Health (DAR&AH)
2. Directorate of Dairy Development
3. Paschim Banga Go-Sampad Bikash Sanstha (PBGSBS)
4. West Bengal University of Animal and Fishery Sciences (WBUAFS)
5. West Bengal Cooperative Milk Producers' Federation Ltd. (WBCMPF)
6. West Bengal Dairy & Poultry Development Corporation Limited (DAIRPOUL)
7. West Bengal Livestock Development Board
8. Mother Dairy
9. West Bengal Veterinary Council
10. The Calcutta Society for the Prevention of Cruelty to Animals (CSPCA)

E1.7 Findings from Primary Survey

E1.7.1 About Selected Study Area, Sample Households and Milk Unions

In all districts barring South Twenty Four Parganas, the milk unions cover over five hundred villages in respective districts. Activities of Sundarban MU have been rejuvenated in 2015 and were found to grow in a steady pace during the time of survey.

The number of cooperative societies under the jurisdiction of the milk unions was highest in Bankura (350) while it was lowest in South Twenty Four Parganas (44). However, the milk procurement/collection figures reveal that Nadia topping the list with 143.3 lakh kilograms of liquid milk from the cooperative societies per annum.

As far as milk processing plants are concerned, all the districts of the present study did not have such plants. Of the four, Bankura, Nadia and North Twenty Four Parganas had milk processing

plants situated in the district. South Twenty Four Parganas did not have such facility. Even in the former three districts the plants generally processed liquid milk of various standards.

On the whole the villages (both DCS and NDCS) in four districts were placed more or less at par in respect of the basic socio-economic parameters with a little difference among them.

In terms of average family size the households of four districts (both DCS and NDCS villages) reveal similar pattern. The average family size in aggregate was around 4.3-4.4 in DCS and NDCS villages. Average age of respondents varied between 46.7 to 50 years while average age of the family was around 37 years. It was also interesting to find that average age of female respondents was significantly lower than that of male respondents in all four district irrespective of DCS or not. In the households under present enquiry the education scenario was found quite dismal.

Population composition in respect of religious groups revealed that in all villages, people from Hindu religious belief dominate the social scenario of whom people from the Scheduled and other backward communities are of sizeable proportion in the respective size-classes. Scheduled Tribes were few in number.

Families in both DCS and NDCS villages were mostly farming families pursuing cultivation as their principal occupation. Most of the households took up dairy enterprise as their subsidiary source of income even in the DCS villages. In the DCS villages the size of average operated land had been 0.28 hectares in contrast to 0.40 hectares of average operational land in the NDCS villages. In a sense the farmers of the villages without dairy cooperatives are marginally better off than their DCS counterparts.

The general crop rotation practice throughout the year could be described by Rice followed by Potato and Mustard followed by Rice once again in *Kharif, Rabi* and *Summer* seasons respectively.

E1.7.2 Cost of Milk Production and Awareness about Schemes

Breedable Animals

In DCS villages herd strength of local milch animals were higher than that in the NDCS villages

across all size-classes. But when it came to rearing of cross bred animals, NDCS farmers owned more cross bred cow than the former ones. So far as the cattle sheds are concerned NDCS farmers were found to own more sheds on an average for their cattle than DCS farmers.

Average age of the breedable local cows in the DCS villages was 6 years in aggregate of all size-classes while for cross bred cow average age had been 5 years. Average age at first calving for local cows was higher than the cross bred cows in both the areas. Lactation order was found more or less same for all types of farmers with marginal variation among the village clusters and size-classes.

A dismal scenario was observed as regards to insurance coverage for the cattle.

Labour Use Pattern

In both DCS and NDCS villages no hired labour had been employed for dairy operations. It is noteworthy to mention that in DCS villages across all size-class participation of women family members had been higher both in terms of number per day as well as hours of involvement in such activities. Moreover they had been members of DCS too.

Details on Feed/Fodder and Water

NDCS households across all size-classes were feeding their cattle with more of dry and green fodder and supplements as compared to the DCS farmers. In case for concentrates DCS and NDCS farmers were applying prepared cattle feed in more or less equal quantity. In case of cross bred cow, however, feeding was higher among the DCS households than their NDCS counterparts. Average grazing hours for local cattle was 3.4-3.8 hours while it was 2.5 for cross bred cattle.

In the villages of the present study (both DCS & NDCS) normal water of adequate quantity was reported by the respondents. The main source of water for dairy had been tube wells supplemented by farm ponds and open wells.

Details on Veterinary and Breeding Services and Expenditures

Most of the animals in DCS and NDCS villages across size-classes received vaccines like HS, BQ and FMD. Vaccination among the small size-class had been a little lower as compared with the

other two size-classes. Use of vaccines for cross bred cows was marginally higher than the local cows. Artificial insemination (AI) had been the main method of conception for the cattle.

Awareness about the Schemes

Knowledge and awareness regarding vaccination and AI schemes had been to the fullest extent. But when the question boiled down to awareness about other schemes there was sharp contrast between the farmers of DCS and NDCS villages. For the DCS farmers knowledge had been imparted by the milk cooperatives and milk unions functioning in the area. For the NDCS farmers, however, source of their awareness had been fellow farmers and neighbours.

Most of the benefitted DCS farmers seemed to be satisfied with the assistance they received through the several schemes and reported quality of the material had been up to their expectation.

Cost of Milk Production

For calculating cost and returns we had imputed the value of family labour with ruling wages rates for male and female. It is observed that labour cost has been the main component of total cost in all cases. The proportion of labour component, however, was found decreasing with increase in the size-class of both DCS and NDCS villages. The prices offered by the private agents were lower than the prices paid by the local dairy cooperatives.

Coming to the question of net returns per day per animal, we are faced with a situation where farmers were incurring heavy losses. Barring only two categories of middle and large farmers rearing cross bred cows in both types of villages all other farmers were suffering sizeable amount of net losses per day. But if the imputed value of labour gets deducted from total cost the households across each and every size-class and for all types of cows earned substantial positive profit per day per animal. It might have been due to over-optimal usage of family labour in dairy activities.

E1.7.3 Milk Consumption and Marketable Surplus

Use of Milk at Home and Processing

In the DCS households data for milk drawn per animal per day revealed that the quantity of milk drawn per local cow was 2.64 litres for the DCS village while it had been 5.65 litres for cross bred cow. For NDCS households, however, quantities were to the tune of 2.93 litres and 5.45 litres respectively.

General practice among the farmers of all categories was to sell out bulk of the liquid milk. It was interesting to note that in both cases milk of cross bred cow was sold directly in greater proportion than the milk of local cow. This in a way points towards household's preference for milk of the local cow for their own consumption.

Sale of Milk and Cost of Milk Marketing

In all size-class categories the percentage of sale by the DCS farmers to milk cooperatives accounted for over 85 per cent. For NDCS farmers, however, proportion of total sales, being around 85 per cent, had been given to the private vendors and middlemen.

The price offered by cooperatives had always been higher than the price offered by the private ones. Payments by DCS were generally transferred to suppliers' bank accounts on weekly basis whereas payments from local vendors were received after a month including delayed payments.

Handling of Income from Dairying

Involvement of women members in receiving income from sale of milk was found in both DCS and NDCS families. As far as income from sale of cow dung, cow dung cakes and farm yard manure, women had almost unquestionable authority of receiving the income in both types of villages. Share of expenses for family maintenance had been higher in comparison with the share of expenses for dairy activities from sales proceeds of milk. However, income from dung sale was switched towards upkeep of the cattle herd in greater proportion with some inter size-class variations.

Problems in Milk Marketing

The milk cooperatives, though operating in every district, were too small in number to rope in the large number of small milk producers in respective areas under their coverage. Moreover, their procurement capacity had been rather small as compared to the supply of liquid milk. And these cooperatives were faced with competition from the enumerable private intermediaries who collected the milk from producer's door steps. Moreover, there existed problems of milk adulteration and malpractice by the small private players as complained by some of the DCS members.

E1.7.4 Constraints

Constrains faced by Milk Producers

Delivery of cattle feed from the DCS and private agents were found inadequate. Most of the households could purchase cattle feed on credit from private agents only. There was no provision of credit from the dairy cooperatives. Cattle feed and mineral mixtures, when purchased from open market or private agents had been much costlier than that been supplied by the cooperatives.

Emergency veterinary service in general was made available by the private agents in all the villages though charges for such had been high. Vaccines too, been supplied by the private agents, were inadequate in supply and poor in quality. Semen had also been insufficient in supply.

All the milk producers found the milk procurement price to be low whether being disposed with cooperatives or private vendors. However, the regularity of payment differed between the societies and vendors. There had been no incentive bonus and advance payment to the producers either by cooperative societies or the private agents for supplying milk.

As of infrastructure, it was found that the households mainly suffered from lack of improved equipment and training facilities, irregularity of supply of cattle feed, vaccines, semen at AI centre and infrequent visit of veterinary staff. Both DCS and NDCS households were

complaining against poor conception rate through AI, poor knowledge about proper feeding and health care and cheap and scientific housing for animals.

High cost of feed and mineral mixture, veterinary medicines emergency veterinary services added with low price of milk are major economic hurdles. Main constraints for DCS and NDCS farmers turned out to be lack of purchasing power resulting out of lower socio-economic conditions.

Constraints faced by PDCS

All the DCS were of the opinion that the average milk yield in the respective areas was sometimes low. Unavailability of emergency veterinary services and infrequent visit by veterinary staff had been a serious obstacle in Nadia, North and South Twenty Four Parganas. Large number of small producers in Nadia and South Twenty Four Parganas posed serious problem of monitoring and follow-up activities by the DCSs.

Market related constraints included DCS's inability to market value added milk products in all districts. In fact there was no provision at the DCS level to process milk and produce value added products.

Constraints faced by Milk Unions

There was deficiency in skilled manpower of which all the milk unions were suffering.

Technical constraints included unavailability of required inputs, technical knowhow and instruments to detect adulterants in milk, state of the art technology for quick fat detection.

As far as the governance issues were concerned, it was observed that some of the milk unions were looking for autonomy and staff recruitment for smooth functioning and monitoring of the MU and the DCSs. Formation of new Board of Directors and reduction in political intervention was also necessary.

Gradual increase in overhead expenditure coupled with decreasing quantum of milk procurement had resulted in a severe financial crisis in the districts of Nadia and North Twenty Four Parganas.

E1.8 Conclusions

- The State and Central Government policy has been providing some support for dairy development in the state of West Bengal through co-operative sector. However, as against the estimated animals' requirements, feed resources available in West Bengal are lower. In West Bengal, however, there exists high incidence of non-descript cows in comparison with the crossbred varieties.
- In terms of socio-economic parameters villages of four districts (both DCS and NDCS villages) reveal more or less similar pattern. Families were mostly farming families pursuing cultivation as their principal occupation. Most of the households took up dairy enterprise as their subsidiary source of income. In the villages dairy enterprise was being run solely by family labour. It is noteworthy to mention participation of women family members remained crucial for such operation.
- Poor state of awareness about various dairy developments schemes were observed among the NDCS households. A dismal scenario was observed as regards to insurance coverage for the cattle in all the villages regardless of DCS or NDCS.
- It is observed that labour cost has been the main component of total cost in all cases. There might be over optimal use of family labour.
- The milk cooperatives, though operating in every district, were too small in number to wrap the large number of small milk producers in respective areas. Moreover, their procurement capacity had been rather small as compared to the supply of liquid milk.
- Service delivery of cattle feed and fodder was found inadequate. Cattle feed and mineral mixtures, when purchased from open market or private agents had been much costlier.
- Procurement price of milk had been non-remunerative for the farmers whether purchased by cooperatives or private vendors.
- As of infrastructure, the households suffered from lack of improved equipment, training facilities, irregularity of supply of cattle feed, vaccines, semen at AI centre and infrequent visit of veterinary staff. Charges for emergency veterinary service provided by private agents had been high.

- All the DCS were of the opinion that the average milk yield in the respective areas was sometimes low. Unavailability of emergency veterinary services and infrequent visit by veterinary staff had been a serious obstacle. Large number of small producers also posed serious problem of monitoring and follow-up activities by the DCSs.
- There was severe deficiency in skilled manpower of which all the milk unions were suffering. Technical constraints included unavailability of required inputs, technical knowhow and instruments to detect adulterants in milk, state of the art technology for quick fat detection. As far as the governance issues were concerned, it was observed that some of the milk unions were looking for autonomy and staff recruitment for smooth functioning and monitoring of the MU and the DCSs. Gradual decrease in quantum of milk procurement has posed serious threat.

E1.9 Recommendations

- Innumerable small dairy farms are to be fastened in some sort of milk chain by the cooperative societies. So, there is urgent need to enhance the number of PDCS in each district to reduce the exploitation by private vendors.
- The infrastructure for milk procurement and transportation should be improved at the DCS level.
- Enhanced operation of DCS offering remunerative price to farmers can motivate them in joining the society and at the same time this partnership would be able to make a dent in farmers' economic hardship.
- Service delivery of feed and fodder to be enhanced. Provision for vaccinations and emergency veterinary services including AI needed to be boosted. In this aspect DCSs working at the village level could play an important role.
- Re-orientation and proper implementation of government policies for dairy development at the grassroots must be taken care of. And in view of such re-orientation more autonomy and funds are to be provided to DCS.
- For increasing awareness regarding scientific dairy farming new training programmes need to be arranged especially for the women. These might be able serve twin purposes

of imparting improved consciousness among women regarding dairy farming and might as well be supportive for women empowerment in the village society.

- It remained essential that the farmers be motivated to insure their cattle for it minimized the risk. Procedural changes, if necessary, can be thought of so that the farmers can avail these benefits. Outreach of the facility needs to be provided at the village level. For DCS membership insuring cattle might be made a mandatory criterion.
- The DCSs were of opinion that there had been fluctuations in milk yield across seasons. Proper and scientific dairy practices backed by better awareness supported by government veterinary and DCS staff might be able to bring about a change in such paucity.
- The milk unions might be provided with skilled manpower for proper implementation and monitoring of the operations of DCS. More autonomy in MUs' functioning might be necessary and political intervention must be restricted.
- Establishing milk processing plants in the districts are of urgent importance for production of value added milk products that would ensure higher return.
- Offering remunerative price for milk is a decision that depends on the policy of the government. In face of rising cost a hike in procurement price may be thought of which in turn would motivate and improve economic conditions of the farmers.
- As such there are ample central and state sector schemes for development of animal husbandry in general and dairy expansion in particular. Convergences of many of such schemes were found in the survey area of this present study. But the scope and coverage seemed somewhat restrictive. Policy re-orientation might be sought for rejuvenating the dairy sector in the villages of West Bengal.