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Dairy Development Programme (Kamadhenu) for Strengthening Livelihood of Small Farmers in Chittoor District, AP

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Dairy Development Programme (Kamadhenu) for Strengthening Livelihood of Small Farmers in Chittoor District, AP

N.Madhumurthy[1]

Abstract:

"Kamadhenu" is an integrated dairy development project implemented in Chittoor district of Andhra Pradesh during 2010-16. This project was conceived in the backdrop of failure of agriculture in providing adequate livelihood to the rural people in the district during the period preceding the Kamadhenu project. Chittoor district administration launched the Kamadhenu project in 2010-11 with the main objective of promoting dairy as a viable and sustainable source of livelihood support to the farmers. The main components of the project were: (a) adoption of vertical integration of various dairy components as the main business model; (b) focus on reproductive efficiency and sound herd management; and (c) sound procurement and marketing strategy for the milk. Banks have been involved in financing the dairy schemes in a big way mostly through SHGs and JLGs. SHG Federations have been involved in the entire value chain activities right from identification of beneficiaries to milk procurement and marketing. The project was highly successful in the district with milk production going up from 5.78 lakh MT(2008) to 17.54 lakh MT (2018).The bank credit to dairy sector increased from Rs.342.48 crore during 2012-13 to Rs.1042.12 crore during 2017-18 at a compound average growth rate (CAGR) of 24.93%. About 86% of the loans sanctioned were through SHGs and JLGs. The main reasons behind the success of the project were (a) creation of enabling environment by the government / government departments; (b) convergence of various schemes / programmes of different stakeholders; and (c) promotion of dairy farming through sustainable livelihood finance involving SHGs/JLGs.

1. Background, Objectives and Methodology

1.1 Background: Dairy industry in India has grown consistently over a period of time making India the largest producer of milk (176.4 MMT[2]during 2017-18) in the world. Milk has also emerged as the largest agri-produce, with value of milk exceeding the combined value of food grains[3]in India. The successful implementation of the Operation Flood programme, provided a great fillip for dairy development and much needed livelihood support for majority of small and marginal farmers in India. GOI and state governments are encouraging dairy activities through various government sponsored subsidy schemes. However, of late the dairy farmers are suffering losses due to the increase in cost of inputs (feed and labour) and unremunerative price of milk,

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[2]Million Metric Tonnes

[3]https://indianexpress.com/article/india/with-20-of-agriculture-output-value-milk-overtakes-foodgrains-4901882/

highlighting the need for adopting scientific management practices for increasing production efficiency and sound marketing strategy for milk. On their part, the bankers needed to focus on the above aspects for sustainable dairy financing as also to collaborate with the other stakeholders for deriving desirable benefits. Such an approach was successfully adopted in Chittoor district, Andhra Pradesh through an integrated dairy project called "Kamadhenu". The success story of the Kamadhenu project implemented in Chittoor district is presented in this document.

1.2 Objectives

- To study the factors leading to the success of dairy activity in Chittoor district, A.P
- To study the role of JLGs / SHG federations in promotion of dairy activity.
- To examine the role of bank finance in the promotion of dairy and its replicability in other regions.
- To analyze the promotional role played by government agencies like District Rural Development Agency (DRDA), Animal Husbandry Department (AHD) etc., for bringing about convergence of the dairy activities/programmes in their area of operation.

1.3 Methodology

The documentation process was initiated with a field visit to the Chittoor district during October 25-26, 2018.Primary data was collected from Animal Husbandry Department (AHD), [4] District Rural Development Agency (DRDA), Lead District Manager (LDM), District Development Manager (DDM),NABARD, Self Help Groups (SHGs), Joint Liability Groups (JLGs) and dairy farmers. Discussions were held with the officials of district administration, AHD, Indian Bank, State Bank of India, Union Bank of India, Saptagiri Gramin Bank, Chittoor District Central Cooperative Bank (DCCB), and Chief Executive Officer (CEO) of Shrija Farmers Producer Company (SMMPC). The sample SHG / JLG beneficiaries and [5]SHG federations visited during the study are presented in Annexure I. Pre designed interview schedules were used for gathering information from SHG federations, SHGs, JLGs, dairy farmers, DRDA and AHD. The annual

[4]*The District Rural Development Agency (DRDA) has been established by Govt of A.P to facilitate rural development programmes including promotion of SHG to facilitate poverty reduction through social mobilization and improvements of livelihoods of rural poor.*

[5]*In Andhra Pradesh, the SHGs were supported by a unique structure of Community Based Organizations (CBOs) viz., Village Organizations (VOs) at Village level, Mandal Mahila Samakhyas (MMS) at Mandal (block) level and Zilla Samakhyas (ZS) at District level. The MMS and ZS are legal entities registered under A.P. Mutually aided Cooperative Society Act 1995.*

reports, balance sheets and other documents were collected from SHG federations and Shrija FPC to study the background information, outreach, financial performance, financial products and livelihood services supported by them. Similarly, interview schedules were used to collect information on financial, livelihood details and internal management systems from SHGs /JLGs.

2. Pre project status / environment.

Chittoor district falls in the Rayalseema region of Andhra Pradesh which is a dry region with over 2/3rd of population residing in villages. Major source of irrigation in the district is bore wells. However, due to depletion of irrigation water levels, the area under cultivation started declining. During the period from 2000 to 2010, the area under paddy crop reduced from 37,543 ha to 18,496 ha, groundnut from 1,88,622 ha to 1,37,205 ha and sugarcane from 44,931 ha to 28,646 ha. Thus the gross cropped area in the district declined from 3,65,352 hectares in 2000 to 300,643 hectares in 2004[6]. The farmers had taken up dairy farming to support their livelihood during this period as they were not getting adequate income from farming alone.

However, dairy farming also received set back with the decline of cooperative dairy societies and advent of private dairy industries in the district. Around 26 private dairies had come up in Chittoor district during the period 2000 to 2012 (details are furnished in Annexure II). [7]According to an article published in the Front Line, December 08-21, 2007, the private dairies formed a syndicate to exploit milk producers by paying them less milk price (Rs.5 to Rs.7 per litre). Dairy farmers also faced problems with regard to the availability of fodder, as the usage of combined harvesters for harvesting paddy reduced the availability of paddy straw. This forced the farmers to feed the dairy cattle with concentrate feed purchased from the market to sustain milk production, thereby increasing the cost of milk production which affected viability of the dairy activity. With the increase in input and labour costs, besides not getting remunerative prices for the milk, farmers were in distress. They approached the district authorities to seek remunerative prices for their milk produce. In order to provide support to the farmers, Government of Andhra Pradesh (GOAP) launched large scale animal induction programme called 'Pasukranthi' during 2007-08. The programme was supported with bank finance and subsidy for purchase of high quality animals

[6] Source of data – Article on A white revolution – *Chittoor district – Frontline-Vol 24, Issue 24,Dec 08-21,2007* accessed from the link-*https://www.frontline.in/static/html/fl2424/stories/20071221507512000.htm*.

[7] Source – Chittoor drafts success story – private dairies in Chittoor district- accessed from the link- *https://www.frontline.in/static/html/fl2424/stories/20071221507512000.htm*

from distant markets outside A.P. However, this programme did not address the basic issues relating to availability of inputs (feed, fodder), production efficiency and price of milk. The scheme thus failed to ameliorate the farmers' problems. Drawing lessons from this programme, the Chittoor district administration came out with a new model of dairy development project called "Kamadhenu" which was implemented during 2010-16.

3. Details of the Kamadhenu project.

3.0 The Kamadhenu project was conceived by the district administration with the main objective of promoting dairy activity in the district, as a viable sustainable source of livelihood support to the farmers. The entire focus of the district administration, in their earlier dairy development programmes implemented during the decade 2000-10 (like Pasukranthi scheme) was on supply of dairy animals with bank finance, while issues relating to productivity, feed and fodder, integration, remunerative price to dairy farmers etc., attracted limited attention. Drawing lessons from these earlier programmes, the Chittoor district administration came out with a new model of dairy development in convergence with the schemes of DRDA, AHD and bankers in an integrated, sustainable and holistic manner through community participation. The project was implemented during 2010-16. Initially, the project was implemented on a pilot basis, with two SHG Federations viz., (i) Ramasamudram MMS and (ii) Madanapalli MMS with a project outlay of Rs. 1.09 crore for each federation. These two federations were provided with the grant support from NABARD. The success of the pilot project generated interest of bankers for financing dairy. Later, during 2013-16 the project was scaled up and extended to the entire district with the support of bankers and National Dairy Development Board (NDDB)**.**

3.01 Major features of the project

The major features of the Kamadhenu project were

a) Creation of enabling environment by the government departments.
b) Convergence with concerned departments / programmes for encouraging sustainable dairy activity among SHG members and vertical integration with other dairy components.
c) Establishment of milk procurement system totally managed by the SHGs and SHG federation and tie up with a private dairy processing unit (Balaji Dairy) for marketing.

Each of the above features is discussed in the following paras.

3.1 Creating enabling environment- role of facilitating organizations

3.1.1 The project Kamadhenu was implemented by DRDA with the support of AHD, [8] New and Renewable Energy Development Corporation of A.P Limited (NREDCAP), SHG federations and banks. The roles and contributions of each of the organization/ agency is furnished below.

3.1.2 District Rural Development Agency (DRDA):

The DRDA is the nodal agency implementing all rural development programmes in the district. Within DRDA, a special wing with dedicated staff has been created to focus only on the development of dairy specific initiatives through SHG groups. The targeted beneficiaries were poorest of the poor among the SHG members which were identified and selected through the SHG federations. The dedicated staff from DRDA extended all the help in coordination between the beneficiaries and banks / other agencies for getting the project assistance and linkages.

3.1.3 Animal Husbandry Department (AHD):

The AHD coordinated very closely with DRDA and banks in integrating dairy scheme components under Rashtriya KrishiVikasYojana (RKVY), Chief Minister's package (CMP), Prime Minister's Package (PMP) and mini dairy schemes of AHD under one roof through Kamadhenu project. Recently, the department introduced three flagship programmes viz. Sunandini (calf rearing), Ksheersagar (nutrition support to pregnant animals) and Suphalam (fertility improvement). Convergence of all these schemes / programmes under one roof was thought necessary to vertically integrate all the activities related to dairy farming such as establishment of vermicompost units, feed plants, fodder cultivation, azolla units, mobile veterinary units and providing continuous capacity building. The department also created good infrastructure to support the dairy development activities with one Veterinary Polyclinic, 32 Veterinary Hospitals, 140 Veterinary Dispensaries and 150 Rural Livestock Units. Apart from the regular veterinary staff, the AHD also trained 157 unemployed youth in dairy management and employed them as gopalmitras. The gopalmitras extended veterinary services like administration of Artificial Insemination (AI), medicines etc at minimum charges fixed by the department.

3.1.4 SHG Federations:

In Andhra Pradesh (AP), the SHGs have been organized into SHG Federations called Mahila Samakhyas at various levels viz., village, mandal and district levels. Accordingly, in Chittoor

[8]*New and Renewable Energy Development Corporation of A.P Limited [***NREDCAP***] established by Andhra Pradesh in 1986 (formerly Non-Conventional Energy Development Corporation of A.P(NEDCAP).*

district, 6.3 lakh rural women, mostly poor, were organized into 60,208 SHGs. These SHGs were federated to 2553 Village Samakhya (VS) at village level, 65 Mandal Mahila Samakhyas (MMS) at mandal level and a Zilla Samakhya (ZS) at the district level. All these community based organizations are registered entities under A.P Mutually Aided Cooperative Societies Act 1995 (APMACS Act 1995). DRDA encouraged the SHG members to take up the dairy activity and those interested in the activity have been financed by the banks for purchase of two dairy animals.

3.1.5 NABARD: NABARD under its Umbrella Programme for Natural Resource Management (UPNRM) provided financial assistance to a few NGOs and SHG Federations for on-lending to the dairy farmers. Projects supported by NABARD included livestock farming under sustainable Natural Resource Management (NRM) approach, integrated dairy farming and calf/ heifer rearing. Through these models, NABARD was able to showcase successful dairy models in the district. When the Kamadhenu scheme was launched in the district during 2010-11, NABARD through the UPNRM scheme initially provided financial assistance to two SHG federations for setting up of Bulk Milk Cooling Units (BMCUs).

3.1.6 Banks: The district has 37 Commercial Banks, 01 Regional Rural Bank, 01 District Cooperative Central Bank with a branch network of 669 branches. Out of these banks, 15 banks and 140 branches had participated in Kamadhenu project[9].

All the above organizations / entities had worked together for creating an enabling environment to implement the project Kamadhenu in the district successfully.

3.2 Convergence of Dairy Programmes and Integration Dairy Value Chain

In order to improve the viability of dairy farming, the DRDA introduced integrated dairy farming by taking mandal level federation i.e., MMS as one unit. The major components of such an integrated dairy were –

a) Supplying two animals to SHG / JLG members.
b) Animal breeding management and Calf rearing
c) Support for feed, fodder and azolla units.
d) Setting up of biogas and vermi compost units.

[9] Source: PLP of NABARD.

e) Continuous capacity building through mobile veterinary units.

Figure 1: Convergence/ Integration of dairy programmes / activities of different agencies

Source: Constructed by the author from the inputs drawn from UPNRM project of NABARD.

3.2.1 Financing dairy animals to SHG / JLG members The SHG federations at each BMCU encouraged their members i.e., SHG women (milk pourers) to avail financial assistance for purchase of additional dairy animals. Banks financed the units through SHG/ JLG mode. Each beneficiary was supported with a two animal unit along with other supporting infrastructure at a cost of Rs. 65,000/. Once the loan was sanctioned and disbursed, SHG federation played a key role in ensuring purchase of good quality animals, insurance, regular monitoring and capacity building. The Insurance Companies accepted community certification relating to valuation of animals to cut down the delays. The AHD provided training to SHG members and took care to ensure supply of fodder slips, feed and regular veterinary care. The repayment of the term loan was also ensured by SHG federation as the milk was procured from the members and processed in their own BMCUs.

3.2.2 Community Dairy Centres / Pala Pragathi Kendras (PPKs): To address the issues at production level, the DRDA and AHD introduced an innovative community dairy centres called locally Pala Pragathi Kendras (PPKs). The SHG members (milk pourers) who were interested in managing their dairy animals jointly were formed into JLGs. SHG Federations played an important role in identification of milk pourers, forming them into JLGs and completing the documentation after receiving the concurrence of the bankers. Each dairy centre (PPK) consists of a cow shed jointly owned by the JLG. The dairy animals of these JLG members were housed in the common shed and management of dairy was taken up jointly by the group. The establishment cost of a PPK was Rs. 5 lakh. The government encouraged the PPKs by giving Rs.1.00 lakh subsidy towards construction of shed, fodder cultivation and equipments like chaff cutter and milking machines. The banks financed the remaining portion i.e., Rs. 4 lakh. About 236 PPKs were created in the district.

Figure 2: Pala Pragathi Kendram at Kasiralla

Source: Photo taken during the field visit

3.2.3 Animal breeding and Calf rearing programme: With the extension support from AHD and assistance from gopalmitras, the timely breeding of cows was taken care of, resulting in improvement in fertility levels and continuous milk production. The artificial insemination with high pedigree jersey cows ensured birth of high yielding cross bred calves. The department provided the necessary training and handholding in monitoring the growth of the animals, animal health care, feed and fodder management, etc. The dairy farmers were able to derive higher milk production because of the scientific practices adopted and breeding and health management.

3.2.4 Feed and Fodder Development: In order to mitigate the shortage of fodder, leading to distress sale of animals and reduction in milk production, farmers have been encouraged to take up cultivation of fodder. The identified farmers had been provided fodder seed by the AHD at 75% subsidy for cultivation with assured buy back arrangement at a remunerative prices adding to the farmers income. Improved varieties of fodder slips (saplings) were provided by Sri Venkateswara Veterinary University, Tirupathi. Azolla units were set up with assistance from AHD. Chaff cutters were provided by AHD.

3.2.5 Setting up of biogas and vermi compost units.

The DRDA promoted setting up of biogas units through New and Renewable Energy Development Corporation of Andhra Pradesh Ltd., (NREDCAP) and vermi-compost units through Horticulture / Agriculture departments simultaneously while supplying dairy animals to the SHG beneficiaries. The biogas units were constructed by NEDCAP with 50% subsidy;

3.2.6 Continuous capacity building through mobile veterinary units. AHD provided training and skill building on a continuous basis to the identified dairy farmers and DRDA ground level staff. Gopalmitras trained by the AHD supplemented the efforts of AHD in capacity building of dairy farmers. Additionally, AHD employed mobile veterinary units to provide advisory services to dairy farmers.

3.3 Community Managed Milk Procurement and Marketing: The core activity in the entire Kamadhenu project was establishment of milk procurement infrastructure fully managed by the SHGs at different levels. Milk Producers Institutions (MPIs) were established one for every two to three villages who were collecting milk two times in a day from dairy farmers. The milk so collected is transported to Bulk Milk Cooling Units (BMCUs) set up at mandal level which are managed by the SHG Federations. The milk is sold to Balaji Dairy, located at Tirupati. SHG Federations entered in to a tie up with Balaji Dairy for purchase of milk at a pre-determined price which was more than what was being offered by the private dairy companies. For stabilizing the entire milk marketing system and over all livelihood improvement through dairy, the SHG members have formed into a producer company called [10]Shrija Mahila Milk Producer Company Ltd., which was incorporated in 2014.

[10]***Shreeja Mahila Milk Producer Company Limited*** *(Shreeja MMPCL): The SHG women owned milk producer company, with Head Office in Tirupati, has started functioning from 15th September 2014.*

3.3.1 Establishment of Bulk Milk Cooling Units (BMCUs).

The unique feature of the programme is that the entire process of procurement and marketing of milk from the village to mandal is done by the SHGs and their federations. Each SHG Federation at mandal level has been entrusted with managing one Bulk Milk Cooling Unit (BMCU), which is the central hub for collection of milk coming from the Milk Producers Institutions (MPI) in villages. Initially the programme was implemented at two mandals with two BMCU units with grant support from NABARD. Later on the BMCUs were established in all mandals with the financial support from National Dairy Development Board (NDDB). As on 31.3.2018, there were 94 BMCUs with a network of 212l MPIs.

Figure 3: BMCU being operated by the Kairalla MMS

BMCU being operated by Kasiralla MMS

Kasiralla MMS Team operating the BMCU

SHG member appointed as computer operator in the BMCU

Source: Photos taken during the field visit.

3.3.2 Process of milk collection and marketing

SHG members in each village cluster (2 to 3 adjoining villages), who are doing the dairy activity are organized into Milk Producers Institution (MPI). The MPI appoints Palamithra to collect milk from the members and maintain all the records. From various MPIs, the milk is transported to BMCUs located at mandal level. At mandal level, the BMCU is managed by a team comprising of computer operators, testers and helpers. They are all SHG members and manage all the operations viz., collection of milk from MPIs, testing and maintaining member wise and MPI wise data, storage of milk at 4^0C and transport to the dairy processing unit (Balaji Dairy at Tirupati). Samples are collected and tested at the BMCUs. Payment is made based on the fat % levels. The organized milk marketing and management resulted in increase of the milk procurement per day from 0.5 lakh liters in 2010 to 4.5 lakh liters in 2018.The milk production also increased from 6.7 lakh MT to 17.54 lakh MT in the district during the period. The details of milk production in the district are furnished in the Annexure III. The details of milk procurement and the annual turnover

of the BMCUs are furnished in Annexure IV. During the field visits, Kasiralla MMS, Yadamarri MMS and Yerravaripalli MMS have been visited. Their performance is furnished in Table 1.

Table1 : Performance of BMCUs visited (2017-18)

Name of the SHGs/JLGsSHG Federation /Mandal MahilaSamakhya (MMS) visited	Name of the [11]Mandal	No of villages covered	BMCU Capacity (litres)	Procurement per day (liters /day)	Turnover (Rs in lakh)
Kasiralla MMS	Kasiralla	27	4000	3088	110.00
Yadamarri MMS	Yadamarri	23	4000	3980	87.15
Yerravaripalli MMS	Yerravaripalli	31	4000	3550	168.90

Source- Annual report of AHD 2012

Details of procurement and performance of all the 94 BMCUs are furnished in Annexure V.

3.4 Bank Finance:

Initially, 4 banks participated in the Kamadhenu project. Subsequently, 15 banks and their 140 branches financed the purchase of dairy animals covering all the BMCUs in the district. Dairy animals were financed through the BMCUs. The milk procurement by these BMCUs reached a level of around 3 lakh litres per day during 2014-15 and the loan recovery was also around 90% as the process was carried out through the SHG Federations. Because of the implementation of Kamadhenu project, the viability of dairy investments have gone up and banks have started financing to the sector.

4. Impact of the Kamadhenu programme

The impact of the Kamadhenu programme can be studied on the following parameters

a) Improvement in production efficiency and milk production.
b) Milk procurement and marketing efficiency.
c) Bank credit flow to dairy sector.

4.1 Improvement in production efficiency and milk production.

The AHD in the district had undertaken improvement in breeding stock of cows through artificial insemination with high pedigree jersey cows. The efforts of AHD resulted in increase in cross

[11]*The A.P state comprises 676 mandals (instead of blocks), of which Chittoor district (66 mandals), has the most number of mandals in the state.*

breed population in the district, which as per the 2012 census, constituted about 70% of the cattle population in the district[12]. The calf rearing programme (Sunandini) undertaken by the department contributed to an additional milk yield of around 0.60 lakh litres per day. Similarly the pre and post pregnant animal nutrition support (Ksheersagar) and fertility mission programme (Suphalam) contributed to around 1.4 lakh litres per day additionally[13]. All these programmes also created future breeding stock in the district. The increase in milk production and quality milk products fetched additional income to the farmers. The net incremental income to milk pourers due to the project was found to be around Rs. 1.12 lakh per annum which helped the small and marginal farmers in augmenting their income.

4.2 Milk procurement and marketing efficiency

The milk procurement of each BMCU on an average reached a level of around 12,850 litres per day, thereby ensuring adequate capacity utilization of bulk milk cooler of each procurement centre and increased returns for the federation. The number of BMCUs increased from 2 in 2006 to 94 in 2018. The performance of all the BMCUs in Chittoor district in the milk procurement operations is depicted in Table 2.

Table 2: Performance in Milk procurement by the BMCU

Year	Milk procurement by the BMCU maintained by the MMS	No of SHG Federations in milk procurement	Turnover (Rs.in lakh)
2006	0.03	2	3.25
2007	0.13	19	1213.27
2008	0.25	41	2551.48
2009	0.43	49	5284.72
2010	0.55	56	8150.78
2011	0.84	63	11414.27
2012	1.32	87	14653.42
2013	2.45	87	14946.49
2014	2.90	87	15095.95
2015	3.2	87	15246.91
2016	3.2	94	15980.00

[12] *Annual report of AHD*
[13] *Source: PLP 2018-19*

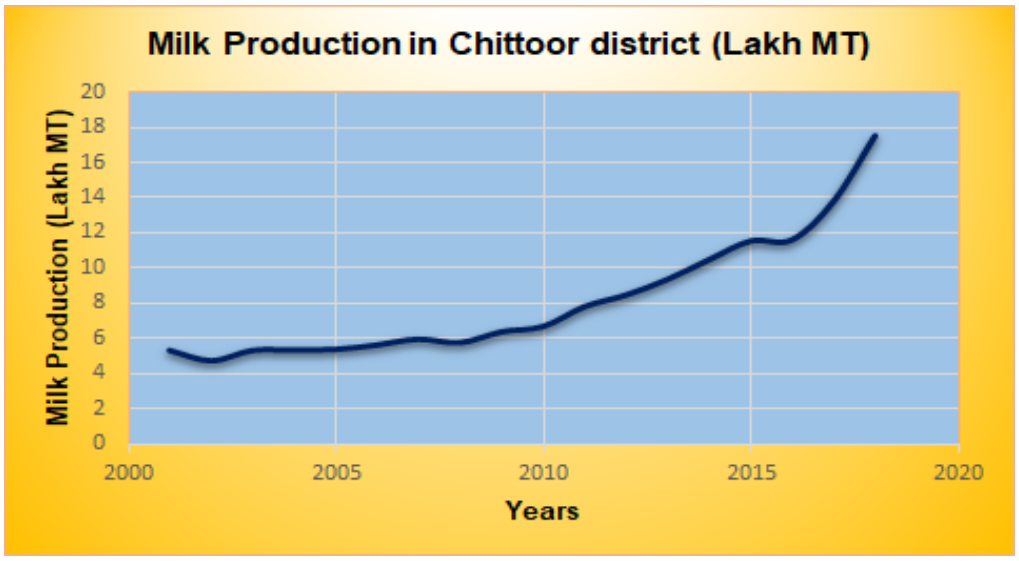
2017	3.8	94	16299.60
2018	4.5	94	16920.00
Source : AHD Annual Report 2012 , PLP of NABARD & Information gathered during the field visit			

The milk procurement of all the BMCUs reached a level of around 4.5 lakh liters per day which ensured adequate returns for the federation as may be seen from Table 2. The initiative also resulted in migration of milk pourers from private dairies to SHG managed BMCUs, as the women realized that BMCUs and in turn federations are their own institutions providing all the support to them including easy access to credit and veterinary aid apart from getting remunerative milk price. With increased capacity utilization of BMCUs, the returns to MMS also increased as they were paid Rs. 0.62 per liter as chilling charges by Balaji Dairy. The turnover of all the BMCUs stood at Rs.16920.00 lakh in 2018 and the BMCUs earned a profit of around Rs. 0.47 lakh per BMCU on an average during 2017-18.

4.3 Milk production

Implementation of Kamadhenu project contributed to the milk production in the district which increased from around 5.4 lakh liters per day during 2005-06 to 17.54 lakh liters per day during 2017-18. The trend in milk production in the district during the 2005 to 2017 is presented the Figure 4.

Figure 4: The Milk Production in Chittoor district



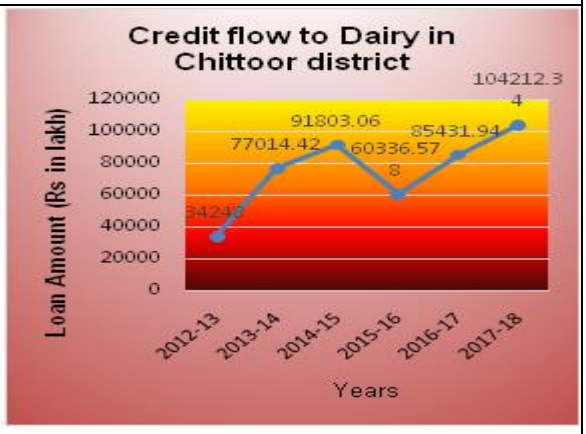
4.4 Bank credit flow

The bankers observed that purchase of animals of beneficiaries' own choice, capacity building, marketing support, and effective support and monitoring by DRDA etc., had contributed to enhanced viability of dairy activity in the district. Therefore, after the implementation of Kamadhenu project, the banks found a good business opportunity in financing dairy activity. The bank credit to dairy activity during the last six years is depicted in the Table 3 and Figure 5.

Table 3 Bank credit to dairy sector in Chittoor district during the last six years (2012-13 to 2017-18) Rs. In lakh

	Agri Term loan	Dairy		Growth rate	SHG/JLG	
	Amount	Amount	%	%	Amount	%
2012-13	77795.00	34248.00	44.02		30000.00	87.60
2013-14	149191.00	77014.42	51.62	124.87	66548.00	86.41
2014-15	95781.76	91803.06	95.85	19.20	91260.50	99.41
2015-16	111694.46	60336.58	54.02	-34.28	58204.55	96.47
2016-17	150142.16	85431.94	56.90	41.59	80932.95	94.73
2017-18	166480.73	104212.34	62.60	21.98	90292.79	86.64
				24.93		

Figure 5 : Bank credit during last six years



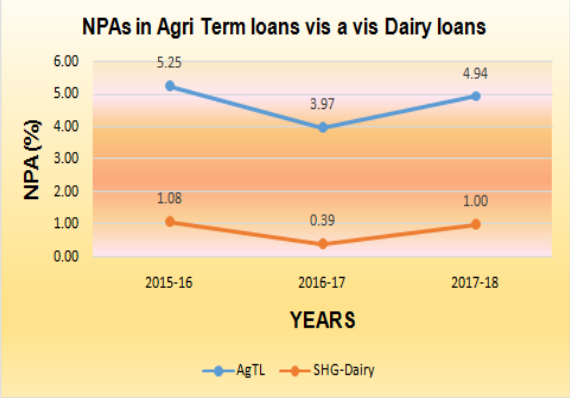
Source: Data from the SLBC statements /PLP and information provided by the LDM /DDM/bankers regarding loans for dairy sector

As may be seen from Table 3 and Figure 5, the bank credit has increased from Rs.342.48 crore during 2012-13 to Rs.1042.12 crore during 2017-18 at a compound annual growth rate (CAGR) of 24.92%. More than 85% of the loans given for dairy sector was through SHGs/JLGs. The Table 4 and the Figure 6 depict the Net NPA position in agricultural term loans vis a vis dairy loans.

Table 4 : Net NPA position in dairy sector in Chittoor district during the last three years (2015-16 to 2017-18)

Year	Agri TL		Dairy-SHG	
	Outstanding (Rs. In lakh)	NPA%	Outstanding (Rs. In lakh)	NPA%
2015-16	215699.57	5.25	79509.75	1.08
2016-17	301076.56	3.97	128222.32	0.39
2017-18	232307.86	4.94	111400.55	1.00

Figure 6 : NPA position in dairy sector in Chittoor district



Source: Data from the SLBC statements / PLP and information provided by the LDM /DDM/ bankers regarding loans for dairy sector

It may be seen from the Table 4 that the net NPA position in agricultural term loans was around 4% to 5%, whereas in dairy sector, the net NPA was less than 1% during the last three years.

5. Views of stakeholders

Dairy farmers: A few dairy farmers who were contacted during the field visit, told that dairy farming had become their main occupation now and agriculture was only a subsidiary activity. They mentioned that their entire family was fully occupied with dairy and farm operations. On the price of milk, the farmers mentioned that now there was total transparency and the competition had ensured that milk prices increased in the region to around Rs.27 to Rs.30 per litre. They also mentioned that the Shrija FPC ensured that milk marketing went on smoothly and there were no hiccups.

SHG Federations: The members of SHG Federations / MMS mentioned that because of the Kamadhenu project women empowerment had gone up. Women had become equal partners in the economic development.

Bankers: Some of the bankers contacted during the field visit informed that dairy finance was a good business opportunity available to them for increasing their portfolio under agriculture. Interaction with the branch managers of two commercial bank branches revealed that there were no recovery issues in dairy loans as the tie up with BMCU ensures 100% recovery.

6. Reasons for success / key learnings

The key to success of the Kamadhenu project was convergence of activities of all the stakeholders including banks involving SHGs and JLGs. Sustainable income from dairy farming was brought about by focusing on the following areas.

- Creation of enabling environment by the government / government departments;
- Convergence of activities of the bankers and government departments;
- Involving SHGs and JLGs in dairy financing and dairy value chain activities;
- Adoption of vertical integration of various dairy components as the main business model;
- Reproductive efficiency and sound herd management increasing the productivity of animals and
- Sound procurement and marketing strategy for milk and milk product.

7. Scope for replication by other banks

In India, dairy is an important subsidiary activity providing livelihood support to farmers. The Kamadhenu project demonstrated right approach for livelihood finance. Replicating the initiatives of Kamadhenu by the bankers in other areas / places would, therefore, strengthen the livelihood of the poor. In Andhra Pradesh, the successful initiatives under the Kamadhenu dairy project have been already extended to all the districts in Andhra Pradesh. The project can be replicated in other parts of the country. This is possible if the departments concerned assume the role of facilitating agency, like DRDA in the current project, and bring about the convergence of activities and initiatives of all stakeholders including banks through their controlling offices. The LDMs through the district administration could take the lead role for the district as a whole if project like Kamadhenu has to be replicated.

8. Conclusion:

An integrated dairy development project called 'Kamadhenu' implemented in Chittoor district of Andhra Pradesh during 2010-15 contributed to increasing the livelihood of poor people in the district. It is observed that three important factors contributed to the success of Kamadhenu project (i) Creation of enabling environment by government and government departments, (ii) Convergence of various schemes and programmes of different stakeholders and (iii) Focus on dairy farming through sustainable livelihood finance involving SHGs / JLGs. In this successful venture, the government departments, financial institutions, civil society organizations, development agencies and the private sector have come together and worked towards ensuring the viability of dairy activity. The DRDA was the nodal implementing /facilitating agency through

which the entire programme was implemented. The objective of the project i.e., to make dairy farming a commercially viable activity, was achieved by integrating the dairy activity with components such as feed/ fodder, azolla units, biogas and vermin compost, mobile veterinary units and continuous capacity building. The other spin off benefits derived from this project were good business opportunity for banks in financing dairy, promotion of JLGs, strengthening of SHG movement, providing livelihood support to rural poor households and increasing the milk production phenomenally in the district.

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Abbreviations

AHD - Animal Husbandry Dept

APMACS Act 1995- A.P Mutually Aided Cooperative Societies Act 1995

BMCU - Bulk Milk Cooler Unit

CEO -Chief Executive Officer

CBOs- Community Based Organizations

DCCB - District Central Cooperative Bank

DDM- District Development Manager, NABARD

DRDA - District Rural Development Department

FPC- Farmers Producer Company

GOAP – Government of Andhra Pradesh

JLG- Joint Liability Group

LDM - Lead District Manager

MMS- Mandal Mahila Samakhyas

MPI - Milk Producers Institutions.

NREDCAP - New and Renewable Energy Development Corporation of A.P Limited

PPKs - Pala Pragathi Kendras (Community Dairy Centres)

SHG - Self Help Group

SMMPC - Shrija Mahila Milk Producer Company Ltd.

UPNRM - Umbrella Programme for Natural Resource Management

VOs - Village Organizations

ZS- Zilla Samakhyas

Annexure I

Details of SHG federations visited during the field study

Name of the SHGs/JLGsSHG Federation /Mandal MahilaSamakhya (MMS) visited	**Name of the [14]Mandal**	**No of villages covered**	**No of Village Samakhyas (VS) covered**	**No of SHG covered**	**No of SHG members**
Kasiralla MMS	Kasiralla	27	34	1088	19584
Yadamarri MMS	Yadamarri	23	28	980	17640
Yerravaripalli MMS	Yerravaripalli	31	35	1050	18900

Details of SHGs / JLGs visited during the field study

Name of SHG/JLG	Date of formation	No of members	Name of the Office bearers
Jayasakthi SHG	2010	19	V.Srilatha, Y.swarna
Sri Venkateswara SHG	1995	17	D.Reddamma
Gangamma SHG	2000	15	K.Manjula
Sarawathi SHG	2005	19	B.sivakumari
Arunalatha JLG	2013	5	Arunalatha
Lakshmi JLG	2015	5	Lakshmi
Devaki JLG	2013	5	Devaki
Hemavathi JLG	2012	5	Hemavathi

[14]*The A.P state comprises 676 mandals (instead of blocks), of which Chittoor district (66 mandals), has the most number of mandals in the state.*

Annexure II

Details of Dairy Processing Units in Chittoor District

Name of dairy	Year of commencement	Per day (lts)	
		Capacity	Procurement
Urban Cooperative Milk Supply Society	1989	10000	10000
Rural Milk Supply Society	1990	10000	6000
Balaji	1998	150000	176000
A.P	2007	30000	45000
Heritage	1993	412000	309000
Balamurugan	1998	150000	40000
Siddartha	1998	50000	21000
Dodla	1999	160000	185000
Sivaskthi	1999	50000	55000
Sri Venkateswara	1999	38000	59000
Avin Foods Ltd	2001	10000	9000
Chandra	2002	50000	23000
Jecry Cream Line	2002	198000	76000
Venkateswara	2002	10000	11000
Sri Vijaya	2002	NA	5000
Thirumala	2002	130000	99000
Agri Gold	2004	100000	27000
Tharuni	2004	50000	32000
Vision	2006	50000	28000
Sai	2007	50000	18000
Lakshmi	2007	10000	10000
Nandi	2009	50000	35000
Govardhana	2009	50000	23000
Dianamic	2010	30000	10000
Palakonda Rayudu	2010	30000	14000
Parag	2010	30000	60000
Jyothi Dairy	2010	30000	44000
Srinivasa Dairy	2006	50000	67000
Madhu milk products	2006	20000	500
Srikalahasti Milk Supply Society Ltd	2006	30000	700

Source: Animal Husbandry Department, **Annual Report2012,** Chittoor.

Annexure III

Milk production in Chittoor district

Year	Total milk production
	(Lakh MT)
2001	5.34
2002	4.75
2003	5.34
2004	5.35
2005	5.4
2006	5.65
2007	5.98
2008	5.78
2009	6.4
2010	6.7
2011	7.83
2012	8.49
2013	9.38
2014	10.5
2015	11.56
2016	11.63
2017	13.82
2018	17.54

Source: AHD Annual Report 2012, PLP and Presentation by the District administration during the DC conference

Annexure IV

Performance in milk procurement operations by SHG Federations in Chittoor district (2012)

Year	Milk procurement by the BMCU maintained by MMS	No of SHG Federations (MMS) involved in milk procurement	Turnover (Rs. In lakh)	Percentage of milk procurement by SHG Federations to total
	Lakh liters per day (LLPD)			
2006	0.03	2	3.25	0.53
2007	0.13	19	1213.27	2.17
2008	0.25	41	2551.48	4.33
2009	0.43	49	5284.72	6.72
2010	0.55	56	8150.78	8.21
2011	0.84	63	11414.27	10.73
2012	1.32	87	14653.42	15.55
2013	2.45	87	14946.49	26.12
2014	2.90	87	15095.95	27.62
2015	3.20	87	15246.91	27.68
2016	3.20	94	15980.00	27.52
2017	3.80	94	16299.60	27.50
2018	4.50	94	16920.00	25.66

Source: AHD Annual Report 2012, PLP of NABARD

Annexure V

Milk procurement by the SHG Federations in Chittoor district (2012)

(litres)

Name of mandal	No. of		BMCUs		Procurement Per day
	Pourers	MPI's	No	Capacity Per day	
(1)	(2)	(3)	(4)	(5)	(6)
Chittoor	481	35	2	5000	3882
Gudipala	832	60	2	5000	4369
Thavanampalli	802	55	2	6000	7467
Yadamari	940	49	2	6000	6685
Palasamudram	432	29	1	3000	2753
G.D.Nellore	863	63	2	6000	5606
Irala	966	54	3	8000	9737
Karvetinagaram	514	28	1	3000	2627
S.R.Puram	708	42	2	6000	6078
Nagari	545	44	2	6000	6906
Vijayapuram	293	31	1	3000	3027
Yerpedu	476	28	1	3000	4744
Nagalapuram	745	32	1	3000	3574
(1)	(2)	(3)	(4)	(5)	(6)
Pitchaturu	650	31	1	3000	3353
Satyavedu	622	22	1	3000	2551
Varadayapalem	778	25	1	3000	2340
B.N.Kandriga	368	22	1	3000	1633
K.V.B.Puram	567	20	1	3000	2597
Thottambedu	N.A	03	1	2000	665
Pakala	665	60	2	6000	5024
Penumuru	546	38	1	3000	4153
Piler	948	42	3	12000	11170
Yerravaripalem	344	25	2	7000	3974
C.G. Gollu	364	20	2	8000	5537
Vayalpadu	672	43	3	8000	10281
Kalikiri	764	62	2	6000	10124
Gurramkonda	465	29	2	5000	5631
Kalakada	298	20	1	3000	2035
K.V.Palli	398	40	2	6000	5642
Molakalacheruvu	632	60	2	8000	6742
Kumbalakota	558	49	2	6000	9428
Thamballapalli	487	20	1	3000	4441
B.Kothakota	503	50	2	6000	7896
Peddamandyam	776	33	2	8000	8826
P.T.M	571	43	2	5000	4490
Ramasamudram	574	80	2	10000	9332
Punganooru	667	41	2	6000	6622
Nimmanapalli	913	84	2	8000	6925
Madanapalli	1884	170	3	11000	16712
Palamaneru	375	16	1	3000	2832
Gangavaram	842	34	2	6000	7108
Baireddypalli	475	25	1	3000	4672
Peddapanjani	502	28	2	4000	4850
Bagarupalem	1631	98	3	10000	12023
Kuppam	546	44	2	6000	7189
Gudipalli	308	36	1	3000	4254
Ramakuppam	529	40	2	5000	4577
Santhipuram	402	38	1	5000	3997
V.Kota	947	80	3	13000	11722

Note: NA, not available

Source : Annual Report 2012-Animal Husbandry dept

Annexure VI

BMCU wise performance (2012)

(liters)

Name of BMCU	Year of establishment	No. of		Capacity	Procurement Per day
		MPIs	Pourers		
(1)	(2)	(3)	(4)	(5)	(6)
Gudipalli	2008	36	308	3000	4254
Ramakuppam	2006	32	439	3000	2785
Kuppam	2008	35	432	3000	3741
Santhipuram	2007	38	402	5000	3997
V.Kota	2005	30	449	3000	3375
Reddygunta	2008	23	356	3000	2682
G.D Nellore	2006	31	416	3000	2824
Thumugundram	2008	32	447	3000	2782
Naraharipeta	2008	36	502	3000	2594
Y.S.Gate	2008	26	396	3000	4151
Maddipatla palli	2008	20	405	3000	3579
K. Patnam	2008	27	382	3000	3879
Gajulapalli	2008	28	420	3000	3588
Yadamari	2006	29	490	3000	3309
Kasirala	2007	20	450	3000	3376
Palasamudram	2008	29	432	3000	2753

Source : Annual Report 2012-Animal Husbandry dept

Annexure VI (contd)

BMCU wise performance (2012)

(1)	(2)	(3)	(4)	(5)	(6)
Pannur	2009	31	293	3000	3027
Kilapattu	2008	31	947	3000	3338
Nagalapuram	2006	33	745	3000	3574
Pitchatur	2006	31	659	3000	3353
Satyavedu	2008	22	622	3000	2551
Varadaiyapalem	2007	25	778	3000	2340
Palamaneru	2007	16	375	3000	2832
Puthikonda	2005	12	422	3000	2964
Gangavaram	2005	22	420	3000	4144
Thambagani palli	2007	34	550	3000	3683
Bangarupalem	2007	40	650	3000	4030
Bireddypalli	2006	25	475	3000	4672
Punganoor	2006	34	543	3000	3896
Peddapanjani	2008	20	400	3000	3012
K.Nagaram	2006	28	514	3000	2627
Kothapalli mitta	2007	14	512	3000	2740
S.R.Puram	2006	28	396	3000	3338
Yerpedu	2006	28	476	3000	4744
Penumur	2006	38	546	3000	4153
Pakala	2006	38	420	3000	3037
Damalacheruvu	2011	22	245	3000	1987
K.V.B.Puram	2010	20	567	3000	2597
B.N.Kandiga	2010	22	368	3000	1633
Vayalpadu	2008	22	329	3000	3827
Chinthaparthi	2006	15	281	3000	3573
Tharigonda	2006	32	384	3000	3449
Kalikiri	2006	30	412	3000	6686
Gudi	2010	32	352	3000	3438
Garrimitta	2010	29	330	3000	3631
Kalakada	2010	20	298	3000	2035
Thambalapalli	2006	20	487	3000	4441
Kotavooru	2008	34	395	3000	4065
B.Kothakota	2008	16	108	3000	3831
Kurabalakota	2006	27	534	3000	5710
Madivedu	2010	22	224	3000	3718
Madanapalli	2007	78	968	5000	7407
Pasamvaripalli	2008	29	395	3000	2906

Source : Annual Report 2012-Animal Husbandry dept

Annexure VI (contd)

BMCU wise performance (2012)

(1)	(2)	(3)	(4)	(5)	(6)
PTM	2011	16	291	2000	2036
Ramasamudram	2008	32	271	5000	5185
Chambakpur	2009	48	303	5000	4147
Burakayalakota	2008	35	348	5000	3293
Turkapalli	2008	42	402	5000	4864
Kalicharla	2009	41	374	3000	3962
Varikasupalli	2008	27	280	3000	2454
Reddyvaripalli	2009	80	864	5000	5995
Molakalacheruvu	2011	25	284	3000	3449
S.Bandapalli	2010	28	297	5000	4637
Kongatam	2010	22	201	5000	3760
B.N.R.Peta	2011	12	125	2000	1200
Bommasamudram	2011	24	330	2000	1775
Polakal	2011	8	165	2000	2007
N.Kotthur	2012	13	598	3000	3568
Thottambedu	2012	03	-	3000	665
Piler	2011	23	507	5000	5351
Thalapula	2011	14	263	5000	4258
Regallu	2011	05	178	2000	1561
Yerravaripalem	2011	21	318	5000	3894
Bodevandlapalli	2012	04	76	2000	80
C.G.Gallu	2011	07	106	5000	3108
Bhakarapeta	2011	13	258	3000	2449
Manchuru	2012	6	62	2000	2881
Thottivaripalli	2012	7	81	2000	2182
K.V.Palli	2012	11	68	3000	2011
Chandramakulapalli	2011	7	124	3000	2726
Nimmanapalli	2012	4	49	3000	930
CTM	2008	63	521	3000	6399
Rayalpeta	2011	8	102	3000	1838
Gundlakattamanchi	2012	12	197	2000	1959
Mogili	2012	12	234	2000	2351
Nadimuru	2011	9	114	3000	3448
Peddur	2011	8	90	2000	1792

Source : Annual Report 2012-Animal Husbandry dept