



Kolar District Co-operative Milk Producer's Societies Union Ltd.,



Kolar is situated 70 km away from Bangalore on N.H-4 towards Chennai. The Farmers have taken up Horticulture and Sericulture as subsidiary occupation. Eventhough in the earlier days the Agriculture was considered as main occupation, in view of continuous drought and the depletion of water table has resulted and encouraged the farmers to take up Dairying in addition to Horticulture. The dairying has become a primary source of Income.

Kolar District Co-operative Milk Producers Societies Union Ltd., shortly called KOMUL was established in 1987 with 561 Dairy Co-operatives Societies & initial milk procurement of 157,000 Kgs/day. The Union collects average of 7,25,000 Kgs of Milk per day from 1460 Milk Producers Dairy Co-operative Societies including 86 exclusive Women Dairy Co-operatives. Weekly more than Rs. 5.0 Crores is being passed on to the Farmers.

Kolar District Co-operative Milk Producer's Societies Union Ltd.,

ENERGY POLICY

WE CONTINUOUSLY STRIVE TO IMPROVE OUR INTERNAL QUALITY AND OPERATING SYSTEM BY EDUCATING AND MOTIVATING WORK FORCE TO ACHIEVE HIGHEST PRODUCTION WITH LEAST ENERGY CONSUMPTION AND SAFE GUARDING ENVIRONMENT AND QUALITY OF THE PRODUCTS THERBY CONSERVING THE NATURAL RESOURCES.

Kolar Dist. Co-operative Milk Producers' Societies Union Ltd.,

KOMUL: An Overview

Kolar Dist. Cooperative Milk Producers' Societies Union Ltd., (KOMUL) is Karnataka's **highest** Milk Producing District organization. It is a District level apex body of milk cooperatives, which aims to provide remunerative returns to the farmers by eliminating the middlemen and also serve the interest of consumers by providing **quality** Milk & milk products at competitive price.

It consists of 1460 Dairy Co-operative Societies as primary members and 2.2 Lakhs members collecting 7.25 Lakh Kgs of milk/day with a weekly payment of 5 crores to the members having 117 Bulk Milk Coolers & 93 Community Machine Milking Parlours producing less microbial load high quality milk, which is comparable to International Standards. Dairy along with Chilling Cnetres [First in Southern India] has obtained certification for ISO : 9001-2000 Quality Management System and in the process of certifying HACCP, Food Safety Management System. Marketing 1.2 lakh ltrs/day in retail packs and 40,000 ltrs of UHT milk, one and only co-operative dairy to have ASEPTIC packing unit in Karnataka.

Once the Dist. was named as **Land of Gold & Silk**, is making inroads in Quality Milk Production. It is KOMUL first installed “ **Bulk Milk Coolers & Community Milking Machines** ” at Society level in the state of Karnataka to get the quality milk required for UHT milk packed at Kolar Dairy under the brand name of **Nandini 'Good-Life'**.

Presently Union has full pledged dairy at Kolar with an installed capacity of **2.0 LLPD**, and three chilling centers at Chinthamani, Sadli, & Gowribidnur with **1.0 LLPD** capacity each respectively. KOMUL started marketing of liquid milk in polythene sachets in entire Kolar District and parts of Bangalore City since 1994. The **Mnemonic Symbol of NDDDB** was adopted by the Union from April' 2002 to market the liquid milk. The custom packing of Set Curds production was undertaken for **GCMMF** under the brand name of **Amul Masti-Dahi** during Aug'2001.

KOMUL started the Energy Management Programme during the year 2001 in co-ordination with KMF, NDDDB & IRMA, Anand. Team – TEM was constituted and awareness among the staff was created to reduce the Energy cost to improve the profits. To further augment the energy savings the external energy consultant was appointed in 2004.

We are proud to inform that Kolar Milk Union has been awarded **prestigious “National Productivity Award”** for two consecutive years i.e. **2002-03 and 2003-04**

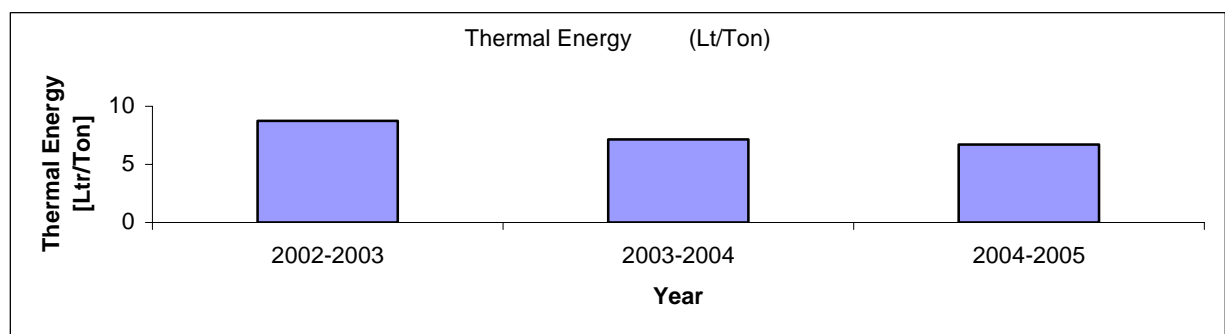
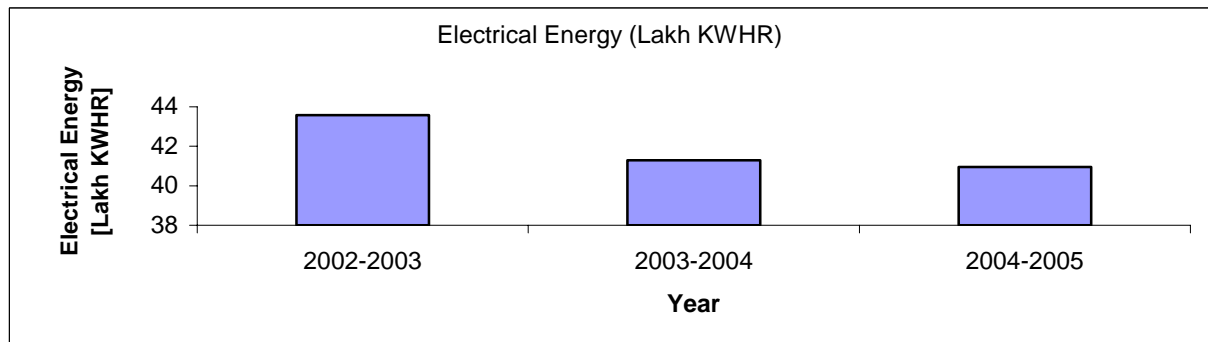
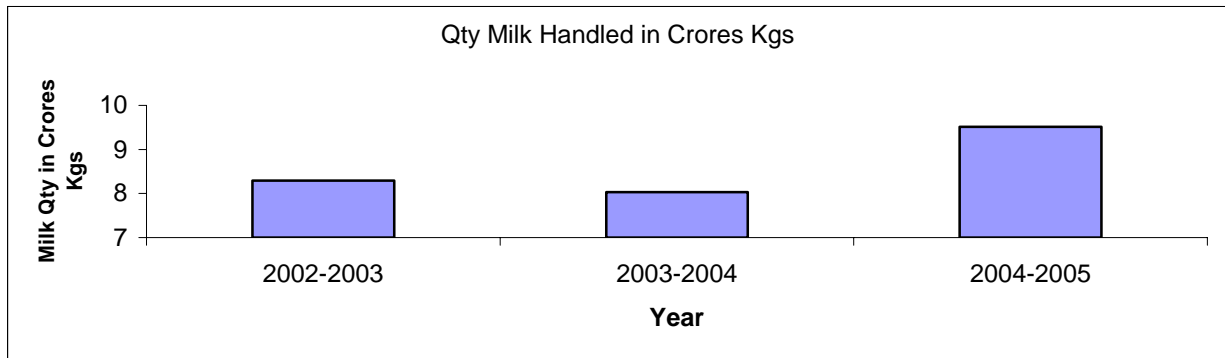
Energy consumption:

The energy consumption in the years 2002-2003,2003-2004,2004-2005 along with the milk handled is as follows:

DESCRIPTION	UNIT	2002-2003	2003-2004	2004-2005
Milk Handled	tonne	82880.14	80335.99	95083.46
Electrical energy cost	Rs in Lakhs	179.57	183.94	208.96
Thermal energy cost (F.O. oil)	Rs in Lakhs	89.18	92.48	89.05
Energy cost /kg of Milk	Rs	0.324	0.344	0.313
Energy cost v/s Manufacturing expenses	Percent	50.60	53.75	48.90
Specific energy consumption electrical	Kwh/tonne	52.58	51.40	45.70
Specific energy consumption thermal.	MkCal/tonne	0.0839	0.0851	0.0643

In spite of increase in the Furnace Oil cost/Lt by 12.03%, Electrical Unit cost by 7.4% and Diesel cost /Lt. By 8.5% the Energy cost per Kg of milk is decreased by **3.5%** during the year 2004-05 even though the milk handled was increased by 12.83%.

Year	Qty Milk Handled in Crores Kgs	Electrical Energy Lakh kWh/year	Thermal Energy (Lt/Ton)
2002-2003	8.29	43.58	8.75
2003-2004	8.03	41.30	7.13
2004-2005	9.51	40.95	6.69



Energy Conservation Achievements 2004-05

Kolar Dairy is handling 3 Lakhs litres milk a day management has decided to conserve electrical power and fuel to the maximum extent with a view of transferring benefit to milk producers and conserve. In this connection Kolar Milk Union Ltd., has formed, Total energy management team headed by Manager (dairy) on 18/12/2004.

The team consists of core members of various department heads and in each section champions were identified who would assist in implementation of TEM. The core team function is to implement and motivate the team members to achieve the energy reduction targets. This year we have carried out few of the energy savings projects, which are, listed below.

PROJECTS 2004-2005

1. Rectifying the cooling towers

(i) **Cooling** Tower were not functioning satisfactorily, Core team studied the system and found that the compressors were running at high discharge pressure of 200 psi and condensation at + 36.1°C. Energy team suggested to replace PVC fills, nozzles, which were fully clogged with scale and to replace broken water distribution tray.

The above work was taken of and the condensation temperature reduced to 32-2°C and the discharge pressure to 180 psi

Calculation

Reduction in condensation temp = 3.9°C

Decrease in power consumption = 6.5 kw

Power savings = $6.5 \times 20 \times 365 \times 3 \times 4.75$

= Rs.6.76 Lakhs

(ii) Use of Electronic Ballast in place of Magnetic Ballast

Electronic ballast when used in place of magnetic ballast. We found that the consumption of electrical power reduced considerably

Power consumed when magnetic ballast was used for 2x40 w fluorescent lamp fitting = 96 watts

Power consumed when electronic ballast was used = 60 watts

Net savings = $96 - 60 = 36$ watts

Savings per day = $\frac{36 \times 12}{1000} = 0.432$ Kwh

No of unit saved = 15,768 Units

Total amount saved annually for one flour sent lamp = Rs. 748.98

100 nos. Electronic ballast were used = Rs. 74,898x100

Hence total savings **= Rs.74, 898/-**

Cost of electronic ballast = Rs.39, 200/-

We also observed that the brightness and life of lamp increased as compared to magnetic ballast lamps

(iii) Installation of De-super Heater

Installed one number of De-super heater at Kolar dairy for Refrigeration compressor of 75 TR capacity.

The hot water generating from 30°C to 53°C quantity 1000 Ltrs/hr

Furnace Oil savings ---- 59 Kgs/day

Furnace Oil cost Rs. ---- 59 Ltrs/day

---- 15/Ltr

---- $59 \times 15 \times 365$ days

Savings per annum **= Rs.3,23,025 /Year**

Cost of the De-Super heater = Rs.2,60,000



iv. Fixed one number automatic cyclic timer to the Ice bank tank agitator motor of 12.5 HP capacity.

From cyclic timer 1.5 Units power/hr saved.

Total running hours of IBT agitator 20 hrs

Savings /day 1.5x20 = 30 Units/day

30x30 = 900 units/month

1.2x20x365 = 10950 units/year

Cost of savings / Annum 10950xRs 4.75 = **Rs 52,012.50/year.**

Cost of automatic cyclic timer Rs. 11500=00

v. Energy core team found that the steam was leaking at the following equipments.

01. Butter melting vat 1000 Ltrs	1 No.	40 NB
02. Ghee Boiler 1000 Litres	1 No.	15 NB
03. Ghee Boiler 1000 Litres	1 No.	15 NB
04. Peda pan	1 No.	15 NB
05. Steam traps at different location of the plant	3 Nos.	15 NB

It was also recommended to replace thermodynamic traps with ball foot traps for peda pan and inverted bucket with float trap for butter melting vat and Ghee boilers.

The above were successfully implemented and found reduction in steam consumption, with improved heat transfer efficiencies.

Savings achieved - **Rs. 3.9 Lakhs**

Cost of the above steam traps -Rs.1,31,555 =00



VI: Arrest of Steam Leakages:

KOMUL Energy Core team studied the Steam Leakages in the various places in the plant and suggested to arrest the steam leakages on daily basis. In this aspect there was overwhelming support from the production dept. Hence we achieved an savings of an Furnace Oil to the tune of **Rs. 3.5 Lakhs.**

Celebration of National Energy Conservation Day

National Energy conservation day was celebrated in our Kolar Dairy on 14-12-2004. Dr. Shiva Kumar, Director (Step), Karnataka Milk Federation inaugurated the function by lighting lamp. Our beloved Managing Director, KOMUL Dr.V.S.Sundara Murthy was present in the function. Deputy Manager (Step) Shri. K.V. Narayana Swamy welcomed the guest and all the participates. Shri M. Krishnappa, Asst. Manager (Maintenance) instructed oath to all of us.

On this occasion Hassan Milk Union was congratulated for having obtained National Energy Conservation Award – 2004 1st prize in the Dairy sector.

Dr. Shiva Kumar with his vast experience in the Dairy field and having associated with Total Energy Management (TEM) activities made a inspiring speech. He gave examples of Energy savings methods to be adopted in dairy and said under the impact of liberalization, privatization and globalization, competitiveness has been created and to survive under this atmosphere saving energy is the only way for survival. Further he stressed all of us to work unitedly and whole heartedly to conserve previous energy, appreciated the TEM works undertaken at Kolar Milk Union and also highly appreciated the water harvesting works done at Kolar Dairy.

Our beloved MD, Dr. V.S. Sunder Murthy while delivering his speech informed that energy is being wasted everywhere because of ignorance and if this state of affairs is continued all the fossil fuel deposits will be exhausted within 15 to 20 years and also cause damage to the environment. In this regard to save this plant for future generation energy is to be used at optimum level and moreover energy is to be conserved.

He further informed that cement factories in India have became a role model in terms of energy savings methods adopted by them in whole world and hence cost of production of cement has became cheap, and stressed us to emulate the cement factories to conserve energy.

Shri. R.C. Reddy, Dy. Manager (Service) gave presentation on energy savings achievement and Energy conservation activities being taken up by Kolar milk Union,.

And lastly Shri. C. Narayana Gowda, technician gave vote of thanks.

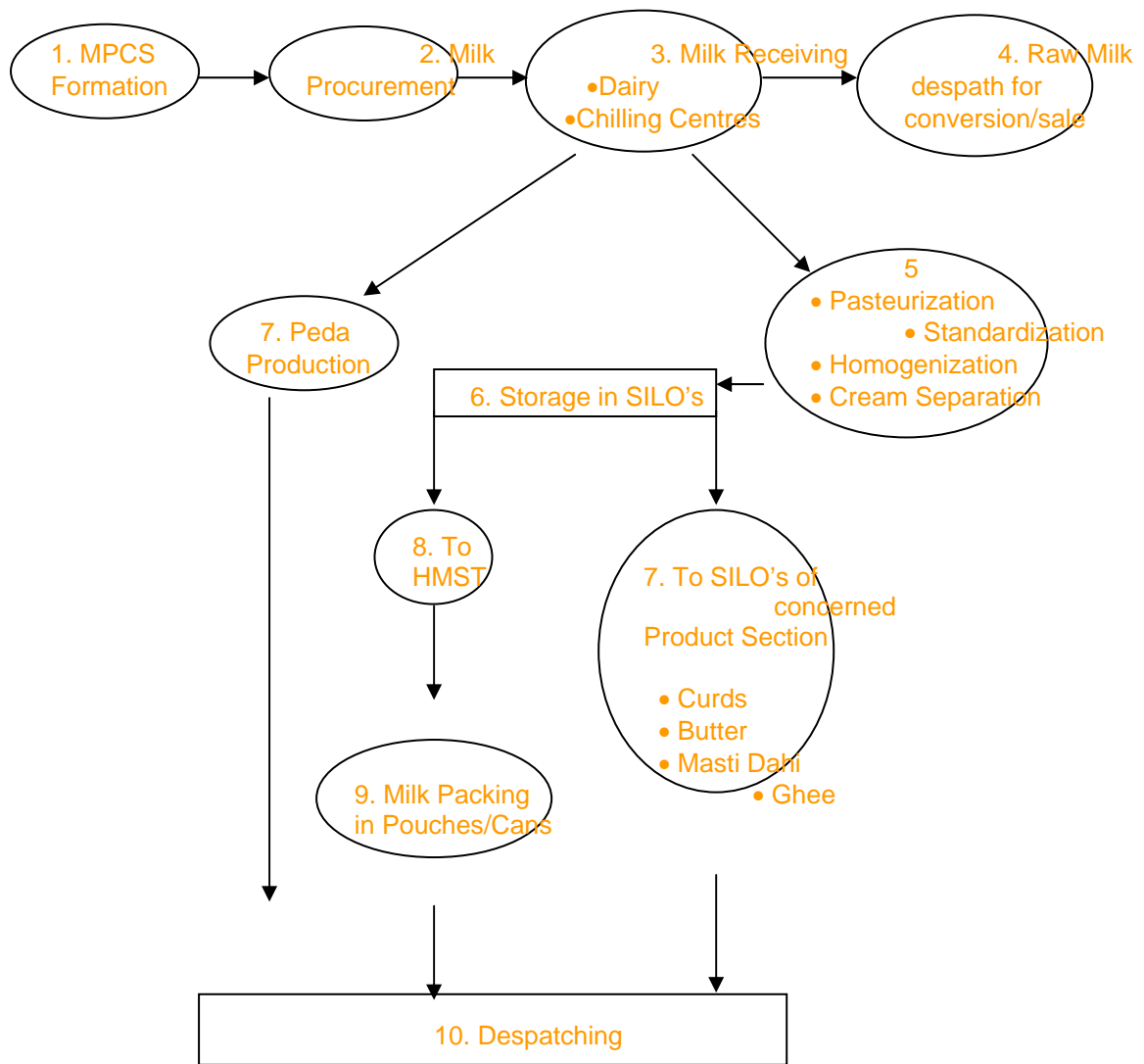
We are very glad to say that the section heads, staff from administration,/purchase/ Finance/Dairy staff and manager of all the chilling centers were present.

The impact of the function was very visible, the next day morning dairy staff admitted saying that the function was very educative and gave lot of inspiration to them.

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KOLAR DISTRICT CO-OPERATIVE MILK PRODUCER'S SOCIETIES UNION LIMITED, KOLAR - 563101

Simple schematic diagram showing the Production Process of the entire unit



TOTAL ENERGY MANAGEMENT TEAM & COMMITMENT

The Total Energy Management Team of Kolar Milk Union is headed by General Manager [Tech] supported by departmental functional heads like Engineering, Production, Quality Control, Marketing and Purchase.

This team is being continuously advised & motivated by Managing Director and the Board of Management. This team considers Energy Conservation can be achieved only by team approach and commitment. The product quality was not sacrificed while saving the energy.

The core team meets regularly and discuss energy savings proposals and quality improvement and sustainability. These were further percolated to the employees of concerned sections who have been motivated through training programmes. On several occasions the ideas of the employees were considered and implemented in cost reduction and quality improvement.

During the period six projects were taken up and worked on the same to conserve the energy.