

Surat District Co-op. Milk Producers' Union Ltd; Sumul Dairy, Surat

Unit Profile :

Surat District has been a Pioneer in India in channeling trade in Cotton and Milk through co-operatives. Before SUMUL stepped in, traditional Private Milk Traders were dominant in the area. Dairying on the other hand, was never popular with tribal (a major rural population in the District) as practically no infrastructure existed for milk marketing in their talukas, inaccessibility to their villages as well as taboos regarding keeping of buffaloes prevented the entire population of tribal from considering dairying as a source of income. To salvage the poor producers from the clutches of these Private Traders, Organization and integration of procurement, processing and marketing of milk and milk products by the producers themselves on a sound co-operative line was essential; this would also ensure elimination of middlemen, equitable distribution of benefits to Rural Milk Producers and indirectly to urban milk consumers as well.

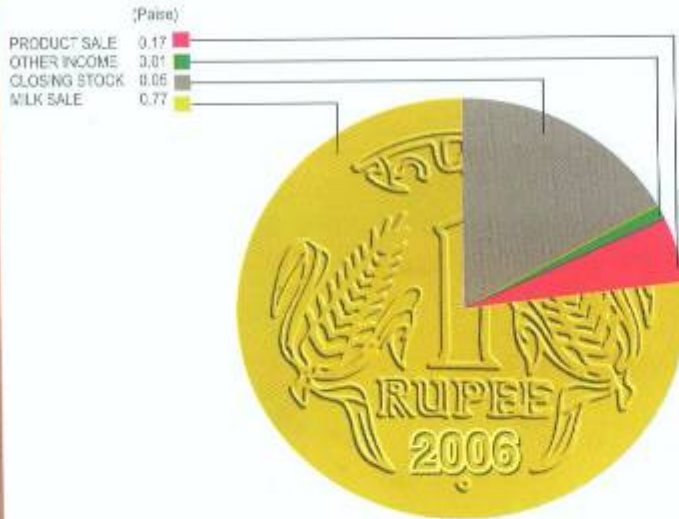


Being a producers owned organization, it eliminated the middlemen and minimized the overhead costs giving the maximum overall net-returns to its producer members from their milk production enterprises. Besides, it also discharges its most important obligation to help the producers to increase milk production and productivity at economic rates and reduce the cost of milk production, by providing them all essential inputs and extension services at their door-step at most economic/subsidized rates. Under Sumul's activities, Surat district is now firmly established as a milk shed and is growing from strength to strength.

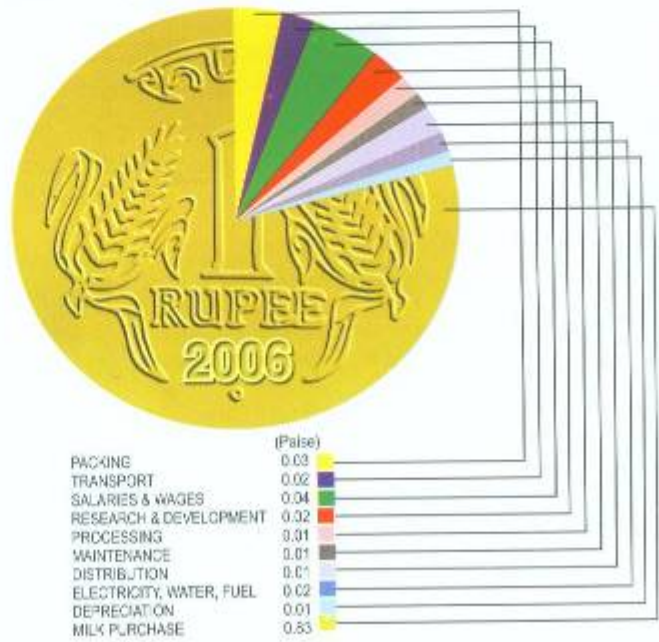
SURAT DISTRICT CO-OPERATIVE MILK PRODUCERS' UNION LTD.

A RUPEE

INCOME.....



EXPENDITURE.....



• **MAIN OBJECTIVES OF SUMUL:**

1. To provide a guaranteed remunerative milk market round the year for all the marketable surplus of member producers in their villages.
2. To procure milk, process it into good quality milk/milk products and market it most economically and efficiently to give maximum overall net-returns to the producers and general satisfaction to the consumers.
3. To provide essential technical inputs and services to the producers' at their door-steps in an economic and efficient manner and also in a way most acceptable to them - to increase milk production and to reduce the cost of production.

Sumul dairy chilling centre & BCU

- Bajipura chilling centre
- Navipardi chilling centre
- Uchhal chilling centre
- Nizar chilling centre
- 104 No. Bulk chilling Units

Sumul is also **ISO –9002, HACCP and ISO –14001 certified organization**. We are certified from Export council of India, which will help in improvement and export of surplus milk and milk product.

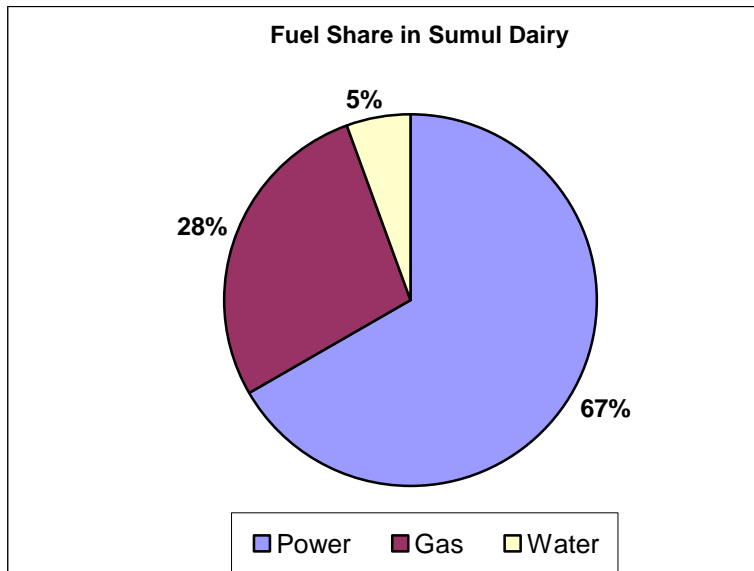
Name of Product	PACKING TYPE	PRODUCTION IN KG
<i>Pasteurized standardized Milk</i>	500 ML , 6 Litres	239623520
<i>Sumulya High Fat Milk</i>	500 ML , 6 Litres	
<i>Delite Homogenised Toned Milk</i>	250 ML, 500 ML	
<i>Skimmed Milk, Cow milk</i>	6 Litres	
<i>Butter Milk, Masala chhas</i>	500 ML	
<i>Butter</i>	cartons	736100
<i>Ghee</i>	Tin, Pouches	3775181
<i>Paneer</i>	Pouches. Tin	183965
<i>Flavored milk</i>	Bottle,	681968
<i>Curd</i>	Cups (200 & 400 gm)	1614200
<i>Sweets</i>		472951
<i>Powder</i>		1021880
<i>Pasteurized chilled water</i>		7557000

(ii) Energy Consumption:

Sumul Dairy Available Energy Sources

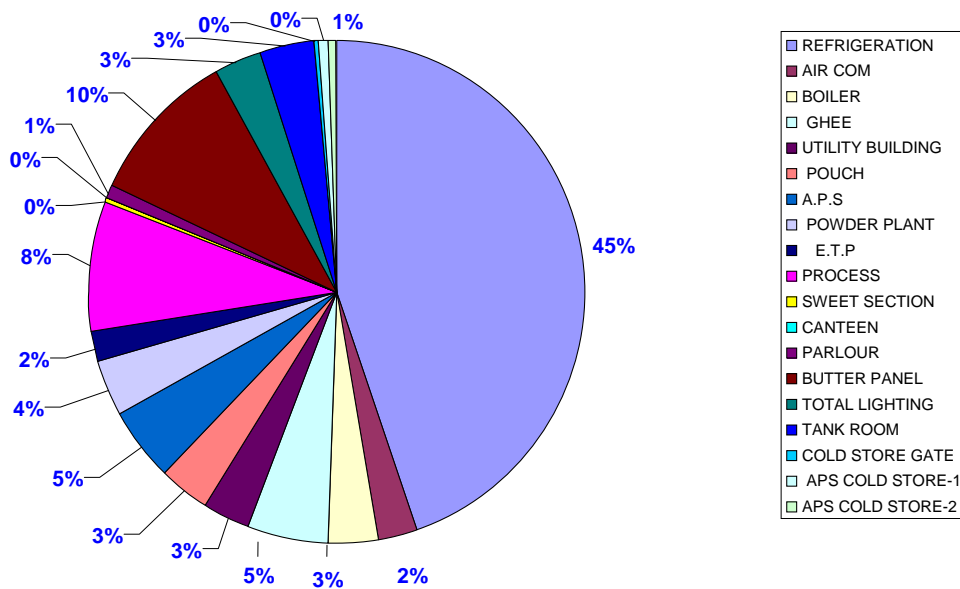
- Natural gas, FO for Steam
- Electricity from State electricity board / DG set.

% Fuel share in Sumul Dairy



Section wise Power consumption pattern

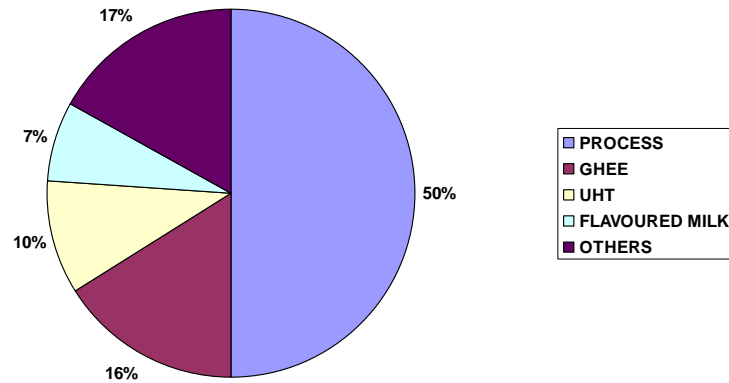
Sumul Dairy Section wise Power Consumption Pattern



Thermal Energy Consumption Pattern

- Process & Ghee section consume 66 % of total thermal energy in Sumul Dairy.

SECTION WISE THERMAL ENERGY CONSUMPTION



RECORDS OF ENERGY CONSERVATION IN LAST THREE YEAR

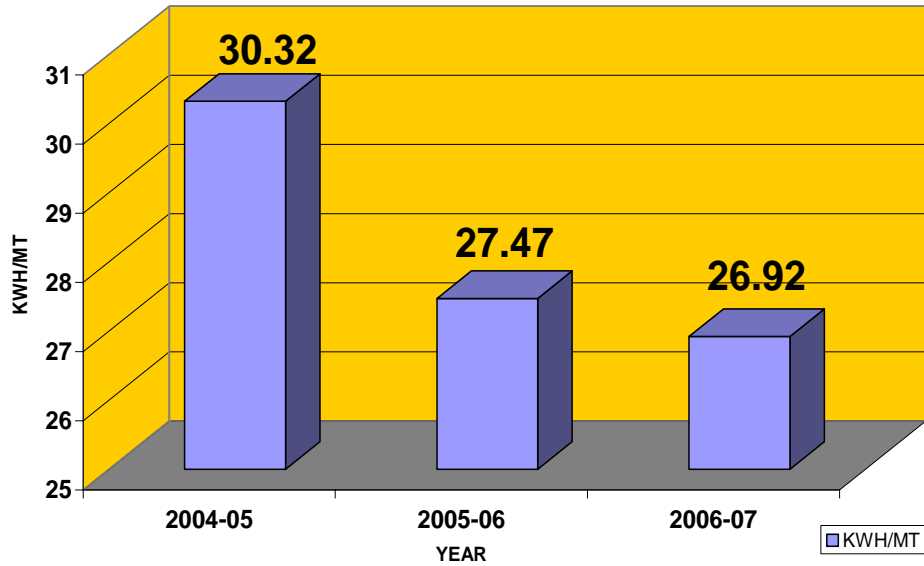
Energy Consumption:

There is a steady decline of specific energy conservation due to implementation of various energy conservation measures in last 3 years. The details are as given below:

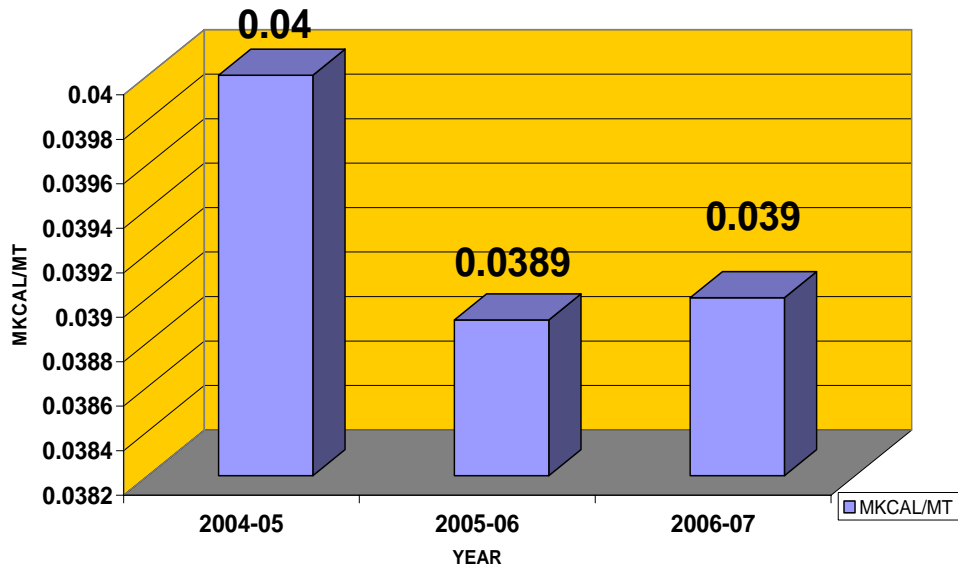
DESCRIPTION	UNIT	2004-2005	2005-06	2006-07
ANNUAL MILK & MILK PRODUCTION	MT	291492.5	334461	329544
TOTAL ELECTRICITY CONSUMPTION/ ANNUM	LAKHS KWH	88.405	91.90	88.73
SPECIFIC ENERGY CONSUMPTION	KWH/MT	30.32	27.477	26.92
TOTAL THERMAL ENERGY CONSUMPTION / ANNUM	MILLION KCAL	12099.9	13007.41	12856.33
SPECIFIC ENERGY CONSUMPTION – THERMAL	MILLION KCAL/MT	0.04	0.0389	0.039
TOTAL MANUFACTURING COST	LAKHS RS.	3225.29	3519.17	4247.97
TOTAL ENERGY COST	LAKHS RS.	635.25	633.0	596.65
ENERGY COST AS % OF TOTAL MANUFACTURING COST	%	19.6	17.98	14.05

➤ IN SPITE OF INCREASE IN PRICE OF NATURAL GAS, WE ARE ABLE TO CONTROL OUR TOTAL ENERGY COST.

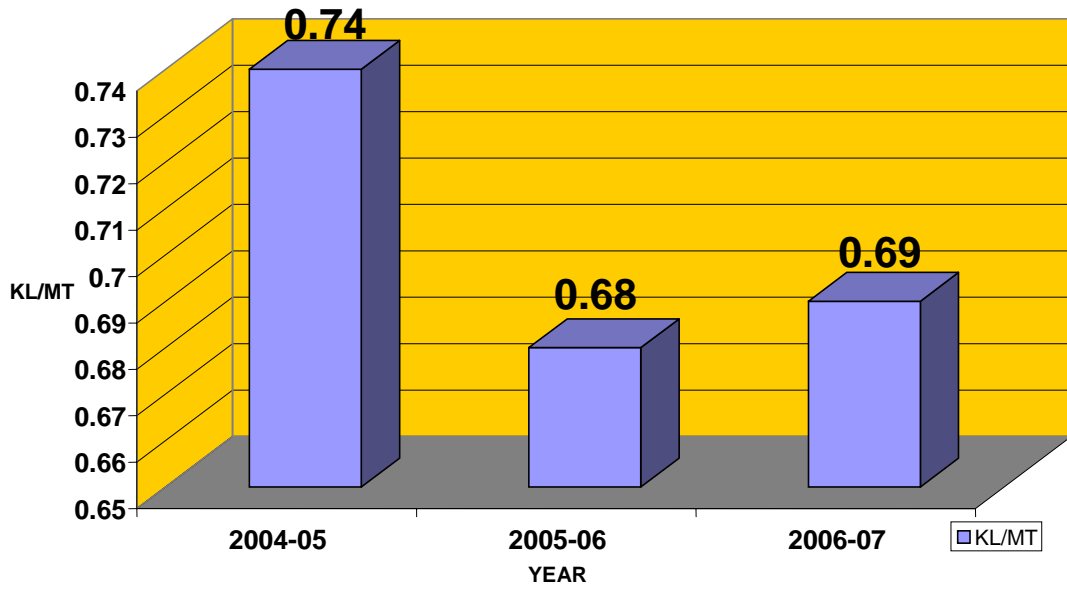
SPECIFIC ENERGY CONSUMPTION KWH/MT



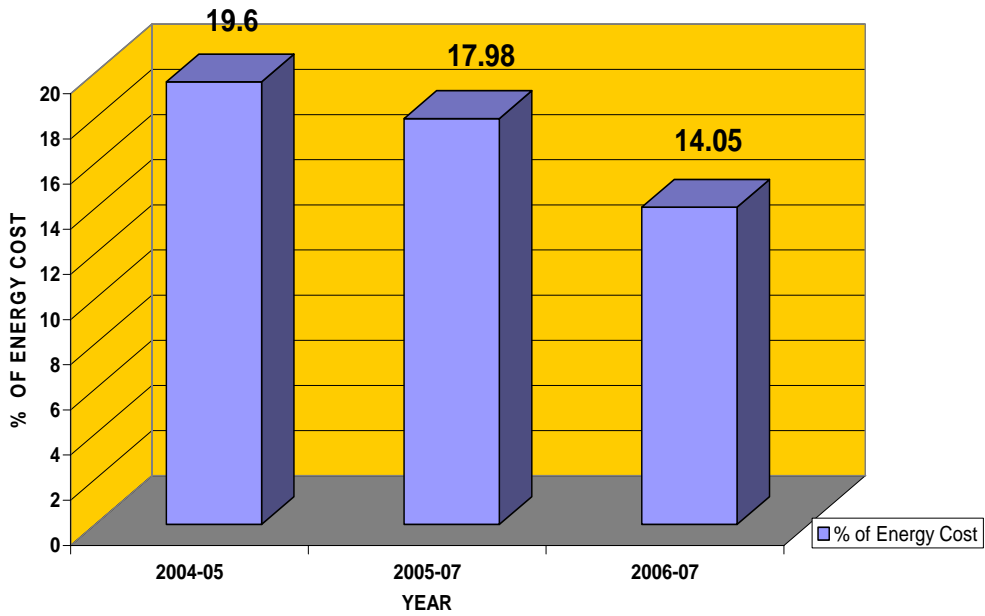
SPECIFIC ENERGY CONSUMPTION MKCAL/MT



WATER V/S MILK RATIO



% Energy Cost To Manufacturing Cost



(iii) Energy Conservation Policy & Setup :

Energy Policy:-

We are committed to conserve the energy which is a scarce resource with the requisite consistency in the efficiency, effectiveness in the cost involved in the operation and ensuring that production quality & quantity, environment, Safety, health of people are maintained.

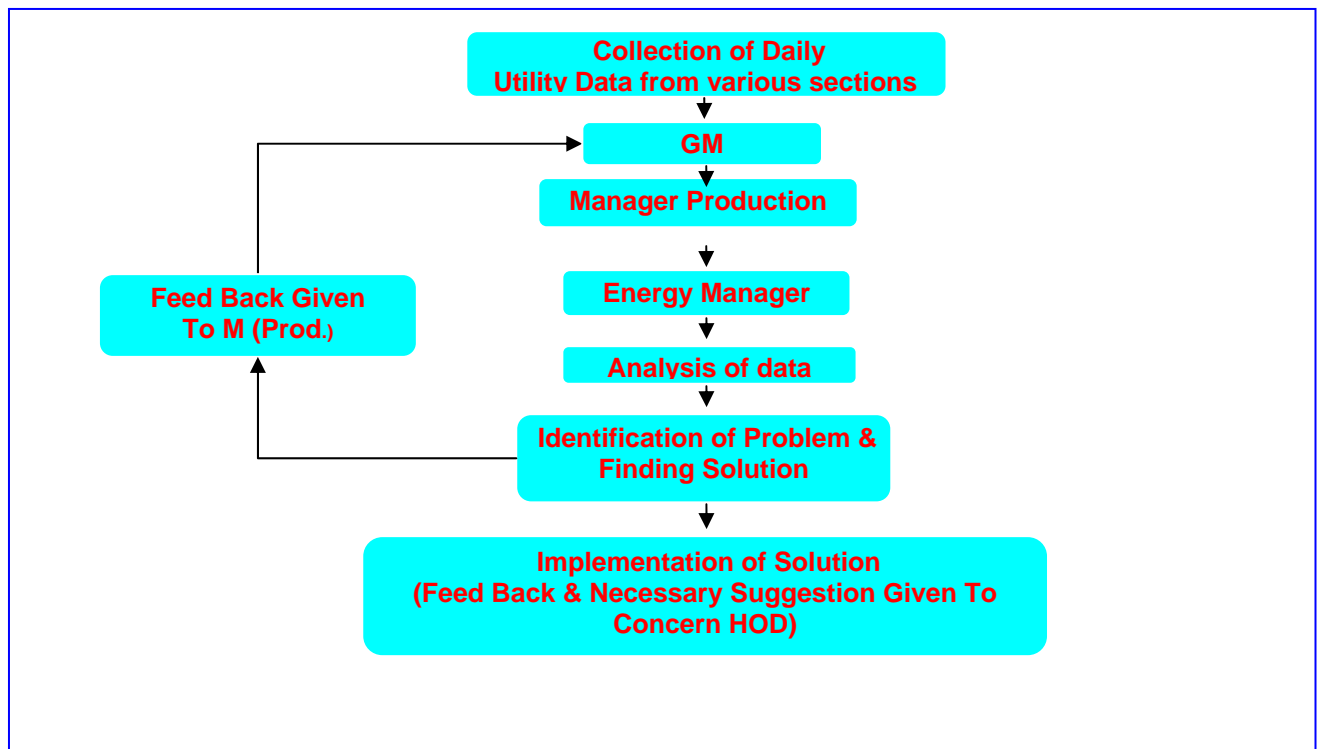
Our Mission is

To be lowest specific energy consumer in the industry we operate.

This we plan to achieve by the following:-

- Manage efficiently the utilization of energy resources upgrade hardware & employ cleaner & more efficient Technology.
- Carryout regular internal & external audits to identify area for improvement.
- Bench-mark continuously our performance against best practices.
- Enrich our experience on energy conservation by exchange of ideas with other organization.
- Promote awareness among all members of the Sumul large family.

Energy Management Setup & Communication channel:



Summery of Annual Saving in Energy Conservation 2006-07

Section	Investment RS in Lakh	Annual Saving RS in Lakh
Electrical	51.34	77.6
Thermal	11.76	31.97
Fuel (Diesel)	2.68	55.16
Water	56	8.21
Total	121.78	172.94

Summery of Annual other Saving 2006-07

Section	Investment RS in Lakh	Annual Saving RS in Lakh
Whey utilization (reuse)	Nil	62.58
Decrease in fat loss	Nil	11.13
Decrease in SNF loss	Nil	10.64
Reduction in ammonia consumption	Nil	0.219
Total		84.569

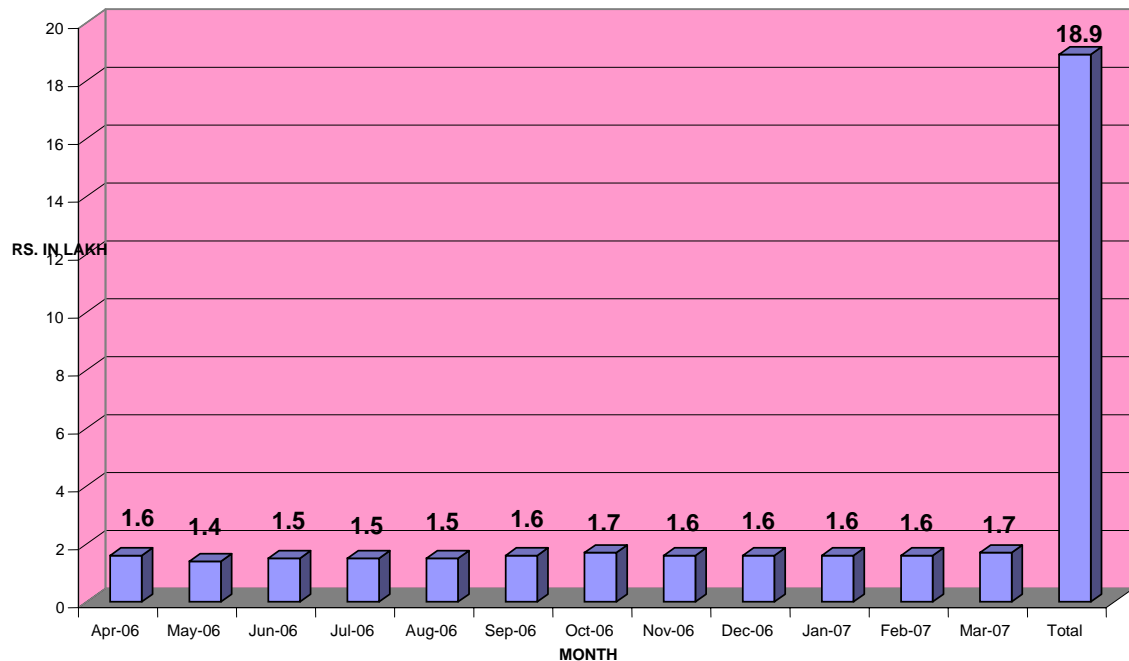
A. Energy Conservation in Electrical

Sr. No.	Energy Conservation Activity done in 2006-07	Investment (RS. In Lakh)	Annual saving in units	Annual Saving (RS. In Lakh)
1.	Power factor benefits	Nil		18.9
2.	Stopping of cold store of pouch, curd & Paneer by rescheduling production planning.	Nil	169234	8.46
3.	Use of 100 cfm compressor instead of 325 cfm during cleaning of m/c O& plant	Nil	36500	1.82
4.	Installation of power less ventilation fan & natural exhaust system.	5.77	26200	1.31
5.	Installation of 4 No. 1 HP geared motor in place 3.5 HP old motor in chain conveyer	0.740	72771	3.63
6.	Installation of new high speed 6 lit milk	7.4	54400	2.72

	packing machine instead of old pneumatic m/c			
7.	Installation of 3 No. 1 lit PLC based mechanical packing machine instead of pneumatic machine	12.0	81600	4.08
8.	Replacing cream pasteurizer cooling tower with main cooling tower	0.72	49822	2.49
9.	Installation of new Chilled water type air dryer for compressed air Instead of refrigerated type dryer.	2.5	77380	3.87
10.	Reduction in power consumption due to decrease in refrigeration load with decrease in pasteurization temp. from 78.5 to 77.5 °C	Nil	93440	4.67
11.	Saving due to regular check of compressed air leakage.	Nil	12775	0.638
12.	Replacement of old magnetic type choke with new electronic choke	0.36	3219	0.161
13.	Replacement of old ordinary tube with new electronic blast for 4' tube light.	0.28	7555	0.377
14.	80 watt HPMV white light with lamp instead of 150 watt dome.	1.76	33470	1.67
15.	Installation of 6 no. 3 hp energy efficient pump in place of 3.5 hp motor	2.19	10950	0.54
16.	Use of booster pump during separation of milk in milk pasteurizer to enhance the capacity.	Nil	60955	3.04
17.	Capacity enhancement of butter milk pasteurizer from 8000 to 20000 lit per hrs. by using 20 kl homogenizer	0.50	203873	10.19
18.	Installation of 52 no. solar light at automatic milk collection system	12.48	72800	3.64
19.	Removal of 12.5 hp cyclone-2 exhaust motor & 0.75 hp rotary valve motor	Nil	35350	1.77
20.	Auto control of 2 No. agitator motor of Silo through PLC pico controller	0.50	32256	1.61
21	Insulation of cold line done in dairy.	4.14	40540	2.02
	TOTAL SAVING	61.34		77.6

1. Benefit due to maintaining power factor Unity

Monthwise Power Factor Rebate in Lakh RS.



Annual saving	- 18.9 lakh RS
Investment	- Nil

2. Stopping of cold store in Pouch, Curd & Paneer section according to production planning

Background

Previously, all these cold store were running for whole day.

Current Status

Currently, these cold stores are stops for almost 10-12 per day & used as per production schedule.

Payback

Annual power saving	- 36500 units
Annual Money Saving	- Rs 1.82 Lakhs
Investment	- Nil



COLD STORE IN OPERATION



COLD STORE STOPED

3. Use of 100 cfm compressor instead of 325 cfm compressor during cleaning of m/c & plant.




Background

Previously, 325 CFM air compressor was used during cleaning of packing machine & plant. This results in more power consumption

Current Status

Presently 100 CFM compressor used instead of 325 CFM compressor

Payback

-  Annual power saving - 36500 units
-  Annual Money Saving - Rs 1.82 Lakhs
-  Investment - Nil



325 CFM COMPRESOR



100 CFM COMPRESOR

4. Installation of powerless ventilation & natural exhaust system in store, packing section, sweet section, Paneer, Air compressor, boiler, butter & ghee.



STORE NATURAL EXHAUST SYSTEM



PACKING NATURAL EXHAUST SYSTEM



SWEET SECTION



AIR COMPRESSOR

Background

Previously lights were on in these sections during day time. Also system heat retain in these section due to improper ventilation.

Current Status

No day lighting in these section required which save lots of electrical units & provide favorable working atmosphere.

Payback

 Annual power saving	- 26200 units
 Annual Money Saving	- Rs 1.31 Lakhs
 Investment	- 5.77 Lakhs
 Payback period	- 4.4 Years

5. Installation of four nos. 1 hp geared motor in chain conveyer instead of 3.5 hp motor in milk packing section.





Background

Previously 3.5 HP motors used & run almost 16 hours per day.

Current Status

Four 3.5 HP motors are replaced with 1 HP motor with the same out put.

Payback

 Annual power saving	- 72771 units
 Annual Money Saving	- Rs 3.63 Lakhs
 Investment	- Rs. 74080
 Payback period	- 2.5 month



3.5 HP MOTOR



1 HP MOTOR

6. Installation of high speed 6 lit mechanical machine instead of pneumatic machine for milk packing.

Background

Previously, Pneumatic machine used which consumed 35 CFM of air per hour.

Current Status

With new machine there is no requirement of air.

Payback

Annual power saving	- 54400 units
Annual Money Saving	- Rs 2.72 Lakhs
Investment	- 7.4 Lakhs
Payback period	- 2.7 Years



7. Installation of 3 No. 1 lit PLC based mechanical packing machine instead of pneumatic machine

Background

Previously, Pneumatic machine runs which consumed 35 cfm of compressed air hence results in more power consumption at air compressor.

Current Status

With installation of these machines power consumption at air compressor reduced significantly.

Payback

Annual power saving	- 81600 units
Annual Money Saving	- Rs 4.08 Lakhs
Investment	- Rs 12.0 Lakhs
Payback period	- 2.9 Years



8. REPLACING CREAM PASTUERIZER COOLING TOWER WITH MAIN COOLING TOWER



Background

Previously one 8 hp motor extra was running when cream pasteurizers runs. It cost 682 Rs. Per day.

Current Status

Cream pasteurizer replaced with main cooling tower. This is results in saving of power

Payback

 Annual power savings	- 49822.5 Units
 Annual Money Saving	- Rs 2.495 lakh
 Investment	- 0.72 Lakhs
 Payback period	- 3.46 month



9. Installation of power less compressed air dryer in place of refrigerated type dryer


Background

Previously one 15 hp motor extra was running when refrigerated type Air dryer runs.

Current Status

a. Currently no extra power required for dryer.

Payback

 Annual power savings	- 77380 Units
 Annual Money Saving	- Rs 3.87 lakh
 Investment	- Rs. 2.5 Lakhs
 Payback period	- 7 month



10. Reduction in power consumption due to decrease in refrigeration load with decrease in pasteurization temp. from 78.5 to 77.5 °C



Background

Previously, due to higher temp. refrigeration load was high

Current Status

With decrease of 1°C temp. there is significant decrease in power consumption in refrigeration

Payback


-  Annual power savings - 93440 Units
-  Annual Money Saving - Rs 4.67 lakh
-  Investment - Nil

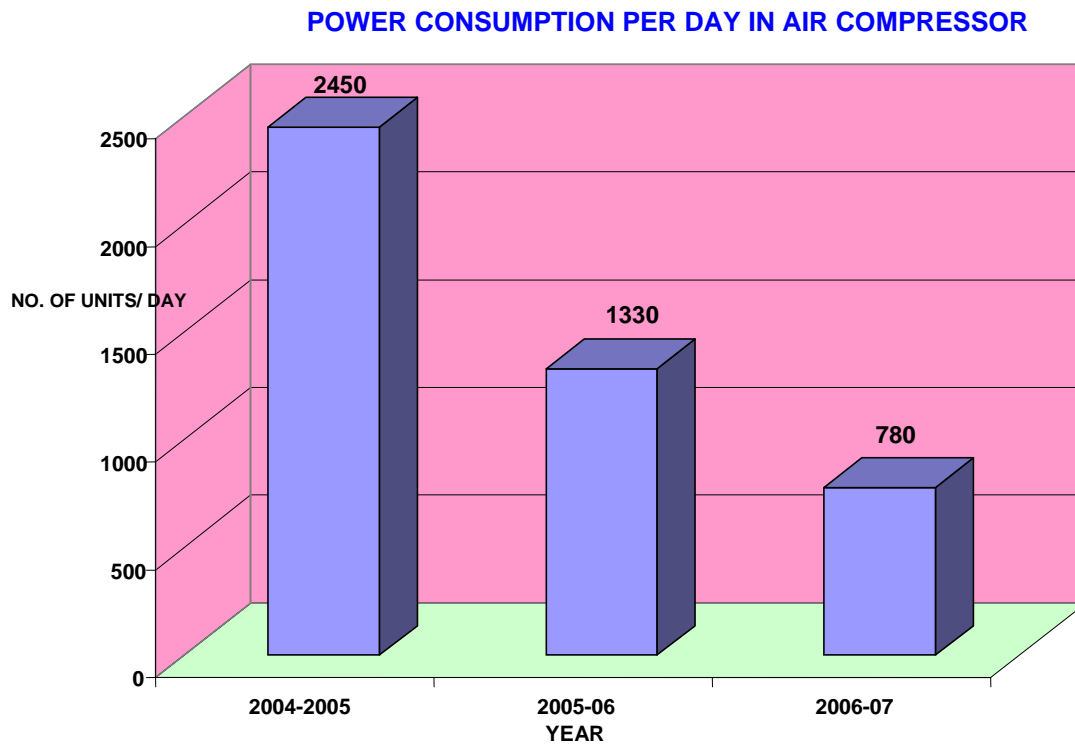
11. Saving due to regular check of compressed air leakage.

Current Status

Currently, regular check of leakage at user end is done after every fifteen day

Payback

-  Annual power savings - 12775 Units
-  Annual Money Saving - Rs 0.638 lakh
-  Investment - Nil



12. Replacement of 49 no. ordinary tube light fixture (copper ballast) with new (electronic ballast)




Background

Previously, old tube light was consuming 40 watt power per hour.

Current Status

Currently, only 28 watt power per hour consumed in one tube light

Payback

 Annual power savings	- 3219 Units
 Annual Money Saving	- Rs 0.160 lakh
 Investment	- RS 0.36 lakh



COPPER BALLAST TUBE



ELECTRONIC BALLAST

13. Replacement of 69 no. ordinary tube light with electronic blast for 4' tube light




Background

Previously, old tube light was consuming 58 watt power per hour.

Current Status

Currently, only 28 watt power per hour consumed in one tube light

Payback

 Annual power savings	- 7555 Units
 Annual Money Saving	- Rs 0.377 lakh
 Investment	- RS 0.28



ORDINARY TUBE LIGHT



ELECTRONIC BALLAST TUBE

14. Replacement of 131 no. 150 watt mercury light dome with 80 watt HPMV white light with lamp




Background

Previously, old light of 150 watt are consuming more power. Replaced with new 80 watt HPMV white light

Current Status

Currently, 80 watt white light with lamp are used.

Payback

 Annual power savings	- 33470 Units
 Annual Money Saving	- Rs 1.67 lakh
 Investment	- RS 1.76 lakh
 Payback period	- 1.1 year



OLD HPMV LIGHT DOME 150 WATT

LOW BAY MODEL 80 W

15. Installation of 6 No. 3 hp energy efficient pump in place of 3.5 hp pump





Background

Previously, 3.5 hp pump were used which consuming around 0.75 amp more.

Current Status

Replaced with 6 no. 3 hp new energy efficient pump

Payback

 Annual power savings	- 10950 Units
 Annual Money Saving	- Rs 0.54 lakh
 Investment	- RS 2.19 lakh
 Payback period	- 4 year



3.5 HP PUMP



3 HP PUMP

16. Use of booster pump during separation of milk in milk pasteurizer to enhance the capacity




Background

Previously, previously capacity of pasteurizer comes 18000 lit hours

Current Status

Currently, capacity has increased to 25000 lit hours with separators.

Payback

 Annual power savings	- 60955 Units
 Annual Money Saving	- Rs 3.04 lakh
 Investment	- Nil



BOOSTER PUMP FOR ENHANCING CAPACITY

17. Capacity enhancement of butter milk pasteurizer from 8000 to 20000 lit per hours by using 20 kl homogenizer.




Background

Previously, capacity of butter milk plant was around 10 kl after using two homogenizers of 100 hp & 125 hp with capacity of 10000 lit per hour

Current Status

Currently, with installation of 20 kl homogenizer of 150 hp capacity has enhanced to 20 kl per hour

Payback

 Annual power savings	- 203873 Units
 Annual Money Saving	- RS 10.19 lakh
 Investment	- RS 0.5 lakh



Old 8000 KL Homogenizer



20000 KL Homogenizer

18. Installation of 52 No. solar photovoltaic system at Automatic milk collection centre



Background

Previously, previously these centers were run GSEB lights

Current Status

Currently, running computer, fat machine, weighing m/c on solar photovoltaic system saving 4 unit per day

Payback

 Annual power savings	- 72800 Units
 Annual Money Saving	- RS 3.64 lakh
 Investment	- RS 12.48 lakh
 Pay back period	- 3.4 years

19. Stopping of 12.5 hp exhaust motor of cyclone separator-2 & 0.75 hp rotary valve motor of powder plant with reduction in stack losses


Background

Previously, two cyclone separators were run in powder plant and also stack losses was high.

Current Status

Currently, one cyclone separator is in use which results in power saving as well as in reduction of stack losses.

Payback

 Annual power savings	- 35350 Units
 Annual Money Saving	- RS 1.77 lakh
 Investment	- Nil



Exhaust fan before removal



Exhaust fan after removal

20. Auto control of 2 No. agitator motor of Silo through PLC pico controller





Background

Previously, Agitator runs for all 24 hours hence consuming more power

Current Status

Currently, after installation of PLC based pico controller agitator motor stopped automatically when silo gets emptied.

Payback

 Annual power savings	- 32256 Units
 Annual Money Saving	- RS 1.61 lakh
 Investment	- RS 0.50
 Pay back period	- 3.5 month



PICO CONTROLLER

21. Insulation of 265 mt length of milk cold lines





Background

Previously, refrigeration load was higher due to energy loss

Current Status

Currently, 265 mt length insulation done to save heat loss

Payback

 Annual power savings	- 40540 Units
 Annual Money Saving	- RS 2.02 lakh
 Investment	- RS 4.14
 Pay back period	- 24 month



1. Decrease in pasteurizer temperature from 78.5 to 77.5 °C

Back ground:

Previously pasteurizer were run at 78.5 °C

Current status:

Decrease in pasteurizer temperature by 1 °C

Payback

- Annual steam saving - 7.3 lakh kg steam
- Annual saving - 7.3 lakh Rs.
- Investment - Nil



2 . Installation of PRS station for ghee section

Back ground:

Previously 6 kg steam pressure was maintained.

Current status:

Steam consumption reduced as steam pressure reduced to 3.0 KG

Payback

Annual steam saving	- 37735 units per year
Annual saving	- 188677.26
Investment	- Rs 91200
Payback period	- 0.483 Month



GHEE PRS

3. Installation of PID control valve for hot water supply to milk pasteurizer. (temp. control loop)

Background:

Previously continuously steam is supplied to hot water system. This causes huge heat energy loss.

Current Status

With the installation of PID control valve Steam flow is reduced to almost 60 %.

Payback

• Annual steam saving	- 292000 per year
• Total investment	- 2.13 Lakh
• Annual saving	- 292000 Lakh
• Payback period	- 10 months



PID CONTROL VALVE

4. Installation of PID control valve for hot water supply to Paneer PHE. (temp. control loop)

Background:

Previously continuously steam is supplied to hot water system with 100 % valve opening. This causes huge heat energy loss.

Current Status

With the installation of PID control valve Steam flow is reduced to almost 60 %.

Payback

• Annual steam saving	- 87381 kg per year
• Total investment	- 0.426 Lakh
• Annual saving	- 0.873 Lakh
• Payback period	- 6 months



5. Installation of 80 % regeneration efficiency cream pasteurizer in place of 50 % regeneration efficiency.


Background

Old cream pasteurizer was having very low regeneration efficiency

Current Status

With installation of new 80 % cream pasteurizer there is huge saving of thermal energy.

Payback

-  Annual steam savings - 444750 kg
-  Annual Money Saving - Rs 4.44 Lakhs
-  Investment - 6.5 Lakhs
-  Payback period - 1.5 Years



OLD CREAM PASTEURIZER



NEW CREAM PASTEURIZER

6. Installation of PRV in Paneer section to reduce pressure from 5 kg to 3 kg

Background

Previously 5 kg steam pressure was maintained in Paneer section

Current Status

With the installation of PRV the steam pressure is reduced from 5 kg to 3 kg.

Payback

 Annual steam savings	- 291000 kg
 Annual Money Saving	- Rs 2.91 lakhs
 Investment	- 0.15 lakhs
 Payback period	- Less then a month



7. Replacement of 5 no. 1/2" & 3 no. 3/4" steam traps



Background

Previously, old traps were causing steam loss & more condensation in steam line

Current Status

With installation of new traps in steam line steam loss has reduced.

Payback

 Annual steam savings	- 299636 kg
 Annual Money Saving	- Rs 3.29 Lakhs
 Investment	- 0.119 Lakhs
 Payback period	- Less then a month



OLD DEFECTIVE STEAM TRAP



NEW STEAM TRAP

8. Attending steam leakage, 12 times packing has changed, 28 times welding done in line to control leakage, 38 times glen of valve changed

Background

Previously, loss of steam in steam distribution line

Current Status

With regular attaining of line leakage, there is no steam leakage.

Payback

Annual steam savings	- 246400 kg
Annual Money Saving	- Rs 2.46 Lakhs
Investment	- 0.065 Lakhs
Payback period	- Less then a month

9. Thermal heat recovery in refrigeration by cooling ammonia gas from 90° C to 55° C & utilizing hot water of 50° C for crate cleaning

Background

Previously, during crate washing simple water & steam was used. This consumes more steam

Current Status

Currently, 50° C water used along with steam. This saves lot of steam

Payback

Annual steam savings	- 81111 kg
Annual Money Saving	- Rs 0.89 Lakhs
Investment	- 0.30 Lakhs
Payback period	- 4 month

10. Hot insulation of 215 Rmtr steam line


Background

Hot insulation was damaged at few places & also it has removed at some places.

Current Status

Currently, all steam lines is insulated properly.

Payback

 Annual steam savings	- 321784 kg
 Annual Money Saving	- Rs 3.54 Lakhs
 Investment	- Rs 0.88576 Lakhs
 Payback period	- 3.5 month



We have started utilizing the full capacity of tanker for bringing of milk from chilling centers. This was developed in oracle based software which used to provide us with the online data so as to take the decision for tanker movement. It has helped us to such an extent that our transportation cost for bringing the milk from chilling center and from other dairies has come down from RS 0.33/Ltr to RS 0.27/liters. This has happened as number of trips for collecting the milk has reduced



Surat District Co-operative Milk Producers' Union Limited,
Sumul Dairy, Surat - 395 008

Tanker Movement Report - Centerwise from Sumul

Report from 10-SEP-2006 to 17-SEP-2006

Page 7 of 9

Destination Id : C00018 NPCC

Tanker No	GP No.	Out Time	In Time	Qty (Lit) (Recd/Disp)	Capacity (Lit)	Qty Diff (Lit)	Time Diff
2844	00003309	11-SEP-2006 20:42	11-SEP-2006 01:47	16374	16400	-26	5.5
3709	00003311	11-SEP-2006 21:08	11-SEP-2006 02:30	21820	22200	-380	5.22
T3909	00003314	11-SEP-2006 00:31	11-SEP-2006 22:20	17522	17700	-178	3.8
3202	00003320	11-SEP-2006 02:09	12-SEP-2006 11:53	14374	14400	-26	9.51
3809	00003325	11-SEP-2006 04:37	12-SEP-2006 11:21	19521	19500	21	6.48
8600	00003328	11-SEP-2006 07:03	12-SEP-2006 12:34	13791	14400	-609	5.36
6047	00003340	12-SEP-2006 08:19	12-SEP-2006 15:11	21975	22100	-125	6.52
3509	00003351	12-SEP-2006 14:50	12-SEP-2006 20:02	20317	22100	-1783	5.12
3202	00003354	12-SEP-2006 16:10	12-SEP-2006 22:37	14471	14400	71	6.27
3709	00003362	12-SEP-2006 18:40	12-SEP-2006 00:00	21859	22200	-341	5.20
2844	00003363	12-SEP-2006 18:42	12-SEP-2006 23:14	16219	16400	-181	4.32
3348	00003366	12-SEP-2006 20:39	12-SEP-2006 00:39	12043	12200	-157	4.0
3409	00003369	12-SEP-2006 21:59	12-SEP-2006 01:57	21936	21800	136	3.58
4369	00003379	12-SEP-2006 02:44	13-SEP-2006 10:13	11084	18400	-7316	7.29
2722	00003396	13-SEP-2006 11:48	13-SEP-2006 15:02	23613	23700	-87	3.14
3509	00003399	13-SEP-2006 11:59	13-SEP-2006 18:09	19758	22100	-2342	6.10
3069	00003400	13-SEP-2006 12:09	13-SEP-2006 18:00	21221	21700	-479	6.21
3809	00003402	13-SEP-2006 12:56	13-SEP-2006 18:18	19521	19500	21	5.22
8485	00003407	13-SEP-2006 16:08	13-SEP-2006 22:30	9343	9500	-157	6.35
7171	00003409	13-SEP-2006 16:33	13-SEP-2006 23:09	14568	14800	-232	6.49
2844	00003421	13-SEP-2006 20:02	13-SEP-2006 23:53	16142	16400	-258	4.0
3348	00003422	13-SEP-2006 20:25	13-SEP-2006 03:13	11739	12200	-461	6.48
3709	00003423	13-SEP-2006 21:00	13-SEP-2006 01:47	21782	22200	-418	4.47
3409	00003424	13-SEP-2006 21:19	13-SEP-2006 01:45	21772	21800	-28	4.26
1789	00003427	13-SEP-2006 00:14	13-SEP-2006 03:19	10683	15300	-4617	3.5
8600	00003428	13-SEP-2006 00:38	14-SEP-2006 11:16	14504	14400	104	10.51
3509	00003436	13-SEP-2006 06:42	14-SEP-2006 12:00	22046	22100	-54	5.24
2798	00003447	14-SEP-2006 08:08	14-SEP-2006 15:13	22338	22200	138	7.36
4201	00003453	14-SEP-2006 10:42	14-SEP-2006 16:27	10683	15300	-4617	5.55
T3909	00003457	14-SEP-2006 13:10	14-SEP-2006 17:44	17522	17700	-178	4.38
0999	00003470	14-SEP-2006 18:44	14-SEP-2006 00:11	14665	14600	65	5.27
2844	00003474	14-SEP-2006 20:25	14-SEP-2006 00:19	16210	16400	-190	3.54
3409	00003477	14-SEP-2006 21:47	14-SEP-2006 03:32	21830	21800	30	11.26
3709	00003478	14-SEP-2006 21:49	14-SEP-2006 03:34	22071	22200	-129	11.24
3348	00003479	14-SEP-2006 22:09	14-SEP-2006 03:55	12053	12200	-147	11.3
3809	00003480	14-SEP-2006 23:32	14-SEP-2006 03:33	11951	19500	-7549	4.1

- Previously, when software started, we found after data analysis many tankers capacity is not fully utilized. This adds to extra trip of tanker. This cause higher cost of transportation.



Surat District Co-operative Milk Producers' Union Limited,
Sumul Dairy, Surat - 395 008

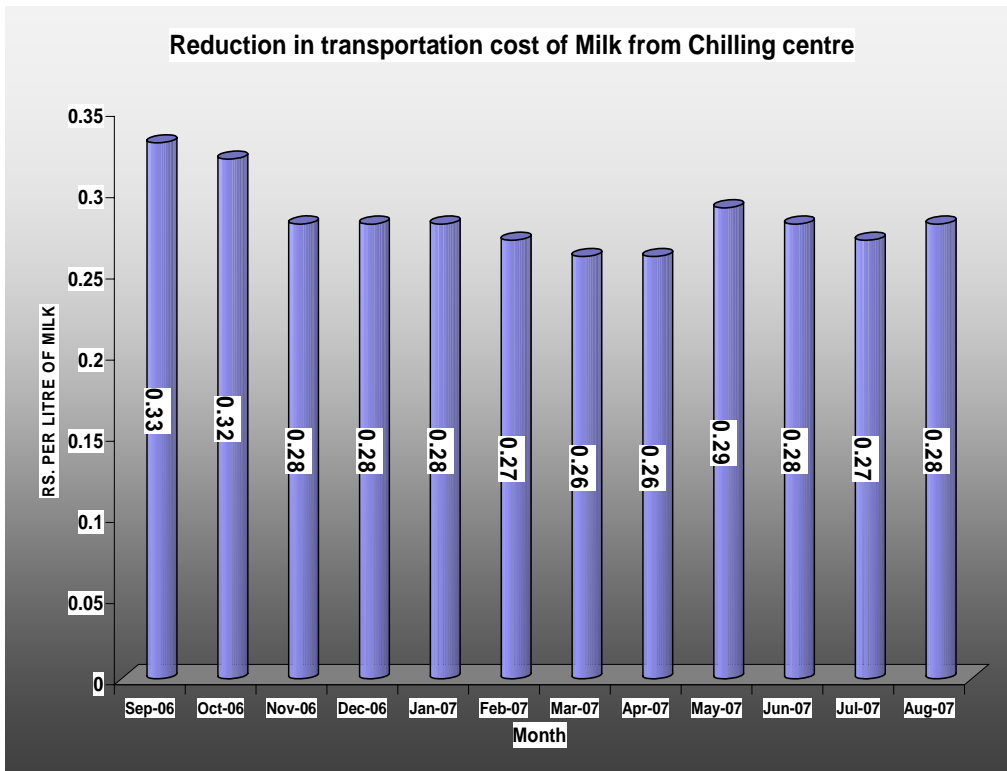
Tanker Movement Report - Centerwise from Sumul

Report from 10-aug-2007 to 17-aug-2007

Destination Id : C00018 NPCC

Tanker No	GP No.	Out Time	In Time	Qty (Lit) (Recd/Disp)	Capacity (Lit)	Qty Diff (Lit)	Time Diff
3348	00007250	10-AUG-2007 20:54	10-AUG-2007 01:28	10004	10000	4	4.34
4201	00007251	10-AUG-2007 22:04	10-AUG-2007 01:56	15204	15200	4	3.52
3809	00007268	11-AUG-2007 07:43	11-AUG-2007 12:02	19502	19500	2	4.19
6912	00007277	11-AUG-2007 08:30	11-AUG-2007 13:58	23003	23000	3	5.28
3348	00007297	11-AUG-2007 21:04	11-AUG-2007 00:10	10003	10000	3	3.6
4209	00007298	11-AUG-2007 21:31	11-AUG-2007 00:46	15103	15100	3	3.15
7000	00007300	11-AUG-2007 22:18	11-AUG-2007 02:24	14900	14900	0	4.6
3409	00007301	11-AUG-2007 22:20	11-AUG-2007 02:57	21803	21800	3	4.37
2844	00007302	11-AUG-2007 22:23	11-AUG-2007 02:26	16400	16400	0	4.3
4201	00007303	11-AUG-2007 22:34	11-AUG-2007 02:37	15199	15200	-1	4.3
3509	00007324	12-AUG-2007 08:17	12-AUG-2007 11:19	22001	22000	1	3.2
3309	00007325	12-AUG-2007 08:18	12-AUG-2007 12:54	22299	22300	-1	4.36
3202	00007339	12-AUG-2007 18:07	12-AUG-2007 22:36	15100	15100	0	4.29
3445	00007340	12-AUG-2007 18:24	12-AUG-2007 00:49	15100	15100	0	6.25
7171	00007341	12-AUG-2007 18:28	12-AUG-2007 00:36	14500	14500	0	6.8
2844	00007345	12-AUG-2007 19:00	12-AUG-2007 01:57	16399	16400	-1	6.57
3348	00007350	12-AUG-2007 20:25	12-AUG-2007 01:38	10004	10000	4	5.13
4201	00007352	12-AUG-2007 21:57	12-AUG-2007 03:04	15204	15200	4	5.7
3509	00007377	13-AUG-2007 08:02	13-AUG-2007 11:46	22003	22000	3	3.44
4509	00007378	13-AUG-2007 08:03	13-AUG-2007 11:36	22501	22500	1	3.33
3598	00007388	13-AUG-2007 17:45	13-AUG-2007 23:28	14500	14500	0	5.43
9495	00007393	13-AUG-2007 19:26	13-AUG-2007 01:26	9401	9400	1	6.0
8485	00007395	13-AUG-2007 20:01	13-AUG-2007 01:24	9300	9300	0	5.23
3348	00007398	13-AUG-2007 20:49	13-AUG-2007 01:07	10004	10000	4	4.18
7718	00007399	13-AUG-2007 21:07	13-AUG-2007 00:57	14602	14600	2	3.50
2844	00007401	13-AUG-2007 21:16	13-AUG-2007 01:23	16400	16400	0	4.7
3409	00007403	13-AUG-2007 22:12	13-AUG-2007 05:40	21801	21800	1	7.28
3309	00007424	14-AUG-2007 08:04	14-AUG-2007 13:02	22304	22300	4	4.58
3509	00007425	14-AUG-2007 08:05	14-AUG-2007 11:10	22001	22000	1	3.5
0447	00007428	14-AUG-2007 08:19	14-AUG-2007 13:46	15200	15200	0	5.27
4501	00007430	14-AUG-2007 08:30	14-AUG-2007 13:49	23806	23800	6	5.19
0999	00007442	14-AUG-2007 17:39	14-AUG-2007 21:38	14600	14600	0	3.59
4201	00007448	14-AUG-2007 18:54	14-AUG-2007 00:27	15199	15200	-1	5.33
9495	00007451	14-AUG-2007 18:59	14-AUG-2007 02:43	9401	9400	1	7.44

- After implementation of software & proper control 100 % utilization of tanker capacity is achieved which results in lowering of transportation cost from RS 0.33 to RS 0.27



➤ Saving till March-07 was around RS 55 lakh. Estimated Annual Saving is around RS 110 Lakh

1. Installation of state of the art technology ETP plant with USAB digester, carbon filter & softening plant. 100 % recycling of water for floor, crate washer, cleaning gardening



OLD ETP PLANT



NEW ETP PLANT




Background

Previously all effluent of ETP after treatment is drained in to Municipality gutter.

Current Status

Currently we are using around 1.5 lakh lit. Water from ETP, after treatment & carbon filtration for floor cleaning, Gardening, civil work etc. This results in huge saving of water.

Payback

 Annual water savings	- 54750 kl
 Annual Money Saving	- Rs 8.21 lakh
 Investment	- 56.0 lakhs
 Payback period	- 6.5 Years

REUSE OF ETP WATER IN PLANT



Gardening



Pouch scraps cleaning



Dispatch dock cleaning



Floor cleaning



Civil Work



Toilet cleaning

Vi Environment and Safety:

Sumul Dairy, a milk processing unit is located in Surat city. Sumul Dairy is very much concerned about prevention of any kind of Pollution. We are ISO 14001 certified organization and trying our best to prevent each kind of pollution.

The major effluent in dairy is the flushing of milk pipelines with Caustic & Acid which comes to the Effluent Treatment Plant. Sumul Dairy was having ETP since 1988 as for last 19 years of 1400M³ / Day capacity which was operational on the conventional method and the treated water drained into SURAT MUNICIPAL CORPORATION (SMC) gutter which used to further treated at SMC main Plant.

Due to the conservation of process water at various stages of milk processing, the effluent generation came down to 600 M³ / Day. To cater the existing requirement and to reduce O & M cost, in year 2005 the Management of SUMUL decided to Upgrade the ETP with total cost of Rs. 58,00,000/-.

The new Plant comprised anaerobic treatment followed by aerobic system, while making use of all the existing units. With the addition of UASB system, there will be a potential for reusing a valuable byproduct of the plant i.e. Biogas.

For that we have upgraded our Effluent Treatment Plant with recycling plant to reduce pollution load as well as to reduce water consumption by using ETP reused water.

OVERLOOK OF ETP



Aeration tank



Carbon Filter, Sand Filter & Softener

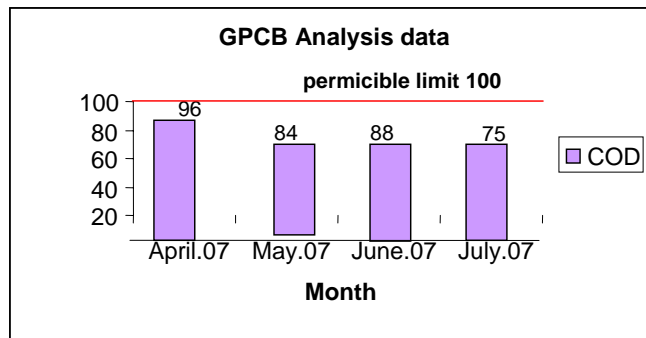
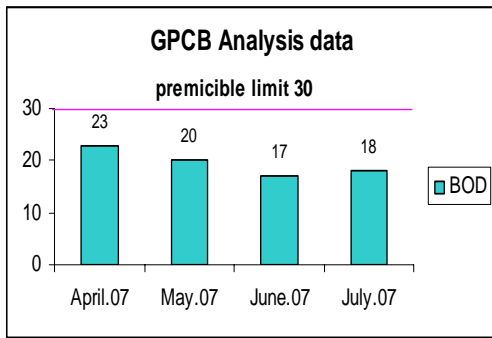


Top view of complete ETP with all units



Treated water from ETP plant

From above detailed description, you will find that we are using no chemical or anything for running our Plant. Also, we are getting Bio gas & Dried sludge as Manure.



Reuse of etp water

We are using our Treated ETP water for Reuse in Gardening, Drain cleaning, Floor cleaning, Civil construction work, in Toilets etc. We have laid approximate 1000Mtr. Line for reuse ETP treated water at various places. We have prepared beautiful green loans of 22,300Sq.ft area at various locations in our premises as attached below photographs: Also we have created Green belt of around 12,000plants in our Dairy premises which contains many big trees like Asoplav, Neem, Gulmahor, Sharu, Coconut etc. and other small plants. Data of Reuse ETP water upto this month as mentioned in below graph:

Lawn and plants developed by ETP treated water:





Maintaining Road Divider & Traffic Island with ETP treated water



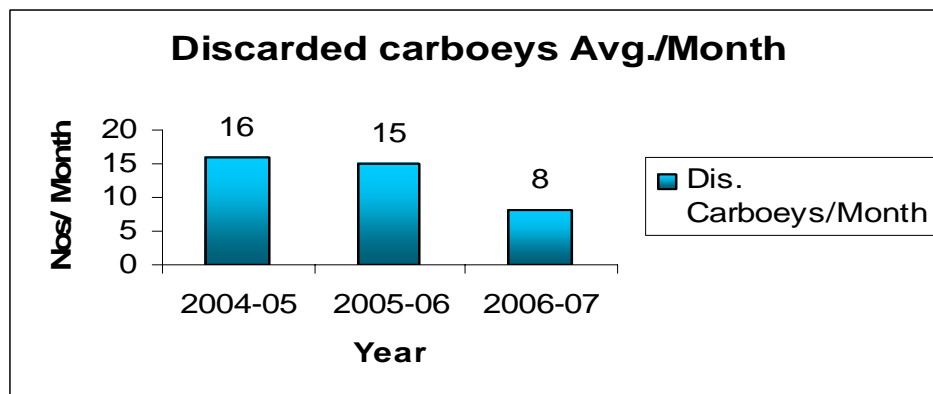
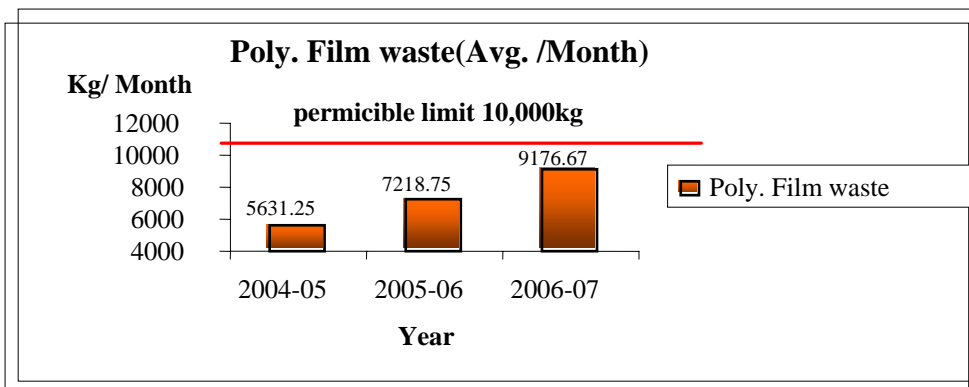
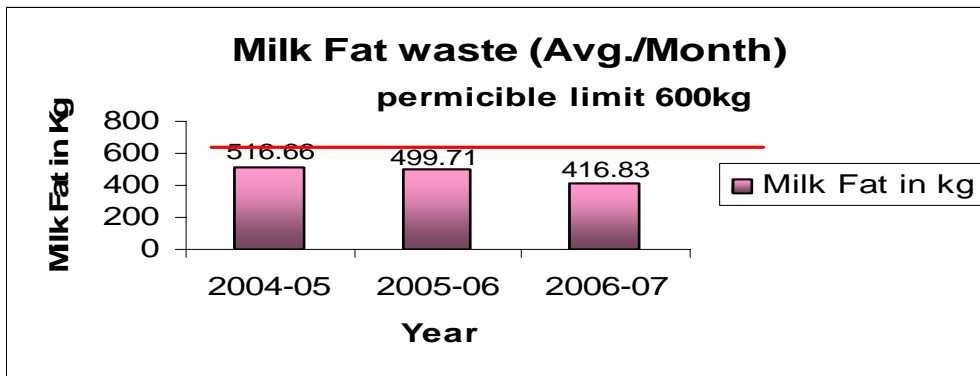
ETP treated water reused in cleaning activities:



Solid Waste

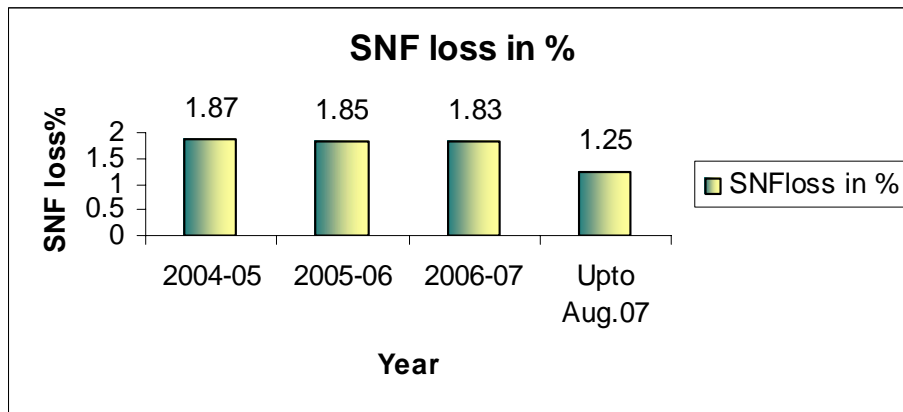
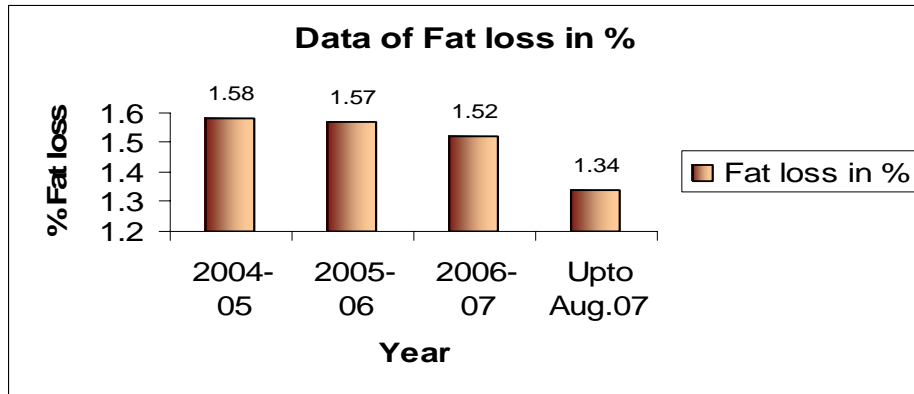
As ours is a Dairy Industry, our effluent is not Hazardous, toxic. Pollution Hazards as solid waste of our industry are Milk Fat, Poly Bags, Used Oil & Discarded containers.

POLLUTION HAZARD DETAILS



As we have very less quantity of used oil and only in some months, graphical presentation could not do.

% Fat loss & SNF loss data are as below



ACHIEVEMENT IN SAFETY

- Win **First Prize** in Safety Essay Competitions Arrange by Gujarat Safety Council Baroda in Dec-05 on the Subject related to Road Safety Law introduce by Government for compulsory wearing the Helmet by Two Wheeler users. (Safety Officers B.H. Pandya)
- Training on First Aid given to 10 Persons through Gujarat Safety Council Baroda (Persons from different department and category Involved)
- Arrange Mock Drills regularly through out the year (As per annexure)

**SCHEDULE FOR MOCK DRILL/TABLE TOP EXERCISE
FOR THE YEAR 2007**

SR. NO.	SCENARIO	PLANNED SCHEDULE	COMPLAINCE
1	Road Accident of Milk Tankers.	Feb' 07	18/02/07
2	Ammonia Compressor outlet line rupture leading to dispersion of ammonia gas.	Mar' 07	20/3/07
3	F.O. outlet nozzle failure leading to pool fire in F.O. storage area.	Apr' 07	27/04/07
4	F.O. Pump discharge nozzle failure leading to poll fire in F.O. storage area.	May 07	22/5/07
5	HSD tank overflow leading to poll fire in HSD storage area.	Jun' 07	15/6/07
6	CNG incoming pipeline nozzle failure leading to pool fire in CNG station.	Jul' 07	20/07/07
7	Caustic lye tank overflow leading to contamination of land and water.	Aug' 07	31/08/07
8	Caustic lye tanker hose failure during unloading of tanker leading contamination of land and water in storage area.	Sep' 07	31/08/07
9	Diesel spillage during unloading or filling leading to contamination of soil and pool fire in diesel pump area.	Oct' 07	15/10/07
10	Earthquake, flood, fire and any other natural calamity.	Nov' 07	
11	Electrical shot circuit leading to pool fire.	Dec' 07	

➤ **Use of P.P.E. (Personal protective equipments)**



SAFETY BELTS DURING WORK AT HEIGHT



SAFETY GOGGLES



SAFETY EQUIPMENTS



NOISE PROTECTION

- **Purchase Self contained Air Breathing apparatus useful for Emergency**



- Trained the concern persons for the Safe use of S.B.A. and P.P.E. at Surat and Chilling Centre.
- Medical check up of employees and contract employees.
- Introduce Safety Work Permit System to Prevent accidents during Shut-down Maintenance and working for Hazardous operations.