

Water ATM
Jal Jeevan
A Potential Co-Operative Movement

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CO-OPERATIVE MOVEMENT IN THE WORLD

Co-operation is an activity of the people. It is a self-generated, voluntary and self-sufficient activity. Cooperation has always been a feature of humankind for mutual help and collective progress.

The earliest co-operative were established among the weavers who suffered at the hands of moneylenders. The real co-operative movement can be credited to Rochdale Pioneers who established the co-operative consumer store in North England.

Early in the twentieth century, the cooperative movement spread to India and gradually to other Asian and African countries, courtesy the colonial administrators. The co-operative movement became a form of business organization recognized as an international movement. Although some associate it with socialist or communist countries, the cooperative movement also operates in capitalist countries such as the United States of America, Canada, Israel and Australia.

THE COOPERATIVE MOVEMENT IN INDIA

1. The history of cooperatives in India is more than a hundred years old. The following details the major events that led to the cooperatives in India as we see them today.
2. An Indian Registrar of Co-operatives appropriately described the co-operative movement as representing: "A happy mean between the forces of extreme individualism on the one hand and socialism and communism on the other. It stands for individual rights tempered by considerations of justice, equity and fair dealing as between man and man, and its one great aim is to prevent the exploitation of the weaker by the stronger party."

Even before formal cooperative structures came into being through the passing of a law, the practice of the concept of cooperation and cooperative activities were prevalent in several parts of India. Village communities collectively creating permanent assets like village tanks or village forests called Devarai or Vanarai was fairly common. Similarly, instances of pooling of resources by groups, like food grains after harvest to lend to needy members of the group before the next harvest, or collecting small contributions in cash at regular intervals to lend to members of the group viz., Chit Funds, in the erstwhile Madras Presidency, "Kuries" in Travancore, "Bhishies" in Kolhapur etc., were to be found.

SUCCESSFUL CO-OPERATIVE MOVEMENTS

Over the years, co-operative movement has spread into areas like Credit Societies, Banks, Textile Mills, Sugar Mills, Plantation, farming, Super Markets and to all other facets of business.

Co-operatives function under certain guiding principles like,

1. Members' contribution is a very small amount;
2. Members are also producers / service providers of the goods / services dealt with by the co-operatives;
3. One man, one vote;
4. Governed by a governing council subject to election, responsibility, accountability of the council to its members;
5. Subject to control by the government institutions and governed by the Registrars of co-operatives, Reserve Bank, and additionally controlled by the Ministry / Departments;
6. Operate under a razor thin Profit margin just sufficient to sustain and continue the movement;
7. Products are priced at cost + nominal profit; and
8. The benefits are shared with the members.

SUCCESS STORY OF AMUL CO-OPERATIVE

There are certain remarkable success stories in the co-operative sector. Gujarat Co-operative Milk Marketing Federation (GCMMF), owner of popular brand – AMUL towers above all in the co-operative sector.

In the case of AMUL, it commenced as a farmers' protest against low prices being paid to the milk procurers of that time. With the able guidance of Sardar Vallabhbhai Patel, a co-operative was formed in 1946 with modest milk processing of 250 Ltrs. per day.

From that small beginning, today GCMMF surpassed at a gigantic turnover of Rs.23,000/- Crores p.a.(US\$ 3457 million) with different variants of milk and milk products under the brand name "AMUL".

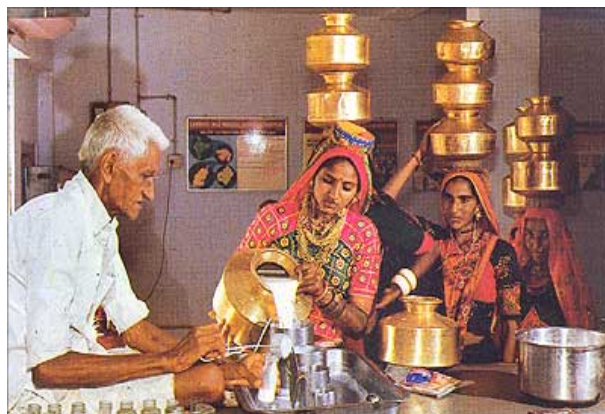
AMUL'S ACTIVITIES

Amul's activities start from providing soft loans to farmers and rural folks for purchase of milchy animals and in that distribution etc. procurement of milks at booth levels in the villages reaching it to the processing center for processing and packing them and distributing them throughout the country.

VILLAGE WOMAN MILKING A COW



VILLAGE WOMEN DELIVERING MILK TO THE COLLECTION CENTER

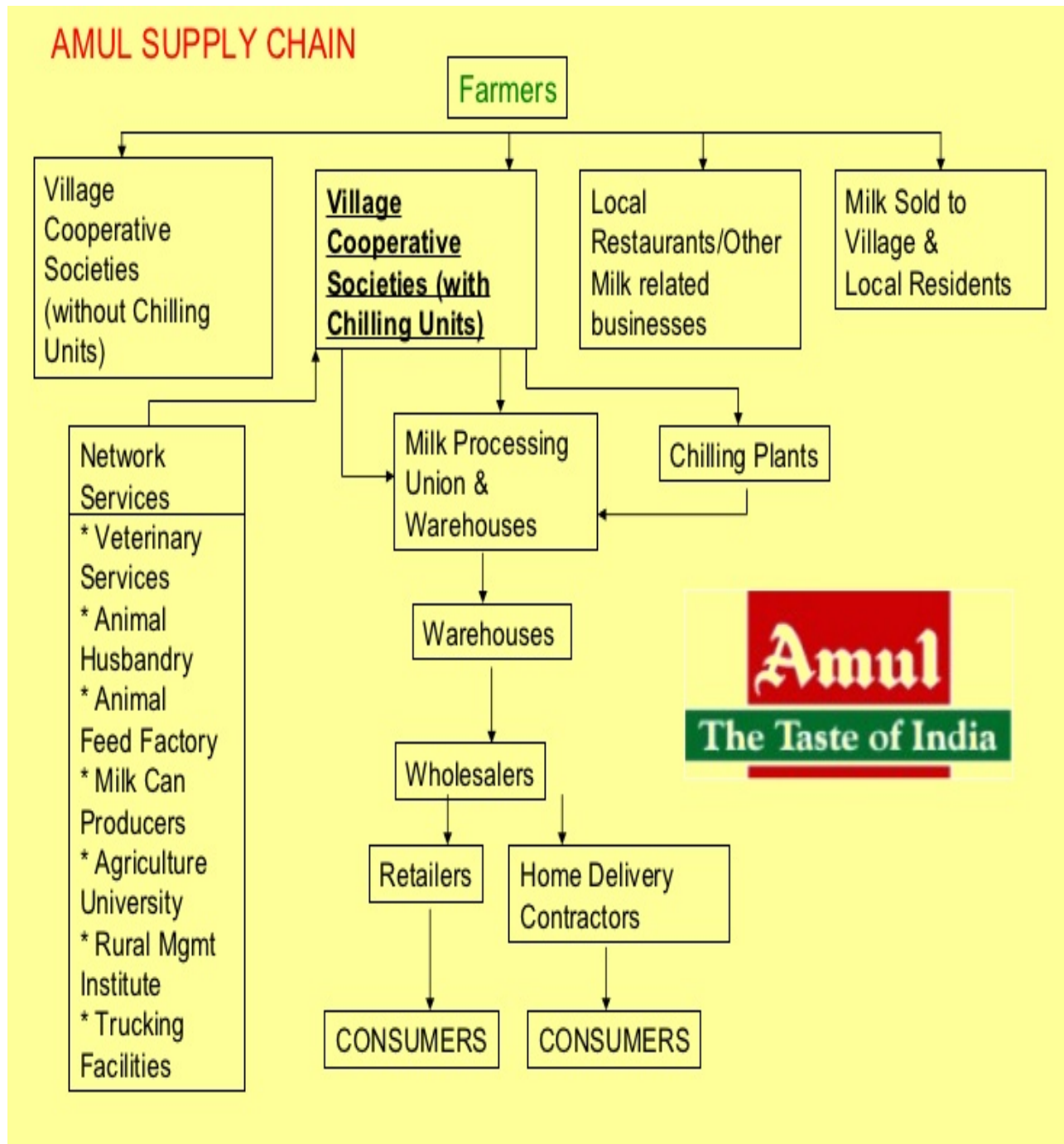


AMUL DISTRIBUTION



AMUL'S DISTRIBUTION NETWORK

For the distribution of milk and its products, Amul has designed and implemented a robust supply chain.



With its wide reach, Amul is now available in every nook and corner of India.

AMUL'S FINANCIALS OVER THE YEARS

The taste of Amul

Sales turnover

	₹ million	\$ million		₹ million	\$ million
FY95	11,140	355	FY05	29,225	672
FY96	13,790	400	FY06	37,736	850
FY97	15,540	450	FY07	42,778	1,050
FY98	18,840	455	FY08	52,554	1,325
FY99	22,192	493	FY09	67,113	1,504
FY2000	22,185	493	FY10	80,053	1,700
FY01	22,588	500	FY11	97,742	2,172
FY02	23,365	500	FY12	116,680	2,500
FY03	27,457	575	FY13	137,350	2,540
FY04	28,941	616	FY14	181,434	3,024



Source: <http://www.amul.com/m/organisation>

From a decent turnover of Rs.1,114/- crores (US\$ 355 million) in FY 95, AMUL has now surpassed Rs.23,000/- crores (US\$ 3,382 million) for the financial year 2015-16. This is despite stiff competition from many other cooperative milk marketing societies and large private dairies.

AMUL'S BRAND EXTENSIONS

Today, 'AMUL' has made brand extensions into: -

- Bread Spreads
- Cheese
- Beverage Range
- Ice Cream
- Paneer
- Yoghurt
- Ghee
- Milk Powders
- Sweet Range
- Chocolates
- Lactose Free Milk
- Fresh Cream
- Sour Cream
- Pouch Butter Milk
- Cattle Feed and every conceivable derivative of milk and various other products.

Some of them are given below.



Each of these brands has carved a niche segment and has notched up their significant presence in their respective segments.

From a small co-operative, it has transformed itself into a successful business model with peoples' active involvement.

AMUL has spread across all the states in the country and has also established / helped in establishing milk processing units in our neighboring countries like Sri Lanka, Malaysia, Singapore and others.

SUCCESS STORY OF MAHILA GRUH UDYOG, MAKERS OF LIJJAT PAPAD

In the case of Mahila Gruh Udyog, it had a humble start with a capital outlay of Rs.80.00 (US\$ 16.81) in the year 1959. Today, it has grown into a decently large co-operative with an Annual turnover of Rs. 650.00 Crores (US\$ 96 Million) and above. It is an organization of women alone for women and run by women. Its products in the category of

- Papads
- Traditional Masala
- Ready Mix Masala
- Appalam
- Gehu Atta
- Chapati
- Detergent are much sought after and trend setters in their respective segments.

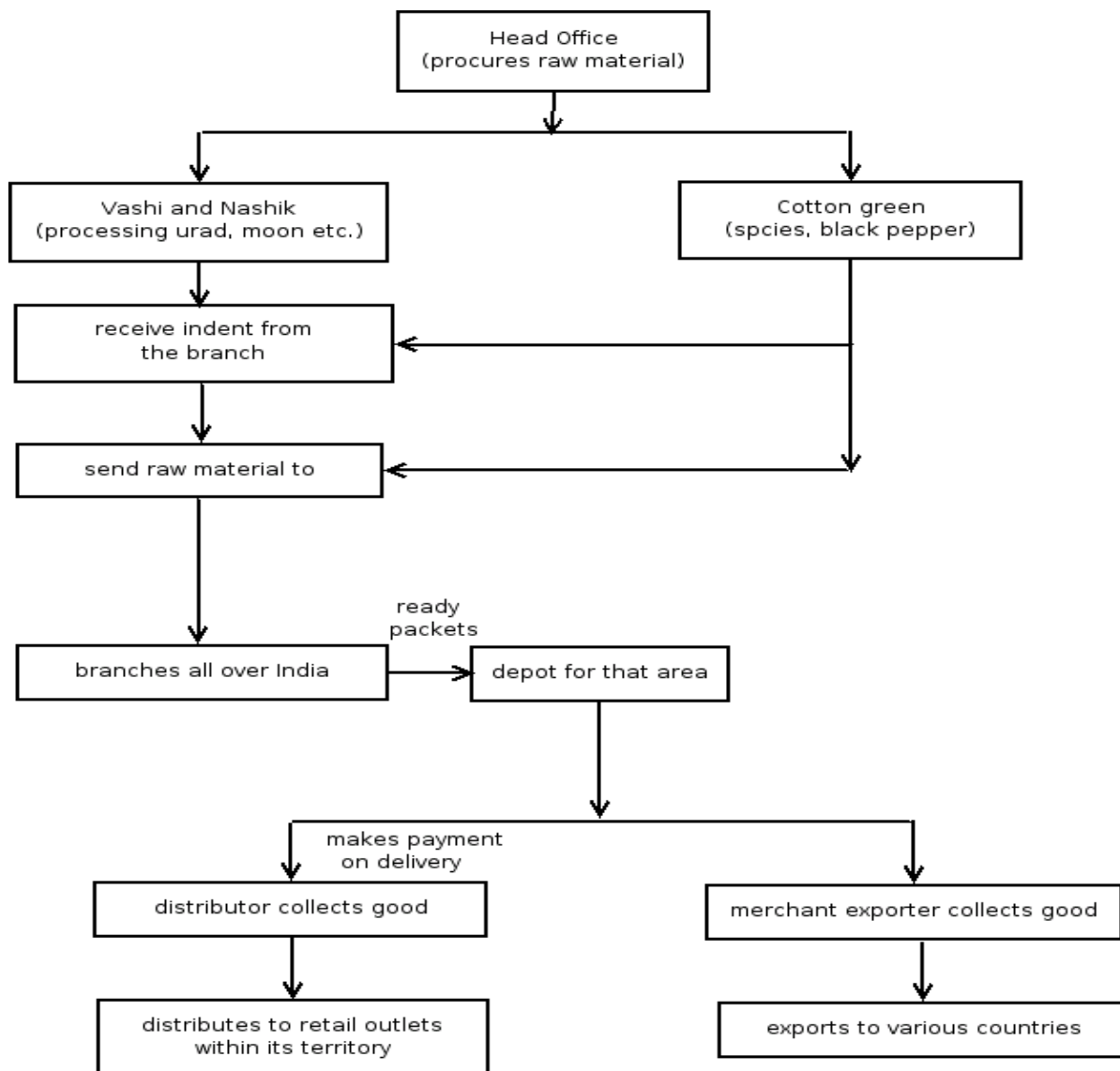
WOMEN AT WORK- LIJJAT PAPAD



WOMEN ENGAGED IN PACKING PAPADS



LIJJAT DISTRIBUTION FLOW CHART



More than its turnover, 'Lijjat' has pooled together the skills of more than 43000 housewives, rechristened as 'sister members' who work at their place during their spare time. The women are picked up from as close to their residences as possible and dropped back. Each branch operates as a strategic business unit where the profit/ loss is shared by the sister members. A unique method of motivation, recognition and immediate reward. This has provided the women with economic freedom and liberty and has helped them in running their houses. An innovative way of women's empowerment.

So, as can be seen, co-operative movements had commenced with a seed capital of small amounts pooled together and have evolved themselves to be successful venture giving tough competition to even MNCs.

WATER ATM JAL JEEVAN A POTENTIAL, SUCCESSFUL CO-OPERATIVE MOVEMENT

Like the various successful co-operative ideas, portable drinking Water ATM too can be a very successful co-operative movement, as it has the following main characteristics

Need of the People for a clean and portable drinking water

Financially Viability, and can be easily set up with a low investment

Sustainability, as the maintenance cost is low with easy availability of source of water

Scalability, has the potential to spread across every corner of the rural India

DRINKING WATER ATM

Provision of safe drinking water to the entire rural population has been a challenging task in India with the vastness of the country and various levels of contamination at every stage. Further, provision of water in rural areas is the function of local panchayats and with their meagre resources and limited water bodies, the quality of water supplied in rural areas does not meet potable standards.

Many times, village folks resort to 'Rasta Rokos' (Blockade of nearby National Highways) as a last resort demanding supply of clean drinking water. These are further compounded during periods of drought.

JAL JEEVAN PROJECT

Provision of clean drinking water is a must as it can rule out water borne diseases and reduce the medical expenditure of the country as a whole.

With this aim in view and duly considering the success of co-operative movement, the present project of Jal Jeevan has been conceived in the co-operative sector. This is purely a peoples' venture. Ideal for a settlement of 100 – 200 persons, where one single unit can supply clean potable water for a small family every day throughout the year. This has been modeled on self-financing by the group of individuals by contributing around Rs.600/- per person, i.e. less than Rs. 2/- per day which is quite possible.

JAL JEEVAN WATER FILTERING PLANT

This plant helps purify water from different kinds of contaminations. It can be set up with the help of the leaders in this business, Eureka Forbes. The project considers supply of 175 cans of 20 Ltr. Water i.e. 3500 Ltrs per day. If 20Ltr. is priced at Rs. 6/- to start with and a very small increase of Re. 1/- per 20 Ltr. in the 3rd year to Rs. 7/-, the project is viable at the end of year 2.

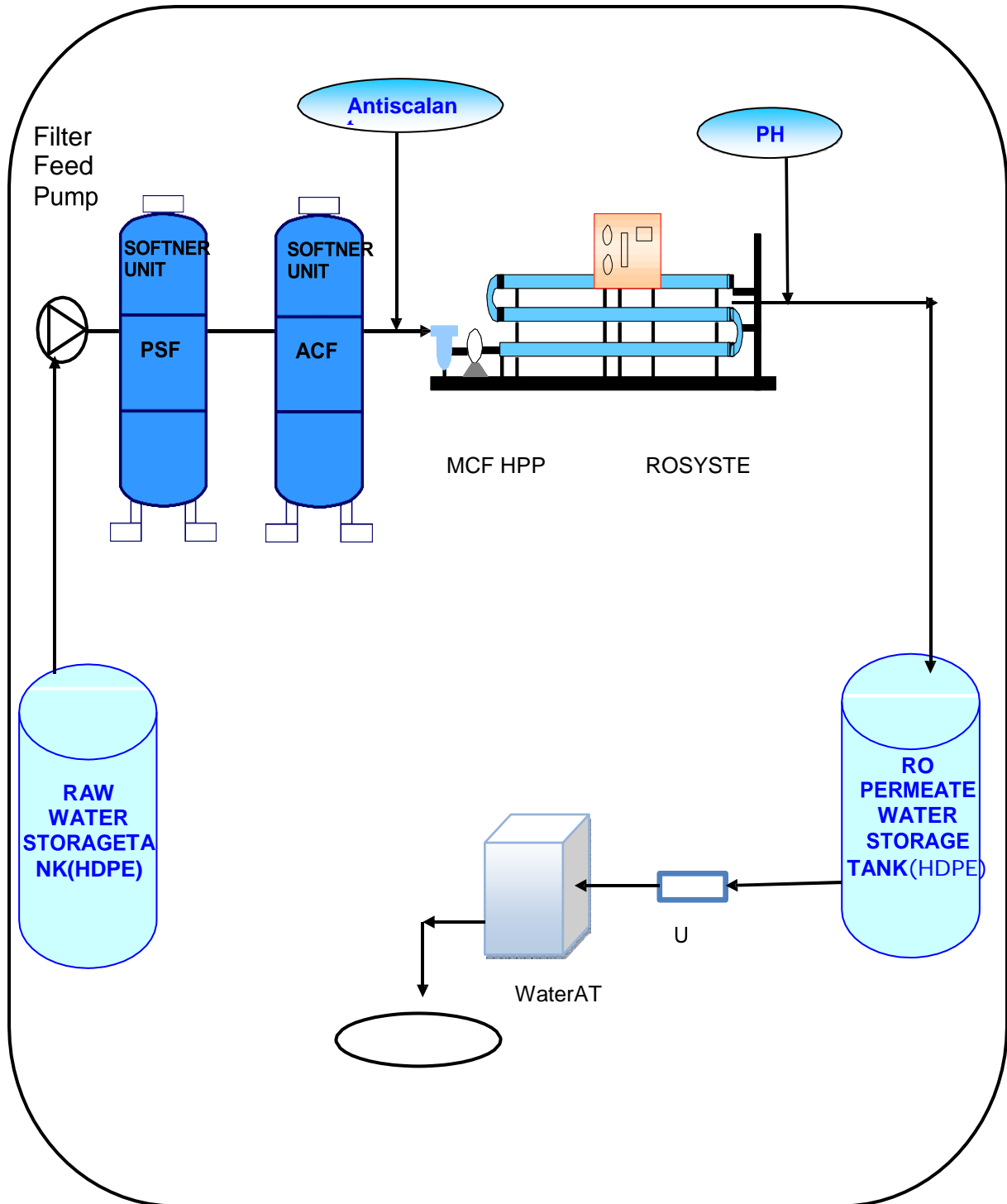
HOW WATER GETS FILTERED

Bore well /well water/ supply water will be fed to pressure Sand filter where all the suspended particles are removed with the help of fine sand and support bed sand media. From pressure Sand filter the water will pass through Activated Carbon Filter followed by micron cartridge where odor, color and physical impurities from water will get removed and then Antiscalant will be dosed for scaling removal and water further passed through RO system with the help of High pressure pump where 90% salt rejection takes place and we get permeate water of less TDS. We do pH dosing at the outlet to maintain pH in between 6.5 – 7.0. The final output (permeate) is safe for drinking purpose. Water will be distributed through water ATM and monitored through remote monitoring.

THE WATER ATM



SCHEMATIC DIAGRAM OF FILTRATION



To illustrate the financial viability, we have considered three scenarios of different Debt Equity ratios

PROJECT COST SHEET

	(in Indian Rupees)		
	Scenario 1	Scenario 2	Scenario 3
Project cost	700000	700000	700000
Equity contribution	15%	20%	30%
Equity contribution in Rupees	105000	140000	210000
Debt portion	595000	560000	490000
Debt: Equity ratio	5:67:1	4:00:1	2:33:1
Loan Tenure in years	10	10	10
Rate of interest per annum	10%	10%	10%

(68.00 Rs. = US\$ 1)

As can be seen, the total Project cost is Rs. 7,00,000/-; (US\$ 10,294)

Equipment's cost – Rs. 6,00,000/- (US\$ 8,824) and

For the civil works – Rs. 1,00,000/- (US\$1,470)

Equity contribution at 15%, 20% and 30% of the project cost i.e. Rs. 1,05,000/- (US\$ 1,544), Rs.1,40,000/- (US\$ 2,059) and Rs.2,10,000/- (US\$ 3,088) respectively. The balance would be debt of Rs. 5,95,000/- (US\$ 8,750), Rs. 5,60,000/- (US\$ 8,235) and Rs.4,90,000/- (US\$ 7,206) respectively. Since it involves provision of potable water, a basic necessity of life, Equipment Finance from banks is available for this initiative as a priority sector for the balance capital outlay. The debt will be repayable over a tenure of 10years in equated monthly installments (EMIs). The EMIs would work out to Rs.7,863 (US\$ 116), Rs.7,400/- (US\$ 109) and Rs.6,475/- (US\$ 95) respectively. The details are appended.

SCENARIO 1

Project feasibility study at different Debt/ Equity ratios

In Indian Rs.

Debt: Equity

Equity -15 % of Project cost

105000

Ratio:

5.67:1

Debt - 85% of Project cost in

595000

	Year 1	Year 2	Year 3	Year 4
Number of Cans Per day (measured in 20 litre Jerry can)	175	225	250	275
Rate per 20 litres	6	6	7	7
	Amt. (Rs.)	Amt. (Rs.)	Amt. (Rs.)	Amt. (Rs.)
Revenue Per Annum	383250	492750	638750	702625
Expenditure				
Manpower	60000	78000	90000	103500
Power	40880	59130	77563	80000
Consumables and Chemicals	4654	5962	7543	14053
Other Expenses	25550	32850	36500	42158
Operating expenses Total	131084	175942	211606	239710
Interest on loan component at 10% p.a.	57,857	49,442	44,738	39,544
Net income after payment of interest	194,309	267,366	382,406	423,371
Repayment of loan	36,499	44,914	49,618	54,812
Surplus after repayment of loan	157,810	222,452	332,788	368,559
Cumulative surplus	157,810	380,262	713,050	1,081,609

REPAYMENT SCHEDULE FOR SCENARIO 1

(all amounts in Indian Rs.)

Debt : Equity Ratio : 5.67:1

Computation of interest and principal repayment

Equity: Rs. 105000

Debt: Rs. 595000

Rate of

interest: 10% p.a.

Tenure: 10 years

Equated Monthly Installment (EMI) : Rs.7,863/-

Year	Interest	Principal Repayment	Total of Interest and principal	Balance loan outstanding at the end of each year
1	57,857	36,499	94,356	558,501
2	54,033	40,321	94,354	518,180
3	49,442	44,914	94,356	473,266
4	44,738	49,618	94,356	423,648
5	39,544	54,812	94,356	368,836
6	33,803	60,551	94,354	308,285
7	27,464	66,892	94,356	241,393
8	20,459	73,897	94,356	167,496
9	12,721	81,634	94,355	85,862
10	8,494	85,862	94,356	0

At the end of year 1 itself since the Cumulative surplus will be more than the equity contribution of Rs.1,05,000/-, the Co-operative can go for setting up an additional unit by utilizing the surplus and the balance part by a fresh Debt.

SCENARIO 2

Project feasibility study at different Debt/ Equity ratios

In Indian Rs.

Equity -20 % of Project cost

140000 Debt: Equity Ratio: 4:1

Debt - 80% of Project cost in Rs.

560000

	Year 1	Year 2	Year 3	Year 4
Number of Cans Per day (measured in 20 litre Jerry can)	175	225	250	275
Rate per 20 litres	6	6	7	7
	Amt. (Rs.)	Amt. (Rs.)	Amt. (Rs.)	Amt. (Rs.)
Revenue Per Annum	383250	492750	638750	702625
Expenditure				
Manpower	60000	78000	90000	103500
Power	40880	59130	77563	80000
Consumables and Chemicals	4654	5962	7543	14053
Other Expenses	25550	32850	36500	42158
Operating expenses Total	131084	175942	211606	239710
Interest on loan component at 10% p.a.	54,454	50,855	46,533	42,108
Net income after payment of interest	197,712	265,953	380,611	420,807
Repayment of loan	34,352	37,948	42,272	46,699
Surplus after repayment of loan	163,360	228,005	338,339	374,108
Cumulative surplus	163,360	391,365	729,704	1,103,812

REPAYMENT SCHEDULE FOR SCENARIO 2

(all amounts in Indian Rs.)

Debt : Equity Ratio : 4:1

Computation of interest and principal repayment

Equity: Rs. 140,000

Debt: Rs. 560,000

Tenure 10 years

Rate of interest: 10%p.a

Equated Monthly Installment (EMI) : Rs.7,400/- (US\$ 109)

Year	Interest	Principal Repayment	Total of Interest and principal	Balance loan outstanding at the end of each year
1	54,454	34,352	88,806	525,648
2	50,855	37,948	88,803	487,700
3	46,533	42,272	88,805	445,428
4	42,108	46,699	88,807	398,729
5	37,217	51,587	88,804	347,142
6	31,817	56,990	88,807	290,152
7	25,847	62,957	88,804	227,195
8	19,255	69,550	88,805	157,645
9	11,974	76,834	88,808	80,811
10	7,996	80,811	88,807	0

At the end of year 1, since the Cumulative surplus will be more than the equity contribution of Rs.1,40,000/-, the Co-operative can go for setting up an additional unit by utilizing the surplus and the balance part by a fresh Debt.

SCENARIO 3

Project feasibility study at different Debt/ Equity ratios				
	In Indian Rs.			
Equity -30% of Project cost	210000	Debt: Equity Ratio:		2.33:1
Debt - 70% of Project cost in Rs.	490000			
	Year 1	Year 2	Year 3	Year 4
Number of Cans Per day (measured in 20 litre Jerry can)	175	225	250	275
Rate per 20 litres	6	6	7	7
	Amt. (Rs.)	Amt. (Rs.)	Amt. (Rs.)	Amt. (Rs.)
Revenue Per Annum	383250	492750	638750	702625
Expenditure				
Manpower	60000	78000	90000	103500
Power	40880	59130	77563	80000
Consumables and Chemicals	4654	5962	7543	14053
Other Expenses	25550	32850	36500	42158
Operating expenses Total	131084	175942	211606	239710
Interest on loan component at 10% p.a.	47,646	44,500	41,024	37,181
Net income after payment of interest	204,520	272,308	386,120	425,734
Repayment of loan	30,057	33,205	36,683	40,524
Surplus after repayment of loan	174,463	239,103	349,437	385,210
Cumulative surplus	174,463	413,566	763,003	1,148,213

REPAYMENT SCHEDULE FOR SCENARIO 3

(all amounts in Indian Rs.)

Debt : Equity Ratio : 2.33:1

Computation of interest and principal repayment

Equity: Rs. 210000

Debt: Rs. 490000

Tenure 10 years

Rate of

interest: 10% p.a.

Equated Monthly Instalment (EMI) : Rs.6,475/-

Year	Interest	Principal Repayment	Total of Interest and principal	Balance loan outstanding at the end of each year
1	47,646	30,057	77,703	459,943
2	44,500	33,205	77,705	426,738
3	41,024	36,683	77,707	390,055
4	37,181	40,524	77,705	349,531
5	32,939	44,766	77,705	304,765
6	28,253	49,455	77,708	255,310
7	23,072	54,633	77,705	200,677
8	17,351	60,353	77,704	140,324
9	11,032	66,672	77,704	73,652
10	4,052	73,652	77,704	0

At the end of year 2, since the Cumulative surplus will be more than the equity contribution of Rs.2,10,000/-, the Co-operative can go for setting up an additional unit by utilizing the surplus and the balance part by a fresh Debt.

As can be seen, by the end of the 2nd year sufficient surplus equal to the equity contribution will be generated by one single unit. With the surplus equaling the equity contribution, the co-operative by deploying such surplus can establish a second unit. By this way, in the 3rd year, it can be scaled up to a 2nd unit and like that every second year an additional unit can be established.

Two co-operative societies in different part of Solapur have commissioned two Water ATMs using scenario 1 and scenario 2 as test cases.

There is a tremendous positive response, and therefore this can now be replicated and has the potential to hopefully become a successful co-operative movement in India.

THANK YOU
