

ICT Implementation becomes Climate Change in Dairy Cooperative Management

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Abstract

ICTs Implementation plays a significant role to improve the footprint of cities/villages by more intelligent use. ICT has enabled services for better use in Quality, Transport, Production, Marketing and services. It can also facilitate the integration of locally generated revenue, manpower, recourses and facilities into the human empowerment grid. In short we can say that Implementation of Information and Communication Technologies in Dairy Cooperatives can become climate change in cooperative management. ICT Implementation has a positive impact in rural also.

Through our study it is find out that dairy cooperative themselves have also taken a very pro-active role in implementing the ICT. The paper is also focusing on Implementation of ICT roll-out monopoly solutions in the routine manual work of Dairy Cooperatives.

The paper suggested to the top management to make sure that ICTs contribute to the more sustainable development of organization, employee and Climate Change Adaptation. The Management, furthermore, supports a wide range of aiming at enhancing Services, Production, Marketing and adaptation to climate change through the use of ICT.

Keywords: *ICTs, production, Dairy Cooperatives, Climate Change*

Introduction

In India 37% of population are living below the poverty line. India is the first among the developing countries to adopt the experiment with the idea of cooperation as a tool of rural and urban economic development within the country in Maharashtra state¹, cooperative dairy has been a prime cooperative institution. A dairy cooperative business is owned, operated, and controlled by the dairy farmers who get benefit from its services. Members finance the cooperative and share in profits it earns in proportion to the volume of milk they market through the cooperative. It was in 1904 when the seed of cooperation was sown in India with the passage of first Cooperative Act. Since then, the cooperative movement has made rapid strides in all fields of socio-economic activities. In the fields of agriculture credit, fertilizer disbursement, sugar production, handloom, etc, the cooperatives have created a strong niche. However, the contribution of cooperatives to Indian dairy industry is enormous. The cooperatives have ushered in milk revolution in the country².

The dairy industry has made India proud in recent times. India is the leading producer of milk in the world. Dairy cooperatives are the backbone of Indian dairy industry. Dairy cooperatives have excelled in their areas of cooperatives. When the cooperative dairy movement was started, the daily per capita milk consumption was 106ml. Today, it is 250ml or 90 kg per year. Milk is the country's number one agricultural commodity. The estimated value of milk to producers, most of them marginal, small, and landless is more than \$20(in 2007-08).

As on March 2009, India's 1,33,349 village dairy cooperatives federated into 177 milk unions and 15 federations procured on an average 25.1 million liters of milk every day. 13.9 million farmers are presently members of village dairy cooperatives. The highest milk producer in the entire globe – India boasts of that status. India is otherwise known as the ‘Oyster’ of the global dairy industry. Anyone might want to capitalize on the largest and fastest growing milk and milk products' market. The dairy industry in India has been witnessing rapid growth. The liberalized economy provides more opportunities for MNCs and foreign investors to release the full potential of this industry.

Dairy Cooperatives account for the major share of processed liquid milk marketed in the country. Milk is processed and marketed by 170 Milk Producers' Cooperative Unions, which federate into

15 State Cooperative Milk Marketing Federations. The main aim of the Indian dairy industry is only to better manage the national resources to enhance milk production and upgrade milk processing using innovative technologies. Some areas of Indian dairy industry can be toned up by the suggestion of differentiate technologies and equipment from abroad. These include:

1. Raw milk handling
2. Milk processing
3. Packaging
4. Value-added products

The Indian dairy industry has aimed at better management of the national resources to enhance milk production and upgrade milk processing involving new innovative technologies. Multinational dairy giants can also make their foray in the Indian dairy market in this challenging scenario and create a win-win situation for both. ²

India's Milk Product Mix

Product Name	Usages
Fluid Milk	46.0%
Ghee	27.5%
Butter	6.5%
Curd	7.0%
Khwa (Partially Dehydrated Condensed Milk)	6.5%
Milk Powders, including IMF	3.5%
Paneer & Chhana (Cottage Cheese)	2.0%
Others, including Cream, Ice Cream	1.0%

[Table 1: Milk Product, **Source:** *business.mapsofindia.com*]

Milk Production

Animal Type	Milk Production
original farm animals	45%
buffaloes	55 %
cross bred cows	10%

[Table 2: Milk Production, **Source:** *business.mapsofindia.com*]

Origin of Dairy Cooperatives

Amul formed in 1946, is a dairy cooperative in India. It is a brand name managed by an apex cooperative organization, Gujarat Co-operative Milk Marketing Federation Ltd. which today is jointly owned by some 2.8 million milk producers in Gujarat.

Dr Verghese Kurien, (born November 26, 1921 at Kozhikode, Kerala) is called the *father of the White Revolution* in India. He is also known as the *Milkman of India*. Verghese Kurien was a former chairman of the Gujarat Co-operative Milk Marketing Federation Ltd. is recognized as a key person behind the success of Amul. He is credited with being the architect of *Operation Flood* - the largest dairy development program in the world. Kurien helped modernise Anand model of cooperative dairy development and thus engineered the White Revolution in India, and made India the largest milk producer in the world.

Milestones of the Amul Milk

1. Amul Milk is largest milk producing cooperative in the World today
2. Growth of milk production in India – from 20 million MT to 100 million MT in a span of just 40 years.
3. Today the membership of dairy cooperative of more than 13 million member families.
4. Spread across the length and breadth of the country, covering more than 125,000 villages of 180 Districts in 22 States.
5. Amul Key Players:

Milk producer family members	2.8 million
Village societies	13,759
District Unions	13
Milk procured per day	8.5 million liters
Disbursed Daily Cash	Rs. 150 million
Milk Handling Capacity	Largest in Asia
Sales Offices	48
Wholesale Distributors	3000
Retail Outlets	5 lakh

Export to	37 countries worth Rs. 150 crores
Annual Turnover	Rs. 53 billion

[Table 3: Amul Key Players]

6. Annual Turnover of Amul

Sales Turnover Figures		
Year	Rs (million)	US \$ (in million)
1999-00	22185	493
2000-01	22588	500
2001-02	23365	500
2002-03	27457	575
2003-04	28941	616
2004-05	29225	672
2005-06	37736	850
2006-07	42778	1050
2007-08	52554	1325
2008-09	67113	1504

[Table 4: Amul Turn Over]

Objectives of Dairy Cooperatives:

The Dairy cooperative is based on following objectives

1. To develop the skills of dairying in rural people and prepare them to accept this activity as a joint business along with farming.
2. To develop Co-operative societies at village, Taluka and District level.
3. To encourage dairying in Co-operative sector and to strengthen the Co-operative dairies and unions to be economically strong.

Literature review:

Information and Communication Technologies for Environmental Sustainability is a general term referring to the application of Information and Communication Technologies (ICTs) within the field of Dairy cooperative. Information and Communication Technologies are acting as integrating and enabling technologies for the economy and they have a profound impact on our society. With the usage of new technologies the global community, can be supported in their collaboration to preserve the environment in the long term. New technologies provide utilities for Knowledge acquisition and awareness, early evaluation of new knowledge, reaching agreements

and communication of progress. For this research we refer the annual report of Mahananda Dairy, National Dairy Development Board. We collect the data from Pune “Gokul Dudh” Kolhapur Zilla Sahakari Dudh Utpadak Sangh Ltd, GokulDairy, Kolhapur, “Krushana Dudh” Rajarambapu Patil Sahakari Dudh Sangh Maryadit, Islampur. and “Warana Dudh” Shree Warana Sahakari Dudh Utpadak Prakriya Sangh Ltd, Warananagar, Dist Kolhapur. The Data is collected from various report and daily use register

Research Design and Methodology:

Area of Research:

It is Case Study type of research which aims at studying the preparedness of the Information and Communication Technology implementation and innovative development awareness in selected Dairy Co-operatives units of Maharashtra. On the basis of milk collection the study will divide in Three categories i.e. Lower, Middle and Higher.

Sampling Design:

Universe : Dairy Cooperatives in Maharashtra
Sampling Frame : Dairy cooperatives using ICT from last 4-5 years
Sample Element : Gokul Dudh, Krushana Dudh and Warana Dudh Dairy Cooperative
Sample Size : 28 Respondents

Tools Applied :

The data collected from primary & secondary source will be analyzed by using statistical tools viz. percentage, average, deviations etc. The hypothesis will be tested with the help of statistical techniques. The following statistical tools were applied:

1. Percentage Analysis
2. Frequency Analysis

Software used for Analysis:

Microsoft Excel 2007 and SPSS were used for data analysis.

Scope of Study:

The study is experimental one and tries to find out the need of ICT Implementation where taken as a case of this purpose. While our methods change to reflect changing conditions, our purpose and values must remain constant. The study was conducted during the period December 2008 till date January 11. Study cover the references of national level dairy cooperative sectors but it is focus on selected dairy cooperatives in Maharashtra.

Objective of the Study: ICT is rapidly improving the services in Dairy Sector, In this study aim to investigate status and need of ICT implementation in dairy cooperative sector. It also checks the ICT implementation by the government should develop appropriate policies towards to monitor working of dairy cooperatives, Data analysis policies, role of ICT in rural developments.

Hypothesis of the Study:

The study was set on the hypothesis on the basis of experience in the use of Information and Communication Technology Implementation will adopt specialized skills in management. There is need to have computer knowledge and support from management for ICT Implementation success.

Present Status of ICT Implementation in Dairy Cooperative Sectors

Target outcome of ICT Implementation

- ICT Implementation study in dairy Co-operative Systems will deliver advanced, reliable, fast and secure every transaction in the communication for new functionalities, real-time traffic management and new levels of support to active safety systems. By combining technologies such as accurate positioning and improved sensor networking, research is expected to lead towards “zero-error” scenarios.
- Field Operational Tests are large-scale test programmers aiming at a comprehensive assessment of the effectiveness, quality, timely information and user-friendliness of ICT solutions for smarter, safer and cleaner reinjection and real-time network management.
- Coordination with departments and Support Actions in the framework is the initiative aim at co-operation, standardization and training activities as well as to assess socio-economic impact.

Expected impact of ICT Implementation

- Standards and Deployment model for Dairy Cooperative Systems.
- Availability of on click information to Farmer, User and top management
- Significant improvements of data safety, security, efficiency, confidences, comfort and sustainability.
- Proof-of-concept to all stakeholders through Field Operational Tests ensuring the wider take up of intelligent systems and co-operative systems.

Management rolls for Efficient Building of ICT

The Krishna Milk recognizes the enabling role the ICT sector can play climate change for example rendering buildings more quality efficient or improving the functioning of the activity grid and managing production and Marketing. To address this, the management has undertaken a number of activities:

1. They has facilitated the launch of the ICT sector, is working to establish their own methodology.
2. They provide funds and freedom of ICT Development and Implementation.
3. ICT will also play an essential role in facilitating the implementation of policy and in measuring its effectiveness.
4. The ICT sector can deliver tools that are fundamentally needed to collect, process and manage the data, and present it in a standardized format.
5. ICT can provide a range of tools to better manage climate change, environmental data and risks. The management co-finances a number of activities in this area.

Present Status of ICT Services in Dairy:

We have collected the data from 28 ICT users' from Gokul Dudh, Krushana Dudh and Warana Dudh Dairy Cooperatives. These respondents where the key players in their area and having experiences more than three years for using ICT. The respondents include EDP Managers, End users. From these respondents we have collected the data in various parameters. Out of number

of parameters following parameters are selected for this paper. These parameters are focus on the ICT essential services in Dairy Sector; in this study we consider the usages of following factors.

1. Requirement of Computer Expertise / Training
2. Availability of proper recourses in daily work
3. Support of top management
4. Availability and Accessibility of H/W and S/w resources
5. Availability of funds
6. Accuracy in Data Processing
7. Timely availability of Information

Statistics of ICT essential services:

All respondents has given sincere answers, it is found from all 28 are valid answers none of the above answer is found blank or invalid or meaningless. We also found out the Mean and maximum value of all the questions

	Q1	Q2	Q3	Q4	Q5	Q6	Q7
N	28	28	28	28	28	28	28
	0	0	0	0	0	0	0
Mean	1.3571	1.3929	1.0000	1.3214	1.1071	1.2857	1.1786
Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Table 5: Statistic of ICT Essential Services

Requirement of Computer Expertise / Training: 64.3% of respondents was agree for computer expertise or training is essential for Implementation of ICT whereas 35.7% of respondents were disagree for the same

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	18	64.3	64.3	64.3
2.00	10	35.7	35.7	100.0
Total	28	100.0	100.0	

Table 6: Statistic of Requirement of Computer Expertise / Training Service

Availability of proper recourses in daily work: 60.7% of respondents was agree for need of proper recourses in daily work for Implementation of ICT whereas 39.3% of respondents were disagree for the same

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	17	60.7	60.7	60.7
	2.00	11	39.3	39.3	100.0
	Total	28	100.0	100.0	

Table 7: Statistic of Availability of proper recourses in daily work Services

Support of top management: This is the unique response i.e. 100% of respondents was agree for Management support is essential for Implementation of ICT whereas non of respondents were disagree for the same

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	28	100	100	100
	2.00	0	0	0	0
	Total	28	100.0	100.0	

Table 8: Statistic of Availability of Support of top management Services

Availability and Accessibility of H/W and S/W resources: 67.9 % of respondents was agree for Availability and Accessibility of H/W and S/W are essential for Implementation of ICT whereas 32.1% of respondents were disagree for the same

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	19	67.9	67.9	67.9
	2.00	9	32.1	32.1	100.0
	Total	28	100.0	100.0	

Table 9: Statistic of Availability and Accessibility of H/W and S/w resources

Availability of funds: 89.3% of respondents was agree for funds are essential for Implementation of ICT whereas 10.7% of respondents were disagree for the same

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	25	89.3	89.3	89.3
	2.00	3	10.7	10.7	100.0
	Total	28	100.0	100.0	

Table 10: Statistic of Availability of fund Service

Accuracy in Data Processing: 71.4% of respondents was agree for Accuracy in data processing is essential for Implementation of ICT whereas 28.6% of respondents were disagree for the same

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	20	71.4	71.4	71.4
	2.00	8	28.6	28.6	100.0
	Total	28	100.0	100.0	

Table 11: Statistic of Availability of Accuracy in Data Processing Service

Timely availability of Information: 82.1% of respondents was agree for timely availability of Information is essential for Implementation of ICT whereas 17.9% of respondents were disagree for the same

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	23	82.1	82.1	82.1
	2.00	5	17.9	17.9	100.0
	Total	28	100.0	100.0	

Table 12: Statistic of Availability of Timely availability of Information Service

Concluding Remarks

Dairy cooperatives need clear management arrangements for planning and implementing the expenditure of ICT funds and services. The arrangements should be consistent with the policies and advice of the cooperative bodies and government. every dairy cooperatives needs to be clear about leadership, governance and accountability, roles and responsibilities, activities and their interdependencies within timeframes. ICT supports and improves the dairy cooperatives business processes. ICT infrastructure reliably supports research development and administrative needs. The strategic plan should set out the strategies and implementation details for achieving the goals identified against each element of the relevant ICT planning framework. For each strategy, the

ICT strategic plan will usually describe the intended outcomes, including the target level of ICT readiness

Limitation of Research:

Current study is based on ICT implementation in three dairy cooperatives and 28 respondents only. This study considers only need of ICT support services in Dairy cooperatives.

Scope of Research:

Researcher has selected Impact of ICT implementation in dairy cooperatives for his doctoral research where they are collecting data from six different dairy cooperatives in Maharashtra. The dairy cooperatives selected for farther research is divided in three category (*Higher Level, Middle Level and Lower level of Milk Collection*) on the basis of Daily Milk Collection and use of Computer Systems from last Three to Five years.

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