

**CO-OPERATIVE  
PERSPECTIVE**

**सहकार संदर्श**

**October-December 2022  
Volume 57 Special Issue**

ISSN No. 0302-7767



**VAIKUNTH MEHTA NATIONAL INSTITUTE  
OF CO-OPERATIVE MANAGEMENT**

**SAVITRIBAI PHULE PUNE UNIVERSITY ROAD, PUNE 411 007, INDIA**

---

---

**Focus**

The Co-operative Perspective is a 'must' for co-operative executives, office-bearers, academicians and students. It provides in a capsule from latest thinking on all aspects of co-operative movement. The Journal provides a ready source of knowledge and information relating to rapidly expanding and diversifying co-operative enterprises.

Specific objectives of the Journal are:

- (a) To disseminate information through articles on latest developments in the co-operative movement in India;
- (b) To appraise the readers about the current co-operative literature through articles and book reviews.
- (c) To furnish library documentation of articles on co-operation / management and allied subjects derived from various sources of publication;
- (d) To give glimpse of training activities of the Institute to build up trained manpower for the co-operative movement; and
- (e) To provide opportunity to the readers and specially ex-trainees to exchange experience through feature 'Readers' forum'.

The journal is published quarterly (April, July, October, and January) of each year. Subscribers are enlisted from any issue. The non-receipt of the issue should be reported within 2 month's time to which the issue relates.

# Co-operative Perspective

(October - December 2022)

Vol. 57 Special Issue

ISSN 0302-7767

## Editor-in-Chief

Dr. Hema Yadav

## Advisory Board

President, National Cooperative Union of India, (NCUI)

Dr. K.K. Tripathy, IES, OSD to Minister of Cooperation, Government of India, New Delhi

President, All India Federation of Cooperative Spinning Mills Ltd

Chairman, National Fisheries Development Board (NFDB)

Chairman, National Federation of Urban Cooperative banks and Credit Societies Ltd. (NAFCUB)

Chairman, State Cooperative Bank Federation (SCBF)

Chairman, National Agriculture Cooperative Marketing Federation of India (NAFED)

Prof. H. M. Desarda, Former State Planning Commission Member, Maharashtra

Dr. Anirudh Prasad, Former Professor & HoD, Xavier Institute of Social Service, Ranchi

Representatives of Indian Farmers Fertilizers Cooperative Ltd. (IFFCO)

## Editorial Board

Dr. Rajagopal, Distinguished Professor, EGADE Business School, Mexico City, Boston University, Boston

Dr. Harekrishna Misra, Professor, Institute of Rural Management Anand, Gujarat

Shri N.R. Bahnumurthy, Professor, National Institute of Public Finance and Policy, New Delhi

Prof. Sudhir K. Jain, Adjunct Professor & Farmer HoD, DMS, IIT Delhi and Former Vice-Chancellor, SMVD University, Katra (J&K)

Dr. Alok Dixit, Associate Professor, Indian Institute of Management, Lucknow

Dr. K. Sudarsan, Associate Professor, Department of M.B.A., SITAMS, Chittor

Dr. Leisa Armstrong, Edith Cowan University, Joondalup, Western Australia

Dr. Om Yadav, North Dakota State University, Fargo, USA

Dr. Luis Teran, Professor, Armed Forces University, Ecuador.

## Editorial Team

Shri Anil Kumar Tiwary, Faculty Member, VAMNICOM

Ms. Saba Sayed, Research Officer, VAMNICOM

## Editorial Assistant

Mr. Mahadev K. Bobade

Web: [www.vamnicom.gov.in](http://www.vamnicom.gov.in)

Co-operative Perspective

Website : [www.cooperativeperspective.in](http://www.cooperativeperspective.in)

---

All data, views, opinions, etc. being published are the sole responsibility of the authors. Neither publishers nor editors are in any way responsible for them.



## Contents

### Editorial

#### Articles :

Union Budget 2022-23: A Stepping Stone for Cooperatives : Special Reference to Linking / Dovetailing Approach of ICDP Project in the New Perspective <i>A. K. Tiwary</i>	01
SUCCESS STORY PACS Borkheda is no less than a Bank <i>Kishore Kumar</i>	08
MOOCs & Cooperatives: A Review <i>Mallika Kumar, Ajay Purohit, Radhika Jha</i>	12
Cooperatives with Start-up ventures for resilient Agribusiness' Ecosystem <i>Mahesh Kadam</i>	20
A Framework for Cloud Based Tracking System to Monitor Crop Growth and Crop Loss Compensation for Farmers <i>J. Sheik Mohamed, K. Sudarsan</i>	27
Cooperative Sector of India : A Need for a Holistic Approach <i>Prashant V Kadam</i>	36
Adaptation of Information and Communication Technology (ICT) in Primary Agricultural Cooperative Societies (PACS) : Empirical Research in Western Zone <i>Pallavi Ingale, Saba Sayed</i>	45
Evolution, Functioning and Analytical Study of Loans Advanced by Long Term Cooperative Credit Structure in Gujarat <i>V. M. Chaudhari, Mayuri Farmer</i>	73
Employees Turnover and Retention Strategies – A Conceptual Study <i>Girish Mangleek</i>	93
Book Review-Marketing in the Unpredictable World <i>Girish Mangleek</i>	107



# Editorial

The Cooperative Perspective Journal showcase the research and recommendation moves through the papers, articles, case studies and book reviews on cooperative ecosystem. The Special Issue Vol 57 carries Research Articles on Union Budget, Cooperatives, Startups, ICT etc. The inputs given by A.K.Tiwary et.al, through Union Budget 2022-23: A Stepping Stone for Cooperatives: Special Reference to Linking / Dovetailing Approach of ICDP Project in the New Perspective, rejuvenate the need to work on institutional development so the new amendments given by ministry may be reached to grass root level people.

Kishor Kumar et.al shared a success story on PACS Borkheda mentioning it's working, structural and functional activities, Marketing and promotional moves to make the PACS business activities fruitful and sustainable.

Mallika Kumar et.al, in their research paper focused on MOOCs (Massive Online Open courses) as a innovative platform in cooperative education ecosystem which is achieving recognition in the era of millennia's. MOOCs provide skilled, semi-skilled, and generic courses in every sector and fulfill the need of learning for all cooperative stakeholders. Cooperatives are people-centric social-economic enterprises operating in many sectors of the economy. MOOCs intends to review the perspective of cooperatives. It assesses the availability of courses on cooperatives in different avenues and act as a change agent for cooperatives.

Mahesh Kadam et.al in his research work talked about the Cooperatives with Start-up ventures for resilient Agribusiness' Ecosystem. The article give the scenic picture of the cooperatives in field of agriculture, its strength and weakness compare to agribusiness startups and how both can overcome their challenges and create a win-win situation for both the entities. The upcoming policy advocacy in cooperatives and promotion of entrepreneurship in COVID crisis, Cooperatives startups can collaborate and build a firm backward and forward linkage to make the business simplified and healthily optimistic.

Mohamed et.al in his research inputs gave a framework for Cloud Based Tracking System to Monitor Crop Growth and Crop Loss Compensation for Farmers. Further technology intervention through collectives, cooperatives will reach more easily and will have long lasting effect. It may lead to increase in income and better living among the stakeholders in cooperatives.

Prashant Kadam discussed about the holistic approach of the cooperative sector, the ways and means to make the cooperatives resilient and optimistic. The paper has analysed the various challenges to the cooperative sector as of date and in fact has recommended for the stricter compliances with the reforms

introduced for the cooperatives without which it may not be feasible for the cooperatives to play a significant role towards an inclusive and sustainable development.

Pallavi Ingale et.al focused on Adaptation of Information and Communication Technology (ICT) in Primary Agricultural Cooperative Societies (PACS). The Paper given the inputs on awareness need of ICT in credit business. The State Government and the cooperative unions should ensure implementation of cooperative education as a principle to include computer training of managers / staff particularly in the use of DBMS, electronic spreadsheet and other software.

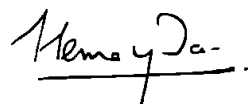
V. M. Chaudhari et.al gave the flow of Evolution, Functioning and Analytical Study of Loans Advanced by Long Term Cooperative Credit Structure in Gujarat in his research paper. The research suggested that the GSCARD Bank is required to bestow immediate attention for taking corrective steps to tackle the major and minor areas of credit collection and disbursement concern for up scaling the business and financial performance of bank.

Further Girish Mangleek shared a research paper on Employees turnover and Retention Strategies – A conceptual Study. The research paper emphasis on Retention strategies such as Human Resource, Job Satisfaction, Productivity, Product, Service Quality, Profitability of the organisation.

Girish Mangleek shared a book review in the journal on Marketing in the unpredictable world focusing on impact of external environmental factors on marketing and anticipating change in external environment and developing response strategies.

The cooperative perspective journal presents rich literature on cooperative organizations by bringing out their contemporary issues, challenges as well as their role in the changing economic scenario. Cooperative Perspective promotes articles which provide insights in cooperatives and how they can play an enabling role. Feedback and suggestions are invited for better outreach of the journal.

Please write to [crp@vamnicom.gov.in](mailto:crp@vamnicom.gov.in)



**(Hema Yadav)**

Editor-in-Chief



# ***ARTICLES***

## Union Budget 2022-23: A Stepping Stone for Cooperatives : Special Reference to Linking / Dovetailing Approach of ICDP Project in the New Perspective

A. K. Tiwary<sup>1</sup>

### *Abstract*

*The new Ministry of Cooperation was created in July, 2021 to strengthen the cooperative movement in the country. By support of the first allocated budget it is being proposed to strengthen cooperatives by bringing transparency, modernization and creating competitiveness. In order to achieve this, the Ministry has been in the process to formulate a new National Cooperation Policy. Joint efforts of Central and State Government may lead to the development of effective policies and schemes and also their smooth implementation eventually lead to the goal of “Prosperity through cooperatives”.*

**Keywords :** *Transparency, Modernization, Cooperatives.*

### 1. Introduction

The new Ministry of Cooperation was created in July, 2021 to strengthen the cooperative movement in the country. The new ministry with its roadmap has already started functioning. In the process of strategy formulation and implementation, by support of its current status, it has National Cooperative Development Corporation (NCDC), which is a statutory corporation and National Council for Cooperative Training (NCCT), a registered society falls under the administrative control of the Ministry. In the budget 2022, the government has proposed an allocation of Rs.900 crore for the Cooperation Ministry. By support of the first allocated budget it is being proposed to strengthen cooperatives by bringing transparency, modernization and creating competitiveness. In order to achieve this, the Ministry has been in the process to formulate a new National Cooperation Policy. For this, it has started consultation with various ministries / departments of Central Governments, State governments, Cooperative Federations, NABARD and other major cooperative institutions of the country. Since cooperative is a state's subject henceforth, the Central government intends to work in tandem with the states and accordingly, a wide and diversified range of consultations has been initiated on various issues related

<sup>1</sup> Faculty Member, VAMNICOM, Pune.

to the cooperatives. These joint efforts of Central and State Government may lead to the development of effective policies and schemes and also their smooth implementation eventually lead to the goal of “Prosperity through cooperatives”.

## **2. Budget 2022: Announcement Relief and Progress for Cooperatives**

In order to provide a level playing field between the cooperative societies and companies, the government proposes to reduce the Alternate Minimum Tax (AMT) rate for Cooperative Societies to 15 % from current 18.5 % and surcharge at reduced rate from 12% to 7% at present for those having total income of more than Rs.1 crore and upto Rs. 10 crore. Besides, relief to cooperative societies, government has allocated Rs.900 crore to the newly created Ministry of cooperation for 2022-23 out of this, Rs. 624 crore has been earmarked for two centrally sponsored schemes “Digitalization of Primary Agriculture Cooperatives Societies (Rs. 350 Crore), and “Prosperity through Cooperatives” (Rs. 274 crore)”.

## **3. Budget 2022-23 : Implications on Cooperatives**

1. Rationalization in tax and surcharge would help and enhance the income of cooperative societies and its members who are mostly from rural and farming communities.
2. Union Budget 2022-23 is inevitably going to boost the dairying and livestock sector with host of measures to make it sustainable. Dairy cooperatives are being recognized as huge success in the country through its AMUL Pattern I & II system and management of this sector. As we know, dairy is the single largest agri-commodity in India. It contributes five percent to the national economy and employs 80 million dairy farmers directly. It is a major source of empowerment in the rural India. Considering the growth of 9-11 per cent in 2021-22 of dairy industry and grass-root level rural infrastructural development, dairy cooperatives will be hugely impacted by the changing approach of newly created ministry of cooperation.
3. Rs. 624 crore has been earmarked for two centrally sponsored schemes “Digitalization of Primary Agriculture Cooperatives Societies (Rs. 350 Crore), and “Prosperity through Cooperatives” (Rs.274 crore)”. Considering the outreach of cooperatives in almost all the villages and families in the rural India, above amount of expenditure will enhance the face value of PACs and this budget has the proposal for chemical

free natural farming to be promoted throughout the country. 'Kisan Drones' for crop assessment, digitalization of land records, spraying of insecticides and nutrients.

4. In the budget Rs 2.37 lakh crore will be paid to the 1 to 63 crore farmers for procurement of wheat and paddy in 5 km wide corridors along river Ganga.

#### **4. Integrated Cooperative Development Project: Linking/ Dovetailing Approach**

In the new Ministry of Cooperation, Govt. of India has planned new name and approach for Integrated Cooperative Development Project (ICDP) sponsored by National Cooperative Development Corporation (NCDC) in the districts across the country now shall emerge as strong tool for achieving all sorts of conceptual and implementation boosting and strengthening of the cooperative movement in revolutionizing form.

The scheme, Integrated Cooperative Development Project (ICDP) was introduced in the Seventh Five-Year Plan for promotion of various economic activities through cooperatives in the sphere of agriculture and allied sectors like Fishery, Poultry, Dairy, Handloom, and Rural Industries, etc. in the selected districts of respective states in the country. This scheme has an area-based approach taking into account the local needs and resources. The scheme aims at development of cooperatives in agriculture and allied sectors, transforming cooperatives as multi-purpose entities and promoting horizontal and vertical functional linkages so as to enable the cooperatives to cater to the overall needs of rural community.

#### **5. Coverage and Activities under the Project**

Detailed profiling is being done of the selected district/project area covering the demographic, sociological, economic, financial, infrastructural and cooperative structure. The profile emphasizes on activities such as agriculture, allied, rural industries, labour services and banking sectors with specific reference to the role of cooperatives in these areas. The present study is the existing development programme of different agencies and possible linking / dovetailing to the proposed activities in the Cooperative Sector. Keeping in view the needs and resources of the districts, a development plan to be implemented for a period of five years. The plan will be in the following broad sectors:

- 1) Agriculture
- 2) Allied (Horticulture, Dairy, Fishery, Animal Husbandry, Handlooms & Sericulture etc.)
- 3) Rural and Cottage Industries
- 4) Services including Labour Cooperatives
- 5) Banking

For above each sector the development plan shall include a detailed study of present status of cooperatives including following aspects:

- 1) Organizational structure
- 2) Role and functions
- 3) Financial health
- 4) Business achievements
- 5) Working results
- 6) Strengths and weaknesses
- 7) Infrastructure already available
- 8) Systems and procedures
- 9) Problems being faced
- 10) Backward and forward linkages among primary societies, district level and State level

Based on above dimensional evaluation, strategy formulation with future potential road-map of Sectoral Development Plan for Implantation categorically divided into 5 sub-sectors as under:

- |                             |                            |
|-----------------------------|----------------------------|
| A) Productions Planning     | B) Business Planning       |
| C) Infrastructural Planning | D) Human Resource Planning |
| E) Financial Planning       |                            |

Emphasis is given on infrastructure development at PACs level such as establishment of modern office & banking facilities, setting up of consumer shop, construction of scientific storage, godowns; facilities for food processing for value addition; marketing of agricultural and horticultural produce etc. Keeping in view gravity of objectives to achieve an the important component of manpower development and training this scheme provides subsidy for member education & training and managerial assistance for project implementation and monitoring

and preparation of sub project reports and documentation etc. to ensure every stone unturned in the process of five years implementation period.

## **6. Funding Pattern :**

The ICDP is funded by the NCDC through the State Government. As per the funding pattern of the Scheme, Loan and Subsidy are provided to the State Government for project implementation. The loan is meant for creation of infrastructure facilities, such as construction/ renovation of new godowns a banking counter, transport vehicles, small processing units etc and strengthening the working capital base by providing share capital and margin money assistance for augmenting business. Also, subsidy is provided for project implementation, project preparation, manpower development, monitoring and incentives etc.

100% financial assistance through state government classified as 50% of the project cost as loan, 20% as subsidy and balance 30% as share capital to the PIA for various activities at the level of the Cooperative Societies. The entire PIT cost which includes the administrative expenses of PIT personnel and other contingent expenditure in connection with monitoring and supervising of implementation of the project at the Bank / District / State Level, training and manpower development, etc. is provided as subsidy. The total subsidy component, however, should not exceed 30% of the total project cost. Thus, under the Scheme, assistance to cooperatives is provided for development of infrastructural facilities; margin money to enable them to raise requisite working capital and PIT cost which includes capacity building and training of the personnel and members of Cooperatives.

## **7. Planning Vs. Implementation – Reality Check**

1. ICD Project since its inception always has been considered as the flagship scheme of the NCDC in the form of integrated approach in the selected districts but planned documentation in the form of approved DPR always suffers during implementation due to total control of the State Govt. as guarantor of loan and financial assistance.
2. Project planning in the DPR address both credit and non-credit sectors for strengthening but only at the district level PACs and DCCBs with few other activities of non-credit sectors like Fisheries, Handloom, Dairies Rural Artisans / Industries get attention and implementation.
3. Integrated approach of strengthening due to lukewarm attitude of other departments where the power of Cooperative Registrar vested by

Cooperative Act of the State, ignored by them to take it seriously within cooperative concept and registration.

4. If the DPR financial outlay of Rs.25 crore has been allocated for both Credit and Non-Credit Sectors, Rs.15-20 crore will be only utilized for PACS planning and implementation and rest of the amount mostly remain unutilized.
5. Overall, best practices to be followed through ICD Project with at least conversion of 2 societies as model societies during implementation it is also achieved half-heartedly. In fact, plugging the gap in the planning and execution desperately required as outcome of conceptually fantastic documentation of ICD Project envisioned by the NCDC, New Delhi under the umbrella of Cooperative Movement.

## 8. Envisioning New Perspective for ICD Project

- ☞ Area specific integration and strengthening of all kinds of cooperatively conceptualized activities need to have constructive commitment both from the Centre and State Govt. by and large impact of the project should and must match in planning of DPR and its implementation as well feed and control.
- ☞ District Industry Centre (DIC) has a very negative approach towards the activities of rural artisans and cottage / small industries run under cooperative fold due to its somehow unsuccessful results in general. In the new framing of ICD Project an effort to have One District One Product (ODOP) through this project implementation now it should be One District One Cooperative Project (ODOCP) as startups in the cooperative activities with future goal of scaling it to new heights.
- ☞ Approach to focus seriously with full commitment to the activities of fisheries, poultry, rural health cooperative, transport cooperative, rural e-commerce cooperative, service sectors, multi-purpose diversification of societies etc. as the project theory wants to ensure identification of local resource-based innovation and incubation as cooperative enterprise.
- ☞ Amount for the sub-projects is a special feature of the ICD Project during its implementation but a very small amount allocated for DPR preparation as well financing in the area, it needs now reasonable amount to start any startups through ICD Project.

- ☞ In perfection, horizontal and vertical integration as far as possible of all sectors of the project would be linked necessarily for dovetailing approach of this ICD Project.

**Conclusion :**

As mentioned above, composite approach of the project strengthening the framed activities in the fixed time-line in the selected district can be considered the best way out for ease of living and ease of doing business for the members of the movement. It is high time for the new Ministry of Cooperation to revamp and reform approach of planning and implementation to establish the best result and outcome as practices for future course of action in building faith of cooperation as people's movement driven by collective force of decision making on the true line of democracy and benefits directly reach to the members.





## Success Story of PACS Borkheda is no less than a Bank

*Kishore Kumar<sup>1</sup>*

Kota District area is naturally rich for agricultural activities. Chambal canal also supported Industrialization in the district.

The Samiti was originally established for the purpose of helping farmers to meet their short-term agriculture credit needs and supply of agriculture inputs. In the year 1990, Samiti area of operation comes under Kota Municipal Corporation. The management of the society took the market-oriented business approach and started procurement & supply of the need-based consumption items to the local population for the safeguard of its members. Due to the development of Kota city as an education hub, post-1990's and the urbanization in the area of operation of Samiti, the agriculture-related activities were mostly converted into urban market-driven activities and this society transformed its operational activities as per urbanization population needs. Samiti entered the new phase of Mini Banking Activities from the year 1994.

For the promotion of saving habits among the residents of its area of operation, the management of Samiti started various Small Monthly / Weekly / Daily Basis Saving Scheme and the staff of society used to visit the small entrepreneurs personally to collect their saved amount to inculcate the habit of small-small savings and resultantly small business development habits.

### **Services of Society as Mini Bank :**

- ☞ Term deposit offers more interest than other banks.
- ☞ Loan facility on NSC / Kisan Vikas Patra.
- ☞ Loan for salaried staff.
- ☞ Consumer loans, business loans, CC limits, house loans, and other loan facilities.
- ☞ Special interest for deposits by senior citizens.
- ☞ Lockers and e-Mitra facility.

---

<sup>1</sup> Dr. Kishore Kumar Director, ICM, Jaipur.

**Financial Performance of Society****Rs. Lakh**

Year	Share Capital	Deposit		Working Capital		Loaning		Investment	Profit
		Amount	Growth (%)	Amount	Growth (%)	Amount	Growth (%)		
2012-13	57.94	3219.82	-	4065.88	-	673.62	-	2925.19	124.54
2013-14	62.28	4343.28	34.89	5436.44	33.71	640.83	- 4.87	4109.59	170.71
2014-15	74.95	4701.69	8.25	6098.22	12.17	869.35	35.66	4618.35	460.64
2015-16	82.60	4896.33	4.14	6412.79	5.16	860.51	- 1.02	4906.54	89.94
2016-17	89.91	4649.39	-5.04	6963.28	8.58	775.58	- 9.87	5270.60	277.25
2017-18	100.87	4484.83	-3.54	8015.16	15.11	991.25	27.81	5920.07	251.42
2018-19	107.54	4559.95	1.67	8212.63	2.46	633.67	- 36.07	6199.14	225.70

Source : Various Annual Reports of the PACS, Borkheda.

As the growth of the deposit is a concern, considering certain limitations there is a steady growth in its deposit and particularly the higher side growth during the financial year 2013-14 and 2014-15. The overall working capital of this society represents considerable growth ranging up to 33.71%. The working capital shows the procurement of enough funds for the business activity of this society for the benefit of the residents of its area of operation. Considering various ups and downs in the loaning of the society, its performance for the financial year 2014-15 and 2017-18 has been remarkable as compared with the deposits. The actual number of loaning of the society as of 31.03.18 has been 867 number which is a remarkable figure considering the contribution of this society in the startup business profession and small entrepreneurship development of its area of operation. The share capital of Samiti as of 31.03.2019 has study growth ranging from 6.6% to 20.34%. The membership of the society covers the diversified social segment of the society as a whole and due representation has been given to all the segments of society covering SC, ST, OBC, and women of the society. Except for a few years, the society has continuous profit Trends as a good indication of its financial strength and viability. Since the financial year 2011-12, this society has been distributing to its members 9% dividend and 21% bonus totaling to 30% profit each year.

## Loan Recovery

The details of demand and loan recovery of the Simiti is as under :

Year	Demand	Recovery	Percentage
2012-13	470.84	430.40	91.41%
2013-14	607.06	555.94	91.45%
2014-15	682.72	630.04	92.29%
2015-16	729.24	683.42	93.72%
2016-17	809.39	747.92	92.40%
2017-18	835.35	766.88	91.81%
2018-19	666.91	611.56	91.70%

Source : Various Annual Reports of the PACS, Borkheda.

- ☞ Society is working on its 24 x 30 feet plot from its inception till today in Borekheda village.
- ☞ Chairman of Society Shri Janki Lal Ji (from 1989 to 2006 and from 2012 to till day).
- ☞ CEO of Society Shri Chet Ram Meena (Started his carrier as Banking Assistant in the beginning and was promoted to the post of CEO).

## Mantra of Success

For the promotion of saving habits among its area of operation, society has started various Small Monthly / Weekly / Daily Basis Saving Scheme and the staff of society used to visit the small entrepreneurs personally to collect their saved amount to inculcate the habit of small savings. As a result of the motivation of savings and microfinance activities, businesses of the society multiplied many times, and further need for branch expansion was observed. At present, there are a total of three branches: one in Borkheda village (Yr. 1994), the second one is in Indra Gandhi Nagar (Yr. 1997) and the third one is in the Kalatalav area (Yr. 2011). The following are points for success of PACS as Mini Bank.

1. Truest of Depositors
2. Truest of Members of Society
3. Easy process of Opening Account
4. Easy process of Loan section
5. Personal Relations

**Awards : - Samiti was awarded by many awards as under.**

- ☞ Best performance award by NCDC, New Delhi in the year 2010.
- ☞ Best performance award by NCDC, Jaipur Regional office in the year 2018.
- ☞ Best Manager of Cooperative Society Award by Registrar, Cooperative Society, Government of Rajasthan on International Cooperative Day, 16<sup>th</sup> July, 2019.

**Benefit :**

As per the diversified nature of Members of this society, the beneficiaries of this society have scattered nature of their activities including daily wage earners, agriculturists, Kutir Udyog activities, small shops, and other vendors involving various nature of day-to-day business transactions. The activities of this society are mostly for the benefit of rural and semi-urban entrepreneurs of the Kota city area for the socio-economic development of the area of operation of this society.



## MOOCs & Cooperatives : A Review

*Mallika Kumar<sup>1</sup>*

*Mr Ajay Purohit<sup>2</sup>*

*Ms Radhika Jha<sup>3</sup>*

### **Abstract**

*MOOCs (Massive Online Open Courses) are achieving recognition in the era of millennials. MOOCs provide skilled, semi-skilled, and generic courses in every sector. Cooperatives are people-centric social-economic enterprises operating in many sectors of the economy. This article intends to review MOOCs from the perspective of cooperatives. It assesses the availability of courses on cooperatives in different MOOCs providers and the significance of MOOCs as change agents for cooperatives.*

**Key Words :** *MOOCs, Cooperative*

### **1. Introduction To MOOCs & Cooperatives**

Massive Online Open Courses (MOOCs) are a learning ecosystem to gain skills. Since 2012 MOOCs has been recognized as another massive advancement in the rapidly emerging field of educational technology (Demystifying the MOOCs, 2014). However, throughout the past few years, MOOCs have been one of the best platforms to complete formal or non-formal education due to the pandemic. Private companies and cooperative societies are using MOOCs and getting positive outcomes (Mc Namara Valdes et al., 2020). MOOCs have several revenue models in the market (Reich & Ruipérez-Valiente, 2019) and short-term to long-term, like 1-hour to degree courses. However, MOOCs are very cost-effective and save time. The popularity of MOOCs has been gradually increasing from 2012 up to 2021 (figure 1). Around 220 million (excluding China) users are enrolled in approximately 3100 courses (Shah, 2020).

---

<sup>1</sup> Associate Professor, SRCC & Vice Chairperson, ICA-AP Comm. for Coop in Education Institutions.

<sup>2</sup> Research Scholar, IMS Unison University, Dehradun.

<sup>3</sup> Associate Dean & Director, Graduate & UG Program, School of Business, Metropolitan College of New York, USA.

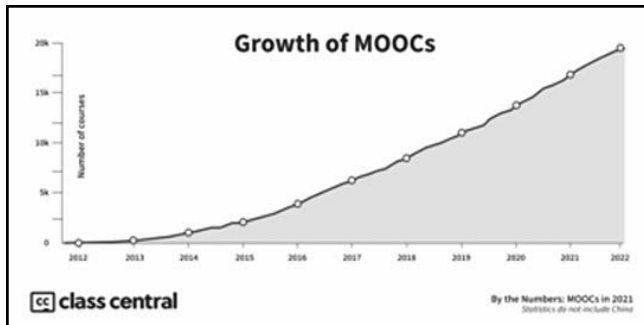


Figure 1 Growth of MOOCs (source - class central)

The course contents provided in MOOCs are not located in one place rather, they are spread all over the world wide web, and so are participants of such courses. These courses are called massive because several thousand participants can be engaged in a course at the same time. As the name suggests, these courses are mostly free, and participants can remix and reform the contents of the course.

Cooperative societies are social and economic enterprises in different sectors, i.e., livelihood, agriculture, horticulture, livestock, dairy, health, education, transportation, and others. These are people-centric and differ substantially from public-owned companies regarding their purpose, values, ownership structure, governance model, and ethical stance. In a general perspective, private companies are also a kind of cooperative or cooperation. Knowledge of the cooperative ecosystem is essential for collective success and organizational values. Education always leads to attitude and behavior. Educating cooperative members, staff, shareholders, millennials, and other community members will enhance the cooperative ecosystem. MOOCs are one of the finest options to provide a customized solution at the doorstep. There were a few examples when cooperatives utilized MOOCs courses. A cooperative society in Mexico City, running bicitaxis for transportation. They conducted a course on MOOCs for 20 people on safe transportation and found that the awareness and knowledge enhanced after the course (Mc Namara Valdes et al., 2020).

## 2. An Analysis of MOOCs

The hype around MOOCs Movement: Since the 'Year of MOOCs' in 2012, the MOOCs movement has grown enormously, with current learners (excluding China) crossing 180 million (Shah, 2021). The recent hype around MOOCs is due to its unique features, which have many inherent advantages over conventional educational pedagogy. The MOOCs platform offers immense

content freely available to the users for absorption at their own pace. MOOCs have completely revolutionized online education as they tremendously impact online digitalized learning. Online learning has been prevalent for many decades, but the emergence of MOOCs has dramatically changed how the online learning world works. The fact is that MOOCs are free online courses available for anyone to enroll. MOOCs are affordable, easiest, and most accessible to learn new skills for advancing in a career, or higher education, leading to supplemental or even lifelong learning. MOOCs providers like edX, Coursera, Udemy, Udacity, Khan Academy, and many more develop innovative programs.

## 2.1 Review of MOOCs Providers and Courses for Cooperatives

This article intends to review the availability of courses in different MOOCs providers through the lens of cooperative societies. Many big MOOCs players, like Coursera, Udacity, Udemy, edX, and others, provide several skilled, semi- skilled, and university-linked courses. They offer two types of enrolment in their courses: free auditing, which allows access to their content for free, and paid enrolment, which provides paywalled elements like a ‘certificate of completion’ and access to all the content. Table 1 provides a brief review of MOOCs providers.

**Table 1 MOOCs Sites and Direct Courses on Cooperative**

S.N.	MOOCs site	Website Link (Source)	Few Courses (includes topic “cooperative” / “cooperation”)
1	Coursera	<a href="https://www.coursera.org">https://www.coursera.org</a>	Financial Markets (Yale University)
2	SWAYAM	<a href="https://onlinecourses.swayam2.ac.in/nou21_ag13/preview">https://onlinecourses.swayam2.ac.in/nou21_ag13/preview</a> <a href="https://onlinecourses.swayam2.ac.in/nou22_ag03/preview">https://onlinecourses.swayam2.ac.in/nou22_ag03/preview</a> <a href="https://onlinecourses.swayam2.ac.in/arp19_ap64/preview">https://onlinecourses.swayam2.ac.in/arp19_ap64/preview</a>	Cooperatives and Producer Companies – (IIMB) Cooperatives and Farmers’ Organizations (MNRE015) - (IGNOU)  Module on Cooperative Business Model (ARPIT), National Resource Centre, SRCC, University of Delhi

S.N.	MOOCs site	Website Link (Source)	Few Courses (includes topic “cooperative” / “cooperation”)
3	edX	<a href="https://www.edx.org">https://www.edx.org</a>	Cooperatives and Producer Companies (IIMB) Economic Democracy : The Cooperative Alternative (The University of Edinburgh)
4	Alison	<a href="https://alison.com/">https://alison.com/</a>	Diploma in Community Development (Ontario Healthy Communities Coalition) Introduction to Community Development (Ontario Healthy Communities Coalition) Community Development - Planning Promotional Programs and Seeking Funding (Ontario Healthy Communities Coalition)
5	Class Central	<a href="https://www.classcentral.com">https://www.classcentral.com</a>	Cooperatives and Producer Companies – (IIMB) Cooperatives and Farmers’ Organizations (MNRE015)-(IGNOU) Economic Democracy: The Cooperative Alternative (The University of Edinburgh)
6	Cognitive Class	<a href="https://cognitiveclass.ai/">https://cognitiveclass.ai/</a>	No course available
7	Future Learn	<a href="https://www.futurelearn.com/">https://www.futurelearn.com/</a>	No course available
8	Canvas Network	<a href="https://www.canvas.net/">https://www.canvas.net/</a>	No course available
9	Iversity	<a href="https://iversity.org/en">https://iversity.org/en</a>	No course available
10	Kadenze	<a href="https://www.kadenze.com/">https://www.kadenze.com/</a>	No course available
11	Khan Academy	<a href="https://www.khanacademy.org/">https://www.khanacademy.org/</a>	No course available



S.N.	MOOCs site	Website Link (Source)	Few Courses (includes topic “cooperative” / “cooperation”)
12	Udacity	<a href="https://www.udacity.com/">https://www.udacity.com/</a>	No course available
13	Udemy	<a href="https://www.udemy.com/">https://www.udemy.com/</a>	Cooperative Entrepreneurship Program Constitution of India
14	LinkedIn Learning	<a href="https://www.linkedin.com/">https://www.linkedin.com/</a>	No course available
15	MIT	<a href="https://ocw.mit.edu/index.htm">https://ocw.mit.edu/index.htm</a>	Community-Owned Enterprise and Civic Participation
16	mooKIT	<a href="https://courses.mookit.in/">https://courses.mookit.in/</a>	Cooperative Learning Pedagogy
17	P2PU	<a href="https://www.p2pu.org/">https://www.p2pu.org/</a>	No course available
18	IGNOU	<a href="http://egyankosh.ac.in/">http://egyankosh.ac.in/</a>	Certificate in Cooperation, Cooperative Law, and Business Law (CCLBL)

The table indicates that only a few MOOCs providers included courses directly related to the cooperatives or based on the cooperative. However, there are several reasons for less number of courses. MOOCs generally has less interaction and is popular among the millennial generation. MOOCs have been limited in the ability to develop high-level intellectual skills, which is essential for a knowledge-based society (Bates, 2019). Providing personalized courseware which directly covers the cooperative ecosystem is expensive. Few courses are based on the credit-earning mechanism of Universities (Advantages & Disadvantages of MOOCs for Learning, 2022).

Using the MOOCs platform SWAYAM, the Ministry of Education’s (earlier MHRD) unique initiative since 2018 is the AICTE-approved FDP course named Annual Refresher Programme in Teaching - ARPIT (ARPIT, 2018). The Shri Ram College of Commerce ran a module on the Cooperative Business Model for online professional development of higher education faculty (Sharma, 2019). The School of Law, IGNOU, runs a specific course on the legal aspects of the cooperative system. The course covers the basic of cooperatives and related business laws (CCLBL, 2018).

## **1. Challenges & Opportunities for Cooperatives Through MOOCs**

### **1.1 Challenges:**

Most often, MOOCs do not require prerequisites and are freely and openly available critiques raise some concerns about the effectiveness of this learning platform. Could the vast penetration of free online MOOCs in the field of education compromise the quality of education and student experience? Though MOOCs implies a spirit of open learning in collaboration with internet technology and has reached millions of learners, one stark reality is that most universities do not recognize a successful MOOCs completion as a formal credit.

A further challenge in determining MOOC's effectiveness as a learning tool is that even though millions of users enroll for MOOCs courses every year, the dropout and completion rate is one of the challenges.

According to "Cooperatives and Employment Second Global Report," around 279.4 million employment opportunities globally can be fulfilled within cooperatives' scope (Cooperatives and Employment: Second Global Report, 2017). The statistics indicate different avenues for youths and MOOCs providers. According to the "Youth and Cooperative in America, report" there are several challenges in educating youths about cooperatives, like traditional training, low priorities of education institutions, less number of teachers, and less education in cooperativism (Youth and Cooperatives in the Americas, 2020). The MOOCs providers can tap these opportunities.

### **1.2 Opportunities :**

A huge number of courses related to agriculture, arts and crafts, business, health, child care, banking, and other areas linked with the cooperative ecosystem could be run by MOOCs. MOOCs service providers can tie up with the existing universities and institutions that are pioneers in the cooperative sector. It will increase the course contents and new business avenues for MOOCs. Cooperatives societies can encourage their staff and shareholders to benefit from relative courses on MOOCs, which will benefit their cooperative and themselves. Cooperative societies can utilize the latest skills and technology through MOOCs. Cooperative education and training developed an ecosystem of inclusive and equitable opportunities for all, which is a more stable and resilient socio-economic development (Yadav, 2022). Hence the significance of MOOCs for all stakeholders related to Cooperatives lies in improving or acquiring new professional skills, learning at any time, anywhere, by taking courses delivered by the best universities and schools. There are immense opportunities that cooperatives and educational institutions can offer to each other. Hence, enhancing the collaboration between

educational institutions and cooperative organizations for offline and online interaction through MOOCs is recommended.

MOOCs service providers can tie up with cooperatives like National Yuva Cooperative Society Ltd. (NYCS) to provide skills for youths. NYCS is a multistate, multipurpose youth cooperative society (Mapping: Key Figure National Report: India, 2021). Youth unemployment is the most critical challenge in the world, and cooperatives can play an important role through entrepreneurship and start-ups (Dongre et al., 2020). Such type of opportunities not only benefits MOOCs service providers but also positively impact the cooperative ecosystem and youths.

Several research studies, case studies, and business use cases exist in the cooperatives ecosystem. The availability of specialized courses on MOOCs will increase the research as well as use cases.

## 2. Conclusion

The article reviews the existing MOOCs platform and cooperative ecosystem. Several MOOCs are purely revenue-based models; however, plenty of educational institutions run social development programs, and they need to tie up with cooperative societies and institutions and conduct customized short-term courses with experience sharing or live examples.

To create demand for cooperative ecosystem in the education curriculum, awareness programs among youth, students, and educational institutions would create win-win situations for MOOCs providers, education institutions, and cooperatives. The need of the hour for educational institutions and cooperatives is to tap the potential of MOOCs to be the change agents for boosting cooperative education, connecting youth, academia, and entrepreneurs with cooperatives.

## 3. References

- ☞ Advantages & Disadvantages of MOOCs for Learning. (2022). Infopro Learning. <https://www.infoprolearning.com/blog/advantages-and-disadvantages-of-moocs-massive-open-online-courses-for-learning/>
- ☞ Annual Refresher Program in Teaching. (2018). Ministry of Human Resource Development, GoI. <https://nmtt.gov.in/downloads/arpit.pdf>
- ☞ Bates, A. W. (Tony). (2019). Strengths and weaknesses of MOOCs. In Teaching in a Digital Age: Guidelines for designing teaching and learning (Second).  
TONY BATES ASSOCIATES LTD. <https://opentextbc.ca/teachinginadigitalage/chapter/section-7-5-strengths-and-weaknesses-of-moocs/>

- 
- ☞ Cooperatives and Employment: Second Global Report. (2017). CICOPA, ICA. <https://www.ica.coop/sites/default/files/2021-11/Cooperatives%20and%20Employment%20Second%20Global%20Report.pdf>
  - ☞ Demystifying the MOOC. (2014). The New York Times. <https://www.nytimes.com/2014/11/02/education/edlife/demystifying-the-mooc.html>
  - ☞ Dongre, Y., Paranjothi, T., & Parameshwari, G. (2020). Cooperatives and youth in Asia. In M. Altman, A. Jensen, A. Kurimoto, R. Tulus, Y. Dongre, & S. Jang (Eds.), *Waking the Asian Pacific Co-Operative Potential* (pp. 89–97).
  - ☞ Academic Press. <https://doi.org/10.1016/B978-0-12-816666-6.00008-2>  
eGyanKosh: Programme Guide. (2018). <https://egyankosh.ac.in/handle/123456789/52769>
  - ☞ Mapping: Key Figure National Report: India. (2021). COOP, ICA. <https://coops4dev.coop/sites/default/files/2021-07/India%20Key%20Figures%20National%20Report.pdf>
  - ☞ Mc Namara Valdes, A. J., Torres-Rivera, A. D., & Florencio da Silva, R. (2020). USING A MASSIVE OPEN ONLINE COURSE TO TRAIN WORKERS FROM A COOPERATIVE WHICH IS DEDICATED TO BICYCLE-BASED TRANSPORTATION IN MEXICO CITY. ICERI2020
  - ☞ Proceedings, 3679–3683. <https://doi.org/10.21125/iceri.2020.0829>
  - ☞ Reich, J., & Ruipérez-Valiente, J. A. (2019). The MOOC pivot. *Science*, 363(6423), 130–131. <https://doi.org/10.1126/science.aav7958>
  - ☞ Shah, D. (2020). By The Numbers: MOOCs in 2021. Class Central. <https://www.classcentral.com/report/mooc-stats-2021/>
  - ☞ Shah, D. (2021). By the Numbers: MOOCs During the Pandemic. Class Central. <https://www.classcentral.com/report/mooc-stats-pandemic/>
  - ☞ Sharma, Dr. C. S. (2019, September). ARPIT Refresher Course In Commerce. [https://onlinecourses.swayam2.ac.in/arp19\\_ap64/preview](https://onlinecourses.swayam2.ac.in/arp19_ap64/preview)
  - ☞ Yadav, H. (2022). Education and training: Pillars of co-operative development. *The Hindu BusinessLine*. <https://www.thehindubusinessline.com/economy/agri-business/education-and-training-pillars-of-co-operative-development/article65264416.ece>
  - ☞ Youth and Cooperatives in the Americas. (2020). COOP ICA. <https://coops4dev.coop/en/node/15153>



## Cooperatives with Start-up Ventures for Resilient Agribusiness' Ecosystem

Mahesh Kadam <sup>1</sup>

### ABSTRACT

*The cooperatives in India are the backbone for the upcoming Farmer Producer Organizations / Farmer Producer Companies. The transformation journey from cooperatives to FPO/FPC will take some time and firmness. During this paradigm shift, Agribusiness Startups and Cooperatives in diverse fields can come together and can flourish the business ventures and create employment opportunities and derive a good standard of living to all the stakeholders in agriculture. The article give the scenic picture of the cooperatives in field of agriculture, its strength and weakness compare to agribusiness startups and how both can overcome their challenges and create a win-win situation for both the entities. The upcoming policy advocacy in cooperatives and promotion of entrepreneurship in COVID crisis, Cooperatives startups and or cooperatives and startups can collaborate and build a firm backward and forward linkage to make the business simplified and healthily optimistic.*

**Keywords :** *Cooperatives, Startups, Entrepreneurship, FPO/FPCs*

### Introduction :

Cooperatives in India have been growing in numbers covering almost 97% of rural population in India. It employs millions of Indians through Self- Help Groups (SHGs) or through registered societies under the cooperative. This overall cooperative sector in terms of types of cooperatives, catering to different sectors, privately owned quasi-government or completely owned by the government. By in 2010, the total number of cooperatives in India stood at approximately 6,10,000 and employed more than 250 million Indians. The government initiated organizations such as NCUI, NABARD, and farmer specific organizations such as IFFCO, Vrutti, NACOF are some of the key ecosystem players that support the cooperative movement in India.

The broad categories of cooperatives can span across agricultural products (cereals, pulses, vegetables, fruits) to allied products (coffee, tea, dairy

<sup>1</sup> Associate Professor, Centre for Entrepreneurship Development, VAMNICOM, Pune.

products, fishery, meat, etc.) to weaving/ handloom cooperatives. Each of these cooperatives covers clusters of the region, state-wise and under product category they are state-wise organized in operation but also supported by the national bodies of the product category (National Fisheries, National Milk Cooperative Board, etc.) monitored by the central government of India.

### **Evolution of Co-operative Movement in India**

The cooperative movement in India owes its origin to agriculture and allied sectors.

- ☞ Towards the end of 19<sup>th</sup> century rural indebtedness and the consequent conditions of the farmers created an environment for chit funds and cooperatives.
- ☞ The farmers generally found the cooperative movement an attractive mechanism for pooling their meagre resources for solving common problems relating to : i. credit, ii. supplies of inputs and iii. marketing of agricultural produce.

### **Co-operative Movement in India**

- ☞ The experience gained in the working of cooperatives led to the enactment of Cooperative Credit Societies Act, 1904.
- ☞ Subsequently, a more comprehensive legislation called the Cooperative Societies Act 1912 was enacted wherein post of Registrar and registration of co-operatives for various purposes was provided.
- ☞ Under the Chelmsford Reforms of 1919, Co-operative Societies became a provincial subject and provinces were authorized to make their own co-operative laws.
- ☞ The Multi Unit Co-operative Societies Act, 1942 was enacted for co-operatives having membership in more than one unit or Province
- ☞ Multi State Co-operative Societies Act, 1984 was enacted to remove the plethora of different laws governing the same type of co-operatives and bring about uniformity of administration in different co-operatives.
- ☞ The Multi State Co-operative Societies Act, 1984 was replaced by the MSCS Act, 2002.
- ☞ In Maharashtra, the MCS Act, 1960 is the Act which governs and regulates the Cooperative Societies in the State.

**Co-operative Principles**

- ☞ Voluntary and Open Membership
- ☞ Democratic Member Control
- ☞ Member Economic Participation
- ☞ Autonomy and Independence
- ☞ Education, Training and Information
- ☞ Co-operation among Co-operatives
- ☞ Concern for Community

**Stagnation in Co-operative Movement**

- ☞ Dormant membership and lack of active participation of members in the management of cooperatives.
- ☞ Mounting over dues in cooperative credit institution, lack of mobilization of internal resources.
- ☞ Over-dependence on Government assistance
- ☞ Lack of professional management.
- ☞ Bureaucratic control and interference in the management.
- ☞ Political interference and over-polarization have proved harmful to their growth.

**The 97<sup>th</sup> Constitutional Amendment in Cooperatives Sectors brought major reforms as follows:**

- ☞ Election Commission-like authority mandated.
- ☞ Fixed term of five years to elected board.
- ☞ Active members - Economic participation & Attending meetings.
- ☞ Professional Management by Expert & Functional Directors.
- ☞ Equality by providing reservations for women & SC/ST.
- ☞ Provides for independent professional audit.
- ☞ Gives Right to Information to Members of Co-op Societies.
- ☞ Empowers Govt. to obtain periodic reports & A/cs.
- ☞ Provides for offences relating to Co-op Societies & Penalties for such offences.

**Types of Business Enterprises which can be explored:**

Types of Cooperative Societies predominantly existing in India can be categorized as:

- ☞ Consumers’ Co-operative Societies.
- ☞ Producers’ Co-operative Societies.
- ☞ Marketing Co-operatives.
- ☞ Housing Co-operatives.
- ☞ Co-operative Credit Societies.
- ☞ Co-operative Farming Societies.

**How can start up Co-op be used by Entrepreneurs in useful ways?  
Co-operative Enterprise – A Business Model**

Co-operative Enterprise (in addition to Private or public sector enterprise) is an alternative business model which is:

An extension of community development principles into the business sector are :

- ☞ A tool that can deliver community identified service requirements.
- ☞ A model that facilitates community ownership of business enterprises.
- ☞ A mechanism for generating community investment.

**Schematic Outlook showing the Strength and Weakness of Co-operatives and Startups:**

Particulars	Co-operatives	Startups
Strength	<ul style="list-style-type: none"> <li>– <b>Supply side</b> of the market : Large scale of production and operation.</li> <li>– <b>Employment</b> to millions: Fairly organized, employs millions of Indian workforce (men and women)</li> </ul>	<ul style="list-style-type: none"> <li>– <b>Demand side</b> of the market: Thriving consumer market.</li> <li>– Access to technology and new innovations to catalyse.</li> <li>– <b>Management and operation efficiency</b> (scope to improve)</li> <li>– <b>Acquiring, engaging and retaining customers</b> in B2C market through brand and marketing.</li> </ul>



Particulars	Co-operatives	Startups
	<ul style="list-style-type: none"> <li>– <b>Volume &amp; Scale :</b> Supplies in high volume, less than wholesale prices with quality products.</li> </ul>	
Weakness	<ul style="list-style-type: none"> <li>– The <b>high cost of supply of product / service</b> (creation and production).</li> <li>– Cannot offer a <b>scale of jobs</b> to millions (of Indians) because of technology.</li> <li>– Cannot <b>achieve market</b> penetration without access to large infrastructure, MSME and large scale produce organisations.</li> </ul>	<ul style="list-style-type: none"> <li>– <b>Has limited access</b> to direct retailers, no access to B2C urban market.</li> <li>– <b>Lack of infrastructure</b> (storage, transportation) and access to technology</li> <li>– <b>Management inefficiencies</b> (labour, leadership, operations, marketing)</li> <li>– <b>Caught between middlemen and brokers</b>, unable to brand and market products to increase margins.</li> </ul>

The above inclinations desperately build a need of collaboration platform between upcoming startups and cooperatives which can create a resilient ecosystem.

### **Schemes under National Cooperative Development Cooperation for Encouraging Cooperatives Startups**

The role of consumer cooperatives is very significant in the national economy for safeguarding the interest of consumers not only against unethical trade practices by the private traders, but also to enable them to have access to consumer goods of fair quality at competitive / reasonable prices. These cooperatives render useful service by ensuring availability of consumer goods at the door step of the consumer at reasonable price and also by exerting a healthy influence on market prices of essential commodities.

NCDC is operating a scheme for the promotion and development of distribution of consumer articles by Consumer Cooperatives. Under the scheme, financial assistance to consumer cooperatives and to other cooperatives engaged in consumer business at the Primary / District / State / National Level operating in Rural / Semi / Semi Urban / Urban areas will be covered.

**Eligible Cooperative Societies :**

NCDC provides assistance to primary, district and state level cooperatives, either directly or through State Governments.

**Activities Assisted :**

- ☞ Expansion / renovation of existing infrastructure or construction of new infrastructure such as shopping centre / godown / kerosene bunk / warehouse etc.
- ☞ Purchase of furniture & fixtures and transport vehicle.
- ☞ Margin money for raising working capital
- ☞ Working capital.
- ☞ Computerization.
- ☞ Creation / expansion / modernization of Consumer Oriented Processing / Industrial Activities.

**Mode of Funding**

Financial assistance is provided through the State Govt. or directly to the eligible cooperatives.

**Quantum of Assistance and Pattern of Assistance**

It can be varies from activity to activity and upto 90-95% of the total cost for the most of the activities. However, in case of strengthening of share capital base / margin money / working capital assistance, the quantum of assistance can be upto 100%.

**YuvaSahakar - Cooperative Enterprise Support and Innovation Scheme**

To encourage newly formed cooperatives take advantage of innovative ventures, especially by societies with new / innovative idea, NCDC has introduced a new scheme titled, “YuvaSahakar - Cooperative Enterprise Support and Innovation Scheme” linked to a Cooperative Startup and Innovation Fund created by the NCDC.

**Key features of the scheme :**

- ☞ The scheme would encourage cooperatives to venture into new and innovative areas.
- ☞ NCDC has created a dedicated fund with liberal features enabling youth to avail the scheme. The scheme will be linked to Rs. 1000 crore 'Cooperative Start-up and Innovation Fund (CSIF)' created by the NCDC. It would have more incentives for cooperatives of North Eastern Region, Aspirational Districts and Cooperatives with Women or SC or ST or PWD members.
- ☞ The funding for the project will be up to 80% of the project cost for these special categories as against 70% for others. The scheme envisages 2% less than the applicable rate of interest on term loan for the project cost up to Rs. 3 crore including 2 years moratorium on payment of principal. All types of cooperatives in operation for at least one year are eligible.

**Norms for direct funding**

Cooperatives operating for minimum three years & broadly fulfilling following criteria are eligible :

- ☞ Net worth should be positive.
- ☞ There should be no erosion in share capital.
- ☞ Should be in a position to provide 1.25 to 1.5 times security.
- ☞ Financial /operational performance of the cooperative should be at satisfactory level of NCDC.

Cooperatives and agribusiness startups can collaborate and build a firm backward and forward linkage to make the cooperative business simplified and healthily optimistic for the stakeholders in agriculture and allied ecosystem.

**References :**

1. <http://collaborativec.in/cooperatives-start-ups-india-collaboration/>
2. <https://www.ncdc.in/index.jsp?page=consumer=en>
3. <https://www.insightsonindia.com/2019/02/28/yuva-sahakar-cooperative-enterprise-support-and-innovation-scheme.>



# A Framework for Cloud Based Tracking System to Monitor Crop Growth and Crop Loss Compensation for Farmers

J. Sheik Mohamed <sup>1</sup>

K. Sudarsan <sup>2</sup>

## ABSTRACT

*Recent past, it is observed that, many farmers are facing a lot of issues in maintaining and protecting the crop growth to give good yield, and they get crop loss due to natural disasters, low production, crop unsustainability, over fertilization etc. Sometimes, the farmers are not able to get remedy in the form of compensation from the government for the same, due to improper prediction of crop loss compensation. Further, there is a chance to misuse of government funds which is related to farmers' compensation funds. In order to eliminate this kind of problem, this system would help policy makers, farmers, government and agriculture departments.*

**Keywords - Crop Status, Compensation, Cloud, IoT.**

## 1. Introduction

Even though, the technology is developing 70 % of the Indian people depend on agriculture sector. Now-a-days, many farmers are facing issues at the time of cultivation such as low production, crop unsustainability, over fertilization, natural disasters, etc. This leads to huge crop loss to the farmers. Then the farmer sustainability is very difficult and it is also a primary cause for farmers' suicide. Sometimes, the farmers are not able to get remedy in the form of compensation from the government for the same, due to improper prediction of crop loss compensation. Due to this farmer get loss and there is chance to misuse of government funds.

Internet of Things (IoT) plays a crucial role in smart agriculture. Smart farming is an emerging concept, because IoT sensors capable of providing information about their agriculture fields. Internet of Things is widely used in connecting devices and collecting information. IoT is used with IoT frameworks to handle and interact with data and information. In this system, users can register their sensors, create streams of data and process information. It is

<sup>1</sup> Deputy Director. Madhusudan Institute of Cooperative Management, Bhubaneswar

<sup>2</sup> Reader in Economics, Choudwar College, Choudwar

based on device which is capable of analysing the sensed information and then transmitting it to the user.

Cloud computing is a paradigm of distributed computing to provide the customers on-demand, utility based computing services. Cloud users can provide more reliable, available and updated services to their clients in turn. Cloud itself consists of physical machines in the data centres of cloud providers. Virtualization is provided on top of these physical machines. These virtual machines are provided to the cloud users. Different cloud provider provides cloud services of different abstraction level. E.g. Amazon EC2 enables the users to handle very low level details where Google App-Engine provides a development platform for the developers to develop their applications. So the cloud services are divided into many types like Software as a Service, Platform as a Service or Infrastructure as a Service. These services are available over the Internet in the whole world where the cloud acts as the single point of access for serving all customers. Cloud computing architecture addresses difficulties of large scale data processing.

### **Literature Review**

Agriculture is a primary sector for any country. Agricultural problems are always hindering the growth of the country. So agricultural protection is the primary objective for India. Smooth agriculture via the usage of Internet of Things (IoT) technologies would help agriculturalists to minimize produced wilds and improve efficiency.

The economic environment and development of the country are depending on agricultural development. Regrettably, conventional agricultural methods are adopted by many farmers, which results in reduced crops, fruits, and yields, where automation is not enabled.

IOT is a novel application domain that integrates different technologies (software) and devices (hardware) such as wireless telecommunications technology, sensors, Radio-Frequency Identification (RFID) tags, actuators, mobile phones, etc. Kevin Ashton invented the word 'Internet of Things' in 1999. The first interesting characteristic of IOT originated from the name that describes it. It is a set of physical interconnected objects or "Things". Physical entities can be an animal, humans, cars, environments, appliance, etc. Furthermore, the "Internet" refers to the fact that "Things" are connected to the internet. Additionally, each "Thing" has an identifier in order to be identifiable.

Increasing food consumption, need for quality food and environmental impacts of agriculture lead to use information technology in the agriculture sector, which comes under the heading of precision agriculture.

IOT is a technology that is growing rapidly in recent years and brings numerous benefits for agriculture. Because of the heterogeneous and enormous amount of data collected by IoT devices, future IoT agricultural applications depend on cloud computing.

The IOT cloud platform has the benefit of scalability, virtualization, low price, and large scale. The precision agriculture use sensors, RFID, wireless communication, intelligent systems and other ICT technologies in order to implement the monitoring and controlling systems. Different sensor-based IoT devices needed to install at various locations in the agricultural fields.

In recent years, there have been advances in low-cost and low-power sensors. These sensors measure soil moisture, temperature, humidity and other parameters such as water content, outdoor temperature, wind speed, etc. Data collected from the sensors analyze by data analysis methods which help to extract more information from the data, decision making support systems and create more accurate prediction models.

### **Statement of the Problem**

At present, if there is any natural disaster occurs then there is a crop loss. Then the crop loss can be estimated by the agriculture department officials on the basis of direct observation method. There are no scientific methods to predict the actual crop loss for giving crop loss compensation to the farmers. So there is a dire need to find a scientific method to predict the actual crop loss at the time of natural calamities.

### **Objective of the Present Study**

To eliminate the information lagging about crop status by the farmers, it is intended to develop the application to maintain the crop status information for the farmers which would help to get the proper remedy for unexpected loss arises from crop on specific or combination of causes.

### **Methodology**

This is a simulated Application which helps for both farmers and government. At present, farmers are not getting sufficient compensation even though they have crop insurance; due to lack of information about crop status at the time unfair situation occurs. It is also very difficult to predict the crop loss by the agriculture department.

The combination of traditional methods with latest technologies as IoT and Wireless Sensor Networks (WSN) can lead to agricultural modernization. The WSN collects the data from different types of sensors and send it to the

main server. This system is useful for collecting data through sensor and store in the database. Based on the collected data, farmers can get a message regarding compensation for their crop loss.

## 2. Sensors

Sensors are used to monitor different conditions of environment like water level, humidity, temperature, etc. Measuring soil moisture is important in agriculture to help farmers to manage their irrigation systems more efficiently. Not only the farmers are able to generally use less water to grow a crop, they are able to increase yields and the quality of the crop by better management of soil moisture during critical plant growth stages.

Sensor networks allow to collect different types of information which can be conveniently exploited for controlling crop production or monitoring ecosystems by analysing different variables, such as light, temperature, humidity or climatologically and anthropological events, among others.

### 2.1 Uses of Agriculture Sensors

- ☞ They are used in agricultural weather stations. These equipments are equipped with sensors which provide information such as soil temperature at various depths, air temperature, rainfall, leaf wetness, wind direction, solar radiation, relative humidity, pressure, etc.
- ☞ They are used in many equipments (e.g. dendrometer) developed by agro based industries for agricultural or farming applications such as measuring trunk diameter, leaf wetness and so on.
- ☞ They are used in agriculture drones for the purpose of spraying insecticides and pesticides.
- ☞ Solar based pumps which are mobile operated become very popular due to reduction in cost to electricity.
- ☞ E-fences have become popular in rural India which helps save crops from animals such as elephants.

### 2.2 Functionalities of Sensors

LIDAR sensors are used to obtain dynamic measurements to estimate fruit-tree leaf areas. 3-D modelling of tomato canopies is obtained through high- resolution portable scanning LIDAR.

**Figure 1: LIDAR Sensor****Figure 1: LIDAR Sensor**

Soil moisture sensors measure the volumetric water content in soil. Since the direct gravimetric measurement of free soil moisture requires removing, drying, and weighing of a sample.

**Figure 2: Soil Moisture Sensor****Figure 2: Soil Moisture Sensor**

Optoelectronic sensors for weed detection in wide row crops have been analysed in terms of accuracy and feasibility. pH soil-based sensors allow measurements of variables in the soil oriented toward crop productivity.

**Figure 3 : Optical Sensor****Figure 3: Optical Sensor**

Air flow sensor is a sensor used to determine soil air permeability. Measurements can be made at singular locations or dynamically while in motion. Various types of soil properties, including compaction, structure, soil type, and moisture level, produce unique identifying signatures.



**Figure 4: Air Flow Sensor****Figure 4 : Air Flow Sensor**

## 1. Proposed Framework

### **Government Agriculture Department Server**

This application featured with former registration process through agriculture officer of concern area. The registration processes includes the former personal details, land details, survey number, and pass book number. Once registration process completed, then the formers provides the information every time regarding type of crop that they are cultivating in their corresponding land along with date of cultivation and expenditure incurred to the cloud server and the same can be access by the agriculture department server.

### **Crop Status Monitoring Mobile (CSM) APP**

Once cultivation process is initiated, the IOT bundled devices are activated by the farmer for their land which is installed intheir land to monitor and maintain about the status of crop in all aspects and keep transferring that information to cloud servercontinuously.

In due case, the farmer wants to see the crop status for specific period or current status, they can see the status of crop in all aspects, which help the farmer to take suitable decision, if any thing goes wrong, or to eliminate the unwanted loss.

If the crops are properly grown and harvested by the farmer, then the farmer specify the closing date of the harvested crop to the agriculture department for updation.

If the crops are get damaged, due to any reason, in that circumstances, the corresponding data of farmer and crop status of thestipulated period are accessed by the agriculture officer to assess the loss from cloud server through agriculture server based on the corresponding former survey number.

### **IOT Setup**

#### **DataCollection Unit**

This unit is installed in every former land to collect the raw data continuously from different sensors that are bundled together for fetching various factors related to crop growth status.

### Data Processing Unit

This unit consolidates the raw data for every specific period that are collected from data collection unit.

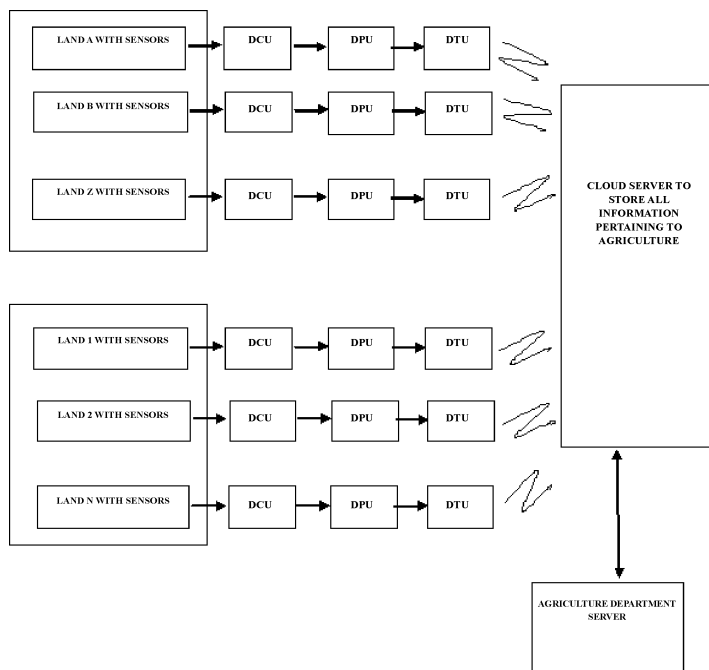
### Data Transfer Unit

Consolidated data from DPU is transferred to Cloud server for the corresponding farmer.

## 4. Proposed Framework Simulation

This proposed framework is simulated by using virtual sensor to monitor the crop status. The problem is to get proper subsidy from government to the farmers. First farmer has to register their personal and farming land details, then, farmer has to give crop details that are currently cultivated in their farming land. The admin has to maintain all these details and has to assign the required sensors for monitoring crop growth continuously. If the crops are get damaged, due to any reason, in that circumstances, the corresponding data of farmer and crop status of the stipulated period is stored in the government agriculture server based on their survey number for assessing the crop loss. The collected data through sensor will be analysed and also predict the accurate crop loss. The farmer who losses their crop due to disaster can get alert message about the eligibility for compensation for crop loss.

### 4.1 Simulated Framework Architecture



## 5. Conclusion

It is believed that agriculture sector is the backbone of India, but still, many farmers are getting huge loss due to natural disasters, lack of cultivation process and could not get remedy to overcome their difficulties. Sometimes, the farmers are not able to get revival in the form of compensation from the government for the same due to proper prediction of crop loss compensation. Then the farmers' sustainability is very difficult and it is also a primary cause for suicide of farmers. Furthermore there is chance to misuse of government funds which is related to farmers compensation funds. In order to eliminate this kind of problem, this framework can be simulated which would help policy makers, farmers, government and agriculture departments.

## References

- ☞ Ko, G. Mascaró, and E. R. Vivoni, Irrigation Impacts on Scaling Properties of Soil Moisture and the Calibration of a Multifractal Downscaling Model, *IEEE Trans. Geoscience Remote Sensing*, Vol. 54, No. 6, 3128–3142, 2016.
- ☞ D. Singh, G. Tripathi, A. J. Jara, A survey of Internet-of-Things: Future Vision, Architecture, Challenges, and Services in Internet of Things (WF- IoT), 2014.
- ☞ Dong Haitao, Qu Yugui, Zhao Baohua, Zigbee wireless sensor network platform for the design and implementation?, *Electronic Technology Application*, pp.124-126, Dec. 2007.
- ☞ Evangelos A, Kosmatos, Tselikas Nikolaos D, and Boucouvalas Anthony C. "Integrating RFIDs and smart objects into a Unified Internet of Things architecture." *Advances in Internet of Things*, 2011.
- ☞ F.M. Aymerich, G. Fenu, and S. Surcis. An approach to a cloud computing network. *Applications of Digital Information and Web Technologies*, 2008. ICADIWT, 2008, pp. 113 –118, August 2008.
- ☞ Garg, Saurabh Kumar, and Rajkumar Buyya. Green cloud computing and environmental sustainability. *Harnessing Green IT: Principles and Practices*, pp. 315-340, 2020.
- ☞ <https://www.mouser.in/applications/smart-agriculture-sensors/>
- ☞ <https://www.rfwireless-world.com/Terminology/Advantages-and-uses-of-Agriculture-Sensors.html>

- ☞ Kavitha B C, Shilpa D P, Thanushree K S, Agricultural Crop Monitoring Sensors using IoT-A Study, International Journal of Engineering Research & Technology (IJERT), ISSN: 2278-0181, 2018.
- ☞ M.V.Narayana, K Raveendra Kumar, J Rajeshwar, Rishi Sayal, H S Saini, A Comprehensive Review of Internet of Things Impact on Smart Agricultural Fields and Related Domains, International Journal of Advanced Science and Technology, Vol. 28, No. 16, pp. 276-294 276, 2019.
- ☞ Mahmoud Abbasi, Mohammad Hossein Yaghmaee, Fereshteh Rahnama, Internet of Things in agriculture: A survey, Third International Conference on Internet of Things and Applications, University of Isfahan, Isfahan, Iran, IEEE, pp.1-13, 2019.
- ☞ Navyasree T, Sheik Mohamed J, Dr. Ramakrishna S, A Framework for Crop Status Monitoring and Subscription System to Obtain Crop Loss Compensation for the Farmers, Journal of Emerging Technologies and Innovative Research (JETIR) ISSN-2349-5162, 2019.
- ☞ Prathibha S R, Anupama Hongal, Jyothi M P, IOT Based Monitoring System in Smart Agriculture, International Conference on Recent Advances in Electronics and Communication Technology, 2017.
- ☞ Rakesh Kumar Saini & Chandra Prakash, Internet of Things (IoT) application for agriculture and how farmer can grow by using Internet of Things for agriculture, Global Journal of Computer Science and Technology: E Network, Web & Security, Vol. 20, Issue 2, Version 1.0, 2020.
- ☞ Srbinovska, M., Gavrovski, C., Dimcev, V., Krkoleva, A., & Borozan, V. Environmental parameters monitoring in precision agriculture using wireless sensor networks. Journal of Cleaner Production, Vol. 88, pp.297-307, 2015.



## Cooperative Sector of India: A Need for a Holistic Approach

Prashant V Kadam <sup>1</sup>

### *Abstract*

*The cooperative movement since its inception has flourished across the different regions of the world in almost every sector of the economy apart from agriculture. In India, the enactment of the Cooperative Societies Act, 1904 paved the way for the foundation pillars of cooperative movement. Since then, the cooperative movement has grown by leaps and bounds. However this growth had been plagued with inefficiency on account of lack of professionalism, trained manpower, absence of accountability, transparency, etc. In fact cooperatives were considered only as a mediator for government benefits. As such radical reforms were introduced by the government at regular intervals. With the establishment of the separate Ministry of Cooperation, a lot of initiatives have been floated to streamline the cooperatives in India. Amidst this, however, there are lots of challenges in cooperatives which have to be addressed with solutions. The paper has analysed the various challenges to the cooperative sector as of date and in fact has recommended for the stricter compliances with the reforms introduced for the cooperatives without which it may not be feasible for the cooperatives to play a significant role towards an inclusive and sustainable development.*

**Keywords :** *Cooperative, Transparency Compliances, Teforms, Solution*

### 1. Introduction

The Cooperative movement has been in existence from ancient civilisation in one or the other forms. The task of giving a concrete shape to the cooperatives started emerging along with the development and the modernisation of the civilisations across the world. The Rochdale pioneers in 1844 played an important role in the formation of the cooperatives. In India, cooperation has its origin in the last quarter of 19<sup>th</sup> Century in attempts to provide relief to the farmers from the clutches of money lenders. According to the International Labour Organisation (ILO), a cooperative is an autonomous association of persons united voluntarily to meet their common economic, social and cultural

<sup>1</sup> Head of Centre for Entrepreneurship Development, VAMNICOM, Pune.

needs and aspirations through a jointly owned and democratically controlled enterprise. The cooperative movement was introduced in India as a State policy and owes its inauguration to the enactment of the Cooperative Societies Act, 1904. This act gave the impetus to the Cooperative Movement in India. Since then the Cooperative Act has been amended many times with the inclusion and the deletion of some of its clauses. In 1995, under the auspices of Internal Cooperative Alliance (ICA) the Cooperative Principles have been reformulated and are commonly known as Manchester Declaration. After a threadbare discussion on the working of Cooperative Movement particularly in the wake of economic liberalization initiated from early nineties, the (ICA) has ratified / approved seven reformulated principles in 1995 at Manchester England. The Principles were: Voluntary and open membership, Democratic member control, Member economic participation, Autonomy independence, Education training and information, Cooperation among Cooperatives and Concern for community. The Constitution (97th Amendment) Act, 2011 added a new Part IXB right after Part IXA (Municipals) regarding the cooperatives working in India. Further, the word “cooperatives” was added after “unions and associations” in Article 19(1) (c) under Part III of the Constitution. This enabled all the citizens to form cooperatives by giving it the status of fundamental right of citizens. A new Article 43B was added in the Directive Principles of State Policy (Part IV) regarding the “promotion of Cooperative Societies”. All these reforms have facilitated the ever-expanding growth of the cooperative movement not only in India, but also in other parts of the world. Today, almost each and every sector of the economy has cooperatives – Labour, Consumer, Producers, Industry, Information technology, Agriculture, Services, etc. The MSCS Act 2002 has also been redesigned in terms of its Multi-State Cooperative Societies (Amendment) Bill, 2022, which has already been approved by the Union Cabinet. The aim of the Bill is to improve governance, enhance transparency and accountability in the Multi State Cooperative Societies.

### **Research Methodology**

The study is conceptual and descriptive in nature. It has however made use of both primary as well as secondary sources of information. Various reports, websites and academic writings have been referred.

## **2. Review of Literature**

Singh K S (2016) discussed various pitfalls and weaknesses like inadequate management, inadequate infrastructure, excessive reliance on the

government, and dormant membership, improper election procedures, a weak human resources policy, and a lack of proficiency, etc. The study has suggested a need for creating effective public relations and communication strategies which can encourage the idea of group cooperation.

Dave M (2021) reviewed large national cooperative enterprises and apexes and their substantial contribution to resilience and sustainability. The study held that a Strong partnerships between and within cooperatives and mutual can be instrumental in enhancing the emerging role of the movement as a pivotal actor in transforming towards sustainable and resilient societies.

Mohd. Az & Others (2014) tried to identify and justify the cooperatives in introduction and literature from different perspectives in Bangladesh. It was found that cooperatives can be a powerful business model in the developing country like Bangladesh and can be a strong tool for poverty reduction in the ground level of mass people. The government should ensure that the concerned authority is performing their role to develop this sector in giving priority.

Mhembwe S (2017) analysed the role of cooperatives in sustaining the livelihoods of local rural communities in Shurugwi District in Zimbabwe with the help of questionnaire, interviews and observation methods. The study analysed the different issues of cooperatives and recommended that the government and the banking sector render financial support to cooperatives in rural communities to allow them to expand and diversify their business operations; constant training on leadership and management skills is provided to cooperatives' members. Lastly, the study recommends that future research should focus on investigating issues that hinder the growth of the cooperative movement in rural communities of Zimbabwe.

Michel Ehrenhard & others (2021) systematically reviewed papers on CE in the mainstream organizational literature, defined as literature in the fields of economics, business, management and sociology. The study found multi-level studies, determination of social impact—in particular measurable impact, managerial practices for sustainable (organisational) development, and the entrepreneurial opportunity generation process as the four key avenues for future research.

David Barton (2011) summarized the results from a survey of cooperative leaders to better understand current challenges in financing agricultural cooperatives. The study found that Alignment of a financial business strategy on cooperative principles and the cooperative's business model, including equity management, are critical issues for the success of an agricultural cooperative.

John Rolfe, Delwar Akbar Azad & others (2022) analysed how a hybrid cooperative business model can solve horizontal and vertical coordination challenges, drawing on an analysis of a pineapple cooperative business, Tropical Pines, in Queensland. Semi-structured interviews with a cross section of key stakeholders with the help of thematic content analysis to identify key factors.

Noreen Byrne (2022) discussed the limitations of economic and sociological theoretical frameworks in capturing the integrative and relational nature of co-operative identity. The author explained how relational theory, with its emphasis on emergence and capacity for integration, may fit cooperative practise and, in turn, the formulation of cooperative identity and theory more effectively.

### **Objectives of the Study :**

- ☞ To examine the weaknesses/challenges to the cooperative sector of India;
- ☞ To recommend solutions to meet the challenges in the cooperatives.

### **3. Principles of Cooperation:**

The cooperative principles are guidelines by which cooperatives put their values into practice.

#### **3.1 Voluntary and Open Membership**

Cooperatives are voluntary organisations, available to all persons able to enjoy their services and ready to assume the duties of membership, without gender, socioeconomic, racial, political or religious discrimination.

#### **3.2 Democratic Member Control**

Cooperatives are democratic businesses that are run by the members who take an active role in deciding on policies and defining priorities. Men and women serving as elected representatives are accountable to the membership. In elementary cooperatives members have equal voting rights (one member, one vote) and cooperatives at other levels are likewise constituted in a democratic manner.

#### **3.3 Member Economic Participation**

Equitable member contributions and democratic member control over the cooperative's capital are both practises. Typically, the cooperative owns a portion of that capital as common property. Members normally get modest compensation, if any, on capital subscribed as a condition of membership. Members distribute surpluses for any or all of the following: cooperative



development, possibly by establishing reserves, at least a portion of which would be indivisible; member benefits in proportion to members' transactions with the cooperative; and support for other membership-approved activities.

### **3.4 Autonomy and Independence**

Cooperatives are autonomous, self-help organisations controlled by their members. If they enter into agreements with other organisations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their cooperative autonomy.

### **3.5 Education, Training and Information**

Cooperatives provide education and training for their members, elected representatives, managers, and employees so they can contribute effectively to the development of their co-operatives. They inform the general public - particularly young people and opinion leaders - about the nature and benefits of co-operation.

### **3.6 Cooperation among Cooperatives**

Cooperatives serve their members most effectively and strengthen the cooperative movement by working together through local, national, regional and international structures.

### **3.7 Concern for Community**

Cooperatives work for the sustainable development of their communities through policies approved by their members.

## **4. Challenges to the Cooperative Sector**

The central government under its newly formed Ministry of Cooperation has taken lots of initiatives to make the cooperative sector the most vibrant and dynamic to augment the role of cooperatives towards an equitable and inclusive sustainable growth of the economy. The cooperatives are expected to play a crucial role in facilitating the economy to reach to its milestone of a FIVE trillion-dollar economy by 2027. However, the task will not be a simple one. There are lots of roadmaps which have to be re-designed for cooperatives so that they can really a crucial role towards an inclusive development of Bharat. The challenges faced by cooperatives in terms of governance, mismanagement and manipulation, lack of trained personnel's, lack of transparency, inadequate supply chain of cooperatives, etc. have to be streamlined under the aegis of the New Cooperative Policy of 2022. Though the initiatives of the

government in terms of its digitization, expanding its coverage, trainings, etc. have been already implemented, but a lot of the homework in terms of effective research needs to be carried out. These challenges are briefly explained as follows:

- ☞ **Mis-management and Manipulation :** It has been observed and found that mis-management and manipulation in the cooperatives has degraded the functioning and the performance of cooperatives. If some secure measures aren't used to govern such cooperatives, a massive membership can end up being mishandled. Further, Money has become such a potent instrument in elections for governing organisations that the richest farmers typically held the top positions of chairman and vice-chairman and used the organisation to further their own interests. These needs to be regulated at the earliest.
- ☞ **Maintaining Sufficient and Consistent Profitability :** The second most mentioned challenge was the need to be profitable in order to finance much-needed assets and maintain a strong balance sheet. This finding is consistent with research showing that cooperative investment is tightly linked to its ability to generate cash flow through operations. Since most equity capital is obtained from earnings, this implies maintaining and improving profitability is also critical.
- ☞ **Lack of Awareness and its Inadequate Coverage :** The goals of the movement are not generally known to the public. Unfortunately, no specific efforts have been made in this regard; instead, people view these institutions as a way to get government facilities and favours. People ensure that societies continue to function as long as they anticipate receiving anything from the government. Further many of the villages are areas are yet to be covered under the umbrella of cooperatives. Most of these societies are confined to a few numbers and their operations extended to only one or two villages. As a result of their resources remain limited, which make it impossible for them to expand their means and extend their operations. It should also be noted that most of the societies have been single purpose societies. For this reason these societies are not unable to take a total view of the persons seeking help, nor can they analyse and solve problems from different angles. The help of these societies render thus cannot be adequate.
- ☞ **Lack of Trained Managerial Personnel :** Cooperative societies in India since its inception has been lacking in trained managerial human

resource. In the absence of such qualitative manpower, the operations of the coops have been adversely affected. It should be noted that though the government has launched the digitisation of the PACs, but it may not be successful on account of absence of effective e-leadership and governance.

- ☞ **The Internal Governance of Cooperatives :** It has also been a factor inhibiting the process for a diversified growth of the cooperative society. The vested interest of some few rich dominating members has also narrowed the scope of the operations of the Coops.
- ☞ **Lack of Effective Supply Chain among the Cooperatives :** There has been lack of effective supply chain among the cooperatives, the absence of which has been adversely affecting the resource and knowledge sharing among the cooperatives.
- ☞ **Political Interference :** The political interference in the working of the cooperatives needs to be minimised with greater autonomy and independence along with accountability has to be effectively implemented. The adapting of corporate culture on the basis of the seven principles of the cooperatives have to be effectively stressed in terms of an newly designed framework for cooperatives with the aim of making profit for community care and well-being.
- ☞ **Need for Education about Cooperative Finance :** It is evident that education of leaders and members about cooperative finance is critical if leaders and members are to understand why a cooperative must be profitable and why cooperative finance practices must be aligned with the cooperative's business model. These are tenets of effective income distribution and balance sheet management. If members view the cooperative as the vertical extension of their farming enterprises, then the ultimate objective is to maximize after-tax discounted cash flow back to the producer-member.

## Way Forward

### ☞ Training

Cooperatives have take up the responsibility of educating farmers about the modern agricultural technologies and the proper use of fertilisers. Cooperatives should play an active part in skilling the rural youths. Further, efforts should be made for beyond cooperative employees, children in schools, colleges, universities, technical and professional institutions, as well as people who want to start cooperatives but are unsure of the different modalities and requirements, must also receive cooperative training.

**☞ More Inclusive**

There should be greater involvement of women in the cooperative movement. The cooperative sector is important in bridging the gap between urban and rural areas and in providing chances for generating the income in an equitable manner.

**☞ Use of technology**

Cooperatives should make excellent use of digital technology in their operations, particularly in governance, banking, and enterprises, to create a transparent, responsible, and effective system. With the development of technology, new fields are opening up, and cooperative organisations can play a significant role in educating people about those fields and technologies. Further, market connections for agricultural farmers and cooperative organisations are necessary to strengthen cooperatives. It should be noted that Cooperatives have abnormalities, and to stop them, rules and better enforcement will be the need of the hour.

**Conclusion**

Alignment of a financial business strategy on cooperative principles and the cooperative's business model, including equity management, are critical issues for the success of an agricultural cooperative. Financing and managing the asset growth needed to meet member needs, and keeping equity proportional to usage are two critical issues for financing agricultural cooperatives. The training institutes such as Vaikunth Mehta National Institute of Cooperative Management, Pune can play an important role in the conduct extension education programs for managers and directors of cooperatives. Lastly, there is a need for the government to strengthen their capacities by giving them the appropriate direction and assistance from the business and market sectors, so that they can acquire the necessary level of business management expertise and can then use this expertise to address environmental issues. All these needs to be done by having an integrated policy approach along with the state government's cooperation, without which the entire redesigned framework of the cooperative will not be effective one.

---

**References**

- ☞ Dave, M. (2021). **RETRACTED** : Resilient to Crises: How Cooperatives Are Adapting Sustainably to Overcome COVID-19-induced Challenges. *International Journal of Rural Management*, 17(1\_suppl), 13S-39S. <https://doi.org/10.1177/0973005221991624>
- ☞ Azim, Md & Islam, Mr & Karim, Md & Begum, Mrs. (2014). The Problems and Prospects of Co-operative Society: A case study on its evolution and future possibilities in context of Bangladesh. *International journal of Innovative Research in Management*. 10.
- ☞ Mhembwe S, Dube E. The role of cooperatives in sustaining the livelihoods of rural communities: The case of rural cooperatives in Shurugwi District, Zimbabwe. *Jamba*. 2017 Apr 24; 9(1):341. doi: 10.4102/jamba.v9i1.341. PMID: 29955330; PMCID: PMC6014090.
- ☞ Camargo Benavides, A.F., Ehrenhard, M. Rediscovering the Cooperative Enterprise: A Systematic Review of Current Topics and Avenues for Future Research. *Voluntas* 32, 964–978 (2021). <https://doi.org/10.1007/s11266-021-00328-8>
- ☞ John Rolfe, Delwar Akbar, Azad Rahman, Darshana Rajapaksa, Can cooperative business models solve horizontal and vertical coordination challenges? A case study in the Australian pineapple industry, *Journal of Co-operative Organization and Management*, Volume 10, Issue 2, 2022, 100184, <https://doi.org/10.1016/j.jcom.2022.100184>.
- ☞ David barton, Michael boland: *Current Challenges in Financing Agricultural Cooperatives*; 2011, published by Agriculture and Applied Economic Association.



## Adaptation of Information and Communication Technology (ICT) in Primary Agricultural Cooperative Societies (PACS): Empirical Research in Western Zone

Pallavi Ingale <sup>1</sup>

Ms. Saba Sayed <sup>2</sup>

### *Abstract*

*Information and Communication Technology (ICT) has taken a center stage in all facets of human interaction in the 21st century; revolutionizing global capital flow, bilateral and multilateral trade, business interaction and social interaction through increased accessibility and transmission of information. At the firm level, the adoption of internet and other communication technologies has enabled businesses expand their market reach, improved the pace of innovation, process efficiency and profitability.*

*The area of the study is credit society in western zone with emphasis on the impact of information technology on Primary Agriculture Credit Societies (PACS). In western zone study was conducted in Maharashtra and Goa state. 14 PACS were selected randomly from Maharashtra and 6 PACS were covered from GOA. In total, 20 registered Primary Agriculture credit Society (PACS) were selected for this research study. PACS from Aurangabad, Nashik and Pune Division of Maharashtra state were selected. The questionnaire filled by the officials and staff of PACS were administered, out of which reliable information were used for the data analysis after screening.*

*The present study depends on both primary and secondary data. Descriptive statistics such as frequency, percentage and mean was used to analyze the present Status of record keeping in PACS, Usage of technology in PACS, ICT systems that are currently used by the PACS etc. Binary Logit model was used to determine the factors affecting adoption of IT facilities among the cooperatives. It is recommended that members of PACS need to make awareness about importance of ICT in credit business. State Government and the cooperative unions should ensure implementation of cooperative education as a principle to include computer training of managers / staff particularly in the use of DBMS, electronic spreadsheet and other software.*

**Keywords :** Adoption ICT- PACS – Western Zone

<sup>1</sup> Associate professor VAMNICOM, Pune

<sup>2</sup> Research Officer, VAMNICOM, Pune

## 1.1 Introduction to Credit Cooperative

Voluntary involvement, self-responsibility, democracy, equality, and solidarity are the foundation of the cooperative. The co-operative members believe in social responsibility, openness, ethical values of honesty, and caring for others. Cooperative members approve policies that will develop their communities which will result in sustainable development. The credit cooperative sector was developed to support and provide banking services to disadvantaged groups of society. Usually, these low-income individuals face a lot of difficulties in getting loans because of the risk factor. They borrow funds from local financiers at higher rates. Credit cooperatives offer a broad variety of banking facilities like saving accounts, current accounts, loans, fixed deposits, recurring deposits, Insurance, etc.

Historically, credit cooperatives have occupied a pre-eminent position in the provision of agriculture credit and primary agricultural cooperative societies (PACS) have been the building blocks of rural cooperative banking in India, for over a hundred years.

With the dwindling share of cooperatives in rural credit, the relevance of these institutions has been periodically questioned in policy circles in the backdrop of a fast-changing financial system where efficiency, profitability, technology and sustainability are emphasized. The refrain of some policy advocacy groups has been that only strong organizations that can deliver sustainable outcomes should be allowed to continue in the financial space.

Many committees have pointed out various issues plaguing the cooperative system such as; lack of active participation by the members, lack of professionalism, absence of corporate governance, politicization, bureaucratization, ageing and unenthusiastic employees. However, cooperatives are unique as democratic member-controlled entities, with members as owners and customers of the institution.

Credit cooperatives had a dominant role in purveying agricultural credit, with a share of more than 60 per cent in the fifties which, over time, declined sharply to 14 per cent due to increasing share of commercial banks (74 per cent) and Regional Rural Banks (12 per cent). With smaller share of 11 per cent of total agricultural credit, cooperatives are covering 19 per cent of farmers (2.60 crore accounts), reflecting better coverage of small and marginal farmers. The share of small and marginal farmers in total loan amount disbursed by cooperatives is 69.7 per cent as against 47.3 per cent in respect of commercial

banks as on March 31, 2020. What is more significant is, the number of members from marginal farmers category supported by cooperatives has gone up from 5.52 crore to 6.73 crore and borrowers from 2.20 crore to 2.28 crore in 2019 as compared to 2018.

With a total of 1,02,559 PACS, they have a huge membership of 132 million members, from more than six lakh villages. Today, India's cooperative credit structure, with over 130 million members (including sixty million borrowers), constitutes one of the largest rural financial systems in the world.

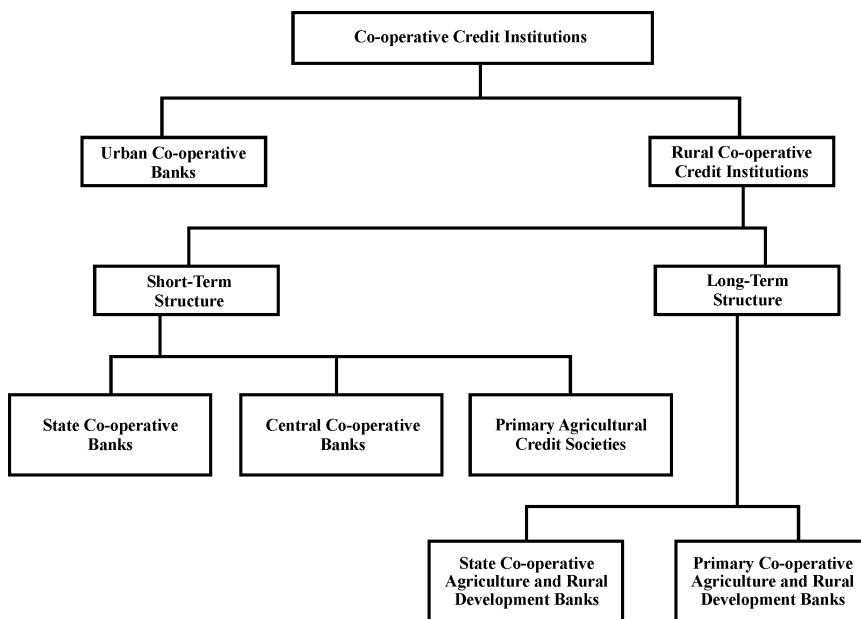
But the cooperative system has mostly not realized the enormous potential of its vast outreach, mainly because of financial weaknesses and impaired governance standards. The concept of mutuality (with savings and credit functions going together), that provided strength to cooperatives the world over, was not established strongly in India, with higher greater focus being given to borrowing and lending. This lending-centric approach, coupled with poor governance systems has led to dependence on higher financing agencies for resources, recurrent losses, deposit erosion, poor portfolio quality, etc.

While it is true that many of the primary societies are fraught with a range of organizational and managerial issues, especially on the governance front, it is also worth noting that 46,930 of them are profit-making as of 31st March, 2019, with combined profit of Rs. 5,949 crore as per the NAFSCOB data.

## **1.2 Overview of Indian Credit Cooperative**

The fig no. 1 shows the three-tire structure of cooperative societies. The Primary Agricultural Credit Societies (PACS) or Primary Agricultural Co-operative Banks (PACB) are the foundation of a whole co-operative credit structure. District Central Co-operative Bank (DCCB) is working as a federation of all societies. These DCCBs are formed at the district level. These DCCBs are federated to State Co-operative Bank (SCB). The SCB is an apex institution and has a close link with the RBI and NABARD.





**Figure 1: Structure of Cooperative Credit Institutions**

(Source : Report on Trend and Progress of Banking in India, 2003-04-RBI Publications- page no. 97)

For more than a century the cooperatives are working for the development of a community. The cooperative banks have a great contribution to financial inclusion. The Co-operative Credit Institutions in India can be classified as under a three-tier Structure-Primary Credit Societies at the bottom; Central Co-operative Bank at the middle; and State Co-operative Bank at the top.

The Primary Credit Societies (PACS) are functioning in different towns and villages to render credit facilities to farmers and village people. At the district level, the Central Bank is a federation of primary societies in a specified area. Only primary societies are members of Central Cooperative Banks. State Cooperative Banks is working as the top co-operative banking structure. These banks are formed to welcoming deposits from the rich urban classes. These Banks are also serving as channels between the cooperative movement and the joint-stock banks.

The Reserve Bank of India (RBI) assists the co-operative structure by providing concessional finance through the NABARD in the form of General Lines of Credit for lending to agricultural & allied activities. Thus, the whole system is integrated with the banking structure of the country. As per record of government, currently 1367 multistate cooperatives societies are registered.

### 1.3 Status of Primary Agricultural Credit Societies (PACS) in India

Primary Agricultural Credit Societies (PACS) occupy a prime position in the cooperative credit structure and form its base. A PACS is established at the grassroots level of a village or a group of small villages. It is a fundamental unit that works directly with the rural (agricultural) borrowers, gives loans and collects repayments of loans. PAC serves as the link between the borrowers and the higher financing agencies like the SCBS, and the RBI/NABARD.

Many PACs are undertaking various activities like the sale of fertilizers and other agricultural inputs. The core functions of PACs are to provide short and medium-term loans, promote savings, supply agricultural inputs, provide marketing facilities, supply domestic products and to economic interests of the members.

The Graph no.1 indicated that Maharashtra has the highest PACs followed by Uttar Pradesh (8929), Gujarat (8613).

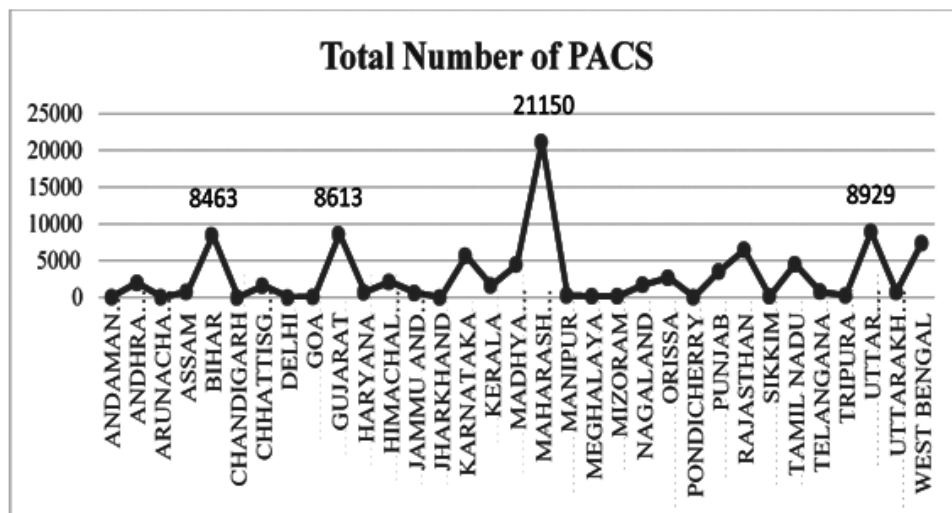


Figure 2 : State-Wise Number of PACs

**Table 1 - Details of Primary Agricultural Credit Societies**

<b>Details of Primary Agricultural Credit Societies</b>	
Total No. of PACS	1,02,559
Total Membership (In '000)	132029.47
Paid Up Share Capital (In '000)	2281655.4
Total Loans & Advances Issued (Amount In Lakh)	20589484
Total Loans & Advs. Outstanding (Amount In Lakh)	11504806
Total Demand (Amount In Lakh)	20390339
Total Collection (Amount In Lakh)	15195052
Total Balances (Over dues) (Amount In Lakh)	5195286
Percentage of Over dues to Demand (%)	25.48
Number of Societies In	
Profit No.	46930
Loss No.	37731
Societies Having Own Godowns (No's)	53601
No. of Villages Covered By PACS	644089
Total No. of Staff	150963
<b>Total Population in the State</b>	<b>1204077.6</b>

The above table 1 represents details of Primary Agricultural Credit Societies working in India. Total number of Primary Agricultural Credit Societies working in India is 1,02,559. These PACS have paid-up capital of Rs. 2281655.4 thousand with a membership of 132029.47 thousand. In the year 2020-21 PACS have lent loans of Rs. 2589484 Lakhs. The PACS have earned profit and 37,731 PACS have reported a loss. 53601 PACS have their own godowns to provide a facility. The PACS are working in 6,44,089 villages all over the country.

#### **1.4 Cooperatives in Maharashtra and Goa**

The following statistics from National Cooperative Development Corporation (NCDC) gives the glimpse of the number of cooperatives in Maharashtra and Goa. The information not only includes details of the PACS but also figures of other cooperatives.

**Cooperatives in Maharashtra (2020-2021)****Table 2 : Category of Cooperative Societies in Maharashtra (2020-2021)**

Sr. No.	Category of Societies	Number
1	State Level Cooperative Organizations (representing Marketing, Dairy Handloom Weavers, Fishermen, Sericulture, Oilseed, Sheep & Goat, Credit and Banking)	5
2	District Central Cooperative Bank	31
3	Primary Agriculture Credit Cooperative Society	21,061
4	Dairy Cooperative union	85
5	District/Central Marketing Cooperative	18
6	Fisheries Cooperative	3,500
7	Consumer Cooperatives Society (wholesale)	128
8	Primary Consumer Cooperatives Society	1,702
9	Cooperative Sugar Mills	202
10	Spinning Cooperative	278
11	Women Cooperative	442
12	Primary Marketing Society	1,162
13	Dairy Cooperatives	14,921
14	Primary Cooperative Housing Societies	98,541
15	Cooperative Lift Irrigation Society	3,151
16	Cooperative industrial Estates	203
17	Primary Industrial Cooperative Society (other than weavers)	4,466
18	Forest Labours Cooperative Societies	261
19	Labour Contract Cooperative Societies	11,006
20	Primary Handloom Cooperative Societies	665
21	Primary Power-loom Cooperative Societies	1410
22	Cotton Ginning and Pressing Societies	83
23	Other Cooperative Societies	424
	<b>Total</b>	<b>1,63,745</b>

Source : NCDC, 2020-2021.

The above table represents category and number of cooperatives present in Maharashtra during the year 2020-21. It can be seen that, there are more number of primary cooperative housing societies i.e. 98,541, followed by primary agricultural credit cooperative societies (21,061), dairy cooperatives (14,921), etc. Primary agricultural credit cooperative societies play a very important role in financial inclusion and dairy cooperatives uplifts the livelihood by providing employment to dairy farmers especially small and marginal farmers and women.

**Table 3: Category of Cooperative Societies in Goa**

Sr. No.	Category of Societies	Number
1	Apex Bank - Goa State Cooperative Bank	1
2	Urban Cooperative Credit Societies	128
3	Consumer Cooperative Banks	85
4	Dairy Cooperative Societies	184
5	Farming Cooperative Societies	16
6	Fisheries Cooperative Societies	23
7	Marketing Cooperative Societies	10
8	Poultry Cooperative Societies	2
9	Processing Cooperative Societies	7
10	Labor Cooperative Societies	13
11	Sangh & Union Federation	3
12	Producers Cooperative Societies	10
13	Self Help Group Cooperative Societies	1405
14	Multipurpose Societies	66
	<b>Total</b>	<b>1953</b>

Source: NCDC, 2020-2021.

Information about category and number of cooperatives present in Goa is presented in the table above. The table shows that, there are 1,405 self-help group cooperative societies in Goa followed by dairy cooperative credit societies (184), urban cooperative credit societies (124) etc.

The following statistics from National Cooperative Development Corporation (NCDC) gives the glimpse of the number of cooperatives Goa.

**Table 4: Number of PACS by Type during 2020-21**

Number of PACS by Type	India	Maharashtra	Goa
<b>Total Number of PACS</b>	1,02,559	20,151	74
<b>Viable</b>	72,548	15,419	67
<b>Potentially Viable</b>	17,997	4,664	3
<b>Dormant</b>	2,341	54	3
<b>Defunct</b>	1,110	14	1
<b>Others</b>	8,563	0	0

**Source :** Indiatat.com (2020-2021).

The total number of PACS present in India during the year 2020-21 was 1,02,559. It is seen from the information above that, Maharashtra has the highest number of PACS, contributing around 19% of total PACS present in India whereas Goa is one of the states where the PACS are less in number.

### **1.5 The Role of Information and Communication Technologies (ICTs) in Cooperatives**

Information and Communication Technologies (ICTs) are defined as technologies that facilitate communication and the processing of information by electronic means, and include everything from: radio, satellite, television to telephones, computers and the Internet. Cooperatives are an identifiable group with an existing community of over a billion people and growing. They have unifying cooperative principles such as democratic member control, cooperation among co-operatives and concern for community which shape cooperatives approach to their members, their business and their communities.

The benefits of ICTs to cooperatives are numerous. Through fully utilizing ICTs cooperatives can cultivate new markets by reaching out to different customer bases on the web, they can keep up-to-date with developments and new innovations and receive training remotely. ICTs can help transform the management of co-ops by improving management practices, financial information and reporting and records management as well as create an online presence. These improvements help increase efficiency and lower operating costs.

The Primary Agricultural Cooperative credit societies (PACS) constitute the lowest tier of the three-tier Short-Term Cooperative Credit (STCC) in India comprising of nearly 13 crore farmers as its members. The PACS account for 41% (3.01 Cr. farmers) of the KCC loans given by all entities in the country and 95% of these KCC loans (2.95 Cr. farmers) through the PACS are to the small and marginal farmers. The other two tiers viz. State Cooperative Banks (StCBs) and District Central Cooperative Banks (DCCBs) have already been automated by the NABARD and brought on Common Banking Software (CBS). However, majority of the PACS have so far been not computerized and still functioning manually resulting in inefficiency and trust deficit. In some of the states, standalone and partial computerization of the PACS has been done. There is no uniformity in the software being used by them and they are not interconnected with the DCCBs and StCBs.

ICT's are vital in the development of cooperatives but there are some challenges to be overcome, namely cost and infrastructure issues relating to access. Although access to telephone communications is now widely available all over the world, many rural communities still don't have reliable access to the internet and mobile broadband. In areas with little or no internet access, awareness of the benefits of ICT is also a challenge and getting smaller cooperatives to bridge the digital divide is important.

## **2. Review of Literature**

### **2.1 Background Information**

Information and Communication Technology (ICT) has taken a center stage in all facets of human interaction in the 21st century; revolutionizing global capital flow, bilateral and multilateral trade, business interaction and social interaction through increased accessibility and transmission of information. At the firm level, the adoption of internet and other communication technologies has enabled businesses expand their market reach, improved the pace of innovation, process efficiency and profitability.

In this information age, successful businesses are those that better harness the power of information technology for superior performance. In this revolution, the need to examine the extent of adoption of ICT and its impacts on cooperative across the globe cannot be overemphasized. Hence, this review of literature will explore the impacts of ICT on businesses, the extent of its adoption and impacts on cooperatives businesses. Sreekrishna T. and Rao N. (2015) described that the problems and prospects of the Primary Agricultural Credit Societies in

Andhra Pradesh with Special Reference to Guntur District. It is assumed that the PACS have multiple issues in order to conduct the investigation on sound lines. Both primary and secondary sources have been used to gather statistical data. A questionnaire has been distributed in an attempt to obtain primary data. Additionally, for the study period, compound annual growth rates (CAGR) were calculated. A study from the time period showed that small farmers contribute the largest proportion of PACS subscription fees. Even though the number of marginal farmers is not negligible, it needs to be drastically increased. In 2003–04, 99.86% of villages were covered, which is the highest number. 91.40 per cent was recorded in the study's last year. Despite being the smallest per cent age, it cannot be seen negatively. The highest simple growth rate for outstanding amount amounts was 610.45% in 2010–11, and it was 15.03 in 2011–12. These numbers indicate that the amount of past due debt is growing, and that it has increased from 2010–11. According to this report, 78.40% (196) of respondents indicated that the loan was insufficient to cover their agricultural needs. They rely on non-institutional sources, to meet their agricultural needs. 130 (66.33%) of the 196 respondents relied on private lenders, 31 (15.81%) on banks, 25 (12.76%) on friends, and 10 (5.10%) on friends. According to the numbers, only 54 respondents (21.60 percent) indicated that the loan was adequate for agricultural purposes. Based on the data, it can be deduced that they are turning to non-institutional institutions for their agricultural needs because the loan amount is not enough to cover their needs. For their agricultural credit, PACS members do not rely on non-institutional organizations. Dr. Yashoda (2017) conducted study on role of Primary Agricultural Co-operative Society (PACS) in agricultural development in India. In this research they have discussed about the objectives, functions, Reasons for Poor Recovery of Loans in PACS and Management, Membership and Share Capital of PACS. The study is based on secondary data. The study also made certain recommendations, such as the need for long-term loans to help PACS manage their financial requirements, it is important to arrange training for the rural unemployed in order to improve and develop self-employment. Farmers should receive the appropriate loan amount at the appropriate time, to encourage farmers, society should adopt simple methods for allocating and recovering loans from them, to improve the deposit mobilization, the society should conduct awareness programs from time to time. This will popularize the different schemes of the society and there by attract new customers and educating the farmers relating to different services provided by society. The study also mentioned



some findings related to PACS. PACS has a significant role in rural finance, and rural credit is mostly concentrated on the agriculture sector. Only short and medium-term loans are offered by the society due to lack of knowledge among the populace regarding the many social initiatives. The participants make a deposit in order to satisfy the banker's demands that they open an account. Members received an insufficient amount of loans in a timely manner. In these societies, fewer people use computers. K. Alok et.al. (2020) conducted study on critical Review on Cooperative Societies in Agricultural Development in India, "A cooperative is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise" (United Nation 2012). As per the research paper, cooperatives are involved in the development of a variety of industries, including agriculture, agro processing, storage, forestry, banking, credit, marketing, dairy, fishing, and housing, and its network reaches 85% of rural families. However, this paper concluded that cooperative societies have the ability to serve as more than just a source of short and medium-term loans; these can also help small and marginal farmers transform agriculture into an agribusiness enterprise by pooling resources to achieve economies of scale. Also infrastructure development, good governance, skill, legislative policy, restrictive guidelines, member's education, market links, skilled staffing, and fair policies can all play a key role in transforming rural cooperatives into dynamic, effective models for farmers' socioeconomic prosperity in rural India.

Bikkina et. al (2018) stated that recovery performance of Primary Agriculture Credit Societies in India: An Assessment, as agricultural credit is one of the most essential inputs in all agricultural development programmes. The latest research examines at how well rural PACS loans are recovering after being distributed in six different Indian regions: the Central, Northern, Southern, Eastern, North-East, and Western. The study was based on secondary data which was collected from National Federation of State Cooperative Banks Ltd. (NFSCB) and Three Tier Short Term Cooperative Credit Structure Expert Committee Report from NABARD. And the analysis is carried out by taking the time period from 2002-03 to 2010-11.

Tripathi et al. (2021) described about good Governance Practices and Competitiveness in Cooperatives: an analytical study of Kerala Primary Agricultural Credit Societies. In terms of financing and rural development, cooperatives are crucial. The descriptive-analytical methodology used in this study makes use of both primary and secondary data. For the field survey, a

multi-stage purposive sampling method was used. The PACS Board of Directors (BoDs) is the respondents. The research study comes to the conclusion that, in the presence of a diversification, participation, accountability, and openness are the effective pillars of cooperative governance, which further results in increased competitive performance of Kerala's PACS. By extracting conclusions from field and desk research, this study evaluated the effectiveness of good governance in the cooperative administration and productivity of PACS in Kerala State. Also study shows that, in the presence of various elements like development activity, marketing intensity, business model, etc., the increase in memberships was significant and beneficial in the study regions that were chosen.

### **3. Research Methodology**

#### **3.1 Research Design**

The research design used is the survey design. The research is designed in such a way that it gives the major people to be interviewed to provide answers to the questionnaires raised by the study. The choice of this design was chosen due to the fact that it is flexible and best suited for gathering descriptive information. Its underlying principles is to seek the opinion of individuals on a particular problem, whereby the consensus of these opinions provides the needed solution to the problem at hand. (Nwogu, 2006).

#### **☞ Area of the Study**

The study commenced as per zones created by the National Federation of State Cooperative Banks Ltd. (NAFSCOB). Six zones were formed by the NAFSCOB, namely Central Zone, Eastern Zone, North-Eastern Zone, Northern Zone, Southern Zone, Western Zone. For this study, a Western Zone was considered. Western Zone consists of three states Goa, Gujarat, and Maharashtra. The total PACs in western zone are 29,052 as per 2019-20 data of the NAFSCOB. Maharashtra state has the highest number of PACs in India (promoted by the NABARD and the State Government) followed by Gujarat state. At India level, Goa state has very less PACS.

The area of the study is credit society in western zone with emphasis on the impact of information technology on Primary Agriculture Credit Societies (PACS). In western zone study was conducted in Maharashtra and Goa state. 14 PACS were selected randomly from Maharashtra and 6 PACS were covered from GOA. In total, 20 registered Primary Agriculture credit Society (PACS) were selected for this research study. PACS from Aurangabad, Nashik and Pune Division of Maharashtra state were selected. The questionnaire filled by

the officials and staff of PACS were administered, out of which reliable information were used for the data analysis after screening.

☞ **Method of Data Analysis**

Descriptive statistics such as frequency, percentage and mean was used to analyze the present Status of record keeping in PACS, Usage of technology in PACS, ICT systems that are currently used by the PACS etc. Binary Logit model was used to determine the factors affecting adoption of IT facilities among the cooperatives.

☞ **The Binary Logit Model**

The Logit regression analysis is an appropriate technique for estimating the probability that an event occur or not by predicting a binary dependent outcome from a set of independent variables (Hoetker, 2007). For example, a PACS may decide to adopt or not to adopt a particular Information technology (IT). The probability to adopt,  $y_i^*$ , is linearly related to a vector of observable variables,  $X_i$  and other unobservable factors, the error term. The linear form of the Logit model is specified as;

$$y_i^* = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \dots + \beta_8 X_{i8} + \epsilon_i \quad (1)$$

When  $y_i^*$  is greater than zero, the PACS decides to adopt the IT. Hence,  $y_i^*$  assumes a value of one (1) when the PACS adopts the IT and zero (0) when it does not. The probability that  $y_i = 1$  is given by;

$$P(y_i = 1 | x_i) = \frac{\exp(\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \dots + \beta_8 X_{i8})}{1 + \exp(\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \dots + \beta_8 X_{i8})} \quad (2)$$

Where;  $\beta$  is the vector of coefficients to be estimated. The dependent variable in this analysis is adoption status of computer system (i.e. adopted or non-adopted) being the major information technology used to gather, process, compute, store, protect, and transfer information. It is also used for internet connections and social media. Positive coefficients mean that the probability of adopting the IT increases with that variable and vice versa. The application of the Logit model is in line with Bassey (2015) among other authors. The regression equation is specified explicitly as;

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \beta_8 X_8 + (3)$$

Where:

$Y_i$  = Adoption of IT (i.e. Use of computer system = 1, otherwise = 0)

$X_1$  = Age of cooperative Official/ respondents (years)

X2 = Education of Official (years)

X3 = Size of cooperative membership (number)

X4 = Experience of Official (years)

X5 = Official's computer literacy (literate= 1, otherwise = 0)

$\beta_0$  = Constant term = Parameters to be estimated (regression coefficient).

$\epsilon_i$  = error term

### 3.4 Results and Discussion

#### 3.4.1 Determinants of Information Technology Adoption among the Cooperatives

The factors determining the use of Information technology (IT) among PACS in the study area were examined by the Binary Logit model. The dependent variable in this analysis is adoption status of information technology (i.e. adopted or non-adopted) that is used to operate the software, internet and social media. The estimates of the analysis are presented in Table 5. The model parameters i.e. chi-square and log likelihood values were significant at ( $P < 0.01$ ).

The estimated coefficient of age (-0.0337) of the officials had a significant negative relationship with IT adoption at  $p < 0.01$ . This implies that age of the officials does not support the use of IT facilities. This may be due to their unwillingness to learning through computer training. Thus, youthful officer are likely to be willing for new training that will favor IT adoption in PACS. Educational level of the official had a positive and significant coefficient (0.2956) at  $p < 0.01$  indicating that higher level of education will promote adoption of IT facilities among the society.

The coefficient of membership (0.0358) significantly influenced adoption of IT facilities at  $p < 0.01$ . The positive sign indicates that an increase in membership will enhance the use of IT facilities by the society through additional funds.

Experience has a positive and significant coefficient (0.0607) at  $p < 0.01$ , implying that appreciable years in cooperative management will encourage effective use of IT facilities. However, the coefficient of Official's computer literacy (0.9399) shows a positive and significant relationship with IT adoption. Thus, adequate knowledge in computer operation is a prerequisite for adoption and effective use of computer system and other related facilities.

H0 : Computer adoption in PACS does not have a relation with education and literacy of staff.

H1: Computer adoption in PACS does have a relation with education and literacy of staff.

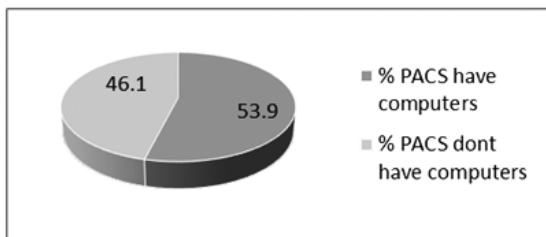
**Table 5 : Binary Logit model for different variables**

Variables	Variables	Co-efficient	t-value	Standard error	Marginal effect
Constant	-	6.1640	9.094	0.6778	-
Age of respondents	X1	-0.0337 ***	-3.310	0.0101	0.3721
Education of Official	X2	0.2956 ***	8.101	0.0364	0.1388
Membership Size	X3	0.0358 ***	4.336	0.0082	0.4299
Experience of Official	X4	0.0607 ***	2.763	0.0219	0.5971
Official's computer literacy	X5	0.9399 ***	3.954	0.2377	0.2192
Chi-square		72.816 ***			
Log likelihood		-255.430			
Pseudo R2		0.7497			

**Source: Field Survey. \*\* Significant at  $p < 0.05$ , \*\*\* Significant at  $p < 0.01$ .**

As per the above table, the independent variable “Education of Official” and “Official’s computer literacy” have a positive effect on the adoption of ICT in PACS. Hence, the null hypothesis is rejected and alternative is accepted.

### 3.4.2 Status of Usage of Computers in PACS



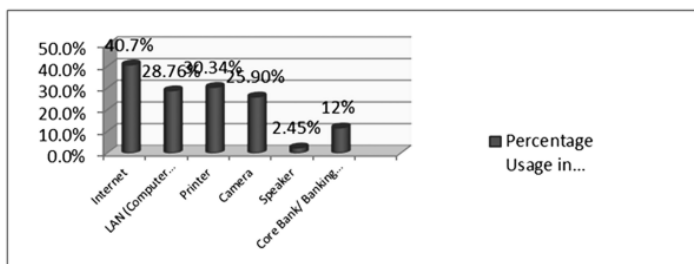
**Chart 1: Usage of Computers in PACS**

As shown in chart 1, only 53.1% PACS are using computers for their day-to-day operations. It indicates that there is huge gap in adoption of computer in PACS. While generally, ICT uptake is lesser in PACS across the region, the usage of computers in PACS in Maharashtra state is less than 52% and that in Goa, it is only 33% comparatively.



**Chart 2: Usage of Hardware in PACS**

While gauging the type of hardware devices used by cooperatives, a common, trend was observed.



**Chart 3: Percentage Usage of Technology in PACS**

As shown in the above chart 3, usage of Internet, LAN and printer at the PACS under study is only at 40.7% and 28.76% respectively. Camera use was increase in the COVID19 period. At present 25.90% of PACS has camera facility in society. Core banking is adopted by 12% PACS. It is safe to say that ICT uptake is low.

### 3.4.3 Examination of ICT Systems that are currently used by the PACS and their purpose

PACS are not new to ICT. However, the degree of exposure differs with the setup, infrastructural availability, cost of ICT, computer literacy, and the structure of the cooperative added to the nature of the PACS's business, among others. They utilize computers for different engagements to keep records for various reasons like to prepare financial statement, to complete the regulatory compliances, to keep transaction records of PACS, to keep monitoring business growth and planning of PACS activities, for annual audit procedure to get auditor report etc. Overall, ICT gears towards process automation. Essentially, ICT increases the group of process automation and reduces the manual intervention. Among PACS, ICT is still at its infancy.

The results of assessment of Information Technology (IT) adoption among the PACS were presented in Table 6.

**Table 6 : Distribution of Cooperatives by Adopted Information Technology**

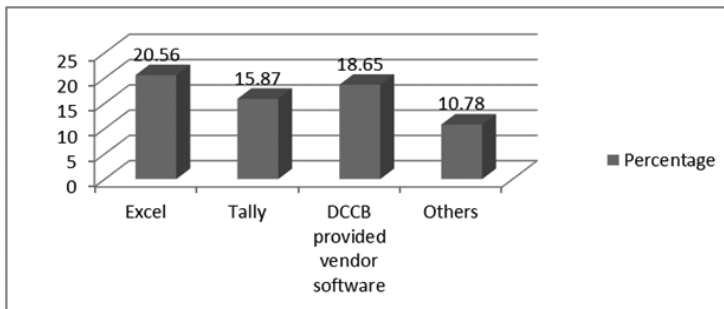
IT Facilities	Adoption (%)
DBMS for managing members' records	3.3.0
Spreadsheet software for computation	5.7.0
Point of Sale (POS)	4.9.0
Office telephone line	84.4 1
Bulk SMS messaging	10.7.0
E-banking	5.7.0
Broadband internet	4.1.0
Social media account/page	14.8.0

**Source: Field Survey.**

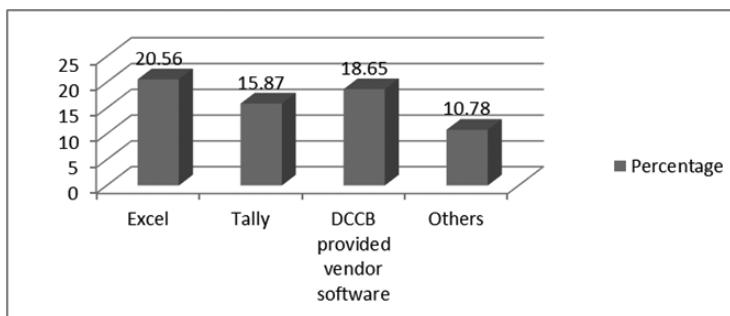
The statistics show that the major IT facility adopted by the societies was office phone line (84.4%). The office phones include mobile handsets used mainly to communicate with members and leaders. About 10.7% of the PACS used the phone to send bulk SMS messages to members while 89.3% did not probably due to high cost of subscription for bulk messages. Only 27.9% of the PACS adopted Database Management System (DBMS) software and spreadsheets for electronic data computation. Similarly, 18.9% subscribed for

broadband internet to provide online information. The data analysis shows that Point of Sale (POS) (4.9%), E-banking (5.7%) and Skype (4.9%) were rarely adopted as IT facilities by cooperatives in the study area. Meanwhile, POS is an important electronic device for receiving payment / subscription. Use of ATM cards makes it possible to withdrawal of cash without visiting a bank. E-banking is useful for online transactions to make payments or transfer money. E-banking will ease payment and security could enhance cooperative performance. Skype software enables voice and video calling. This software provides opportunity and evidence for sharing real life information between a caller and a receiver. But, effectiveness of these IT facilities also depends on the ability of the members and staff of cooperative society to use the technologies.

Chart 4 below represents the type of application software deployed for use across the PACS where it is professed that both “Manual” and “Automated” transaction take place. About 20.56% of PACS are using a excel software for accounting and record keeping purpose, 15.87 % of PACS are using tally for accounting. 18.65% of PACS reported that they are using the DCCB provided vendor software for the transaction automation purpose. 10.78% of PACS could not disclose the type of automation solution PACS are using because either they do not know, or likely, because they do not which one is used.



**Chart 4 : Software Application used in PACS**



**Chart 5 : Status of Maintenance of Hardware and Software in PACS**



The above chart 5 shows the frequency of PACS who does the maintenance of hardware and software. Out of the PACS studied, there are only few, almost 6.66% who does the UPS maintenance and data backup. Majority of PACS who has network connection does the checking on time to time basic. The frequency of operating system update is 15.64% and antivirus update is done by 12.4% of PACS.

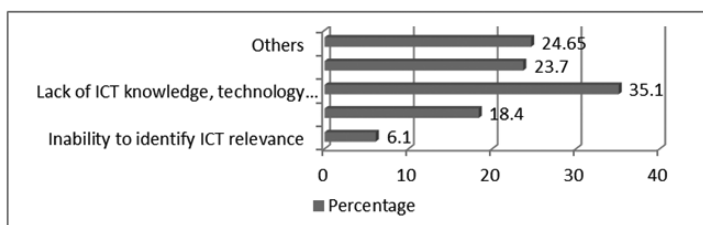
### 3.4.4 Identification of Barriers to Uptake of Technologies by Cooperatives; Critical Pathways & the Impediments

Across the regions, ICT utilization is still relatively low in the PACS of the various economies. In the absence of dedicated core application, what obtains is application of fringe ICT toolkits. When these and generic computer applications are appropriately blended creatively, they could accomplish appreciable result which output far outweighs the best of manual operations and process.

Below are some impediments quoted from the field research :

1. Lack of Airtime, Bandwidth and Internet Due to remoteness of area.
2. Lack of awareness on ICT benefits and how to use it.
3. Members of PACS do not have smart phone.
4. Members have lack of knowledge about the importance of mobile phones and computers.

The following chart no. 6 showcase the barriers to the adoption of workable ICT platform at PACS were identified. 6.1% indicated inability to identify ICT relevance, 18.4% stated that lack of awareness of potential benefits is a barrier to their adoption of ICT for their cooperative operations. 35.1% mentioned lack of ICT knowledge, technology expertise and implementation techniques while 23.7% indicated that perceived cost and, or lack of financial resources. Amongst other barriers stated by some of the respondents in the table tagged “Others” are; inability to identify very suitable ICT platform from vendors, not strong wiliness of principal officers, etc.



**Chart 6 : Barriers in adoption of ICT**

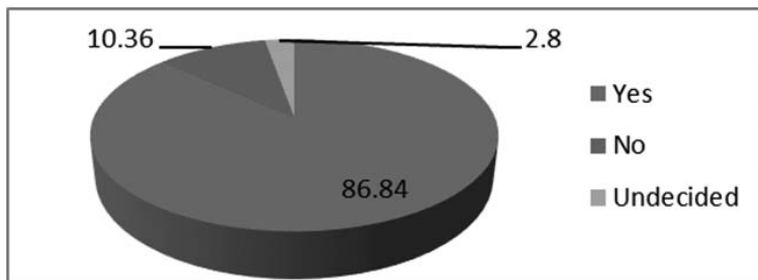
Other barriers identified by respondents include :

1. Inability of the staff to adapt technology.
2. Inability to identify very suitable ICT platform from vendors.
3. Existence of resistance to change in PACS.
4. Comparative low-level of literacy
5. Low computer skills of members and officials of PACS.
6. Prevalence of manual operations and low computerization of the process in PACS.
7. Inadequate leadership to guide towards the adoption of record automation.

### Identification of Training Needs

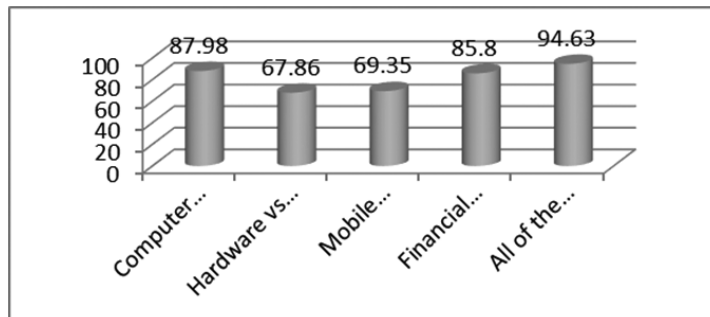
Responses elicited from respondents across various strata of the PACS underpin the importance of training for a successful computerization solution adoption and utilization. Respondent mentioned an array of training which includes:

1. Training on computer appreciation;
2. Training about hardware vs. software;
3. Training on mobile phones uses;
4. Training on financial and accounting system in software; and
5. Training in database management system.



**Chart 7 : Training Needs of PACS**

Chart no.7 above is a reflection of findings from the field on the need for training. There is 86.84% training demand across various strata of the PACS, while 2.8% are undecided.



**Chart 8: Nature of Training Needs by PACS**

Chart 8 represents requests for specific training which is deemed important by members to aid the adoption of workable ICT. 87.98% of the PACS have in need of computer network training. 67.86% of the staff has in need of hardware vs. software training. 69.35% of the staff has opted for Mobile phones and their uses training, 85.8% of above PACS staff indicate the need for training in Financial Accounting and 94.63% of PACS show inclination towards the need for training in all different areas. Some PACS have reported the need for training on Database Management Systems.

Across the PACS, it is pertinent to conclude that training will lead to facilitating the adoption of ICT.

### Findings of the Study

- ☞ As per the Binary Logit model, the education level of official and literacy of the staff effect the adoption of ICT in PACS.
- ☞ Findings show that manual operation is rife in PACS across the study area. It indicates that there is huge gap in adoption of computer in PACS. While generally, ICT uptake is lesser in PACS across the region, the usage of computers in PACS in Maharashtra state is far better than the Goa state comparatively.
- ☞ It shows high manual operation in the society's administration and further survey reveals that majority of the PACS data are manual. Data is locking in away in aged ledgers that are neither readily accessible, nor easily convertible in time to grab the opportunity. The solution of the manual mode of operations is automation of major processes through user-friendly ICT. Such automation will reduce error in data recording, increases transparency, improvise the efficiency of management and governance, and allows retrieval of data with just a click.

- 
- ☞ The usage of Internet and LAN uptake at PACS is low. The degree of existing ICT lacks the robustness and flexibility required to manage a dynamic sector if it truly desires to meet the challenges of emerging in members' inclusive and exclusive needs, when and how to be served, timely.
  - ☞ The degree of exposure differs with the setup, infrastructural availability, cost of ICT, computer literacy, and the structure of the cooperative added to the nature of the PACS's business, among others. Among PACS under the study, ICT is still at its infancy. The statistics show that the major IT facility adopted by the societies was office phone line followed by computer system. The use of Database Management System (DBMS) software, Point of Sale and Broadband internet to provide online information was low. The low level of adoption might also be attributed to low level of finance for subscription or lack of adoption policy.
  - ☞ Computerization of PACS, will serve the purpose of financial inclusion. It will lead to strengthening service delivery to farmers especially Small & Marginal Farmers (SMFs) also will become nodal service delivery point for various services and provision of inputs like fertilizers, seeds etc. The project will help in improving the outreach of the PACS as outlets for banking activities as well as non-banking activities apart from improving digitalization in rural areas.
  - ☞ For accounting and record keeping purpose, excel software was used majorly followed by the DCCB provided vendor software for the automation purpose. This explains that PACS in Maharashtra and Goa are yet to adopt full automation of their processes. It is also an indication that the available ICT tools in PACS have not been sufficiently sweated for desired result.
  - ☞ While examining the prevailing ICT systems currently used and the purpose for their use, it was observed that most of the PACS accept basic utilities available. Most of the PACS that practice mediated operations as opposed to manual operations use Accounting Application. While the use of Accounting Application alone may not be sufficiently robust to meet the requirements, information management application conceived and developed for PACS will go a long way in alleviating administrative challenges and strengthen the fabrics of transparency and accountability.

- ☞ Adequate knowledge in computer operation is a prerequisite for adoption and effective use of computer system and other related facilities. Lack of ICT knowledge, technology expertise and implementation techniques; perceived cost and lack of financial resources were the major issues identified through the study. Amongst other barriers stated by some of the respondents is inability to identify ICT relevance, inability to identify suitable ICT platform from vendors, etc; has found as challenges in adoption of ICT.
- ☞ Responses elicited from respondents across various strata of the PACS underpin the importance of Training for a successful cooperative solution adoption and utilization. The high rate of training request may be indication of the users is willingness to update their knowledge about ICT. It is important to note that, success or failure of any society will depend largely on the members' perception of their ability to use the platform. Specific training which is deemed important by members to aid the adoption of workable ICT is "training on Computer Network". "Training on Hardware vs. software" and "Training on Mobile phones; Uses training".
- ☞ Thus, it is imperative for cooperative management to adopt or increase their level of use of Information Technology (IT) so as to increase the financial performance and their impacts on economic development. Meanwhile, the high cost of procurement and maintenance, low level of computer literacy and low membership were the major constraints confronting the adoption of information technology by society. Therefore, PACS should ensure the fund availability to investment in IT facilities and updating.
- ☞ Overall, the adoption of ICT for data and process automation is relatively low, even though data and process automation possess a lot of advantages which can enhance the society's operations. It is also an indication that there is scarcity of flexible software that can cater for the variety of needs existing in the PACS. A major barrier cited for slow uptake of ICT is the perceived cost and lack of financial resources. To encourage the adoption of ICT, stakeholders are advised to facilitate the availability of ICT solutions at an affordable cost to PACS.

## 4.2 Recommendations

- ☞ Based on the above findings, it is recommended that members of PACS need to make awareness about importance of ICT in credit

business. State Government and the cooperative unions should ensure implementation of cooperative education as a principle to include computer training of managers / staff particularly in the use of DBMS, electronic spreadsheet and other software. The NIC should facilitate regarding the training, as they have office in every district. In addition, adoption of those IT facilities which should be listed by inspecting office should become a policy in the bye-law. The duration of adoption could be within 10 years which should also be clearly stated.

- ☞ Locally, CSR funds of corporate can be invited for computerization of PACS. As a part of CSR, companies can take up the responsibilities of training and maintenance.
- ☞ Similar to E-Shakti or Digitization of SHGs initiative by the NABARD, the DCCBs can enroll themselves as one of the important options for taking up various government schemes (where credit and subsidy is involved) which can be implemented through PACS.

The above recommendations, if implemented, will go a long way in reducing or eliminating many problems confronting cooperative development in the study area and in the country as a whole.

### 4.3 Conclusion

ICT adoption has been growing, different applications and technologies have been adopted by some PACS to control costs, create efficiency and effectiveness in their operations, improve productivity, and increase outreach to the members. Some PACS are appreciating the benefits associated with ICT and in particular increased efficiency, improved service delivery, improved operational performance among many others. There has been barriers to ICT usage such as high costs of qualified personnel, high value added tax, and high costs of ICT equipment's and services that must be brought to the attention of the practitioners and policy makers for action so that ICT may continue influencing positively to the PACS operations.

### References

- ☞ Babu, S. (2020). Pathargama Primary Agriculture Credit Co-Operative Society a Case for Intense Study With Respect Transformations Brought by Vaidyanathan Committee Recommendations in PACSs. In International Conference of Advance Research & Innovation (ICARI).

- 
- ☞ Bassey, N. E., Edet, M. E. and Okeke, C. C. (2015). Determinants of Off-Farm Labor Supply among Farming Households in Akwa Ibom State, Nigeria. *Agricultural Science*, 3 (1): 31–40
  - ☞ Butler, R. D. (2022). Exploring the Social Media Platforms and Online Communication Channels Utilized Among Agricultural Commodity Cooperatives in Texas (Doctoral dissertation).
  - ☞ Devi Sekhar, R., & Vijayan, S. (2021). Productive Efficiency of Primary Agricultural Credit Societies in Kerala, India. *NVEO-Natural Volatiles & Essential Oils Journal| NVEO*, 8032-8040.
  - ☞ Dr. Yashoda. (2017). Role of Primary Agricultural Co-Operative Society (PACS) in Agricultural Development in India. *Global Journal of Management And Business Research*, Volume 17, Issue 3, Version 1.0.
  - ☞ Fu, X., & Polzin, C. (2008). Do Modern Technologies Work for the Rural ICT and Rural Credit Institutions in India?.
  - ☞ Fu, X. (2013). Computerisation and efficiency of rural credit cooperatives: evidence from India. *Journal of international development*, 25(3), 412- 437.
  - ☞ Hanitra, R. L. (2012). Cooperatives and the Role of Information and Communication Technologies (ICTs). United Nations Headquarters, New York.
  - ☞ Hoetker, G. (2007). The use of logit and probit models in strategic management research: Critical issues. *Strategic Management Journal*, 28(4): 331-343.
  - ☞ Karthikeyan, K. (2021). A Study on Financial Statement Analysis of Primary Agricultural Cooperative Credit Society in Paiyanoor Branch at Chengalpattu District. *ComFin Research*, 9(3), 37-43.
  - ☞ Lokeswari, K. (2016). A study of the use of ICT among rural farmers. *International Journal of Communication Research*, 6(3), 232.
  - ☞ Mohit Kumar and Mehta, V.P. 2018. Performance and Prospects of Primary Agricultural Credit Societies (PACS) in Haryana during 2000-01 to 2014-15. *Int.J.Curr.Microbiol.App.Sci.* 7(04): 20- 32
  - ☞ Misra, B. S. (2006). Performance of primary cooperatives in india : an empirical analysis.
-

- ☞ Naithani, V., Kumar, B., & Prajapati, V. P. Challenges and Opportunities in Employing the Financial Technologies by PACS in India-A SWOT Analysis.
- ☞ Nayak, A. K. (2016). Farmer producer organizations in India : Policy, performance, and design issues. In *Organised Retailing and Agri- Business* (pp. 289-303), Springer, New Delhi.
- ☞ Oyebanjo, O., Ologbon, O. A. C., Oshodi, D. A., Oluwasanya, O. P., & Dada, O. M. (2020). Adoption of Information Technology and its effect on Cooperative Performance in Egba Division, Ogun State, Nigeria. *KIU Journal of Social Sciences*, 6(2), 343-352.
- ☞ Patel, S. (2019). Role and opportunity of ICT in co-operative sector. Book chapter in *Cooperatives for Sustainable Rural Development* Publisher : Reliable, Ahmedabad.
- ☞ Rao, G. N. A Study on Problems and Prospects of the Primary Agricultural Credit Societies in Andhra Pradesh with Special Reference to Guntur District\* Dr. Talluri Sreekrishna.
- ☞ Report of the Expert Committee to examine Three Tier Short Term Cooperative Credit Structure (ST CCS).
- ☞ Satchidananda, S. S., & Srinivasa, S. (2004, October). An ICT based framework for improving rural credit delivery. In *Asian Applied Computing Conference* (pp. 279-286). Springer, Berlin, Heidelberg.
- ☞ SKM, T. Critical Review on Cooperative Societies in Agricultural Development in India.
- ☞ Soni, A. K., & Saluja, H. P. S. (2012). Role of Cooperative Bank in Agricultural Credit: A study Based on Chhattisgarh. *Abhinav Journal of Research in Commerce & Management*, 1(10), 106-113.
- ☞ Tripathy, K. K., Paliwal, M., & Nistala, N. (2021). Good governance practices and competitiveness in cooperatives: An analytical study of Kerala Primary Agricultural Credit Societies. *International Journal of Global Business and Competitiveness*, 16(2), 153-161.

### List of PACS under Study:

#### Goa

- ☞ Sattari Taluka Farmer Service Co-op Society, Ltd, Valpoi, Sattari, Goa
- ☞ Shri Mahalakshi VKSS Ltd., Netravalli- Sanguem, Goa 403704



- ☞ Dhanbandara VKSS Society Ltd, Dharbandara, Goa, 409406
- ☞ Savoi Verem VKSS Society Ltd., Saiveram, Ponda, Goa- 403107
- ☞ Konxem Nirankal VKSS Society Ltd., Nirankal, Ponda, Goa
- ☞ Arpora Nagao MP Cooperative Society Ltd.

### **Maharashtra**

- ☞ Bhatkudgaon Vividh Karyakari Seva Sahakari Sanstha Ltd., At.Bhatkudgaon, Taluka Shevgaon, District. Ahmednagar.
- ☞ Sultanpur Vividh Karyakari Seva Sahakari Sanstha Ltd., At.Post. Sultanpur, Taluka Shevgaon, District. Ahmednagar.
- ☞ Hatgaon Vividh Karyakari Seva Sahakari Sanstha Ltd., At.Post. Hatgaon, Taluka Shevgaon, District. Ahmednagar.
- ☞ Dahigaon ne Vividh Karyakari Seva Sahakari Sanstha Ltd., At. & Post.Dahigaon ne, Taluka Shevgaon,
- ☞ Malichinchora Vividh Karyakari Seva Sahakari Sanstha Ltd., At. & Post.Malichinchora, Taluka.Newasa, District.Ahmednagar. Pin Code-414 602.
- ☞ Utkarsh Nagari Sahakri Patsanstha Mydt, Ganpati Society, Wai, Dist Satara
- ☞ Dnyanganga Sahakari Patsanstha Ltd.,Shree Commercial Complex, Shop No. 19, Kisanveer Chowk, 433, Motha Pul, Dharmapuri, Brahmansahi, Wai, Maharashtra 412803
- ☞ Walluth Vividh karyakari Sewa Sahakari Sanstha, At & Post Kudal, Tal Jaoli, Satara-415514
- ☞ Raangeghar Vividh Karyakari Sahakari Sewa Sanstha,At&Post Raangeghar, Tal Jaoli, Satara-415514
- ☞ Rajegaon Vividh karyakari Sahakari Sanstha, Ghansavangi, Jalna
- ☞ Rahera PACS, Ghansapangi, Jalna
- ☞ Shri Vishnu VKSS, Navekhed, Tal. Walwa, Dist. Sangli
- ☞ Pimparkhed Vividh karyakari Sahakari Sanstha, Ghansavangi, Jalna
- ☞ Mandavgan Phata Vividh Karyakari Seva Sahakari Society Maryadit, Shirur, Maharashtra



## Evolution, Functioning and Analytical Study of Loans Advanced by Long Term Cooperative Credit Structure in Gujarat

V. M. Chaudhari <sup>1</sup>

Mayuri Farmer <sup>2</sup>

### *Abstract*

*Rural Cooperative Credit system in India evolved into two separate streams for short term credit & long-term credit. Gujarat State Cooperative Agriculture & Rural Development Bank (GSCARDB) was established in 1951 in the erstwhile State of Saurashtra which was registered as Saurashtra Central Cooperative Land Mortgage Bank Ltd. with its registered office at Rajkot. Peculiar circumstances responsible for the establishment of this bank were the necessity to have credit agency to provide loan to tenant cultivators to enable them to purchase occupancy rights over the land tilled by them under the Saurashtra land reforms Act 1949. On formation of separate State of Gujarat in 1960, the jurisdiction of this bank was extended to whole Gujarat. The name of the bank was finally re-styled appropriately to the present one since 1990. This bank is popularly called as Kheti Bank. The bank is registered under Gujarat State Cooperative Societies Act.*

*The objectives of the paper are: to present the evolution and functioning of the LTCCS-SCARD Bank in Gujarat and make an analytical study of loan advanced by Long Term Cooperative Credit Structure in Gujarat. This paper is based on the secondary data. The study period is 2010-11 to 2020-21. The bank needs to chalk out suitable and time bound viability action plans to focus attention towards improving the recovery performance for reducing overdue & NPA. Bank requires urgent need of reforms to address deficiencies in its design as a non- resource-based institution with the only business of providing term loans to farmers. The GSCARD Bank is required to bestow immediate attention for taking corrective steps to tackle the above major areas of concern for up scaling the business and financial performance.*

**Keywords :** *Evolution, Agriculture, Cooperative, Loans, Farmers, Analytical, Long-term.*

<sup>1</sup> Joint Managing Director, GSCARD BANK, Ahmedabad.

<sup>2</sup> Head, Centre for Studies in Rural Management, Gujarat Vidyapith, Randheja Campus, Gandhinagar, Gujarat

## 1. Introduction :

Agriculture is a key sector in terms of its contribution to both employment and GDP. Agriculture is the primary source of livelihood for about 42% of population. Improved access to inputs such as fertilizers and seeds, as well as better irrigation and credit contributed to a higher average annual growth rate in recent years. The average annual growth rate remained at around 2.88% during 2014-15 to 2018-19 though with high volatility in different years. During 2020- 21 agriculture with a growth rate of 3.4% remained the only sector in the economy which did not contract on account of covid19 impact.

However, India's agriculture sector while employing 42 % of country's work force accounts only for around 17% of the economy. However, in 2020- 21 with significant contraction in other sectors, share of agriculture in GDP touched 20 % after a gap of 17 years.

Agricultural policies in India are designed and implemented by a complex system of institutions consisting of Central and State Governments, public agencies such as RBI, NABARD, etc. Constitutionally agriculture is a state subject. But Central Government plays an important role in policy formulation at national level and funding State Governments for implementing such policies and programs. Timely availability of adequate credit is fundamental for the success of farming activities. The agricultural credit flow target for the year 2019-20 was fixed at Rs.13,50,000 crores and against this target the achievement was Rs.13,92,469.81 crores.

Historically, farmers in India are resource poor who depend heavily on borrowings to facilitate production and smoothening of consumption pattern. Institutional credit was virtually absent till the end of 19th Century though farmers occasionally were given loans by the Government, especially during drought years. The idea of forming Cooperative Societies to give loans to farmers came only in the beginning of 20th Century. This thinking finally resulted in the enactment of Cooperative Credit Societies Act in 1904. Cooperatives gradually became an important source of agricultural credit throughout the country. Rural credit also received the continuous attention of the Government in the early part of 20th Century. The original Cooperative Societies Act 1904 was amended in 1912 to give legal recognition to Cooperative Societies. Establishment of Provincial Cooperative Banks, resulting in the creation of 3-tier Cooperative credit structure was another important development during this period. The operations under this 3-tier credit cooperatives structure however, confined to short term loans. At the same time, farmers were in need of long term loans to

free their land from prior debts, which claimed a major portion of crops they produced by way of interest on such debts.

### **Banking and Financial Sector Profile of Gujarat**

The total geographical area of Gujarat is 196024 sq. km. It has 33 districts and 250 tehsils. It falls in the 13th Agro climatic zone, which is further divided into eight sub-zones. Gujarat has network of 33 Commercial banks (12 public sector banks and 21 private sector banks), two Regional Rural Banks, one State Co-operative Bank, 18 District Central Co-operative Banks, one State Co-operative Agriculture and Rural Development Bank, six Small Finance Banks, one Payment Bank and a number of Urban Cooperative Banks. As on 31st March 2021, total number of branches of all banks excluding Urban Cooperative Banks (UCBs) was 9959 comprising of 3607 rural, 2335 semi-urban, 4017 urban & metro branches.

### **Objectives of The Study**

In the above context, the objectives of the paper are:

- ☞ To present the evolution and functioning of the LTCCS-SCARD Bank in Gujarat.
- ☞ Analytical study of loan advanced by Long Term Cooperative Credit Structure in Gujarat.

### **Methodology**

This study evaluates and analyzes the financial position and performance of credit disbursed by GSCARD Bank. This paper is based on the secondary data which are collected from annual reports of the GSCARD Bank. In addition official website of the bank was also referred to know history, growth, working and performance of the bank. Bulletins released by bank were also considered as a part of data collection. The data collected are of the GSCARD Bank for the year 2010-11 to 2020-21 to study the financial position of the bank for last eleven years. Annual data for the year 2020-21 were collected to know District wise loan disbursed, DCB position, recovery percentage and deposit mobilization. Purpose wise overdue and year wise overdue is as on 31st March, 2021 position.

### **Evolution of LTCCS**

Rural Cooperative Credit System in India evolved into two separate streams for Short Term credit and Long Term credit. The Long-Term Cooperative Credit Structure had its beginning in the early 1920s with the establishment

of Land Mortgage Banks to provide long term loans to farmers to redeem debts on land. The first Land Mortgage Bank was established in 1920 in Punjab followed by establishment of a large number of such banks in all provinces. The first Central Land Mortgage Bank started functioning in Madras to centralize the issue of debentures and to coordinate the working of Primary Land Mortgage Banks. The Bombay Banking Enquiry Committee (1930) mentioned about the inadequacy of resources of primary credit societies to undertake long term lending and advocated formation of Land Mortgage Banks to meet long term credit needs of farmers. The 1930s and 40s witnessed mushroom growth of Land Mortgage Banks throughout the country without any uniform pattern with regard to their size and operations. The All India Rural Credit Survey Committee recommended reorganization of Land Mortgage Banks with a State level apex body and Primary Land Mortgage Banks at tehsil level affiliated to it. The Committee also recommended diversifying their operations into investment credit for agriculture. Central Land Mortgage Banks were established in almost all states during the II five-year plan which came to be known as State Cooperative Land Development Banks which were renamed as State Cooperative Agriculture & Rural Development Banks (SCARDBs) with further diversification into rural non-farm sector in the 1980s.

The contributions of Agriculture & Rural Development Banks (ARDBs) to the development of Indian agriculture have been quite significant in the post- Independence era. The ARDBs played a very important role in improving the productivity of land especially through development of minor irrigation and facilitating farm mechanization in the 1960s and 70s. While continuing to promote capital formation in agriculture, these banks started financing rural non-farm sector projects in a big way in the 1980s and 90s which helped rural families to increase their incomes substantially through value addition to their produce apart from providing opportunities for alternate employment. It will not be out of place to mention that till the 1980-90 the ARDBs were effectively the only banks which were engaged in providing investment credit for agriculture. The role of the commercial banks was limited primarily to financing corporate sector in plantation, commercial poultry and dairy units.

The Long Term Cooperative Credit Structure comprises of the SCARDBs in 16 States operating either through their own branches at ground level or through Primary Agricultural and Rural Development Banks affiliated to the state level Apex. In Andhra Pradesh, the SCARDB was merged with Andhra Pradesh State Cooperative Bank in 1995 to form an integrated structure. Chhattisgarh

State Cooperative Agriculture & Rural Development Bank was also merged with Chhattisgarh State Cooperative Bank in October 2014. In most of the states formed after 1960, State Cooperative Banks also perform investment credit operations in agriculture and rural sectors in the absence of separate structure for Long Term credit.

### **Historical Background and Working of LTCCS - GSCARD Bank in Gujarat**

This Bank was established by Late Shri Udaybhansinhji (Yuvraj of Porbandar state) in the year 1951 with its Head office at Rajkot in the erstwhile state of Saurashtra for providing loans to tenants/farmers for redemption of prior debts. The name of the bank at the time of its inception was The Saurashtra Central Co-operative Land Mortgage Bank Ltd., Rajkot. Its jurisdiction was confined to the state of Saurashtra consisting of 5 districts. Saurashtra was merged with Bombay state in 1957 but this bank continued to work as separate institution even in the bigger bilingual Bombay State but its area of operation was limited to the region of Saurashtra only.

Peculiar circumstance responsible for the establishment of this bank were the necessity to have banking agency to provide loans to tenant cultivators to enable them to purchase occupancy rights over the land tilled by them under the Saurashtra Land Reforms Act of 1949. In the initial stage of lending, this bank provided loans amounting to Rs.2640 million to nearly 56000 tenant cultivators, which enabled them to become owners of the land that had been filled by them for years. Consequent upon the bifurcation of Bombay state and on formation of separate State of Gujarat in 1960, this bank extended its jurisdiction to the whole of Gujarat State in 1961. In this context the name of the Bank was changed to Gujarat State Co-operative Land Mortgage Bank Ltd. Ahmedabad to confer the jurisdiction suitably to cover whole of Gujarat. Thereafter, the name of the bank was changed in 1965 to correlate its activities from “mortgage banking to developmental banking” for land improvement and accordingly the name “Gujarat State Co-operative Land Development Bank Ltd.” was adopted from 1965.

In the eighties, the bank has started financing for non-farm sector and such other activities allied to rural development. Therefore, the name was finally restyled appropriately to the present once since 1990 and currently known as “Gujarat State Co-operative Agriculture and Rural Development Bank Ltd.” (GSCARDB). This bank is popularly called as Kheti Bank. (Website: [www.khetibank.org](http://www.khetibank.org))

## **Organisational Structure**

This bank is an apex institution in the co-operative sector in the State of Gujarat for providing investment finance for the development of agriculture and allied activities. It has adopted unitary structure and does its business through the network of branches numbering to 176 as credit delivery outlets. It has got 17 district offices to control the working of branches and to ensure the advantages of decentralized administration. Its registered office is at Ashram road in Ahmedabad, Gujarat. This bank has head office at the state level and branches at each tehsil headquarter. Head office functions through seventeen district offices located at district headquarters.

## **Legal Entity**

This bank was registered as a co-operative institution to provide long term agricultural loans to farmers under the provisions of Bombay State Co-operative Societies Act of 1925. Thereafter it was re-registered under Gujarat Co-operative Societies Act, 1961 which repealed Bombay Act. Bank has got its own by laws approved by the Registrar of Co-operative Societies for managing its internal affairs and the same are amended from time to time as per needs. Thus, this bank is body corporate under the law.

## **Organisational Management**

Responsibility of administration and management is vested in a Board of Directors composed of 22 members, 17 are elected by the representatives of members of the Bank one each from 17 Districts and 3 Directors are State Government nominees including Registrar of Co-operative Societies (RCS) – Gujarat State, one representative of State Co-operative Bank and the Managing Director of the GSC ARD Bank. Thus, total numbers of members of the Board of Directors are 22. This Board meets quarterly to decide policy affairs of the bank. Different Committees have been formed from amongst the members of the Board such as Executive Committee, Loan Committee and Administrative & Staff Committee, Audit Committee, etc. These Committees meet as and when required for the work delegated to them. Managing Director of the bank is appointed by the board in consultation with the State Government. He is the Chief Executive of the bank and an ex-officio member of the Board of Directors. Term of office of the members of the Board of Directors is for the period of 5 years and a new board is constituted on the expiry of the term. Bank is equipped with administrative machinery consisting of senior management, middle level management and junior level staff of different categories posted at head office, district offices and branch offices of the bank.

### **Branch Committees**

As the structure of the Bank is unitary, Branch Committees are also formed at each branch to control and guide the affairs of the branch. It is composed of elected members among the Shareholders of branch. Term of office of these committees is for a period of 5 years. The number of members of branch committee ranges from 4 to 8 depending on number of Shareholders of branch. These committees are useful to avail the benefits of local leadership and it is essential in democratic framework of an organization. This bank derives the benefits of local leadership as envisaged in a federal structure.

### **Membership and General Body of the Bank**

Membership is open to all individuals who intend to take loan from the bank. Institutional membership is also allowed to firms, societies, co-operative institutions etc. if they desire to take loan for the development of agricultural and allied activities. Bank gives loans only to its members and hence, non-borrowing membership is not allowed. Generally, the members of co-operative institutions constitute its general body but the General Body of this Bank is representative one which is composed of delegates who are elected by members of the Bank. These delegates numbering 500 as fixed by the by-laws of the Bank are elected branch wise from amongst the members of the bank enrolled at branch membership register. Term of office of the delegates to general body is for the period of 5 years. District Directors to the Board are elected by the Electoral College composed of elected delegates from the District. Thus, directors of the bank are indirectly elected by the members of the Bank at large.

### **Loan Policy and Project Approach**

Bank has adopted production oriented loaning system and it gives loans only for productive purposes since 1954 which enables the farmers to get sustained rise in his farm output. Bank grants loans to farmers if the loan proposition is found economically viable and technically feasible. Loans are approved on the basis of repaying capacity arrived at after considering the economic feasibility of loan proposition by calculating the net incremental income expected to be generated from the proposed development on land under project approach. Various norms have been evolved to judge the repaying capacity and economic feasibility per hectare of land for a given proposition. Such norms save time in appraising individual loan application and maintain uniformity also. If the loan proposal involves big amount such as loaning for tube well, tractor, lift



irrigation, market-yard, etc. individual appraisal is made to judge the economic feasibility without resorting to norms. Bank gives loans for about 61 different broad purposes of loan-all for the development of agriculture and allied agriculture activities. The Bank also gives loans for non-farm sector which includes loaning to rural artisans, handicraft, etc. Loan for rural housing, medium term Krishi Vikas Loan, Cash Credit Loan are also available to farmers. Period of loan is decided on the basis of economic life use of the assets created out of loan coupled with repaying capacity of the intending borrower as per guidelines received from NABARD from time to time. Security of loan is mortgage of agriculture land and or assets created by loan.

### **Loan Sanctioning Procedure**

Intending borrower submits his loan application in a prescribed form duly filled & signed with copies of necessary revenue records and other required papers to the branch concerned under whose jurisdiction his land is situated. Thereafter the spot inspection is carried out by Branch Manager/ Supervisor to verify the nature of proposed improvement, economic feasibility and technical viability, repaying capacity of applicant and title of the land to be taken as mortgage. Branch Manager / Supervisor if satisfied about all these aspects for loan approval, recommends the loan to be sanctioned to Branch Committee which recommends it and forward such loan cases to District Loan Committee for final sanction. After getting sanction from the District Loan Committee, the applicant is informed about the terms of sanction and loan amount is disbursed after the mortgage deed is executed. Bank gives payment of loan directly to the dealer, suppliers of machinery, the contractors who carry out the work or to borrowers after verifying the bills to ensure proper utilization of loan. More over after the loan is disbursed the end use is verified by conducting re-inspection to ensure its proper utilization. Generally, the loan application is disposed of within 15 to 21 Days. The Bank has simplified its loan procedure from time to time and powers of sanction are also decentralized by conferring the same to District Loan Committee since 1976.

### **Recovery Procedure**

Bank's loan was recovered by annual equated installment comprising of principle as well as interest but since 1988 it was replaced by annual equal installment. Due date for repayment of yearly installment is fixed on the basis of harvesting time of crops and accordingly 31<sup>st</sup> January is fixed for those loaners taking Kharif crop while 31<sup>st</sup> March is kept for those borrowers who are taking

Rabi crops. Now, uniform due date is fixed as 31<sup>st</sup> March for yearly installments. 31<sup>st</sup> May and 30<sup>th</sup> November is fixed as due date for half yearly installments (KVL-NFS loans). The Demand statements are prepared every year or half yearly at the branch level and demand collection notices are issued to each loaner well in advance before installments due date. Many loaners are regular in their repayment while, some of them are to be contacted to persuade them to repay due installment by launching recovery drive. If the loaner does not repay the yearly installment on or before due date, he / she becomes defaulter and legal action can be taken against him under the provisions of Gujarat State Co- operative Societies Act. There are mainly two provisions to collect recovery under the Act. One provision is sell of mortgaged properties by special recovery officer (SRO's) as well as forfeiture of other movable property and its auction by revenue authorities on the strength of certificate issued by District Registrar to recover the defaulted amount as arrear of land revenue. Another provision is sell of mortgaged property after following due procedure of auction by bank's own staffs who are delegated the powers of sales officer. As the Bank is financing for agricultural and allied agricultural activities which is mostly dependent upon vagaries of nature, the repayment of loan naturally becomes uncertain. There are many reasons for the default in loan repayment and there by the increase in overdue. Recovery is a combined effect of various factors' such as drought, natural calamities, poor rural economy, willful defaults, lack of supervision and no timely contact with the borrowers, in fructuous investment, misutilization or underutilization of loan, defective lending system, non-remunerative price of agricultural produce, lack of coordinated recovery drive, etc. Bank is doing its utmost to recover defaulted loans and to tackle the problem of overdue for smooth recycling of fund.

### **Financial Resources**

Bank raises its financial resources by availing refinance from the NABARD in the form of loan. Other source of fund is share capital which is subscribed by Bank's loaned members. It is compulsory for the loaner to hold banks share to tune of 5 per cent of loan amount. Bank also accepts fixed deposits to raise its fund. Generally, Bank finds no difficulty in raising the resources but it has to work in accordance with the financial discipline as imposed by RBI/ NABARD and to take utmost care to ensure the recycling of scarce financial resources. Bank raises funds from the NABARD through Loan system as refinance for the 5 years against State Government guarantee. Bank may also avail Loan from NABARD through pledge of fixed deposits receipt in absence

of Government Guarantee. Balance of the proportionate matching contribution is given by Government of India & Government of Gujarat in the form of Debentures. Recovery of loans also contributes to the financial resources of the bank.

### **Fixed Deposit Scheme**

The Bank has introduced the scheme of accepting term fixed deposits from 1991-92. Bank accepts deposits from public, members, societies, trust. 0.50% additional interest is given to the employees of the Bank & senior citizen on their fixed deposit in the bank. Bank disburses loan to the farmers against mortgage of their agricultural land. Thus, the fixed deposits mobilized by the bank are fully secured.

### **Supervision - Inspection & Audit**

Bank has got its own inspection department at Head office to supervise the working of the branches. Moreover, district offices also carry out the half yearly inspection of branches. The NABARD conducts voluntary inspection of the Bank every year and issue inspection report along with findings with reference to financial position of the banks to strengthen the performance of bank. Concurrent audit of the banks head offices, district office & branches is conducted by Joint Registrar (Audit) on quarterly basis. Audit of the bank is also conducted by Chartered Accountant firm among the NABARD's approved panel.

### **Loan Purposes - GSC ARD Bank gives loan to the farmers for following broad purposes**

Construction of new well / repairing- Deepening of old well, Installation of pump set with Oil Engine / Electric Motor / Submersible Pump, Construction of deep tube well, Lift Irrigation, Installation of Pipelines (Cement / PVC), Sprinkler Irrigation / Drip Irrigation, Milk Animals (cow, buffalo, goat, sheep), Construction of milk house for Milk Producers Society, Dairy Development-dairy plant and dairy expansion, Construction of cattle shed, Construction of farm house and rural godown, Development of fodder land and Fodder cultivation, Gobargas plant / Biogas plant, Plantation of coconut, mangoes, sapota (chiku), guava, bananas and other horticultural crops, Purchase of tractor, power tiller, trailer and other implements, Purchase of opener / thresher, harvester, Land levelling, construction of kyari, contour bunding and such other land improvement works, Wire fencing for crop protection, Construction / expansion of buildings for Agriculture Produce Market Yards (APMC), Construction of cold storage,

Construction of roofs for preserving onions, Construction of rural godown for Co-operative Societies & individuals, Purchase of bullocks, bullock cart and camel cart, Poultry farming, Fisheries, Farm forestry, Development of waste land, Development of cottage, village industries and Handicrafts, Rural & Urban housing, Medium term Krishi Vikas Loan, Higher education loan, Non-farm sector activities like food processing industries, Cottage industries, Quarries, SRTO etc., Road Transport Vehicles, Cars/Trucks, Consumer Loan :- For purchase of T.V., Washing machine, Refrigerator, Flour mill, Computer/Lap Top, Furniture items etc., Cash Credit Loan, Green House, Electric Connections estimate payment, Solar power pump, Solar light. Bank gives loan to farmers for more than 300 purposes related to Agriculture, Allied Agriculture & Non – Farm Sector.

### Financial Position and Performance of GSCARD Bank

**Table 1: Financial Position of GSCARD Bank**

Year	Share Holders/ Members (In Lakh)	Share Capital	Reserve & Other Funds	Fixed Deposit Mobilized	Profit	Dividend Declared %
2010-11	6.75	4456.47	15337.86	13288.00	3711.49	12.00
2011-12	6.74	4388.51	43314.67	15213.61	3752.42	12.00
2012-13	6.76	4448.47	46745.57	20558.79	3751.60	12.00
2013-14	6.73	4543.13	49746.65	22019.30	2349.97	12.00
2014-15	6.73	4562.09	51290.16	24238.19	2406.15	12.00
2015-16	6.73	4523.67	52762.30	24781.87	2087.46	12.00
2016-17	6.73	4563.35	53901.51	27200.71	1804.82	12.00
2017-18	6.73	4590.85	54874.65	26078.30	2100.13	10.00
2018-19	6.74	4532.39	56022.41	27041.55	2101.52	10.00
2019-20	6.75	4450.98	57086.39	26711.86	2525.02	12.00
2020-21	6.75	4318.51	59019.11	24588.71	1150.16	12.00

**Source : Annual Reports of GSCARD Bank.**

The Table-1 shows financial position of GSCARD Bank during last eleven years. Membership, paid up share capital, fixed deposits and profit shows a fluctuation trend. The reserve and other funds are increasing over the

last eleven years. Dividend paid to members is 12 % on their share capital contribution remains same except for the year 2017-18 & 2018-19 which was declared @ 10 %. The overall financial position of GSCARDB shows a mixed trend during the last eleven years. Total membership holders as on 31<sup>st</sup> March, 2021 are 6.75 lakh. Paid up share capital tuned to 4318.51 lakh, reserve & other funds are 59019.11 lakh, fixed deposit outstanding is 24588.71 lakh and profit made by the bank is 1290.92 lakh. The trend in deposit is an indication that the GSCARDB Bank is unable to maintain the deposits steadily. The reserve & other funds increased from Rs. 15337.86 lakh to 59019.11 lakh.

**Table 2: Advances, Loan Outstanding, Recovery, Overdue of GSCARD Bank**

(Rs. in Lakh)

Year	Advances	Total Loan Disbursed	Loan out Standing	Demand	Collection (Recovery)	Overdue (Balance)	% of Recovery
2010-11	14341.51	279013.46	55894.69	63704.49	27882.57	35821.92	43.77
2011-12	17861.80	296875.26	55990.33	59167.70	26091.33	33076.37	44.10
2012-13	19008.81	315884.07	57984.36	54030.98	24894.66	29046.32	46.24
2013-14	17750.83	333634.90	58247.75	54126.54	23268.07	30858.47	42.99
2014-15	17761.95	351396.85	57805.85	57423.59	24784.34	32639.25	43.16
2015-16	15395.37	366792.22	57285.60	55619.19	21506.86	34112.33	38.67
2016-17	14256.36	381048.58	26230.40	57289.33	19580.72	37708.61	34.18
2017-18	17763.00	398811.58	57385.78	60383.52	22373.55	38009.97	37.05
2018-19	14956.81	413768.39	57520.68	59183.94	19323.76	39860.18	32.65
2019-20	13652.31	427420.70	56001.13	61339.49	21249.49	40090.00	34.64
2020-21	11776.58	439197.28	53644.00	59347.58	18971.01	40376.57	31.97

**Source: Annual Reports of GSCARD Bank.**

It is evident from Table-2 that advances for the year 2012-13 was highest during last eleven years. Trend of credit disbursed annually during period of study is fluctuating. Lending to farmers is the major activity of the GSCARD Bank. It is noteworthy that the GSCARDB is not able to increase their lending consistently. This is a serious issue to be addressed by the bank. The total loans outstanding of the GSCARD Bank is showing reducing trend, instead of increase in loan out standing's. Thus, we find that reducing loan outstanding is a big challenge for the GSCARD Bank. The term, demand

consists of overdue demand and current demand which includes due principle and interest. The GSCARDB requires taking necessary initiatives to collect the demand before it results in overdue to control NPA. Increase in overdue results in negative impact over the profitability position of the GSCARD Bank. The Demand, Collection, Overdue (Balance) and percentage of recovery of demand during last eleven years is given in Table-2.

It is seen that overdue of the bank is on higher side, thus low recovery percentages is big challenge for the bank to overcome it.

**Table 3: Purpose-wise Total Loans Disbursed by GSCARD Bank since inception till 31-03-2021**

(Rs. in Crores)

Sr. No.	Broad Purposes	Number of Borrowers	% of Borrowers	Total Loan Amount	% Loan Amount
1	New wells, Tube Wells, Old wells, Bore wells	343585	41.30	195.73	04.46
2	Oil Engine, Electric Motors, Lift Irrigation, Machine Rooms, Pipeline	258673	31.10	180.22	04.10
3	Farm Mechanization (including Tractors)	78302	09.41	1309.14	29.81
4	Milk Animals and other Dairy Development Schemes	34207	04.11	277.08	06.31
5	Land Improvement and field channels in command areas (in irrigated areas)	NA	NA	32.97	00.75
6	To Tenants under tenancy Act for purchase of land occupancy rights	NA	NA	5.98	00.14
7	Medium Term Krishi Vikas Loan	75210	09.04	1445.17	32.90
8	Cash Credit Loan	2706	00.33	30.46	00.70
9	Social debt Loan	3447	00.42	63.87	01.45
10	Others purposes including NFS – Non Farm Sector Loans	35708	04.29	851.35	19.38
	<b>Total</b>	<b>831838</b>	<b>100.00</b>	<b>4391.97</b>	<b>100.00</b>

**Source: Annual Reports of GSCARD Bank.**

**NA = Figures not available**

Table-3 furnishes the information on purpose-wise total loans disbursed by the GSCARD Bank since inception till 31st March, 2021.

It is evident from Table-3 that the majority of loans disbursed are of long term in nature which contributes to 67.10 %. The medium term Krishi Vikas loan contributes 32.90% of total loan disbursed till 2021-22. Maximum borrower 343585 (41.30%) have availed loans for the purposes of construction of new wells, tube wells, deepening of old wells which contributes 04.66 % of total loan amount. Maximum borrowers availed loan for these purposes but as the unit cost is less the total amount of loan borrowed is comparatively meager in terms of percentage. Second highest borrowers numbering to 258673 (31.10%) availed credit for oil engine, electric motors, lift irrigation, machine rooms and pipelines loans. 78302 borrowers (09.41%) had taken loan for farm mechanization including tractors & implements amounting 1309.14 crores (29.81%). 75210 borrowers are provided credit for Krishi Vikas loan which contributes 09.04% of total borrowers. 35708 borrowers (04.29 %) had taken loan for non-farm sector purposes amounting to Rs. 851.35 crore (19.38 % of total loan dispensed).

**Table 4 : District-wise Loan Disbursed, DCB, NPA & Deposit Mobilization of the GSCARD Bank as on 31<sup>st</sup> March, 2021**

**Rs. in Lakh**

Sr. No.	District	Loan Disbursed	Demand	Collection Recovery	Balance Overdue	Recovery %	Deposit Mobilization
1	Mehsana	1729.47	5331.49	2980.85	2350.64	55.91	1519.81
2	Banaskantha	294.55	5367.13	610.35	4756.78	11.37	600.03
3	Sabarkantha	1406.13	6498.25	2199.25	4299.00	33.84	1991.86
4	Panchmahal	513.02	1620.17	525.51	1094.66	32.44	521.03
5	Vadodara	747.95	3432.50	1082.33	2350.17	31.53	2393.39
6	Bharuch	316.67	2906.22	616.35	2289.87	21.21	2646.75
7	Valsad	79.38	488.34	107.69	380.65	22.05	823.44
8	Surat	278.99	1504.33	482.08	1022.25	32.05	937.18
9	Kheda	885.09	3863.24	1398.11	2465.13	36.19	1638.08
10	Ahmedabad	561.88	1965.33	840.43	1124.90	42.76	2869.92
11	Bhavnagar	361.29	4759.78	897.38	3862.40	18.85	1180.17
12	Amreli	628.24	1989.32	962.24	1027.08	48.37	1726.09
13	Junagadh	1585.19	4739.39	2220.09	2519.30	46.84	505.29
14	Rajkot	805.63	2306.22	1455.06	851.16	63.09	1862.14
15	Jamnagar	911.01	2952.57	1502.66	1449.91	50.89	1708.36
16	Surendranagar	482.48	3806.18	680.50	3125.68	17.88	495.95
17	Kutchh	189.53	5817.12	410.13	5406.99	7.05	276.23
	<b>Total</b>	<b>11776.58</b>	<b>59347.58</b>	<b>18971.01</b>	<b>40376.57</b>	<b>31.97</b>	<b>23695.72</b>
					<b>Head Office</b>		<b>892.99</b>
					<b>Grand Total</b>		<b>24588.71</b>

**Source: Annual Reports of GSCARD Bank.**

Table-4 presents district-wise loan disbursed, DCB, NPA and Deposit Mobilization position during the year 2020-21. Branches are supervised and monitored by 17 district (regional) offices of the GSCARD Bank located at 17 district headquarters. Highest loans during 2020-21 are disbursed by Mehsana, Junagadh and Sabarkantha district. Valsad, Kutchh and Surat districts are on last three positions in terms of loan amount disbursed. Demand, Collection and Balance Overdue position of all 17 districts is viewed in the table-4. Highest recovery in terms of percentage is made by Rajkot, Mehsana and Jamnagar district. Among the districts, Ahmedabad, Bharuch and Vadodara reported first three positions in deposit mobilization during the year 2020-21.

**Table 5: Year-wise Overdue of the GSCARD as on 31st March, 2021**  
**Rs. in Lakh**

Sr. No.	Year	No. of Accounts	Interest	Principle	Total	Percentage Overdue
1	Less than One year	3429	404.36	1773.48	2177.84	05.39
2	One year	1268	334.09	920.48	1254.57	03.11
3	Two year	1574	440.05	1771.40	2211.47	05.48
4	Three year	1312	416.03	1801.14	2217.17	05.50
5	Four year	1131	384.09	1498.89	1882.98	04.66
6	Five year	1341	470.61	2033.98	2504.59	06.20
7	Six year	1293	619.39	2090.33	2709.72	06.71
8	More than Six year	17127	7509.01	17909.24	25418.23	62.95
	<b>Total</b>	<b>28475</b>	<b>10577.63</b>	<b>29798.94</b>	<b>40376.57</b>	<b>100.00</b>

**Source : Annual Reports of GSCARD Bank.**

The above Table-5 indicates year-wise (Age-wise) overdue of the GSCARD Bank at the end of 31st March, 2021. This classification is made to know the age-wise overdue. It is seen that total overdue of the bank is 40376.57 lakh of which 10577.63 lakh contributes interest overdue and Rs. 29798.94 lakh is principle overdue. Maximum overdue (25418.23 lakh) is of more than six year old which covers 62.95% of the total overdue amount. Overdue shall be tackled immediately to reduce NPA and increase in recovery.



**Table 6: Purpose-wise Overdue of the GSCARD as on 31<sup>st</sup> March, 2021**  
**Rs. in Lakh**

Sr. No.	Purpose	No. of Accounts	Interest	Principle	Total	Percentage Overdue
1	Minor Irrigation	3116	459.66	887.47	1347.13	03.34
2	Farm Mechanization	6131	4817.20	9548.56	14365.76	35.58
3	Animal Husbandry	2522	473.94	1609.34	2083.28	05.15
4	Land Development	1136	553.65	1467.08	2020.73	05.00
5	Plantation	76	13.65	31.42	45.07	00.11
6	Market Yard	7	258.08	317.40	575.48	01.43
7	Non-Farm Sector	1645	319.07	1132.88	1451.95	03.60
8	Rural Housing	4319	1818.69	4388.74	6207.43	15.37
9	Institutional	8	28.21	67.31	95.52	00.24
10	Krishi Vikas Loan	6413	1055.83	7979.20	9035.03	22.38
11	Others	3102	779.65	2369.54	3149.19	07.80
	<b>Total</b>	<b>28475</b>	<b>10577.63</b>	<b>29798.94</b>	<b>40376.57</b>	<b>100.00</b>

**Source : Annual Reports of GSCARD Bank.**

Table-6 reflects the purpose-wise overdue of the GSCARD Bank as on 31st March, 2021. The bank disburses loans for various purposes. The statement shows overdue amount of major purposes of loan disbursed by the GSCARD. It reveals that out of the total overdue of Rs. 40376.57 lakh, 35.58% overdue is under farm mechanization which is equivalent to 14365.76 lakh. Krishi Vikas loan registered overdue at 22.38% amounting to Rs. 9035.03 lakh. Rs.6207.43 lakh overdue is stuck in rural housing loan, contributing 15.37% of total overdue amount. The GSCARD Bank shall strengthen its loan appraisal system to avoid overdue of loan.

### **Role of the NAFCARD in the Growth of the SCARDBs (LTCCS)**

A significant event in the history of Long Term Cooperative Credit Structure (LTCCS) in India has been the establishment of the National Co-operative Agriculture and Rural Development Banks' Federation Ltd. (NCARDBF) in 1960. Its acronym is renamed as NAFCARD. It is an apex level organization of Agriculture & Rural Development Bank's at the national level having registered head office at Navi Mumbai and administered under the Multi State Cooperative Societies Act, 2002. Since its inception, the

Federation has been playing an important role in the growth of institutions in the sector. It has established effective coordination and promoted understanding among member banks and liaison with Central and State Governments, NABARD and financing agencies of SCARDBs. The total numbers of SCARDBs are 16; of which 7 have federal structure. 7 have unitary structure and 2 have mixed structure (i.e. operating through PCARDBs as well as its own branches)

Activities of the Federation also include organizing seminars and workshops, undertaking research studies and formulation of plans and programs through its planning, research and development cell, compilation and publishing of statistics of member banks' operations, sponsoring of study teams, coordinating investments in debentures, undertaking special training programs, publicity work, providing guidance and advice on issues relating to operations and governance. The quarterly land bank journal published by the Federation since 1962 has gained considerable popularity. The Federation is also assisting member banks in business development and expansion by designing new products.

Lobbying with the Government for implementing revival package comprising of recapitalization and reforms, guiding SCARDBs in self-driven reform initiatives and guidance and support to member banks in resource mobilization, recovery and Non-Performing Assets (NPA) management, business expansion and diversification continued to be the thrust areas of Federation's activities (Source: Annual Report of NCARDB Federation).

### Major Findings of the Study

- ☞ The GSCARD Bank was established in 1951 as The Saurashtra Central Cooperative Land Mortgage Bank Ltd., Rajkot.
- ☞ On formation of separate state of Gujarat in 1960, the bank extended its jurisdiction to the whole State of Gujarat in 1961.
- ☞ This bank is popularly known as “Kheti Bank” and its current registered name is “Gujarat State Cooperative Agriculture & Rural Development Bank Ltd.” (GSCARDB).
- ☞ Bank performs rural credit activities through retail delivery outlets from 176 Taluka headquarter branches.
- ☞ Bank is having unitary structure with state level elected Board of Directors for its management.
- ☞ Bank provides investment credit facility to its members. Medium term “Krishi Vikas Loan” and Short term “Cash Credit Loan” is also facilitated.

- ☞ At the end of 31st March 2021, the total voting members'/shareholders are 6.75 lakh with Share Capital contribution of Rs. 4318.51 Lakh.
- ☞ Bank has Rs.59019.11 lakh reserve fund.
- ☞ Fixed deposit outstanding as on 31st March, 2021 is Rs. 24588.71 lakh.
- ☞ Bank is awarded "A" Audit Class by RCS Audit since 2011-12.
- ☞ Bank is registering profit and dividend is paid regularly to its members.
- ☞ Annual advances of the bank were Rs.11776.50 lakh and total loan disbursed since inception till 31/03/2021 is Rs.439197.28 lakh.
- ☞ Loan outstanding as on 31st March, 2021 is Rs.53644 lakh.
- ☞ Out of annual demand of Rs.59347.58 Lakh, Rs. 18971.01 was recovered from loaner farmers which tuned to 31.97 % recovery of demand.
- ☞ Maximum loan (32.90%) was disbursed for Krishi Vikas Loan followed by Farm Mechanization @ 29.81 % and 19.38 % for Non-farm sector.
- ☞ Maximum borrowers (41.30 %) have availed loan for New Wells, Repairing of old Wells, Construction of Bore Wells, followed by 31.10 % borrowers who had taken loans for oil engine, electric motors, lift irrigation, machine rooms and installation of pipelines. 09.41% borrowers have availed credit for Farm Mechanization. (Tractors & implements)
- ☞ Highest loan during the year 2020-21 was disbursed by Mehsana and Junagadh district to the tune of 1729.47 lakh and 1585.19 lakh respectively.
- ☞ Highest recovery was collected by Rajkot (63.09 %) & Mehsana (55.91%) district. Highest deposit was mobilized by Ahmedabad and Bharuch district @ Rs. 2869.92 lakh and Rs. 2646.75 lakh respectively.
- ☞ Total Overdue of the bank is Rs.40376.53 lakh, of which Rs.25418.23 lakh (62.95%) overdue is more than 6 years old.
- ☞ Maximum overdue is of Farm Mechanization (35.58 %), followed by Krishi Vikas Loan (22.38 %).

### Conclusion & Suggestion

The GSCARD Bank is rural cooperative long term credit structure dispensing investment credit to farmers of the Gujarat State through 176 branches as its retail credit delivery units. Bank performs through unitary structure. Powers for the management of the bank are vested with Board of Directors of the bank.

Major areas hampering the progress of the GSCARD Bank are low recovery, overdue, rising NPAs, lesser growth in loans & advances, limited scope for deposit mobilization, non-availability of Government guarantee, lack of skilled & professional staff, acute shortage of staff, resource crunch for expansion of credit, non-computerization, non availability of interest subvention scheme and high number of loss making branches.

Bank requires urgent need of reforms to address deficiencies in its design as a non-resource based institution with the only business of providing term loans to farmers. The GSCARD Bank is required to bestow immediate attention for taking corrective steps to tackle the above major areas of concern for up scaling the business and financial performance. It needs to prepare effective action plans to step up lending, resource mobilization and timely recovery of loan installments. It shall seek enhanced support from Central Government, Government of Gujarat and the NABARD.

## References

- ☞ Annual reports (2010-11 to 2020-21), Gujarat State Co-operative Agriculture & Rural Development Bank, Ahmedabad, Gujarat.
- ☞ Annual reports, National Cooperative Agriculture & Rural Development Bank's Federation Ltd. (NAFCARD), Navi Mumbai, Maharashtra.
- ☞ Chaudhari, V. M. & Farmer Mayuri (2022), History Growth, Working and Performance of Gujarat State Cooperative Agriculture & Rural Development Bank Ltd. (GSCARDB), International Journal of Creative Research Thoughts (IJCRT), ISSN: 2320-2882, Volume10, Issue 2, February 2022, Pg. d203-d216.
- ☞ Chaudhari, V. M. & Farmer Mayuri (2022), Analysis of Perceptions of Bank Branch Managers on working of the Gujarat State Cooperative Agricultural & Rural Development Bank Ltd., Towards Excellence, ISSN No: 0974-035X, Vol.14, Issue No. 1, March 2022, Pg. 252-264.
- ☞ Chaudhari, V. M. & Farmer Mayuri (2022), Glance as Status and Statistical Performance of State Co-operative Agriculture and Rural Development Banks (SCARDBs) and affiliated Primary Co-operative Agriculture & Rural Development Banks (PCARDBs) in India. International Journal of Agriculture Sciences, ISSN: 0975-3710 & E-ISSN: 0975-9107, Volume14, Issue 2, Pg. 11091-11097.

- ☞ Chaudhari, V. M. & Farmer Mayuri (2021), Analysis of differences among regular agriculture loan borrowers of the Gujarat State Cooperative Agriculture & Rural Development Bank Ltd, Cooperative Prospective, Journal of Cooperative Management, Vol. 56, No.-2, July-September 2021, Pg. 130-144.
- ☞ Chaudhari, V. M. & Farmer Mayuri (2021), A Study on Performance of Long-term Rural Cooperative Credit Structure (LTRCCS) Consisting of Cooperative and Rural Development Banks (ARDBs) at State and Primary Levels in India – An Overview, J. Indian Cooperative Review, Vol. 59, October, 2021, Pg. 135-152.
- ☞ Chaudhari, V. M. & Farmer Mayuri (2021), Status, issues and suggestions of long term cooperative credit structure (LTCCS) to bring prosperity through rural credit, The Cooperator, Vol. 59, No.-5, November 2021, Pg. 80-85.
- ☞ Chaudhari, V. M. & Farmer Mayuri (2021), Profiling analysis of agriculture loan defaulters of the Gujarat State Cooperative Agriculture & Rural Development Bank Ltd, Towards Excellence, UGC-HRDC, GU, Vol. 13, Issue No.-4, December, 2021, Pg. 204-212.
- ☞ Final bulletins of Advances, Recovery & Deposit Mobilization (2010-11 to 2020-21), GSCARD Bank, Ahmedabad, Gujarat.
- ☞ Nisanth S., (2021), Performance of State Cooperative Banks in India, NAFSCOB Journal of Rural Cooperative Credit & Banking, July- September 2021, Pg. 19-23. [www.khetibank.org](http://www.khetibank.org)



## Employees Turnover and Retention Strategies – A Conceptual Study

Girish Mangleek<sup>1</sup>

### ABSTRACT

*Higher attrition rates within a particular industry have forced companies to use some innovative strategies to retain employees. Research indicated that total costs of employee turnover are about 150% of employee's salary. Retaining employees involves understanding the intrinsic motivators of them which many organizations unable to identify. Valuable human assets cannot be owned outright rather they have to be acquired and developed over a period of time by the organisations. Leaving of such employees cost dearly to the organisations. Reducing the attrition rate or retaining employees becomes a great challenge before the organisation, as the other organisations offering better prospects are always looking for the experienced and trained employees in the job market. Retention therefore is likely to be of central importance during acquisition implementation in knowledge-intensive firms.*

*While all aspects of managing human resources are important, employee retention continues to be an essential Human Resource Management activity of the prime importance that helps organizations in achieving their goals and objectives.*

*This calls for a strategic approach to the management of employees in order to motivate them to continue with the organisations. Employees Turnover has negative effects on productivity, product, service quality, profitability of the organisations.*

*Job satisfaction plays a vital role in retention of valuable employees. Job satisfaction brings involvement of employees, employees feels that their contributions and accomplishments are valued by their organizations, employees being able to take decisions that affect their job role and performance, having opportunities to grow in their career, having a flexible work schedule, working in a friendly and pleasant*

<sup>1</sup> Associate Professor, Head of Centre for Management Development, VAMNICOM, Pune.

*work environment and having good relationship with their leaders and colleagues (Branham, 2005).*

**Keywords :** *Employee Rewards, Job Satisfaction, Human Resource Policies, Employee Retention*

## 1. Introduction

In today's context most of the business organisations are facing a very peculiar problem related to the employment of their human resources. On the one hand they are facing the problem of overstaffing and are looking for the ways of pruning the surplus staff strength through voluntary retirement, firing of employees and other schemes. On the other hand, organisations are facing the problem of employee's higher attrition rate and are busy in developing strategies for retaining employees. Employee turnover (also known as employee attrition) is defined as the rate of change in the working personnel of an organisation during specified period.

Turnover occurs whenever an employee leaves the company, whether voluntarily or involuntarily. Voluntary terminations result from resignation due to employment elsewhere, relocation and other professional and personal reasons. An involuntary termination occurs when an employee is fired whether for misconduct, poor performance, or simply at the will of the employer for reasons related to suitability of employee skills, qualifications and work habits. Employee turnover signifies the extent to which old employees leaves the organisation and new employees enter into service in a given period of time.

### Types of turnover :

- 1) Functional Turnover: In this type poor performers leave the organization.
- 2) Dysfunctional Turnover: In this type good performers leave the organization.
- 3) Avoidable Turnover: This happens in avoidable circumstances.
- 4) Unavoidable Turnover: This happens in unavoidable circumstances.

### Turnover Calculation :

Employers calculate turnover by dividing the number of employees who are fired or quit by the total number of employees. For example, if an organization has 150 employees and during a one-year period, 11 employees quit and another 14 employees are fired, then to calculate annual turnover percentage, add the total number of employees who leave the company by the total number of employees who make up the company's workforce. In this scenario, the turnover rate is 25, divided by 150, which equals 16 percent.

## 2. Objectives:

- 1) To study the concept of Employee Turnover.
- 2) To find out the factors responsible for potential turnover.
- 3) To focus on various retention strategies management can adopt to preserve valuable employees.
- 4) To study the influence of job satisfaction on employees' & their intention to stay in the organization.

## 3. Methodology

The present study is descriptive in nature and mostly based on secondary data. The secondary data consists of books, reports, news paper articles and research journals. The author has carried out an extensive literature review of published research studies, case studies, proceedings of workshop, seminars, etc to analyze the factors responsible for potential turnover and collective action efforts undertaken by management to preserve valuable employees in the organizations.

## 4. Review of Literature :

- 4.1.1 **Zineldin, (2000)** has viewed retention as “anobligation to continue to do business or exchange with a particular company on an ongoing basis”.
- 4.1.2 **Dr G. BALAMURUGAN, (2016)** The study suggested that the employee retention has been quite challenge for IT-units and HRD should focus on Workpressure, Rewards and recognition retention strategies. Organizations have to provide their employees with the best career advancement and opportunities, supervis or support, working environment, workpressure, rewards, and recognition and should work on them.
- 4.1.3 **Zhang Yanjuan, (2016)** The article attempted to make a summary on the employee turnover influence Factors and puts forward counter measures from person alfactor, organization and work factor, social and economic factor,
- 4.1.4 **Dr. K. Balaji Mathimaran & Prof. Dr. A. Ananda Kumar, (2017)** the study tries to review the various available literature and research work on employee retention and the factors affecting employee retention and job satisfaction among the employees. The findings of the study suggested that certain variables are crucial in influencing the employees'



decision to either leave or remain in an organization. Such variables include training and Development, recognition/reward for good performance, a competitive salary package and job security.

- 4.1.5 Maqsood Haider.etal,(2015)** This study examined the human resource (HR) practices that promote employee retention. Effective HR practices can reduce employee turnover and increase retention within an organization. It was observed that Compensation and culture has a positive relationship with employee retention where as training and development has a negative one. This suggested the management to devise the effective strategies to improve the employee retention.
- 4.1.6 Ian M. Taplin & Jonathan Winterton,(2007),** This paper examine the role that management style plays an important role in retaining workers in high labour turnover industry. Positive actions by management promote worker attachment to leaders and the organization and are crucial in sustaining work values that diminish the likelihood of turnover.
- 4.1.7 Victor Oladapo, (2014),** This study sought to understand the challenges and successes of talent management programs and the reasons why some companies choose not to have a program.This study also tested the predictive power of job security, compensation and opportunity on retention rates.The study further revealed that job security, compensation, and opportunity for advancement were not found to have predictive value for employee retention rates.
- 4.1.8 Dr. V. Antony Joe Raja & R. Anbu RanjithKumar, (2016)** The research attempted to understand the opinion and attitudes of the various categories of employees of the Sri Sairam Hr. Sec.School,Prof. Dhanapalan College for Arts and Science, Sri Krishna Engineering College towards the employee retention in the institution. This study revealed weak retention practices by the College in all of the established retention factors which include compensation and benefits, employee engagement, performance management, retention measures, and career development, hence; requiring an extensive view and modification of many administrative procedures which supposedly geared towards people management.
- 4.1.9 Atif Salmanet.al (2014),** Thisstudy was attempted to investigate the factors of employees' retention in the banking sector of Karachi, Pakistan and find out its impacton the performance of Banks.The study

concluded that there is a strong relationship between Employees' motivation and employees' retention among employees of banking whereas employees' training and development has no relationship with employees' retention. It was suggested that banks should mold their policies regarding employees' training and development, which will help banking sector to retain employees for longer time.

## **5. Result and Discussion**

### **Factors responsible for potential turnover:**

#### **5.1 Compensation package**

Companies are attracting the best of the talents with very high salary packages and attractive designations; therefore an employee leaves an organization for another for better financial compensation and better designation.

#### **5.2 Lack of Career Mobility and Challenges Given**

An employee looks for the career growth as well as challenging work environment. The challenging work environment provides an opportunity to the employees to prove their skills, worth and expertise etc in the organisation which helps them in acquiring senior management positions in other organisations later in the career. If the organizations do not deliver on these expectations, employee tends to leave the organisation.

#### **5.3 Poor Working Environment & Working Procedures**

An employee may leave an organization because of the faulty human resource policies and practices particularly related to compensation, promotion, training, development etc and if the system does not inspire the confidence of the employees on such kind of issues employees switches to other organisations. Companies should enable employees to use their full potential & even gain sufficient work experience. Employees prefer to work in an environment which is positive & motivating.

#### **5.4 High Levels of Stress and Lack of Work-Life Balance**

In the cut throat environment, organisations put different types of pressures on employees in order to enhance productivity of the employees to increase the profitability of the organisations. Sooner or later this makes employees stressed out and they rethink about their priorities and join an organization that promises a relaxed working environment with a breathing space.

**5.5 Lack of Confidence in Supervision**

Many employees leave an organization because of the poor supervision and leadership of the superiors. If the supervisor lacks competence, empathy and trust in employees, they will fail to command the respect of the subordinates.

**5.6 Lack of suitable assignment of job**

Employees demonstrate a good deal of commitment, job satisfaction, self motivation and productivity when they are assigned a job that is in tune with their natural talents, knowledge, skill, expertise and experience. But, if they are put up in jobs which do not suits to their temperament, knowledge, expertise etc. which creates immense frustration in employees and they start looking for the job which meet their expectations.

**5.7 Unscientific Goal setting&unclear performance goals**

Most organizations do not train managers to set realistic goals or goals that tie up with organizational or functional goals and rarely are performance goals. Unscientific practices of goal setting and expectations from the employees accordingly create a great sense of dissatisfaction among employee.

**5.8 Lack of Role Clarity**

The lack of a clear understanding of what is expected from employees on the job brings frustration and discouragement. Absence of clarity regarding job duties and expectations in a performance driven organisations can cause fear and anxiety among employees who are unclear of what is expected by the organisation from them. It became more crucial when an employee receives a negative performance evaluation based on expectations and job duties that he or she was unaware of or unclear about.

**5.9 Lack of Proper Feedback**

Most team members enjoy frequent feedback about how they are performing. Shortening the feedback loop will help to keep performance level high and will reinforce positive behavior. But now-a-days firms fail to realize the importance of feedback mechanism, which in turn creates dissatisfaction among employees.

**5.10 Partiality & Favoritism.**

In many organizations, the higher management keeps a soft corner for a particular employee or set of employees and favors them for reasons best

known to them. This acts as a biggest demotivating factor for other employees.

## **6. Effects of Employee Turnover**

High employee turnover is not an ideal condition both for the organisation as well as for the employees. It denotes that something is wrong in the organisation and unless it is corrected, the organisation cannot perform effectively. Same way unless an employee sticks to an organisation for a long period of time he/she cannot make significant contribution made by him/her to be noticed. Thus, employee turnover is neither beneficial to the organisation nor for the employees.

### **6.1 Cost to the organization**

High employee turnover cost dearly to an organisation. An organisation has to bear the different types of cost due to high employee turnover, such as Hiring cost for recruitment, selection and placement of new employees, Training and development cost, Loss of production during the period for which post remains vacant and Socialization cost of new employees. High employee turnover negatively affects the morale of existing employees. It also adversely affects the image of the organization in job market. Further, Smooth flow of work, teamwork and team spirit of the organisation is adversely affected.

### **6.2 Costs to Employees**

Frequent change of job adversely affects personal and family life of employees. Employee loses the long term benefits such as provident fund, pension, gratuity etc. It results in a Lower productivity due to slow socialization process at the new work environment. Due to frequent Job change employee loses his credibility in the job market.

## **7. Retention Strategies to preserve valuable Human Resources**

The organisation has to adopt retention strategy to control excess employee turnover and to retain high performers. Retention strategy should involve both long-term and short-term actions for retaining desired employees.

### **7.1 Package for Long-term Stay (Financial Incentives)**

Organisations may offer special benefits to employee for the longer duration of stay in organisation. It may include stock option plan, increasing financial incentives over the period of time, deferred payment of financial incentives in the long run like superannuation allowance or long-term stay

bonus in order to increase the longevity of employee tenure in the organisation.

## **7.2 Retention Bonus**

Retention Bonus is usually offered when the organisation is passing through a change such as merger, acquisition or organisational restructuring and due to uncertainty of future prospects employees tend to look for a change of job. Largely, it is offered to the top executives or essential middle level and rank and file employees. Retention bonus may be paid as one lump sum amount or in instalments over a period of time. It can also be paid on the basis of length of service or other measures, uniform payment to all employees or discriminant payment to them depending on some criteria.

## **7.3 Intangible Benefits**

Many organisations offer various intangible benefits to their employees for retaining them and also for developing belongingness with the organisation. Many Companies, particularly MNCs operating in India use overseas training and employment, taking care of family and parents, medical care etc, during other place of posting of the employees.

## **7.4 Matching Jobs and Individuals**

Many employees change their organisations because of mismatch between them and their jobs. Many companies offer choice to their employees to switch from line function to staff function and vice-versa; from fast-track project to slow-track project, and so on. This flexibility helps in reducing monotony and job stress and the job satisfaction is high.

## **7.5 Fancy Designations**

A recent phenomenon in India corporate sector is to offer fancy and important sounding designations to employees for retaining them in the organisations. Such Designations are often much at variance with their nature of work. The basic logic behind offering such fancy designations may be that employees are part of the society, and to create better impressions in the society, such designations may be helpful.

## **7.6 Employee Relationship Management**

Employee Relationship Management is a wider set of functional that encompasses learning performance and incentive guidance, workforce analysis and a host of other operational issues related to managing human

resources. The employing organisations should take adequate care to develop employee relationship.

### **7.7 Persuasion**

Key employees of the organisation may be persuaded to remain with the organisation just like they might have been persuaded to join the organisation. In persuasion, the persuasive skill of the chief executive or other top-level executives is important.

### **7.8 Career Development Program**

Every individual is worried about his/her career. Organizations can provide them conditional assistance for certain courses which are beneficial from their business point of view. Conditional assistance means the company will bear the expenses only if he/she gets an aggregate of certain percentage of marks. And entrance to that course should be on the basis of a Test and the number of seats to be limited. For getting admitted to such program, companies may propose them to sign a bond with the company, like they cannot leave the company for 2 years or something after the successful completion of the course.

### **7.9. Performance based Bonus**

The employee always comes to know about the profit of the company which is of course based on the strategic planning of the top management and the productivity of the employee. To get more work out of the employee, companies can make a provision of Bonus. By this employee will be able to relate himself with the company's profit and hence will work hard. This bonus should be productivity based. Companies can make sure that this bonus is not adding extra-pressure on the budget of the Company and can arrange this by cutting a part of the salary hikes and presenting it to the employees in the form of bonus.

### **7.10 Employee Referral Plan**

Companies can introduce Employee Referral Plan. This will reduce the cost (charges of external consultants and searching agencies) of hiring a new employee and up to an extent one can rely on this new resource. On every successful referral, employee can be given a referral bonus after 6 or 9 months of continuous working of the new employee as well as the existing employee. By this organizations can get a new employee at a reduced cost as well as are retaining the existing one for a longer Period of time.

**7.11 Loyalty Bonus/ Retention Bonus**

Organizations can introduce a Loyalty Bonus Program in which they can reward their employee after a successful completion of a specified period of time. This can be in the form of Money or Position, this will encourage the fellow employees as well and they will feel fascinated.

**7.12 Giving a Voice to the Knowledge Banks**

First of all management should try to retain their workforce intact, as they are the intellectual asset of the company and above that company can't afford losing their knowledge banks. These are the people who stabilize the process and can be involved in some of the decisions of the company. Moreover, they may be empowered to take some decisions without consulting his boss or manager.

**7.13 Employee Recreation**

Organizations should create an environment facilitating the employees to enjoy the work in a light mood. Organizations can take their employees to a trip or for an outing every year or bi-yearly. Such type of trips can be used as an opportunity to explain about the management views, plans and strategies etc. At the same time organisations can involve their top management into some of the fun activities to make feel the employees that they are very close to the management and everybody is same.

**7.14 Gifts at some Occasions**

Organizations can give some gifts at the time of one or two festivals to the employees making them feel good and understand that the management is concerned about them. Greeting employees and giving token gift on their Birthday or Marriage anniversary develops sense of belongingness and proves moral boosting to them.

**7.15 Accountability**

Management should make each employee accountable so that one can also feel that he/ she is as important as their manager. If he/she will be filled with this sense, he/she will seldom think of leaving the company.

**7.16 Making the managers effective and easily accessible**

Management should be easily accessible so that the employee expectations can be clearly communicated to the top management, as it is impossible for the top management to reach each employee frequently.

7.17 Surveys

Organizations should conduct regular surveys for feedbacks from employee about their superiors as well as other issues like food, development plans and other suggestions. This will make them feel of their importance and the caring nature of the company. Some of the suggestions given by the employees might be of real good use for the company.

8. Retention strategies to be applied at different levels of management

Figure 1 below throws light on the retention strategies that may be adopted to retain employees in all the three levels of management i.e. Top, Middle and Lower levels, since every level requires a different treatment because of the difference in designation, status in the organization and varied pay structures.

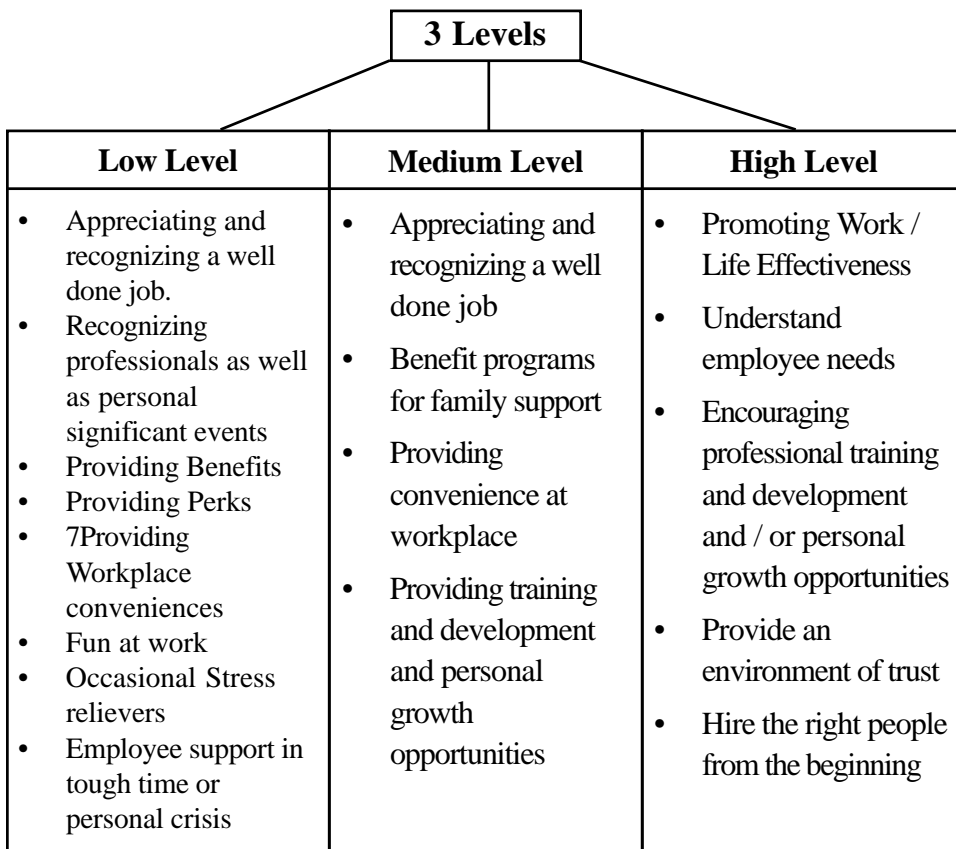


Figure-1



## 9. Conclusion

Organizations planning for the future should be giving close attention to why attrition is occurring in the present. To ignore why people are leaving the organization is to ignore the organization's greatest asset – its people. People are needed to accomplish the task, but people are more than just tasks they perform. They are dreams, hopes, ambitions, creativity and innovation. Employees are the most important asset for any organization. Their contribution is immense in the profitability and growth of the organization. They bring innovation and pave the way for sustainable development for the organization. Thus, Organizations should create an environment that fosters ample growth opportunities, appreciation for the work accomplished and a friendly cooperative atmosphere that makes an employee feel connected in every respect to the organization. For an organization the workforce is like an intellectual property, both in terms of skills and money. A trained and content workforce can lead organization to new heights, while an opposite can hamper its growth prospects badly. Retention plans are an inexpensive way of enhancing workplace productivity and engaging employees emotionally.

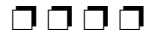
With the growing needs for organizations to retain its best employees in the face of competition, the findings of the study suggest that certain variables are crucial in influencing the employees' decision to either leave or remain in an organization. Such variables include training and Development, recognition/reward for good performance, a competitive salary package and job security, challenging work environment and most importantly relationship with management.

## References :

- ☞ Dockel, Andreas, Johan S. Basson, and Melinde Coetzee. "The effect of retention factors on organisational commitment: An investigation of high technology employees." *SA Journal of Human Resource Management* 4.2 (2006): 20-28.
- ☞ Kwenin, Daisy Ofosuhene, Stephen Muathe, and Robert Nzulwa. "The influence of employee rewards, human resource policies and job satisfaction on the retention of employees in Vodafone Ghana Limited." *European Journal of Business and Management* 5.12(2013):13-20.
- ☞ Das, Bidisha Lahkar, and Mukulesh Baruah. "Employee retention: A review of literature." *Journal of Business and Management* 14.2 (2013): 8-16.

- 
- ☞ Goswami, Brijesh Kishore, and Sushmita Jha. "Attrition issues and retention challenges of employees." *International Journal of Scientific & Engineering Research* 3.4 (2012): 1-6.
  - ☞ Kemelgor, Bruce H., and William R. Meek. "Employee retention in growth-oriented entrepreneurial firms: An exploratory study." *Journal of Small Business Strategy* 19.1 (2008): 55-68.
  - ☞ Irshad, Muhammad, and Fahad Afridi. "Factors affecting employees' retention: Evidence from literature." *Abasyn Journal of Social Sciences* 4.2 (2007): 307 -339.
  - ☞ L. M . Prasad – *Human Resource Management*, (2014) : 563 – 570
  - ☞ Zineldin, M.(2000).TRM Total Relationship Management, Student litterateur, Lund .’
  - ☞ Dr. G. Balamurugan, "A Study On Employee Retention Strategies In Leading It Companies At Trichy" *Intercontinental Journal Of Human Resource Research Review* Issn:2320-9704volume4, Issue 3, March 2016.
  - ☞ Zhang Yanjuan, "A Review of Employee Turnover Influence Factor and Countermeasure" *Journal of Human Resource and Sustainability Studies*, 2016, 4, 85-91
  - ☞ Dr. K. Balaji Mathimaran & Prof. Dr. A. Ananda Kumar, *Employee Retention Strategies An Empirical Research Global Journal of Management and Business Research : E Marketing* Volume 17, Issue 1 Version 1.0 Year 2017, Online ISSN : 2249-4588 & Print ISSN : 0975-5853.
  - ☞ Maqsood Haider.et al, "The Impact of HumanResource Practices on Employee Retention in the Telecom Sector", *International Journal of Economics & Financial Issues* ISSN : 2146-4138.
  - ☞ Ian M. Taplin & Jonathan Winterton, "The importance of management style in labourretention" *Inter, national Journal of Sociology and Social Policy* Vol. 27 No. 1/2,2007pp.5-18q Emerald Group Publishing Limited 0144-333XDOI10.1108/01443330710722724.
  - ☞ VictorOladapo, "The Impact of Talent Management On Retention", *Journal of Business Studies Quarterly* 2014, Volume5, Number 3, ISSN 2152- 1034.
-

- ☞ Dr. V. Antony Joe Raja & R. Anbu Ranjith Kumar, “A Study On Employee Retention In Education Sector In India” Volume7, Issue3, March-April 2016, ISSN Print : 0976-6502 and ISSN Online : 0976-6510
- ☞ Atif Salmane t.al,“ Factors Affectingon Employees Retentionin Banking Sector: An Investigation from Karachi” ,European Journal of Business and Management www.iiste.org ISSN22221905 (Paper) ISSN 2222-2839 (Online) Vol.6, No.37, 2014
- ☞ Diwakar Singh, “A Literature Review on Employee Retention with Focus on Recent Trends” Volume 6, Issue 1, February-2019 IJSRST Print ISSN: 2395-6011, Online ISSN: 2395-602X DOI : <https://doi.org/10.32628/IJSRST195463425>



**Book Review****Marketing in the Unpredictable World****Girish Mangleek <sup>1</sup>****Edited By: Amitabha Ghose****Publisher: The Icfai University Press****ISBN: 81-314-0731-4****Year of Publication: 2007****Price: Rs. 425/-**

At present we are in the era where changes are happening rapidly and unpredictability is thriving in businesses at global level. Complexities faced by marketers today are different than the past. Responsibilities of marketers have increased as they cannot rest by planning for long term. They have to be constantly alert and are forced to deal with unpredictable circumstances regularly. For this, there should be enough flexibility in the strategies made by marketers so that unsuccessful planning can be rectified quickly. Here, flexibility in marketing means continuous preparation to battle unforeseen and unpredictable incidents.

This book helps us in understanding effect of unpredictable factors on the marketing function of an organization and how managers can find ways by learning to identify potentially uncertain aspects ahead of time and prepare effective marketing strategies for sustaining the company's leading market position. The book is divided into two sections. First section covers 'impact of external environmental factors on marketing' and second section is about 'anticipating change in external environment and developing response strategy'.

**Section I**

**Impact of External Environmental Factors on Marketing** In the Article 1, 'Impact of Unpredictable Factors on Marketing and Response Strategy' by Amitabha Ghose, authors said that, now marketers have to combat on several fronts against change in technology, government regulation, rapid globalization and social and cultural aspects of consumers, pressure groups, watchdogs and environmental issues at the same time. Dynamic and flexible marketing solutions can help managers to maintain the status of their company during uncertain events.

---

<sup>1</sup> Associate Professor, Head of Centre for Management Development, VAMNICOM, Pune.

Article 2, 'Global Economy Today: An Analysis of Marketing and Technological Changes for Targeting Global Market for Success' by R Nagaraja, emphasizes the marketing maxim 'think global, act local' (Theodore Levitt) as nature of marketing is changing with the advent of technology and globalization. It contains an analysis of marketing and technological changes and targets global market. It helps us to identify how the global economy works today, how technology is impacting our lives- positively as well as negatively. Here, author suggests that, organizations need to understand and consider the situation in order to stay up to date with new developments in their own industry and economy.

Article 3, 'Information Technology and Globalization of Markets' by Shailendra Bisht discusses influence of two significant forces- globalization and new technology (internet) on business and marketing function of an organization. This article talks about globalization of markets, homogenization of customer needs and standardization of products as a result of global marketing, economies of scale in production and marketing, assimilation and effects of information technology and ethical, social and legal issues faced by marketers while using these technologies. According to the author, the contemporary global village is a jungle of global technology rather than a simple global village.

Article 4, 'International Marketing Strategies for Global Competitiveness' by Prafulla Agnihotri and Hemlatha Santhanam, presents four broad groups of industry globalization drivers- market, cost, government and completion, international marketing strategies, strategy for global competitiveness etc. Further author says that, in the age of globalization, competition for companies has increased and only those organizations that can understand and accept competitiveness and think and act in complex ways will sustain their business.

In the next article, 'Opening Economies Succeed : More Trade Boosts Growth' by Marco Neuhaus, author talks about how opening economies to foreign investments can boost the economy. Openness to global organizations leads to international exchange of ideas, resulting in permanent progress in technology. Long term economic growth is the outcome of human resource development and an open economy.

The last article of this section, 'Conquering Consumerspace' by Amit Singh Sisodiya is a book summary wherein author describes how change in consumer behavior and their attitude influence the way organizations markets their products. Consumerspace is where concept of 'marketing for consumers'

has changed to 'marketing with consumers'. Now, consumers prefer products which not only satiate their needs but also define them and others. The book 'Conquering Consumerspace' provides information about the strategies and tools marketers can use to attract and win potential customers.

## **Section II**

### **Anticipating Change in External Environment and Developing Response Strategy**

The first article in this section is, 'Technology Roadmapping: A Tutorial' by Elizabeth J Bruce and Charles H Fine. It discusses concepts as well as approaches used in technology roadmapping and its examples. The article includes one case study of photonics industry roadmapping which explains need for a roadmap and challenges faced in roadmapping photonics.

Technology roadmaps are used by many organizations, including corporations, government agencies, and research institutes. Roadmaps form a basis for envisioning the future. Roadmapping can even help define the future and focus investment decisions for the industry's benefit.

The article 'Global Environment for the Indian MNCs- A Reference to Some Select Industries of Strategic Importance' by U Jayalakshmi Srikumar points out the radical change in the environment for the Indian industry. There are few studies that track changes in the international trade environment for Indian businesses doing business abroad.

The study is an effort to follow the conventional classification of changes in the environment and evaluate their consequences. In this article, a collective work has been conducted to track down the survival strategies employed by certain key industries in a new and volatile international business environment. Irrespective of the nature of the industry, there are ample opportunities for Indian businesses in global market. Organizations have to be competitive enough to tap the untapped international opportunities and to appear among the top global players.

The next article is, 'Reinventing a Giant Corporation: The Case of Tata Steel' by D V R Seshadri and ArabindaTripaty. The article includes the journey of Tata Steel post liberalization when it suddenly faced with global competition. It discusses the challenges faced and strategies adopted by the organization. It is one of the lowest cost steel producers globally and now aspires to be one of the world's leading steel producers.

In the article, ‘The Internet, Consumer Empowerment and Marketing Strategies’ by Guilherme D Pires, John Stanton and Paulo Rita, consumer empowerment is investigated from the standpoint of a process involving the delegation of power or authority to make decisions. This paper examines how control of market knowledge, which was previously managed by suppliers, is shifting to consumers as ICT use increases.

The last article of this section is about British Petroleum titled as, ‘BP’s Green Strategies’ by Christoph Zacharias. BP is a British Oil and Gas Company. This case study focuses on the activities undertaken by the BP when they acknowledged that the climate change was happening and realized that it was the time to become environmentally conscious and take responsible steps and adopt green strategies to manage their reputation and their results.

To sum up, the book offers a detailed coverage of the changing marketing function of organizations globally, how information technology is contributing to it and shifting powers from manufacturers or suppliers to consumers, how important it is to be flexible as an organization and adopt green strategies to survive. The book is must read for the practicing managers as well as for the management students.



**GUIDELINES TO CONTRIBUTIONS**

1. Two copies of the manuscript typed in double space and soft copy along with an abstract of 100 words should be sent to the Managing Editor, Co-operative Perspective, VAMNICOM, University Road, Pune 411 007.
2. The articles are sent for review to the Referees.
3. Name (s) and affiliation (s) of author (s) should be provided in a separate page along with title of the article.
4. Papers sent for publication should not have been published or sent for publication elsewhere.
5. Five off prints of the article and a copy of the journal are provided.
6. All remittances may be sent to Director, Vaikunth Mehta National Institute of Co-operative Management, University Road, Pune 411 007 or it can be transferred at Saraswat Cooperative Bank Ltd., VAMNICOM Branch, Pune 411007 A/c. No. 110200100001763 / IFSC Code SRCB0000110 and details sent by email.



