International Journal for Research in Engineering Application & Management (IJREAM)
ISSN : 2454-9150 Vol-04, Issue-12, Mar 2019

Financial Capability and Value Chain Financing: A Study among Dairy farmers in India

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Abstract - Finance has become an essential part of man's life. The vast variety of financial products and services available today had necessitated the application of managerial skills in dealing with finance. Financial Capability is the integration of attitude, knowledge and confidence in making sound financial decisions within an enabling environment. Dairy farming in India is a prosperous sector that provides livelihood to millions of people in our country. It has improved the socio-economic condition of farmers by providing a profitable investment avenue. But still, dairy farmers lack the capability to take sound financial decisions. Most of them are even excluded from the formal financial system, particularly access to banks. The strategy of value chain financing improves access to finance for dairy farmers. It refers to integration of finance providers into the value chain. It is aimed at improving competitiveness of the entire value chain and thus is inclusive in nature. It includes not only physical integration, but also knowledge integration which helps dairy farmers in taking sound financial decisions. It also offers benefits such as low transaction costs, reduced financial risks to lenders, customized services etc. The present paper explores this strategy to enhance the financial capability of dairy farmers through an integrated value chain mechanism.

Keywords: Financial Capability, Enabling environment, Value chain financing, Inclusive, Integrated

I. INTRODUCTION

Finance can be very conveniently described as the art of managing money. The term 'finance' broadens its scope from mere provision of money to different dimensions which include financial inclusion, financial literacy, financial education, financial capability, financial well-being etc. Financial capability implies the confidence of a person in making sound financial decisions and using financial products and services in an appropriate manner. Financial Access is a pre-requisite to enhance financial capability. In addition, financial education and financial inclusion are the means to achieve the goal of financial capability building. Financial capability finally leads to financial well-being. There are different factors which influence a decision on spending money. As for every decision, information availability is the most important one there. Another important aspect is the environment in which the decision is made. Other factors include family culture or attitude towards money, future predictions, and government policies. Financial capability is identified to be an essential life skill required by every person.

Dairy farmers in India belong to the most vulnerable community in respect of money management. Also, they are the ones who deal with cash transactions on a large proportion. This necessitates an effective mechanism for them to address their financial problems to a significant extent. Most of them even do not have access to banking services. Since they reside in rural areas, they are not provided with adequate financial management facilities. The number of outlets of banks and other financial institutions in rural areas are comparatively low. Thus the first initiative to uplift the financial condition and capability of dairy farmers is to create an enabling environment which is possible through value chain financing.

STATEMENT OF THE PROBLEM

Dairy farming in our country is flourishing and more people are attracted towards this profitable avenue. They

 DOI : 10.18231/2454-9150.2019.0135

carry out dairy farming either as main activity or as a subsidiary activity. Farmers join co-operatives or private dairies for selling their milk produce. These institutions are effective in accessing the financial assistances provided by Government and other organised bodies. Thus dairy is an industry which is highly integrated to other entities. Co-operatives are the ones which cover comparatively higher number of farmers than the private dairies. This integration can be efficiently utilized for effective blending of value chain financing into dairy sector which makes the entire chain inclusive. Value chain financing is exchange of finance among the chain actors within the chain so as to effect an integrated financing mechanism. The financial inclusion and financial literacy of dairy farmers in our country are poor. They need adequate support from the literate community for them to be included under the formal financial system. Thus dairy farmers would be provided with an enabled environment for taking sound financial decisions and develop money management skills though value chain financing. This paper explores the potential of value chain financing to enhance the financial capability of dairy farmers in India.

OBJECTIVES OF THE STUDY

The present study is carried out with the following main objectives:

1. To review the financial capability of dairy farmers in India.
2. To explore the potential of value chain financing as a strategy to build financial capability of dairy farmers.

SCOPE AND METHODOLOGY OF THE STUDY

The study is descriptive in nature. The study is based purely on secondary data which have been collected from books, journal articles, conference proceedings, seminar proceedings, websites etc. The study includes data reviewed from Web of science (www.webofknowledge.com), Science direct (www.sciencedirect.com), Google Scholar (https://scholar.google.co.in/) and ResearchGate (https://www.researchgate.net). The search keywords typed were financial capability of dairy farmers and value chain financing in dairy sector. Further, statistical data were collected from websites of Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, Government of India and National Accounts Statistics-2016; Central Statistical Organisation; Government of India.

The study is limited to review the current scenario of financial capability and financial inclusion of dairy farmers in our country. It also describe the potential of value chain financing, an integrated financing mechanism, to improve the financial inclusion of dairy farmers and the way in which it builds financial capability of farmers.

II. REVIEW OF LITERATURE

An overview of the existing literature related to financial capability and value chain financing mechanism are as follows:

Birthal et al. (2016) [1] analysed the financing mechanism of dairy framers in Punjab and explained that the farmers lack access to institutional credit and the associated services. Though majority of them are covered under formal chains, they made use of informal sources for financing their dairy investments. Small and medium holder farmers lack sufficient assets to offer as collateral to avail bank credit. It was suggested to make use of value chain approach in financing farmers so as to enable them to access formal finance.

Gessesse (2017) [2] assessed the nature of value chain financing deployed in Sidama coffee value chain in Ethiopia. It was found that the downstream chain actors, i.e. farmers depended on indirect and informal chain financing methods. Also financing at the downstream was identified to be weak than the upstream along the chain. The challenges found were lack of integration among the cooperatives and the financial institutions in an appropriate manner. But the integration between the cooperative network and the farmers was suitable for chain financing.

Miller (2012) [3] described that value chain financing ensure the repayments of credit flowed through the chain as it is aimed at collective goal accomplishment. It could provide customized services to the borrower and mitigate the financing risks of both lender and borrower. It also

 DOI : 10.18231/2454-9150.2019.0135

result in reduced transaction costs and timely availability of information across the chain which make the entire chain inclusive.

Patil et al. (2016) [4] examined the role of financial institutions in integrating small and marginal farmers into a sustainable value chain. Small and marginal farmers had poor access to credit and other financial services. It was advocated to encourage contract-based financing, cascade financing, joint liability group financing and interdependent financing. These innovative financing techniques improve the financial well-being of farmers and help them in reducing their risks.

Ramana and Muduli (2018) [5] analysed financial capability among street vendors in Bhuvaneshwar on four dimensions such as financial management, financial planning, financial products management and financial knowledge. It was found that street vendors in regions with more number of bank branches were financially capable than those in regions where there is lack of bank outlets. Business experience and daily turnover influenced financial capability of the street vendors significantly.

Taft et al. (2013) [6] examined the relationship among financial literacy, financial well-being and financial concerns. The study showed that there existed a positive relation between financial literacy and financial well-being. Financial concerns are likely to reduce with increase in financial literacy. Demographic variables and economic condition significantly influenced the financial well-being of people.

Vighneswara and Dharani (2016) [7] analysed the different approaches to agricultural financing with a value chain perspective. The study demanded for reviewing the financing options available under value chain financing, comparing the costs and risks involved therein to each chain actor. Private finance also was recommended to be made available through this form. One of the major constraints identified was non- availability of long term funds.

Wilkes et al. (2018) [8] explained that informal credit gained popularity in usage among dairy farmers and there were a few demands for loans from formal financial institutions by farmers. Formal financial institutions lack availability of financial track records of farmers. More technical assistance was suggested to be provided in the sector so as to develop innovative chain financing solutions.

III. DATA ANALYSIS

Dairy farming in our country is an effective method of socio and economic development as millions of people are directly or indirectly engaged in this profitable activity. Most of the farmers engage in dairy as a subsidiary occupation. It provides stable income to the farmers. Acknowledgement is to be attributed to white revolution and the then emerged Anand pattern of co-operative societies which rendered a remarkable change in the life of dairy farmers. Co-operatives paid fair price for the farmers and assisted in marketing their milk produce. Also now a days, private dairies were found flourishing in this industry and reaping huge profits.

Dairy farming: A Statistical Profile

Table 1 shows the production and per capita availability of milk in India. It is clear that production of milk in India showed an increasing trend since 1991-92. In 1991-92, production of milk was 55.6 million tonnes only. Now the respective figure stands at 165.4 million tonnes during 2016-17. Also the per capita availability of milk which stood at 178 grams per day during 1991-92 has significantly increased to 355 grams per day during 2016-17. In short it can be highlighted that the trend of milk production and per capita availability of milk in India had never gone down.

Table 1 Milk Production in India

Year	Production (Million Tonnes)	Per Capita Availibilty (gms/day)
1991-92	55.6	178
1992-93	58.0	182
1993-94	60.6	187
1994-95	63.8	194
1995-96	66.2	197

 DOI : 10.18231/2454-9150.2019.0135

1996-97	69.1	202
1997-98	72.1	207
1998-99	75.4	213
1999-2000	78.3	217
2000-01	80.6	220
2001-02	84.4	225
2002-03	86.2	230
2003-04	88.1	231
2004-05	92.5	233
2005-06	97.1	241
2006-07	102.6	251
2007-08	107.9	260
2008-09	112.2	266
2009-10	116.4	273
2010-11	121.8	281
2011-12	127.9	290
2012-13	132.4	299
2013-14	137.7	307
2014-15	146.3	322
2015-16	155.5	337
2016-17	165.4	355

Source: Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, Government of India [9].

Table 2 explains the contribution made by agriculture and allied sectors and livestock sector to the Gross Value Added of our country. The percentage of share of agriculture and allied sectors to the Gross Value Added was 18.5 percent during 2011-12, which decreased to 17.5 percent in the year 2015-16. It can also be seen that the trend in share of agriculture and allied sectors to the Gross Value Added was not stable. It decreased since 2014-15. The sector heavily depends on weather conditions and other natural phenomenon that occurs. But the livestock sector exhibits a stable trend of increase in its share towards Gross Value Added of our country. The percent share of livestock sector to Gross Value Added which stood at 4 percent had raised to 4.5 percent in the year 2015-16.

Table 2 Share of Agriculture & Allied and Livestock Sector in Gross Value Added

Year	GVA (Total)	GVA (Agriculture & Allied)		GVA (Livestock Sector)	
		Amount	% Share	Amount	% Share
2011-12	8106656	1501816	18.5	327301	4.0
2012-13	9202692	1675107	18.2	368823	4.0
2013-14	10363153	1926372	18.6	422733	4.1
2014-15	11481794	2068958	18.0	510020	4.4
2015-16	12458642	2175547	17.5	560613	4.5

Source: National Accounts Statistics-2016; Central Statistical Organisation; Government of India [10].

Government of India takes a number of policy initiatives to release grants and subsidies to improve the socio-economic condition of dairy farmers in the country. A strategic focus was given by the Government to this sector since it offers a significant contribution to the GDP of the country and also for making India stand on the top among other countries in respect of milk production in the world. But the real status of the ultimate contributors, i.e. dairy farmers are worse. The dilemma of haves and have not's can be evidently seen in this sector. Those farmers who

 DOI : 10.18231/2454-9150.2019.0135

have sufficient funds to invest in dairy are receiving the grants and subsidies, bank credit and other financial services with ease. Those who have no adequate funds to invest for dairy farming are even excluded from the banking network. Thus policies should be framed to address the issue of inclusiveness.

Value Chain Financing: Potential shift in Dairy sector

A stick in a bundle can't be broken. Collective efforts always win. This signifies the relevance of integrating various entities which are interdependent in an organised manner. This integration helps in almost all facets of business activity. Financing becomes more transparent and smooth through this integration.

Value chain financing implies the flow of funds through the various links within a value chain. It is in short supply chain financing with some sophistication. The term 'value' signifies that there is some value added to the supply chain. In financing, value is the amount of money flowing through the chain. Value chain finance encourages flow of finance within the chain from the lenders to the borrowers such that the competitiveness of the entire chain is strengthened. It can take two forms:

- Internal value chain finance: It denotes financing within the chain. For example, supplier providing credit to a farmer or co-operative society lending to farmers.
- External value chain finance: It is financing from outside the value chain. It requires strong relationship maintained between the actors. For example, a bank grants loan to a farmer on the collateral of a warehouse receipt or on proof of contract with a reputed buyer.

Value chain financing is entirely different from conventional mode of agricultural financing. The element 'integration' acts as the pivot of value chain financing. Here, a bank or a financial institution enters into the value chain of dairy co-operatives and becomes part of it and performing their financing functions. The advantage of this integrated financing is that the farmers will be provided with sufficient information about the availability of financial assistances sanctioned for them and how the financial institutions deploy these funds among the diversified farming community. This improves the access of small and marginalised farmers towards formal credit. Also the risk of default is shared within the value chain. Thus financing through the chain becomes more transparent. The transaction costs get reduced. There are two categories of entities in the value chain:

- Chain actors: It refers to those who are directly involved within the value chain. They possess high responsibility towards efficiency in the chain.
- Chain supporters: It refers to those who are indirectly involved to the value chain. They possess comparatively moderate responsibility towards efficiency in the chain.

Following are some of the value chain actors and supporters within the dairy co-operative network;

- Farmers
- Traders
- Processors
- Primary co-operative societies
- Regional Co-operative unions
- Apex federation
- Consumers
- Banks
- Other financial institutions
- Other supporting agencies.

The factors influencing finance flow through the dairy value chain are as follows:

- Product flow: The term 'Value chain' is widely used in production field, where it refers to the chain through which the product moves from the point of production to the point of consumption. The flow of products add value to the chain and demands the flow of finance in return.
- Information flow: Availability of information about various financial assistances sanctioned by Government and financial institutions at right time helps generating demand for them by the farmers. This helps in ensuring inclusive growth.
- Technology flow: The developments in technology helps in easy transmission of information and finance along the chain.

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- Risk management: Each and every chain actor must empower them to take risk since value chain concept makes the entire chain to work like a single entity.
- Organisation policies (of banks and co-operatives): The organisation policies of banks and co-operatives should be flexible to suit the strategy of value chain financing.
- Government policies: The environment created by Government policies and regulations influence the effective implementation of value chain financing.
- Personal attitude: The attitude of chain actors towards this form of integrated financing is another influencing factor. Most probably, farmers may support this financing strategy, but the actors at higher levels may cause for hindering its implementation. This is because responsibility is shared and thus profits may be affected in the early stages.

Implications for Implementation

Value chain financing offers a variety of opportunities for creative program design, including opportunities for interventions that strengthen linkages between producers and buyers; encouraging banks to lend to value chain actors; organizing smallholder producer associations to enable production of high value crops; and outreach to financial institutions to design warehouse receipts loan products.

A challenge for donors and governments is to determine ways to support a value chain without undermining private-sector solutions. Interventions should be geared toward facilitating private-sector solutions, addressing market failures and ensuring a functioning enabling environment – not becoming a player within the value chain itself. Below are some general implications for program designers interested in expanding financial services to value chain actors.

1. Design sustainable value chain finance interventions.
2. Facilitate information flow from the value chain to financial markets.
3. Design interventions with 'integrated components' that focus on increasing access to finance.
4. Identify sources of risk reduction and new incentives.
5. Provide training and technical assistance to value chain connector firms.
6. Introduce and link value chain firms with financial institutions.
7. Identify ways to improve access to longer-term agricultural finance.
8. Recognize the limits as well as the benefits of financing by value chain actors.
9. Look for solutions for gender-based constraints to finance [11].

Flow of finance through Co-operatives

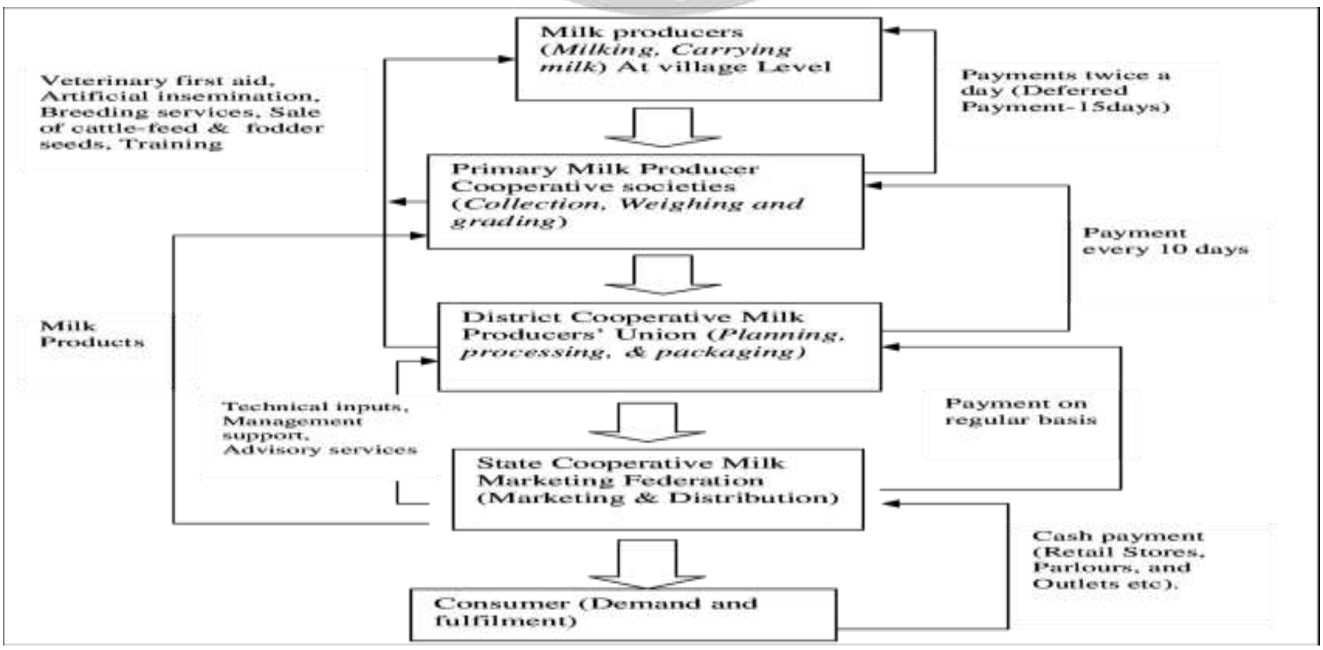

Figure 1 Source:https://www.researchgate.net/figure/Outline-of-the-Structure-and-Functioning-of-the-AMUL-Model_fig1_228415761

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Figure 1 shows the structure and payment mechanism that exists in co-operative network of dairy sector. It is clear that the payments at the village level and to the farmers are deferred and often delayed. But the apex societies and regional unions receive finance quickly without any delay. As the number of entities down the pyramid of three tier co-operative structure increases, care should be taken in managing them for easy flow of finance. Value chain financing is easy to implement in the cooperative structure as they have already a well organised structure for better management.

In value chain financing, the risks and returns of both finance supplier and those who demand finance are to be considered. As Figure 1 illustrates, value chain actors themselves (co-operatives and farmers), banks, microfinance institutions, other non-bank financial institutions, or a combination of these actors can facilitate financing to a value chain. These actors may involve in financing along the value chain and thereby make the credit flow transparent. The success of value chain finance depends on the strength of relationships kept within the chain. The stronger the relationships, the more ease, actors feel in accessing finance across the chain.

Financial trap of farmers

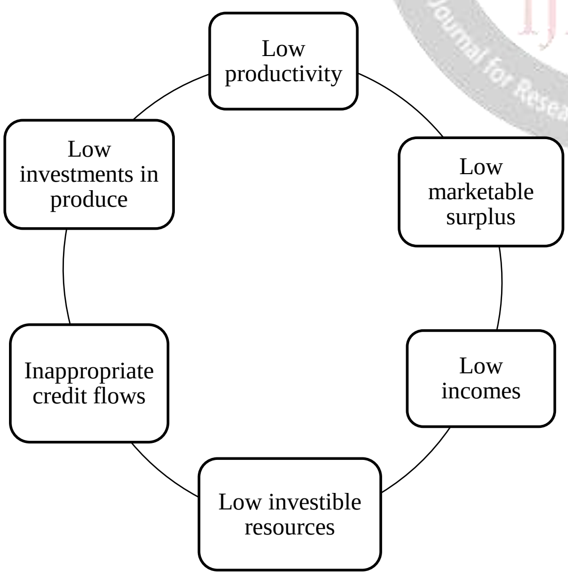

Figure 2

Source: http://www.microsave.net/files/pdf/RP153_Indian_Experience_in_Application_of_Agricultural_Value_Chain_Finance.pdf

Value chain financing is an effective strategy for ensuring financial inclusion in the country. Though the branches and outlets of formal financial institutions are dispersed across the country, the scenario of Indian financial system shows that most of the people residing in rural areas are excluded from the formal financial system. The financial inclusion initiatives should give priority to credit rather than savings. Because farmers have lack of money to invest in their farming. Measures should be taken to flow more credit to the sector, which is easily possible through chain financing. Most of the agricultural credit are in the form of short term and medium term loans. These types of credit cannot impact on the overall output from a farmer and their incomes. This low productivity forces farmers to sell their output at low prices. This vicious circle is shown below in figure 2 and through value chain financing it must be reversed. More credit flow through the chain must be ensured which in turn becomes high investment and high productivity, resulting in high marketed surplus. It finally generates high income for dairy farmers and financial well-being increases.

Financial Capability and Value Chain Financing

Financial capability is of recent addition to financial inclusion and financial literacy. While financial inclusion is ensuring access to financial products and services by vulnerable groups in the country, financial literacy is the basic knowledge of people in using financial products and services. A critical thinking over here reveals that there is a gap between financial inclusion cum literacy and what we are aiming to achieve. The concept of 'financial capability' quotes significance there. Financial capability is defined as a broad concept encompassing people's knowledge and skills and their ability to understand their own financial circumstances and the confidence to take sound financial decisions and rational use of financial products and services. The concept of financial capability also implies having appropriate financial tools (e.g. financial products and services) and the opportunities to exercise financial choices in the real world. Financial capabilities develop partly through financial experience so it is inherent in most people's lives. However, poor people often find themselves unfamiliar with the new and rapidly changing array of financial instruments available to them and lack information about the terms and conditions of

 DOI : 10.18231/2454-9150.2019.0135

these new products. This not only limits their options, but their ability to make informed decisions about using them. Financial education can complement financial experience in building financial capabilities. By focusing on basic principles of money management and skills to use financial tools, financial education promotes attitudes and behaviours that support effective money management. In recent years, there has been a growing interest among development practitioners and policy makers in building the financial capabilities of low-income households in developing countries by expanding their access to appropriate financial products and services and combining this access with financial education. However, there is still limited understanding of what financial capability really means for poor people in the context of their daily financial struggles and how to measure financial capability in a meaningful way. Better understanding and measurement of financial capabilities can contribute to the design and evaluation of more appropriate financial tools and effective financial education [12]. Financially capable citizens plan well and seek for adequate information available before taking a particular financial action.

Thus value chain financing creates an enabling environment for building financial capability among dairy farmers in all means. It ensures proper and smooth flow of information across the dairy value chain in real time. The small and marginal farmers who are excluded from the formal financing channels earlier will be covered under the financial network through proper implementation of value chain financing strategy. This strategy ensures integration in terms of physical, financial and information flow. Reserve Bank of India in a conference held on the topic ‘Credit flow to priority sector- Policy and Implementation’ highlighted the significance of ‘Agriculture Value chain financing’ as a strategy to ensure priority sector lending by banking institutions. It was advocated to have an organised movement to achieve the goals of financial inclusion and financial capacity building.

IV. RESULTS AND DISCUSSION

FINDINGS

The major findings of the study are as follows:

1. India tops among other countries in terms of production of milk, which exhibits an increasing trend since 1990s.
2. Unlike other agricultural activities, livestock sector provides a stable contribution to the economic well-being of both farmers and the country.
3. Value chain financing enables smooth and transparent flow of finance along the entire chain and meet the financial needs of chain actors on time.
4. It improves the access of small and marginal dairy farmers to the formal financial system.
5. The responsibility of efficiency in financing the value chain is shared among each and every chain actor.
6. Value chain financing is an effective mode of ensuring inclusiveness in the dairy co-operative network.
7. The factors that may affect the working of value chain financing strategy include organisation policies, Government policies, technology flow, information flow etc.

SUGGESTIONS

The following suggestions are put forward for the effective blending of value chain financing strategy into the dairy co-operative sector.

1. Farmers and officials of co-operatives must be made aware of the benefits of value chain financing.
2. Banks should give more importance to agricultural credit and relax their terms for lending into the sector so as to ensure inclusiveness.
3. All the dairy farmers must open bank accounts and it should be ensured by primary co-operative societies.
4. Banks should specialise their finance function to a defined population.
5. Proper interventions should be designed for work within the value chain for easy access to finance by all the chain actors.

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6. Adequate technical support should be ensured for better functioning of the chain strategy.

V. CONCLUSION

The study described the potential of value chain financing in building financial capability among dairy farmers. India is an agrarian economy. More than half of Indian population engage in agriculture for their livelihood. Dairy farming stands as a strong support for them at times of crisis by providing a stable income. It is a sector which marked its success through collective efforts. Thus it will be an appropriate environment to implement the strategy of value chain financing as there is already a strong integration established within the network.

Government sanctions subsidies and grants for the dairy farmers, which most of them are unable to avail. Value chain financing ensures proper flow of credit, subsidies and grants along the chain to all roots of the co-operative network. Value chain financing upholds the principle of inclusiveness. The financing needs of different chain actors are met within the chain. Responsibility of default is shared among the chain actors. Also it becomes easy to implement further technological and financial innovations. Thus financing through value chain in the dairy co-operatives modify the sector to act like an integrated organisation, where responsibility is shared and inclusiveness is ensured.

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