



# ***Workshop on Enhancing Exports' Competitiveness Through Value Chain Finance***

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### **Background Paper 3**

**Indian Experiences of Application of Agricultural Value Chain  
Finance**

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### *Abstract*

The paper examines the current state of value chain development in India, the policies that are in place and the institutional framework that supports the value chains in agriculture. The facilitating processes adopted in India for strengthening agricultural value chains have been analyzed and their efficacy has been critiqued.

Two case studies, one of a large cooperative diary value chain of small livestock farmers which owns a global brand and another of a small producer company run cashew value chain of tribal marginal farmers have been presented. The Indian experience drawn from across the country and specifically the learning from the two case studies have been used to draw lessons for developing countries in value chain development.

The experience from India is used to examine the implications for countries in Africa and how the lessons can be put to work to the benefit of African vulnerable farmers. The analysis shows that small farms are having similar problems the world over. While public policy can bring in institutions to facilitate flow of ideas, technology, products and the like, gaining viable markets is a continuing issue. Bank financing of value chains is easier only in cases where market access is stable.

Even evolved value chains do not lead to equitable income distribution to the small producer. Intermediary institutions that mobilize farmers and work in their interest are necessary to ensure 'inclusive growth' and income enhancement in the hands of the small farmers.

These farmer collectives have a significant role to play in productivity enhancement, access to finance and improving income realization through taking up value addition activities. Such institutions of farmers require State support in the initial years so that they access finance from mainstream banks after they get through the gestation period. Establishing a larger network presence of banks in the rural areas and designing customized products for small farmers are identified as essential for successful value chain financing in Africa.

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## 1. Introduction

### 1.1 Overview of the agriculture sector- Indian Context

With 52% of the landmass as cultivatable land, variety of climate conditions and sunshine round the year, India has all necessary natural ingredients for becoming a leader in agriculture. India has 168 million hectares of arable land (second largest after USA), of which 60 million hectares is under irrigation, supported by well-established agricultural research system and a huge rural population. India had decisively moved from food insecurity to a food surplus country that exports significant quantities of food. About 60% of Indian population is estimated to be dependent on agriculture to a significant extent for its sustenance.

The composition of the Indian agricultural production has undergone changes, as the Indian farmers have diversified production and increasingly higher share in output is seen of food items like dairy, fruits and vegetables, etc. Rice, tea, jute, wheat and sugarcane are the major crops, with India being leader in Jute and Tea production in the world. In four out of five major important crops, India is the second largest producer. Overall agri-trade balance continues to be positive and India has been a net cereal exporter for many years.

**Table 1 Top five producers of important crops**

Crop	No 1 country and (%) share of production	No 2 country and (%) share of production	No 3 country and (%) share of production	No 4 country and (%) share of production	No 5 country and (%) share of production
Paddy	China (29)	India (20)	Indonesia (9)	Bangladesh (7)	Vietnam (6)
Wheat	China (16)	India (12)	Russia (9)	USA (9)	France (6)
Maize	USA (41)	China (20)	Brazil (6)	Mexico (3)	Indonesia (2)
Sugarcane	Brazil (40)	India (17)	China (7)	Thailand (4)	Pakistan (3)
Ground Nut	China (40)	India (15)	Nigeria (8)	USA (5)	Myanmar (4)

#### 1.1.1 Area under cultivation

Cropping activities were carried out over 140 million hectares in 2010-11, with the gross cropped area of over 192 million hectares with a cropping intensity of 137%. The net irrigated area was 63.25 million hectares, about 45% of the cropped area. Small farmer holdings constituted 83% of all landholders, accounting for 41% of the land area operated according to the agricultural census 2005-06. The average size of land holding across the country was very small at 1.23 hectares and declining. The marginal farmers who constituted 64% of operational holdings held an average land of 0.38 hectares. The average size of more than three fourth of farms in the country was too small for undertaking high technology applications common in extensive farming. The financial position of such small farms made risk taking in new crops and technologies difficult.

With the varied agro-climatic conditions in different parts of India, a large variety of crops are produced. Cereals, pulses, oilseeds, plantation crops and fibres are produced apart from spices. In the allied sectors livestock rearing and fisheries are large contributors to employment and incomes.

Table 2 Growth rate of output in subsectors of agriculture in India

Period	Crop sector	Livestock	Horticulture crops	Cereals
1950-51 to 1959-60	3.06	1.42	0.74	3.95
1960-61 to 1969-70	1.70	0.41	4.87	2.10
1970-71 to 1979-80	1.79	3.92	2.86	2.40
1980-81 to 1989-90	2.24	4.91	2.63	2.89
1990-91 to 1999-00	3.02	3.79	5.95	2.24
2000-01 to 2008-09	3.06	3.90	3.35	2.31

Data source: Agricultural Statistics at a Glance 2011 - Ministry of Agriculture, Government of India.

Over the sixty-year period the growth rates of the crops sector had been steady. But the livestock sector and horticultural crops had posted higher growth rates in the last thirty years. The vigorous growth rates in the livestock sector are attributable to the development and consolidation of dairy value chains in the country based on the Amul cooperative model and the 'Operation White-flood' that enabled investments in the post-production stages of the value chain. The increasing demand for food other than cereals and pulses led to a growth in the horticultural value chains (especially vegetables, fruits, beverages) leading to a higher rate of growth in horticultural crop outputs.

Table 3 Per Capita Net Availability of Food-grains (Per Annum) in India<sup>1</sup>

Year	Rice	Wheat	Other Cereals	Cereals	Gram	Pulses	Food Grains
1951	58.0	24.0	40.0	122.0	8.2	22.1	144.1
1961	73.4	28.9	43.6	145.9	11.0	25.2	171.1
1971	70.3	37.8	44.3	152.4	7.3	18.7	171.1
1981	72.2	47.3	32.8	152.3	4.9	13.7	166.0
1991	80.9	60.0	29.2	171.0	4.9	15.2	186.2
2001	69.5	49.6	20.5	141.0	2.9	10.9	151.9
2008	64.0	53.0	19.7	143.9	3.9	15.3	159.2
2009	68.8	56.5	23.3	148.6	4.7	13.5	162.1
2010(P)	67.4	61.3	19.8	148.5	4.9	11.6	160.1

India was food insecure for more than two decades from the early fifties. The agriculture sector had to strive towards sufficiency in food for an increasing population. Food grain availability increased per capita by 30% over a forty period till 1991 when Indian population also increased by 140%. While in the post 1991 period per-capita availability of food grains fell, the per capita availability of food increased. The changing consumption pattern caused by a preference for milk, eggs, meat, vegetables and fruits changed the nutrition profile and impacted the demand for and production of food grains<sup>2</sup>.

### 1.1.2 Production and productivity

The growth story of agriculture sector in India clearly shows how food security can be established through State interventions in different parts of the value chain – right from production to consumer markets. But the story of recent years also shows how the State should keep away from a mature agriculture sector and let farmers and market forces decide

<sup>1</sup> Source: Agricultural Statistics at a glance 2011, Ministry of Agriculture, Government of India

<sup>2</sup> Source: Economic Survey 2012, Ministry of Finance, Government of India

on production, markets and incomes. The need is for State to move away from production related interventions to farm income enhancing interventions in risk mitigation and markets.

**Table 4 Growth rates in area cultivated, production and yield**

Crops/Groups	1990-91 to 1999-2000			2000-01 to 2010-11		
	Area	Production	Yield	Area	Production	Yield
<b>Rice</b>	0.70	2.09	1.36	-0.39	1.32	1.47
<b>Wheat</b>	1.62	4.52	2.87	0.57	1.39	0.73
<b>Maize</b>	0.85	2.24	1.37	2.68	7.12	4.13
<b>Coarse Cereals</b>	-2.42	-0.08	2.03	-0.13	5.0	4.64
<b>Total Cereals</b>	-0.12	2.29	2.38	-0.09	1.82	1.69
<b>Total Pulses</b>	-0.91	1.06	1.82	2.30	4.02	1.21
<b>Total Food grains</b>	-0.27	2.19	2.43	0.34	1.95	1.37
<b>Oilseeds</b>	0.75	2.53	1.76	1.27	7.00	5.18
<b>Sugarcane</b>	2.25	3.16	0.91	1.95	2.12	0.03
<b>Cotton</b>	1.42	0.93	-0.54	2.66	12.12	9.15

While the production and yield growth rates have stabilized in cereals and pulses, oilseeds and cotton have shown higher growth rates in yield and production. The introduction of new varieties and a surge in prices caused by changing consumption patterns had led to the improved production and yields. Government interventions in improving oilseeds production as an import substitution measure had yielded good results. In case of cotton, among other things, the introduction of BT cotton (transgenic variety) has been a significant reason for the increased yield and production<sup>3</sup>.

Indian agriculture has increasingly been exposed to global markets with the ratio of agricultural exports and imports rising from 4.9 percent as a proportion of Agricultural GDP in 1990-91 to 12.7 percent in 2010-11. This is still low as compared to the share of India's total exports and imports as a percent of India's GDP at 55.7 percent. India is a net exporter of agricultural commodities with agricultural exports constituting 11 percent of India's total exports. However, the share of agricultural exports in India's overall exports has been declining from 18.5 percent in 1990-91 to 10.5 percent in 2010-11. International trade in agricultural commodities is influenced by domestic factors such as rainfall, demand, price levels and the government's policy of securing the interest of vulnerable sections of poor. Policy influence on exports is high with food grains and sugar kept under quantitative as well as price controls. Given the past problems relating to food security, the policy of the government is to ensure adequate buffer for domestic consumption before exports.

<sup>3</sup> Reproduced from "Pricing Crisis in cotton"<sup>2</sup> by Ashok Gulati, Surbhi Jain, Commission on Agricultural Costs and Prices, Ministry of Agriculture, Government of India – December 2011

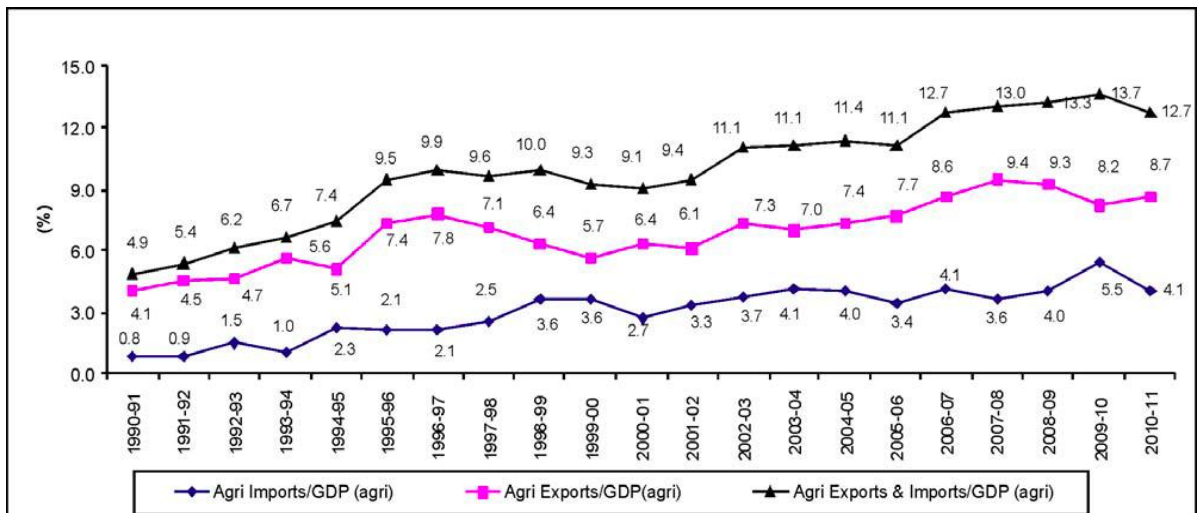


Figure 1 Growth Trends in agricultural exports and imports

## 2. Value Chains

*Investopedia* defines Value Chain<sup>4</sup> as: “Value chain is a high-level model of how businesses receive raw materials as input, add value to the raw materials through various processes, and sell finished products to customers”. Value-chain analysis looks at every step a business goes through, from raw materials to the eventual end-user. The goal is to deliver maximum value for the least possible total cost. Thus, a vertical collaboration of enterprises to achieve a relatively higher rewarding position in the marketplace can be termed as value chain. Value chain is the sequential set of primary and support activities that an enterprise performs to turn inputs into value-added outputs for its external customers.

A value chain is characterised by a market-focussed collaboration of a set of enterprises working together to produce, process and market products and services in an effective and efficient manner. Value Chains allow businesses to respond to the marketplace by linking production, processing and marketing activities to market demands<sup>5</sup>.

### 2.1 Agri-Value Chain

A collaboration of the producers, processors, marketers, retailers and support service providers such as transporters, researchers and even suppliers (supply chain managers), linked together to gain a competitive advantage are termed as Agri-value chain.

### 2.2 Value Chain Finance – Agricultural Value Chains

Value chain finance (VCF) is typically defined as flow of financing within a sub-sector, among various value chain stakeholders, for the specific purpose of getting product(s) to market(s)<sup>6</sup>. This is very different from the mere provision of conventional financing, where one of the chain stakeholders (for example, a specific firm/entity and often primary producers) gains access to financial services, independent of other stakeholders.

### 2.3 Value Chains in Indian Agriculture

The agriculture sector in India has undergone significant structural changes indicating a shift from the traditional subsistence towards a market oriented one. The rural economy has moved from exclusive reliance on agriculture to a service dominated one that has a stabilizing influence on rural incomes. The decrease in agriculture’s contribution to GDP has not been accompanied by a matching reduction in the share of agriculture in employment. However, within the rural economy, the share of income from non-farm activities has increased. Since agriculture forms the resource base for a number of agro-based industries and agro-services, it would be more meaningful to view agriculture not as farming alone but as a holistic value chain, which includes farming, aggregating, processing, warehousing (including logistics) and retailing.

The term “value chain” describes the full range of activities that are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use<sup>7</sup>.

In agriculture, value chains have always been in existence in the sense that farms carried out production and the final consumer accessed the produce, with the produce itself traversing through several channels and players. The degree of organization and governance of the value chain while improving continues to be a challenge. The existence of several middlemen, absence of information about other links in the chain and inability to invest in improving the performance in almost every part of the chain led to inefficiencies and lower incomes especially in the lower end of the chain. The recent initiatives have focused on improving technology of production, processing, quality control, creating processing

4 <http://www.investopedia.com/terms/v/valuechain.asp#ixzz27YBSNANo>

5 [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agp4936](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agp4936)

6 <http://microfinance-in-india.blogspot.in/2011/04/challenges-that-low-income-people-face.html>

7 A handbook for Value Chain Research – Raphael Kaplinsky and Mike Morris.



facilities that add value to raw produce and aggregation near farms to ensure higher share of consumer prices for the producer. Creation of technology based commodity exchanges for price discovery, investments in marketing infrastructure such as warehouses, cold stores, cold chain logistics, innovations in trade finance products such as collateralized warehouse receipts and institutional interventions such as farmer collectives are changing the quality of value chains in agriculture.

Agricultural value chains are difficult to organise and stabilize in countries like India with a large number of small farm holdings. The production and aggregation parts of value chains have to be made efficient in order for the small farms to realize higher returns. Building the confidence of farmers to move away from subsistence farming to market oriented farming, and increasing their awareness on application of improved inputs and adoption of higher technology of cultivation are important interventions in creating a sustainable value chain. Aggregation of several small farms pose challenges in terms of highly dispersed collection of produce, transport arrangements, and quality assurance mechanisms at every level. These not only entail costs but also time outlays in the aggregation process. The production effort has to be organized in clusters so that the distances and time are kept within manageable levels.

While approaches and applications vary, most value chain approaches have several common characteristics, including: a market perspective; a focus on end markets; a recognition of the importance of relationships between different links in the chain, attention to improving value generation for the different participants in the chain and, empowering the private sector. In the international development field, projects utilizing the value chain approach generally tend to shift the balance of power within value chains through the formation of associations; branding; alternative financing; support for market systems; market or supply diversification and changing the basis of competition from price to quality.

Usually an initiator from the voluntary sector or a corporate (and rarely a government agency) is required to handhold the process of organizing the producers, establish quality standards and aggregate the produce. Post aggregation processing where required and marketing, demand specialization of a different kind. This part of the value chain can be operated by one or multiple entities depending the size and scope of operations. Well established value chains are able to attract bank finance, compared to those with weak linkages especially to markets. Financing difficulties are more felt by primary producers than organized enterprises engaged in processing and marketing. Food processing sector usually runs on integrated value chain principles where the procurement of raw produce is required to be done on a reliable basis from the same set of producers that know of appropriate quality standards. Where value chains are built bottom-up the interests of farmers are taken in to account and income realization by farms is prioritized. In top-down value chains, the producers are seen as a source of raw materials and the necessary investments in farmers' welfare and sustainability is ignored with a few notable exceptions.

Sugar and milk are two traditional value chains that have stabilized in different parts of India. These two value chains play a significant part in the livelihoods of many farm households. The oilseeds sector has developed value chains, as the processing requires aggregation. Cotton, rubber and plantation crops such as coffee and tea have organized value chains in many locations where the relationships between the producer, aggregator, processor and marketer continue over a long time. Corporate sector led value chain integration is of recent vintage but covers many crops and non-farm products such as scented sticks and handicrafts. The variety of products under integrated value chains (large and small) is of a wide range such as cereals, pulses, spices, fresh vegetables and fruits, flowers, plantation crops such as coffee, tea, rubber, marine products and artisanal products.

**Table 5 Manufacturing (Registered & Unregistered) under Food Processing Sector – value of production**

(Rs billion)

Activity	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	CAGR %
<b>Meat, Fish, Fruits, Vegetables, oils</b>	92.36	86.82	95.48	103.49	120.43	122.24	7.29
<b>Dairy Products</b>	35.09	43.42	43.19	46.08	54.19	47.62	6.66
<b>Grain Mill Products</b>	134.67	123.47	119.03	128.46	159.47	177.41	6.55
<b>Other Food Products</b>	147.22	177.94	208.95	225.22	257.75	236.64	10.71
<b>Beverages</b>	34.21	45.25	54.99	69.95	79.38	76.87	18.61
<b>TOTAL</b>	443.55	476.90	521.64	573.20	671.22	660.78	9.30

The production trends in the food-processing sector show the increasing significance of these value chains. The growth rates are well above the agricultural GDP and beneficial to farmers operating in these value chains.

Some value chains in India are oriented towards exports as the outputs find global markets<sup>8</sup>. Guar gum, fruits – grapes, pomegranate, mango, vegetables, coffee, tea, spices, cashew are examples of value chains that have an export orientation. The value of exports from an agricultural base is estimated at US \$ 18 billion in 2011-12. While the export based value chains might be similar to that of commodities for domestic markets, there are some parts of the value chain that are very different. The export value chains have additional requirements relating to quality, certification of different types, specialized storage and transport logistics. Since the price realizations from exports are higher the investments in setting up additional infrastructure have been made both from public and private sectors. These investments have been typically in sorting, grading, warehousing, processing, packing, specialized transport and handling infrastructure in seaports and airports. In case of food related value chains, testing for Chemical residue, bacterial contamination and HACCP have become mandatory. Infrastructure for testing has been created both in public sector and private sector. Agricultural Products Export Development Authority (APEDA) set up by the government of India provides services of different kinds to ensure that the value chain players are able to meet the export quality standards and complete the necessary procedures. APEDA has created end-to-end solutions for a number of agriculture and livestock based value chains to export of primary and processed products. Specialised arrangements have been made to meet the credit and other requirements of export value chains. While non-tariff barriers are being dealt with through establishment of testing certification agencies, export promotion and access to markets is facilitated through specialised agencies such as APEDA. Credit products to take care of packing, pre-shipment and post-shipment credit, guarantees and risk management products have been designed and made available to specialized agencies and mainstream banks as part of overall credit policy. These are dealt with in greater detail later.

Domestic market based value chains are the dominant ones in terms of value and volume of commodities marketed. The domestic value chains are also well organized in terms of aggregation, processing, transport, warehousing and terminal market access. The stringent quality standards established for exports do not usually apply within domestic value chains. However suppliers to food processing industry have to ensure that Indian standards are met. While the domestic value chains are fairly well developed in milk, sugar, spices, edible oil, food grains, those of vegetables and fruits still require better organization. The losses between production to market and also the low proportion of processing of horticultural

<sup>8</sup> Please see annex 1 for detailed information of India's agriculture based exports.

outputs are issues that are being dealt with. Several issues relating to production such as varieties grown, cultivation practices and inputs used; and aggregation such as uniform quality, sorting and grading technology and appropriate storage are to be resolved to make processing and marketing easier. Producers in some of provinces that are not well connected by roads and lacking appropriate aggregation and storage infrastructure find it difficult to access remunerative markets, despite the good quality production; for example apples in Jammu and Kashmir and oranges and pine apples in North Eastern Region. The challenge before domestic value chains is that enabling increased shelf life for perishable produce either through better storage or through processing so as to avoid distress sales in the post harvest market glut. The lack of aggregators and industry players to invest in such infrastructure as also weak support from banks are problems that need to be addressed.

#### **2.4 Employment in agricultural value chains**

The production end of the value chain has the maximum number of people employed as cultivators (with or on own farms or as wage labour) with about 243 million people employed engaged in cultivation of a variety of crops. At the storage and transport parts of the chain an estimated 22 million people are employed<sup>9</sup>. In the processing and manufacturing part of agricultural value chains, an estimated 10 million people are employed (5.1 million in food processing, 4.1 in tobacco and 1 million in others). In sugar, a prominent value chain, 6 million are employed in cultivation of sugar cane and another 0.5 million in processing and sugar manufacture. Dairying, another large value chain has about 18 million livestock farmers at the base (with 10 million members in the dairy cooperative societies) besides employment in dairy plants and transport/retailing. The overall employment generated by agricultural value chains is about 250 million in production and post production aspects of the agricultural value chains.

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<sup>9</sup> These are common for several sectors including agriculture. Those engaged in agricultural products transport and storage is not accounted separately.

### 3. Agricultural Finance

Finance for agriculture has been part of the priority sector to which banks are mandated to lend in India. Banks should provide at least 18% of their net credit to agriculture. With major part of banking being in public sector ownership and a policy that directed credit towards agriculture, credit flow had been reasonably good. In the last seven years on account of special programmes, credit flow to agriculture had witnessed high growth rates.

Table 6 Agricultural credit flows in India

(Rs. Billion)

Year	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
<b>Credit Flow</b>	695.6	869.8	1253.1	1804.9	2294	2546.6	3019.1	3845.1	4682.9
<b>Growth Rate %</b>	12.1	25.0	44.1	44.0	27.1	11.0	18.6	27.4	21.8

The vigorous credit growth led to credit intensification of agriculture as the growth in agricultural GDP was much lower than credit expansion. However the hypothesis is that a considerable part of credit supported value chain investments that increased the holding capacity in farmers' hands and improved aggregation.

Different segments of the banking system support agriculture through credit. The cooperative banks, which typically attend to small and marginal farmers has been losing market share over a long period of time. The commercial banks with their large resource base have been expanding credit to agriculture.

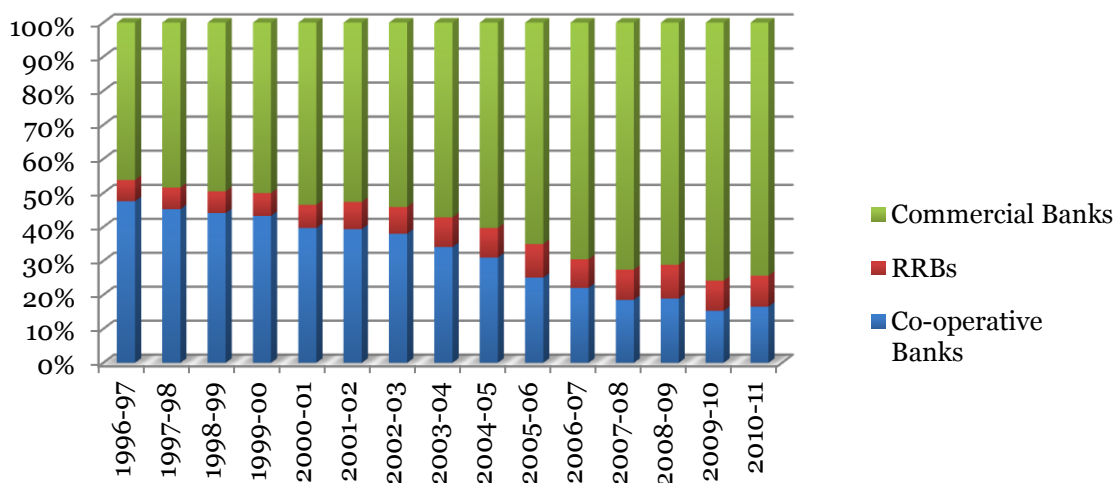
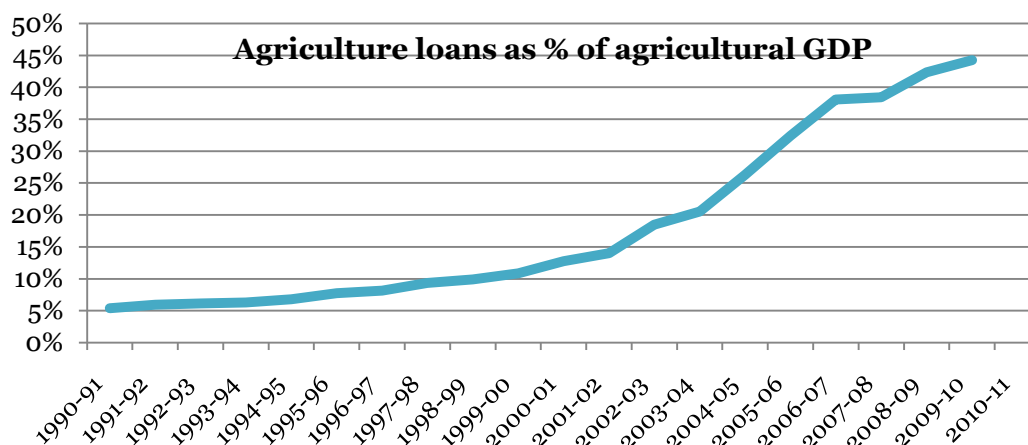


Figure 2 Share different segments of Indian banking in agricultural credit



**Figure 3 Indian agriculture becoming credit intensive**

Despite the expansion in credit flow, the demand for credit in agriculture has not been fully met. The gap between supply and demand was estimated to be widening. The increased demand is on account of the shift towards market oriented farming and focus on higher quality production for remunerative markets in the established value chains.

**Table 7 Agricultural Credits: Demand-Supply Gap<sup>10</sup>**

Year	Demand-Supply Gap (in per cent)
2002-03	4.0
2003-04	8.5
2004-05	6.4
2005-06	12.1
2006-07	25.8
2007-08	33.1

Selective financing by banks limits the participation of an optimum number of farms in value chains. The supply of produce to value chains tends to get restricted and build up idle capacity in post-harvest processing and marketing. In order to ensure that the entire value chain works at optimal level without idle capacities, banks should finance all deserving participants engaged in production. Banks tend to provide more of short-term loans, which are not appropriate for investments in agriculture or value chain infrastructure. While firms at higher end of the value chain are able to access longer term credit to finance their investment projects, the producers at the lowest end of the chain have to make do with whatever form of loan they are able to access. At times this leads to mismatches in cash inflows and outflows and eventual defaults in case farmers are wholly dependent on the investments financed by the bank loan. **Banks should differentiate the investment requirements from production requirements and offer suitable credit products to farmer producers.**

Marketing of crops by the farmer is another aspect of farming enterprise that needs greater attention from banks. The basic crop production loan covers the expenses of inputs, labour and cost of harvesting. The input-output ratio in farming is above 2 in developing countries. Given this large value addition during the crop production stage, the credit availability to support marketing is meagre. Typically farmer is short of cash at the time of harvest and

<sup>10</sup> Cited from the speech of Dr Subba Reddy, Governor of Reserve Bank of India; Calculations based on the data published in the Handbook of Statistics on Indian Economy, RBI (2010-11).

looks to converting his produce in to cash to meet several commitments incurred during the crop season. This emergent need for cash compels sale of produce immediately after harvest and reduces income realisation to the farmer. A loan against the value of the harvested produce would enable the farmer to store the produce and time the sale to get the best realisation possible. At the farm level, such loans against the value of the harvested crops would enable the farmer to participate in the market meaningfully. As the next link in the chain, village cooperatives or other farmer's organisations would pool together produce of members, and bank credit for holding the produce would lead to aggregation of produce for bulk marketing or processing. ***Retention of the value created in the chain at the farm and farmers group levels is possible only when their holding capacity is enhanced through finance. Banks have an important role to play in introducing such a product that would also mitigate the risks.***

Lending to small farms is perceived to be a high risk, high cost proposition. To deal with credit risk, banks in general have made 'collateral' the prime consideration in credit decisions. Excessive reliance on collateral tends to limit options for portfolio expansion for the banks, under-finance projects and in some cases deter entrepreneurs from setting up projects on account of financial constraints. While securing the loans appropriately is an essential aspect of credit management, pragmatic structuring of the security for the loan is needed if adequacy of finance is to be ensured. In the last four years banks have provided joint liability groups of farmers with good experience of loan repayment. Group liability substituting for collateral has reduced transaction costs as well. Immovable property taken as collateral has proved to be difficult to sell off, thus questioning the wisdom of collecting such collateral. A balance between owner's equity and bank loan is to be established. Collateral should not be only in the form of land and building brought in by the owner/entrepreneur, but also the assets created out of the loan. Such collateral is more suited for long-term loans. For working capital requirements, inventories, book debts and collateral substitutes that are self-liquidating could be used as security. The present paradigm on credit and collateral management has to change.

From the foregoing it is clear that the banks should:

1. Finance groups of women, farmers, etc. with a view to reduce its transaction and risk costs and increase banking outreach to a larger number of customers
2. Identify crops and activities that needs long term loans and prepare farm models to establish the viability of such activities
3. Introduce cash credit type of rollover credit facilities to effectively support multi-activity farms
4. Introduce credit product to support post-harvest holding of crops at farms and handling of crops at aggregators levels
5. Re-examine their policy on loan collateral and actively pursue collateral substitutes in its own interest
6. Finance marketing infrastructure that is commercial such as warehouses, cold stores, transport vehicles, cool chains, etc. to link producers and traders with the broader market.
7. Across all the foregoing, financing within identified value chains that have good backward and forward linkages will reduce risks of banks and improve incomes of value chain participants.

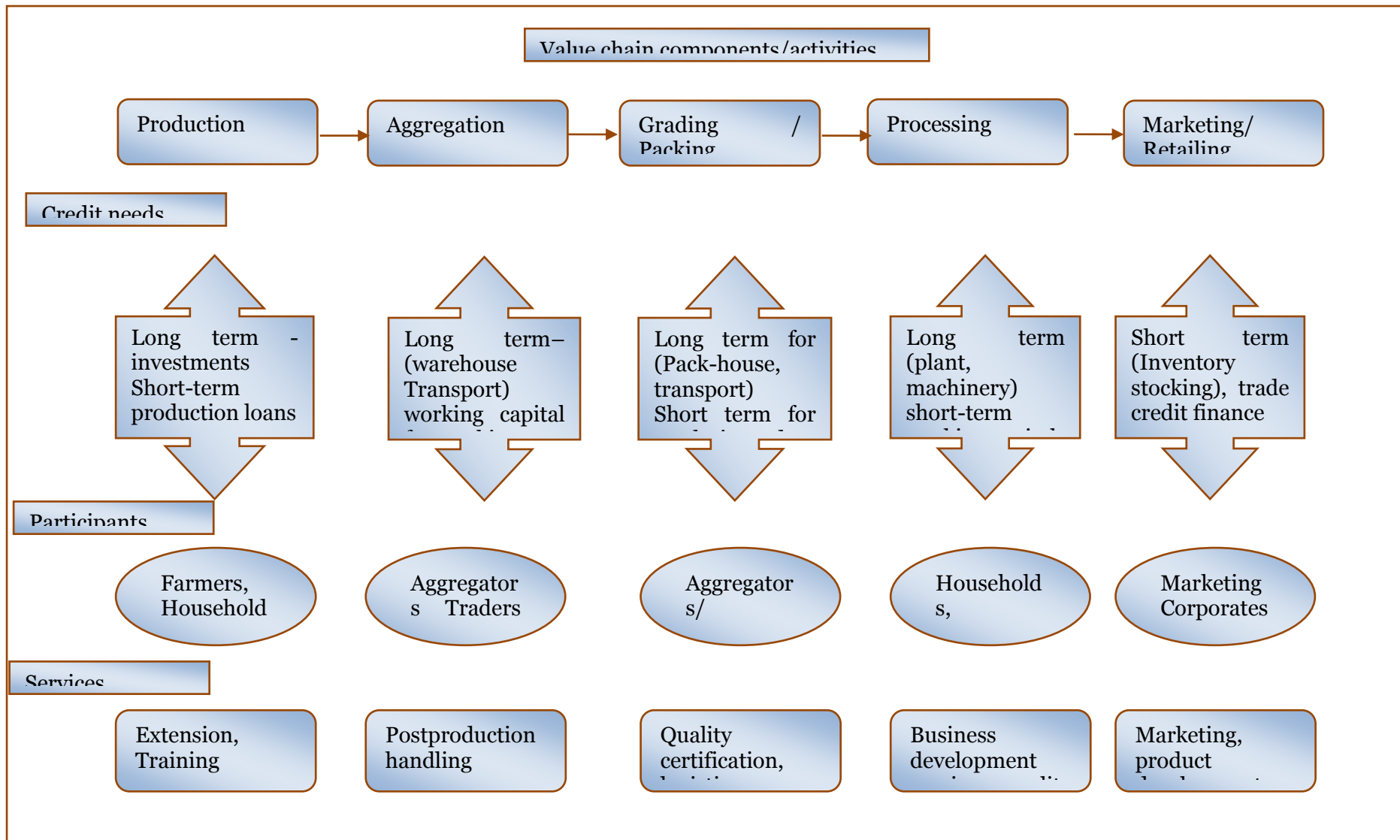


Figure 4 Credit needs of value chains

### 3.1 Value Chain Finance, financial inclusion and inclusive growth

Financial inclusion in the conventional sense aims to bring in those households that are presently unable to transact their service requirements through the formal financial institutions. An examination of the Indian financial sector landscape shows that the excluded households are more likely to be rural areas, despite the vigorous growth of the institutional infrastructure and outreach of services. In agriculture banks provide a crop production loan and usually through a Kisan Credit Card which will take care of reasonable needs of farmers. But the availability of credit to farm households is much less than the demand. As per agricultural census in 2005-06 there were an estimated 100.8 million operational agricultural holdings engaged in farming. The number of loan accounts of all banks for agriculture in 2010-11 was 56.6 million, leaving a gap of about 44 million farms without credit from banking system. The National Sample Survey in 2002 also concluded that about 39% of farm households were availing credit from informal sources. It is fairly clear that financial inclusion initiatives are a priority; these initiatives apart from focusing on savings, should prioritise credit.

Most credit flowing to agriculture has been short term and to some extent medium term. Generally, short-term finance does not have significant impact on productivity and therefore does not improve overall output and incomes. Low productivity, combined with very limited on-farm processing, forces farmers to sell their produce in unfavourable market conditions at low prices. This vicious circle - low investment in productivity enhancement and processing leading to low incomes and high credit intensity per unit of output – must be reversed. Higher credit intensity coupled with high costs makes farming more vulnerable.

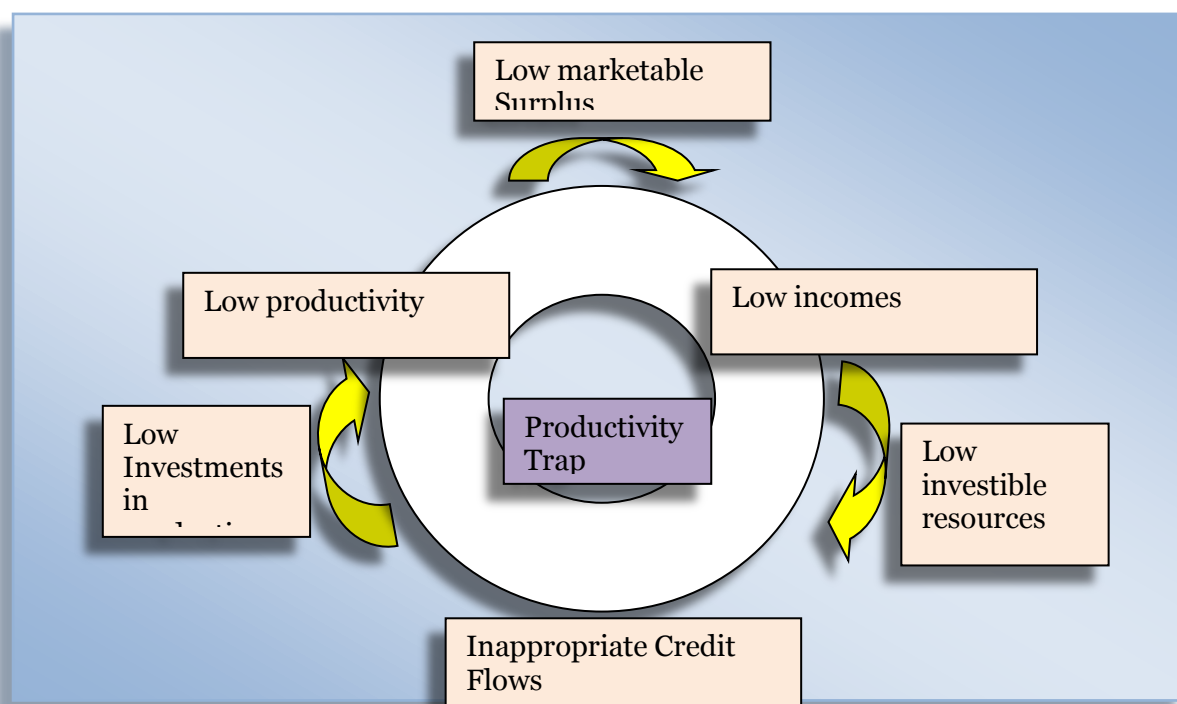


Figure 5 The productivity trap of small farms

The smallest of farms do not have the resources to improve productivity and benefit from the different schemes of government. In India availability of bank credit is the gateway to avail several benefits such as interest subsidy on credit, investment subsidies linked to credit, crop insurance and participation in value chains. Thus inclusive growth is closely linked to financial inclusion for the farming community in India.

A more important part of inclusion is the design of products and processes that match the needs of the farmers. These needs reflect the compulsions of the crop sector they are engaged and consequently the value chain activities. Banks have not invested adequately in understanding the nature of demand and the nuances of the different value chains. This lack



of information leads to design of vanilla financial products that are not appropriate to most rural activities. The processes of financial intermediation also should be redesigned to make them suitable for time, space and cost limitations of rural customers. Instead of expecting the rural customer to adapt to the ill-designed products, banks should custom-build products that are better suited. Such products, marketed adequately and timely will achieve the goals of both financial inclusion and inclusive growth. While there is considerable debate on the ability and desirability of microfinance institutions in financing Value Chains, the scope in this regard is limited. MFIs provide small ticket loans of a short duration with very frequent repayment installments that are not suitable for most agricultural value chains. Unless the MFIs reexamine their product basket, the likelihood of their financing agricultural value chains is remote.

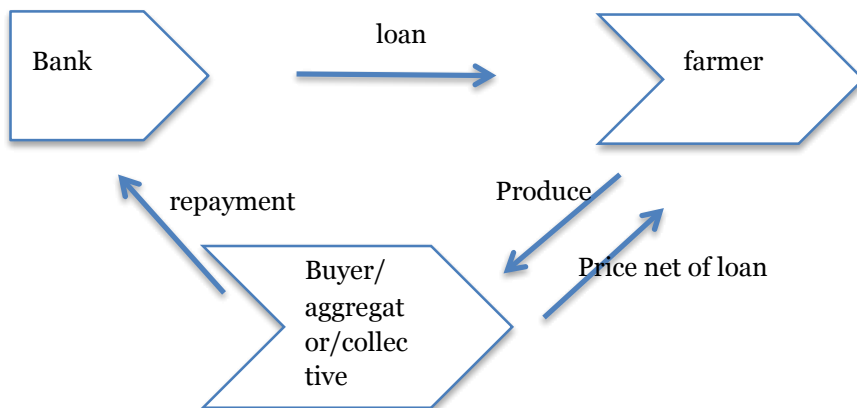
Banks have both direct financing and indirect financing of production in the agri value chains. A direct finance approach focuses on the farm household and supports the entire production effort on the farm. It is not oriented towards any given market or product. An indirect approach provides bulk finance through an intermediary organization, such as a farmer collective, aggregator, processing unit or a contracting entity. The intermediary either takes a bulk loan from a bank and retails among the producer farmers or assures the bank that it will deduct and pass on loan repayment amounts from the value of produce procured by it from the farmers. Both models are at work in India.

Figure 6 Different approaches to financing value chains

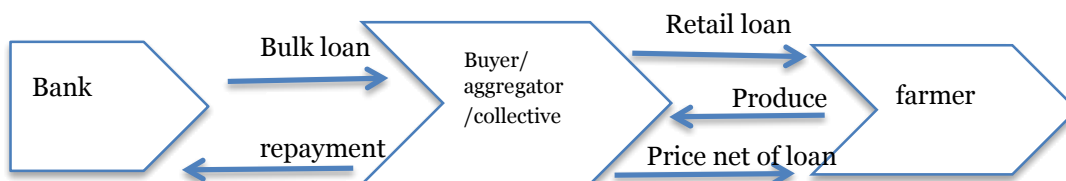
Direct financing of production in value chains



Indirect financing – loan to farmer, repayment by buyer of produce



Indirect financing – loan to buyer of producer for retailing to contracted farmers



The other parts (apart from production) of the value chain are funded by banks to those players that invest in the assets such as warehouses, cold stores, weighing, grading, sorting and packing equipment, processing plant and machinery, transport etc. Commercial banks, Cooperative Banks, Regional Rural Banks and other financial institutions actively finance the different value chain players. Microfinance institutions also finance the small and micro producers and localised small processors. However the microfinance institutions in the Indian context are unable to finance other than very tiny producers on account of resource limitations and small ticket loans. Specialised institutions in infrastructure finance provide funding for storage and transport infrastructure. Cooperative societies (both financial and commodity societies) provide finance to member producers after sourcing bulk funds from other banks. While financial co-operatives rarely carry out aggregation of produce of members, commodity societies are engaged pooling of member produce. Cooperative Banks are able to finance aggregation activities of cooperative societies and also finance working capital needs and infrastructure investments of aggregators and processors. The cooperative sugar mills are mostly financed by cooperative banks. Cooperative banks also fund the cooperative dairies and the primary dairy cooperative societies. However cooperative societies also borrow from other banks. Large infrastructure and processing projects are usually financed by commercial banks on account of both resource and expertise limitations with cooperative banks.

The assessment regarding financing is that production activities by and large are adequately financed. But gaps in financing impede creation of storage, transport and market infrastructure as also producer-led processing units. For filling these gaps the government of India had introduced special schemes that offer subsidies on the investment outlays thereby improving viability and lowering risks. These schemes are operating in warehousing and marketing infrastructure areas.

As for exports, different financing facilities are available on competitive terms from the banking system. A specialised development bank, EXIM Bank has been providing pre-shipment and post shipment and other credit. Exim Bank has a dedicated Agri-Business Group to cater to the financing needs of export-oriented companies dealing in agricultural products. Financial assistance is provided by way of term loans, pre-shipment/post-shipment credit, overseas buyers' credit, bulk import finance, guarantees etc. Term loans with varying maturities are provided for setting up processing facilities, expansion, modernization, purchase of equipment, import of equipment/technology, financing overseas joint ventures and acquisitions etc. Other commercial banks also provide pre-shipment and post shipment credit to exporters in different forms such as packing credit, discounting of bills, negotiation of bills under letters of credit, advances against consignment exports, etc. A public sector corporation Export Credit Guarantee Corporation (ECGC) had been set up which provides risk mitigation for export related credit facilities. The ECGC Provides a range of credit risk insurance covers to exporters against loss in export of goods and services, to banks and financial institutions to enable exporters to obtain better facilities from them and provides Overseas Investment Insurance to Indian companies investing in joint ventures abroad in the form of equity or loan. These risk products are critical for entering new markets or introducing new products as also to manage trade volatilities in an uncertain global economy. Accessing export credit is easier for those with a track record or with firm contracts from overseas buyers. The domestic value chain players have a comparatively difficult time in securing finance from banks.

#### 4. Case study 1 – A large Cooperative dairy value chain

##### **Gujarat Cooperative Milk Marketing Federation**

Kaira District Milk Producers Cooperative Federation, Anand (AMUL) had its roots in a milk farmers' strike in 1946. The dairy farmers of Anand protested against the exploitative practices of milk traders who had formed a cartel. With the guidance of regional and national leaders at that time the dairy farmers had formed their own cooperative in 1946 to end the tyranny of the milk traders. This co-operative, the Kaira District Co-operative Milk Producers Union Ltd. began with 247 litres of milk from just two village dairy co-operative societies and is today a very large operation with the iconic brand Amul. Dr. Verghese Kurien was entrusted with operations of the dairy in 1950 and since then the systematic development of this milk cooperative as a value chain has continued without stops. At a time when the concept of a value chain was yet to develop, AMUL had systematically developed its business from production to market as a high quality value chain that focused on small farmers.

The objectives of GCMMF are three fold.

- ✓ Establishment of a direct linkage between milk producers and consumers by eliminating middlemen
- ✓ Milk Producers (farmers) should control procurement, processing and marketing
- ✓ The operations should be professionally managed
- ✓

The value chain has a three tier organizational structure so as to include small holders in its fold. At the base level individual dairy farmers engaged in milk production join as members of Village Dairy Cooperatives. The village Dairy Cooperatives, in turn become member units of a District Level Cooperative Milk union. The district level unions are then federated in to a State Level Cooperative organisation. Thus the GCMMF is a state level federation in Gujarat with a member base at the grass roots of 3.18 million milk producers.

**Table 8 GCMMF - A Statistical Overview<sup>11</sup>**

<b>Year of Establishment</b>	1973
<b>Members</b>	17 District Cooperative Milk Producers' Unions
<b>No. Of Producer Members</b>	3.18 Million
<b>No. Of Village Societies</b>	16,117
<b>Total Milk handling capacity per day</b>	13.67 Million litres per day
<b>Milk Collection (Total - 2011-12)</b>	3.88 billion litres
<b>Milk collection (Daily Average 2011-12)</b>	10.6 million litres (peak 13 million)
<b>Milk Drying Capacity</b>	647 Mts. per day
<b>Cattle-feed manufacturing Capacity</b>	3690 Mts. per day
<b>Sales Turnover -(2011-12)</b>	Rs. 11668 Crores (US \$2.5 Billion)

The dairy value chain of GCMMF is a large and complex one with several autonomous local cooperatives that collaborate with each other and the higher tier institutions that deliver benefits to the farmers.

<sup>11</sup> Excerpted from the website of GCMMF- [www.amul.com](http://www.amul.com)

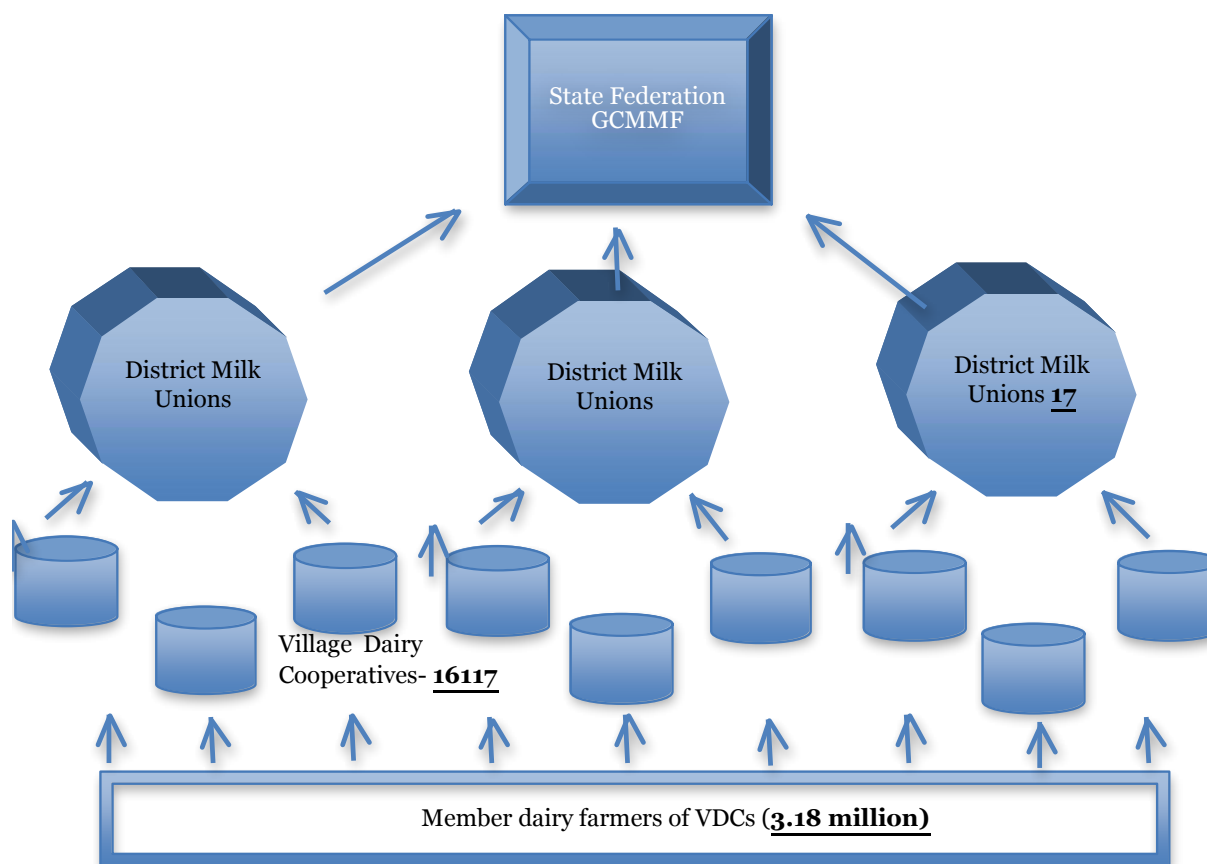


Figure 7 The Value Chain Organisation

**Milk Production**

Total milk procurement by Member Unions from the members of the VDCs in Gujarat during the year 2011-12 averaged 10.03 million kg per day. The Member Unions also procured milk from states other than Gujarat. An average of 0.89 million kg per day was procured from states outside Gujarat, taking total milk procurement to an average of 10.9 million kg per day. More than 14.5 million litres of milk per day was processed for the entire month of February. The federation and Unions were working on productivity per animal so as to ensure increased milk procurement. While the members poured milk every day, the payment for milk was made once in a week through the VDC. Arrangement for credit of the members account with the banks was also available in a number of locations. The milk unions determined the price of milk by based on the market prices at the retail end. The GCMMF on account of large operations and its linkages with other cooperative federations in the country had considerable influence in determining prices. With farmers represented in the boards of the unions and federations, pricing of milk ensured that producers got a fair return. The farmers' interest in milk production was sustained by providing attractive prices for milk, which were raised by 58% in the last three years. Apart from price paid for milk, based on the eventual sale realizations, additional price for milk poured by members is also paid from time to time. In addition a bonus payment is made from out of the profits of business. Further the members are also given a dividend on their shares in the cooperative society. Apart from these financial returns the members enjoy other facilities from their participation in the value chain. Quality animal feed manufactured by GCMMF is made available through the VDCs at cost effective prices. Further the VDCs are supported to provide animal health care to the cattle owned by the members. This ensures that the productivity of the animal is sustained and the dry periods are kept to the optimal minimum.

***Processing and marketing***

The milk is processed in state of the art plants with stringent quality controls. Most of the milk is pasteurised and sold in pouches as liquid milk. Bulk milk in tankers is also sold to other dairies in other states. Based on the market demand, value added products are manufactured. The Federation invested in creating value added products, branding and marketing the same. With enhanced focus on new product development, GCMMF had been introducing milk products such as milk powder, butter, clarified butter, yoghurt, ice cream, chocolates, flavoured milk beverages, condensed milk, different varieties of cheese and milk based sweets. More than 6300 own and franchisee outlets under the AMUL brand have been opened across the country to sell the value added products apart from using the other distribution channels to reach retail outlets. Despite competition from multinationals and private sector giants, AMUL has maintained its top position in Ice cream sales by a big margin. GCMMF exported milk products of a value of about Rs 1 billion to USA, Gulf Countries, Singapore, Philippines, Japan, China and Australia, despite a ban on export of milk powder for which there is strong demand. The exports are significant not in value terms but for the quality standards necessary in international trade. Throughout the product development and marketing efforts, the focus had always remained on selling products, which help in increasing sales and revenues for greater member benefit. The Federation marketed milk and milk products to the tune of Rs.116.68 billion in 2011-12. In the previous year, the turnover was Rs.97.74 billion. GCMMF has recorded a consistent growth rate of 20% for last five years.

***Financing***

At the farm level loans for purchase of cattle and working capital expenses are available from the banking system in case of farmers who are members of the VDCs. The VDCs are able to facilitate loans from banks and in many cases retail the loans by availing bulk loans from the banks. But where the VDCs are weak, farmers have to directly approach banks without the facilitation of VDCs. A number of government schemes aimed at setting up of dairy enterprises have been operated in the last ten years. These schemes facilitate bank loans for purchase of milch animals, construction of sheds, purchase of equipment, etc., and a subsidy towards the cost of the investment, lowering the cost of ownership of enterprise assets.

At the VDC level few investments are required such as testing and storage equipment, minimum furniture and office space. In a few cases bulk milk coolers have been installed by the VDCs for storage of milk with loans from banks. At the District Union and GCMMF level, dairy machinery and processing and packaging equipment require investment finance. The District Unions and GCMMF have been able to secure their funding from banking system and National Dairy Development Board. Adequate equity from members and a fast moving consumer product line as an implicit collateral had ensured that bank finance is never a problem. But in the initial stages of development accessing credit was a difficult proposition, which is why the National Dairy Development Board was set up, among other things, to provide funding for dairy investments.

Typically dairy farmers get funded for their animal purchase under a tripartite agreement under which the installments of repayment of loan are deducted from periodic milk payments and passed on by VDC to the bank. This hassle free mechanism offers a superior value chain based option to banks to secure repayment of their loans.

Table 9 Dairy Value Chain

Value chain process	Institutional arrangement	Role	Finance
<b>Production</b>	Farm household	Purchase of milch animals, husbandry, milk production	Investment in animals/sheds with loans from VDC or bank – feed on credit from VDC if needed
<b>Aggregation</b>	Village Dairy Cooperative (VDC)	Daily Procurement from farmers, quality testing, storage in bulk coolers if required	Weekly payments from District Union passed on to farmers
<b>Processing, packaging, branding, transport</b>	District Milk Unions, GCMMF	Transport of milk from VDCs to District dairy units – Processing in to packaged milk, milk products, packaging branding with own brand by District unions and packing in the brand name of GCMMF	Dairy plant and machinery at District Unions funded by banks, NDDDB and at times GCMMF. Working capital from banks.
<b>Marketing</b>	District Milk Union, GCMMF	Both by district milk union and GCMMF depending on nature of product, market and branding	GCMMF borrows from banks and NDDDB for investments and working capital

#### ***Lessons from the dairy value chain of GCMMF***

Value chains comprising widely distributed small farmers work better in the cooperative form. The cooperative form lends itself to set up localized entities and aggregate financial needs of small farmers in to economic size.

Participation of producers and autonomy of institutions of producers ensure that economic decision-making is objective and secures member interests. This facilitates better income realization to the members. Member based organisations invest more in production and productivity enhancement and member capacity building.

Professional management is a necessary condition for the cooperative producer collectives to succeed. This is necessary not just to interact with the markets and adopt appropriate technology but also to inject objectivity in decision making by the member dominated boards.

Smallholder value chains take a long time to realize their full potential and require hard work. Social capital and visionary leadership are often needed to stabilize the organizational and financial arrangements in the initial stages.

Awareness of animal health care and improved production practices have to be created in the farm households and the higher-level organisations in the value chain should pay attention to this.

Competition from private sector is likely to be intense and members might fall prey to the competition unless the organization is vigilant and provides a comprehensive set of services apart from remunerative prices for pooled produce.

A secure value chain, that is able to assure bankers that repayment of loans on behalf of members can be made out of price of produce, is able to facilitate banks loans in a hassle free manner. The farmer cooperative is able to offer comfort to lending banks regarding repayment of loans on the basis of which member farmers are able to access loans from the banks. For small farmers outside of such organisations, accessing credit is difficult. The village dairy societies can also act as financial intermediaries and retail loans to members by

availing bulk loans from banks. The cooperative model is better suited to serve the financial inclusion needs of small farmers.



## 5. Case study 2: A small-holder value chain in cashew

The case of Vasundhara Agri-horti Producer Company Limited (VAPCOL)

The southern end of State of Gujarat in western India has a sparsely distributed tribal population. Since the farmlands in the undulating hilly terrain held by the tribal households were small, poor in soil quality and irrigation beyond the heavy monsoon season was not available, the tribal had to migrate in search of incomes for more than nine months a year. BAIF, a national NGO in collaboration with donors such as KFW and NABARD initiated a livelihood stabilization programme that involved agro-horticultural interventions. The tribal families in remote villages were successfully initiated in to cashew production on small plots of land (of about 0.5 ha called a Wadi).

The need for organizing the cashew value chain emerged in 1998-99, when cashew trees started bearing fruits. This part of South Gujarat was not traditionally known for production of cashew, so no system of procurement and marketing was in existence. In February 1998, a team from BAIF staff was sent to participate in a 15-days training programme on cashew processing at Mangaon, in the Konkan area of Maharashtra. The team included supervisors and food technologists of the Vasundhara cooperative society, an organization of tribal farmers set up earlier by BAIF in the project area.

With knowledge and ideas gained in the training, BAIF procured machinery required for cashew processing such as a boiler, dryer and cutters. Cashew processing was initiated on a pilot scale in March 1998. Around 600kg of raw cashew were procured at the rate of Rs 20/kg from tribal farmers, through people's organisations (POs) known as Gram Vikas Mandals (GVM – Village Development Society), and processed in the pilot plant. Around 80 kg of cashew was sent to an outside unit, for comparative trial processing. The entire finished product was sold at Rs 240/kg and the results of the pilot were found to be encouraging. A detailed techno-economic feasibility study was undertaken after this and the development of a value chain from cashew production to marketing was assessed to be feasible.

As an initial step, in 1999, four cooperatives for decentralised cashew procurement and processing were set up with project funding in different clusters. Total investment on building and machinery for each processing centre was around Rs one million. Male and female heads of Wadi-participant families became members of each cooperative, at a nominal entrance fee. Wadi families were not required to compulsorily become members of cooperatives and members were not required to compulsorily sell their produce to the cooperatives. The cooperatives can freely to source produce from farmers who do not own Wadi plots; the cooperatives can also engage in other businesses<sup>12</sup>.

As more cashew plants started yielding cashew, more cluster-level cooperatives were set up. As on March 31, 2009, there were 11 cashew cooperatives covering over 13,500 Wadi plot-owning families in DHRUVA's work area (Navsari, Valsad, and Dangs district of Gujarat, and the union territory of Dadra and Nagar Haveli). Currently 16 registered cooperative societies and 35 unregistered farmer collectives are shareholders of the producer company set up for catering to the requirements of the member households.

Each cooperative has a staff of around 20 at its processing unit, including male and female workers, one supervisor and an accountant. Women are preferred for activities like peeling and grading, and constitute over half the total work force. Workers are mainly youth of landless families from nearby villages. After selection, workers are given a few days of skill training, followed by on-the-job training. During the training period, they are paid a stipend.

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<sup>12</sup> As part of the development intervention, the project also made the tribal to plant mango and gooseberry trees along with cashew. The cooperatives also procured mango for processing and marketing through the Producer Company VAPCOL, which is common for all the produce coming from the tribal farms.

Once they develop expertise, they are engaged seasonally in cashew nut cutting and kernel extraction.

The entire system of cashew procurement and processing is standardised. Village-level GVMs act as primary producer groups and procure raw cashew from farmers, for transportation to the nearest cooperative. GVMs do primary grading and sorting, according to quality control standards. The cooperatives buy the sorted raw cashew at a pre-announced price and pay GVMs accordingly on a fixed date. The GVMs disburse payments to farmers, according to quantities sold.

After procurement of raw cashew processing is done in cluster-level cooperatives as follows.

- Raw cashew is dried and steam-cooled.
- Workers using foot-operated cutters deshell the cashew.
- Shelled cashew is dried and peeled, to get cashew nuts.
- Cashew nuts are graded according to quality.
- Cashew nuts are packed in tins and poly bags.

On an average, cashew processing is done for 6-7 months of a year. Every day around 80 kg can be processed at each cooperative.

Inter-cooperative transfer of raw cashew is practiced to ensure that the processing activities continue beyond a few months in cooperatives where procurement has been inadequate, and to reduce the pressure on new processing centres, where labour may not be skilled enough to process the entire stock of raw cashew procured.

Processed cashew is sold by cooperatives directly to wholesalers or marketed through the Vasundhara Agri-Horti Producer Company Limited (VAPCOL). VAPCOL is a special purpose company set up by BAIF with the participating cashew and mango producing tribal farmers as owners. The ownership is established by contribution to equity of the company of the cooperative societies and collectives in the project area that had been set up for the purpose of organising the farmers for project implementation.

VAPCOL sells cashew to wholesale traders, through its own retail outlets at four locations and to large buyers including two cooperative consumer super markets. After deducting marketing charges, it passes on the final price realised to each cooperative

Based on operational experience and market feedback, changes have been introduced in the production process.

- Heat transfer dryers were installed in all cooperatives.
- 80-kg boilers have been installed to get better product quality.
- Grading has been mechanised.
- Value-added products like salted cashew nuts in consumer packs have been introduced. Cashew nutshell liquid production (as a by-product) has been started on a pilot scale
- Packing with vacuum and nitrogen flushing has been adopted to increase the shelf life of cashew nuts.
- Different units of packing have been introduced, from 50gm to 10kg.

Following the setting up of the cashew cultivation and processing infrastructure by BAIF-DHRUVA, some private companies have set up processing units in the region, and wholesale traders have emerged in substantial numbers. As a result, the tribal farmers enjoy competitive prices for raw cashew; there is pressure on the cooperatives to maintain quality and costs. Price earned by farmers for sale of raw cashew has risen from Rs 20/kg in 1999, to Rs. 200/kg in 2009.

Around 20-50% of raw cashew produce from different clusters in South Gujarat is now sold by Wadi plot-holders to entities other than the cooperatives. Depending on the average age of cashew trees in a cluster, and presence of competitive procurement entities, each of the 11

cashew cooperatives processes 8 to 50 tonnes of raw cashew every year. In 2008-09, total raw cashew procured by the 11 cooperatives was 288 tonnes and net sales income after processing was Rs 3.38 million. In 2010-11 the sales value had grown to Rs 57.6 million.

**Table 10 The cashew value chain**

Value chain process	Institutional arrangement	Role	Finance
<b>Production</b>	Tribal household	Setting up the small cashew plantation, maintenance, harvesting	Investment in plantation through a donor project – annual maintenance with loans from cooperative society or a bank
<b>Aggregation</b>	Village Development Society (GVM)	Procurement from farmers, sorting and grading, initial quality control	Funding from Cooperative society
<b>Storage, Processing, packaging, branding</b>	Cooperative Society Vasundhara Agri-horti Producer Company (VAPCOL)	Purchase of pooled cashew nuts from GVM, processing of nuts with machinery and local labour from tribal households, sorting and grading, packaging by coop society – value added products such as branded flavoured nuts, tin consumer packs by VAPCOL	Coop societies borrow from banks and also from VAPCOL for procurement – Processing machinery equipment with bank loans and some donor project funds
<b>Marketing</b>	Cooperative society, VAPCOL	Both by cooperative society and VAPCOL depending on nature of product, market and branding	VAPCOL borrows working capital from banks and funds cooperative societies

In the initial years, VAPCOL and the cooperative societies found it difficult to access bank loans. But with a brand and market having been established, banks loans are comparatively easy to access. The apex development National Bank for Agriculture and Rural Development had been providing working capital to VAPCOL to ensure that the value chain gets firmly established. Such dedicated funding can make a difference to value chains that organize small farms at the production level.

The learnings from the cashew value chain as identified by BAIF, the initiators of the value chain are as follow:

- Lack of infrastructure facilities such as metalled roads and assured electricity supply limits the potential for earning best returns from perishable commodities. Typically, daily aggregation for transportation and sale in wholesale markets, or establishment of processing units requiring continuous supply of electricity, is not feasible in many remote areas.
- Developing a people-based agro-business organisation on a large scale requires considerable business acumen and market intelligence. These capacities may not be readily available in the project area, or among the project staff.
- There are risks involved. Deciding optimum risk-return level for poor primary producers requires much consultation and exercise of judgement. A typical business dilemma is a lucrative bulk purchase offer made by a new or unknown buyer.
- While new and emerging people-based agro-business organisations may be able to tap institutional finance to meet working capital needs, they would initially find it

difficult to get funding at low rates of interest for making large capital investments in processing facilities, etc.

- Processing facilities have to strictly adhere to food standard norms; setting up such facilities in remote areas, training staff and maintaining quality standards can be challenging.
- As new organisations with small equity capital base, run by people with limited exposure to modern markets, people-based agro-businesses in remote areas cannot quickly gain benefits of branding; nor will they be in a position to tap emerging market opportunities, or raise equity.
- The emergence of large supermarket chains, which buy directly from producers, poses an opportunity as well as a threat to local agro-business in remote areas.

### ***Lessons from the cashew value chain of VAPCOL***

Setting up collectives of farmers is an essential first step in organizing value chain based livelihoods. Small farmers and producers will find it very difficult to access finance in the initial period when they set up plantations. Project funding in the form of grants can get the production related investments started. Once the production commences from farms (after the gestation period), farmer's collectives may be able to find working capital, but this too is often difficult till a track record of aggregation is established. Hence value chains based on very smallholdings and gestation periods should be planned as a project where the financing is also a part. Once a track record is established, the farmer collectives will be able to access finance on commercial terms from banks.

Working capital can be accessed from banks against inventories, obviating the need for other forms of collateral, provided the processed products have a ready market. Without a viable market, it is difficult to get bank funding.

Mobilising equity from the member farmers to strengthen the finances of their collectives is an essential first step. Unless the cooperative or the company in which the members have ownership is well capitalized, bank loans will not flow. The capital has to be built over time with contributions from members in proportion to their transactions with the cooperative.

### ***Conclusion***

The case studies show that small farmers can be a part of viable value chains if the project and institution design are appropriate. The initial period of the value chain establishment, both on the production part and the post-production processing part will have a gestation period during which access to finance and markets will be difficult. But after the initial difficulties are overcome, the institutions will be able to function well and deliver benefits to the members. Usually small farmers have inadequate resources to make investments in production part of the value chain. Farmers collectives in the form of cooperatives or companies are required to provide them the support, ideas and mechanisms for accessing finance, technology and markets. The needs of small holders being small, banks are not too keen on directly financing them sporadically. The small farmers production activities have to be organised on a value chain basis in compact clusters and if possible their financial services needs should be bulked up to entice the banks. The perceived risks of financing small farmers are high in the minds of banks. Presence of an intermediary that can provide comfort against loan defaults or make payments on behalf of farmers improves the willingness of banks to lend.

Aggregation and primary processing, if done at the farmer collective level tend to improve incomes of farmers. These activities require finance, which banks might be willing to make available only if the integration of the farmer collectives with the market end of value chain is strong. Professional management of business operations of the farmer collectives is necessary for better integration with markets.

Mechanisms such as finance against receivables, inventories, warehouse receipts and guarantees of collectives avoid physical collateral and should be used in larger measure. Tripartite agreements - where farmers can access investment and production loans against contracts for supply of produce to the aggregator and aggregator undertakes to pass on loan installments to banks from out of the produce value- have been found to be very useful by both banks and farmers. In every case of aggregation of produce such tripartite arrangements can be introduced to simplify access to loans from banks.

Financing small farmers for inclusive growth does not flow from value chain activities alone. A national level policy and a suitable financial architecture and infrastructure are also needed make small farmer financing a reality. Some value chains will develop on the strength of markets, but many others will be able to emerge and consolidate only if investible resources are made available from banks and financial institutions.

The dairy case shows that millions of small farmers in livestock farming are able to participate in a well organized value chain with considerable benefits that span the entire range of activities from production, animal health, financing, collection, processing, value addition and marketing. The alternative – as experienced by dairy farmers in some other provinces is that of finding remunerative and credible markets – if full of high risks and low return and severely limited financing from banks. But the key lesson is that farmers have to be organized for pooling their milk to give them negotiating power in the market. The farmer collective should also own the processing and value addition facilities where possible to reap the full benefits of remunerative markets. Without attention to technology and professional management, the farmers may not be able to gain from the value chain. In case of cashew case the importance of perseverance and patience in the initial period is emphasized. Even in remote locations, it is possible to take up production and aggregation activities through suitable crop selection and continued support to farmers. The criticality of farmer collectives is reaffirmed in this case. The fact that green field ventures in remote locations should be planned with project funds in the initial years before banks get interested is a valuable lesson.

There are interesting developments in value chain approaches in African countries. Financing against warehouse receipts in Tanzania, coffee and tea value chains in Kenya and elsewhere, organic coffee and floriculture for exports in Ethiopia and spice value chains in eastern part of Africa are good examples. The emerging soya value chain in South Africa, Zambia and Malawi is expected to export to markets abroad. The Cashew Value Chain is poised for improved processing and value addition before export. Currently most of the raw nuts are exported to India and Brazil by many African countries resulting the domestic producers losing out on value addition premium. Almost throughout Africa, livestock offers tremendous opportunity for improving incomes of rural poor, if organized on value chain principles, backed by finance. Banks such as CRDB at the country level, Apex banks within countries and multilaterals such as African Development Bank at the continent level have been doing their best for promotion of value chain based financing in agriculture.

But the situation in many African countries is that agricultural finance has yet to take firm root. On the backbone of settled agricultural finance (both institutions and network), the incremental improvements towards financing holistic value chains can be attempted. A number of institutions such as CRDB Microfinance and Kilimanjaro Cooperative Bank in Tanzania, Agricultural Development Bank in Ghana, Cooperative Bank of Kenya through SACCO network and others elsewhere were engaged in value chain financing. But the problems of access to finance in Africa are far too large and will require more concerted action. The high costs of providing services in the hinterland and the high risks in agricultural financing can be dealt with only through a value chain financing approach that would provide credit volumes as well the understanding of the sub-sectors. Financial inclusion through increased network presence of banking system and its agents in rural areas is a good starting point in many African countries.

According to UNIDO<sup>13</sup> the policy issues for developing-country governments and other agencies concerned with export agribusiness can be grouped into three broad areas:

- Ensuring the continued access of agribusiness producers to global markets and supporting the competitiveness of the sector;
- Increasing revenues from agribusiness, particularly through adding value to exports;
- Enhancing the poverty alleviation impact of export agribusiness.

The Indian experience bears this out and holds lessons for the African continent. The population being more sparsely distributed in many African countries and banking network thinner than in India, the establishment of value chains with bank finance requires hard work and patience. With banking network based for the most part in urban areas (with a few exceptions) in the African continent and a banking mindset that is attuned to urban banking, awareness creation in banking system on value chain based agricultural finance is a necessary first step. Financing agricultural value chains that have a small farmer base requires skills, expertise and first-hand knowledge of the nature of the value chain activity in the staff of banks. The perceived risks of bankers are higher than the actual risks. The bankers have to be made aware of the true nature of risk involved in financing agricultural production. Banks should be encouraged to look at the value chain as a holistic system in which each higher level generates the income of the lower level; as long as a viable market for the output of the chain is available, the risks of financing of lower links in the chain can be controlled. If a bank finances the critical points in the chain it will be able to control the risks in the chain. If a bank chooses to finance sporadically some part of the chain then it would be unaware of the totality of risks in the chain and as a result might face adverse consequences. In fact financing of agriculture is ideally done on a value chain basis so a complete understanding of production, intermediate markets and final markets influences banks to take appropriate investment decisions.

In smallholder value chains, farmers' organisations are one of the better ways of ensuring member loyalty for supply of produce for aggregation. Banks should fight the tendency to undervalue the role of farmers' collectives and actively finance them based on an appraisal of the collective's potential and performance. Such farmer organisations will promote inclusive growth through equitable distribution of incomes to members. The value traps that exist in third party aggregation would be avoided if farmers' collectives are encouraged to take up aggregation and primary processing. The advantage for bankers in such a situation is that they would be able to bulk the financial needs of the smallholders and use the farmers' collectives to extend and recover credit, lowering their transaction and risk costs.

Products suitable for financing different links in the value chain are not much in evidence. Production credit, investment credit for productivity improvement, working capital for holding of produce during aggregation and primary processing, trade credit through discounting of warehouse receipts, finance for buying options and futures in commodity exchanges for price risk management and long term investment loans for creation of processing and storage facilities are some of the products that are needed by the sector. Some of these loans require long maturities and moratorium on repayments during project gestation. Usually a combination of these products will be required to fully finance a value chain. The nature of requirements will differ depending on the produce – milk has a daily collection cycle and a daily market with continuous cash flow. Grains have lumpy cash flows on the income realization side, while expenditure is continuous during production season, the post harvest holding is an idle period, requiring sunken investments to the extent of

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<sup>13</sup> Global Value Chains in the Agri-food Sector, UNIDO, 2006.

value of stock. Warehouses might produce seasonal rental incomes and might have idle capacity off-season. Processing units' cash flows are determined by the availability of produce, perishability of the produce and the number of days of processing possible given the production season. Banks need to understand the crop and process cycles so as to be able to refine their credit products to specific value chains. The current tendency on the part of banks to focus exclusively on the higher ends of the value chain where the large corporates usually operate has to change. Inclusive growth demands that the producers realize a higher share of the consumer dollar. This is possible only when banks go down market; understand the lower end of the value chain and design products and processes that are appropriate to producers and primary processors.

Access to markets (and the efficiency of product markets) influences credit availability. If banks are able to receive repayment of loans from the market entities on behalf of farmers, they will be keen to finance such farmers. In case of sugar and dairy sectors in India, most production and investment loans given to farmers are recovered out of payments for supply of sugar cane or milk to the respective processing unit. Tripartite arrangement between producer, processor/procurer and financing bank reduces risks and improves funds flow in the value chain. Banks need to assess the location of value chains carefully. Most value chains from the production function efficiently if located in a cluster with proximity to markets. Highly distributed production activities increase costs and lead times in aggregation. Clusters make it possible to deliver technical and services relating to production at a lower costs and enable setting up of facilities specific to the value chain.

Public Private Partnership can effectively deal with some of the infrastructure gaps and risk mitigation mechanisms. The tripartite mechanism to secure loans, described earlier, is an example of such partnership. The strengths of private sector in marketing should be systematically woven in the value chain fabric with government policy inducing smallholder participation through appropriate incentives that do not distort factor and commodity markets. Several PPP investments have emerged in irrigation, storage, processing projects. Private sector invests in the projects with concessions from the government and users pay fee towards services. The private sector is able to create the investments at a lower cost on account of the concessions and therefore able to offer the services at lower costs which are affordable for users. Banks find PPP projects much easier to finance as long as the revenue stream is reasonable.

In case of export value chains, suitable mechanisms and instruments should be made available by the financial institutions. These financial products are not just about credit but also guarantees, foreign exchange risk mitigation and credit risk arising from market risks. Trade bills and instruments based financing, self-liquidating instruments such as letters of credit, export guarantees, forward contracts on foreign exchange incomes are some specific requirements. The small farmers' organisations should be made literate on these aspects of global trade and finance so that they can take informed decisions.

The implications of the Indian experience for Africa are that a) banks need to focus specifically on designing products and services that are suited for small farmers engaged in production, b) small farmers collectives set up on a cluster basis for pooling of produce are likely to be the most effective means of accessing the higher ends of the value chain and finance, c) Farmer equity in their own institutions should be built up steadily over time to ensure that financing institutions gain confidence in their ability to handle credit, d) the farmer collectives should effectively intermediate between the banks and the farmer members to ensure access to finance, e) processing will lead to value addition and higher income in the hands of the farmers – but setting up these facilities need professional management, specialized credit and technology support, f) export markets offer remunerative prices, but also pose significant non-tariff barriers which can be overcome only if the governments make appropriate investments in institutions and mechanisms, g) export

markets require a variety of financial products in credit and risk management which can be anchored by specialized institutions, but supported by mainstream banks and h) the country's financial regulator has a role in ensuring the financial architecture and network is sufficiently widespread in the country to attend to the needs of small farmers in the rural hinterland.

The African small farmer can benefit from the Indian experience. Inclusive growth is a clear promise that can be delivered with organization of farmers and expansion of financial services that offer customized products on a value chain based approach.



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## 7. Annexure 1 Export of agricultural products from India 2011-12

Product	Quantity (MT)	Value (\$ million)
<b>Guargum</b>	707326.43	3446.37
<b>Basmati Rice</b>	3178174.43	3222.31
<b>Buffalo Meat</b>	985491.27	2862.66
<b>Non Basmati Rice</b>	3997719.57	1806.03
<b>Other Cereals</b>	4073683.23	1145.66
<b>Groundnuts</b>	832616.93	1094.25
<b>Jaggery and Confectionery</b>	1066428.39	721.52
<b>Other Processed Fruits &amp; Vegetables</b>	459514.68	441.72
<b>Cereal Preparations</b>	296537.33	390.03
<b>Fresh Onions</b>	1309863.24	359.33
<b>Alcoholic and Non-Alcoholic Beverages</b>	216554.05	306.50
<b>Other Fresh Vegetables</b>	729713.07	270.91
<b>Miscellaneous Preparations</b>	269549.19	269.27
<b>Pulses</b>	174625.18	222.74
<b>Wheat</b>	740746.76	213.42
<b>Other Fresh Fruits</b>	271328.62	153.47
<b>Dried and Preserved Vegetables</b>	138464.03	146.04
<b>Mango Pulp</b>	150499.06	129.49
<b>Fresh Grapes</b>	108584.57	125.74
<b>Poultry Products</b>	624165.64	95.49
<b>Floriculture</b>	30926.02	76.19
<b>Natural Honey</b>	26089.03	67.00
<b>Dairy Products</b>	25639.51	60.35
<b>Fruits &amp; Vegetables Seeds</b>	15205.81	60.02
<b>Milled Products</b>	130647.79	59.69
<b>Sheep / Goat Meat</b>	11181.04	53.23
<b>Walnuts</b>	5841.56	48.20
<b>Fresh Mangoes</b>	63441.29	43.75
<b>Cocoa Products</b>	16678.58	36.70
<b>Processed Meat</b>	1703.12	6.26
<b>Animal Casings</b>	923.56	5.64
<b>Swine Meat</b>	305.97	0.73
<b>Total</b>	2,06,60,168.95	17,940.71