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EDITORIAL

Backlog of unpaid instalments in the long term agricultural loan accounts is the biggest problem faced by Cooperative Agriculture and Rural Development Banks (ARDBs) in general. About 40% of loan accounts of the structure are classified as non performing assets as one or more instalments in these loans remain unpaid. Because of this, gross NPAs of ARDBs surged to unacceptable proportions in many States. Abnormally high level of NPAs has pulled down the rating of ARDBs drastically. Except Kerala and Punjab, all other SCARDBs now fall in the category of high risk or medium risk as per the rating system introduced by NABARD. Banks in these categories are not only subject to lower refinance eligibility but are also required to pay additional interest for refinance. Since the entire outstanding in the loan account including amount not due for repayment becomes NPA when an instalment remains unpaid, the NPAs of ARDBs can be brought down dramatically even with marginal improvement in recovery. However, the efforts of banks to recover overdue instalments through legal recovery measures are often frustrated by the policy of State Govts against sale of farm land to recover loans. Even though these loans are secured by mortgage of land, ARDBs in many States are restrained by State Govts to recover loans through enforcing mortgage. In fact, procedure and framework for enforcing mortgage given as security for loans of ARDBs are provided in the relevant laws and were operative effectively with the active support and involvement of State Govts till a few years back. But, these provisions are either diluted or freezed in many States in the last few years. Banks in such states are asked to resort to persuasive measures to recover loans which are seen useless unless followed by legal recovery measures. Legal recovery measures very rarely culminate to auctioning of land for recovering the dues as dues are generally paid before sale takes place. Apart from weakening the institutions in the long term cooperative credit structure, the hurdles in enforcing mortgage has also resulted in ARDBs increasingly shying

away from advancing investment credit and turning to other kinds of collateralized advances. Tamil Nadu SCARDB which pioneered in investment credit in the country and went to red in the 90s' due to bad loans has now turned around and working profitably by diversifying in a big way into collateralized loans. Pondicherry SCARDB also stopped giving investment loans and advancing only other loans ever since NABARD stopped refinance for want of govt guarantee more than a decade ago. Gujarat SCARDB which is not getting long term funds from NABARD is also moving in the same direction. ARDBs in other States are steadily increasing short term loan portfolio backed by collaterals as part of survival strategy, as recovery of long term loans is becoming more and more difficult. This trend apparently is not limited to long term cooperative credit structure. The share of investment credit in farm loan advances of commercial banks and RRBs are also declining rapidly. Consequently, the annual flow of investment credit to the farm sector has become insufficient even for meeting asset replacement needs as is evident from declining farm productivity at macro level. The high cost of investment credit also contributes considerably to this trend. As against the interest rate of not more than 4% for crop loans, the cost of investment credit goes upto 14% at the hands of farmers. SCARDBs are required to pay interest rates in the range of 9.5% to 11% on NABARD's refinance which is the main source of funds for cooperatives and commercial banks for advancing long term loans to farmers. The policy of govt to make available credit to farmers at affordable cost becomes a huge failure in this front, making repayment of long term agricultural loans difficult on the one hand and dissuading farmers from further investments in the farm sector on the other. Farm credit policies of State and Central Govts need revamping to address these issues pertaining to investment credit in the farm sector.

K. K. Ravindran
Managing Editor

Augmenting Agriculture Finance through Value Chain Finance Approach: Role of Agriculture Cooperative Banks in India

Dr. Prasun Kumar Das*

1. Introduction

Indian economy has been registering impressive growth since last few years aided by the growth in the manufacturing and by the services sector in particular. The growth trajectory could have been even better if the agricultural sector also participated in this rewriting of the story. Agriculture is considered to be the science and practice of activities relating to production, processing, marketing, distribution, utilization, and trade of food, feed and fiber. This definition implies that agricultural development strategy must address not only the growers but also those entrepreneurs involved in marketing, trade, processing, and agribusiness.

In this context, efficient linkage amongst and within these factor is the critical success factor for agricultural development. While the supply side (both quantum and quality of production) and agriculture value chain development has not been able to keep pace with time, the demand side trends in India have been quite attractive with changing consumer preferences which are fast catching up with those of the developed economies. There is thus a significant gap between the supply and demand sides of the agriculture value chains. This gap again observed to be wider due to the non-competitiveness of the small holder growers and the micro and small Agri entrepreneurs (MSAEs) who usually play a critical role in movement of the agricultural commodities from farm to fork. Access to adequate and timely financial services for all factors in the value chain emerged as the key element for success to make optimal use of value addition and income generation by the small holder growers and the MSAEs. So far, however, the traditional financial services have made limited progress in replacing the old paradigm by responding to the financial needs of small-scale agriculture and seeking out opportunities to improve existing services; develop new ones; and generate additional revenue. The probable reasons can be traced from the Box-1.

Box-1. Problems of Access to Finance by the mid size agripreneurs

While analyzing the reasons that prompted lending to mid size agripreneurs so much problematic,

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few important issues surfaced: First and foremost, it is the reduction in risk diversification as the income from agriculture becomes more important than the family's overall cash flow. The lenders must now analyze the agripreneurs in all its details (e.g. the ability and character of the entrepreneur, the prospects for the product, etc.) in order to understand the risks involved. To cover such costs, loans must be significantly larger, reaching a size that substantially exceeds the absorptive capacity for capital of the agripreneurs hence the missing middle. Finally, in contrast to working capital loans, longerterm financing (perhaps in larger amounts) is likely to be sought for investments that can allow an agripreneur to grow. To provide medium and long term loans, the lender may need to improve the overall stability of its deposit liabilities or other funding sources, and go further than necessary to satisfy the banking regulator, typically being over conservative on this issue.
Source: Das, P.K, 2012

Agricultural development interventions during 1960's and 70's in India focused solely on farm level assistance aimed at improving productivity (green revolution). Later on it was found that the focus on production alone was insufficient to achieve sustainability; however, as growers faced an increasingly broad range of problems illustrated by limited access to markets, finance and price volatility, the role of the critical factors in the value chains became important. Although providing agricultural credit has been recognized as essential, the inherent production, market and price risks frequently proved to be prohibitive to the commercial financial institution to improve the portfolio. On top of it, the interventions were typically piecemeal, uncoordinated, sometimes contradictory and often inappropriately designed. Under the above mentioned situation, the value chain finance approach proved to be more effective and inclusive in terms of access to finance market and price stability.

There is a broad consensus amongst the policy makers in India regarding inadequateness of the existing mechanism of agricultural finance and that we need to move towards innovative market-based approaches that are scalable and can reach a large number of beneficiaries.

Hence, a much better option for the small holder farmer to get access to sustained financial services is to encourage them to be a part of the organized agricultural value chains, where they have the options to avail finance directly from other factors in the chain or indirectly from external sources such as commercial banks and cooperative banks. With the renewed interest in agriculture, innovating new products and services to provide financial support to the small holder farmers and the medium sized agripreneurs. This is one side of the story and the other side depicts the fact the farmers are not getting proper price of their

products and in the process, non-repayment became a common phenomena across the continent. A glaring example of piling of non performing assets in agriculture was in India and in 2008 Government of India announced waiving of ₹72000 crores of outstanding loans in agriculture (with special focus to relieve the small holder growers) from the commercial banking system as given in Box-2 below.

Box-2: Agricultural Debt Waiver and Debt Relief Scheme, India

On 29 February 2008, P. Chidambaram, at the time Finance Minister of India, announced a relief package for farmers which included the complete waiver of loans given to small and marginal farmers in the name of 'Agricultural Debt Waiver and Debt Relief Scheme2008', the US$13.50 billion package included the total value of the loans to be waived for 30 million small and marginal farmers (estimated at US$11.4 billion) and a One Time Settlement scheme (OTS) for another 10 million farmers (estimated at US$2.10 billion). During the financial year 2008-09 the debt waiver amount rose by 20% to US$15.90 billion and the overall benefit of the waiver and the OTS was extended to 43 million farmers. In most of the Indian States the number of small and marginal farmers ranges from 70% to 94% of the total number of farmers.

(Source: NABARD, Annual Report: 2008-09)

Value chain finance, by definition, requires a relationship and exchange of products, services and finance within the value chain actors and its supports. This is little bit in contrast to financing individual actors in the value chain, where access to financial services by one factor is independent of others. Value chain finance in agriculture is not new; however its application has now expanded significantly in newer ways.

This document has been prepared in two parts. Part one draws various studies made by the financial institutions, multilateral/bilateral donor agencies, country experiences and academic references on Agricultural Value Chain Finance in India with some classical examples of best practices in other parts of the world. The part two illustrates the current scenario of financing to agriculture by the cooperative systems in India and what could be done to bring this back to track and support the financial inclusion of the value chain factors in agriculture. The illustrations presented in the document are primarily aimed to understand the basic concepts, provide a framework for various business models, instruments and institutions for improving access by small holder producers and agribusinesses to financial resources by making use of the agricultural value chain to reduce the risks and improve transaction efficiencies.

2. Value Chain in Agriculture and Value Chain Finance

2.1 Agricultural Value Chains

2.1.1Defining Agriculture Value Chains

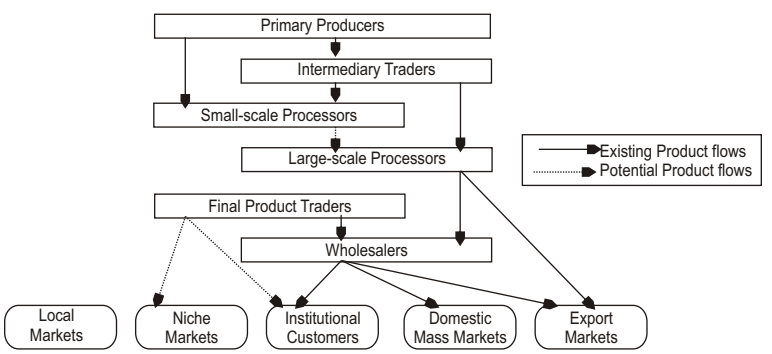
Movement of the agricultural produce from farm to the fork (grower to the consumer or user) involves many processes or steps. Each step calls for a direct link to the next in order to form a viable and competitive chain. At each stage of this movement, some additional transformation or enhancement is made to the produce which is regarded as the value chains. Hence, a value chain is often defined as the sequence of value-adding activities, from production to consumption, through processing and commercialization.

Value chains, or supply chains, in agriculture thus can be thought of as a set of processes and flows from the inputs to production to processing, marketing and the consumer. Each segment of a chain has one or more backward and forward linkages. A chain is only as strong as its weakest link and hence the stronger the links, the more secure is the flow of products and services within the chain. Figure-1 below presents a simplified structured value chain in agriculture which shows the existing flow of the products and the potential flows for more efficiency in the system.

2.1.2 Approaches, application and support system

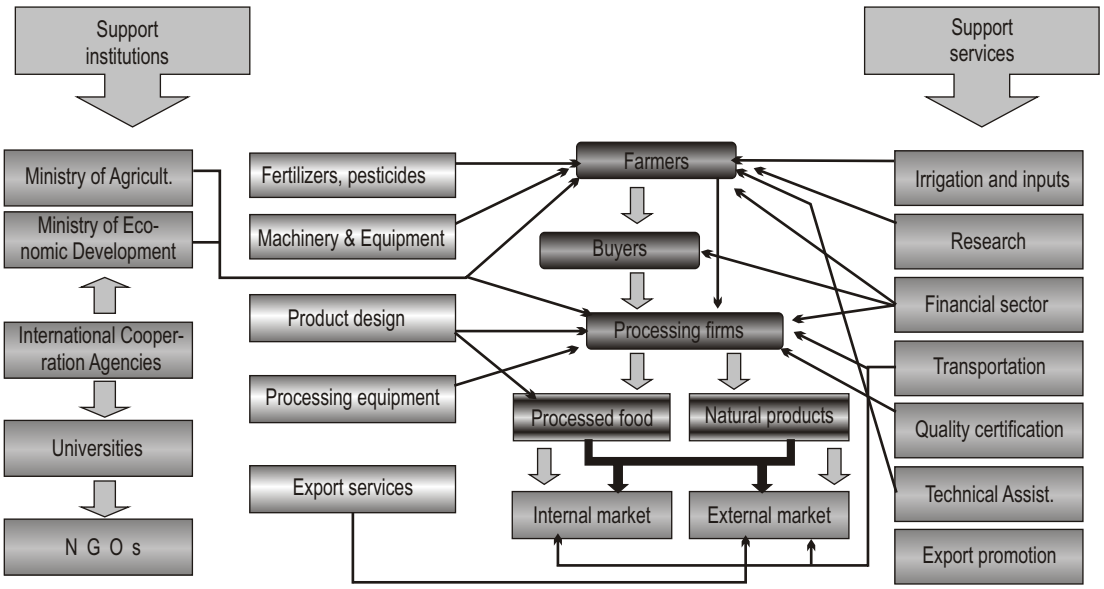
While approaches and applications vary, most value chain approaches have several common characteristics, including: a market system perspective; a focus on end markets; an emphasis on value chain governance; a recognition of the importance of relationships; a focus on firms' dynamic behaviour and transforming value chain relationships; targeting leverage points; and, empowering the entrepreneurs. In the international development arena, 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 (generally from price-based to quality-based). The support system (support institutions and support services) in the value chains play a critical

Figure-1 Simplified structured value chain



(Source: Agriculture Value Chain Finance Training Toolkit, FAO, 2011)

Figure-2 AgVC framework with support institutions and services



(Source: FAO: Ag lending toolkit, 2009)

role to determine its efficacy. Figure-2 below represents Agriculture Value chain (AgVC) framework showing full range of support institutions and services in agriculture value chains.

2.1.3 Activities of agriculture value chains

In general, the agricultural value chain encompasses four (4) main industries: i) Agri-Production Industry; ii) Agri-Logistic Industry; iii) Agri-Processing Industry and iv) Agri-Marketing Industry. These industries do also have important factors with specific activities as illustrated in Table-1 below.

Table1. Factors and activities in Agriculture Value Chains

Industry	Actors	Major Activities
1. Agri Production	a) Input Suppliers b) Primary Growers	The major activities of the input suppliers such as seed suppliers, livestock breeders, fertilizer suppliers, researchers and propagators provide production inputs, directly or indirectly through traders or other intermediaries, to primary producers composed of Farmers, growers and livestock raisers.

2. Agri Logistic	a) Transport & packaging b) Ware house c) Cold storages	These factors play important roles in movement of products from farm gate to the aggregators, processors etc. With the modernization of the transport and packaging industry, the movement of agricultural products from one geographical region to other became easier. The warehouses and cold storages also improved the shelf life of the products and price realization at the producer's level.
3. Agri Processing	a)Primary processors b) Final processors	Actual processing of the produce by millers or factories, may involve two stages of value-adding activities composed of initial processing, where the physical form of the product is first changed, and further manufacturing, where the initially processed product undergoes another round of physical and higher value transformation to eventually become the end-product purchased by consumers
4. Agri Marketing	a) Wholesalers b) Exporters c) Organized Retail b) Small Retailers	The last stage in the chain is the marketing and distribution of the product by wholesalers, exporters and retailers. Here, wholesalers, exporters or importers purchase products (either raw or processed) from producers, initial processors or food manufacturers for distribution to retailers, who are the ones directly involved in the sale of end-products to consumers. In many instances, traders again serve as intermediaries between producers/assemblers/processors and large distributors such as wholesalers/ exporters/importers.

(Source: Illustration by Author; 2012)

From the table above, it is clear that each of the factors in the value chain has specific activities to be performed and effectiveness of the chain will definitely be dependent on their performance and linkages which leads to their sustainability.

2.1.4 Relevance of value chains in agriculture finance

The inter-dependent linkages of a value chain and the market driven demand for the agricultural products provide producers, processors and other chain factors the access to the markets and other services (including finance) they need.

Being part of a value chain reduces risk, thus making it easier for chain actors to obtain financing from banks and other lenders and do so at a negotiable price. For example, in case studies in Africa, Asia and Latin America, FAO found that agro-enterprise firms are turning to business alliances and related contracts in order to manage risks, gain access to resources, improve logistical efficiency, reduce inventories and, in general, achieve increased control over competitiveness factors that are beyond their firm boundaries. These types of

linkages also allow finance to flow seamlessly along the chain. For example, inputs can be provided to farmers by a processor or exporter and be repaid directly from the sale of the products, without having to go through traditional loan processes.
Access to adequate and timely financial services for all factors in the chain has proven a key element for success. This implies that not only large producers and traders but also small producers need access to appropriate financial services to make optimal use of value addition and income generation. Such finance is, however, not always available, and chain factors involved in agricultural and rural value chains frequently faces the constraints of access to financial services.

2.2 Agriculture Value Chain Finance

2.2.1 Rationale of Value Chain Finance

In India, the small holder farmers and micro entrepreneurs in agriculture still have very limited access to formal financial services. The past years have demonstrated that neither commercial banks nor the cooperative banks are willing or able to sufficiently meet the financial needs of the factors in the agricultural value chains, leaving farmers and agricultural MSMEs unserved. Left with no other option, they generally resort to borrow from informal sources (e.g. private moneylenders, friends and relatives) to finance production inputs (e.g. seeds, fertilizers, pesticide) for the growers and business for the micro level entrepreneurs.

The informal lenders charge exorbitant interest rates in order to cover the risks they undertook while extending finance. They also resort to stringent rules for recovery and in some cases, they may be granted another loan, even with the previous loan as yet to be fully paid, resulting in bigger loans to be repaid (past-due and outstanding). This leaves the small holder farmer / entrepreneurs mired in a virtually endless cycle of debt, with little or no room at all for financial improvement.

Value chain finance in agriculture offers a response to the above-mentioned dilemma in two dimensions. For bankers and cooperators, value chain finance in agriculture is an approach to financing that uses an understanding of the production, value added and marketing processes to best determine financial needs how best to provide financing to those involved.

By understanding the agricultural chain, the lender can make more informed decisions of how to structure financing to reduce the costs and the short and longer-term risks such that financing becomes attractive. Funding may be done at many levels in the chain or could enter the chain at one point and then flow up and/or down through the chain to others.

For the smallholders, the value chain financing offers two added options to conventional financing. They can often receive financing from other stakeholders in the

chain, such as from contract farming arrangements whereby the contracting buyer provides the funding in cash or kind. They can also use their relationships (formal contracts or established informal agreements) with strong partners in their chain or chains, in order to secure bank funding that may not have been available. Either way can increase their access to capital and growth.

In summary, the flows of funds and internal and external financial arrangements among the various links in the chain comprise what is known as value chain finance. Stated another way, it is any or all of the financial services, products and support services flowing to and/or through a value chain. This can be internal financing directly from one value chain participant to another or external from a financial institution or investor based upon the borrower's value chain relations and activities.

2.2.2 Defining Value Chain finance (VCF) in Agriculture

Value chain finance helps to address the constraints and risks by providing innovative ways of delivering financial services to rural producers and agribusinesses. Value chain finance means linking financial institutions to the value chain, offering financial services to support the product flow, and building on the established relationships in the chain. It means that the product flow in the value chain is used as a carrier to provide financial services. This way of financing can spread risk among the financial institutions and chain factors and provides alternatives to traditional collateral requirements. It provides tremendous potential for unleashing capital, scaling up and sustaining chain prospects, but it needs to be managed and organized well.

Value Chain Finance is typically defined as flow of financing within a subsector, among various value chain stakeholders, for the specific purpose of getting product (s) to market (s). Such a definition mandates relationships and commensurate exchanges between value chain stakeholders through vertical and horizontal linkages as well as coordination/cooperation and competitive mechanisms. 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.

Financial flows may enter the value chain at any stage, though most of the finance does so towards the end. For other products, these flows enter more at the processors' level or may also enter through input suppliers. Often these flows enter via financial triangulations, which can be more effective than trying to enter via all segments at once. Furthermore, agricultural value chain finance adopts a systemic approach, resulting from an overview of all the factors and activities involved. Above all, it is a concept of how we see the chain, or

the set of activities associated with the chain, and implies looking for ways to structure the finance accordingly, in order to minimize costs, maximize efficiency and minimize or reduce risk which is most important.

In other words, it is a concept based on information and analysis of risks, costs and benefits. Value chain finance also uses a structured approach: finance is determined by the needs and structure of the chain plus the opportunities and capacities of its factors. It aims to integrate the delivery and payment of credit at the points of interaction within the Agriculture Value Chains, with the different financial products being applied as and when appropriate. This can be done, for example, through the direct supply of inputs that are paid for within the system when the product is delivered. Triangulation schemes can be set up so that the buyer of a product pays the supplier who provided inputs on credit to the farmer.

Thus, value chain finance should not be merely viewed as enhancing access to finance for primary producers in a chain but rather, it must be seen as a broader intervention that can:

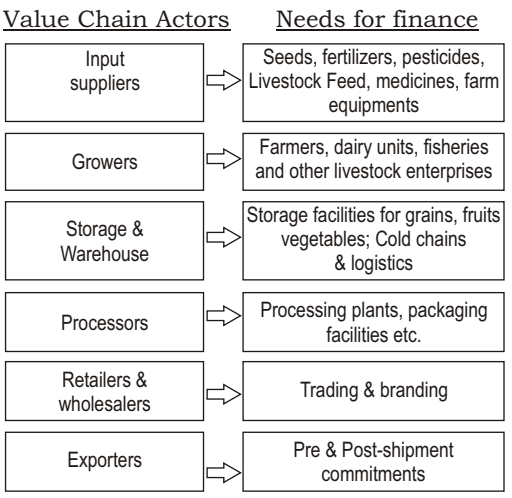
(a) help create better and enabling infrastructure in the chain; (b) enhance competition among various stakeholders and increase choice within the chain; (c) reduce vulnerability of producers (marginal, small and primary producers) and increase their staying/bargaining /negotiating power vis-à-vis other factors in the chain; (d) act as a catalyst and stimulate access to productivity enhancing technology and practices; (e) facilitate small/marginal and other primary producers to get better returns/rewards through better access to BDS including markets; (f) enable product, process, functional and channel improvement/upgrading in the chain, which is very critical and taken up later as an exclusive post; and/or (f) address other constraints and the like. In practice, such a broader outlook with regard to VCF is likely to enable achievement of the larger development objectives such as ensuring inclusive growth in a more effective manner.

2.2.3 Demand of Agriculture Value Chain Finance

The demand in agriculture finance starts with the primary producers' need for finance for inputs such as fertilizers, seeds, agrochemicals, fuel, tools and equipment, adoption of improved technology and the labour used to plant, harvest and transport their crops to market. For some, only short term working capital is needed, while for others, investment capital is important to carry out the production at a sustainable scale. Financial services such as short and longer-term loans, line of credit, letters of guarantee, payments and transfers, leasing and insurance can help producers overcome seasonal income fluctuations and adopt more competitive technologies such as irrigation systems, farm

mechanization etc. Other value-chain actors (e.g. input suppliers, agro processors, aggregators and traders) also require access to financial products and services to support their short and longer term capital needs. Figure 3 below illustrates the demand side of the agriculture value chains and their various requirements.

Figure3. Demand of Value Chain Finance in Agriculture



(Source: Agriculture Value Chain Finance Training Toolkit, FAO, 2011)

2.2.4 Supply of Agriculture Value Chain Finance

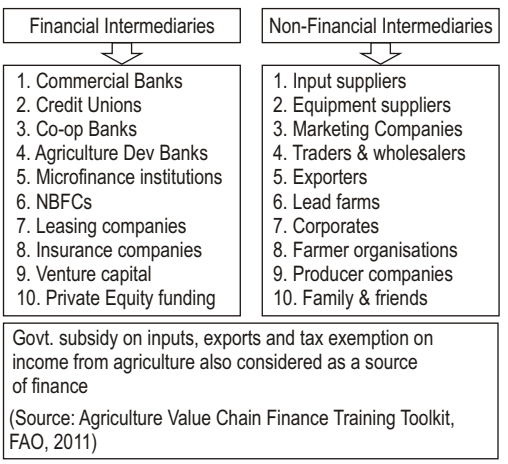
In general, the majority of agricultural finance in developing countries of Asia and underdeveloped economies is provided from within the value chain, with limited involvement from financial institutions. The role of the value chain factors in providing the much needed finance (either in cash or in kind) cannot be ignored. Nevertheless, the challenges here lies in creating more and stronger bridges between value chain factors and financial institutions (that is, indirect value chain finance), while recognizing the lending arrangements between the value chain factors (that is, direct value chain finance). In case of **direct value chain finance,** the factors within a value chain cater to financial requirements (Non financial intermediary) of other factors by entering into non-cash transactions and negotiations to better manage and coordinate the effective functioning of the value chain (Box-3). The value chain factors have a stake in the output or in the produce and therefore provide financing to producers for required expenses such as production inputs. Essentially, these factors, which may be traders, large processors or institutional buyers, depending on the financing model, play dual roles as they also become financiers in the chain. Unlike informal lenders, however, they are less interested in what they will earn as credit providers, per se, than what they will earn from producing quality output that will satisfy the high standards of consumer demands.

Box-3. Direct Finance by the Value Chain factors in Myanmar and Kenya An example of internal VCF (direct finance) is the case of input supplier credit in Myanmar where agroinput retailers offer deferred payment sales to smallholder farmers. A typical case of external finance VCF (indirect finance) is exemplified in Kenya where small

fruit and vegetable growers are able to access bank finance for agro-chemicals thanks to their export contract. The exporter pays the farmers through the bank, which deducts the scheduled loan payments before releasing the net proceeds to the farmer group.
(Source: Myint, 2007; Marangu, 2007)

Indirect value chain finance is more common phenomena in the developed/developing economies. Here, financial institutions (Financial intermediary) strategically position themselves to cater the financial needs all the factors in the viable and potential value chains (Box-3). The Figure-4 below describes an indicatives list of the players in supply side (both financial & Non-financial intermediaries).

Figure 4. Supply of Value Chain Finance in Agriculture



Innovative value chain finance can allow the chain to scale up sustainable practices more quickly and more comprehensively. In recent years, as value chains have become more closely integrated and more sophisticated, dozens of new forms of in-kind and cash financing have developed to assist factors to produce more and better-quality products, particularly in the agriculture sector. This provides an opportunity to scale up sustainable agriculture in value chains, as financing mechanisms and incentives can be applied to assist producers in adopting sustainable practices. Innovative value chain financing for sustainability will require multi-stakeholder partnerships. These dynamics and phenomena are true for nearly all commodities in Asian continent. Cotton in India and Pakistan serves as a valuable example. This also acknowledges the critical role of the multi-stakeholder intervention which encourages establishment of Better Cotton Initiative (BCI).

2.2.5 Opportunities of Value Chain Finance in Agriculture

Value Chain Finance (VCF) offers ample of opportunities to expand the breadth of financing space for agriculture and SMEs, improve efficiency, ensure repayments, and consolidate Ag VC linkages among participants in the chains. VCF can improve the overall effectiveness and efficiency of both those providing financing to and within the chain but also those operating in the agricultural chain by:

- identifying financing needs for strengthening the chain; tailoring financial products to fit the needs;

- reducing costs through direct discount repayments and delivery of financial services; and
- using value chain processes and participants to mitigate risks to businesses in the chain, and to their production and value addition activities.

Most of the opportunities that access to finance can create within a chain are driven by the business model and the relative roles of each participant in the chain. One positive aspect is that due to the lower screening costs, it may be the only credit provision format available to finance upgrading investments—or, at least, it may be the most risk-tolerant and efficient one. Another plus is that it can be combined with other embedded services such as training (for example, in financial literacy or business management skills), transportation, quality control, and technical assistance, to name a few.

2.2.6 Limitations of Value Chain Finance in Agriculture

The downside to financing from within the chain is limited potential for growth and expansion of the value chain and all its participants due to constrained access to larger pool of financial resources from outside the chain. Once the chain "leaders" (actors-cumfinanciers) are able to access financing from formal intermediaries outside the chain, the capital that they use to finance production inputs may now be used instead to expand their investments which may enhance the capital formation.

Value chain finance can be seen as a positive or a negative element. Its negative aspects include the fact that it may be unsustainable; it may be limited in terms of liquidity, efficiency, and product range (given that banking is not the core business); it may be costly (high risk premiums may be charged); and it may increase the dependency of the borrower (the borrower may have weakened market power as a result of the transaction). One of the major constraints in value chain finance is the value chain relationship. It is also required to be understood that this is not a complete solution for financial services. For example in India, the small holder farmers across the country are under stress to access the finance and the value chain finance is not immune to this as well as noted in the cotton sector as there are reported cases of suicide by the cotton growers (Box 4) which shows the fact that all are not well in the role of the factors in cotton value chain.

Box-4. Cotton Farmers in India: A case of debt overburden

An agrarian crisis has precipitated a spate of suicides in Maharashtra state of India. The suicide mortality rate for farmers in the state has increased from 15 in 1995 to 57 in 2004. The rain dependent cotton growing farmers of Vidarbha region of the state are faced with declining profitability because of dumping in the global market by the US, low import tariffs, failure of the Monopoly Cotton Procurement

Scheme and withdrawal of the state (resulting in declining public investment in agriculture, poor government agriculture extension services and the diminishing role of formal credit institutions). The farmer now depends on the input dealer for advice, leading to supplier induced demand, and on informal sources of credit, which result in a greater interest burden. In short, the farmer is faced with yield, price, credit, income and weather uncertainties. The way out is to merge bold public policy initiatives with civil society engagement.

Source: Mishra, Srijit (2006): "Cotton Farmer Suicide in Vidarbha". Economic and Political Weekly April 22, 2006; pp 1538-1545

Majority of the countries in Asia do follow National policy to finance agriculture with special preference to the small holder farmers. The state owned financial institutions in those countries responded to the state policy and made the indirect (External) finance available to the producers. There are certain examples of the state owned banks having high level of exposure in the agriculture sector not performing well due to the lower rate of repayment by the large number of borrowers as stated in the case of Agricultural Development Bank Limited (ADBL), Nepal (Box-5).

Box-5. Agriculture Finance by ADBL, Nepal

Agricultural Development Bank Limited (ADBL) is an autonomous organization largely owned by Government of Nepal. The bank has been working as a premier rural credit institution since the last three decades, contributing a more than 67% of institutional credit supply in the country. Hence, rural finance is the principal operational area of ADBL. The structure and its network (61 percent of Nepal's bank branches) enabled ADBL to cater to value chain actors at different levels. However as evidenced by different studies as well as an 'access to finance' study conducted by the World Bank in 2006, financial performance revealed serious concerns about its financial health and outreach. Non-performing loans were alarmingly high, reaching 40% in the Small Farmers Development Programme. Accordingly, it was recommended that the programme be turned over to independent cooperatives as soon as possible. In addition, the ADBL has not capitalized upon strategic investment areas in agriculture, which is a major bottleneck in structuring agricultural loans. Finally, the bank's outreach network was necessarily reduced during the conflict period, and has not yet returned to preconflict levels. Despite the uneven financial performance of this bank, their extensive branch networks offer enormous potential for expanding access to financial services and to cater to the needs of specific value chains.

Source: Sanjay Karki, Josh DeWald, Mahendra Shahi (2010)

3. Identifying value chain financing needs

3.1 Need of value chain financing

Factors in the various segments of a value chain require finance to buy and transform products, to expand operations or to upgrade and explore new markets. Financing needs vary across and within value chains. In this respect, the starting point for analysis for the design of appropriate financial products is to recognize the centrality of cyclical trends, which affect agricultural value chains. The appropriateness of different types of finance (products) will vary depending on the segment of the chain, and on the purpose of the credit (need). Each segment of the chain may require a different mix of short, medium and long-term finance. Having established the financial need, a match can be made to the appropriate financial product on the basis of corresponding tenor (duration) and on the underlying risk of the investment to be financed.

In practice, short-term credit needs, such as working capital, can be financed with an overdraft or revolving credit line or on the basis of assets available to business. Similarly, fixed assets can be financed by term loans; moveable assets by vehicle & asset finance, and agricultural inputs by agricultural production loans (short-term credit repaid in full at end of each season). Table-2 below shows the variation in both the purpose of finance, and the type of finance along segments of the chain. It illustrates that various segments of agricultural value chains require different types of finance, and different mixes of short, medium and long-term credit as well as other services.

3.2 General considerations before assessing financing needs

In order to better understand the financial needs in different segments of a value chain, it is worth highlighting some general considerations for assessing opportunities

Table 2. Financing needs and corresponding types of finance in value chain segments

Value Chain Activity	Need/Purpose	Type of finance
A. Financing needs of the direct players in the value chains		
1. Input Industry	Working capital (including credit to customers)	• Overdraft • revolving credit line • Asset-based finance – factoring (accounts receivable), inventories etc
	Fixed assets (plant, property)	• Term loan • Commercial property finance
2.Primary Production	Inputs/land preparation	• Short-term agricultural production loan • Revolving credit line • Supplier credit (from input industry) • Advance payment (from processors)
	Operating expenses Equipment	• Short-term agricultural production loan • Revolving credit line • Supplier credit • Advance payment • Warehouse receipt system • Term loan • Vehicle & asset finance (leasing, rental, instalment sales)

3.1st/2nd Level Processing	Working Capital (including advance payments to suppliers)	• Overdraft • Revolving credit line • Asset-based finance – factoring (accounts receivable), inventories etc
	Fixed Assets (plant, property)	• Asset finance (leasing, rental, installment sales) • Commercial property finance (warehouses, factories, industrial premises)
	Equipment (machinery, capital equipment)	• Term loan • Vehicle & asset finance (leasing, rental, installment sales)
4. Wholesale, Retail Marketing	Working capital	• Overdraft • Revolving credit line
	Fixed Assets (including wholesale warehouses, transport vehicles etc.)	• Term loan • Commercial property finance • Vehicle & asset finance
5. Export	Working capital (pre-and post-shipment)	• Export credit line • Letter of credit/forfaiting • Bills of exchange • Factoring
B. Cross cutting financing needs and corresponding types of finance in value chains		
1.Storage	Working capital	• Overdraft • Revolving credit line • Asset-based finance – factoring (accounts receivable), inventories etc
	Fixed Assets	• Commercial property finance • Term loan
2.Trading	Working capital	• Overdraft • Revolving credit line
3. Transport	Fixed Assets (Vehicle)	• Term Loan (Vehicle & Asset finance)
	Working capital	• Overdraft • Revolving credit line

(Source: UNIDO, 20109 and Training tool kit on "Financing Agricultural Value Chains" developed by FAO[10])

for agricultural value chain finance. Firstly, as with any borrower, finance providers to any value chain factor need to assess risks of lending to the sector (production/yield, price/market, and diversification). Secondly, finance providers need to assess the individual creditworthiness of the borrower, which entails a process of screening, and contract enforcement.

Creditworthiness depends on borrowers' ability and willingness to repay. From a value chain perspective, these are both correlated with a desire to preserve a relationship with a finance provider, be it a financial institution, a buyer, or a supplier. One option is for lenders to evaluate the "stickiness" of relationships to assess whether or not direct financing of producers, or indirect financing of their suppliers or buyers, is most appropriate.

Thirdly, the issue of collateral is crucial for the design of appropriate financial products. Land is usually a preferred security as it is immovable; however the absence of functioning rural land markets is still a

constraint and the costs of enforcement for both moveable and immovable assets can be high.

A fourth factor is the high costs of providing finance to agricultural value chain. The borrowers generally lack credit history, may not have records of their business and are dispersed over large areas. Their demand for finance is largely seasonal, necessitating a quick turnaround time of applications. Borrowers themselves are also sensitive to transactions costs; traveling to bank offices entails monetary costs, as well as opportunity costs for their labour in times of peak activity. Strategies to reduce costs can be adopted, such as streamlining of procedures, standard loan appraisal indicators, decentralization of approvals to branches, and appropriate route-planning, for example.

Finally, the degree of formality or informality in the value chain is important in determining access to finance, as informal enterprises tend to be smaller, less transparent and have much greater difficulties in accessing finance.

3.3 Value Chain Operates in unison

A value chain does not operate in isolation. Its operations may be supported or hindered by other factors and institutions surrounding it: the national government, local authorities, political interests, powerful competing companies, ethnic tensions, local elites, and so on. It is very difficult to start and sustain a value chain in the face of determined resistance from powerful parties, or if the environment is not enabling. Patronage may favour certain factors and damage the prospects of others. One factor in the chain may become dominant and start to exploit the others, reducing their value shares, restricting their access to credit, and imposing ever more stringent requirements on them.

4. Business Models in Agriculture and Value Chain Finance

4.1 Defining the Business models in agriculture Value Chain finance

A business model describes the rationale of how an organization creates, delivers, and captures value (economic, social, or other forms of value). The process of business model construction is a part of business strategy. For an agriculture value chain, the use of the phrase business model refers to the drivers, processes and resources for the entire system, even if the system is comprised of multiple enterprises or factors performing the same activities. To make the financial intervention successful in value creation and delivery, the value chain need to be viewed as a single structure, and the model of this structure provides a framework for further analysis.

More inclusive business models encompass a wide range of arrangements, such as shared ownership of key assets, formalized joint ventures, profit sharing arrangements, contract farming, community land leases etc. While some models involve large-scale farming in

partnership with the local landholders, the others bring smallholder farmers into the value chains. Many are thoroughly tried and tested, while others are confined to narrow sectors and could be applied more widely, or else are still isolated, interesting pilots. None of these models are perfect the intention here is not an overview of "best practice", but a survey of a range of possible business models, considering their pros and cons, opportunities and constraints, and options for scaling up.

4.2 Business models and Small Holder producers

Majorities of business models that link large-scale and small-scale economic operators in agriculture have been in existence for some decades, and are therefore well documented and familiar to those working in this sector. Here the endeavour is to present the wide range of these business models (e.g. contract farming, management contracts, tenant farming and share cropping, joint ventures, farmer-owned business and upstream/downstream business links) in to four broad categories for better understanding of the need for intervention by the formal financial sector.

The choice among different business models does not add up to a simple either/or, based on the strengths, weaknesses and applicability of each. Nor can the set of choices be encapsulated in a decision tree. This is because the models overlap and can be combined into various hybrids. For example, a farmer-owned business can enter into a joint venture with an agribusiness and this legal partnership can undertake a management contract with a specialized provider. Also, the details of how ownership, voice, risks and rewards are shared within the business model can be just as significant to partners as whether the model falls within one broad categorization or another.

As the focus is on smallholder growers, their system of production and marketing linkages emerged as the key issues in sustainability of many of the value chains in both economic and social terms; special emphasis has been given to organize the small growers into various business models so that they could fully participate in growth & development of the Value Chains.

4.3 Viable Business Models in Agriculture Value Chain finance

With models that promote economies of scale and reduce risks for lenders and buyers, smallholder farmers are more viable contributors to modern agricultural systems. Because smallholder production is important in many value chains for both economic and social considerations, special emphasis must be given to models which allow them to fully participate in value chains. The following table (Table-3) adapted from Vorley (2008), illustrates the typical organization of smallholder production and marketing that is, the relation of farmers to the market and/or the larger system. This analysis offers a basis for value

Table 3.Typical organizational models of smallholder production

Business Models	Driver of Organization	Rationale
1. Producer driven (Association Model)	• Small-scale producers, especially when formed into groups such as associations or cooperatives • Large-scale farmers	• Access new markets • Obtain higher market price • Stabilize and secure market position
2. Buyer driven	• Processors • Exporters • Retailers • Traders, wholesalers and other traditional market actors	• Assure supply • Increase supply volumes • Supply more discerning customers – meeting market niches and interests
3. Facilitator driven	• NGOs and other support agencies • National and local governments	• 'Make markets work for the poor' • Regional and local development
4. Integrated	• Lead firms • Supermarkets • Multi-nationals	• New and higher value markets • Right price for right quality • Level playing market

Source: Vorley, B., Lundy, M. and MacGregor, J. (2008); Miller, C & Jones, L (2010)

chain business models, and the accompanying finance as illustrated in this section.

4.4 Brief description of the Business Models

The viability and replicability of any business model depends on its outreach, sustainability and competitive advantage over others. Here, a brief description of the business models with illustration and examples from across the globe and pertinent to the Asian continent is given in Table-4 below.

Support to the farmers in accordance with the Contract Growing Agreement. The tomatoes produced is then processed in compliance with Good Marketing Practices (GMP) and eventually distributed to various end users such as fish canners, tomato sauce and ketchup manufacturers and major burger chains.

The implementation of this initiative presents several benefits to the stakeholders within the Value Chain:

- eliminates layers in the VC since farmers are directly linked to the buyer/processors;
- farmers are provided with updated technical assistance, input supplies and minimum floor prices;
- reduced post-harvest losses since products are immediately forwarded to buyers/ processors;
- assures supply of raw materials for processing; and
- minimizes dependency on imported tomato paste.

(Source: Digal, 2009-12)

4.5.3 Facilitator Driven Business Model

Agricultural Development Denmark Asia (ADDA), an

Table 4. Brief description of business models in Agriculture Value Chain Finance

Business Models	Brief Description	Competitive Advantages
1. Producer driven (Association Model)	Smallholder producers forming 'Producer Associations' are a critical component of many Ag VCs. In certain cases, the association becomes the driver for VC development – providing technical assistance, marketing, inputs and linkages to finance. In other cases, the association may have a financial base, whereby a savings and credit association signs a contract with the producers to guarantee selling of their produce.	This model is driven from the bottom of the chain as here the small holder producer organized to form producers' organization. They can be successful but face two major difficulties. First, producers may not understand the market needs as well as those in the chain who are closer to the consumer. Secondly, producers often struggle for financing unless they can find strong partners and/or can get assistance for financing.
2. Buyer driven	It is often in the buyer's interest to procure a flow of products and use finance as a way of facilitating and/or committing producers, processors and others in the chain to sell to them under specified conditions. Most often, when financing is involved, the conditions are binding through contracts and therefore contract farming is the most common buyer driven value chain model.	This model forms the foundation for many of the applications of value chain financing. Buyer-driven models seek efficiencies in the chain to the benefit of processing and retail companies. There are some very promising cases where organizing supply from a small farm base – frequently a necessity with milk procurement – has led to sustained inclusion of small farms.

International NGO facilitated organic vegetable value chain in Vietnam has improved the efficiency of the value chain. Most rural dwellers in Vietnam plant some kinds of "ordinary" vegetables either for home consumption or as an income source. However, not too many farmers have embarked in organic vegetables. There are no statistics on the number of organic vegetables farmers but it is estimated that there are between five to ten percent of peasant household cultivate organic vegetables. These farmers were trained with organic growing experience, plant life-cycle management by ADDA.

In addition to technical training, farmers were also encouraged to organize into common interest groups (CIGs) for organic vegetables. Due to fragmentation of agriculture land in the Red River Delta, it is difficult to formulate contiguous land plots for organic vegetable productions. Therefore, production areas of CIGs are usually small, ranging from a thousand meter squared to a half of hectare. The CIGs generally consist

of between 10 to 20 members, who are mainly female, led by a group leader. Notably, all the CIG has established an inspection panel, which consists of between three to five members to supervise the compliance of the group members to organic farming regulations and practices. The ADDA help the groups by providing capacity building trainings and exposure visits.

In terms of quality, the only certification mechanism to date is the Participatory Guarantee Standards (PGS) introduced by ADDA Organic Project. PGS has been internationally recognized and served thousands of farmers and consumers around the world. The major objective of PGS implementation is to ensure the farmers' compliance with standards and procedures in growing organic vegetables. The project was initially started by ADDA as a grant but with the formation of more numbers of CIGs, the internal lending programme from their savings replaced the grant.

The farmers of the CIGs harvest organic vegetables from the net houses (i.e. the production area covered by net) in the early morning. They then process the vegetables as specified by collectors or organic vegetables companies (the linkage facilitated by the ADDA), pack the processed vegetables in plastic bags, which were printed with PSG logo and other information specifications. The packed organic products are then transported from to collectors or agents of organic vegetables companies before being transported to the market of Hanoi. Compared to the market price to consumer, organic farmers earn as much as 50 %.

Source: Global Donor Platform for Rural Development (2011).

4.5.4 Integrated Business Model

• The Republic of Korea has been experiencing sufficient growth in major industries including agriculture. The National Agricultural Cooperative Federation (NACF) played an decisive role in the development of country's agricultural industry. The NACF is a national Federation of 1187 agricultural cooperatives in Korea. The federation and its member cooperatives offer multifunctional services to its 2.4 million individual members, which includes: a) Banking & Insurance; b) Input supply; c) Produce marketing and d) capacity building services.

The cooperative structure of NACF in Korea lends itself to perform an integrated, full service model of agricultural and non-agricultural services to its members. NACF has 22 subsidiary companies to help provide these services which include 4 other agricultural marketing companies besides the parent company NACF, a logistic service company and the Nonghyup Economic Research

Institute. It provides commercial finance, loan guarantee and insurance and other services through its subsidiaries.
(Source: Miller, C & Jones, L (2010). Agricultural Value Chain Finance: Tools & Lessons)

• BRAC is a national level development organization in Bangladesh started as a small scale relief and rehabilitation project, and evolved into an independent, largest NGO in the world. BRAC also is directly engaged in businesses, which were needed to support rural enterprises engaged in commercial agriculture production, input supply, marketing, processing and transportation. As an example, BRAC businesses include: 6 poultry farms for supplying day-old chicks, 3 feed mills, 2 seed production centres, 2 seed processing centres, 15 nurseries and 12 fish or prawn hatcheries also with the purpose of strengthening the respective Value Chains. Together, its business model aims at ensuring an integrated set of services for its clients.
(Source: Salenque, 200714)

5. Tools & Instruments to finance Agriculture and Value Chains

5.1 Designing financial products and instruments to support Agricultural Value Chains

Effective and efficient financial products and services require a sound appreciation of the market actors and dynamics of the economic activities that they facilitate. Financing the value chains in agriculture presents a more complex proposition than conventional agriculture finance programme. Non-financial actors within value chains are currently providing significant volumes of financial services, often embedded in non-financial services.

The products are designed in a different perspective, as there are many factors involved in the process. Before going into the details of the categorization and modalities of financing this dynamic sector of the economy, we need to understand the different phases, which are involved in designing the financial products or instruments to meet the financing needs of all the factors involved in the value chains.

The ideal situation of agriculture value chain finance is that the factors of the value chains should be more dependent on financial products and services offered by formal financial intermediaries rather than internal finance (i.e. the finance available within the chains) to get a competitive edge and more options. Nevertheless, a majority of the primary producers are still dependent on the factors up in the value chain to meet their financial need. So while designing the financial products the financial institutions need to keep in mind these factors and should opt for designing a variety of value chain

loan products-with individual terms and conditions to meet the potential financing needs for the identified agriculture value chains.

The World Council of Credit Unions (WOCCU, 2009) has developed a four-phase value chain finance methodology in Peru that is designed to assess and mitigate the specific risks associated with financing existing rural value chains. It also serves to determine at which point in the process-from production to retail distribution-financing add value to the participants in the chain. They also suggest that the credit unions use the methodology to design a variety of products with characteristics that meet the various financing needs along the chains. The four phases described below may be considered as a base line methodology for extending the formal financial services to the agricultural value chains as shown in Table-5.

WOCCU's value chain finance methodology (2009) provides credit unions with the technical and operational capacity to put resources into rural finance lending while maintaining an adequate margin and still mitigating the risk of loan default. The methodology includes tools for evaluating opportunities, designing products and administering loans-all crucial for rural financial institutions that want to control the risks of

Table 5. Phases of financial product developement

Phases	Brief Description
Phase I: Identify & evaluate potential Value chains	The market demand for a particular product and the ability of producers to meet this demand is assessed in the first place. The other indicators are organized producers, market access, and other environmental factors
Phase II: Facilitate & leverage market linkages	All the VC participants are brought together to identify problems, review their needs based on the evaluation in phase I and commit themselves to find solutions. The direct commercial connections provide reliable market information to strengthen the small producers' business relationships and secure market access for years to come.
Phase III: Design the financial products and evaluate capacity to repay	Product design takes place in this phase, which directly reflects the financing needs of the borrowers and the specific characteristics of each commodity and VC. Then the best combination of collateral and signed selling contracts to cover the loan is developed. This phase reduces the financial risk of granting loans with unrealistic conditions and/or inadequate amounts.
Phase IV: Grant, monitor and collect loan repayments	This phase deals with disbursement of loans in cash or through vouchers that permit the borrowers to obtain inputs such as quality seeds, fertilizers, pesticides, tools, labour and equipment from other VC participants.

Source: WOCCU-Technical Guide Integrated Financing for Value Chains, 2009

agricultural lending when they do not have access to subsidies, grants or guarantees. The model is adaptable to any type of financial institution. It may be applied to non-agricultural value chains. It can be used to deliver finance to any actor along the value chain.

5.2 Financial Products & instruments for agricultural value chains

There are many ways to categorize the modalities and describe the various financial products and instruments that can be used to meet the need of finance by the various actors in the Ag VCs. This paper adopts the typology provided by Miller and Jones (2010) who divided the financial instruments into five categories as under:

A. Product Financing
B. Receivables Financing
C. Physical Assets Collateralization
D. Risk mitigation products
E. Structured finance and other enhancements

It is needed to organize the modalities differently, according to the analysis of the practical application of the various mechanism described in a tabular form (Table 6). It must be noted that the use of terms varies somewhat between countries and even between sectors. In some cases, a precise legal term may be applied in some contexts but the use of the terms in agriculture may often encompass a broader meaning and application.

6. Innovations and best practices in Financing Agricultural and Value Chains

6.1 Value Chain Finance: A Relationship and transaction based service approach

Value chain finance has been rapidly evolving from its roots in

Table 6. Description of Agricultural Value Chain Finance Instruments

Instruments	Brief Description
A. Product Financing	
1. Trader Credit	Traders advance cash to producers to be repaid, usually in-kind, at harvest time. This allows traders to secure product procurement, and provides the farmer with needed cash (for farm or livelihood usage) as well as a guaranteed sale of outputs. Less commonly, trader finance can also be used "upward" in the chain whereby the trader delivers products to buyers with delayed payments.
2. Input Supplier Credit	An input supplier advances agricultural inputs to farmers (or others in the VC) but does not require payment until harvest or other agreed time. The cost of credit (interest) is generally embedded into the price of the input. Input supplier credit enables farmers to access needed inputs without cash while increasing sales of suppliers.
3. Marketing Company Credit	A marketing company, processor or other company provides credit in cash or in-kind (inputs) to farmers, local traders or other value chain enterprises. Repayment is most often in-kind with product. The marketing company is thus able to secure output procurement and lock in purchase prices, and in exchange farmers and other value chain enterprises receive access to credit and supplies and secure a guaranteed market for their products.

4. Lead Firm Financing	A lead firm in the value chain provides either direct finance to value chain enterprises including farmers, or guaranteed sales agreements enabling access to finance from third party institutions. Lead firm financing, often in the form of contract farming with a buy-back clause, provides farmers with finance, technical assistance and market access, and ensures quality and timely products to the lead firm.
B. Receivable Financing	
5. Trade Receivables Finance	A bank or other financier advances working capital to agribusiness (supplier, processor, marketing and export) companies against accounts receivable or confirmed orders to producers. Receivables financing takes into account the strength of the buyer's purchase and repayment history.
6. Factoring	Factoring is a financial transaction whereby a business sells its accounts receivable or contracts of sales of goods at a discount to a specialized agency, called a factor, who pays the business minus a factor discount (fee) and collects the receivables when due. Factoring speeds working capital turnover, credit risk protection, accounts receivable bookkeeping and bill collection services. It is useful for advancing financing for inputs or sales of processed and raw outputs that are sold to reliable buyers.
7. Forfaiting	A specialized forfaiter agency purchases an exporter's receivables of freely-negotiable instruments (such as unconditionally guaranteed letters of credit and 'to order' bills of exchange) at a discount, improving exporter cash-flow, and takes on all the risks involved with the receivables.
C. Physical Assets Collateralization	
8. Warehouse Receipts	Farmers or other value chain enterprises receive a receipt from an independently controlled and certified warehouse in exchange for deposit of his product in the warehouse. The receipt can be used as collateral to access a loan from third party financial institutions against the security of the goods in the warehouse. Such systems ensure quality of inventory, and enable producers to hold their products and have the opportunity to sell for a higher price during the off-season or other later date.
9. Repurchase Agreements	A buyer receives securities as collateral and agrees to repurchase those at a later date. Commodities are stored with accredited collateral managers who issue receipts with agreed conditions for repurchase. Repurchase agreements provide a buy-back obligation on sales, and are therefore employed by trading firms to obtain access to more and cheaper funding due to that security.
10. Financial Lease (LeasePurchase)	A purchase made on credit which is designed as a lease with an agreement of sale and ownership transfer to the buyer once full payment is made (usually in installments with interest). The financier maintains ownership of financed goods until full payment is made, making it easy to recover goods if payment is not made. It also allows agribusinesses and farmers to use and purchase machinery, vehicles and other larger investment items without requiring the collateral usually required.
D. Risk Mitigation Products	
11. Insurance	Insurance products are used to reduce risks by pooling regular payments of many clients and paying out to those affected by disasters. Payment schedules are set according to statistical data of loss occurrence; and mitigate the effects of loss to farmers and others in the value chain from natural disasters and other calamities.

12. Forward Contracts	A forward contract is a sales agreement between two parties to buy/sell an asset at a set price and at a specific point of time in the future, both variables agreed to at the time of the agreement. Forward contracts allow price hedging of risk and can also be used as collateral for obtaining credit.
13. Futures	Futures are forward contracts – see definition above – that are standardized to be traded in futures exchanges. Standardization facilitates ready trading through commodity exchanges. Futures provide price hedging, allowing trade companies or financial institutions to offset price risk of forward purchases with counterbalancing of futures sales.
Instruments	**Brief Description**
E. Financial Enhancement Products	
14. Securitizati on Instruments	Cash-flow producing financial assets are pooled and repacked into securities that are sold to investors. This provides financing that might not be available to smaller or shorter-term assets and includes instruments such as collateralized debt obligations, while reducing the cost of financing on medium and longer term assets.
15. Loan Guarantees	Agricultural loan guarantees are offered by 3rd parties (private or public) to enhance the attractiveness of the borrower by reducing lending risks to the lender. Guarantees are normally used in conjunction with other financial instruments, and can be offered by private or public sources to support increased lending to the agricultural sector.
16. Joint Venture Finance	Joint venture finance is a form of shared owner equity finance between private and/or public partners or shareholders. Joint venture finance creates opportunities for shared ownership, returns and risks, often with complementary partner technical, natural, financial and market access resources.

Source: Miller, C. and Jones, L (2010). **Agricultural Value Chain Finance: approach, tools, lessons and innovations.** Practical Action Publishing, UK.

relationship-based credit, to highly structured finance based on the integration of the chain and formalization of its processes. From basic input supplier credit provided to a known producer, to mechanisms such as warehouse receipts, the complexity and potential have grown together, as exemplified by the approaches and instruments described above. There have been innovations in financing approaches and in new technologies and new applications of existing technologies that support chain development and stimulate financial products and process development. Finally, there have been innovations in ways of strengthening enabling environments and support service provisions. Innovation is not unique to value chain finance, but has certainly played an important role in strengthening its use and application.

Advances in value chain knowledge and experience have

taken place in parallel with the evolution of financial services, but these two have often developed as separate processes. An agricultural value chain is no longer viewed as a single channel that tracks a product from a farmer to a market, but as a complex chain that is impacted by relationships within the chain, enabling environment, availability of appropriate services and inputs from technology to raw materials, and most importantly, changing market demand.

6.2 Value Chain Innovations

Innovations in value chain finance have been largely driven by the developments in value chains themselves such as integration and formalization of relationships, the globalization of agricultural food chains, the attention from donors, facilitators and others on the role that small farmers can play in these chains, and the willingness of financiers to look at new ways to support them.

Further, with the growth of microfinance, social investment, and other forms of non-conventional funding, creative forms of financing are being developed, and existing financial institutions have become more flexible and resourceful. These efforts are supported by donors who frequently offer loans or grants, guarantees, capacity building and other forms of assistance that can aid financial institutions in high risk, low collateral lending. With the deepening concerns around poverty alleviation along with the growing food crisis and the realization that even very small farmers can make an important contribution to global food security, it is anticipated that value chain development and finance will continue to change and progress. Adaptation will spur increased refinements and innovation in value chain financing, leading to new products and services that are responsive to the situation and context, and continue to mitigate risk for the lending institutions

Value chain development practitioners and theorists have contributed significant learning and innovation regarding the basic elements of the chain as well as the complex relationships between businesses, the viability of those businesses, the constraints and bottlenecks in the functioning of the chain, and the potential sustainable market-based solutions that can strengthen the chain's success. This means that value chain practice today involves a range of next-generation approaches, methods and tools such as producer group formation, association development, lobbying and advocacy, and stakeholder mediation along with fundamental service development such as extension services, standards training, input supplies, transportation, market information, post-harvest handling and so on.

6.2.1 Financial innovations

Timeliness and low transaction costs for accessing finance are critical areas of financing to agriculture. The Kisan (Farmer) Credit Card (KCC) in India, shown below is an example of financial product innovation wherein the growers can readily access financing from the financial system (commercial banks, rural banks and cooperative banks) and is covered both under crop insurance and under health insurance at a nominal premium paid by the lender as loan component.

Box -6. Kisan Credit Cards, India

A credit product like the Kisan (Farmer) Credit Cards (KCC) in India provides more accessible production, investment and consumption credit to farmers. The KCC, which has been in operation since 1998, is implemented across the country by all public sector commercial banks, regional rural banks and cooperative banks with an outreach of over 83 million cards through March 2009 and a credit limit of US$ 8 billion. By providing both timely access to loans as well as crop and health insurance, it reduces risk of not only the producers but also their suppliers and buyers. Similar products like Grameen cards in vogue for rural people and Bhumiheen cards for landless farmers/ share croppers have also been developed and introduced in the market.

Sources: Balakrishnan, 2007 and NABARD, 2009

6.2.2 Technological Innovations

New technologies with special reference to Information and Communication Technology (ICT) and their innovative applications have supported and spurred the development of finance in general and value chain finance in particular. From the use of MIS systems to facilitate the production to post harvest and monitor stored goods in a network of warehouses, to the accessing of remittances through mobile phones, the proliferation of technologies has enabled the more rapid development of affordable and accessible finance in agriculture. Enabling technologies have been well documented elsewhere, so this section focuses on the trends and specific applications that have been particularly significant to recent developments in agricultural value chain finance. There are many examples of successful application of innovative ICT application in many Asian countries. Here is the example of how internet application has improved the lives of millions of Indian farmers through implementation of echoupal (Box 7).

Box-7. Echoupal Information Centres

ITC introduced the concept of echoupal, a network of IT enabled agriculture information and resource centres. Originally created for more efficient procurement of agricultural commodities in India, it has become a business platform

using which a host of products and services are provided, linking the farmer to global markets, building village level capabilities and creating economic and social value for stakeholders. Some of the real time benefits include enhanced decision making power of the farmers as they know the sale price for the produce even before it leaves the village. This is done through online realtime information which bundles knowledge and information with the transactions. This knowledge is free of cost and once established in the villages or through mobile internet kiosks is able to serve large number of farmers with not only knowing prices but also to be able to forward contract and mitigate price risks.
Source: e-choupal, 2008

6.2.3 Credit distribution channels innovation

The development of new credit distribution channels for commercial banks parallels what has been happening in the personal finance market, where banks have made alliances or agency agreements with a variety of retailer networks to reach new market segments. In India, for example, ICICI Bank, already active in expanding its rural outreach, collaborated with a non-profit company, IDEI – the Indian affiliate of International Development Enterprises, California – that develops solutions for improved irrigation and water supply for farmers, sources them from local manufacturers, and markets through a network of distributors. Earlier, IDEI had received support from Acumen Fund, a philanthropic mixedsource fund seeking below-market rates of return and recycling of them into further investment. Investment in appropriate irrigation technology, for example treadle pumps and small-scale drip-feed systems, is one of the surest ways to increase farm productivity and raise smallholder incomes (Box-8).

Box-8. Credit dispensation through credit franchise network

ICICI Bank appointed five irrigation equipment distributors as credit franchisees in a pilot programme in February 2007. In this way, it was able to lower the transaction costs and hence the price of credit to farmers wanting to improve their irrigation. The franchisees had to share risk by putting up equity (minimum $11,000), which provided a firstloss guarantee, and upon which they could then draw up to 10 times that amount from ICICI funds to make loans to farmers. Farmer loans, at a minimum of $111, could be for up to two years, and at rates from 11–14%, depending on whether the 3% margin allowed to the franchisees was passed on to the farmer. While this initiative was aimed at individual farmers, there is no reason in principle why the finance could not be available in

larger amounts for producer associations or other SMEs that aggregate production. However, the arrangement with ICICI Bank has been supplemented by the establishment in 2008 of a separate forprofit distribution company called Global Easy Water Products with the help of a further equity investment from acumen.
(Source: Lillian Diaz, and Jennifer Hansel, lead authors (2007)

Action Research: Making RiskSharing Models Work with Farmers, Agribusinesses, and Financial Institutions'. Paper presented at FAO International Conference on Rural Finance Research: Moving Results into Policies and Practice, Rome, January 2007)

6.2.4 Infrastructural Innovations

A final type of innovation for improving agricultural value chain financing is in the physical infrastructure. As noted earlier, one major constraint in the use of warehouse receipt financing is the lack of suitable warehouses. Another constraint is that of the road, rail, river and port infrastructure. One innovative example to address the logistical constraints is shown in the Philippines as described below (Box-9).

Box-9. Transportation Innovation in the Philippines

A flagship program of the Development Bank of the Philippines (DBP) is the Sustainable Logistics Development Program (SLDP) to address the logistical needs of distribution of goods and services within the context of the government's goals of global competitiveness, poverty alleviation and food sufficiency at the local, regional, and national levels. The financial assistance of SLDP focuses on the physical asset requirements of a sustainable distribution system of maritime transport and related land transport. It is geared towards the development of progressive longhaul shipping to constitute the country's national backbone in the transport of bulk agricultural products and the development of shorthaul ferry system to link the islands to the growth centres of the country. One component of the SLDP is a terminal system for farmers and traders: Roll On RollOff Terminal System (RRTS). The RollOn- RollOff terminals and ferry operations will be established in areas where such services are absent or are only serviced by small wooden boats. The RRTS form part of the national highways providing the necessary linkage and efficiency to interisl and travel and transport. The concept is effective in archipelagos like the Philippines because it uses the vessels to function as bridges in connecting roads on both sides of the seas. With the RRTS in place in strategic regions of the archipelago, fast and efficient movement of goods can enable farmers and traders to

simply roll on their vehicles to these "floating bridges", and roll off from the vessels to their respective destinations. This can not only spur growth in rural areas, but also reduce migration to urban centres. Working capital needs of small farmers, traders and entrepreneurs are also assisted through DBP's micro and small enterprise lending programs. Larger investments in capital equipment and fixed assets, including ferries and bulk carriers, reefers, silos and other cargo handling and storage equipment, are supported by DBP's project financing programs such as the SLDP.

(Source: Lazaro, P. (2007) "Sustainable logistics development program", paper presented at Southeast Asia Regional Conference: Agricultural Value Chain Financing, Kuala Lumpur, Malaysia in Digal, L. (2009) Southeast Asia Regional Conference On Agricultural Value Chain Financing Conference Proceedings, Asian Productivity Organization, National Productivity Council and FAO, Rome)

7. Cooperative Credit Structure in India to support Agriculture Finance

7.1 Cooperative credit structure in India

Cooperative Credit Structure in the country consists of two wings, viz., Short Term Cooperative Credit Structure (STCCS) and Long Term Cooperative Credit Structure (LTCCS).

The STCCS deals with Short and Medium Term Credit requirements for agricultural purposes and it is largely federal in character. The federal structure based on a three-tier pattern with the State Cooperative Banks (SCBs) at the Apex level, District Central Co-operative Banks (DCCBs) at the intermediary level and Primary Agricultural Credit Societies (PACS) at the village level. Under the LTCCS, the Agricultural and Rural Development Banks (ARDBs) cater to the investment credit requirements in the rural areas and, thus, promote fixed capital formation in the agriculture sector. The organizational pattern is not uniform all over the country. Majority of states have a federal set-up with the State Cooperative Agriculture and Rural Development Banks (SCARDBs) at the state level and affiliated Primary cooperative Agriculture and Rural Development Banks (PCARDBs) at the district or taluka levels while in some states, the structure is of unitary type, the operational units below the SCARDBs being its branches (Table 7).

7.2 Agricultural credit flow from cooperatives during X and XI Plans

During the X Five Year Plan, agricultural credit flow from all institutional agencies was ₹6,47,101 crore, the share of cooperative banks, being 25.3% (₹1,63,626). There had been regional variations in the share of cooperative banks and the shares

ranged from 3.49% in the NE region to 33.98% in the western region (Table-8).

During the first three years of XI Five Year Plan, viz. 2007-08, 2008-09 and 2009-10, agricultural credit flow from institutional sources was ₹9,39,161 crore; the share of cooperative banks declining to 15.95%. However, the annual average credit flow from cooperatives was ₹32,725 crore during the X Plan and ₹50,030 crore during XI Plan. (Table-9).

7.3 Growth in agricultural credit by cooperatives Agricultural credit from cooperatives which registered a compound annual growth rate (CAGR) of 17% during the X Plan, decelerated to 7% during the XI Plan. While the STCCS registered a positive growth in credit, the LTCCS registered negative growth during both the Plan periods. This is an area of concern as it can jeopardize capital formation in the farm sector (Table- 10).

7.4 Number of agricultural accounts and SF/MF coverage

Number of accounts and GLC for agricultural credit for 2007-08, 2008-09 and 2009-10 are presented in Table-11 It could be seen that during 2007-08, cooperatives had the largest number of total accounts and SF/MF accounts under agricultural credit.

Table7: Structure of cooperative credit institutions

Type of Institution	Number
1. Short term	
Primary Agriculture Credit Societies	95614
a) DCCB	370
b) SCB	31
2. Long term	
a) PCARDB	714
b) SCARDB	19

(Source: NABARD & NCARDB Fed)

Table8: Share of different agencies in total GLC disbursements during the X Plan (₹ in crore)

Region	Comml Banks	Share (%)	SCB/ DCCB	Share (%)	SCARDB/ PCARDB	Share (%)	RRB	Share (%)	Total
Northern Region	118945	64.2	52244	28.2	4384	2.4	9723	5.2	185305
NE Region	2112	80.5	87	3.3	4	0.2	418	15.9	2622
Eastern Region	28691	65.6	9707	22.2	333	0.8	5007	11.4	43764
Central Region	52438	55.7	19392	20.6	4799	5.1	17456	18.6	94085
Western Region	57765	62.1	31342	33.7	287	0.3	3319	3.6	93074
Southern Region	161267	70.7	38861	17.0	2185	1.0	25790	11.3	228251
Total	**421218**	**65.1**	**151634**	**23.4**	**11992**	**1.9**	**61713**	**9.5**	**647101**

Table 9: Share of different agencies in total GLC disbursements during the XI Plan (First 3 Years) (₹ in crore)

Region	Comml Banks	Share (%)	SCB/ DCCB	Share (%)	SCARDB/ PCARDB	Share (%)	RRB	Share (%)	Total
Northern Region	185155	71.8	53044	20.56	2276	0.9	17328	6.7	257947
NE Region	3279	79.8	119	2.89	2	0.1	710	17.3	4110
Eastern Region	48226	70.4	11399	16.64	422	0.6	8429	12.3	68493
Central Region	78018	62.8	17069	13.74	1657	1.3	24535	19.8	124195
Western Region	98210	74.5	24503	18.60	226	0.2	4101	3.1	131757
Southern Region	281032	79.7	38054	10.79	1321	0.4	32190	9.1	352657
Total	**693920**	**73.9**	**144187**	**15.35**	**5904**	**0.6**	**87294**	**9.3**	**939161**

(Source: RBI & NABARD)

Table10: Growth in flow of agricultural credit from cooperatives during X and XI plan

Region	Growth in Credit flow (CAGR %)					
	X plan			XI plan		
	SCB/DCCB	PCARDB/ SCARDB	Total	SCB/DCCB	PCARDB/ SCARDB	Total
Northern Region	22	-3	20	8	8	8
NE Region	12	-2	11	20	-4	20
Eastern Region	24	-3	23	25	17	25
Central Region	16	-23	7	9	23	10
Western Region	21	13	21	18	-16.0	17
Southern Region	16	-11	14	23	-7.0	22
ALL INDIA	20	-13	17	7	-12.00	6.7

(Source: NABARD)

7.5 Issues in increasing credit flow through cooperatives

7.5.1 Poor resource base

PACS have an average membership of about 1,400 and owned funds of ₹13 1akh per society. As PACS were almost always set up due to state initiatives, which were themselves driven on provision of credit, hardly any attempts were made towards making primary cooperatives (PACS) self sufficient through share capital and member deposits in most states. Thus, excepting about 22,000 PACS in the four southern states and West Bengal where average PACS deposits are about ₹90 lakh, the average deposits in the remaining 74,000 PACS in the

Table 11: Number A/Cs and GLC for agricultural credit (Number of A/Cs in lakh and GLC in ₹ crore)

Financial Institutions	Total No. of A/Cs	No. of SF/MF A/Cs	%	Total No. of A/Cs	No. of SF/MF A/Cs	%	Total No. of A/Cs	No. of SF/MF A/Cs	%
Comm. Banks	174.79	97.44	55.75	202.45	105.59	52.16	205.30	106.72	52.0
Co-op Banks	201.81	117.86	58.40	178.18	97.05	54.47	203.92	128.17	62.9
RRBs	62.74	42.21	67.28	75.47	42.71	56.59	73.08	49.84	68.2
Total	439.34	257.51	58.61	456.12	45.35	53.79	482.30	284.73	59.0
	GLC	**SF/MF**	**%**	**GLC**	**SF/MF**	**%**	**GLC**	**SF/MF**	**%**
Comm. Banks	181087.61	52230.75	28.84	228951.31	121859	53.22	285799. 73	67668.93	23.6
Co-op Banks	48258.19	22608.79	46.85	45965.61	26188.43	56.97	63496.85	29519.12	46.5
RRBs	25311.65	15018.97	59.34	26764.68	16443.96	61.44	35217.62	21089.06	60.0
Total	**254657.45**	**89858.51**	**35.29**	**301681.6**	**164491. 39**	**54.52**	**384514. 20**	**118277. 11**	**30.8**

(Source: NABARD)

country even today hardly average ₹9 lakh, or less than ₹650 per member.

Continued poor governance, management and institutional infrastructure in PACS also did not aid the cause. The poor resources of PACS were expected to be supplemented by the upper tiers, CCBs and SCBs, by tapping deposits from non agricultural areas and clients. Over a period, they also seem to have lost way, and although deposits of CCBs are close to ₹1.25 lakh crore, and their CD ratio is also high at 72%, the ratio of their agricultural credit18 to deposits (or, the agricultural-credit deposit ratio) is less than 35%. In other words, even CCBs have started shying from agricultural credit, the primary reason for which they were set up, and are finding other businesses for themselves. The story of SCBs is not much different. The ST CCS has therefore continued to rely heavily on refinance support from apex institutions like NABARD, an approach that was initiated by the RBI a long time ago.

The limited loanable resources of PACS forced them to initiate credit rationing by setting credit ceilings per member. Simultaneously, their borrowing capacities, limited because of low share capital contributed by members and poor profitability, were sought to be enhanced by infusion of state funds as share capital. State funds, coupled with poor human resources in both governance and management structures proved to be the ideal backdrop for state-led interference in their administrative and financial decision-making.

Table 12: Resource base of cooperatives as on 31 March 2009 (₹ in crore)

Agency	Share cap.	Reserve	Deposits	Borrowings	Total
SCB	1390.48 (1.35)	8763.95 (8.50)	71315.07 (69.20)	21582.21 (20.94)	103051.71 (100.00)
DCCB	6071.41 (3.45)	17808.01 (10.11)	123721.82 (70.26)	28477.64 (16.17)	176078.88 (100.00)
PACS	7007.32 (8.05)	4888.5 (5.61)	26245.38 (30.14)	48938.44 (56.20)	87079.64 (100.00)

(Source: Planning Commission, Govt. of India)

The net result of this approach that continued for over 50 years was that the cooperatives never became member driven and member centric, and could not be relied on for a massive increase in provision of agricultural credit that the country needed for boosting agricultural production under the grow more food campaign in the 1970's. It is this failure of the ST CCS that first mandated commercial banks to move to rural areas and provide agricultural credit, and later prompted designing of small sized localised banks called RRBs that were expected to have the local touch of cooperatives and financial management abilities of commercial banks.

7.5.2 Financial health

The financial health of the credit institutions is a cause for serious concerns. While the majority of the institutions in the STCCS are in profit and the accumulated losses are also coming down over the years, the LTCCS presents a totally different picture. Not only do the LTCCS as unit register increasing losses over the years, its accumulated losses in 2010 was to the extent of ₹5,275 crore by end-2010, i.e., it has eroded its owned funds to the extent of 59%.

7.5.3 Share of Cooperatives in Agricultural Credit

Despite the entry of commercial banks and RRBs in the 1970's, cooperatives continued to provide significantly larger portion of agricultural credit for another two decades. Even until early 1990's, cooperatives provided almost 62% of the Agri-credit in the country, with commercial banks providing a little more than 30%, and the RRBs meeting a meager 7%. By the turn of the century, however, the commercial banks had overtaken the cooperatives, and were providing 74% of Agri-credit by 2010-11 and the share of cooperatives dwindling to a meager 10%.

7.5.4 Status of Implementation STCCS Revival Package and its Impact

As implementation of the GoI revival package progressed, 25 States joined the Package.

Cooperative State Acts (CSAs) have been amended in 21 states. Professional CEOs or Directors have been or are being appointed in most of the states. Statutory audit by Chartered Accountants have commenced in 16 states. The GoI has released ₹9,016.6 crore so far for recapitalization of 52,000 PACS in 16 states and the process for further releases is on. Various efforts together with the financial cleansing received by the cooperatives under the Agriculture Debt Waiver and Debt Relief Scheme (ADWDR) of the GoI has seen Agri-credit by cooperatives increase substantially from ₹48,000 crore disbursed to 2.02 crore farmers to ₹63,500 crore disbursed to ₹2.04 crore farmers. Given, however, that PACS have a membership of over 12 crore and CCS has issued more than 3.79 crore KCC, there is substantial scope for increasing Agri-credit dispensation by cooperatives.

8. Enabling Environment and policy highlights

8.1 Business Enabling Environment: Country Policy is the key

The collection of institutions, policies and support services that define the setting where enterprises operate is known as the enabling environment, or business climate. The constituting elements of an enabling environment in any given economy are multi-faceted, covering themes such as the rule of law, public sector governance, overall macro-economic conditions, infrastructure and regulations affecting business, among others. Acknowledging that a conducive business climate is an essential pre-requisite for investments in new enterprises and for the sustained growth and competitiveness of the existing ones, country governments in Asia and international organizations are now paying increased attention to the assessment and promotion of reforms of enabling environments.

The role of the government differs from country to country and from one economic sector to another. It may have a facilitating role, or it may interfere or obstruct efforts to develop value chains. Without a good understanding of the role of national and local governments in value chain finance, opportunities may be overlooked or the effectiveness of services that are provided may be hampered. In some countries, progress very much depends on the political power and the will. When vested interests become involved, progress can become difficult.

This goes for every continent, every country and every locality. Progress can also become difficult when a government or local administrator changes, as then everything else may change. In some countries, the government plays an overly strong role in certain sectors, or in the economy as a whole. The government controls the land and resources,

and determines who has access to these assets. Banking regulations can have a negative impact on efforts to develop value chain finance. Banks may be sanctioned by the central bank if they offer loans that are not secured with hard collateral (e.g., by requiring them to keep high amounts of unproductive reserves, or to make deposits for them at the central bank. The enabling environment support multiple levels of country's economy and institutional set up.

• Macro level policy level to create an enabling environment (banking regulation act, warehouse receipt act, taxation & marketing policy);

• Meso level with private sector intermediaries (insurance, collateral managers, commercial banks);

• Micro level with various institutional forms of farmer associations and community based microfinance institutions.

8.2 Empowerment through Value Chain Finance

Value chain finance may also empower weaker actors in the chain for example farmers improve their skills in management and marketing, and gain a voice in the chain. They can apply these capacities to seek other markets or expand their production of other types of produce. Value chain finance may give them the step up needed to expand beyond a single value chain. Various levels of chain governance are important in the cases, including producers' organizations and the national and local governments.

To be effective, value chain finance depends upon the environment in which it operates.

Some financial instruments can only be applied if certain regulations or compliance is in place. Macro-economic instability or erratic policies adversely affecting risk perceptions, on the other hand, undermine the potential of Value Chain Finance instruments. While financial instruments have been developed as a method of alternative finance when conditions for convention are not in place, a proper business climate is essential, if value chain finance is to be applied to its full potential. Similarly, the business models for value chains and their financing are developed according to the operating conditions and the characteristics of those involved in the chain. Sub-optimal models are prone to result in the absence of enabling environments.

8.3 Policy highlights to strengthen enabling environment towards value chain finance

Value Chain Finance in Agriculture builds on a relationship and mutual interest among the value chain actors and the support services. Some of the elements of enabling environments that are of particular relevance for the successful design and implementation of value chain finance initiatives are suggested below:

- Technical assistance (agriculture extension) services to be strengthened at country level. This may be done by involving both Government and private sector (NGOs, paid service providers etc.)
- Promoting farmers' and producers' company /organization by bringing flexibility in the registration system and advice the retail chains to procure from these groups to certain ration of their total procurement.
- Promotion of contract/corporate farming and government unutilized land may be given to these organizations on long term lease. This would help the farmer to bring in economies of scale.
- Promotion of agri-business as priority sector to improve agriculture productivity and competiveness in the country.
- Encourage export competitiveness by opening up of export and country level understanding on commodity transactions.
- Food processing industry needs to be encouraged by rationalizing the tax structure of the country for this sector which will encourage the entrepreneurs for investment.
- The flow of finance along the value chains by the internal financiers needs to be recognized at policy level to give fillip to these transactions.
- The national governments need to encourage the financial sector to invest more in the value chains rather than skewed attention to one actor in the chain.
- All types of financial institutions (including the MFIs) may be encouraged to finance the agriculture value chains at a competitive rate.
- Strengthening insurance in the agriculture value chain activity to mitigate the risk of financing.
- The linkage between the two actors in the value chains needs to be recognized as quasi collateral for financial transactions.

8.4Improving Share Capital and Deposit Safety

8.4.1. The critical issue for the future is therefore increasing member participation in the affairs of PACS and ensuring that members have a substantial financial stake in the cooperative. As PACS were often formed as state led initiatives in the name of the "poor farmer", the face value of membership fee or a share in a PACS has often remained at a paltry ₹10, or at best ₹100 per member, and more often than not, even this was provided by the state under "universal membership" campaigns. It is clear that in today's

world, such a low share-price has no value as far as capital of even a small financial institution like a PACS is concerned. True that the share capital of a member is linked to the quantum of loan, thereby, notionally increasing the capital base of the cooperative but the fact remains that unless dividend is paid on such share capital, the cost of credit from a cooperative becomes much higher than that from competing banks, i.e., RRBs and Commercial Banks. Unfortunately, even profit making PACS were often denied permission for paying dividend. In any case, half the PACS were making losses. It is therefore necessary to increase per member share capital to at least ₹500 which, technically, is not even two or three day's wages of a single member of a rural family.

8.4.2 Members today are hesitant to keep deposits even with their own PACS as they are rightfully concerned about the safety of their deposits. Since such deposits would not be covered by DICGC, and the deposit insurance schemes of states have remained only on paper, NABARD has formulated an "Institutional Protection and Deposit Safety Scheme (IPDSS) for PACS on the lines of similar schemes operating in Germany and Hungary Sustained campaign, incentivising a habit of making regular thrift among farmers, a la SHGs, is therefore necessary as part of the financial literacy and counseling initiatives. Immediate launching of IPDSS would give a boost to this initiative.

8.5 Legal and Regulatory Enablement

As mentioned earlier, Cooperative Societies Acts (CSA) has been amended in 21 states on the sidelines of the Vaidyanathan Committee recommendations. These amendments aimed at providing flexibility to the CCS entities to make them more efficient. For example, any CCS entity can now take loans from any financial institution regulated by RBI. Technically, this enables a PACS or CCB to take loans from any other cooperative bank, commercial bank or an RRB or even refinance directly or indirectly from NABARD.

However, consequential amendments in NABARD Act to provide refinance to any PACS directly or through a commercial bank or RRB are yet to be made which practically nullifies the enablement created through the CSA amendments. Likewise, amendments are yet to be made to enable cooperatives registered under the parallel cooperative societies Acts or the multi state cooperative Societies Act (MSCSA) to be recognised as banks. Consequential amendments would also be required in the DICGC Act, BR Act, and RBI Act. Without such amendments, the intended reforms of the Vaidyanathan package will go only half the way and leave sufficient scope with the states to

continue interfering in the affairs of the cooperatives.

9. Summary, Conclusion and way forward

9.1 Summary of the study

Value chain finance in agriculture is all about collaboration. There is collaboration between the financial agent, the chain actors and the service providers (triangulation). More often the collaboration of the value chain actors is visible and the financial sector takes a back seat which resulted into less collaboration between the financial agents and the value chain actors. This situations needs to be monitored as the role of financial institutions in the triangulation are highly prominent and without them the flow of finance in the value chain will never be enhanced. The present study report in relation to value chain finance in Asia to strengthen the resilience of the small holder farmers and the micro and small agro enterprises (MSAEs) may be summarized as follows:

• The chain of value chain finance reduces the risks and transaction costs of financing the value chains. There are three specific purposes of cooperation among financial agents and the value chain actors were observed: covering all needs in the value chain, sharing the risks, and reaching out to last mile producers.

• The agricultural credit portfolio of the financial institutions in developing countries of Asia is skewed towards producers and due to the low repayment rate, the growth and diversification of the portfolio in this sub-sector has not improved even after national government intervention. This created a serious gap in the rural financial sector which led to underutilized economic potential of agriculture.

• The potential for the development of agricultural value chains in Asian countries are substantial and promising, both from the supply (sufficient natural resources) and demand (large domestic market, opportunities for export) perspectives.

• Value chains studied are typically characterised by a preponderance of smallholders, and relatively few processors who encounter severe challenges in the acquisition of sufficient quality raw materials, technology, and marketing and there is virtually no government support to value chain coordination.

• Financial needs are particularly acute for the growers, who can rarely access sufficient amount of finance to operate their businesses profitably. There many small agribusinesses in primary processing can increase profitability through technological upgrading and organization, but also find it difficult to access finance for this.

• The existing financial products and services of the commercial banks, MFIs and cooperative banks are not tailored to meet the needs

for small producers, aggregators and processors

9.2 current cooperative credit structure (CCS) is capable of meeting the future challenges?

While crop loans in the banking system grew at 28% during 1997 to 2007, crop loans by the CCS grew only at 14%. Crop loans outstanding were 65% of the deposit base of CCBs in 2007 The overall CAGR for crop loans was 24% during the first three years of the XI Plan and are expected to grow at least 20% in the next five years. Agricultural credit by the CCS would continue to increase but the pace of growth is expected to flatten to about 16% and the amount expected to be disbursed would be ₹ 2.05 lakh crore by 2018, or three times the disbursements in 2011. The deposits of CCBs grew only at about 8% from 2002 to 2007 compared to 15% by RRBs.

Even if the growth rate of deposits in CCBs increases by another 50% to touch 12% in the next decade, these deposits would still not support more than ₹1.40 lakh crore of crop loans thereby needing NABARD refinance support of at least ₹65,000 crore by 2018, if cooperatives have to even maintain their share in the total Agri-credit provided by the banking system. With this limited, but still fast growth of credit flow in PACS which would in any case not be matched by deposits mobilized from members of PACS, the concept of mutuality of thrift and credit would continue to be weak in PACS and PACS would continue to be poorly governed despite implementation of Vaidyanathan committee recommendations.

An area of concern that needs to be addressed with a sense of urgency is the debilitating financial health of the LTCCS and their inability to finance capital formation in the agriculture sector, the purpose for which they were set up in the first place. Such a situation could have long time deleterious consequences on sustaining growth in the agriculture sector. A decision, perhaps, may have to be taken quickly on the package for revival of the LTCC and its implementation can commence forthwith.

9.3 Conclusion and Recommendation

9.3.1 Paradigm Shift: In general, the prevalent mode of financing in the value chain still seems to be that of the trader credit model, where small producers have no direct linkage to the market and apparently lack information regarding market price. The presence of traders and other intermediaries in various stages of the chain are the price takers of the commodity but do not necessarily benefit the farmers. For this reason, governments and some private enterprises facilitated contractual arrangements that directly linked farmers to large companies or corporations for the sale of their produce, eliminating the need for traders and middlemen, thus bringing down the prices.

9.3.2 Financial product diversification: Lending to actors in agricultural value chains requires a thorough understanding of the value chain and careful identification of needs and opportunities on the different levels of the chain. Providing large-scale loans to a few eventually promising agro-processing units will not render quick-wins, if the rest of the value chain is not receiving necessary support as well. Particularly, positive effects on incomes and poverty cannot be achieved by looking at processing operation alone. Financing intervention should be directed where it is required, not focused solely on production. Financing for processing and marketing is particularly crucial for growth and expansion of chain products from local to international/export markets. Hence, loans should not be limited to short term, production loans but should also include bigger loans, with longer maturities, to finance investments in farming equipment and machineries, transportation, storage, mills and other processing/post-harvest facilities. A wide range of innovative financial products and services such as trade receivables, factoring, leasing, overdrafts, as well as investment loans, guarantees, insurance etc. are required from the formal financial institutions to meet the diversity of needs of the value chain actors. This also implies working with a combination of financial service providers, not just the formal banking sector, including building vertical linkages in the financial sector.

9.3.3 Post production intervention: The warehouse receipts system should be developed by the national governments and adopted by the financial institutions as a post-production financing instrument, so as to secures higher price for the produce due to increased storage period, provides quality standards, and functions. The warehouse receipt is also intended to serve as collateral or pledge that will allow traders, exporters and other institutional buyers to access loans that will allow procurement of larger volumes of produce and finance other expenses related to processing and marketing.

9.3.4 Bring multistakeholders together: Any programme for value chain finance should build on existing models with proven track record in value chain finance and this should be country specific. Banks can collaborate with these programmes taking the advantage of the existing value chains and benefiting from their knowledge and expertise regarding the situation in particular value chains. This may constitute a field for achieving "quick wins".

Financial institutions serving value chains must develop products adapted to the cash flow cycles of the value chain, which presents challenges for liquidity management and seasonal operations. Partnerships between financial

institutions and value chain actors can increase liquidity, lower risk, and lower costs to meet the demands of Value Chain Finance.

9.3.5 Increasing Member Participation in cooperative system: Farmers have become used to treating themselves as mere "clients" of PACS from where they avail credit with their responsibility limited to voting in the occasional elections in the PACS. Even these votes are often cast on party affiliations with little reference to functioning of the PACS or the capability of the Committee Members. This needs to change immediately. Campaigns to make members aware of their rights and responsibilities, and formation of village committees of members to monitor and activate members in the regular functioning of PACS would have to be immediately planned and executed.

9.3.6 Pushing the farmers' collectives: With the increasing number of small and marginal farmers and oral tenancy, formation of JLGs within these village committees then becomes the next necessary step NABARD has already initiated such a move that needs to be converted into a mission mode. The central theme for increasing member participation in the affairs of the PACS is take steps which increase the number of contacts between the member and the PACS. It is easy to surmise that the most effective contact can only be through fruitful business between the two, and the product range offered by the PACS therefore needs to widen significantly.

9.3.7 Improving product Range of PACS: PACS today primarily offer crop loans and have been legally enabled to provide loans for farm investment and other activities. Some PACS also stock fertilisers. Most members, however, have to look to other agencies not necessarily located in their village to even get other products and services required for their farming operations. This increases the farmer's transaction costs. It would be necessary to convert PACS into one stop shop for farmers – the member farmer must first think of his PACS whatever he needs for his farming operations and also otherwise, and the PACS needs to be enabled to either itself provide that product or service or arrange for that expeditiously. Examples of PACS engaged in procurement, providing warehousing facilities, stocking and providing other inputs including seeds and saplings, leasing out farm equipments, becoming e-enabled common service centres providing land records and information on weather, market prices, and extension advisories, and so on are now available in some states[27]. PACS also need to provide other financial products, especially insurance, and enhance their fee based income. A planned initiative to develop at least 5 such multi purpose PACS in each district within one year could be the first

step of a national drive. These will have demonstration and demand effect and help other PACS in the district to develop similarly.

Substantive and well planned HR initiatives will be part of any such drive including providing managerial support and manpower wherever required.

9.4 Way forward

The issue of agricultural value chain finance is frequently on top of the international development agenda. Now, with the triple shocks of the recent years — food, fuel, and finance — the urgency of food security has increased greatly and created political pressure to act immediately. There is now broad support for more and better investments to increase agricultural production, to improve marketing of commodities, and to combat poverty.

However, there are no quick political fixes and the provision of sustainable financial services for agricultural value chains has proven to be difficult. The past years have demonstrated that neither commercial banks nor the emerging micro-finance industry are willing or able to sufficiently meet the financial needs along agricultural value chains, leaving farmers and agricultural MSMEs unserved in the so-called "missing middle." There is a broad consensus that existing mechanisms for agricultural finance are not adequate and that we need to move to innovative and market-based approaches that are scalable and can reach a large number of beneficiaries and could serve all the actors in the value chain. On the basis of the key lessons learned from the stocktaking of agriculture value chain finance in India, a summary of key focus areas for taking it forward are outlined as follows:

- Develop country specific diagnostics and strategies. There is an urgent requirement to undertake a detailed baseline diagnosis of the supply and demand for agricultural value chain finance at country level and draw a long term strategy to meet the gap.
- Develop a Supportive Legal and Regulatory Framework. The legal and regulatory framework of the country needs to be developed to support the development of agriculture value chain finance as a long term development agenda.
- Designing Effective Government Support Mechanisms. Efficient support mechanism of national government will allow the value chain to develop and flourish. For example, partial credit guarantee programme for agriculture may bring more players of financial system to support the value chains to develop.
- Building Capacity of Financial Institutions and their Clients. Banks and financial institutions require support in train-

ing, product development, and risk management specific to agriculture value chains.

Value chain financing is recommended as a promising approach for increasing financing to agriculture at all levels of the chain. More learning and a deeper analysis is required for addressing key constraining factors. Most important among these is research to help improve: a) contract enforcement, b) improved policies and regulation for some of the value chain finance instruments and c) approaches for optimal financial inclusion. In addition, greater dissemination of the experiences and learning is needed in the universities, banking institutions and among development agencies and national governments.

Problems faced by Rural Women Entrepreneurs

Dr. Jyoti Rani*
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Women are not only the carriers of human race but civilization and sustainable development rests on them. They are the best upholders of environmental, ecological and social balances yet a victim of man-dominated patriarchal system, neglected in their day to day life, neither considered equal to man in wage or social status. Their role is silently appreciated without economic recognition, regard and accountability. Women comprise 50% of the population, contribute 75% work hours, receive 10% income and 1% share in property (FAO). They remain 'invisible workers' and have not been given an appropriate share in development agendas and programmes. They have been largely treated as beneficiaries rather than partners in development process.

Some problems faced by the women entrepreneurs are at the individual level and some at the institutional level. To improve the work situation of the women entrepreneur financial help, awareness programmes, vocational training, availability of specific market for their products should be made available to them.

Women in Agriculture

Farm woman is the backbone of agriculture in developing countries including India. The involvement of women is high in activities of sowing, transplanting, weeding, manuring, harvesting, winnowing, threshing, storage, marketing, livestock rearing, poultry, small animal husbandry and management etc. Besides agriculture, women have major share of work in dairy, fruit, vegetable, fish marketing and animal husbandry. The future of a country depends on capacity building and empowerment of these women on science and technological aspects. Education and training are the two ways of achieving the goal of scientific and technological empowerment of women.

Entrepreneurship is considered to be an important input for rapid economic development. In developing economies, it could play an effective role in coping with various socio-economic problems. Many developing reasons do not suffer from resource constraints, rather the required skill is missing to convert the physical resources into the useful enterprises. Like other economic concepts, entrepreneurship has long been debated and discussed.

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It has been used in various ways and in various senses, while some call entrepreneurship as 'risk bearing' other view it 'innovating' and yet other consider it 'thrill-seeking'. Breen etal. (1995) examined financial and family issues by taking a sample of 211 female entrepreneurs from Australia. The study highlighted that female business owners faced the problem of getting finance and started business with low initial capital. On the family front, women entrepreneurs faced the problem of supervision and care for sick children.

Srivastava and Chaudhary (1995) in their work on "Women Entrepreneurs: Problems, Perspective and Role Expectations from Banks" find out that not a single factor but a host of motivating factors act simultaneously on the individual creating dissonance in her, which in turn motivates her to take an action directed towards elimination or reduction of dissonance in the individual. Women faced problems mainly in the area of marketing of their products and approaching the banks for getting loans. Personal problems like time constraints and family stress were also cited.

Dutta (1997) in his study on 'Women Entrepreneurs in Assam Problems and the Role of the Promoting Organizations' has highlighted that state adopted model developed by NISIET for promotion and development of entrepreneurship among women'. In Assam, women faced large number of problems, some of which are inherent and some are technical in nature. Kamble (1997) has examined socio-economic background of women entrepreneurs who availed financial assistance from KSFC, selected on random basis. He concluded that educated women are more enterprising than their counterparts in other communities.

Caputo and Dolinksy (1998) have examined the role of financial and human capital of household members to pursue self-employment among females. Findings suggested that government should provide necessary skill to women to ensure rapid growth of entrepreneurship. Watson (2003) has examined the failure rates among female control business in Australia. The analysis of study highlighted that failure rate female control business is relatively higher than male controlled business. But the difference is not significant after controlling for the effect of industry. Kumar (2004) in his study, 'Women Entrepreneurs: Their Profile and Barriers in Business' has examined the major obstacles faced by women. After analyzing the different problems, one may draw the inference that with the change in taste and preferences, expectations of the people and rapid change in technology, there is a need to increase awareness and availability of the technology to women entrepreneurs.

Kumar (2005) has investigated the various factors affecting while choosing business line. A sample of 120 women entrepreneurs has been selected from the state of Haryana. The analysis of data highlights that there is shift in attitude of women entrepreneurs while choosing business line. Women entrepreneurs do not take profitability and complexities involved in business into considerations. Women entrepreneurs want to take up only those lines of business in which they possess adequate knowledge and skill and require less investment. Efforts should be made to inculcate the spirit of entrepreneurship among women. Kumar (2006) examined the labour related problems among women entrepreneurs in Northern India by taking a sample of 450 respondents from five states of Northern India i.e. Haryana, Punjab, Rajasthan, Himachal Pradesh and Delhi.

The analysis of data reveals that women entrepreneurs face the problem of labour absenteeism and labour turnover.

Categorization of the Problems faced by Women Entrepreneurs:

In general, there are so many problems faced by women entrepreneurs. If they are properly listed out and sorted out, women can rock the business world and prove their remarkable presence as the women entrepreneurs. Here we are just trying to categorize the problems/obstacles in the path of women entrepreneurs. There are five major categories in which these problems can be divided:

1. General/Personal Constraints of Women Entrepreneurs.
2. Education Constraints of Women Entrepreneurs.
3. Socio-Psychological Sphere System Constraints of Women Entrepreneurs.
4. Financial Constraints of Women Entrepreneurs.
5. Marketing Constraints of Women Entrepreneurs.

1. General/Personal Constraints of Women Entrepreneurs

In India, work distribution was based on the physical power in the family as women seems to physically weaker, the households tasks were provided to them and make the boundaries around them. In male dominating India, it is tough to break the boundaries and come out at the level of men's world. While doing the same, women have to face some personal problems such as:

(a) Poor risk taking ability.
(b) Lack of proper training.
(c) Lack of leisure time.
(d) Lack of systematic planning and working.
(e) Health problems.
(f) Excessive burden of work and responsibilities.
(g) Difficulty in handling technical, financial and managerial activities.
(h) Excessive tensions and challenges.

2. Education Constraints of Women Entrepreneurs

The traditional degrees are not able to provide technical knowledge and other aspects related to the business world. Women entrepreneurs may be lacking in the technical education required for the entrepreneurship. Some educational constraints are categorized below:

Lack of knowledge about

(a) The legal aspects.
(b) The competitors.
(c) The availability of machines and equipments and various improved technologies.
(d) The agencies and institutions working for entrepreneurs.
(e) The various loaning schemes and procedures of financial institutions.
(f) The marketing.
(g) The availability of raw material.

3. Socio-Psychological Sphere System of Constraints of Women Entrepreneurs

Indian social set up care girl child in certain boundary; this affects the personality and development of that girl child as a woman and become obstacle in the path of growth of women as an entrepreneur. There are so many socio-psychological constraints women have to face in our society to build herself as an entrepreneurial woman. Some are:

(a) Lack of confidence.
(b) Lack of encouragement, recognition and appreciation from family and society.
(c) Conflict due to dual responsibilities.
(d) Inconsistence to traditional norms.
(e) Poor chance for mobility women.
(f) Male domination and no equal status in business.
(g) Lack of sufficient time due to look after children/husband, household activities and to attend family functions.
(h) Faulty socialization and problem of public relations.
(i) Inferiority complex.
(j) Society lacks confidence in women's ability.

4. Financial Constraints of Women Entrepreneurs

Making economic management at home level may help become first step for business financial management but the other step may totally differ; from where and how is the major problem in financial field. Some financial constraints are listed below:

(a) Limited working capital
(b) Lack of funds for fixed assets
(c) Inadequate assistance from financial agencies and banks
(d) Bureaucracy and red-tapism of government institutions
(e) Lack of collateral security
(f) Economic incredibility of women
(g) Negative attitude of banks
(h) Inadequate installments for repayment

5. Marketing Constraints of Women Entrepreneurs

Standing alone in the market

with their product is not as easy task as the market is male dominating field. Competitions create harassment for their economic benefits and that kind of environment may create big obstacles in the marketing procedure. Some other financial constraints are:

(a) Lack of transport facilities.
(b) Lack of marketing experience.
(c) Competition from established large entrepreneurs.
(d) Slackness in demand.
(e) Difficulty in getting money from buyer after credit sales.

When a woman enters in new entrepreneurial field, she has to face so many problems. After evaluating so many constraints, we can conclude that the problems faced by women can be divided into two levels i.e. individual level and institutional level.

(A) Problems faced by Women at Individual Level

- Shortage of finance.
- Shortage of raw material.
- Stiff competition.
- High cost of production.
- Family responsibilities.
- Social attitudes.
- Low ability to bear risk, strong fear of failure.
- Lack of education.
- Low need for achievements.
- Inadequate infrastructure.
- Technical know-how.
- Women are not recognized as decision makers.
- Lack of general exposure.
- Shy nature and hesitation among them restricts their participation.
- Lack of motivation.
- Lack of family and community support for her enterprise.
- Establishing the enterprise is a time consuming process.
- Lack of freedom to choose and pursue.
- Sense of fear and insecurity towards government.
- Liking for government job only.

(B) Problems faced at the Institutional Level

- Vague and unrealistic policies
- Lack of inter-agency coordination
- Overlapping and duplication of functions
- Multiplicity of agencies performing more or less similar tasks
- Lack of work motivation and commitments

Suggestions

- Promote greater women business owners.
- Promote appropriate loan guarantee schemes.
- Rate of interest in repaying loans should be reduced.
- Vocational training should be provided to them regularly at village level.
- Awareness programmes need to be conducted at village level regularly.
- Bureaucratic formalities should be minimized and

banking procedures needs to be simplified.

- Marketing problems of their product need to be solved.
- Promote possible partnership between government and NGOs and private sector landing in order to make this market attractive.
- Increase access to credit by promoting the development of intermediary organizations.

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Cabinet approves amendments to NABARD act 1981

The Union Cabinet gave its approval to the amendments to the National Bank for Agriculture and Rural Development (NABARD) Act 1981. The following amendments to the NABARD Act 1981 are proposed:-

1. Raising the authorized capital of NABARD to ₹20,000 crore from ₹5,000 crore.
2. The meaning of cooperative society is proposed to be enlarged to include multistate cooperative societies registered under any Central law or any other Central or State law relating to cooperative societies.
3. Change of ownership to facilitate the transfer of the remaining share capital of NABARD from the Reserve Bank to the Central Government.
4. Increasing the scope of operations of NABARD under short term funding purposes and other changes.

The following benefits are projected by this amendment:-

1. By increasing the authorized capital of NABARD to ₹20,000 crore from ₹5,000 crore, the ability of NABARD to mobilize resources from the market will be enhanced thereby new credit products, new credit linkages and new clients will be developed.
2. The amendments allow NABARD to lend to new institutions, mainly Societies covered under multistate cooperative societies act and other central laws, producer organizations or such class of financial institutions which are approved by the Central Government. This is likely to benefit a larger segment of the financially excluded farmers in the country.
3. The amendments allow combination of credit, creation of short term operations fund and swapping of debt of farmers.
4. The decision of the Government to transfer the balance one percent shares to the Govt. of India from Reserve Bank of India (RBI) in NABARD shall be carried out, which will provide for increased public accountability, as the Government will acquire the equity held by RBI.
5. NABARD will combine the post of Chairman and the post of Managing Director, into one, therefore Chairman and Managing Director, under the provisions of the NABARD Act relating to these two posts.

ICA release Final Blueprint for Cooperative Decade

A Blueprint for Co-operative Decade was considered in draft by the General Assembly of the International Co-operative Alliance (ICA) in Manchester in October 2012. Following comments and discussion (now reflected in this revised version) the Blueprint was approved by the General Assembly and its Final version was issued in Feb 2013. ICA in a release dated Feb.9, 2013, said.

The intention of the General Assembly is that the United Nations International Year of Co-operatives marks the beginning of a worldwide campaign to take the co-operative way of doing business to a new level. The ambitious plan in this Blueprint - the "2020 vision" - is for the co-operative form of business by 2020 to become:

- The acknowledged leader in economic, social and environmental sustainability
- The model preferred by people
- The fastest growing form of enterprise

The 2020 vision seeks to build on the achievements of the International Year of Co-operatives and the resilience demonstrated by the co-operative movement since the great financial collapse. By pursuing the strategy outlined in this Blueprint, we aim to make 2011-2020 a Co-operative Decade of confident growth. The International Year of Co-operatives has provided a powerful focal point for the sector. It has heightened its sense of shared purpose, illustrated by the range of activities and celebrations of the International Year, by the number of international conferences and summits held around the world with agreed outcome declarations, as well as the widespread take-up of the 2012 International Year logo and tagline by co-operatives around the world. It has raised the profile of co-operatives beyond the limits of the sector itself, in civil society and amongst governmental and inter-governmental bodies.

These are significant achievements, but they need to be seen in the context of the dominant emerging trends that are likely to shape our politics, societies and economies for the foreseeable future. Some of the most crucial global trends are:

- Environmental degradation and resource depletion
- An unstable financial sector
- Increasing inequality
- A growing global governance gap
- A seemingly disenfranchised younger generation
- A loss of trust in political and economic organisations

Co-operatives already make a significant contribution towards alleviating these pressing global problems. But, with appropriate support and greater understanding and recognition, they could

contribute much more. The challenge now is for the ICA, national bodies, sector groups, co-operative societies and individual members to take this Blueprint forward into implementation.

Banks seek first right over defaulting borrowers' assets

Rising bad loans have prompted banks to seek amendments to recovery laws. They want priority over Central and State tax authorities in pressing their claims on defaulting borrowers' collateral. In this regard, banks have moved the Government seeking amendments to the two recovery laws the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act (SARFAESI Act), 2002, and the Recovery of Debts Due to Banks and Financial Institutions Act, 1993 (RDDB Act).

In 2011-12, the provisions of the Customs Act, the Central Excise Act and the Finance Act, 1994 (relating to service tax) were amended to provide statutory first charge on the assets of any person for recovery of tax arrears, subject to the provisions of the two recovery laws.

Although the provisions of the abovementioned Acts recognise the rights of the lenders to recover defaulted loans, there are no specific statutory provisions in them giving priority to their claims over taxation dues.

As a result, claims of the Central and State tax authorities have been getting priority over the claims of banks and financial institutions. Bankers say there are many instances when the revenue authorities have shown up to press their claims for recovery of tax arrears immediately after the recovery process through sale of assets has been completed.

Cooperative societies more bankable for poor: RBI study

Cooperative societies are seen by the poor as more approachable than banks, according to the findings of a Reserve Bank of India research study in Kerala. The study of the portfolios of the poor, based on data provided by 107 poor households in Ernakulam district, said commercial banks seem to suffer from a perception problem.

"It appears that the banks are not yet considered as a friendly neighbourhood institution on which one can rely for their financial requirements. "There is a clear need for removing this perception, highlighting simultaneously the lower cost of their credit and other advantages," said the study 'How the Poor Manage their Finances: A Study of the Portfolio Choices of Poor Households'.

Debt recovery laws a must for co-operatives

The Gujarat High Court ruled that a notification issued by the Central Government to extend the SARFAESI Act to co-operative banks is illegal and ultravires the powers of the centre. The High Court granted the plea of about 70 defaulting borrowers of cooperative banks to the effect that such lenders cannot exercise recovery powers under the SARFAESI Act. With regard to the validity of the Recovery of Debts due to Banks and Financial Institutions Act (RDDB Act), 1993, the Supreme Court has already held that the provisions of the said Act are not applicable to co-operative banks.

The basis of this decision is that the RDDB Act is applicable to a banking company as defined in section 5(c) of the Banking Regulation Act (BR Act) 1949. The definition under the BR Act is not intended to include a co-operative bank.

While extending the provisions of the BR Act to co-operative banks, through an amendment in 1965, cooperative banks were separately defined. The apex court made a distinction between banking undertaken by co-operative banks and commercial banks and observed that: "The distinction between peoples' co-operative banks serving their members and corporate banks doing commercial transactions is fundamental to constitutional dispensation and understanding cooperative banking generally and in the context of co-operative banking not coming under the ambit of the Banking Regulation Act, 1949. Thus, even if co-operatives are involved in the activity of banking, which involves lending and borrowing, this is purely incidental to their main co-operative activity, which is a function in the public domain."

The Supreme Court also noted that co-operative banks have comprehensive, self-contained and less-expensive remedies before them under the State co-operative societies laws. The apex court further held that the field of co-operative societies cannot be said to have been covered by Parliament by reference to List I, Entry 45 that is banking.

Co-operative banks constituted under the Co-operative Societies Acts, enacted by the respective States, would be covered by List II entry 32 of the State list. Hence the RDDB Act is not applicable to co-operative banks. The Gujarat High Court judgment holding that the SARFAESI Act is not applicable to co-operative banks is based on the above ruling of the Supreme Court.

Section 5(b) of the BR Act, defines 'banking' as accepting, for the purpose of lending or investment, deposits of money from the public, repayable on demand or withdrawal by cheque, draft, order or otherwise. In the applicability of this definition, no change is made

by section 56 of the BR Act which specifies modifications of the provisions of the Act for co-operative banks. The co-operative banks can, therefore, accept public deposits.

The view that co-operative banking is peoples' co-operative banking servicing their members is erroneous, as far as deposit taking activity is concerned. With respect to lending activity, co-operative banks require borrowers to become their members but that does not change the character of business undertaken by cooperative banks which is no different from commercial banks.

Cooperative-commercial link could fuel systemic risk: RBI

The Reserve Bank of India (RBI) has stumbled upon a possible nexus between cooperative and commercial banks that, in its opinion, could be allowing large amounts of unaccounted funds to be channeled into banks.

On commercial banks, RBI's report says, allowed clients of cooperative banks to issue at par cheques on them for third-party payments and remittances. Large parts of this money may have found its way into mutual funds and insurance schemes.

The central bank may disallow cheques of commercial banks to be used by a third party, as a demand draft or an at par cheque. The RBI plans to re-visit allowing cooperative banks to draw at par cheques on commercial banks for third-party payments and remittances, since it believes this is necessary to prevent systemic risks to the banking system. The RBI has found instances of DD payments being stopped, although this is not permitted; the central bank feels that DDs may have been obtained by depositing cash and the cancelled DDs are repaid by a pay order, a process allowing unaccounted money to become legitimate.

In a report that captures how a few banks have been flouting KYC and other norms relating to customer identification, thereby allowing customers to transact in cash, the RBI highlights the inadequacies in the system needed to flag large cash transactions or suspicious transactions noting that less than 1% of these were reported to the Financial Intelligence Unit (FIU) over the past three years.

Census 2011: Abstract Primary Data highlights released

Shri Sushil Kumar Shinde, Union Home Minister released the Primary Census Abstract-Data Highlights of Census 2011 in a function organized by the Office of the Registrar General & Census Commissioner. Some of the salient features of the data released are as below:-

- Total population of the country

is 1.21 billion showing an increase of 181.96 million persons in absolute numbers of population in India during the decade 2001-2011. During this decade, population of India grew by 17.7% as against 21.5% in the previous decade.

- As per Census 2011, 833.5 million persons live in rural areas and 377.1 million persons lives in urban areas. Thus, more than 2/3rd of total population of India lives in rural areas.
- Density of population as per current Census is 382 persons per sq.km. against 325 persons per sq.km. in 2001.
- Child population in the age group 0-6 years in 2011 Census is 164.5 million as against 163.8 million showing an increase of 0.4% in the last decade.
- Sex ratio in Census 2011 is 943 females per 1000 males as against 933 in 2001 Census.
- Population of Scheduled Castes in this Census is 201.4 million as against 166.6 million in 2001 registering an increase of 20.8% whereas Scheduled Tribes population increased to 104.3 million in 2011 from 84.3 million in 2001.
- As per Census 2011, number of literates is 763.5 million as against 560.7 million in 2001.

Disclose capital adequacy levels: RBI tells banks

The Reserve Bank of India has asked banks to disclose capital adequacy levels and the composition of capital in a set format under Basel-III norms. In the final guidelines for disclosure of capital composition, the central bank has prescribed templates for reporting for the various phases of implementation including the period of transition from Basel-II pillar 3 to Basel-III.

Banks are required to disclose a description of the main features of capital instruments issued by them. Besides, banks will also be required to make available the full terms and conditions of their capital instruments. The Basel-III norms that kicked in from April 1 require banks to keep a higher amount of common equity capital and propose raising of capital in stages over a period of four years.

RBI distressed by rising number of illegal schemes: RBI Governor

In its effort towards financial inclusion, the Reserve Bank of India Governor Dr. Subbarao said women demanding banking services is the biggest accomplishment in the last four years.

The Governor said the RBI was distressed by a number of illegal schemes across the country. "These

are illegal and unscrupulous schemes, promoted by fraudsters, which are beyond the purview of any regulator. People are lured into it with exorbitant interest rates and they lose their entire savings. This is distressing," he said. On the demand to standardise the remuneration to most BCs, he said it is decided by individual banks and the RBI cannot micro manage banks.

As regards Kisan Credit Cards (KCCs), he said more than 10 crore farmers will stand to benefit in the next two years. According to the RBI, of the 600,000 villages, banking services have penetrated into more than 200,000, through technology and BC model.

ICA Message on 91st ICA International Co-operative Day & 19th UN International Day of Co-operatives 6th July 2013

"Co-operative enterprise remains strong in time of crisis"

This year's International Co-operative Day celebrated July 6, 2013 has the theme "Co-operative enterprise remains strong in times of crisis". It is an apt theme when one considers how other forms of business measure up when faced with current global economic struggles. Investor owned business models currently suffer from a crisis of unsustainability in economic and social and environmental terms while the co-operative model has demonstrated time and again that it is resilient in times of crisis.

The financial crisis was an epic example of the perils of valuing short term gain over longer term viability. The global crises we have faced derive from a business model that puts financial return ahead of human need; a model that seeks to privatize gains and yet socialize loses. There is considerable evidence that a diversity of ownership models contributes to a more stable financial sector as a whole. By placing human need at their core, co-operatives respond to today's crises of sustainability and deliver a distinctive form of "shared value." Furthermore the co-operative model does not fall victim to the lure that has afflicted capitalism for more than twenty years in which financial performance is the central indicator of good business. Quite simply a co-operative is a collective pursuit of sustainability for it seeks to "optimize" outcomes for a range of stakeholders without seeking to maximize the benefit for any one stakeholder.

This also means that as times become more difficult the entire workforce is viewed as vital to the well-being of the co-operative, not just a few people at the top. Certainly another area in which the global public has been buffeted is in the practices and ultimately the closing of many big banks. What were considered venerable institutions safe for investment and

deposits too often have been shown to be weak and poorly run. Financial co-operatives however have often fared far better.

Savings and credit co-operatives, co-operative banks and credit unions have grown; kept credit flowing especially to small and medium sized enterprises, and remained stable across regions while indirectly creating employment. It is their unique combination of member ownership, control and benefit that is at the heart of their resilience and that provides a series of advantages over its competitors. With financial co-operatives representing an astonishingly large slice of the global banking market, it is important to better understand the model.

A recent report distributed by the International Labor Organization (ILO) and written by Professor Johnston Birchall, examines financial co-operatives from their origins in Germany in the 1850s to the global movement they represent today. Birchall explained in an interview with ILO how before the crisis, economists said financial co-operatives were bound to be less efficient than investor-owned banks because they did not reward their managers with shares. However, the crisis has proved that financial co-operatives were less likely to risk as much as PLC banks, particularly because their managers did not receive a share of the profits.

"Stability and the aversion to risk are built into the DNA of financial co-operatives. They make surpluses and they need to, otherwise they wouldn't be businesses. But what they do with those surpluses is put them into the reserves, which means they are very strong financially and they don't tend to have problems with the capital requirements of the regulators. "In credit unions in other parts of the world you can see that they didn't even face a drop in 2008. They didn't notice the banking crisis; they just kept on growing slowly, regularly, not dramatically."

Another benefit of co-operatives in times of crisis should also not be overlooked: its social dimension. As economies shrink and pressure is put on governments to reduce social benefits, co-operatives often provide an invaluable lifeline. In short co-operatives contribute to the social capital in ways that investor owned businesses do not. Co-operatives may also be critical in delivering services such as health care centres that would otherwise come from private insurance or the state or may not be provided at all as state budgets shrink.

And of course one should not overlook a key benefit of consumer co-operatives: the ability to offer the public lower costs for food and other essentials so vital when consumers' paychecks are shrinking or they have none.

This International Day of Co-operatives July 6, 2013 gives us an opportunity to reflect on all that co-operatives have done in hard times and in good times and to redouble our resolve to ensure that this values based business model continues to draw more attention and support globally. It is model that works time and again.

CIC declares IFFCO free of RTI Act

Central Information Commission (CIC) in its judgement, ruled that IFFCO does not fit in the definition of public authority and cannot come under the purview of RTI Act because subsidy cannot be construed as substantial financing.

The Bench of Information Commissioners agreed that the cooperative was getting huge subsidy from the central government but those concessions are being given to private sector players and is not unique to IFFCO. "The provisioning of subsidy is to keep the sale price of fertilisers low in the open market so as to keep it within the reach of farmers. Subsidy is not a grant. It is only a mechanism to pay the difference between the cost of production and the sale price of fertilisers," the Bench said.

"In the factual matrix of the case, it is evident that the central government has not share capital in IFFCO as of now. Nor has it nominated any Director in the IFFCO's board of directors," the bench said. Congratulating his team on the major victory, Dr. U.S. Awasthi, MD, IFFCO said, "It is a great news and it gives us satisfaction as law abiding institution. We always maintained that law of land as enshrined in our constitution should be the guiding principle for us and it will always remain so".

Publishing photographs of defaulters in newspapers illegal: Kerala High Court

The Kerala High Court has held as arbitrary and illegal the decision of the State Bank of India to publish the photographs of loan defaulters in newspapers. Allowing writ petitions filed by two defaulters against the SBI notice, the court observed that the threat held out by banks to publish the photographs of defaulters in newspapers lacked legislative sanction. The judge further observed that there was nothing immoral in their failure to repay the loans owing to a floundering business or other unavoidable reasons. The court added that some of the borrowers might even be driven to commit suicide fearing ignominy on account of their photographs being published in newspapers. "It will remain a permanent taboo for their family," the court observed.

The move was clearly an "affront to the right to live with dignity and honour as well as the right to

privacy of the loanees". Such publication of photographs therefore, violates the rights guaranteed to the loanees under Article 21 of the Constitution of India, the court held. The court also pointed out that there was no provision in the Security Interest (Enforcement) Rules (SARFAESI) that enables banks to threaten to publish photograph of defaulters.

President of India inaugurates 16th Indian Cooperative Congress

The President of India, Shri Pranab Mukherjee inaugurated the 16th Indian Cooperative Congress at a function at Siri Fort Auditorium, New Delhi. Addressing the Congress organized by National Cooperative Union of India (NCUI), the President said that it is in the institutions of co-operatives that the ideals of democracy and common good come to life. He said that he believed the need for these ideals in our political, social and economic lives has never been stronger. The theme for the Congress- "Cooperative Enterprises Build a Better World" was therefore most appropriate, he said.

The President said that Cooperatives in our country are pivotal institutions for bringing socio-economic development for inclusive growth in rural areas. He said, "The potential of the cooperative approach was perceived by our great national leaders even before India became independent.

Shri Mukherjee observed, "Part-IV of the Constitution of India in the provisions concerning the Directive Principles of State Policy, (Article-43) therefore refers to the "cooperative basis" for the promotion of economic growth. He said: "While the Panchayat will represent administrative aspects of village life, the cooperative will represent the economic side of village life..... if the cooperatives function properly they will help in introducing ... industries and other auxiliary activities....Cooperatives are good and essential (not only) for better farming but represent a higher level of work and existence for the people".

The President said that Cooperatives are perhaps the best way of reaching out into the vast hinterland of this country where the poor and the marginalized sections live. He stated that Co-operatives must receive recognition as an important sector of our economy that serves marginalized and weaker sections. They must be made commercially viable and used effectively in areas where cooperatives can make an impact such as rural health, education, credit, water-harvesting, precision farming, tourism, communication and hospitality etc. They must not only figure prominently in our efforts to achieve inclusive development, they must also retain

their character of being locally driven "by the members, for the members and from among the members". Top-down approaches should be avoided and local initiatives encouraged. He stressed that Co-operatives must be managed by adequately trained and enthusiastic members.

Referring to the 97th constitutional Amendment brought about by the Government, the President said, "This would enable democratic, autonomous and professional functioning of the cooperative society has now become a fundamental right. The act has paved the way for development of a stronger cooperative movement. To take this initiative further to the grass roots level, respective State Governments also need to create enabling environment by amending State laws as and when it is necessary."

The President said, "India has perhaps the largest and the most diverse cooperative movement across the globe. There is a general consensus on the potential of cooperatives in not just economic development, but also, more importantly, the human resource development of a nation. However, if we look at the contribution cooperatives are making in different parts of the world, we have a fair bit of catching up to do. We need a renaissance of sorts in the cooperative sector. I am hopeful that the deliberations in this Cooperative Congress will lead to sustainable strategies for improving the cooperative sector which would lead us to a better, more equitable and more secure world".

Cooperatives to bring in Reforms, Good Governance

Agriculture & Food Processing Industries Minister, Shri Sharad Pawar exhorted cooperatives to bring in reforms in their working. They must function on professional lines and add value to their services, he said.

Referring to the recent steps taken by the Government for better functioning of and strengthening cooperative movement in the country, he said: "It has been the endeavour of the Government to evolve an appropriate policy and legislative framework to create conducive environment for the growth of cooperative. This includes framing of National Policy on Cooperative, enactment of Multi-State Cooperative Society Act, assistance to cooperative education and training, implementation of recommendation of Vaidhyanathan Committee for revitalisation of Short Term Credit structure, 97th Constitutional Amendment Act and proposed amendment to MSCS Act 2010 etc. are some of the worthy initiatives to be mentioned. 97th Constitutional Amendment is a

very important and major initiative to strengthen and reinvigorate the cooperative sector. The objective of this Constitutional Amendment is to ensure that cooperative societies in the country function in a democratic, professional, autonomous and economically sound manner.

Saradha fallout: Govt puts curbs on new co-op societies

Alarmed by a spurt in the registration of new cooperative societies, mostly credit ones, around the time the now-infamous Saradha chit fund scam broke out in West Bengal, the Union has put checks on such registrations. The government suspected that chit fund companies were filing for registrations as cooperative societies.

A senior official from the agriculture ministry said the department of cooperation under the ministry received around 100 applications for registration under the Multi State Cooperative Societies (MSCS) Act, 2002, a month during the November, 2012 to April 2013 period. As many as 80% of those applications are for credit cooperative societies.

An alarmed department ordered a thorough investigation and was baffled to find that illegal chit fund companies masqueraded as cooperative credit societies. They applied in droves under the MSCS Act, taking advantage of the provisions under the Act to escape the long arm of law.

As per the MSCS Act, a multi-state cooperative society is one which operates in more than one state and has a minimum of 50 members in one state. "This made it very easy for chit fund companies and money circulation firms to masquerade as credit cooperative society as their pattern of operation was similar," the official said. "Standard rules like getting authorisation from the board before adding a new member, etc was easily flouted," the official said.

The worried department of cooperation immediately ordered that all new and pending applications for registration as a credit cooperative society under the MSCS Act must have a no objection certificate (NoC) from all the States where it plans to operate. It also directed the Registrar of Cooperatives in all States to investigate the business model of all existing cooperative societies, particularly those which have a credit disbursal model.

IFFCO bags pride of place in UN-ICA ranking

"We are no different from the so called corporate" was how Dr U S Awasthi, Managing Director of IFFCO reacted when the cooperative giant from India was ranked amongst the top 100

cooperatives in the world in the ICA Global 300 report released by the International Cooperative Alliance (ICA). The report ranked IFFCO at the 95th position overall and at the 20th position in the Agriculture and Food Industries sector.

The ICA Global 300 report was launched by ICA in 2006 in France and brings together economic information about the 300 largest co-operatives and mutuals in the world. The rankings in fact not only promote the visibility of the co-operatives included, but help ICA to show the world that there is an alternative business model to the shareholder model prevailing today. In 2012, ICA took a further step forward in its analysis of the largest co-operatives in the world and with the scientific and technical support of Euricse launched a new project: The World Co-operative Monitor, a new and advance method of ranking and data collection.

This year the survey was done amongst 2190 cooperatives in 61 countries and in terms of turnover IFFCO was ranked at the 95th position.

Dr. U. S. Awasthi said, "This is testament to our cooperative principles of professionalism democratic and transparent functioning and above all a modern outlook with feet firmly on the ground and I have no hesitation in saying that we are no different from the so called corporate". He also expressed his concern about the future of cooperatives in India and said "I think it's time that we take a cue from the rest of the world especially Europe and instill more professionalism in cooperatives in India to save them from oblivion." IFFCO has featured at the 20th position amongst the top 25 cooperatives in Agriculture and Food Industries sector. The data was collected for 553 co-operatives distributed in 36 countries, with a total turnover in 2010 of 483.2 billion US dollars.

RBI says borrowers' consent not needed to share credit information

Banks and financial institutions need not seek borrowers' consent to share credit information with credit information companies, according to the Reserve Bank of India. This advice comes as the Credit Information Companies (Regulation) Act provides statutory backing for sharing of credit information by credit institutions with credit information companies (CICs). With CIC Act coming into force, the "consent clause" has become redundant, the RBI said in a notification. Previously, consent clause (for sharing information with CICs) was needed in the loan/credit documents.

The CIC Act provides for collection (from members) and furnishing (to specified users) of credit information by credit

information companies. CICs are repository of credit information both current and historical data on existing and potential borrowers. These institutions maintain data base of credit information both positive and negative on the borrower which can be accessed by the intending lending institution. Negative financial data includes adverse information on the borrower such as delinquencies, defaults, penalties, frauds or bankruptcies. Adverse public record data can also find its way to the negative credit file. Positive financial data includes historical record of facilities availed and good and satisfactory performance of loan repayment.

Banks lack strong compliance culture, says Reserve Bank

The Reserve Bank of India (RBI) put emphasis on a 'strong compliance culture' among banks, saying there should be a strong system to rectify errors.

'"We are not worried that there are certain deviations...but you must have a system to identify there is something wrong and rectify it immediately," K C Chakrabarty, deputy governor, RBI said on the sidelines of an event.

For better compliance, he said the banks should have a compliance policy, structure, manual, properly identified people and an internal audit as well. He said there are at least 54 laws which affect the banking business directly or indirectly. Plus, there are other regulatory compliances, so it is very necessary to have proper compliance. Compliance, he said, acts like a lubricant which runs the business machinery of a bank.

Priority Sector Lending Reporting format for Commercial banks: RBI Defies "disbursement"

In a notification dated July 24, 2013 addressed to all scheduled Urban Cooperative banks, RBI has defined Disbursement to be reported in the monthly and yearly reporting formats is defined as under:

(i) Cash credit/over draft account and running accounts of similar nature: Debit summation minus interest and other charges or sanctioned limit, whichever is lower for the particular period under consideration (monthly /quarterly/ half yearly /yearly).

(ii) Term Loans: Debit summation minus interest and other charges for the particular period under consideration (monthly/quarterly/half yearly/yearly).

RBI gets a world-class economist as Governor

The government named chief economic advisor Dr. Raghuram Rajan as the new Reserve Bank of India governor for a term of three years. Dr. Rajan -- who earlier served as chief economist of the International Monetary Fund, takes over at a time when the central bank is under pressure to push economic growth while arresting the slide of the rupee. The two goals can be contradictory since stabilizing the rupee may require raising interest rates, which could impact growth.

While grappling with the worst external sector imbalance since 1991, Shri Rajan will also have to deal with the competitive pressure of handing out the maximum number of new bank licences in two decades. Rated by peers across the world as one of the most influential economists of his generation, he, will be the second youngest governor after Dr. Manmohan Singh, who took charge when he was 10 days short of his 50th birthday. He was the youngest-ever - also the first non-westerner - chief economist of the IMF, from 2003 to 2006. In 2005, he predicted the financial crisis of 2008-09, but was brushed aside by economists such as former US treasury secretary and Harvard University president Lawrence Summers.

The Bhopal-born son of a bureaucrat is a gold medalist at both IIT Delhi and IIM Ahmedabad, he went on to complete his PhD from the Massachusetts Institute of Technology.

e-KYC is valid

To avail of financial and government services, the Law Ministry has approved fulfillment of Know-Your-Customer (KYC) norms electronically, through Aadhaar or Unique identification number. The Finance Ministry has written to the Reserve Bank of India (RBI), as well as other regulators such as the Securities and Exchange Board of India (Sebi), to issue directives for financial companies to start accepting e-KYC.

The use of e-KYC would not only hasten linkage of bank accounts with Aadhaar for the Direct Benefits Transfer programme, it would also save banks the huge cost incurred in document verification and storage, the official said.

Once e-KYC is implemented, one can open a bank account or get a new insurance policy by providing his/her Aadhaar number and authenticating his/her biometrics. The servers of banks or other financial companies, which would be connected with the UIDAI (Unique Identification Authority of India) server, would check if the details provided by the person are correct. After a customer gives his/her consent, the data drawn from the UIDAI servers for

authentication could also be digitally stored by the bank for reference.

The service could also be used to avail other government services that need authentication. RBI has already notified Aadhaar number are valid proof of address and identity. So far, UIDAI has issued Aadhaar numbers to 392 million people. By next year, it plans to issue these to 600 million.

Major flaws in ₹52,000-cr farm loan waiver scheme: CAG

The Comptroller and Auditor General have found prima facie evidence of tampering, overwriting and alteration of records in the Agricultural Debt Waiver and Debt Relief Scheme of 2008. In its report, tabled in Parliament, the Government auditor pulled up the Department of Financial Services for "deficient" monitoring of the ₹52,000-crore scheme, announced in the 2008 Budget.

The CAG's team audited the records of 90,576 farmers in 715 branches of various banks in 25 States. The sample included 80,299 accounts of farmers who got the benefits and 9,334 accounts of those who were denied the benefits for various reasons. The CAG report said 13.46% of the rejected accounts were actually eligible for benefits under the scheme. The auditor said these applicants were not considered by the banks while preparing the list of eligible farmers. In 8.5% of the cases audited by the CAG, the beneficiaries were not eligible either for debt waiver or for debt relief.

"A proportion of such claims, amounting to ₹20.50 crore, was on account of claims being admitted for ineligible purposes or claims pertaining to periods not eligible for scheme benefits," the report said. In some cases, the CAG said, farmers were not extended the benefits according to entitlements. "In 3,262 cases, undue benefit totaling ₹13.35 crore was extended," the report added.

The CAG also said a private scheduled bank received reimbursement worth ₹164.60 crore meant for microfinance institutions.

RBI asks banks to identify erring officials quickly under Farm Loan Waiver Scheme

The Reserve Bank of India has asked banks to fix responsibility on officials and auditors responsible for verification, certification, or for passing wrongful claims in the ₹52,000-crore Agriculture Debt Waiver and Debt Relief Scheme. Action needs to be initiated and full responsibility fixed at the earliest with no exceptions, the RBI said in a notification relating to performance audit of the Scheme.

Referring to the serious nature of observations made by the Comptroller and Auditor General, the RBI said, the Government of

India, among others, wants the beneficiaries' lists completely verified with priority being given to areas where indebtedness was high.

The RBI observed that all cases of tampering/alteration of records, and so on, must be identified and scrutinized by a higher authority. A decision on each such case in the form of speaking orders must be taken. Stringent action under relevant sections of law against those responsible must be initiated. This would be regularly monitored by the Chief Vigilance Officers of the institutions concerned.

Debt Waiver/Debt Relief certificates must be issued in all eligible cases immediately and full records of such issuance may be kept ready for inspection, the central bank said. A list of eligible beneficiaries who were not extended benefits also has to be drawn up and may be examined qualitatively to establish the reasons for such denials. Action may be initiated in all cases where carelessness appears likely.

RBI for using risk-based supervision

The Reserve Bank of India (RBI) is in favour of using risk-based supervision, along with the existing CAMELS approach, while monitoring banks' financial performances. "I feel that even while following the CAMELS approach, the distribution of risk and its direction should be assessed which would result in a more comprehensive assessment of banks," said deputy governor of RBI, Shri Anand Sinha.

The CAMELS approach judge's banks on their capital adequacy, asset quality management, earnings, liquidity, systems and controls, and prepares a scorecard. The approach relies on past data while risk supervision approach has a forward looking methodology.

However, risk supervision approach depends wholly on the information provided by the risk management system of the banks. Therefore, the approach is effective to the extent of the effectiveness of the banks' risk management systems. Sinha said that both the CAMELS approach and risk supervision must be combined to get an overall assessment of banks' exposure to risk. Financial supervisory methods are under focus and need to be constantly evaluated, Sinha said.

The deputy governor listed the changes that have taken place in regulation after the global financial crisis and how implementations of some key regulations have been debated. The Basel committee's method to understand the systemic importance of a single financial institution or a bank is relative in nature and not an absolute metric, Sinha said.

"In this relative approach, there is always a possibility that a bank, despite growing rapidly, and

becoming riskier, might escape the SIFI regulation, if the entire banking system also becomes riskier due to which its 'score' remains unchanged." Therefore an absolute measure of systemic importance of financial institutions is needed, Sinha said.

Co-op banks told not to give loans for gold purchase

The Reserve Bank of India, directed State and Central co-operative banks not to grant loans for purchase of gold in any form to check the significant rise in import of the precious metal in recent years.

"In view of the concerns..., it is reiterated that State and Central co-operative banks should not grant any advance for purchase of gold in any form, including primary gold, gold bullion, gold jewellery, gold coins, units of gold exchange traded funds (ETF) and units of gold mutual funds," the RBI said in a notification.

At present, these banks are permitted to grant loans against pledge of gold ornaments, but not permitted to grant any advance for purchase of gold in any form. They grant loans for various purposes against the security of gold/gold ornaments as part of their lending policy.

Bank credit not fundamental right,says RBI deputy governor

The Reserve Bank of India (RBI) has said that while every individual can open a bank account, bank credit cannot be considered a fundamental right. The statement comes at a time when the government is pursuing an agenda of financial inclusion through banks.

Banks have been asked to ensure that every household has a bank account to facilitate direct cash transfers from the government. It is also expected that opening bank accounts will improve access to credit as farmers and small traders can build up a track record of their earnings. Striking a different note, RBI has said that to make credit available, it is important to educate individuals to make them credit worthy. In the past banks have been used to extend credit under liberalized terms to farmers under Kisan Credit Card (KCC) and other schemes. You may open bank accounts, you may provide some remittance facilities, and you may also provide some emergency overdraft or consumption credit. But, bank credit per se cannot be a fundamental right said RBI deputy governor KC Chakrabarty.

RBI brings coop banks' performance under lens

Reserve Bank of India (RBI) recently indicated that it would cancel the licenses of 26 loss-making co-operative banks across the country including 16 in Uttar Pradesh. Co-operative banks in Maharashtra, however, seem to be comparatively in better financial

health since the apex bank has directed the cancellation of licenses of only two banks out of the total of 518 functioning cooperative banks in the state, Vidyadhar Anaskar, member of the task force for urban co-operative banks set up by the RBI and chairman, Vidya Sahakari Bank said. There are 1,614 cooperative banks in the country.

Anaskar, who is also director of the Pune District Urban Co-operative Banks Association and the Maharashtra State Urban Co-operative Banks Federation, told that RBI had issued directives for cancellation of the licenses of Swami Samarth Sahakari Bank, Akkalkot, Solapur and Rajiv Gandhi Sahakari Bank, Latur since these fell in Grade D (Grade 4) category for 100% capital erosion. RBI has also placed Shree Ganesh Sahakari Bank, Nashik, Maharashtra and the Pune-based Rupee co-operative Bank under directions, he said.

Significantly, in the Maharashtra state, until recently, Maharashtra State Co-operative (MSC) bank and 11 district central co-operative banks were functioning without banking licenses. These banks either had a negative net worth or their capital to risk assets ratio (CRAR), is lower than 4%. The six district co-operative banks (DCCBs) in the state, of which three are from Vidarbha, have been operating for decades under a special permission and these banks had applied for a formal license in 2009.

But six of them DCCBs in Nagpur, Wardha, Buldhana, Dhule, Jalna and Osmanabad have been asked to improve their financial position first. Their losses are much more than their earnings and reserves.

Earlier RBI had indicated that after considering NABARD recommendations with respect to inspections/quick scrutiny, 43 banks (1st SCB, 42 DCCBs) remained unlicensed on March 31, 2012. Subsequently two banks (Assam SCB and Giridih DCCB) were licensed after they fulfilled norms. The 41 remaining unlicensed banks include the six DCCBs from Maharashtra.

How to file an RTI application

The RTI Rules 2012 supersede the Central Information Commission (Appeal Procedure) Rules and the RTI (Regulation of Fee and Cost) Rules, both 2005, and which have made information more accessible than ever. The new rules were notified on July 31, 2013.

As per rule 3, an application "shall ordinary not contain more than 500 words, excluding annexures, containing address of the CPIO and that of the applicant".

As per rules 3 and 4, the applicant has to pay postal charges when these exceed ₹50. Other charges remain the same: ₹10 for

processing, ₹5 per hour for inspection of documents with the first hour free. Under rule 4(e), an applicant will have to pay "price fixed for a publication or ₹2 per page of photocopy for extracts from the publication." Since information under RTI is free for people living below the poverty line, it means such publications will be accessible free to any applicant who submits a BPL certificate.

According to rule 6, the applicant, besides using the existing modes of payment, can also pay "by electronic means to the Account Officer of the public authority, if facility for receiving fees through electronic means is available with the public authority".

Rule 9 says that "an appeal may be returned to the appellant if it is not accompanied by the documents as specified in the rule."

Rule 11(V) says that commission, while deciding an appeal, may "hear the third party". Practically all applications involve a third party, the department or officer on whom information is sought. So far, the commission itself has been making an assessment whether disclosing information on the third party is in the larger public interest.

Rule 12 complicates the disposal of second appeals. "The appellant may be present in person or through his duly authorized representative or through video conferencing, if the facility of video conferencing is available, at the time of hearing of the appeal by the commission," it says.

Rule 13 introduces advocates for the commission: "The public authority may authorize any representative or any of its officers to present the case."

RBI asks urban cooperative banks to implement CBS by Dec 2013

The Reserve Bank of India (RBI) asked Urban Co-operative Banks (UCBs) to implement core banking solutions (CBS) in all their branches by December 31, 2013. "...very few UCBs have adopted CBS. Hence all UCBs are advised to implement CBS, in all their branches before December 31, 2013," the RBI said in a notification.

It further said the failure to implement CBS within the time frame could result in denial of various facilities like expansion of branches or area of operation to UCBs. The usage of Information Technology (IT) is critical for the survival and growth of banking institutions as IT usage not only helps banks to reduce their cost of operations, but also enables them to offer products and services at competitive rates to their customers, the Central Bank said.

Andhra Pradesh unveils 'action plan' for farm sector

The Andhra Pradesh Government has come out with the Budget proposals for the agriculture sector. It has proposed

an action plan of ₹25,962 crore for agriculture and allied subjects for the 2012-13 financial year. The programme earmarks ₹17,694 crore for the Plan component, with the rest being allotted for non-expenditure.

Presenting the exclusive 'Action Plan' for the primary sector at the Legislative Assembly here, Agriculture Minister Kanna Lakshminarayana pegged the total investments for the sector at ₹98,940 crore against ₹79,924 crore, an increase of 24% over the last year. Investments included ₹72,450-crore planned under the agriculture credit plan.

The Agriculture Minister announced a ₹100-crore fund for market intervention to ensure minimum support price for crops such as paddy, jowar, maize, ragi and pulses. A ₹590-crore Natural Calamities Fund to provide farmers immediate relief in times of distress has also been proposed. The other major allocation is for agriculture power. The Government would provide ₹3,622 crore to power distribution companies (discoms) towards power subsidy. With a view to add value to farms products, the plan allotted ₹120 crore to set up oil palm processing units, rice bran oil mills, oleoresins and spice oil (chillies and turmeric) units.

What is stagflation?

Stagflation is commonly referred to a situation of stagnation in growth and high inflation. It was used to describe the economic landscape in the United States in the mid 1970s when the country faced a long slump and high unemployment even as inflation rose, a combination that dominant Keynesian philosophy of the time did not think was possible. The accepted wisdom then was that prices rose when demand was high, and high demand meant high growth.

The term stagflation is first believed to have been used by British politician Iain Macleod in a speech to parliament in 1965. 'We now have the worst of both worlds - not just inflation on the one side or stagnation on the other. We have a sort of 'stagflation' situation' he is reported to have said.

In a usual low growth situation, central banks and government try to stimulate the economy through higher public spending and low interest rates to create demand. These measures also tend to elevate prices and cause inflation. So, these tools cannot be adopted when inflation is already running high, which makes it difficult to break out of low growth-high inflation trap.

White Label ATMs

The Reserve bank of India has given in-principle approval to seven companies to roll out White Label ATMs. White Label ATM (WLA) operator is a non-bank entity which can set up, own and operate an

automated teller machine (ATM) as extended delivery channels.

"Seven companies have been given authorization (to set up WLAs) while five were given in December 2012, taking the total to 12. As soon as they get their act together, they will be in operation," said Vijay Chugh, Chief General Manager, Reserve Bank of India, "Of the total 19 applicants, 17 have been found eligible, 12 have been given the authorization. We expect one or two operators to kick-start business in the next few months.

About 1.5 lakh ATMs can be rolled out in the next three years and two million PoS (Point-of-Sale) terminals in two years if all the 17 companies start functioning. That is the expectation, he added. Under the RBI guidelines, the authorisation for setting up a WLA operation would be initially valid for a period of one year under three schemes A, B and C which specify the rural to semi-urban ATM ratio for network expansion. WLA operators are allowed to charge their customers as per the banks' charges. Currently, banks are not allowed to charge the customers for the first five transactions in other bank ATMs. Above that, banks levy ₹15 for cash withdrawal and ₹5 for balance enquiry.

60 firms join forces to reach out to 20 million farmers

In an ambitious move to reach out to millions of small farmers, 60 agri-business companies have formed an alliance that would focus on providing a wide range of services, such as creating farmers' cooperatives, improving bank financing, refurbishing warehousing facilities, ensuring availability of watershed management services and revamping dealers' networks for inputs and equipment such as seeds, fertiliser and pesticides.

Ten anchor companies, including Jain Irrigation Systems, ITC, Tata Chemicals, Godrej Agrovet, Nuziveedu Seeds and Mahindra, will be supporting the joint private sector initiative creating value for 20 million smaller farmers by 2020 through a series of interventions for 'increasing productivity and farm income'. The joint initiative has also set a short-term goal of reaching out to 5 million farmers during the next one year.

Providing commercial bank finance to 7 million farmers during the next eight years through direct loans and warehouse receipt financing by banks such as SBI, AXIS Bank, HDFC and ICICI Lombard would be part of the agribusiness alliance. "Access to finance, especially by small holders, is crucial for improved agricultural performance. Credit flow doubled in the Eleventh Plan but mainly by credit deepening, with little increase in farmer coverage and still leaving 60% of farmers without institutional credit," the Commission observed.

Poor farm technology cause of food inflation

When the Central Statistics Office released data showing consumer inflation for vegetables, fruits and eggs were all in double digits, a report showed why this trend was unlikely to ease off soon. The report noted that agriculture, basically food products presently achieves less than 60% of the potential yield for most crops due to poor technology adoption and weak links between farmers and food processing industry, across India.

Yet at the same time Indians are now spending much more on high value foods with consumption shifting from plant to animal based protein as disposable incomes rise.

The demand-supply asymmetry has become structural that can only be met through radical increase in the production of certain high value foods such as soya bean, potato, mango, banana, and poultry, notes the joint report by the Confederation of Indian Industry and McKinsey & Company, FAIDA. "It is now imperative that India upgrade its agricultural practices and techniques, as well as well as accelerate growth in allied business fields such as food processing, in order to support the country's consumption demand changes over the next 20 years," said Adil Zainulbhai, India chairman of McKinsey.

Lead author of the report, Barnik Mitra said the report suggests setting up of a farm gate to market infrastructure authority which will incentivise setting up of infrastructure like national cold chains.

The key to the changes was making more agro-crops run through the value addition chain. Only if food processing, currently handling less than 10 % of the total agricultural output reached close to 20 % could there be improvements in farm gate income over the decade which in turn could double the income of farmers, the report suggests.

A to Z of farming is just a click away

The science of communication is getting more advanced everyday. Breaking the communication barrier and knowledge gap that exists today becomes imperative.

“From our side we have initiated the e-Extension Centre putting to optimum use Information and Communications Technology (ICT) and created a website called Agritech portal” (www.agritech.tnau.ac.in) which gives an exhaustive A-Z list of agriculture,” says Dr. S. Haripriya, Assistant Professor (Horticulture), TNAU, Vridachalam.

Interested farmers in the region are asked to pre-register for this training at this Kendra. Based on the responses from about 10 farmers per batch usually on first-come-first-served basis. In the last

two years about 200 farmers have been trained in similar programmes.

The farmers started gathering information about the prevailing weather conditions in the State from the weather network page they started to pre-plan the cultural operations, harvesting and drying of the harvested produce. Some proactive farmers have also used the portal to choose major markets in South based on the produce price data available on the dynamic market information page.

Nabard extends ₹2,887 cr to shore up Orissa coop banks

The national agricultural bank, Nabard, has provided ₹2,887 crore in 2012-13 through the cooperative credit institutions for the development of agriculture in the state. The bank has made available ₹2,691.28 crore for funding cropping operations of farmers through credit cooperatives, ₹58.40 crore for agriculture investment and ₹18.48 crore for non-agricultural purposes.

Under a central scheme, the cooperatives were provided ₹46.92 crore for interest subvention and ₹67.90 crore to serve as incentives as it would be used as regular repayment of their dues. During the year, grant assistance of ₹1,37 crore was provided to 11 district cooperative credit banks (DCCBs) for promotion of 8,700 joint liability groups (JLGs) of landless farmers, oral lessees and share croppers.

Why central banks still go for gold ?

The use of gold as money dates back thousands of years. Later, under the gold standard system, or the Bretton Woods system, adopted in 1944, currencies were backed by gold. Even after the collapse of the gold standard more than 40 years ago, central banks continue to hold gold as a part of their foreign exchange reserves partly because of historical reasons and partly due to its universal acceptance and liquid character. It remains an important hedge against currency and inflation risks, and as a safe bet in times of geopolitical uncertainty.

The percentage of gold in countries' forex reserves earlier, European central banks held as much as 70-90% of their foreign exchange reserves in gold. For example, Swiss National Banks' gold holding was as high as 82% even in the late 80s. However, since the fall of the Bretton Woods system in 1971, central banks have been selling the yellow metal in open market. In the case of RBI, gold accounted for around 20-25% of the total forex reserves in the mid-1970s. It ranged between 5% and 12% till 1989-90. Now, at 557 tonnes, RBI's gold holding is less than 10% of its reserves.

RBI traditionally parked its reserves in its vaults. However, in 1991, it kept its pledged gold with the Bank of England. More recently,

in 2009, it bought gold from the International Monetary Fund in dematerialized form.

India pledged about 20 tonnes of its gold reserves with the Bank of England when it faced a balance of payments crisis in 1991. Italy pledged gold with Bundesbank and secured a $2-billion loan. Romania used gold as collateral to secure a loan to repay its external debt in 1974. Russia sold off 33% of its gold reserves during 1998 financial crisis. Three years later, Russia again sold some of its gold following a series of natural disasters.

Changes in ARDBs

i) Shri H.K. Nagdeo, has assumed charge as Managing Director of the Chhattisgarh Rajya Sahakari Krishi Aur Gramin Vikas Bank Ltd., w.e.f. 6th April 2013.

ii) Shri Jagadish Kalita, has assumed charge as Chairman of the Assam State Coop. Agriculture & Rural Dev. Bank Ltd., w.e.f. 9th April 2013.

iii) Shri Devi Singh Jishtu, has assumed charge as Chairman of the Himachal Pradesh State Coop. Agri. & Rural Dev. Bank Ltd., w.e.f. 1st May 2013.

iv) Shri C. Panna, has assumed charge as Managing Director of the Chhattisgarh Rajya Sahakari Krishi Aur Gramin Vikas Bank Ltd., w.e.f. 1st June 2013.

THE HARYANA STATE COOPERATIVE AGRICULTURE AND RURAL DEVELOPMENT BANK LTD.

Sahakarita Bhawan, Bay No. 31-34, Sector - 2, Panchkula

The Haryana State Cooperative Agriculture and Rural Development Bank Ltd., is the specialised institution in the State, which caters to the Long Term credit needs of the farmers for the upliftment of the economic position of the agriculturists and allied fields.

The bank advances Long Term loans to the farmers for the following purposes :-

Scale of finance and periodicity of Major Sectors

Farm Sector

Sr.No.	Name of the Scheme	Period	Scale of finance
1.	Minor Irrigation	9 years	₹1,00,000 to 3,50,000
	i. WCS/UGPL	-do-	90% of the project cost
2.	Farm Mechanisation	5-9 Years	85% of the cost of the Machinery
3.	Purchase of Agriculture Land	10 Years	Upto ₹10.00 Lacs
4.	Horticulture/Plantation	5-10 Years	₹ 40,000 to 1,55,000 per acre
	i. Medicinal & Aromatic Plants	-do-	90% of the project cost
5.	Animal Husbandry	5-7 Years	90% of the project cost
6.	Rural Godowns	Upto 9 Years	90 % of the project cost

Non Farm Sector

Sr.No.	Name of the Scheme	Period	Scale of finance
1.	Rural Housing	Upto 10 Years	Upto ₹ 5.00 Lacs
2.	Marriage Palaces	Upto 10 Years	90% of the Project Cost
3.	Community Halls	Upto 10 Years	90% of the Project Cost
4.	Village Cottage Industry	Upto 10 Years	90% of the Project Cost
5.	PublicTransport Vehicles	Upto 10 Years	85% of the Project Cost
6.	Rural Educational Infrastructure	Upto 10 Years	90% of the Project Cost
7.	Other SSI Units	Upto 10 Years	90% of the Project Cost

Rate of Interest

The Loans for the purpose of Non-farm Sector, Rural Housing and Purchase of land are being advanced @ 15.00% p.a. w.e.f. 3.8.2012. All other loans are being advanced @ 14.00% p.a. w.e.f. 3.8.2012 and a rebate of 5% is allowed on all slabs to regular pay masters.

Note:-

For further details, kindly contact The Haryana State Coop. Agri. & Rural Dev. Bank Ltd., Panchkula or the District Co-op. Agri. and Rural Dev. Banks at District level and its branches at Tehsil & Sub-tehsil level in the State.

Shakuntla Jakhu, IAS
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AGRICULTURAL NEWS

Boron management in cole crops

Boron is an essential micronutrient and plays a important role in fertilization and flowering process. Facilitating pollination and fruit set is considered to be the most important function of boron.

Boron increases the translocation of sugar in plants and increases the rate of transport of sugars (which are produced by photosynthesis in mature plant leaves) to actively growing regions. It plays an important role in both structural and functional integrity of plasma membranes. Boron is involved in nitrogen fixation and it is required for growth and development of vascular tissues. It accelerates nitrogenous activity through effective nodule development for nitrogen fixation.

Cole crops (those which grow well in temperate climate like cauliflower and cabbage) have high boron requirement and its deficit is high in acidic soils. These crops develop crack, corky stem, petioles and midribs. In crops like Knol Khol (Kohl rabi), cracking will be seen and as a result these vegetables will not fetch a market value. In cauliflower it appears as small water soaked areas in the centre of the curd. Later, the stem becomes hollow with soaked tissue surrounding the walls of the cavity.

Brown rot: In more advanced stage, pinkish or rusty brown areas develop on the surface of the curd and hence, it is also known as brown rot or red rot. Affected curd develops a bitter taste. It can be controlled by application of borax or sodium tetra borate at 20 kg/ha In case of acute deficiency, foliar spray of 0.25 to 0.50% solution of boric acid is advocated.

Mass production of bio-control agent empowers tribal women

Wayanad is a land of spices. "The agricultural market strength of the region is highly influenced by the fluctuation in production of spices. "The productivity of spices, especially black pepper, has declined over the years due to various problems of which foot rot of black pepper is one? In the era of promotion of bio-safety and quality products, the farmers are resorting to eco friendly plant protection techniques," says Dr A. Radhamma Pillai, Programme Coordinator, Krishi Vigyan Kendra, Ambalavayal, Wayanad, and Kerala Agricultural University.

Wayanad KVK adopted a sustainable livelihood approach by mobilizing tribal women who had lost their livelihood by getting displaced from their agricultural land which was acquired for a major irrigation project. This provided a gender responsive learning environment in the laboratory for meaningful

translation of lab to life, and hence helping rural productive transformation. In India, more than 70% of the area under black pepper is confined to the Wayanad district in Kerala.

One of the major factors attributed to the low productivity of pepper compared to the potential yield, is the high incidence of foot rot disease caused by a fungus called *Phytopthora capsici.*

During the late 90's, that Wayanad KVK intervened in the crisis through campaigns and training sessions and later identified and isolated the biocontrol agent, called Trichoderma, from soil and started its production for the effective management of the fungal disease," says Dr. Radhamma.

"In an attempt to explore this as an exemplary opportunity for technological empowerment of tribal women, we had a discussion with the Tribal Development Department and the idea was highly appreciated by them. Following this, we conducted a technological feasibility and economical viability study, which proved promising. We then advertised in dailies about vocational training to be conducted solely for tribal women (youth). Thus a tribal group of 13 girls was targeted with an idea of generating self employment to the tribal youth of Nellarchal tribal colony. Thereafter, they were given training for six months' in the production of biocontrol agents such as Trichoderma and Pseudomonas and were finally registered as a self help group (SHG) called 'Sabari'. The members of the SHG gained 35% of the total benefit on a MoU basis with the Kendra.

The vibrant tribal SHG could assure 55 tonnes production of both the bioagents from 2005-2010 which fetched an income of 38.50 lakhs and has received about 13.48 lakhs. Apprised of the success of this venture, the State Planning Board sanctioned ₹36.39 lakhs for modernizing the existing bio control lab under the Rashtriya Sam Vikas Yojana (RSVY) for large scale production of the two bio control agents.

Dripping with irrigation success

Rapidly growing adoption of micro-irrigation systems (drip and sprinkler) over the past seven years in Maharashtra has brought nearly 12 lakh hectares under its coverage, which is about one-third of the country's total micro-irrigated area and also one-third of the state's total irrigated area, which varies between 35 and 40 lakh hectares in a net cropped area of 175 lakh hectares. This has not just improved farm productivity but also saved precious water.

Subsidised MI schemes have been in place since 1986 but it is since 2005-06 that the technology has picked up dramatically, particularly in the horticulture belt of western Maharashtra and the

cotton belt of Khandesh and Marathwada. The real growth story, however, has been that of the drip system, which accounts for about 8.5 lakh hectares. Till 2004-05, the state's drip-irrigated area was just over three lakh hectare. This has grown by over five lakh hectares in seven years. The year-on-year growth too has been successively higher, from 27,894 hectares in 2005-06 to 1,53,223 hectares in 2011-12.

The main crops for which MI systems are being used extensively are vegetables (1.8 lakh hectares), cotton (1.18), sugarcane (1.08) and fruits like banana, grape, papaya, pomegranate and of the citrus group (4.4).

The government also provides subsidy for wells as the source of water in non-command areas. "Drip is preferred by farmers in non-command areas more since those in command areas don't have to bother about water supply,". "A drip system typically costs a minimum of ₹1 lakh per hectare. But the farmer fetches in multiples of that," Maharashtra's Principal Secretary (Agriculture) says. "Various state and Central schemes provide subsidy up to 60% to small and marginal farmers and 50% to others. The National Mission on Micro-Irrigation, which began in 2010, too has helped a lot."

Studies have shown that drip use increases productivity by 27% in cotton and 52% in banana. Also, huge quantities of water are saved (citrus 61%, sugarcane 56%, cotton 53%, banana 45%).

Food Security mission helps Gulbarga farmers

Farmers in Gulbarga district have achieved a 15-20% higher yield in the two major pulses varieties -- pigeon pea and chick pea -- with the help of better inputs and management of pests “Both Gulbarga and Bidar together account for about 15% of India's total pigeon pea production,” Senior Scientist (Etymology) at Gulbarga's Agriculture Research Station Suhas Yelshetty said.

The Accelerated Pulses Production Programme (A3P), under the ₹5,000 crore-central scheme 'National Food Security Mission', is on in Gulbarga district since 2010-11 for raising the output of these two varieties on a sustainable basis. The district was identified for this programme as pigeon pea or Arhar is sown in 3.7 lakh hectares in Gulbarga and it is also known as the pulses bowl of Karnataka. Another key pulse growing district is Bidar, where the crop is sown in 65,000 hectares. Bidar has also been brought under A3P.

The A3P covered these pulses across different cropping systems and has also taken care of the changing scenario emerging from climate change and cropping pattern. A3P aims to demonstrate the plant nutrient and protection centric technologies and management practices in compact

blocks covering large area for five major pulses gram, urad (black gram), arhar (red gram/pigeon pea), moong (green gram) and masoor (lentils) to enhance their output and yield.

A3P was implemented in 7,000 hectares in a farmer's participatory mode with attention being paid to assessing pest problem and ways to mitigate their impact. "The yield levels of pigeon pea increased by 12.36% over the national average. The average yield of an A3P farmer stood at 8.25 quintals a hectare against the national average of 7.23 quintals per hectare," Yelshetty said.

Similarly the yield levels of chick pea rose 19% over the national average. The average yield of an A3P farmer stood at 10.63 quintals a hectare against the national average of 8.95 quintals per hectare, he added. The National Food Security Mission initiated by the government focuses on measures such as area expansion, productivity enhancement in selected districts, restoring soil fertility, creating employment opportunities and enhancing farm economy to restore farmer confidence.

Indigenous Bt Bikaneri Narma can no more be used for cultivation

An indigenous Bt cotton variety Bt Bikaneri Narma developed through a collaborative effort can no more be used for cultivation. A probe conducted by a five-member team, headed by Jawaharlal Nehru University Vice-Chancellor S.K. Sopory has termed the development of the strain 'invalid'.

The indigenous cotton variety was jointly developed by the National Research Centre on Plant Biotechnology, New Delhi; the Central Institute for Cotton Research, Nagpur and the University of Agricultural Sciences, Dharwad. Its commercial cultivation began in 2009 on 8,400 hectares. However, farmers and government seed agencies companies complained that its performance and yield did not match expectations. Following this, the Indian Council for Agricultural Research stopped seed multiplication and commercialisation before ordering a probe.

Transplanting redgram, new technique for Karnataka ryots

Pigeonpea, commonly known as redgram, arhar or tur, is an important commercial crop for dryland farmers of Bidar district in Karnataka.

"The crop owes its popularity to the fact that being a leguminous plant, it is capable of fixing atmospheric nitrogen and thereby restores nitrogen content in the soil," says Dr. Ravi C. Deshmukh, Programme Coordinator, Krishi Vigyan Kendra, Bidar.

The Bidar wing of the Krishi Vigyan Kendra organized a farmers-scientists interface meet,

wherein progressive farmers discussed various aspects to boost the yield. The usual practice among Karnataka farmers is to broadcast the seeds on the field like paddy.

"We decided to transplant the seedlings grown in polythene bags to the main field. It is an alternate agronomic practice to overcome late sowing and related lower yields," explains Dr. Deshmukh. The process involves raising the seedlings in polythene bags in the nursery for one month and transplanting them in the field during onset of monsoon.

Seed saving is considerable as only 2 kg of seeds is required per hectare against 10-12 kg per hectare in normal practice.

New onion variety for higher yield

The National Horticultural Research and Development Foundation, Nashik, has developed a new onion variety named NHRDF-RED-2 ideal for growing in different parts of North India.

The variety is accepted by farmers because of its higher yield, better adaptability and storage performance. The crop matures in 100-120 days after transplanting and keeping quality is good. Average yield is 30-40 tonnes per hectare and presently about some tonnes of seed material are available at the foundation.

It grows well in mild climate. The seed is generally sown in raised nursery beds. The surface of beds should be smooth and well levelled. October-November is the best time for seed sowing. About 7-8 kg of seed is sufficient for a hectare. Application of 20-25 tonnes of FYM/ha in soil is considered adequate.

FYM should be applied one month before transplanting or sowing and mixed well in the soil. Whole quantity of phosphorus, potash and half of nitrogen should be mixed in the soil before transplanting. Rest half doses of nitrogen should be given as top dressing in two equal split doses; first dose should be applied at 30 days after transplanting where as second dose at 45 days after transplanting.

The best time of transplanting in Northern India is end of December to first week of January. Planting the crop at 15x10 cm spacing is considered to be the best. Disease and infestations can be controlled by spraying fungicides such as mancozeb at 0.25% or chlorothalonil at 0.2% or Iprodion at 0.25% at fortnightly interval.

For insect pest like thrips spraying metasystox at 0.1% and cypermethrin at 0.01% along with triton or sandovit is found effective.

The variety is ideal for growing in Delhi, Uttar Pradesh, Haryana, Bihar and Punjab, Rajasthan, Gujarat, Maharashtra, Karnataka and Andhra Pradesh.

Farmers switch to new tech to pad up paddy growth

When Vimal Kumar Dhruw, a Chhattisgarh-based farmer, decided to replace his father's time-tested farming method with a new system, he knew it wouldn't be that easy. The 35-year old Labrakhurd village resident went against his father's advice and began planting rice seeds in a portion of the family land using the rice intensification (SRI) method.

The SRI method doubled Dhruw's annual per acre profit to ₹27,000 from ₹14,000. His output increased to 30 quintals per acre from 12 an acre. SRI focuses on planting single seedlings instead of multiple seedlings in a clump, and not keeping irrigated paddy fields flooded during the rice plants' vegetative growth stage, resulting in about 30-50% lesser usage of irrigation and lower fertilisers use.

Improved irrigation, better methods such as SRI and a shift away from mono-cropping towards multi-cropping under the Chhattisgarh Irrigation Development Project (CIDP) has not only improved the livelihoods of the state's farmers but also bettered agriculture productivity in the state. Areas covered under the CIDP project added an additional 2.4 million tonnes of paddy (or ₹250 crore) in 2010-11 in Chhattisgarh.

Chhattisgarh has about 56 lakh hectare cultivable land of which 52 lakh is under cultivation, but only 10.5 lakh hectare is irrigated. The CIDP will provide irrigation facilities in 1.74 lakh hectares of land.

Management of citrus leaf miner

The citrus leaf miner is a major pest of citrus nursery and remains active from March to November. It causes injury to the citrus group of fruits such as lime, lemon, oranges and pomelo. Caterpillars of this insect feed on leaves by making shiny silvery serpentine mines. The damage distorts the leaves, and the growth of the seedling is arrested as the photosynthesis is adversely affected. The mined leaves turn pale, dry and finally fall down or dry on the branches. The mining injuries serve as foci of infection for the cause of citrus canker, a bacterial disease.

The adult moth is a tiny (3mm) silvery white moth with heavily fringed wings. The female attaches 40-120 transparent eggs singly on the leaves and tender shoots. Within five days they hatch to produce pale yellow and legless larvae which mine into the leaf tissues making a long serpentine convoluted mine. Larval duration is 5 to 10 days. Mature larvae spin cocoons for pupation in such a way that the margin of the leaf lamina is turned over to protect the pupa underneath. Pupal stage lasts for 5-25 days. Entire life cycle is completed in 12-55 days. There are 9 to 13 overlapping generations in a year.

Management strategies:

Collect and destroy the infested leaves. Prune heavily the affected parts during monsoon. Avoid frequent irrigations and split doses of nitrogenous fertilizers.

As the larvae are inside the mines, these cannot be easily killed by insecticidal application. However, application of some systemic insecticides will combat the infestation to certain extent. Spray any one of the following insecticides: Dimethoate 30EC, profenofos 50EC, monocrotophos 36WSC, quinalphos 25EC at 2ml/litre of water, acephate 75SP at 2g/litre of water or imidacloprid 200SL at 375ml/ha.

The spray should be aimed at young leaves only. A second spray should be given after 10 days or apply 5 % neem seed kernel extract, 3 % neem oil suspension or 2.5 % neem cake extract. The larvae and pupae are attacked by natural parasitoids that should be encouraged by avoiding frequent application of toxic insecticides.

Farmer's innovations benefit cardamon growers

The farmer-scientist, Rejimon Joseph Njallaniyil's innovation of a high-yielding hybrid variety "Njallani Green Gold" cardamon has nearly revolutionised the cardamon cultivation in the country, of late, many planters in Kumily and Vandanmettu of Kerala. A good majority of the growers both small and medium has planted this variety "and we are benefited by it", they said.

Of late, he has come out with three new planting methods and raise the production by five-fold.

"Today about 90% of the total area under cardamon cultivation in Kerala is under "Njallani'" and the Indian Cardamon Research Institute confirms that the variety yields more than that of the traditional varieties. As against a conventional yield of 200 kg/hectare, Njallani yields 1,500 kg or even more, official sources said.

He said the three methods Ottachimpan (single sucker) planting method, Pathiyan (channel) planting method and Kuzhiyilla (pitless) planting method have been accepted by fellow farmers. The "pitless" planting method cuts down the labour cost significantly as it costs only ₹1,500 for a planting of 1,000 suckers, whereas the traditional system would cost around ₹25,000, he said.

The gestation period for single sucker method is two years against four years needed for the traditional method. The cost involved for planting for single sucker method is estimated at ₹30,000 a hectare whereas, under the traditional method it would come to around ₹1.8 lakh, he claimed.

SRI system revives popularity of paddy cultivation

The Tamil Nadu state government is presently supplying free fertilizers and seeds.

Paddy cultivation requires a lot of water. In fact the year's production of paddy depends to a large extent on the season's rainfall and any delay or failure in the monsoon has a direct impact on the paddy yield.

A. Venkattahiri, a farmer, has nearly 13 acres in Ramakuppam village in the Tamil Nadu. Initially the farmer was growing paddy under the common conventional method along with some other crops. He was not willing to accept this simple and effective technology having his own doubts on its effectiveness. On one of their regular visits, the KVK staff met him and impressed upon him to try SRI. "Though initially reluctant, the farmer was willing to try it since we promised him that he would get a better yield and income." And today the farmer does not regret taking to SRI as he has got a net income of more than ₹1 lakh from his two and half hectares in less than four months in which he carried out SRI. Previously he was able to earn a little over ₹50,000 using conventional methods.

Practically under this method the cost of cultivation has come down. The seed requirement for an acre is only 3 kg, whereas under conventional methods I used to sow 30 kg of seeds for eight cents. Plant protection is easy and less expensive. The incidence of pest and disease also seems to be low. Most important, rat menace is practically absent in SRI planted fields due to the square system of planting the seedlings. I noticed that the grain panicles are quite dense and tillers are more in number," explains the farmer.

At a time when paddy growing is fast becoming un-remunerative for many paddy growers across the State, people like Mr.Venkattahiri serve as motivation for others. Earning nearly ₹1 lakh from a hectare in three and half months is no longer a fairy tale.

In fact today nearly 200 hectares in Poondi region have come under SRI cultivation after seeing the financial success of Mr. Venkattahiri, according to Mr. Devanathan. The Tamil Nadu Agricultural University has also uploaded a detailed visual presentation on SRI cultivation, methods, inputs, irrigation schedule etc at *http:// agritech.tnau. ac.in/ sri.html*

Management of pod borer in chickpea

Pod borer is a notorious pest of chickpea causing heavy damage to the crop. Yield loss due to pod borer is estimated at 21%. The pest is reported to cause about 50 to 60% damage to the chickpea pods. Apart from chickpea the pest also attacks pigeon pea, sunflower, cotton, safflower, chilli, sorghum, groundnut, tomato and other agricultural

and horticultural crops. It is a devastating pest of pulses and oilseeds.

The infestation starts on chick-pea usually a fortnight after germination and becomes serious just after the initiation of flower bud coupled with cloudy and humid weather. Medium sized light brown moths measuring about 40 mm across the wings have a dark speck and dark area on the forewings. Hind wings are light in colour with a dark patch at the outer end.

Females lay several small white eggs singly. Upon hatching in 3-4 days the caterpillars feed on the leaves for a short time and subsequently attack the pods. A full-grown caterpillar is about 34 mm long, greenish to brownish in colour with scattered short white hairs and buries itself in the soil to make an earthen cell inside which it pupates. The life cycle is completed in about 30-45 days. The pest completes eight generations in a year.

Management

- Summer ploughing to expose the hidden stages of the pest to natural predation.
- Application of HaNPV at the rate of 100 LE per acre along with 0.5% jaggery and 0.1% boric acid at egg hatch stage and repeat at 15-20 days.
- Use of chemicals should comprise 0.6g methomyl 40 SP or 2.00 ml profenophos 50 EC per litre of water as ovicides.
- Use of pheromone traps at 4-5 traps/ha. Spraying neem seed kernel. Extract 5% in the early stage.
- If the infestation is severe, new insecticide molecules like 0.3 ml indoxacarb 14.5 SC or 0.1 ml spinosad 45 SC or 0.75ml Navaluron 10 EC or 2.5ml chlorpyriphos 20 EC can be applied.
- Use of 4-5 bird perches to attract birds and sowing bhendi or marigold around the field as trap crops are most effective.

Active research work in organic fertigation

Fertigation, a practice of conjunctive application of fertilizers and water to crop plants is an inevitable component of modern day scientific agriculture. Soluble fertilizers like urea, potash and a wide variety of fertilizer mixtures available in the market could be well mixed with irrigation water, filtered and then passed through the irrigation unit.

However in the present situation of increasing demand for organic products and an inclination to organic farming practices, the scope for “Organic Fertigation” is very large. The major hurdle is regarding the solubility of organic manure.

Solid residues are more in organic manures. The best filtering mechanism will be required to

screen out the solid wastes. Otherwise, they could clog the drippers and sprinkler heads thereby making the irrigation system inefficient.

The Kerala Agricultural University Thrissur is conducting active research in organic fertigation. The research was initiated with the popular organic manure cow dung. The optimum proportion of cow dung water has been experimentally worked out so as to get quality filtrate.

The quality of the filtrate was ensured through laboratory tests. It was noticed that the filtrate still contained almost the same quantity of plant nutrients as compared to the solid manure. The filtrate was mixed with water and passed successfully through drip irrigation system without any problem of clogging. Research works are going on to standardize the filtration techniques for other organic manures.

Madhya Pradesh wakes up to seed replacement

A low Seed Replacement Rate (SRR) was one of the main reasons for low productivity in Madhya Pradesh but the realisation has finally dawned on farmers in the agrarian state. SRR is a measure of how much of the total area of crop has been sown with certified, quality seeds rather than farm-saved seeds. MP's SRR for main crops such as soybean and wheat has increased over the last couple of years, and is inching towards 33%. Since certified seeds cost more, MP farmers had been avoiding them unlike their counterparts in states such as Andhra Pradesh, Karnataka and Maharashtra, where the SRR is higher.

Several seed cooperative societies have come up in recent times, ensuring a steady supply of certified seeds. From 174 primary societies in 2005-2006, the number has increased to 2,048. Of these, 622 are members of the MP State Cooperative Seed Production and Marketing Federation Ltd that was formed in 2004. The federation provides breeder seeds to these cooperatives and in turn markets seeds they produce. In 2006, the federation procured 780 quintals and 679 quintals breeder seeds from these societies for kharif and rabi crops respectively. In 2012-13, the corresponding figures are 2,200 and 3,500 quintals.

It's the certified seeds (those that are cultivated, monitored and certified by official agencies) where the numbers are very impressive. From the 2.11 lakh quintals produced from 19,802 hectares in 2006, the corresponding figures in 2011-12 were a record production of 10.29 lakh quintals from 98,814 hectares.

A low SRR in pulses continues to be a source of concern in MP, the country's pulse bowl. The average all-India acreage of pulses is 230.87 lakh hectare. In 2006-07, the distribution of certified/quality

seeds for the pulses crop was 9.63 lakh quintals. The SRR, 10.41%, rose in 2010-11 to 22.51% with the distribution of 20.83 lakh quintals. According to the MP State Seed and Agriculture Development Federation's joint director (seeds) Rajesh Paliwal, SRR in main crops has substantially increased. He said in soyabean, where it was 23.88% in 2010-11, it rose to 31.99% in 2011-12. In wheat, it increased to 30.24% in 2011-12 from 27% against the previous year.

Churah valley, site of a flower revolution

Exotic roses are set to become the latest chapter of a floral revolution in the Churah valley of Himachal Pradesh's Chamba district. Some 400 farmers under a cooperative society plan to diversify beyond the flowers that have already brought them success in high-demand carnations, gaillardias, lilies by growing roses good enough to export. Flower sales fetched the Churah Valley Vegetable and Agriculturists Cooperative Society ₹8.16 crore in 2011-12, marking successive jumps from ₹ 3.63 crore in 2009-10 and ₹6.54 crore in 2010-11.

There is yet another reason for the farmers to plan a shift to rose cultivation. "Some of the flower varieties we have been growing for the past 10 years have become vulnerable to diseases," says Keshari Singh, who grows flowers in Donri village. "This has affected quality and also yield, despite scientific interventions to prevent a recurrence of the diseases. Diversification to roses is the best option."

Shifts have been a feature of the Churah valley's agricultural history. Most of the one lakh residents of its 48 panchayats are agriculturists. The cooperative started with 20 farmers in 1995-96, leading to the floral revolution.

The society has also been working on community programmes, especially empowerment of women and making them literate. It has helped build poly-houses not only in the Churah valley but also in the Pangi valley.

Save and earn more through vermi technology

Whatever be the crops, after harvesting the residue left in the field poses a major problem as removing it requires manpower and money. In some places farmers simply burn the dried leaves, stalk in the field itself as it is an easy option. But over time this practice makes the land barren and kills several beneficial organisms that aid good growth.

“And today with the cost of fertilizers hitting the roof it will be advisable if farmers can effectively use these wastes to make some sort of manure like vermicompost and put it back to the soil. By doing so expenses can be reduced and soil fertility be upgraded,” says Dr. V. Kantharaju, Programme

Coordinator, Krishi Vigyan Kendra, Gulbarga, Karnataka. A group of farmers from different villages were selected and given training by the KVK staff on vermi composting methods.

The farmers were also made aware on the importance of natural farming through vermicomposting methods and how this could help them cut down expenses in buying fertilizers.

"Also the income obtained from such activity can be reinvested by the farmer in enhancing his farm resources and infrastructure for higher return. He can go for crop diversification and better income," says Dr. Kantharaju.

A dryland farmer, Mr. Shivanand in the region who underwent a similar training, started his own unit in small way. In due course, with help from KVK staff, he got a loan of ₹ 4 lakh from a local bank. "I constructed 48 pits from the loan amount and today I am able to produce 100 tonnes of compost a year. 50 tonnes was used for my personal use and the remaining sold at ₹ 300 per quintal. The worms were also sold for ₹300 a kg," says the enterprising farmer. Within a year he doubled his production to nearly 200 tonnes. He also started to enrich his compost with neem cake, Trichoderma, Pseudomonas, Rhizobium, and Azospirillum. The farmer also developed a diversified cropping pattern using the vermicompost from his own unit.

Some Tips for managing pregnant buffaloes

More than 55% of the total milk production in the country comes from buffalo breeds like Murrah, Niliravi, Bhadavri, Jafarabadi, Surti, Mahsana, Nagpuri toda, Godavari, Khemundi, Pandharpuri etc. Generally farmers look after lactating animals and tend to ignore pregnant animals. For getting maximum milk production pregnant buffaloes should be given special care before and after calving.

The gestation period is for 10 months and the animal delivers the calf ten days before or after. As calving is a natural process, the animal seldom has difficulty. Nevertheless, the following practices are advisable for those farmers rearing buffaloes.

A pregnant buffalo should have at least 60 days of dry period before next calving. Also there should be proper drying off to avoid udder trouble in subsequent lactation. After complete drying off, carry out dry cow therapy and proper feeding. The animals should be fed easily digestible feed in the last two weeks of pregnancy especially green fodder and brans etc.

Provide 2 to 2.5 kg of concentrates, scientifically balanced and fortified with area specific mineral mixture. Housing should be in clean, comfortable shed with optimum space. Avoid undue stress to the animals and allow reasonable space for movement each day and

provide open space. No vaccination during advanced stage of pregnancy should be administered.

Do not interfere with normal parturition unless some problem arises. In case of difficulty during calving call a veterinary doctor. Feed the buffalo warm porridge or bran mash just before and after calving. Wipe the udder dry before allowing suckling. Wash the hind quarters and udder with warm water to which a little potassium permanganate is added. If after birth placenta is not expelled within 5-6 hours, contact a veterinarian for help. Do not pull it out or tie weights to it.

Control of sigatoka disease of banana

Sigatoka leaf spot is a serious disease of banana that destroys large areas of plantations resulting in severe reduction in fruit yield. The commercial cultivars nendran and robusta are highly susceptible to this infestation whereas in rasthali and palayankodan varieties the disease severity is less. This infestation is caused by a fungus and was first recorded in the Sigatoka valley of Fiji. Economic losses of 50-100% have been incurred due to the incidence of this disease.

Symptoms of Sigatoka disease first appear as small dark brown spots or lines on the underside of third or fourth opened leaf. The spots become sunken surrounded by a yellow halo. Eventually these spots or streaks expand and become brown or black and make a characteristic black patch on the leaves. The infection gives a scorched appearance to the foliage. Infection on younger leaves is more severe causing them to dry up more quickly. Appreciable fruit loss occurs as there is drastic reduction of leaf surface area for photosynthesis. Infected banana plants produce fruits of inferior quality as the banana fingers produced do not develop properly and remain small and thin.

Spores of the fungal pathogen form in abundance during tropical and sub tropical summers along with intermittent rainfall especially if there is a film of water on the leaves. The principal means of spread is through rain but later with the progressive development, spores are also discharged through air currents. Spotting of leaves starts to increase during June & July, peaks in October-November and remains at a high level through December.

Management mainly involves chemical control using fungicides like copper oxychloride, mancozeb, chlorothalonil or carbendazim at the prescribed dosage. Fungicide spraying on the foliage and pseudostem should be commenced with the initial appearance and repeated at two weeks' interval. Use of the different fungicides in rotation will reduce the risk of resistance development in the pathogen to the systemic chemicals.

Tobacco caterpillar menace in groundnut

Tobacco caterpillar appears on groundnut crop both in vegetative phase and at the time of pod formation. Eggs are in clusters and are covered with brown hairs and found on the upper surface of the leaves. They hatch in 3-4 days. Fully grown caterpillar measures about 3-5 cm in length. The adult is pale brown in colour with broken dark brown stripes along the body.

Larvae pupate in the soil and the total life cycle is about 45-60 days. Newly hatched larvae feed on the leaves by making a scratch mark and scrape out the chlorophyll content. The older larvae are nocturnal and are usually found in the soil around the base of plants during the day. When population is heavy, the larvae migrate from one field to another field in search of food. After December, particularly after heavy rains, the infestation will be more.

Management methods:

- Collect the larvae and destroy them as soon as the early symptoms of lace-like leaves appear on castor, cowpea and groundnut.
- Grow castor as border crop in groundnut fields to help in reducing the tobacco caterpillar menace.
- Monitor the emergence of adult moths by setting up light traps at 12 numbers per hectare.
- Set up pheromone traps at 12 numbers per hectare to attract the adult male moths.
- Spread a blue cloth in the field during evening to attract the tobacco caterpillar larvae and destroy them.
- Place poison bait in the field to attract and be eaten away by the caterpillar. (It can be made with 12 kg rice bran, 2.5 kg jaggery, carbaryl 10% dust 1.25 kg and sufficient water per hectare to make as a small round ball.)
- Spraying of ecofriendly Nucleo Polyhydero Virus (NPV) at 250LE per hectare or any one of the following: Chlorpyriphos 20 EC at 2ml/ha (or) Profenophos 50 EC 2ml/ha (or) neem seed kernel extract 5% at 25 kg/ha proves effective.

The surplus fruit and vegetable challenge

The situation repeats itself every year that Punjab's kinnows and potatoes see a bumper harvest. More than half of Punjab's total fruit and vegetable production of 50 lakh tonnes comprises the two crops. While 57% of its 14 lakh tonnes annual production of fruits comprises kinnows, potatoes make up 64% of its 36 lakh tonnes vegetable production. But the state exports merely 1,000 quintals of its total fruit and vegetable production of 50 lakh tonnes.

After preparing a vision paper on its ambitious crop diversification

programme, the state is now trying to figure out how to market its surplus. Of the 12 lakh hectares it intends to move away from paddy, a crop that at present covers 28 lakh hectares, Punjab aims to bring the biggest shift of four lakh hectares towards maize. To begin with, the Punjab State government has amended the contract farming laws to ensure farm-gate purchase by making buying of the produce binding so that maize growers get remunerative prices and prospective maize-processing entrepreneurs an assured supply.

The state's ₹5,000-crore diversification plan also aims at increasing the area under fruits, vegetables and pulses by one lakh hectares. For a state where big farmers are able to market kinnows and potatoes to other states and neighbouring countries but smaller growers are forced to dispose of them at prices prevailing in local mandis, the bet has to be hedged through assured marketing. The diversification budget also includes modernising major wholesale fruit and vegetable markets in the state, from installing maize driers to creating post-harvest facilities such as cooling chambers, cooler vans, grading and packing facilities to ripening chambers.

According to COSAMB, the apex national body of state agriculture marketing boards, India is the second largest producer of fruits and vegetables, but the wastage is as high as 25 to 30%. "Since marketing of agricultural produce is a state subject, diversification can only happen if Punjab equips its wholesale markets with post-harvest infrastructure and technology to ensure better quality, year-round availability of seasonal items and their proper grading, packing and storage," says COSAMB head Shri S. S. Randhawa.

MP starts to warm up to farming machines

Madhya Pradesh may have been a little slow on the uptake but farm mechanisation is finally happening, with the state claiming to have achieved an impressive agriculture growth rate of more than 18% last year. "Many farmers have started embracing mechanisation, which has not only reduced dependence on labourers but also increased yields in MP," says Pritam Chandra, director of the Central Institute of Agriculture Engineering (CIAE), an Indian Council of Agriculture Research institute based in Bhopal.

Mirroring the recent growth in agriculture is the unprecedented rise in the sale of tractors in MP: 50,061 new ones in 2011-12. In 2010-11 it was 43,811, after 28,537 in the previous year. Initiatives such as the Yantradoot Village Scheme, under which agriculture officers demonstrate the use of farm implements and make them available at nominal rents, have done their bit to promote mechanisation. Ironically, MP was one of the few states to have had a separate directorate of agri-

culture engineering since the 1980s, yet the idea of mechanisation to improve productivity and to save wastage had never really taken off.

"There is awareness about the benefits of mechanisation," says incharge of the directorate Rajeev Chaudhary, describing a government initiative to encourage custom hiring centres to promote mechanisation. Nearly 800 custom hiring centers of primary agriculture credit cooperative societies and primary marketing cooperative societies have been opened in the state. Agriculture implements worth up to ₹10 lakh have been made available to these centers, apart from a revolving fund of ₹10 lakh.

However, a more ambitious scheme (credit-linked back-ended subsidy) is in the works. Under the scheme, graduates under 40 years of age those who have studied agriculture or agriculture engineering will be given preference and can get bank loans for equipment worth ₹20 to ₹25 lakh. The government will give a 50% subsidy up to a maximum of ₹10 lakh. More than 50 graduates have applied under the scheme and banks are processing their applications, says Chaudhary. Buying a tractor, a plough, a rotavetor, a cultivator or a disc harrow, a seed-cum-fertiliser drill and a thresher under the scheme are a must and the remaining amount could be used to purchase from an optional list of 25 to 28 implements.