



Workshop on Enhancing Exports’ Competitiveness Through Value Chain Finance

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Background Paper 1¹

Agricultural Finance for Sustainable Development, Expanding
Agricultural Market Opportunities & Promotion of disadvantaged small
farmers and MSMEs

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Abstract

Agriculture continues to be the mainstay of developing economies and predominant source of livelihood for people in the developing world, including in Africa. However, the share of agriculture in the overall GDP seems to be slipping and for most developing economies, which are predominantly agrarian, this calls for action.

The paradox is that on the one hand, farmers, especially smallholder farmers are struggling to sustain themselves, while on the other, world demographic trends point to increased global appetites and enhanced demand for food leading to food inflation.

This paper analyses the role of financing in sustainable development of agriculture with focus on disadvantaged farmers and MSMEs. Apart from agriculture finance, which is touched upon, this paper focusses on agriculture value chain finance and its benefits for smallholders as also for MSMEs.

The paper looks at agricultural finance and maps different stakeholders (institutions typology) offering variety of financial products (credit, insurance, guarantee, hedge instruments, grants) against various client segments (small farmers, traders in the value chains, processors, aggregators, small and large firms etc.).

The key drivers of sustainable agriculture finance have been addressed and the paper draws from various initiatives in Asia. Integration of branchless / mobile banking with agriculture value chains is another focus areas; its potential in transforming payments across the value chain and in bringing linkages between processors, farmers and suppliers is explored. At the end, the paper explores the lessons for Africa from various sustainable finance initiatives in Asia.

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1. Sustainable agriculture development – Key for economic development

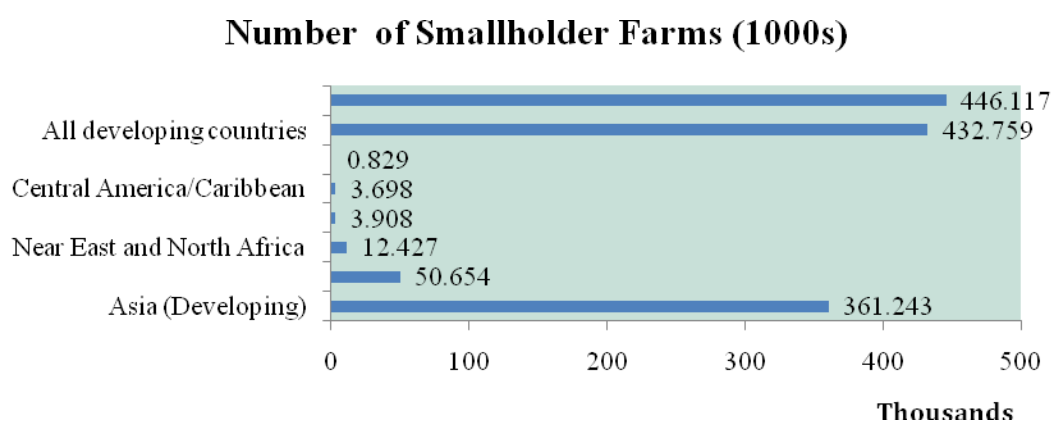
The term 'sustainable development' was first used by the Brundtland Commission which coined what has become the most often-quoted definition of sustainable development as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs."^{2,3}

Drawing from the definition of sustainable development, sustainable agriculture goes a step forward and includes not only the environment but also incorporates the economic sustainability for agriculture producers and processors. The 1990 USDA Farm Mill⁴ states that:

Sustainable agriculture means an integrated system of plant and animal production practices having a site-specific application that over the long term will:

- Satisfy human food and fibre needs.
- Enhance environmental quality and the natural resource base upon which the agricultural economy depends.
- Make the most efficient use of non-renewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls.
- Sustain the economic viability of farm operations.
- Enhance the quality of life for farmers and society as a whole.

Graph 1 Small holder farms across the globe



Source: Catalysing Smallholder Agricultural Finance

In all developing countries of Asia, ensuring the economic viability of small farm operations has become the moot issue to achieve the objective of sustainable agriculture. This is also important because agriculture is the backbone of economies of developing countries and is a critical tool for achieving one of the Millennium Development Goals (MDGs) which calls for halving the share of people suffering from extreme poverty and hunger by 2015⁵. Three out of every four poor people in developing countries live in rural areas, and most of them depend directly or indirectly on agriculture for their livelihoods⁶. Especially in Africa, agriculture employs 65 percent

²United Nations. 1987."Report of the World Commission on Environment and Development." General Assembly Resolution 42/187, 11 December 1987. Retrieved: 2007-04-12

³Smith, Charles; Rees, Gareth (1998).*Economic Development, 2nd edition*. Basingstoke: Macmillan. ISBN 0-333-72228-0.

⁴United States Congress, 1990. Food, Agriculture, Conservation, and Trade Act of 1990, Public Law 101-624. Title XVI, Subtitle A, Section 1603. Washington, DC; USA

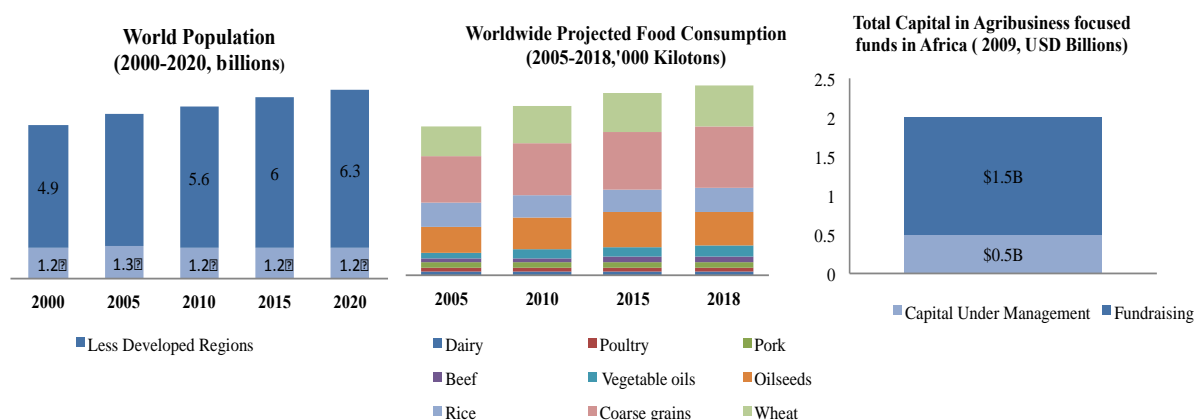
⁵Millennium Development Goals Report:2012

⁶World Development Report:2008

of total labour force and accounts for 32 percent of gross domestic product⁷. About 404 million of the estimated 525 million farms worldwide are held by smallholder farmers, where “smallholder” is defined as farmers who own two hectares of land or less (World Bank, 2007). These millions of small agricultural producers are entrepreneurs, traders, investors, and consumers, all rolled into one, run their business in difficult and constraining circumstances. They constantly seek to use available financial instruments to improve their productivity and secure the best possible consumption and investment choices for their families.

The paradox is that on the one hand, farmers, especially smallholder farmers are struggling to sustain themselves, while on the other, world demographic trends point to increased global appetites and enhanced demand for food. Population continues to grow globally and is expected to reach 7.5 billion by 2020⁸. Most population growth is occurring in developing regions, especially in emerging countries such as India, China, and Brazil, where commensurate with the growth in population, the middle class is also growing. The growth in population coupled with an emerging middle class translates into increased global demand for food. It is estimated that by 2018, food consumption worldwide is will increase by nearly 30 percent over the 2005 figures⁹. In emerging markets, there is increased demand for non-staple crops leading to increased consumption of cocoa, coffee, tea and nuts such as cashews.

Graph 2 Population, food consumption and agribusiness investment



Source: Catalysing Smallholder Agricultural Finance

It has been acknowledged that the recent hike in food prices has been a result of growing population and an increasing purchasing power in the hands of consumers in developing countries. This has brought back the emphasis of donors on agriculture funding. A recent report by Dalberg Global Development Advisors¹⁰ says that “Agriculture has direct effects on foreign-aid donor priorities such as global food supply, livelihoods, and environmental stewardship. Agricultural aid accounts for an increasing share of Official Development Assistance (ODA)¹¹. From 2005 to 2010, the amount of ODA devoted to agriculture grew 19 percent. Its growth rate easily outstripped both the

⁷Fact Sheet: The World Bank and Agriculture in Africa

⁸UN Department of Economic and Social Affairs, Population Division

⁹“How to Feed the World in 2050,” FAO

¹⁰Catalysing Smallholder Agriculture Finance, 2012, Dalberg Global Development Advisors

¹¹OECD Statistics

previous five years growth rate in agricultural assistance (five percent) and the growth in ODA overall. Relatedly, the amount of private financing available for agribusiness has increased. Agribusiness funds in Africa had up to \$2 billion in assets under management and fundraising in 2009. The growing donor and investor focus on agriculture has resulted in increased technical assistance to support on-farm productivity and producer organisation formation - creating a more conducive environment for smallholder financing. Still, demand is already outstripping supply in several smallholder-dominated cash crops.”

1.1 Role of agricultural financing in enhancing export competitiveness

Besides supporting farmers and bringing about rural economic development, value chain finance also offers tremendous scope for enhancing export competitiveness. Developing countries by definition have cheap labour and agriculture being labour intensive accords them some advantage on this front. However, absence of structured value chain finance mechanisms negate this advantage as farmers are not able to access seeds and fertilizers and other inputs and typically do not have the wherewithal to procure machines needed even for the most basic mechanisation. This affects productivity and quality of the produce and works against smallholders as they are not able to tap export markets nor realise higher economic value from the sale of their produce.

Value chain finance enables smallholders to move up the value chain and increase productivity and quality of their produce. Aggregation of smallholders in a value chain initially enables them to tap into the local markets with better quality and eventually with better feel and connectivity with the needs of the market, enables them to tap export markets. Thus, one can say that structured value chains with need based financial inputs enables export competitiveness to be increased. In fact one can say that it is very difficult for farmers to be able to tap into export markets on their own in a decentralised manner and the only way to enhancing export competitiveness is to get organised in value chains and deliver products as per the needs of the market.

2. What ails small holder agriculture?

The main challenge for farmers despite growing demand for food and increased investor and donor interest is the skewed market linkages and the consequent poor price realisation. Table 1 given below lists the price realisation by farmers for vegetables, in one of the states in India, as compared to the price being paid by the consumer. The price differential is stark.

Table 1 Inequity in farmers' remuneration

	Tomato	Potato	Cabbage	Cauliflower	Banana
Price paid by end consumer (Rs. per kg)	8.2	12	9	9.5	12
Price received by farmer (Rs. per kg)	2	6.6	5	5.5	4
Price realisation by farmer as % of end consumer price	24	55	56	58	33
Percentage mark up (price paid by end consumer to the price received by farmer)	310	82	80	73	200

Source: Field Study by Profs. S Ragunath & D Ashok, IIM Bangalore¹²

The reason for this price differential can be explained as the farmers are not connected to markets and hence do not exercise control over the price paid by the consumers. This is largely responsible for this state of affairs where farm level realisation is very low even in agri-commodities where processing is minimal e.g. fresh vegetables.

The report by Dalberg Global Development Advisors goes on to say that “the world’s 450 million smallholder farms could help feed the world, but most smallholders face poor market linkages and many barriers to improving productivity. Despite some variation, the typical smallholder is poorly linked to markets and has minimal, if any, access to credit.”

Lack of access to credit by small farmers leads to sub-optimal use of inputs and techniques resulting in to lower productivity. Access to resources such as better seeds and fertilr can significantly enhance productivity levels; however for smallholders to be able to access them as also modern machinery, credit is needed. Enhanced productivity through access to appropriate credit would enable smallholders to help meet the growing global demand for food while at the same time bringing economic benefits across the value chain. At present, smallholders are also unable to negotiate better prices as their holding capacity is limited for want of credit and also because of lack of availability of information. Some form of aggregation either as part of a structured value chain or as a producer organisation can allow for aggregation and economies of scale as well as for better bargaining capacities. Aggregation and an integrated value chain approach will also enable smallholders to better manage risks to which they are more vulnerable as compared to larger farmers, who can better diversify their crops and spread capital improvements over larger areas.

In this scenario where predominant numbers of farmers are small-holders, agriculture productivity and sustainable and economic farm operations at a smallholder level can

¹²Producer Company Model - Current Status and Future Outlook: Opportunities for Bank Finance, EV Murray, Faculty Member, CAB, Reserve Bank of India, Pune.

only accrue with some form of aggregation. The power of aggregation allows economies of scale and a collective power which benefits both producers and processors. This is where organised agriculture value chains play a role and are described in some detail in this paper. In this paper we will largely be talking about agriculture finance and the benefits that can accrue to various stakeholders if they get more organised in the value chain and bring about sustainability and inclusive growth. More specifically, this paper seeks to look at the initiatives to improve access to agriculture finance for disadvantaged farmers and micro, small and medium enterprises which form an integrated value chain that subsists on and supports each other.

3. Agriculture Finance – The transformative potential

Asian economies have undergone a basic structural economic transformation during the past three decades where economic growth has occurred by a rapid structural transformation of the rural economy. The process is reflected in different symptoms such as a decline in the relative importance of agriculture, increased use of traded capital inputs in agricultural production process, a greater specialisation in production on large farms while small farms have diversified their sources of income, an explosion in the growth of rural cities and towns, and the emergence of a heterogeneous and vibrant rural non-farm economy. These changes have created major new opportunities for rural financial markets and increased the demand for financial services.

3.1 The Commercialisation of Agriculture

Structural transformation has also been accompanied by an evolution in food production systems (Table 2). Initially, at low levels of economic development, most farms produce for subsistence, with food self-sufficiency as the primary objective. Most agricultural inputs are non-tradable, and a wide range of diversified products are produced. Income is derived largely from agricultural sources but, because production is low and mostly for home consumption, little cash income is generated. With new biological technologies, production has risen and marketable surpluses have begun to emerge. Semi-commercial farms regularly produce surpluses and use a mix of tradable and non-tradable inputs. Some specialisation in production occurs at this stage, and farm households begin to earn larger amounts of non-agricultural incomes from non-farm sources. Finally in a commercial system farmers operate almost exclusively in a market economy, and employ the full range of financial instruments to facilitate transactions of goods and services.

Table 2 Characteristics of food production systems with increasing commercialisation

Level of market orientation	Farmer's objective	Sources of inputs	Product mix	Household income sources
Subsistence system	Food self-sufficiency	Household-generated (non-traded) inputs	Wide range	Predominantly agricultural
Semi-commercial system	Surplus generation	Mix of traded and non-traded inputs	Moderately speciald	Agricultural and non-agricultural
Commercial system	Profit maximisation	Predominantly traded inputs	Highly speciald	Agricultural and non-agricultural

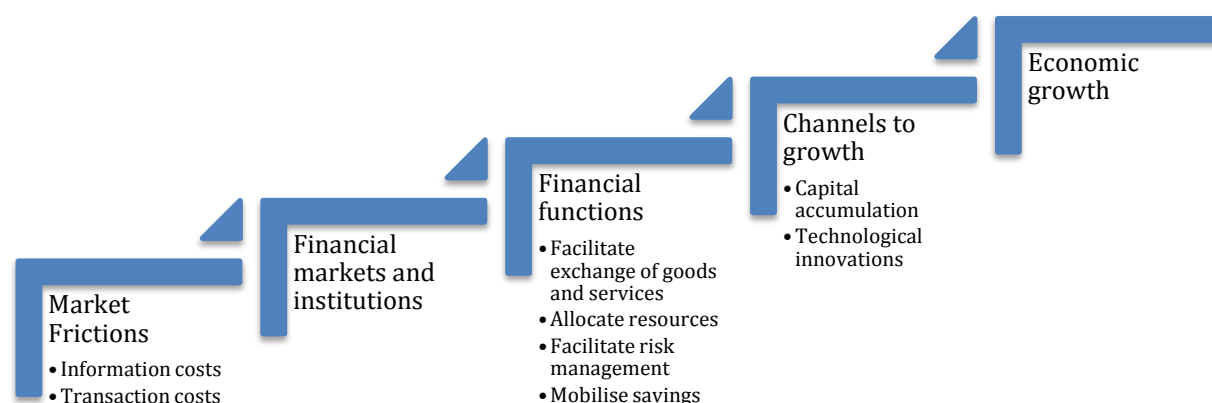
Source: Meyer and Nagarajan, 2000

3.2 The Role of Finance in Economic Development

The structural transformation process requires supportive markets in order to enable a greater division of labour. Markets integrate the speciald producers and consumers, allowing them to engage in transactions involving an increasingly heterogeneous set of goods and services produced across space and time. As structural transformation begins, markets for land, labour, capital, and finance emerge, multiply in number, and become more complex in response to the greater variety of goods and services transacted.

The theoretical literature on finance explains why financial contracts, markets, and institutions emerge in a market economy and contribute to economic growth. The costs of acquiring information and making transactions create incentives for the emergence of financial markets and institutions. The financial system has the primary role of facilitating the allocation of resources across space and time in an uncertain environment. The primary role consists of five basic functions: reducing risk, allocating resources, monitoring managers and exerting corporate control, mobilizing savings, and facilitating the exchange of goods and services. When these functions are performed well, they contribute to economic growth through two channels: capital accumulation and technological innovation (Figure 1). The emergence of financial systems and especially banking can, therefore, be expected to influence the speed and pattern of capital accumulation and technological innovation in rural areas.

Figure 1 A Theoretical View of Finance and Growth¹³



Against this background of changing opportunities in the agri food system and new market-economic challenges, the policy makers and the development practitioners are seeking effective strategies and approaches to provide financial products and services to agricultural sector that (a) contribute towards increasing overall productivity and income; (b) easy access to financial services and market (c) lead to more equitable value distribution and poverty reduction, and (d) initiate balanced regional development.

3.3 Agricultural Finance - Concept and its Contribution in Agricultural Development

Agricultural finance can be understood as a study that deals with finance at both micro and macro level in the agriculture sector. The latter deals with aspects relating to the total credit needs of the agricultural sector, the terms and conditions under which credit

¹³Adapted from Meyer and Nagarajan, 2000

is available and the method of use of total credit for the development of agriculture, while the former refers to the financial management of individual farm business¹⁴

The potential role of agricultural finance can be understood as follows:

(a) Productivity Enhancement:

It plays a catalytic role in strengthening farm businesses and augmenting the productivity of scarce resources. When newly developed high-potential seeds are combined with inputs like fertilisers and plant protection chemicals in appropriate / requisite proportions, higher productivity is a natural outcome. Consequently, one can say that new technological inputs purchased through farm finance helps to increase agricultural productivity. In India, green-revolution technologies, involving high-yielding varieties, application of chemical fertilisers and modern pest control methods, coupled with increased capital investments on farms and in institutional infrastructure, have fuelled structural transformation of rural areas. New technologies expanded agricultural production and induced demand for fertilisers, chemicals, and other purchased inputs. The rise in marketable surpluses led to increased marketing of agricultural inputs and outputs. More importantly, decisions about product choice and input use evolved from subsistence to a profit maximisation orientation.

(b) Enhanced Farmers' Income:

Creation of farm assets and farm supporting infrastructure by large scale financial investment activities results in increased farm income levels leading to increased standard of living of rural masses.

(c) Balanced Regional Development:

Farm finance can also reduce the regional economic imbalances and is equally good at reducing the inter-farm asset and wealth variations. Farm finance is like a lever with both forward and backward linkages to the economic development at micro and macro level.

(d) An enabler of Inclusive Growth and Poverty Reduction:

As agriculture is still traditional and subsistence in nature in many countries, agricultural finance is needed to create the supporting infrastructure for adoption of new technology building major and minor irrigation projects, rural electrification, installation of fertiliser and pesticide plants, execution of agricultural promotional programs and poverty alleviation programs.

3.4 Demands for Agriculture Finance

As discussed in the preceding paragraph, supply of reasonably priced loans, can speed the adoption of technology, expand the production of food supplies, and increase farm incomes. When a reliable supply of formal finance is established, farmers may change their perceptions about the risks of investing in agriculture. They may also choose to invest more of their own funds knowing that their unused borrowing capacity will be available to meet future cash needs.

A safe and reliable place for savings is another important but largely overlooked financial service that is in great demand in rural areas. All rural households do save;

¹⁴ Nelson, A.G, Lee, W. F, and Murray, W.G (1973): Agricultural Finance. Iowa State University Press, Ames.

otherwise they would not survive seasons of the year when cash is in short supply or in bad years when crops fail and livestock die. They also save for unexpected family emergencies such as illness and / or death.

Insurance markets do not exist in rural areas of most developing countries. Hence, rural households employ a variety of strategies to cope with risks and smooth consumption over time. Some households hold physical assets in the form of livestock that are easy to liquidate. Other households use risk-reducing strategies such as pesticides or engage in multiple and diverse income-earning enterprises. Those with access to financial services, however, have additional options of holding financial savings and borrowing in times of emergencies.

Another financial service demanded in rural areas is a safe and reliable method to transfer remittances. Transfers by family members who have emigrated are an important source of income for many small farm households.

3.5 Business models for supply of agriculture finance

Until the early 1980s, agricultural planners were primarily concerned with the need to increase food crop production. The adoption of new green revolution technologies was relatively costly and small farmers were perceived as being too poor to save and to self-finance the required investments in additional farm inputs. As a result, vast amounts of financial resources from governments and donors were poured into agricultural development banks and agricultural credit projects. These programs served as conduits for the provision of subsidised credit to small farmers often for specific production purposes. It was argued that enhanced access to credit would accelerate technological change, stimulate national agricultural production through increased farm output and improve rural income distribution.

However, this approach failed to produce the desired results. Many agricultural credit programs were poorly designed and failed to consider the high costs that are associated with agricultural lending. Moreover, as agricultural development banks focused exclusively on agricultural lending, they were exposed to high concentration risk. This required frequent rescheduling of overdue loans, thus further undermining the loan recovery efforts and the loan repayment discipline of both bank staff and farmers.

Paradoxically, in the directed agricultural credit approach, small farm holders were neglected by commercial banks due to high operation cost, information asymmetry and the lack of tangible collateral. As per a study conducted by ICICI Bank in India, for a loan size of Rs. 25,000, the transaction cost for the bank comes to 8.62%, whereas for loan of Rs. 10,000, it is higher at 21.56%.

The causes of financial exclusion in the agricultural sector can be summarised as:

Table 3 Causes of financial exclusion

Demand-side	Supply-side
<ul style="list-style-type: none"> ▪ Stagnating productivity, decline in cropping intensity and yield ▪ Fragmented base of producers ▪ Disguised unemployment and low labour productivity ▪ Lack of irrigation potential ▪ Inadequacy of post-harvest management practices leading to wastage of commodity 	<ul style="list-style-type: none"> ▪ No branches or limited network in rural areas ▪ High covariant risk correlation when lending to farms: all borrowers are affected by the same risk, such as low market prices and reduced yield due to weather ▪ Underdeveloped communication and

Demand-side	Supply-side
<ul style="list-style-type: none"> ▪ Lack of considerable investment in infrastructure ▪ Inadequate integration of value chain. ▪ Insufficient cash flow information and poor record keeping by producer and poor financial management ▪ Seasonality in businesses leading to suitability of non-standard and irregular repayment schedules ▪ Lack of collateral due to lack of or poor quality of farm assets and non-enforceability of security due to lack of land and property rights ▪ Volatility in prices of commodities and poor market opportunities for crops ▪ Inadequate or lack of access to extension, seed, irrigation, fertiliser, etc. ▪ Inability of clients to prepare viable project proposals 	<p>transportation infrastructure</p> <ul style="list-style-type: none"> ▪ Small size average farm, low population density, higher loan servicing costs due to limited volumes and high information costs ▪ Lack of collateral or adequate security ▪ Lack of technical knowledge at the bank level to evaluate and analyse the creditworthiness ▪ No specialised product offered by the financial intermediaries to better meet the financing need of the agricultural sector ▪ High transaction costs due to wide client dispersion and less developed infrastructure

Source: Langenbucher 2005 and IBA 2011.

During 1990s, microfinance emerged as another popular business model to provide financial services to low income households in all the developing countries. However, since this model was primarily designed to take care of very small loan requirements of rural households, the chronic gap between the demand and supply of agricultural credit continued. By design microfinance cannot become a sustainable business model to provide financial services to small farmers. Microfinance rests on frequent repayments whereas most of the agricultural activities show seasonality in the operations and is by its very nature is longer term.

Value chain financing has emerged as another business model to provide financial services to different players in the agriculture sector in general and to small farmers in particular. This model deviates from the individual lending model as decisions about financing are based on the health of the entire value chain including market demand, and not just on the credibility of the individual borrower. This model has potential to overcome the deficiencies of the individual lending model adopted earlier in most of developing countries. The value chain model and its benefits are described in the following sections.

4. Agriculture Value Chain Development – The Rationale

The term value chain is applied widely to business as well as to agriculture. It refers to sequential linkages through which raw materials and resources are converted into products for the market. The use and adaptation of principles of value chains in finance has been growing in interest. This adaptation, now known as **value chain finance, is defined broadly as “financing that flows through the value chain and its multiple linkages and as well as finance which is made available to borrowers because they are linked into a chain.”¹⁵**

Apart from primary producers, several other players drive the value chain and play an important role; these include dealers in agri-commodities and agri-inputs, food processors, retailers, support service institutions and banks and financial institutions. Each of these players may be operating in a value chain at varying scales with investments of only a thousand dollars or even less or outlays of more than several million dollars. Each of these players will be operating in along the value chain, with linkages into one another. Key participants in a value chain are: Producers, Agri Input Dealers, Aggregators, Producers, Wholesalers and Retailers. SME players in the value chain are clustered as aggregators / processors or will play the role of agri-input providers.

Agri-input dealers are crucial to the value chain as they not only provide seeds, pesticides, fertilisers and farm equipment / machinery to farmers but also act as extension arms providing technical information to the farmer. This is a crucial input in the value chain and its capacities and quality will determine to a large extent the quality and quantity of the end-produce. Just as with any other small trader, this player will be driven by the profit and a desire to increase sales volumes. Capacity building on this tier will ensure that the farmers get the right advice. In case of small holders, this tier may have to be supported by the aggregator / processor to ensure that the farmer gets the right quantity and quality of inputs. Also, donor initiatives and credit programmes can support the farmer get the required inputs and can help agri-input dealers enhance their business. In some instances, agri-input dealer may also become an aggregator, supplying inputs and then procuring the produce. In this case of course, the agri-input dealer plays a major role at the producer end and can corner a larger share of the value leaving a minor share for the primary producer.

Agri-processing companies play a major role in adding value to the agri-commodity and in many cases will link up with wholesalers / retailers to market the product. Agri-processing companies can be small scale enterprises or can even be large corporations having multi-country operations. This is another important players in the value chain which can spur rural development, ensure off-take of commodities from the producers and at the same time provide employment opportunities. Other roles that can be played by agri-processing companies include acting as a channel to provide market access to producers, providing agri-inputs and/or finance to enable producers to procure inputs, transfer of production methods / technologies etc. The challenges faced by small agri-processing companies can include challenging policy environment, lack of availability of input material, cost of input and price fluctuations, lack of technology for processing, competition from multi-nationals and lack of credit availability.

¹⁵A Baker’s Dozen Lessons of Value Chain Financing in Agriculture; Calvin Miller, FAO

The problem of improvement in value realisation to smallholder farmers has to be tackled from two different angles. While the productivity of land has to be increased the farmers earning has to go up through efficient processing to bring about value addition. It is estimated that value addition to raw food material in India is only 7 per cent while it is 23, 45 and 188 per cent in China, Philippines and UK, respectively (as per the Indian National Food Processing Policy, Draft Document, 2000). A country like Japan produces more than four dozen value-added products from paddy. The higher realisation from value added products can bring greater benefit to all players in the value chain including producers and processors. It has to be factored that like any other value chain, agri-commodities are no longer a supply driven chain but rather a demand driven value chain. Realisation of the consumers demand will result in greater value realisation which will bring in prosperity across the chain.

5. Financing of Agricultural Development – A key link and input in the Value Chain

In most developing countries, poor farmers have limited access to formal financial services. Similarly, agri-input dealers and small agri-processing companies can also be constrained by the lack of availability of finance. This is because risks involved in agriculture finance including covariant risk such as the vagaries of weather, pests and disease besides commercial risks, deter banks which tend to steer clear of agricultural financial especially if it involves smallholder farmers. Fluctuating prices of agri-commodities, linkages with global markets and a general lack of infrastructure in rural areas can deter banks from extending finances to producers as well to other players in the value chain. Microfinance has to some extent tried to address the gap in rural finance at the producer level but the products are not suited for agriculture and do not address the entire financial needs of the farmers or of the value chain. In any case, the amounts involved are very meagre. Coupled with this, poor credit track record of smallholder farmers, disputable land titles and a general lack of knowledge about the functioning of formal financial institutions makes the demand side look to be very weak. On the supply-side high transaction costs (overcome to some extent by group lending), lack of understanding of the segment and a higher perceived risk makes up for very reluctant financial institutions. The financing gap is sought to be met from high cost informal sources which are outside the value chain.

5.1 Financing from within the chain

Once a farmer gains entry into a value chain and the chain is well structured and functional, then access to finance becomes easier. If the value chain is a farmers collective, it can leverage funding from formal institutions for its members; on the other hand if the value chain is predominantly driven by processors / marketing agency, then too finance is typically a given and can take care of financing needs of the producers. In the case of value chains seeded by development organisations, finance will be one of the key inputs that get factored as the needs of different players in the value chain are analysed. The key differentiator in financing from within the value chain is that providers are generally less interested in returns from the credit extended and focus more on quality and quantity of the output. There is an opinion that value chain actors doubling up as financiers would, given an opportunity, relinquish the financing responsibility to banks or other financial institutions, thus freeing up capital for alternate investments. Financing from within the value chain happens primarily because banks have not come forward with appropriate products and/or processes to meet the needs of primary producers. Financing from within the chain has its own limitations; value chain players have access to a limited pool of funds which can constrain growth and expansion. Value chain players who are freed from the responsibility of lending can invest the capital in expansion.

Figure 2 Relationship between Small Producers and Actors/Financiers in the Value Chain (w/o external financing)

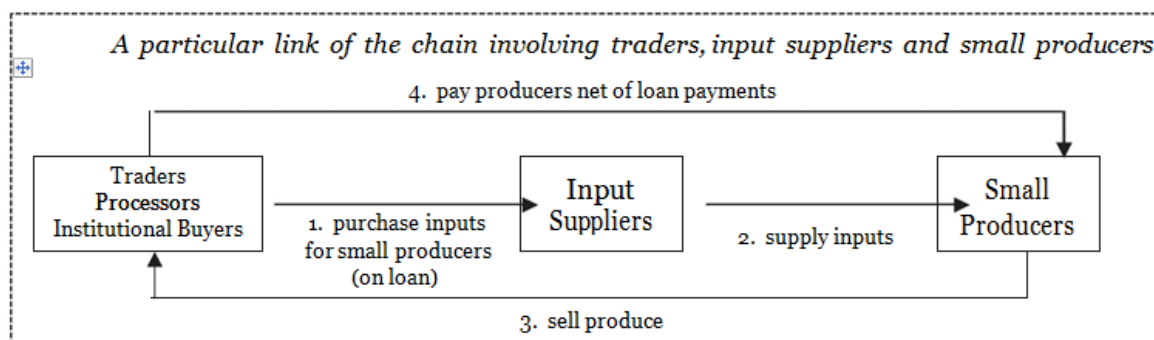
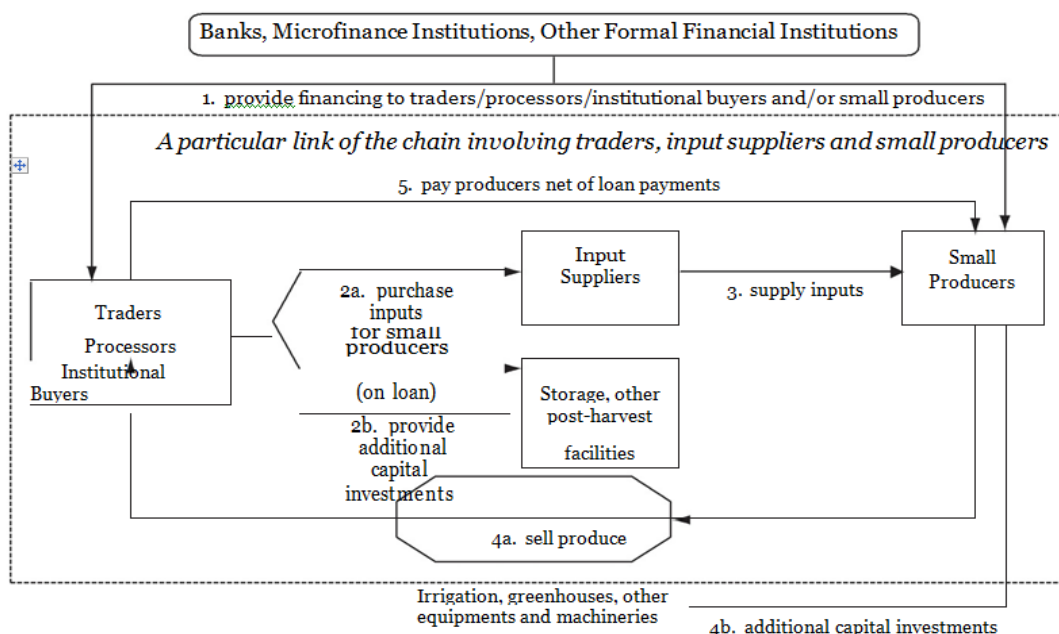


Figure 3 Relationship Between Small Producers and Actors/Financiers in the Value Chain (with external financing)



Source : APRACA Value Chain Paper

5.2 Financing from outside the chain

Agriculture lending especially to smallholder farmers is perceived to be high risk. Group lending microfinance brings in a certain regimen and breaks down repayments into smaller more manageable instalments, this unfortunately is not possible in agriculture finance which typically required longer tenures and bullet repayments. Long-gestating crops such as rubber and trees such as eucalyptus have higher returns but need longer term financing. However, financing a player in a value chain does address some of the risks for the bank; for one, it enables a bank to understand the business sin its entirety

and not blindly take credit exposure in one segment without understanding the backward and forward linkages. Also, banks extending credit to value chain players can delegate the first degree of credit assessment to one of the players e.g. in sugar value chain, the sugar mill can recommend farmers which are supplying regularly and this enables credit to the smallholders who are part of the value chain. The endorsement of the sugar mill enhances the creditworthiness of the smallholder farmer who on his own may have struggled to access credit.

While a value chain enables relatively easier access to credit, the advantage for banks is that it opens up another profitable avenue for deployment of funds. In some countries such as India, Reserve Bank of India, the central bank, mandates targets¹⁶ for lending to farmers. These targets are called as priority sector targets and apply to all banks.

“Value chain financing offers banks a less costly, less risky and more efficient alternative: one that does not require costly and exhaustive credit investigations, access to credit bureaus, field surveys, and interviews. In fact, through this set-up, the only thing banks would probably require is a contract between buyers (traders, large processors, agri-businesses) and sellers (small producers) within the chain. Every transaction in the chain is defined in terms of a contract, whether explicit or implicit, stating the terms and conditions governing the loans provided by actors in the chain to producers, sale of the produce, and how much of the proceeds will go to each party. Why would banks lend on the strength of nothing more than a contract? First, the contract *explicitly* guarantees sale of the produce. Second, the contract *implicitly* defines a stable, profitable relationship between the buyer and the seller. The very existence of contractual relationships improves producer creditworthiness; in some cases, no written contract is actually required. This implies that banks may not actually be interested in the contract *per se* but rather at the nature of the relationship between buyers and producers that may be derived from the contract. Besides, the validity of a contract depends on the existing legal environment and may not be easily enforced. Hence, institutional buyers instead spend time and money building a stable relationship with its producers that will last over the long term in order to develop a reliable set of producers who will guarantee a steady flow of products that are expected to meet stringent consumer demands.”¹⁷

¹⁶Priority sector lending presently has an overall target of 40 per cent of Adjusted Net Bank Credit (ANBC); There are three sub-targets for lending, namely Agriculture (18% of ANBC), SSI (10% of ANBC) and Export Credit (12% of ANBC).

¹⁷APRACA FinPower Publication: 2008/1; Financial Access and Inclusion in the Agricultural Value Chain

Table 4 Typology of value chain finance approaches¹⁸

Value Chain Financing Approaches	Financing Purpose	Complexity to Implement	Advantage for Producer/borrower	Advantage for Company/lender	Disadvantage for Producer/borrower	Disadvantage for Company/lender
Product Linked Finance						
Trader Finance	<ul style="list-style-type: none"> ▪ Commodity Procurement ▪ Farmer finance for harvest/post harvest 	<ul style="list-style-type: none"> ▪ Low 	<ul style="list-style-type: none"> ▪ Ease of transaction ▪ Well known ▪ May be competitive offers 	<ul style="list-style-type: none"> ▪ Secures commodities and prices 	<ul style="list-style-type: none"> ▪ Often high discounts on market price 	<ul style="list-style-type: none"> ▪ Potential for side-selling ▪ Unsecured quality and quantity
Marketing/ Processing Company Credit	<ul style="list-style-type: none"> ▪ Reduce transaction risk 	<ul style="list-style-type: none"> ▪ Low 	<ul style="list-style-type: none"> ▪ More secure product market ▪ Technical assistance ▪ Bulk input cost reduction 	<ul style="list-style-type: none"> ▪ Secures procurement ▪ Contracts for finance, sales terms, and product specs 	<ul style="list-style-type: none"> ▪ May not be directly accessible to small farmers 	<ul style="list-style-type: none"> ▪ Increases financial outlay
Input Supplier Credit	<ul style="list-style-type: none"> ▪ Sell/purchase inputs 	<ul style="list-style-type: none"> ▪ Low 	<ul style="list-style-type: none"> ▪ Obtain inputs on credit 	<ul style="list-style-type: none"> ▪ Secures sales 	<ul style="list-style-type: none"> ▪ Input costs may be excessive 	<ul style="list-style-type: none"> ▪ Lack of security in repayment
Contract Agriculture	<ul style="list-style-type: none"> ▪ Overcome lack of access to credit 	<ul style="list-style-type: none"> ▪ Medium 	<ul style="list-style-type: none"> ▪ Secure market and price ▪ Technical guidance for higher yields and quality 	<ul style="list-style-type: none"> ▪ Less options due to closer monitoring ▪ Enforceable contracts 	<ul style="list-style-type: none"> ▪ Less access for small farmers ▪ Restricts price rise gains 	<ul style="list-style-type: none"> ▪ Side-selling ▪ Cost of management and enforcement of contracts
Warehouse	<ul style="list-style-type: none"> ▪ Overcome lack 	<ul style="list-style-type: none"> ▪ Medium to 	<ul style="list-style-type: none"> ▪ Cash advance 	<ul style="list-style-type: none"> ▪ Security of 	<ul style="list-style-type: none"> ▪ Lack of available 	<ul style="list-style-type: none"> ▪ Often lack of

¹⁸ Value Chain Financing Models: Building Collateral and Improving Credit Worthiness, Calvin Miller, Food And Agriculture Organisation, Southeast Asian Regional Conference On Agricultural Value Chain Financing, Conference Proceedings, 2007

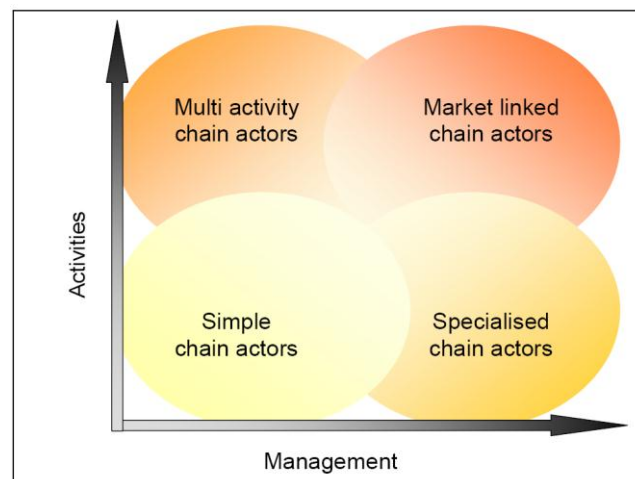
Value Chain Financing Approaches	Financing Purpose	Complexity to Implement	Advantage for Producer/ borrower	Advantage for Company/ lender	Disadvantage for Producer/borrower	Disadvantage for Company/ lender
Receipts	of collateral ▪ Secure repayment	high (depending on regulation)	and/or credit guarantee upon deposit of commodity	standards and inspection ▪ Secured, deposited product	providers ▪ Fees charged	regulatory structure ▪ Costs ▪ Uneven product flow
Producer Risk Mitigation Products						
Crop / Weather Insurance	▪ Mitigate production income risk	▪ High	▪ Reduces production risk ▪ Evens income	▪ Lowers procurement loss risk	▪ High perceived cost	▪ Added cost and added management
Forward Contracts	▪ Secure price risk ▪ Provide loan collateral	▪ High	▪ Reduces income risk ▪ Can use contracts as loan collateral	▪ Lowers sale and purchase price risk ▪ Secures procurement	▪ Not widely available nor understood	▪ Not widely available
Hedging	▪ Reduce price risk	▪ High	▪ Reduces production and income risk	▪ Lowers purchase risk ▪ Evens farm income	▪ Not widely available nor understood	▪ Requires commodity exchanges
Other Financing Options For Value Chain Agribusinesses						
Secured Transactions	▪ Reduce transaction fraud risk	▪ High	▪ Opens market opportunities	▪ Improves security	▪ High cost	▪ Time and paperwork Cost
Factoring	▪ Obtain working capital	▪ High	▪ Buyers have more cash	▪ Source of capital for operations	▪ Not widely available	▪ Lack of knowledge and interest by financial markets

6. Drivers of sustainable agricultural finance model

The value chain finance model is not a panacea. Much depends upon the sustainability of value chain itself. Therefore it is important to identify the key drivers on which the value chain can be sustainable over a period of time. These drivers are enlisted below:

6.1 Sustainability of small holders in value chain

The primary producers/growers in agriculture value chains are the most crucial actors and their position in the chain becomes the key driver to determine the sustainability of the value chains. The position of the small holder farmers can be explained in a simple diagram with two axis one denoting nature of activities performed by them and another denoting their management control over the value chain.



Source : Adapted from FAO, 2009

Majority of farmers in developing countries operate as simple chain actors performing only production of agriculture commodity in raw form. As a result, they have no or negligible control over value chain. These farmers do not produce as per the need of the market both in terms of quality and quantity. These farmers require farm extension services and finance to improve their skill and capital resources. The result would be that these farmers would start producing as per the market need by having more marketable surplus of required quality.

The farmers, who act as specialised chain actors, produce cash crop (for example, banana, sapota, alphonso variety of mango, basmati rice, etc) and because of their quality of the produce, they may exert control over value chain due to better bargaining power. But still they may not be linked to end market and often depend on traders to dispose off their produce. These growers need market information so as to negotiate with the local traders for a higher income. There is a need to develop partnership between these growers and market intermediaries for mutual benefit.

The multi activity chain farmers are not only involved in production process but also in other activities of value chain like grading, primary processing, and local marketing. Still, these farmers may not have much influence on the management and control of the chain. They primarily sell their produce to big traders and processing industries. These farmers primarily require group based approach so as to increase their bargaining power with economies of scale in their operations. Amul dairy cooperative in India is a classical example where farmers without having a specialised product, as milk is a common product, control the value chain because of cooperative structure.

Farmers who are market lined are the best actors in the chain as they perform multiple activities (in terms of marketing, transport, production and processing) and also enjoy large control over the value chain. They understand the need of the market and are also directly linked to the market. However, the number of such farmers is limited particularly in developing economies.

6.2 Availability of support services

It is clear from the above analysis that there needs a lot of support services in form of farm extension, finance, market information, identification of end market, promotion of collective organisation etc if the relative position of farmers has to be improved in the value chain. It automatically means that promoting sustainable value chain requires collaboration among different players like financial institutions, agriculture extension agencies, processing industries and government, non-government and international development agencies.

6.3 Contractual arrangements

Linkage between different players (both vertically and horizontally) also affect the sustainability of the value chain. The efficient linkages generate a higher value in the chain simultaneously reducing the cost and inefficiencies. The contractual arrangements between these players are crucial in determining the governance of value chain (ability to exert control over the value chain).

The contractual arrangements between different players can be developed as follows:

- Spot market based relationship
- Contracts based relationship
- Informal trust based relationship

Spot market based relationships are prone to various risks (price, quantity, quality) as the transactions between different players are undertaken based on market demand and supply conditions. As spot market is highly volatile, a value chain based on such market based relationship can not be sustainable. Moreover, both seller and buyer have to incur a lot of cost in searching the market particularly in the situations when market arrivals of agriculture commodities are not known or authentic information on quality and quantity of product are not available. On the other hand informal trust based relationship between buyers and sellers are very specific to persons and cannot be generalised in all conditions. Therefore the need is to develop proper contracts between different players in the chain and more importantly to make sure that each and every player commits to the contract. Contract farming is considered as a better alternative but there are risks associated with contract farming if the contracts are not honoured either by growers or by the processors.

6.4 Business model of agriculture value chain

Although agriculture value chain finance consists of different players, understanding of the business model is extremely useful to connect small farmers into effective market system. Accordingly emphasis is given to identify those models which enable the small holder farmers to fully participate in the value chains. The models can be characterised by the main driver of the value chain and the rationale for promoting the chain. The different models for value chain business are represented in the following table 2:

Table 2: Typical organisation of smallholder production

Type	Driver of Organisation	Rationale	Examples
Producer driven	<ul style="list-style-type: none"> • Small-scale producers, especially when formed into groups such as associations or cooperatives • Large-scale farmers 	<ul style="list-style-type: none"> • New markets • Higher market price • Stabilise market position 	Indian Organic Farmers' Producers Company
Buyer driven	<ul style="list-style-type: none"> • Processors • Exporters • Retailers • Traders, wholesalers and other traditional market actors 	<ul style="list-style-type: none"> • Assure supply • Increase supply volumes • Supply more discerning customers 	Hortifruti; ARUDESI
Facilitator driven	<ul style="list-style-type: none"> • NGOs and other support agencies • National and local governments 	<ul style="list-style-type: none"> • Make markets work for the poor' • Regional development 	Technoserve
Integrated	<ul style="list-style-type: none"> • Lead firms • Supermarkets • Multi-nationals 	<ul style="list-style-type: none"> • New and higher value markets • Low prices for good quality • Market monopolies 	BRAC Integrated, Agave farming, Chestnut Hill Farming

Source: Adapted from Miller and Jones (2010)

A. Producers' driven model

Producers driven model works on the rationale of reaping the economies of scale and bargaining power for higher price. Since small scale producers are always on the receiving end in the marketing system, it is in their interest to join hand with other farmers to market the bulk quantity. This model leads invariably to formation of some kind of producers' association (cooperative or producers' company) where the association becomes the driver for value chain promotion and its development. The association provides technical assistance, marketing, inputs and linkage to finance.

Indian Organic Farmers Producer Company Ltd

The Indian Organic Farmer Producer Company Ltd. (Kerala, India) is a company of farmers producing organic products incorporated under the Indian Companies Act, 1956 (No.1 of 1956) under Part IXA at Kochi, Kerala, India on 10 September 2004. They are the first company incorporated in India, which helps the producers with cultivation, warehousing, finance and procurement. They are dealing with farmers producing cashew, coffee, cocoa, coconut, black pepper. Producers with organic certification are only eligible for membership of the company, where patronage for one share is fixed at INR 40,000 (US\$850). Thus, the holder of one share can market his/her own organic products worth a maximum of INR 40,000(US\$ 850) through the company.

The company provides advice to farmers on mapping and assessing resources (mainly soil and water), sustainable resource utilisation and scientific production methods. The

company markets organic products after branding. 'Healthy People, Wealthy Farmer, Healthy and Wealthy Nation' is the motto of the company. One of the company's future plans is attracting environmental funds from farmer-friendly groups abroad who are interested in supporting fair trade.

Although, producers' driven models act in the best interest for the small farmers, but the major limitations and challenges are:

- Lack of understanding of the producers about the market
- Producers lack the organisational skills
- Producers may lack technical and financial resources to produce the high quality and quantity required in the market

A large number of failure cases of agricultural marketing cooperatives in India is a clear testimony of these limitations and challenges.

B. Buyer driven model

The buyers' interest to procure a certain flow of product is the basic foundation of the buyer driven model of agriculture value chain. Finance is used to get the commitment of the producers to sell the required quantity and quality of the agricultural commodity at the appropriate time in an affordable cost price. This is achieved through developing suitable contracts between buyer and seller. Contract farming is the most common buyer driven value chain model in agriculture commodities.

Case of Hortifruti

Hortifruti is an institutional buyer in Costa Rica that consolidates products from many different small-scale farmers who are its suppliers and sells the bulked produce to supermarkets. It provides an example of a complex set of financing mechanisms that work together to support a VC. The agreements between the lead firm, Hortifruti, farmers and processors enable them to access finance from banking institutions such as BAC San José. Hortifruti also directly provides financing and/or guarantees in other VCs as shown below:

Hortifruti financing models

1. Bank financing for rice growers

- Hortifruti: Guarantees purchase of crop under contract; contracts provide assurance to BAC San José bank for financing of rice growers
- BAC San José Bank: Finances 60% of production costs; requires no collateral pledge; requires crop insurance coverage.
- Suppliers: They provide in-kind financing of 35% of the production costs in the form of farm inputs.
- Processor: Upon receipt and payment of rice, debits the farmers' accounts to pay first the bank and suppliers, with part of the sales value of the crop.
- Farmer: Signs pledge to deliver crop to rice mill; thus becomes more creditworthy with BAC San José Bank.

2. Non-bank financing for rice and bean growers

- Hortifruti: Guarantees purchase of crop under contract and provides assurance to BAC bank for financing of rice growers, and b. Finances farmers directly using company resources (30% of production cost); charges no interest (pays advance on purchase of the crop).
- Suppliers: Provide in-kind financing of 35% of the production costs in the form of inputs (agrochemicals, seeds, and small equipment)

- Processor: Upon receipt and payment of rice, debits farmer's account to pay the bank and suppliers, with part of the sales value of the crop.
- Farmer: Signs pledge to deliver crop to rice mill; becomes more creditworthy with BAC San José Bank.

C. Contract farming

Contract farming is also plagued with a serious problem of side-selling by farmers, if the prices in the alternative market shoot up drastically. Besides, the farmers are dependent on a single buyer who may later on become monopolistic or may lose the interest in the relationship with the farmers.

Case of Uganda

In Uganda, ARUDESI has been able to work with 8,000 farmers to organise 600 farmer groups consisting of 30 farmers per group. These farmers were able to market a total of 1,200 metric tonnes of green coffee in the last 3 years, increasing income of an average of 40 per cent over equivalent green coffee at farm gate price.

Source : Miller and Jones (2010)

D. Facilitator driven models

Facilitator driven models argues that development agencies (government or non-government) having the social mandate can provide required support to promote value chains integrating small farmers and agro-enterprises.

TechnoServe - Facilitating Chain Development in Malawi and Tanzania

TechnoServe, a not-for-profit development agency demonstrates how an external agency, acting as a market developer, can facilitate the development of a chain through interventions at various levels.

TechnoServe utilises various business models to enhance smallholder incomes through: processing business, supply business and outgrower models. In Malawi, TechnoServe is facilitating the seed industry VC in response to severe financing gaps in agribusiness in southern Africa which is characterised by asset finance needs and working capital needs. The reasons for a lack of access to finance, especially by start up seed businesses and early stage expansions have mainly been shortage of risk capital and poor business management capacity.

TechnoServe has developed the following three-pronged business model to address the needs in the seed chain.

- Processing businesses – facilitating enhanced value addition and farmer linkages
- Input supply businesses – facilitating access to improved seeds, fertilisers and production technology
- Farmer businesses – facilitating farmer integration into the seed production, processing and marketing chain through farmer organisation, training and outgrower contracts

By addressing the whole chain, TechnoServe is able to secure a market for the young seed businesses and a more secure repayment of the financing.

In the case of Kilicafe in Tanzania, TechnoServe helped to create an organisation that is now owned by 9,000 smallholder farmers, it works with local and international financial institutions to design financial products that serve those in the VC. These products range from short-term input credit and sales pre-financing to multiyear loans used by farmers to invest in centralised processing facilities. Credit is guaranteed through a variety of

innovative ways, including private guarantee funds, warehouse receipts, forward sales to specialty coffee buyers. These included:

- Long term financing for processing infrastructure, secured by fixed assets and marketing agreements
- Short-term financing for working capital, advance payments to farmers and agro-input credit, secured by guarantee funds, warehouse receipts, marketing agreements and price risk management

However, initially the local banks did not understand the business model, the risks nor accepted coffee as collateral. The financial arrangements built according to the VC were only possible due to significant initial support from TechnoServe to both the banks and the clients, developing business plans, monitoring performance and ongoing operational assistance until credit worthiness is fully established.

E. Integrated value chain model

The fourth business model is the integrated value chain model which not only links the producers to other players in the chain, but it integrates many of these through ownership and/or formal contractual relationship. Full vertical integration exercised by super markets is a classical example of this type of model. An integrated service model either led by a financial entity or by a facilitating agency serve as another example of integrated value chain model.

BRAC Integrated Services Model

BRAC is the largest NGO in the world, At the centre of the BRAC approach are over 170,000 village organisations (VOs), each with 30-40 mostly women members, which are set up to provide social support and microfinance services. These village organisations meet weekly to receive training, distribute loans, collect repayments and savings contributions, and raise awareness on many social, legal and personal issues affecting the everyday lives of poor women.

Building on this model, BRAC 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 VCs. Together, its business model aims at ensuring an integrated set of services for its clients. Key issues in agricultural activities for BRAC are

- Creation of basic awareness and provision of training for farmer
- Development of village-based technical service providers
- Ensuring an adequate supply of quality inputs together with support of extension workers/agents
- Assurance of market access of farmers
- Provision of appropriate loan products to farmers to meet their specific demands
- Development of linkages to and among different VCs

Processor finance for agave farmers, Mexico

Agave is a raw material that is grown by smallholder farmers, and is a key ingredient in the production of tequila. Agave production is an interesting example of a value chain, since it is a highly complex activity by comparison with the average farm commodity. It is highly cyclical, grown mainly by small-scale farmers with little access to formal financing, and affected by wild price swings. As such, a banker is unlikely to take on the

risk of financing an agave grower. However, the same banker is willing to consider and handle financing for a tequila producer that will use the money to take on the six-year risk of financing a farmer, because he/she understands the value chain and how it works. The banker does not take the risk directly, but provides financing to a company that will take the risk of lending money to the farmer. In other words, the banker will finance a client who needs to guarantee his supply of raw material to keep his own business running. In particular, most tequila producers understand the farming risk because most tequila producers also have their own crops. In a case such as this, the financial institution understands that access to raw materials is a critical factor for the success of the end business. Nevertheless, the bank is not willing to take the risk of financing the primary producer. The flow of financing takes place, in the end, because the farming risk is held by the tequila distiller, who can manage it better than the banks.

Marketing company finance, Costa Rica

Chestnut Hill Farms market, and in some cases produce, asparagus, mangoes, melons and pineapples from Arizona, Brazil, California, Costa Rica, Ecuador, Guatemala, Honduras, Peru and Puerto Rico. Its customers are supermarket chains in the United States. Over the past five years, the company has also been selling to the fresh processed fruit and vegetable sector and supermarket chains in Europe, as well as wholesalers. Its main objective is to add value to production, packaging and marketing. The company began with pineapples in Costa Rica in 2002, when exports were running at one or two containers per week; by 2006, it had risen to 70 containers. One reason the company achieved this kind of growth was that it was in the right market at the right time. There was no overproduction, and in general, both production and market risks were low. Another reason is that the company gives financial advances. A budget is drawn up before planting begins, and the money is disbursed gradually as planting progresses. Chestnut Hill Farms also provide agricultural inputs and participate in investments in equipment, infrastructure and materials. Funds are delivered against shipping documents, once products have arrived safely. Each different case requires a separate analysis before partnering and financing. Chestnut Hill Farms is not a financial entity, but it has learned to read signals about where it can and should take risks with the farmers.

7. Agribusiness MSME financing, constraints and way forward¹⁹

Agriculture and agri-business are the backbone of emerging Asian economies' and their development strategy. Today, agricultural production, agribusiness and agri-processing are growing dramatically, with intervening support from government and donor projects, however, lack of access to finance particularly to the agro-based MSMEs limits the potential of agriculture to contribute significantly to national development.

Empirical evidence proves that expanding access to finance will boost the agriculture sector and hence would help in reducing poverty, increasing food security and ultimately leading to economic development. Bage²⁰ (2008) demonstrated that the growth in agriculture sector is up to four times more effective in poverty alleviation than other sectors' growth. However, agriculture has not been a priority sector for commercial lenders and agriculture has been hugely underinvested sector. Only less than 20% of commercial lending in Asia is financing agriculture. Lack of access to finance limits the producers and other actors in agriculture, particularly the enterprises that aggregate the capacity of smallholder farmers, to be productive and contribute to national economic development.

However substantial and persistent the problem of access to finance for agro-based MSMEs be, the commercial financial sector has made very limited progress. Agro-based MSMEs face constraints in access to financial services due to:

Borrowers' limitations:

- Small sizes and unregistered formats, very little documentation, accounts not properly audited, incomes are suppressed to evade tax and a general state of records that will not give bankers the comfort to lend;
- Weak organisational capacity, geographical isolation and lack of basic business skills such as strategic planning, record-keeping for financial reporting and analysis, human resource management, and marketing for agro-based enterprises
- Complexity of businesses – agro-based MSMEs are complex to assess and appraise as they fall out of the pack of traditional businesses financed by banks.

Financiers' limitations:

- Agriculture perceived as low-margin business by financiers;
- Lack of availability of products that meet the needs of appropriate, adequate and timely credit;
- Lack of a robust business model, flexible products and delivery processes which support agro-based enterprise financing;
- Lack of appropriate risk-mitigation measures and mechanisms;
- Lack of infrastructure such as bank branches at the 'last-mile';
- High cost of credit coupled with lack of collateral and collateral substitutes; and
- Limited access to equity capital – venture financing in traditional agro-based MSMEs industries is non-existent and availability of risk capital is very difficult despite a plethora of government-supported schemes.

¹⁹References were drawn from The Missing Middle in Agricultural Finance, Relieving the capital constraint on smallholder groups and other agricultural SMEs, Oxfam GB research, 2009

²⁰Lennart Bage, 'Supporting smallholders is crucial to food security', IFAD, 2008

7.1 Financing needs of agro-based MSMEs

The financing needs of agro-based MSMEs range from working capital needs (overdraft, revolving credit line, asset-based finance) to assets finance (term loan, fixed assets financing, vehicle financing). In some cases, these agro-based MSMEs work as aggregators of the chain and also finance the credit needs of farmers.

As the financing needs of agro-based MSMEs are diverse in nature and generally of a longer term, traditional value chain actors such as local suppliers and buyers lack liquidity to finance them. Considering the higher financing needs and associated risk, longer tenure, only very limited financing occurs between the downstream actors of value chain and agro-based MSMEs. There are several examples of aggregators and marketing companies financing agro-based MSMEs, particularly the smaller ones, rather than the banks in Asia such as rice millers financed by rice aggregators in Bangladesh and India.

In contract farming and out-grower mechanism, the entity at the top of the chain (a food manufacturer or supermarkets chain) not only finances agro-based MSMEs but also support them through capacity building measures, facilitates access to equipment and technologies, networks and strategic development.

Commercial banks due to the risk perception are wary of financing agro-based MSMEs and their exposure to agriculture sector remains at best with a few large-scale agribusiness chains. Commercial banks lack incentives to incur the costs associated in building risk and other understanding for agro-based SMEs. Further, the costs associated with managing large numbers of geographically dispersed agro-based MSMEs deter banks from entering this segment.

Agricultural development banks such as Land Bank of the Philippines have been successful in financing agro-based MSMEs because of their large rural branch networks with trained staff in agro-based MSMEs appraisal. Further, government support has ensured subsidised interest rates of such agricultural development banks. Other factors that contribute to success of such an effort in the Philippines by Land Bank are customer-oriented products, savings deposit products to mobilise low cost resources and incentives for timely repayment of loans

7.2 Innovations in agro-based MSMEs' financing

To meet the needs of agro-based MSMEs it is important to have an in-depth understanding of the risks and its mitigation strategies as well as to adopt an innovative approach to financing. Legal and regulatory pressures as well as stakeholders' concerns limits commercial banks to innovate, however there is scope of understanding the risks well and financing the sector adequately. The later part of this section covers some of the innovations in the recent past to increase financing access to the agro-based MSMEs.

7.2.1 New credit distribution channels for commercial banks

Commercial banks are approaching the agriculture sector via credit franchisee programmes such as that of ICICI Bank to increase their exposure to the sector. ICICI Bank has financed IDEI, an NGO that develops irrigation solutions such as treadle pumps and small-scale drip feed systems. IDEI sources irrigation equipment from local agro-based SME manufacturers and sells it through distributors. ICICI Bank has hired the distributors as credit franchisee under a risk-sharing model whereby the farmers can loan the irrigation systems and repay it in two years with an interest. This solution

supports the SME distributors to increase sale of their produce by offering it on credit to the farmers.

7.2.2 Leasing

Leasing is turning out to be an innovative way of financing assets to agro-based SMEs such as equipment, vehicle etc. as the risks and the costs for both financier and the agro-based SME reduces significantly. The International Finance Corporation (IFC), the commercial arm of the World Bank, has long prioritised the encouragement of private-sector leasing activity, including services for agro-based SMEs, through both technical assistance and investment. Over 30 years, IFC has committed over \$850m in 177 leasing projects, and in 25 countries was an investor in the first leasing company established. In Mongolia, for example, IFC has supported the leasing activity of a supplier of solar panels for electricity supplied to herder households.

7.2.3 Credit guarantee for bank loans

Agricultural credit guarantees have not been hugely successful in the past but there is a renewed interest in looking at credit guarantees as a means of boosting agriculture financing focussed on agro-based SMEs with appropriate measures to counter covariant risks. Agriculture credit guarantee scheme for small and marginal farmers in India

Government of India has a credit guarantee scheme to fund agro-based MSMEs so that formal financial institutions and banks can extend advances micro, small and medium enterprises. Under the scheme, guarantee is for an amount up to 75 per cent of the principal amount of credit facility extended by the lender per borrower. Other charges such as interest, commitment charges, service charge or any other levies, expenses debited to the loan account do not qualify for the guarantee cover. Guarantee only to the extent of 75 per cent will be provided to ensure that banks remain interested in the healthy performance of the borrower

7.2.4 Weather risk mitigation using index-based insurance

New index-based weather insurance models offer the promise of mitigating weather risk and thereby increasing investment in the agricultural sector, especially in upstream production activities where there is greatest lack of capital. In contrast to traditional insurance, whereby individual farm losses are assessed and compensated, index-based insurance provides proxy indicators to correlate to and hence approximate loss.

While in general the agriculture sector lacks access to finance, the agro-based MSMEs suffer even more. The needs of agro-based MSMEs for appropriate credit, equity, savings and insurance products are rarely met and this limits their capacity to support the agricultural sector in realising its full potential and contributing meaningfully to national economic development. While micro-credit and development finance caters to low and middle-income households, the commercial banks cater to the upper-end of spectrum thus leaving MSMEs in a supply cusp described as the missing middle. Agro-based MSMEs worldwide, face a number of problems like absence of adequate and timely finance, limited capital, non-availability of suitable technology (or in fact knowledge about avenues for accessing technology), ineffective marketing strategy, lack of knowledge of new markets, constraints on modernisation and expansions, non-availability of skilled labour at affordable cost, plethora of government agencies for licences and approvals. Further, financial institutions apparent lack of understanding of agro-based MSME sector and requirement of longer-term financing (perhaps in larger amounts) forces financier to overlook this sector.

Comparative analysis of prospects for delivering sustainable agricultural finance, expanding agricultural market opportunities and promotion of disadvantaged small farmers and MSMEs

Some of the ways with which commercial focus on agro-based MSMEs can be garnered include looking at MSMEs as credit franchisees, financing innovative products such as leasing, credit guarantees and weather risk mitigation through index based insurance. Innovation such as credit bureau, collateral guarantees and effective regulation around securities will reduce financier's discomfort in lending to agro-based MSMEs and thus can bolster the growth of MSMEs resulting in effective national economic development.

8. Integrating Mobile Money in Agriculture Value Chains

Over the years, a number of efforts have been made to enable the agriculture producers to increase productivity and move up the value chain. However, one of the key bottlenecks experienced by any value chain linkage initiative within any value chain is the exploitative role of intermediaries. Intermediaries play a variety of role in value chains, that of aggregators, providers of credit or agri-inputs and act as the link between the producer and the market. Efforts to enhance value realisation for the producer are limited by the ubiquitous presence of intermediaries who have emerged as crucial links between the producer and the processor.

One of the means by which this hold of intermediaries can be reduced and the primary producer can be brought up in the value chain is to introduce electronic channels for the transfer of value in the chain. The role of mobile money will be especially pronounced in value chains with a few aggregators and a large number of dispersed producers. An m-money system can potentially allow the processor, market or the customers to link up directly with the farmer and allow for direct transfer of value. The farmer will be able to access cash as and when needed and can potentially procure inputs utilising the same channel; linking up providers of seed, fertilisers, fodder etc. depending upon his needs. Some of the potential benefits of a functional m-money initiative linked to predominant agri-value chains are presented below:

8.1 Importance of mobile money in agriculture value chains²¹

Producers in agricultural value chains can derive immense benefits by integrating with mobile money systems. Subsequently, the spill over effect will positively impact the rural economies as well. The players within the value chain can transact information and money seamlessly and can derive benefits such as:

- **Low cost of transaction:** As the transactions are digital, real-time and cashless in nature, the cost incurred is lesser as compared to cash based transactions.
- **High security of the transactions:** Digital mobile money ecosystems provide high security of the transaction and that of the money in high risk countries.
- **Solving the “last mile” problem:** Presence of mobile money agents, especially in Kenya, Uganda, Tanzania and many other countries, ensures that the last mile problem is resolved in an efficient and effective manner
- **Seamless integration of buyers and sellers:** Mobile money allows seamless integration of buyers and sellers for exchange of cash and information.
- **Reduced leakages:** In contrast to cash transactions, mobile money ensures more direct approach to payment and hence reduces the opportunities for leakages along the value chain.
- **Enhanced immediacy and increased frequency of the transactions:** Quick, low-cost and high security features of mobile money may trigger immediate payment from the buyer to the producers. As there is a direct channel of moving money,

²¹ Mas Ignacio, Mobile Money in Agriculture in Tanzania, 2011

the payment from the buyer to the producer can be in tranches or more frequently than the cash where the buyer accrues to make one lump sum payment to reduce the cost of transaction.

- Improved economics for value chain players: Overall, due to reduced cost of the transaction, frequent and immediate payments, the cost economics favour all the players of the value chain.
- Accountability: Mobile money transactions have a digital trail and hence offer higher accountability than the cash transactions.

The positive externalities of mobile money usage by the producers would result in development of rural economies. Local options for accessing liquidity ensures increased commercial activity as mobile money agents spread to smaller, more distant villages. The likelihood of money being used locally increases if the payment recipients (for sale of crop or from relatives from urban areas) can access their money locally.

Thus mobile money will spur fuller financial inclusion at the village level. The mobile money accounts can be used as a medium for financial service providers to offer higher-level financial services to other wise unserved and underserved rural population predominantly engaged in agriculture. Mobile money operators themselves might in future provide these services, or banks linked to mobile money schemes may step in to fill the void.

Ignacio Mas goes on to add “Mobile money schemes flourish when there is an ecosystem of consumers, billers, bulk payers and merchants that see value in trading with each other by electronic means, complemented by a network of agents that provide bridges between electronic money and cash. Volume is an important success factor of mobile money systems. In a healthy mobile money ecosystem, use of the system propagates primarily by viral means: people telling their friends and family, remitters drawing in recipients, larger businesses incentivising upstream and downstream partners to join them in an electronic chain of payments. In turn, growing transactional volumes incentivise agents to multiply and spread out in order to capture cash conversion commissions.”

8.2 A priori factors for mobile money readiness²²

Mas defines that the ‘readiness’ of different value chains for mobile money will depend on a number of factors such as:

- Concentration of buyers: The number of payers will affect the potential for limited interventions to have a catalytic effect in driving new mobile money ecosystems.
- Frequency of payments: A steady flow of payments throughout the year creates recurrent business for local agents. The individual transactions are smaller, which makes it easier for mobile money agents to meet liquidity needs.
- Input finance mechanism used: This determines the number of transactions further upstream in the value chain that can be shifted to mobile money. Under contract farming, for example, inputs are provided by buyers in kind, so there are no cash payments for inputs.
- Socio-demographics of the farmer base: The age profile of farmers will affect the ease with which they might adopt mobile money. Also, the physical distribution

²² Mas Ignacio, Mobile Money in Agriculture in Tanzania, 2011

of farms (population density, distance of paved roads) and the prevalence of other economic activity within those farming communities will impact the viability of mobile money agent business models.

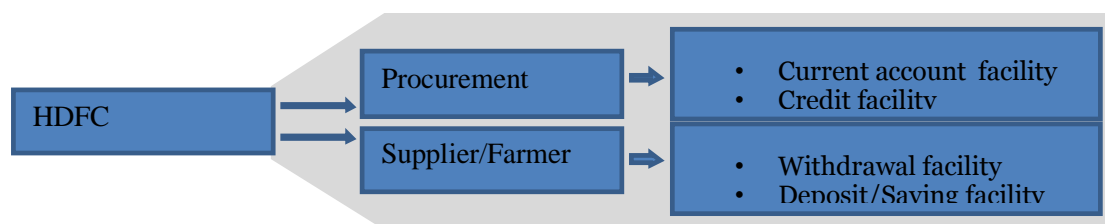
Value chain payments through mobile banking

One of the commercial banks in India, through its Rural Finance Division is focussing on increasing its presence in rural markets by structured interventions in agriculture value chains. As a part of the strategy, the bank envisages to offer a whole range of banking products to the entire value chain which includes procurement / aggregating agency and suppliers. The bank engaged *MicroSave* to study the new payment model for making payments to input suppliers/farmers. The broad contours of the model are:

- Farmer registers her/his **bank account with the aggregating entity**. Aggregating entity gives payment instruction to the bank. The bank debits the account of the aggregating entity and credits the account of farmers.
- If the farmer does not have a bank account, then the **payment is made to lowest level aggregating unit**, for example a sugarcane farmers' cooperative, which in turn gives money to the farmer.
- **Bearer cheque or cash are also** used as modes of payment especially if the farmer does not have a bank account and an intermediate agency does not exist at the village level.

And Now

- Farmers **register their bank accounts with the aggregating entity**. Alternatively the bank informs the entity along with the authorization letter from the farmer.
- Aggregating entity gives instruction to the bank. The bank **credits money into the accounts and informs BC about it**. At the end of the day, HDFC settles with the BC.



Innovations in finance

Several innovative finance, aggregation and marketing mechanisms have been tried in Asia and Africa, but a lot more needs to be done. In India, the ITC's e-Choupal is a fine example of a large corporate, setting up aggregation, collection and marketing points on commercial lines.

E.g. Launched in June 2000, 'e-Choupal', has already become the largest initiative among all Internet-based interventions in rural India. 'e-Choupal' services today reach out to over 4 million farmers growing a range of crops - soyabean, coffee, wheat, rice, pulses, and shrimp - in over 40,000 villages through 6500 kiosks across ten states (Madhya Pradesh, Haryana, Uttarakhand, Karnataka, Andhra Pradesh, Uttar Pradesh, Rajasthan, Maharashtra, Kerala and Tamil Nadu). By end of 2012 it has plan to reach 100,000 villages which is roughly 1/6th of the total villages in India. The table below gives information on ITC's future plan.

Milestones	Current status since inception in 2000	Plan for 2012-13
States covered	9	15
Villages covered	40,000	100,000
e-choupal installations	6500	20,000
Empowered farmers e-	4 million	10 million

How the model works

The business model of ITC leverages use of ICT to provide a door step services to the producers. It is based on a hub spoke model where a procurement hub is linked with 'e-choupal' based in villages. The 'e-choupal' are a brick mortar structure where a computer is kept which is connected to internet and managed by ITC approved *sanchalaks* or agents. The procurement system followed by ITC is transparent and provides value added service to its customers who are basically farmers. The figure below summarises the value chain of ITC.



Fig: The value chain of ITC procurement through 'e-choupal'

The main players in the entire system are:

- sanchalak* who manages 'e-choupa'l at village level. One 'e-choupal' serves around 10 villages in 10-15km radius. *Sanchalak* acts as a connecting link between farmers and ITC. They provide the farmer with real time information on prices from various *mandis*, weather information,
- information on best practices in agriculture, and information related to quality. *Sanchalak* aggregates the produce and sends to the procurement
- Sanyojak* who manages the *sanchalaks* and the procurement hub. *Sanyojak* are the person who manages cash at the hub for the payments to the farmer against the procurement.

On an average each 'e-choupal' serves around 600 farmers who regularly interact with the *Sanyojak*. The average transaction volume per farmer is about Rs 50,000. The

average daily transaction at a procurement hub is around Rs 3-4 million. The entire procurement process has been designed in such a way that there is a similar transaction happening throughout the year. *Sanchalak* keeps track of all the information related to land record, queries, transactions, and production details for each individual farmer. The model has reduced the procurement cost for ITC while it has substantially increased the price realization by the farmer and lowered their transaction cost significantly.

Future of the business model

The business model not only provides a platform for procurement for ITC but also a platform where farmer can get reliable information at doorstep. Increased transparency in the system with fool proof documentation has increased the trust of the farmers. Realising that farmers needs more, ITC also offers input, FMCG goods, facility for soil testing, and insurance from the same premises. It is also planning to bring banks closer to farmers where credit history of farmers can be easily provided and credit can be given to the farmers to meet their requirement.

ITC realises the penetration of mobile phones in the villages, ITC is planning to launch “e-choupal 3.0”, where mobile based personalised services will be offered to the farmers providing all information which individual farmer requires. This will offer a host of business opportunity for ITC in bringing affordable solutions to the farmer.

9. Lessons for Africa

To feed the world in 2050, some US\$9.2 trillion in cumulative investments will be necessary worldwide. The population of Africa could by then nearly be doubled, and reach 2 billion. Sub-Saharan Africa alone will need some US\$940 billion of investment. About 66 per cent of these will be required for agribusiness and agro-industries capital outlays (High Level Conference on Developing Agribusiness and Agro-Industries, Abuja 2010). This massive scale of investment will not be possible unless some form of aggregation and formalisation of the sector happens. This is only possible through structured value chain interventions. However, for this to happen, governments, donors and investors will have to play a role to seed and nurture value chain interventions.

In India, an intervention by government banks called the Kisan Credit Card (Kisan means farmer) has been very successful in providing accessible, flexible and affordable credit to farmers. Initially, problems of default have also been faced but private banks which have not got into this segment have managed to cover some of the operational risks. Also, the government in India mandates banks to lend 40% of the net bank credit to priority sector, a large share of which goes for agriculture. In fact, banks have to necessarily lend to farmers and the central bank monitors this aspect as it audits banks every year.

Mobile banking is another area which can play a crucial role in integrating primary producers with the markets and connecting suppliers, aggregators and processors. The role of middle-men in agriculture value chain is to collect the produce but more importantly to give money for the produce which is desperately needed by indebted smallholders. This aspect can be addressed very easily if agent based mobile banking channels have been created with outreach into villages. It at least addresses the issue of transfer of value with efficiency and enables instant delivery of money. East Africa with its mobile banking environment is well placed to tap into and integrate mobile money with agriculture value chain for the benefit of all players.

The need in Africa is to focus on building integrated and strategic approach for developing structured value chains and subsequently developing financing instruments and support services for the value chain. While Asia has lessons to offer, none of them could be transposed as-is; agriculture and value chains are very context and geography specific and markets tend to behave differently in different regions. Hence while overall lessons can be gathered, they will have to be contextualised to the local needs.

To summarise, key lessons from Asia which have implications for African are:

1. **Integrate supply of adequate and timely finance with value chains:**

To enable players in the chain derive adequate value, timely and adequate credit is important. Governments have to extend support to smallholders and to SMEs and some form of a directed credit policy can be explored. Agriculture, including agri-processing is an area that is typically starved of funds, it is the responsibility of the government and of the central bank to nudge banks towards a more inclusive approach which fulfils the needs of the agriculture sector. Donors and investors will have to support nascent value chains till such that that they grow and are able to attract commercial banks and entities.

2. **Design of financial products:**

Agriculture is a sector that is seasonal, has a longer gestation period and is exposed to a host of co-variant risks. Traditional financial products do not really meet the needs of players in the agri-value chain. Financial institutions (and donors) will have to make efforts to develop financial products suited for the agriculture sector

and more specifically for specific value chains. At present, credit through the informal sector dominates agriculture financing which is characterised by high transaction costs, small amounts and higher than average default rates. Financial products that are poorly designed are of limited use to the value chain players and severely limit the growth of the sector.

3. Technical assistance and financial literacy for smallholders and SMEs:

SMEs and small-holders are typically constrained by capital and operate on smaller budgets. Over and above this, extension services and management skills are limited. In this scenario, development of financial products has to be supplemented by some form of financial literacy which enables the farmer and the SME manager to understand the different financial products available, the right mix and the real cost of funds. Similarly, extension services for smallholders and management support for SMEs will strengthen individual players as also the overall value chain.

4. Backward and Forward linkages and Market Access:

Markets are key to value realisation for all the players in the chain. The linkage of the chain to the market will determine the price realisation and hence the revenue that will flow to different players down the chain. Better value realisation will enable each player to strengthen their role within the chain and will lead to higher value addition at each level of the chain. It is therefore critical to have adequate backward and forward linkages and robust market access.

5. Preventing Information Asymmetry

African countries can try and address the problem of information asymmetry by utilising information technology to enable value chain players to get access to real time information on markets. This in itself will be a great service which will enable smallholders and SMEs to take decisions of sowing / harvesting and processing. Removal of information asymmetry will also minimise the role of middle men which thrive in a state of misinformation. The use of mobile phone by itself can enable necessary information to be communicated to the target segment and the channel by itself is quite inexpensive for communicating short texts.

6. Integrating Mobile Money with Value Chains

Mobile money has immense potential to smoothen the flow of value across the chain, in real time and at a lower cost than conventional banking and/or cash transactions. Mobile banking also enables transparency across the chain and leaves an audit trail. The deployment of mobile money applications and their integration with value chains will enable processors / aggregators to get better connected to farmers. Coupled with ICT based information dissemination, such a model can address some of the challenges of flow of value across the chain.

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