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Value Chain Financing in Agriculture: Best Practices, Initiatives, Strategies, Models and Trends in Pakistan

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Value Chain Financing in Agriculture: Best Practices, Initiatives, Strategies, Models and Trends in Pakistan

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Preface

Agricultural Value Chains (AVCs) have become very important in determining countries' trade competitiveness in a globalized world. In Pakistan, where agriculture is the backbone of its economy, it plays a pivotal role not only in enhancing export competitiveness, but also in developing sustainable agricultural systems, alleviating poverty and promoting financial inclusion especially of the rural poor.

However, AVC development has increasingly become complex over time. Market requirements are changing rapidly due to increasing demand, change in tastes and lifestyles, innovations in financial engineering and technological advancements. In response to these dynamics, Value Chain (VC) development is taking many forms to address emerging challenges and leverage new opportunities. A critical input in facilitating AVC development is the provision of finance. Different countries and VC actors have done things differently, and there is so much to be gained from exchange of experiences.

The publication is an output of a commissioned research to APRACA's member institution, the Pakistan Microfinance Network (PMN) and its research team through the International fund for Agricultural Development (IFAD) FinServAccess Project. The PMN's output is supported by the State Bank of Pakistan (SBP), the central bank, as it highlighted important commodity-based value chains in the country.

In addition, it is an integrated report of these two institution's works describing the valuable AVC in Pakistan focused on various layers and players within these value chains in terms of activities, potential for investments, issues and challenges in strengthening VC Financing.

Furthermore, it is based on existing good-practice knowledge and the experience of well-recognized banks and the PMN in Pakistan supporting the development of the rural finance sector while providing a practical, evidence-based guidance to financial institutions by enabling them to engage in AVCF with a much better understanding of what works, and what to avoid.

The document is divided into five chapters describing the rural finance including AVCF condition, detailed assessment of several commodity-based value chain business models in the country such as sugarcane, wheat, cotton, tomato, potato, tobacco, fruits, and dairy; case studies highlighting the importance of agricultural value chain finance in rural development and the challenges.

We believe that this publication will be useful in better understanding of AVC and will help relevant stakeholders to prepare their strategy for increasing agricultural financing thereto. We encourage everyone to learn and get the most out of this publication in improving and enhancing the agriculture and rural finance for sustainable development.

Acknowledgements

The continuing goal of APRACA in disseminating and sharing evidence-based and knowledge platforms to its members and partners is something we are proud of. Through the commissioned researches on the conditions, strategies and practices of agricultural value chain finance (AVCF) in various countries, we are certain that this will be useful and relevant.

This publication is part of a series which we are thankful as the support and commitment of our members, partners and donors have inspired us to work an extra mile in achieving a well-informed and receptive clientele.

We extend this gratitude to the following for their continued excellent contribution:

- The International Fund for Agricultural Development (IFAD) through the FinServAccess Project for providing the financial support
- The research teams, authors and donors from the State Bank of Pakistan (SBP), Pakistan Poverty Alleviation Fund (PPAF), National Rural Support Program (NRSP) and Jinnah Welfare Society (JWS), UK-Aid and Citi Foundation, and the Pakistan Microfinance Network (PMN) for documenting and researching the different experiences and cases on AVCF in the country;
- The leading agricultural lending banks in Pakistan including Habib Bank Limited, United Bank Limited, Bank Alfalah Limited, Faysal Bank Limited, Bank of Khyber, Khushhali Bank Limited, and NRSP Microfinance Bank Limited for sharing their valuable experiences and insight; and
- The different stakeholders especially the cooperatives, farmer's groups and rural communities served by Pakistan's financial institutions for sharing information and providing their experiences.

Finally, we would like to take this opportunity to thank our readers, members and partners in taking some time to review and acquire information from this document which will enhance and strengthen their capabilities in dealing with their respective clientele in support to providing the best financial products and services and its access towards the improvement and development of the agriculture and rural sectors.

Executive Summary

This integrated Pakistan Agricultural Value Chain Finance publication is an output of a commissioned documentation work by the Asia-Pacific Rural and Agricultural Credit Association (APRACA) as part of an IFAD-supported project to enhance knowledge sharing on access of poor rural people to sustainable financial services which is a joint undertaking of the Pakistan Microfinance Network and State Bank of Pakistan.

Through this document, it aims to explain the concept of value chains, focusing on Agriculture Value Chains (AVC) in particular. By citing some renowned global and local experiences, we draw out lessons learnt and recommendations for the players operating in agricultural sector as they increase their engagement with agriculture value chain development.

Over the years, there have been a number of initiatives with regard to agriculture value chain development in Pakistan. These initiatives have been promoted through concentrated efforts by various stakeholders, including key players in the microfinance sector promoting value chain finance, such as the apex microfinance lender (known as the Pakistan Poverty Alleviation Fund or PPAF), the central bank (known as the State Bank of Pakistan or SBP) and individual microfinance providers (MFPs). There is a long recognized need to promote linkages for agriculture and other rural markets in order to help them meet their socio-economic needs and increase productivity. This paper attempts to highlight key initiatives that have taken place in Pakistan, understand the different approaches taken by various stakeholders, and present the implications they have had for promoting value chain development in the country.

Chapter One will present a brief overview of the concept of value chains within the global development community, as well as present brief case studies from the Asian region.

Chapter Two focuses on AVCF in Pakistan, providing a background on the agriculture sector, the financing of agriculture initiatives let by the government, commercial banks and microfinance.

Chapter Three covers important and priority commodity-based value chain experiences, initiatives and business models in Pakistan specifically highlighted by the central bank that have bearing in rural and agricultural development support for smallholder farmers, groups and cooperatives and businesses.

Chapter Four covers case studies on successful projects or initiatives in Pakistan that have resulted in the development of strong agriculture value chains. This chapter focuses on certain aspects of each value chain model that successfully targeted smallholder farmers and delivered backward/forward linkages to these farmers through innovative services.

Chapter Five outlines the challenges and way forward for agriculture finance through value chain development in Pakistan. There is potential to increase outreach of microfinance and other formal financing opportunities and improve productivity of agriculture, through addressing industry-level issues such as technical capacity of formal financial services to reach out to far-flung rural areas and creating more demand-driven products based on the finance needs of the agriculture clients.

Acronyms

ACMFD	Agricultural Credit and Microfinance Department
APRACA	Asia-Pacific Rural and Agricultural Credit Association
AVC	Agriculture Value Chain
AVCF	Agricultural Value Chain Finance
DFID	Department for International Development (United Kingdom)
ECIB	Electronic Consumer Information Bureau
FAO	Food and Agriculture Organization of the United Nations
FEG	Farmer Enterprise Groups
FSPs	Financial Service Providers
GDP	Gross Domestic Product
GLP	Gross Loan Portfolio
IFAD	International Fund for Agricultural Development
JWS	Jinnah Welfare Society
KPK	Khyber Pakhtunkhwa
MFPs	Microfinance Providers
NEFR	Natural Enemy Farm Reservoir
NPL	Non Performing Loans
NRSP	National Rural Support Program
PB	Participating Bank
PMN	Pakistan Microfinance Network
PO	Partner Organisation
PPAF	Pakistan Poverty Alleviation Fund
PSC	Punjab Seeds Corporation
RARI	Regional Agricultural Research Institute
SBP	State Bank of Pakistan
SWS	Support for Working Solutions
ToT	Training of Trainers
VC	Value Chain
VCP	Value Chain Product

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CHAPTER 1
Introduction

With the rapid increase in the world population, people are demanding more and better food, thus increasing pressure on farmland. At the same time, farmland is being lost to urbanization and erosion. Food demand continues to increase while production is struggling to keep up, creating the risk of high price volatility.

In many countries agriculture is the main source of rural livelihoods. According to the Food and Agriculture Organization of the United Nations (FAO) report, close to 80 percent of those living in rural areas rely on farming for their livelihoods. A majority of them are small-scale farmers, who farm on less than 5 hectare of land on average. In recent years, there has been a global focus on smallholder farmers that has seen experts devise innovative methods to improve their productivity, and companies strive to better integrate smallholders in global value chains. However, improvements in value chains have been slow compared to the rate at which the demand for food continues to rise. On a global scale, estimates show that more than two billion of the world's poorest live in households that are solely dependent on agriculture. At a minimum, the global demand for smallholder agricultural finance is estimated to be US$ 450 billion. Less than 2 percent of this demand for agricultural financing is currently being met. This evident limitation presents an opportunity for financiers who are willing to learn about agricultural value chain finance.

In the context of Pakistan, investing in agriculture is a logical first step provided that a majority of the country's value-added exports are derived from agri-businesses which have strong backward and forward linkages that extend throughout well established value chains like textile, dairy, sugar, maize and many others. A flourishing agriculture sector would mean more business opportunities for banks in other areas as well such as corporate financing, trade financing, production and marketing loans etc.

ACVF provides Financial Service Providers (FSPs) with a reliable route of reaching out to remote clientele by consolidating various actors in a given commodity value chain. Thus, it helps leveraging cross selling opportunities and overcoming constraints such as lack of collateral by smallholder farmers and high cost of servicing a widely dispersed audience having high covariant risks.

Towards this end, SBP is making a constant pursuit to unravel these opportunities for banks, and to do so; SBP has taken many initiatives to build market capacity, share and manage risk, provide regulatory support and introduce innovations and technology, all of which are paying dividends in the form of growing agri-credit figures year after year. SBP has taken multiple steps for promotion of Agriculture Value Chain Financing in Pakistan which inter alia include:

- *Commissioning international consultant to conduct a research study on selected value chains*: The research provides an in-depth view of the mechanics, challenges and opportunities by comprehensively covering the study of six value chains (i.e. rice, tobacco, potato, meat, milk and aquaculture).
- *Training of bank's officials on new product options*: In order to expose banks to global and local best practices and to sensitize banks into adopting innovative agri-finance tools such as Value Chain and Contract Farmers Financing, SBP has fostered partnerships with international organizations for building technical capacity of banks and product development in AVCF. SBP also continuously offers knowledge sharing opportunities for banks in the form of seminars and workshops.

- *Guidelines on Value Chain Contract Farmer Financing*: SBP has issued guidelines to help banks in understanding business opportunities, reducing their risk and structuring their products for servicing agricultural and allied businesses in a given value chain.
- *Pilot Roll out at grass root level*: Through help of a consultant, SBP facilitated selected banks in identifying potential farmer clusters and other value chain actors (food processors etc.) to consider for providing financing under the pilot project.
- *National Roll out of AVCF*: After extensive training of banks' staff and providing necessary regulatory support, banks are motivated to explore business opportunities in agriculture lending through AVCF. As such, SBP has received encouraging targets from banks for lending to various value chains including dairy, wheat, sugarcane, horticulture and fruits and vegetables etc. The performance of banks has been on track and the financing is expected to grow rapidly going forward.

This document was prepared and packaged to identify and share the best practices and innovations of the agricultural value chain finance in Pakistan to enhance farmer's productivity and profitability. The stakeholders may benefit by adopting, replicating and scaling the Value Chain (VC) models to their advantage.

1.1 Understanding the Value Chain Financing

Since its development as part of the rural finance sector, value chain finance particularly in agriculture has been constantly evolving to address the increasing need to support the players of the value chain to be productive and profitable. This has led to the dramatic changes on people involved especially in the production, processing and marketing of agricultural products and inputs requirements.

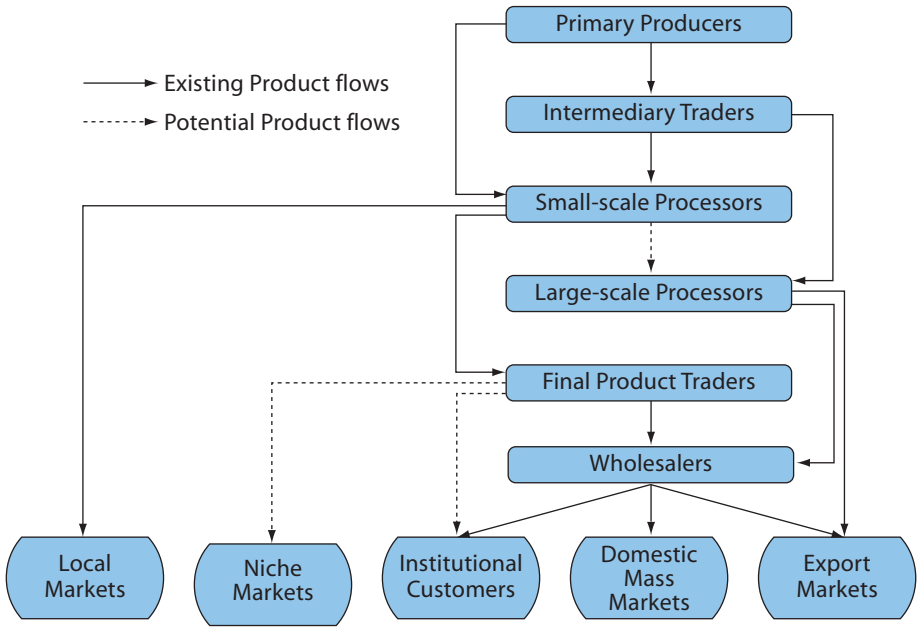
Strategically, the VC offers a full range of activities involved in getting a product or service from conception, through the different phases of production, transformation and delivery to the final consumer. Value chain finance, financial products and services flowing through a VC address the needs of those involved in the chain, be it a need for finance, a need to secure sales, procure products, reduce risk or improve efficiency. Agricultural VC Financing looks at direct and indirect financing. It analyses the market, the VC, the relationships as well as the client. The method of VC financing is beneficial for all stakeholders in the chain as it fills the credit gaps in the marketplace resolving a variety of the above mentioned and other issues.

In particular, agricultural value chain finance (AVCF) offers an opportunity to reduce cost and risk in financing, and reach out to smallholder farmers. For financial institutions, value chain finance creates the impetus to look beyond the direct recipient of finance to better understand the competitiveness and risks in the sector as a whole and to craft products that best fit the needs of the businesses in the chain.

Specifically, AVCF is a structured way of financing agriculture that links stakeholders operating within the value chains and lending institutions, and reduces the risks that are commonly associated with traditional agricultural financing. It permits lending institutions such as banks to diversify their investment portfolio and create a win-win scenario. With value chain finance, value chains can be transformed, unlocking economic growth in rural areas.

In essence, agricultural value chain financing acts as a catalyst for driving economic growth in rural areas. It helps to increase household incomes for a large proportion of the population, and results in poverty reduction and guaranteed food security. It helps women, who account for the major part of production but who often do not own the traditional collateral (land) on which banks tend to rely, to raise finance on the back of their ability to supply into a value chain. But for this to happen, efficient diversified financial structures must be in place. They must meet the needs of the full spectrum of actors along the value chains. Financiers must understand agriculture (and agricultural methods) in order to

Figure 1. Agriculture Value Chain Model



be effective at designing their financial products. Figure 1 is a classic example of a simple AVC that is quite typical in many sectors. It also shows the existing and the potential links that can be explored for a better chain relationship and a smooth flow of products and services.

1.1.1 Value Chain: The Concept

Value chain (VC) is described as the series of sequential linkages through which raw material is converted into products that are then sold in the market. These sequential linkages refer to the series of actors/activities required to bring a product from the producer to the final consumer (this may include input suppliers, producers, processors, buyers and exporters. (Figure 2). It is the sequence of activities that a product passes through with value being added at every stage. Value chains can be global, national or local in nature. Initially associated with business management, the term is now more commonly used in development literature in the context of poverty alleviation. In developing nations, improving value chains and their efficiency is increasingly being recognized as beneficial to economic growth and poverty reduction especially when it comes to women and rural communities.

Figure 2. Traditional Value Chain Actors

The dialogue surrounding 'pro-poor' value chain development has increased, and there is the acknowledgment that 'a targeted effort needs to be made to include poorer households in integrated supply chains' (Royal Tropical Institute, 2012). Around the world, value chains are being established or optimized to foster improved returns and better quality produce. This creates economic opportunities for communities, reduces risk and maximizes profits for all value chain actors and partners. Optimizing value chains result in a variety of social benefits including income generation, poverty alleviation, gender equality, economic growth, and other such development goals.

1.1.2 Agriculture Value Chains

If we contextualize this concept to agriculture, Agriculture Value Chain (AVC) then becomes the process of first identifying the actors (public, private, service providers) involved in basic agriculture product from production in the field to final consumption and then adding value to the product at each stage. With each segment of a chain having one or more backward and forward linkages, AVC is a move away from traditional, segmented form of agriculture where farmers work in isolation and there are separate links of operation. In traditional agricultural model, farmers produce in bulks which expose them to high price risks as their produce can go to waste if not sold on time and capital needs are dealt with independently on an individual farmer's level instead of collectively. However, AVC is based on an integrated system with differentiated production in which risk is managed by synergies among the farmers and information needs are satisfied at each stage collectively by interventions being made at each stage.

Box 1. How is agriculture value chain different from a traditional agriculture chain?

- In AVC, farmers do not work in isolation and there are interdependent links of operation.
- Collective interventions are made at each stage; from production to processing to marketing, to satisfy capital and financial needs of players.
- Interventions are made to build capacity of every player involved in the chain.
- High price risks are minimized as an individual farmer does not produce in bulk in agriculture value chain
- In an agriculture value chain, considerable attention is paid to promoting 'sustainable livelihoods' and increasing incomes in the longer run un like the case in traditional agriculture chain.

1.1.3 Agriculture Value Chain Finance

Finance is crucial to a value chain and refers to the financial needs of each actor/activity in the chain. Access to finance or lack thereof can become a critical constraint in optimization and growth of VCs, particularly in developing countries. Improving the flow of finance along the chain is one way of improving its efficiency. USAID characterizes value chain finance as:

1. Direct: finance based on the relationship between two or more actors in the value chain, for example, one actor providing credit to another actor directly; or
2. Indirect: one actor obtains credit from a Financial Institution (FI) based on a sales relationship with another actor.

Furthermore, value chain finance refers to any and all types of financing emanating from a diverse range of players: commercial banks, Microfinance Providers (MFPs), other financial service providers, value chain actors, informal sources (friends, family, moneylenders, credit committees) and public funding (USAID, 2008).

Value chain finance provides an opportunity to expand agriculture financing, improve efficiency and financial repayments, and consolidate linkages amongst various players. It can also improve quality of agricultural financing by:

- Identifying the financing needed at each stage to strengthen the chain
- Using value chain linkages and the knowledge of the chain to minimize the risks associated with the partners in the chain

- Reducing the costs of financial transactions through discounting of loan payments at the time of the sale of product, and
- Designing financial products to suit the needs of the participants in the chain.

AVCF is a financial approach and set of financial instruments that can be applied for agricultural and agribusiness financing.

1.2 Global Practices in Agriculture Value Chain Development

There are several successful pro-poor value chains across the globe in variety of sectors: dairy, crop, fruits and vegetables, honey, nuts and textiles. Initiatives to optimize value chains in Pakistan can benefit from these tested models in terms of lessons learnt and global best practices. We showcase two examples here with some bearing on the Pakistan AVCF experiences and development of the rural sector: Shea value chain program (Ghana) and Honey Care Venture (Kenya) including the factors behind the success and challenges of each experience.

1.2.1 Shea Value Chain Program, Ghana

As of June 2012, 5,000 women have benefited from this program across Northern Ghana. Nuts are collected by women in rural areas and processed into butter, which is used in Africa for food and medicinal purposes while also exported abroad for use in cosmetics and confectionary. The Ghana Shea Value Chain Program, initiated in 2010, shows the role of microfinance, education and ICT in the establishment of a sustainable value chain. Started by SAP, one of the world's leading providers of business software and PlaNet Finance, an international NGO which provides services to MFIs, the initiative aimed to improve the socio-economic well-being of women in Ghana who pick Shea nuts and those who process these nuts into butter. However, the women picking and processing Shea nuts earned low incomes because of the 'lack of market information, inadequate business knowledge and low negotiating power' (PlaNet Finance, 2010). PlaNet Finance thus partnered with two MFIs- Maata-N-Tudu and Grameen (Ghana) to roll out the program.

Salient features of the program include:

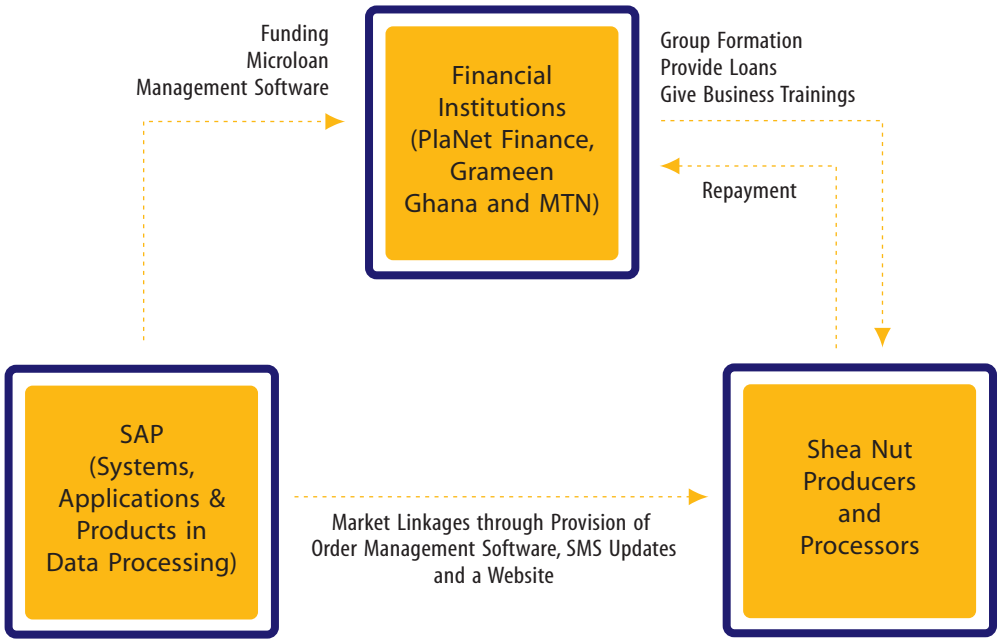
- **Social mobilization**
  Women were organized into groups-clusters-associations and ultimately into the 'star Shea network'. These groups proved to be beneficial as women were now able to avail a variety of services that they could not avail in their individual capacity. These include microcredit, training and capacity building.

- **Access to finance**
  Microcredit was provided by two MFIs- Maata-N-Tudu and Grameen, Ghana for various purposes along the VC, ranging from purchase of quality processing equipment (tarpaulins, grinding mills, jute sacks, etc.) to protective clothing (boots, raincoats, gloves). Loans were also disbursed to hire labor or to cover general expenses in the period before the nuts are sold when women have limited cash flows.

- **Education and training**
  Sekaf Ghana Ltd. (an unrefined Shea butter processor) provides technical training to improve the product quality while PlaNet Finance provides business training (how to manage income, expenses and other good business practices) as well as leadership and other trainings to ensure smooth functioning of the women groups.

- **Information and Communications Technology**
  To connect the women with the market, SAP provides technical expertise and has enabled order management software called Rural Market Connection that allows buyers to place orders with the women directly. Women are also updated about prices though SMS text messages on their mobile phones. SAP also set up a website (www.starshea.com) where buyers can view products and place orders. It has also provided partner MFIs with Microloan Management software enabling credit officers to manage and monitor their portfolios.

Figure 3. Shea Value Chain in Ghana[1]



(Source: www.starshea.com)

In terms of impact, optimization of the Shea value chain in this initiative has resulted in[2];

- An increase of 59 to 82 percent in the incomes of women
- Production of improved quality Shea nuts and butter
- Improved access to credit and other financial services such as group savings accounts
- Greater integration and ability to serve the urban markets effectively; Olam International (a major agricultural supply chain manager and processor) became a major buyer of Shea nuts produced by women in this program

Though successful and ongoing, optimizing this value chain has not been without complications. There are still several challenges that need to be addressed. Some of the lessons learnt include:

- While access to finance is an important feature of this program, not all of the 5,000 women have been able to avail loans and other financial products due to a lack of portfolio funding for the two MFIs engaged in this initiative.
- Ensuring/creating demand for the product where necessary is an additional challenge. There is a possibility that the price of Shea will be regulated in Ghana just as the price of cocoa is and steps need to be taken, therefore, to create demand for a higher quality of nuts to fetch higher prices.

[1] Source: PPAF Good Practice Note No. 4 "Pro-Poor Value Chain Development" March 2015
[2] For detailed points, see http://www.sap.com/news-reader/index.epx?pressid=14525

1.2.2 Honey Care Venture, Kenya

This initiative focused on optimizing the honey value chain in Kenya to improve the well-being of small beekeepers in rural communities of the country. At the time, many local producers were unwilling to work with larger corporations and preferred to join forces with local NGOs whom they trusted, and had been working with previously. Collaborating with local NGOs, however, proved limiting in terms of achieving scale since these organizations had limited resources and capabilities. As noted by the founder of Honey Care Africa, 'We looked at the sector and said if I was the average farmer in Kenya today with two acres of land, what would stop me from producing honey?' (Valente and Branzei, 2007:2). Hurdles identified included local honey producers' inefficient access to markets and limited access to finance, technology, and extension services.

In response to these gaps, Honey Care Africa instituted a tripartite model engaging local NGOs, financial institutions and international development organizations to improve the efficiency of the honey value chain and to boost local honey production by providing solutions to these problems. To date, this venture has benefited 15,000 farmers.

Salient features of this venture included:

- **Access to finance**
  Honey Care Africa provided local honey producers and communities with loans in the form of Langstroth beehives that are 'customized for optimal honey production within the Kenyan environment'. These modern hives were, however, five times more expensive than traditionally used ones. Honey Care would lend the hives to the producers and retain a portion of revenues every month before transferring ownership completely. Due to constraints surrounding the limited operating capital of Honey Care, NGOs stepped in to buy the hives from Honey Care to sell onward to the honey producers. Later on, Honey Care Africa joined hands with a number of other investors and Microfinance Institutions to support this activity.

- **Training**
  Honey Care Africa also built up the technical knowledge of small honey producers on learning to work the new technology Langstroth beehives to produce higher quality honey. Knowledge was also imparted about hive maintenance, pest control, safety and protection (use of bee suits) and harvesting techniques. Skills were thus transferred to the beneficiaries and not just leveraged.

- **Market linkages**
  Honey Care Africa connected rural honey producers to urban consumers by directly purchasing produce from them to sell in urban areas, thereby effectively shortening the chain and doing away with intermediaries who significantly reduced small farmers' profit margins. Honey Care Africa purchased the higher quality honey from local producers at a guaranteed price paid to them promptly. Shifting away from the longer brokerage chains that characterized the honey economy before led to higher incomes for local producers. This was especially since Honey Care Africa would get quality certification of the honey products by collaborating with specialized companies, thus fetching a higher price from the domestic and international buyers they sold to.

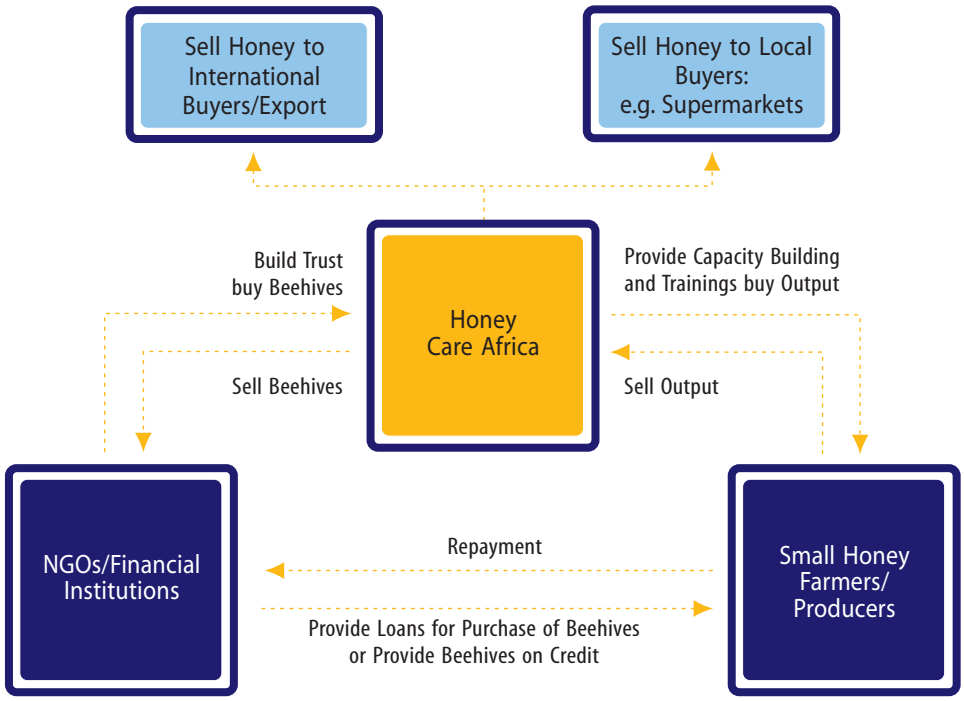
In terms of impact, this venture has resulted in the following:

- A significant increase in the incomes of small farmers (in some cases a 100 percent increase) with just five to six hours of extra work every month[3].

[3] Source: Tripartite Model Case Study http://honeycareafrica.com/wordpress/wp-content/uploads/2013/02/A-Tripartite-Model-Case-Study.pdf

- An increase of 15 to 30 percent in output[4].
- Improvement in quality of output as well as diversification of output e.g. flavored honey and honey sticks (straws filled with about 6 g of honey each).
- Integration of honey producers in wider urban economy; produce is now sold in supermarkets, hotels and restaurants.
- Increase in exports of honey produced by small farmers.

Figure 4. Honey Value Chain in Kenya[5]



Despite the success of the program, Honey Care Africa encountered a number of challenges. Below are some important lessons that need to be learnt to address these challenges. These include:

- Partnerships and collaborations are fundamental to optimizing value chains. Honey Care Africa gained significantly by joining hands with local NGOs in particular Africa Now to work with local communities. Eventually NGOs played an even more important role by funding Honey Care Africa's provision of bee hives to local producers (Valente and Branzei, 2007:5). Honey Care has been able to build some lasting relationships, however in the case of some local NGOs, partnerships have been short (two to three years) due to project completion on the side of NGOs who proceed to exit communities. Therefore, sustainable partnerships are key to optimize value chains.
- Funding is often a critical constraint when developing pro-poor chains. Honey Care Africa has had to adapt its business model at various points in response to financial constraints to support project activities. In particular, it is faced challenges with beehive financing. In 2012, it received investments from Lundin Foundation, Grameen Foundation, Root Capital and Alpha Mundi. KIVA is also lending to Honey Care Africa to provide specialized loans to rural honey producers in the form of hives, training and support services[6].

[4] http://honeycareafrica.com/impact/performance/
[5] Source: PPAF Good Practice Note No. 4 "Pro-Poor Value Chain Development"
[6] http://www.kiva.org/partners/277

- Institutions undertaking pro-poor value chain development must be flexible and adapt rapidly to the changes in scale. The Honey Care Venture was successful and grew rapidly. The growth was so much that it outpaced Honey Care Africa's capacity to sustain it. The company now had to deal with a growing number of farmers and output. This meant that honey collection from individual farmers was becoming increasingly difficult and costly as was paying a larger number of farmers for more output in a prompt manner due to cash flow problems. Honey Care Africa responded, however, by setting up collection centers and depositing output price directly into the accounts of local producers.

1.3 Gujarat Cooperating Milk Marketing Federation (Amul), India

This section of the Note elaborates on a vast and complex dairy value chain in India that draws fundamentally upon the findings of Sirinivasan (2012). Gujarat Cooperative Milk Marketing Federation (GCMMF) better known as 'Amul' is the largest dairy cooperative in India based in Gujarat. 'At a time when the concept of a value chain was yet to develop, Amul had systematically improved its business from production to market as a high quality value chain that focused on small farmers' (Sirinivasan, 2012). The GCMMF has three main functions:

- To establish a direct link between milk producers and consumers by removing the middlemen from the equation.
- To enable milk producers i.e. farmers to directly control procurement, processing and marketing.
- To ensure the professional management and running of operations.

The value chain has been organized in various tiers. Starting at the grassroots level, small dairy farmers combine to establish village dairy cooperatives. Elected farmer representatives from village dairy cooperatives form the board of district milk unions and milk union heads in turn form the board of GCMMF. The farmers, village dairy cooperatives and district milk unions handle supply side activities including milk production, collection and processing. The GCMMF handles distribution, marketing and coordination with retailers[7]. The diagram below shows how the value chain is organized:

Figure 5. GCMMF Dairy Value Chain, India[8]

[7] http://www.rediff.com/money/2005/sep/23spec.htm
[8] Source: PPAF Good Practice Note No. 4 "Pro-Poor Value Chain Development"

Table 1 elaborates on the roles and responsibilities of different tiers of the Dairy Value Chain in India. The GCMMF borrows from banks and the NDDB for the working capital.

Table 1. GCMMF (Amul) Dairy Value Chain in India[9]

Tier	Value Chain Activity	Roles and Responsibilities
Small dairy farmers	Production	• Purchase of animals • Milk production
Village Dairy Cooperatives (VDCs)	Collection	• Daily collection from farmers • Quality testing • Storage of milk in chillers • Provision of loans to farmers
District Milk Unions	Processing packaging marketing	• Transportation of milk from VDCs to dairy units • Processing of milk and other dairy products • Packaging of milk and other dairy products
GCMMF	Marketing	• Marketing and distribution of dairy products to supermarkets, retailers, wholesalers • Provision of loans to District Milk Unions

In terms of impact, GCMMF has resulted in 88 percent of farmers selling more milk and 73 percent of farmers owning more animals. Other positive results include:

- Fair prices for small dairy farmers.
- Access to finance to support the productive activities of dairy farmers.
- Access to support services to farmers that have increased animal productivity, such as veterinary, artificial insemination, animal husbandry training, sales of cattle-feed and breed improvement.
- Improved access for farmers to nearby computerized/automated milk collection system.
- Access to improved infrastructure for farmers such as cold chains, and the retail distribution network.
- Demand creation for quality, higher margin products (product diversification, brand management).

Key take away lessons from GCMMF's large and complex dairy value chain include:

- Value chains work better in cooperative form whenever a large number of widely distributed small producers are involved. Member-based organizations 'invest more in production and productivity enhancement and member capacity building'. However, 'social capital and visionary leadership are often needed to stabilize the organizational and financial arrangements in the initial stages' (Sirinivasan, 2012). A combination of the two is thus crucial to the success of such value chains.
- Dairy value chains are optimized where small farmers are given knowledge and training on animal health care and improved production techniques.
- Dairy value chains are also most effective where dairy farmers are able to access loans with ease, something made possible where the farmer cooperative is able to vouch for its members to banks who thus feel more confident about taking the credit risk. 'The cooperative model is better suited to serve the financial inclusion needs of small farmers' (Sirinivasan, 2012).

[9] Source: PPAF Good Practice Note No. 4 "Pro-Poor Value Chain Development"

CHAPTER 2
Agriculture Value Chains in Pakistan

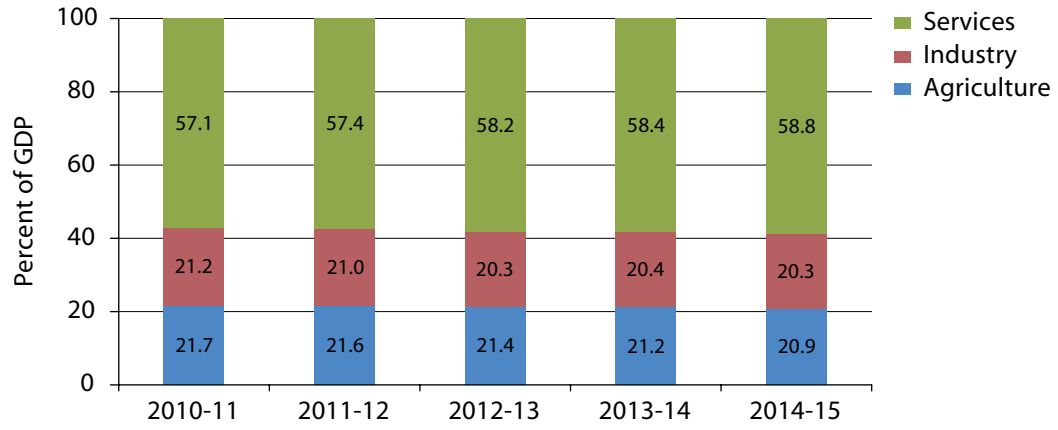
An important aspect of pro-poor value chain development, especially in rural regions of the country is enabling access of low income communities to financial products offered by financial institutions. Access to finance is incredibly low in the rural areas of Pakistan with only 6 percent[10] of poor rural households being banked. There is great opportunity for MFPs in Pakistan to participate in the optimization of value chains by undertaking value chain financing.

2.1 Pakistan's Agriculture Context

Pakistan's economy is heavily dependent on the agriculture sector, which contributes 21 percent to the country's GDP, provides livelihood to about 68 percent people living in rural areas and employs 45 percent of the country's labour force. Nearly 60-70 percent of Pakistani people live in rural areas, and the agricultural sector has a significant influence over their livelihood. Overall economic growth is directly related to the performance of the rural economy; it is recognized for its "vital role in ensuring food security, generating overall economic growth, reducing poverty and transforming towards industrialization".

The share of Food Group alone in the total export of Pakistan for the year 2010-2011 stood at 17.5 percent. Agriculture is equally important for industrial development. Out of about 5,000 industrial establishments in Pakistan, about 60 percent are agro-based. The agriculture provides raw material for domestic industries like rugs and carpets, sugar, leather, footwear and food products etc.

Figure 6. Contribution of Agriculture to GDP



In this regard, farming is Pakistan's largest economic activity with Punjab and Sindh being the two most productive provinces. Although, there is agricultural activity in almost all areas of Pakistan, the five major cash crops (wheat, cotton, rice, sugarcane and maize) are primarily grown on the Indus River plains in Punjab and Sindh. The livestock/dairy sector is another highly productive sub-sector within the agriculture economy. While persistent hikes in the prices of essential commodities like onions, potatoes, chillies and tomatoes has meant that these crops have also gained in economic importance in recent years.

[10] Access to Finance Study-State Bank of Pakistan

The agriculture sector experienced considerable development and expansion of output since the early 1960s. However, the country is still far from realizing the large potential yield that the well-irrigated and fertile soil from the Indus irrigation system could produce. Since Independence, the amount of cultivated land has increased by more than one-third. This expansion is largely the result of improvements in the irrigation system that has made water available to additional plots. The scant rainfall over most of the country makes about 80 percent of cropping dependent on irrigation. Fewer than 4 million hectares of land, largely in the northern areas of the country, are totally dependent on rainfall. Non irrigated farming generally gives low yields, and although the technology exists to boost production substantially, it is expensive to use and not always readily available.

The agriculture sector will continue to be the most important sector as the main source of output in the short-to-medium term. From a long-term perspective, however, it is not certain if Pakistan is prepared for various issues such as looming climate change which might have a significant negative influence on the production of crops and the livelihood of rural areas. The sector was heavily affected by a spate of devastating floods in Punjab and Sindh in 2010 and 2011, which has since raised alarms about the need for risk mitigation in farming activities.

While agriculture already accounts for a significant portion of the country's GDP and workforce, the sector's indirect contribution to overall productivity is likely much higher. Agriculture directly accounted for more than 16 percent of total exports in 2012, with exports of downstream industries such as textiles (cotton yarn, cotton cloth, raw cotton) accounting for another 40 percent or more. Moreover, the sector also acts as a large market for industrial products such as fertilizers, pesticides, tractors and agricultural implements. The agricultural sector's strong linkages with the rest of the economy are not fully captured in the country's statistics – though there is a growing understanding of its significance going forward.

2.2 Financing for Agriculture Development

The agriculture sector remains highly fragmented on the distribution side, with a majority of the distribution channels and markets being dependent on access to credit for key activities. According to the State Bank of Pakistan, the rural credit market can be broadly segmented into the following:

- Agriculture commodity primary processors such as ginners, rice millers, flourmills. These are large scale processors who are substantially financed by Commercial Banks.
- Agriculture service providers such as 'arthis' (agricultural agents), agriculture input dealers and shopkeepers who are being very sparsely serviced by institutional finance and depend primarily on their own cash capital.
- The non-poor and better-off farmers which are being serviced by existing institutions like ZTBL (Zarai Taraqiati Bank Limited; previously called the Agriculture Development Bank of Pakistan), Commercial Banks (CB's) and Co-operative Banks.
- The poor landless or small landholding farmers, who do not possess the necessary collateral to access institutional credit, are dependent on microfinance providers (MFPs) providing collateral free microfinance or the informal sector lending at exploitative interest rates.

For several players in the agricultural market space, particularly smallholder farmers, productivity is highly dependent on the resources available to them at the time of the sowing of a particular crop. Access to sufficient funds at affordable rates would allow for these players to increase their efficiency and profitability substantially.

Financing for most of the activities along the lower end of agriculture value chains comes from informal lenders. In Punjab and Sindh, the *arthi* remains the largest source of informal credit for agriculture-dependent small farmers, as the market is deemed too risky and expensive to serve by banks and other formal financial institutions.

There is a strong case of channelling more of the commercial banking sector's financing into the rural economy given that they make up over 80 percent of Pakistan's financial sector. Currently, commercial banks are not set up to lend to the average farmer: their documentation requirements and processes, collateral and security criteria and loan appraisals and monitoring system are not geared to serve this segment at affordable lending rates. Similarly, the average farmer is reluctant to deal with the commercial banks since neither the products nor the services are tailored to meet his needs. In the absence of a relationship between the farmers and the banks, credit needs of the agriculture economy are being met though the informal sector.

In terms of formal credit for agriculture, like many developing countries, policy makers in Pakistan mainly relied on directed and subsidized lending through state owned financial institutions or specialized banks to channel finances to this sector up till the 1990s. Given the enormous task of poverty alleviation and equity concerns, the government has always taken measures to ensure that resources are directed to specific geographical areas, target groups and sector of the economy. The principal means of ensuring this has been through setting up mandatory targets for the agriculture sector. In the 1970s, an Agricultural Loan Scheme was introduction and commercial banks were issued mandatory agriculture credit targets. However, analysis of the figures showed that agricultural credit disbursed under such schemes was being diverted to non-agricultural purposes and the position of recovery of these loans was not satisfactory. In addition to this, outreach of commercial banks reflected poorly on their rural outreach and indicated that commercial banks were focusing on a very narrow base of farmers, presumably more influential and better off among the farming community.

"The natural result of subsidized lending was that commercial banks were precluded from developing rural/agricultural credit market as a financially viable activity when the interest rate subsidy made it attractive for large influential farmers to borrow" (PMN, 2009).

According to the State Bank of Pakistan, total agriculture credit outreach is to just over 2.15 million borrowers as against 8.3 million farm households in the country. This indicates ample room for enhancement of agriculture portfolio by formal financial services, such as through microfinance initiatives.

Box 2. Pakistan Microfinance Sector

Microfinance was pioneered in Pakistan in the 1960s through Comilla Pilot Project in former East Pakistan (present-day Bangladesh). This was followed by the launch of the Orangi Pilot Project's Orangi Charitable Trust (OCT) in Karachi and the Agha Khan Rural Support Program (AKRSP) in the Northern Areas of Pakistan.

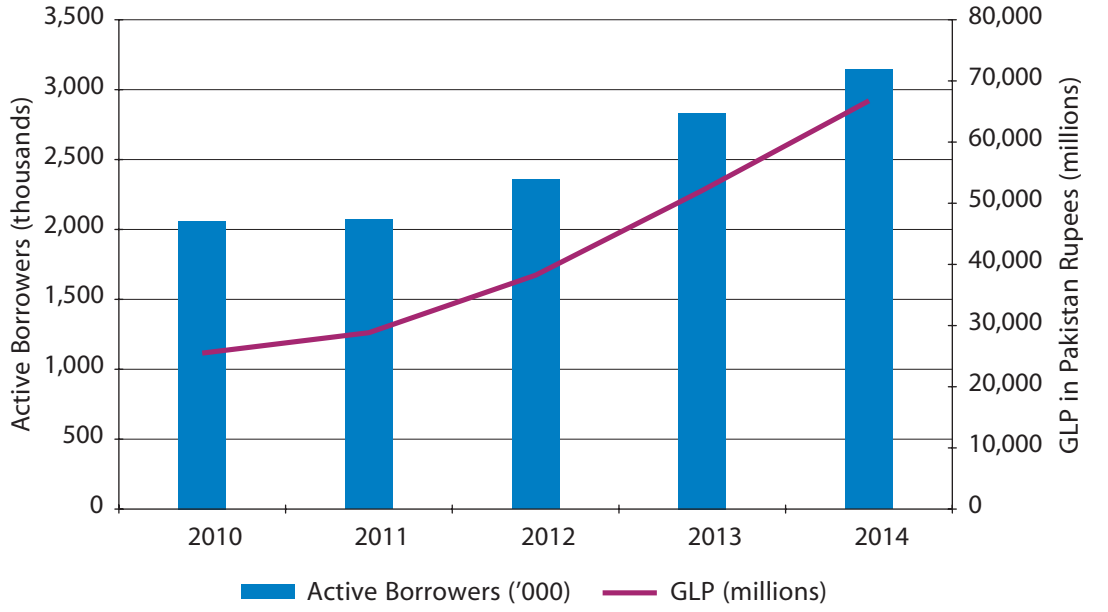
The late 1990s was a watershed period for the sector as it received major impetus due to recognition of the important role of microfinance in the growing economy. Several microfinance initiatives were launched such as establishment of Kashf Foundation (KF), Urban Poverty Alleviation Program (UPAP) by National Rural Support Program (NRSP) and the launch of the then state-owned microfinance bank (MFB), Khushhali Bank Ltd. (KBL), with assistance of the Asian Development Bank (ADB).

Promulgation of the Microfinance Ordinance 2001 strengthened the microfinance ecosystem by providing a framework for creating privately owned specialized Microfinance Banks (MFBs) under the supervision of the State Bank of Pakistan (SBP). Microfinance received a further boost with the establishment of Pakistan Poverty Alleviation Fund (PPAF) in 1999 as an apex funding body for the sector and the creation of the Pakistan Microfinance Network (PMN) as a voluntary association for the industry (see ***annex one*** for profile of PMN).

There is diversity within the 45+ microfinance providers (MFPs) in terms of scope and size, with the seven largest institutions holding 80 percent of total borrowers. The sector comprises of very large institutions with national outreach, as well as small community-level institutions. For analysis purposes, MFPs are often divided into four peer groups:

- Microfinance banks (MFBs): these are licensed and prudentially regulated under the State Bank of Pakistan. There are currently nine such regulated MFBs operating in Pakistan.
- Microfinance institutions (MFIs): these are institutions providing specialized microfinance services.
- Rural Support Programmes (RSPs): RSPs run microfinance operations as part of multi-dimensional rural development programmes. There are roughly six regional RSPs across the country, with the nation-wide National Rural Support Program (NRSP) being the largest.
- Other microfinance providers (Other MFPs): these organizations, such as non-government organizations (NGOs) run microfinance operations as part of multi-dimensional services.

Figure 7. Growth in Number of Active Borrowers and GLP



Advancements in the past two decades have further paved the way for a new set of players to enter the industry, including mobile network operators (MNOs) and commercial banks as majority stakeholders in microfinance banks, as well as international microfinance organizations. There is continued investor interest in the industry by both local and international players.

Today the sector reaches over 3.1 million active borrowers with a total gross loan portfolio (GLP) of PKR 66.7 billion. Deposits of the microfinance banks now stand at PKR 43.4 billion.[11] Outreach in terms of active borrowers has been growing steadily through the increase of the number of microfinance providers (MFPs) working in the country, as well as the maturity of existing MFPs. Figure 7 shows the growth in number of active borrowers and GLP over time.

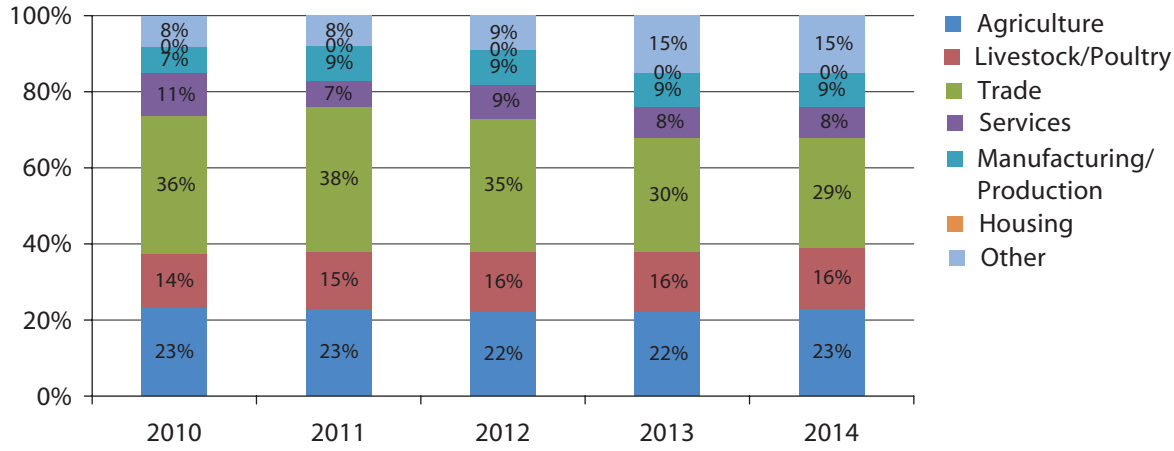
The average loan size for a microfinance loan is currently PKR 30,604 (approximately USD 300), though this average is considerably higher for the larger MFPs, particularly the microfinance banks. Moreover, the sector's average loan size has been steadily increasing over time, indicating a growing market for higher size loans across the board.

A majority of 68 percent of microfinance loans are disbursed in the form of group loans – which involve social collateral and group guarantees to ensure responsible and timely repayments.[12] The group lending methodology is mostly prevalent in the context of rural communities, where individuals are often from the same village/community and take part in the same income generating activities. Having said that, the sector is gradually moving beyond the traditional group-based methodology to include higher sized loans for individual clients (up to PKR 500,000 or USD 4,860).

[11, 12] Source: MicroWATCH: A Quarterly Update on Microfinance Outreach in Pakistan, Issue 34: Quarter 4 (Oct-Dec, 2014).

Out of the total outreach of active borrowers in the microfinance sector, 57 percent are based in rural Pakistan. A breakdown of the sector-wise outreach of microfinance indicates that up to 39 percent of borrowers belong to the agriculture and livestock sector; while the remaining portfolio consists of borrowers in the trade, services and manufacturing sectors. Figure 8 shows the breakdown of microfinance outreach across various sectors. Agriculture and livestock remain the most prominent, and the shift to more collateral-based, individual lending models will perhaps create further opportunities along the agriculture value chain.

Figure 8. Microfinance Lending by Sector



Outreach of microfinance providers tends to focus on the two most agriculturally active provinces of the country, that is, Punjab and Sindh. The geographical distribution of microfinance is concentrated on the western side of the Indus River along the agriculturally rich Punjab and Sindh provinces.

Estimates suggest that the potential microfinance market in Pakistan is about 27 million clients, while current penetration rate of MFPs is only around 11 percent of the market.[13] This indicates a huge potential market for MFPs working on the financial inclusion agenda in Pakistan, not only for enhancing microcredit outreach, but also micro-savings, micro-insurance and other non-financial benefits for a wider range of peer groups – including agriculture stakeholders.

In terms of access to finance for smallholder farmers, many MFPs recognize the vast scope in this regard and have accordingly devised microcredit products for agriculture and livestock. Rural financing for poor households generally operates on a community-based service delivery mechanism in which client groups are formed. This reduces transaction costs for MFPs reaching out to remote rural locations, as well as acting as a form of social collateral. Rural financing for poor farmers tends to be for the following activities:

- Purchase of agricultural inputs: seed, fertilizer, pesticides
- Irrigation: tube well water or installation of tube wells or turbines
- Payment of land levelling, land preparation for cultivation
- Rental of agricultural equipment, transportation and others
- Livestock or poultry: purchase of livestock, building of sheds, purchase of inputs for livestock

Box 3. Contract VC Financing through State Bank of Pakistan

The SBP recently released guidelines on value chain **contract farmer financing** – aimed at encouraging banks to extend credit to small and marginalized farmers by leveraging the strengths of existing relationships along the agriculture value chain. According to estimates, there are over 5.4 million small farmers with up to five acres of land holding; often these individual farmers or groups of farmers ensure supply of agriculture products to firms by engaging in formal or informal contracts with different value chain actors including producers, processors, aggregators and traders.[14] The guidelines will enable farmers to avail credit from banks backed by processor's guarantee and most importantly, buyers/processors may get assurance of getting the required quantity and quality of agricultural produce.

Benefits of VC Contract Farmer Financing

Small holder farmers	Processors, traders, exporters and arthis
Access to unsecured credit up to PKR 1 million, backed by assurance of buyer in advance	Assured supply of quantity and quality produce
Quality input facilities	Assurance to banks of loan settlement by value chain agents
Adopting new technologies	
Insurance coverage for crop/non-crop activities	

The guidelines introduce five financing instruments:

1. Traders credit: traders advance funds with the guarantee that harvested crops will be available to them for resale at pre-determined or market price.
2. Input supplier credit: short-term working capital finance to growers for access to supplies (seed, fertilizer, agro-chemicals or equipment for production)
3. Marketing company credit: marketing companies advance funds to smallholder producers in exchange for guaranteed delivery of agriculture produce at pre-determined or market price.
4. Lead firm credit: typically large retailer, exporter or agro-processor provide financial and technical assistance and market linkage to small holder farmers.
5. Arthi (intermediary): to act as intermediary between banks and clients for facilitating provision of funds and value added services to smallholder farmers.

[14] Guidelines for Value Chain Contract Farmer Financing; Agriculture Credit & Microfinance Department; State Bank of Pakistan; October, 2014; http://www.sbp.org.pk/acd/2014/C5-Annex-1.pdf

CHAPTER 3
Agricultural Commodity-Based Value Chain Models

Most business models that link large and small-scale economic operators in agriculture have been in existence for some decades and familiar to those working in this sector. Business models that include smallholder growers are important from a development perspective since their system of production and marketing linkages emerged as a key issue in their competitiveness and economic and social well-being. The below table illustrates the typical organization business models and highlights some of the smallholder centric linkages in the AVC – i.e. the backward linkages and forward linkages. This analysis serves as a basis for AVC business models and the accompanying finance as shown in Table 2.

Table 2. Linkages in Agricultural Value Chain

Type	Drivers	Rationale
Producer-driven	• Small-scale producers, especially when formed into groups such as associations or cooperatives • Large-scale farmers	• New markets • Higher market price • Stabilized market position
Buyer-driven	• Processors • Exporters • Retailers • Traders, wholesalers and other traditional market actors	• Assured supply • Increased supply volumes • More discerning customers are supplied
Facilitator-driven	• Non-governmental organizations (NGOs) and other support agencies • National and local governments	• Markets that work for the poor • Regional development
Integrated	• Lead firms • Supermarkets • Multi-nationals	• New and higher value markets • Low prices for good quality • Market monopolies

Source: Miller-Jones, 2010.

3.1 Agricultural Value Chain Business Models in Pakistan

AVCF deals with a range of agricultural businesses both large and small, and is also particularly useful in helping integrate smallholder farmers and agribusinesses into effective market systems. The models that promote economies of scale and reduce risks for lenders and buyers linking the smallholder farmers with market and other support services are more viable business models for financial and non-financial institutions, and contributors to modern AVCF systems.

Before selecting a value chain product we need to understand that at which point in the process – from production to retail distribution – financing adds value to the actors in the chain. The market demand for a particular product and the ability of producers to meet this demand should be assessed in the first place. Box 4 provides relevant indicators to guide the evaluation.

Some value chain products such sugarcane, wheat, cotton, tomato, potato, dairy, tobacco and fruit have been selected to present the unique experiences of agricultural financial lending institutions including the participating banks in Pakistan.

Box 4. Indicators for Evaluation of Value Chain

Market demand

- Is the VC connected to a viable market?
- Is there sufficient demand to incentivize production?
- Can the producers compete with their peer group to successfully meet demand?

Producers' technical ability

- Do the producers have the appropriate level of technical skills to understand and meet demand?
- Will the producers receive technical assistance from strategic partners who can ensure product volume and compliance?
- How will technical assistance services be financed?

Producers' organizations

- Are the producers organized?
- Do the producers need training to strengthen their association?

Market access

- Does the local infrastructure allow basic market access, e.g. public transportation for goods and people and modes of communication?

Environmental factors

- Does supporting the VC encourage the employment of underage workers or interfere with the completion of their schooling?
- Does supporting the VC encourage environmentally friendly practices?
- Does supporting the VC encourage practices that violate local or national laws?

Source: WOCCU's Technical guide integrated financing for value chains, 2009

3.2 Sugarcane Value Chain Financing Model

3.2.1 Background for selecting a specific value chain product

Pakistan is the 8th largest sugar producer and consumer of the world. Sugarcane production in Pakistan makes it the 6th largest sugarcane producer of the world. Sugarcane is the basic raw material for production of sugar and also provides raw material to chip board, paper and ethanol industries. Sugarcane contributes 0.7 percent and 3.2 percent in the national GDP and agricultural GDP of Pakistan respectively. It is sown in the provinces of Punjab, Khyber Pakhtunkhwa and Sindh and has an average annual production of above 50 million tonnes. With an average sucrose recovery rate of above 9 percent, about 5 million tonnes of refined white sugar is produced in the country annually.

Sugar Economy – Key Data (2014-2015)

- Share in Agri Value Addition: 3.2 percent
- Share in GDP: 0.7 percent
- Foreign Exchange Earnings: USD 171.78 Million
- Sugarcane Cropped Area: 1.124 Million Hectares
- Sugarcane Production: 62.5 Million Tonnes
- Average yield/Hectare: 55,580 Kilograms
- Number of operational Sugar Mills: 83
- Sugar Production: 5.07 Million Tonnes

Given the significance of the sugarcane value chain in Pakistan various banks selected it as a viable financing product.

3.2.2 Objectives

Since the participating banks had rich exposure in the sugar processing industry, therefore, for leveraging their strength, they selected VCF model in the backward integration. The cultivation of sugarcane entails considerable amount of money for meeting the input cost and other working capital requirements including preparation of land, water for irrigation, various fertilizers depending upon the nature of lands under cultivation and their agronomic needs etc. Increase in per hectare yield of sugarcane through transformation of the old age agronomic practices into modern cultivation processes results in:

- Availability of sufficient quantity of good quality sugarcane to the sugar mills, producing more sugar for local consumption and exports.
- Increased incomes for the farmers improving their loan repayment capacity, reduced mark up and thus contributing in alleviation of poverty among the rural population.
- Quality asset booking by the bank without fear of default by the individual farmers.

3.2.3 Sugarcane Value Chain Actors

The sugarcane value chain actors mainly include the farmers, the bank and the sugar mill. The schematic diagram of the value chain can be drawn as follows:

Figure 9. Sugarcane Value Chain

3.3 Value Chain Mapping Model – Bank Alfalah Limited

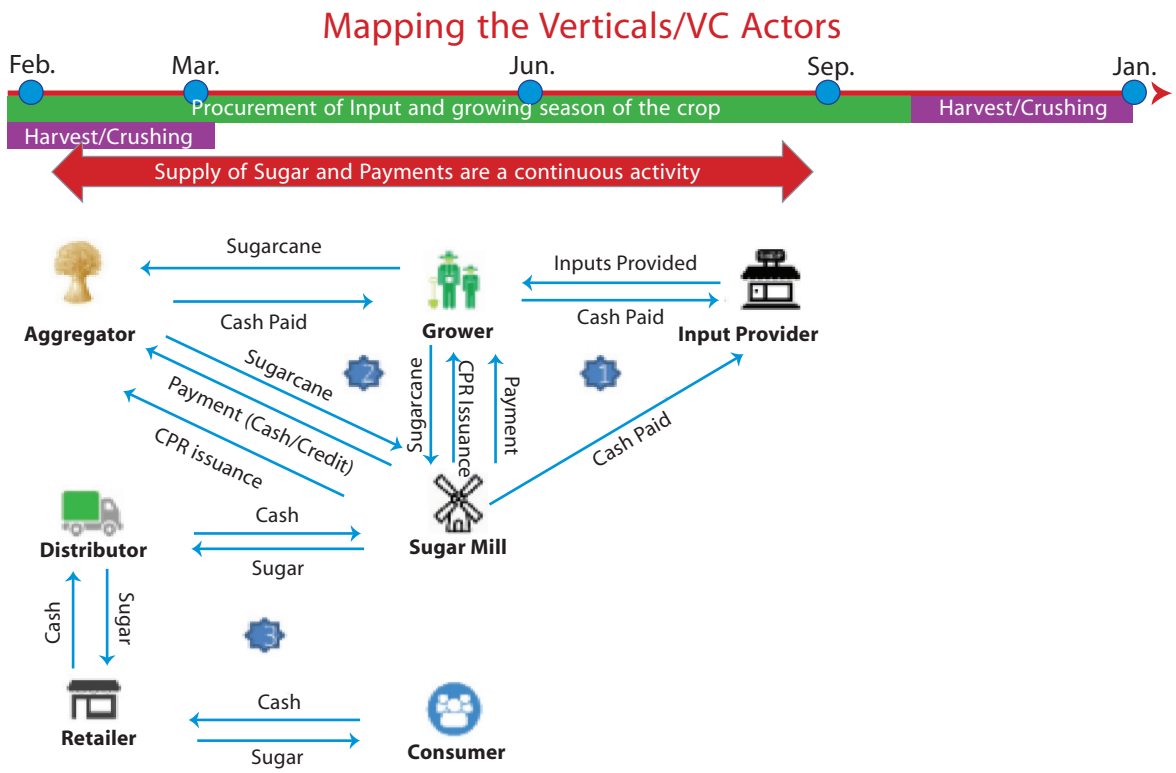
The value chain actors in the sugarcane value chain model adopted by Bank Alfalah Limited are as follows;

- Input Suppliers
- Growers
- Aggregators
- Sugar Mills
- Distributors
- Retailers

VC mapping includes various factors like area profiling, agricultural footprint, farming practices, mills capacity and performance etc. This model is a processor driven, where Mills engage farmers to produce sugarcane of required variety, provide extension services and limited input services.

The role of bank is to provide finance to meet the cost of input services of the producers. The process flow is depicted in below figure:

Figure 10. Agricultural Value Chain Mapping Model



3.3.1 Methodology for Product Development and Geographical Coverage

The target market of sugarcane industry is around 60 million tonnes in Pakistan. As the size of this market is very large, demand for high quality banking products is also likewise.

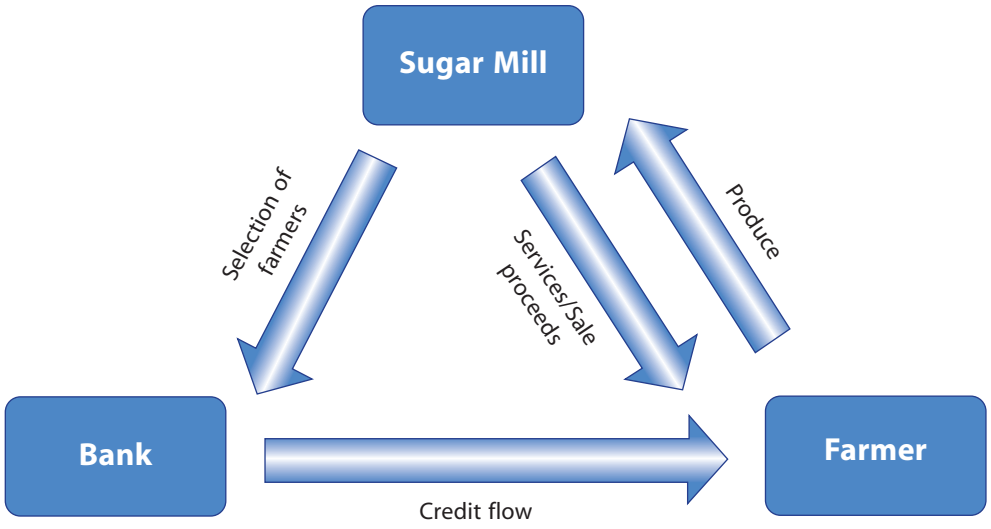
The bank used the methodology to capitalize on market linkages of sugarcane industry. It was ensured while targeting this industry that the loans would be provided to those sugarcane growers for whom it was certain that their produce will be picked/sold to the sugar mill at market rates. Under this model, two areas were selected i.e. Rahim Yar Khan (Punjab) and Ghotki (Sindh) due to following reasons

- *Crop suitability*: The quality of the sugarcane crop in these areas was better due to natural climatic conditions.
- *Farmers*: The farmer outlook in these areas was better; they were more experienced and were better versed with agricultural and industrial needs and practices.
- *Processor*: There was presence of the active processor in these areas.

The agricultural value chain business model is illustrated in Figure 11 below:

It is a buyer driven agriculture value chain model. In this model, the cornerstone of the financing arrangements is the corporate guarantee that the Mill provides to the bank. As this loan is being provided to the growers, the purchase of the sugarcane is guaranteed by the mill. This ensures a smooth flow of cash without any bottlenecks.

Figure 11. Agricultural Value Chain Business Model



3.3.2 Salient Features of the Product

The key features of the product are as below:

- *Finance*: The finance is provided directly to the grower on recommendation of the Mill to meet the actual production needs of the farmer within permissible clean loan limits as prescribed by the regulator.
- *Corporate Guarantee*: A corporate guarantee is provided by the Mill that the it would be liable to return any outstanding money against the farmer.
- *Pricing*: Given lower delivery costs and better risk profile of the transaction, bank's spread is almost half of its rack rates.
- *Turnaround time*: Simplified credit processing and approval process is designed to ensure expeditious disbursement to the farmers which generally take place in 3 days.
- *Tenor*: Given the crop cycle (more than a year) tenor is fixed at 15 months.

Further elaboration is presented in below table.

Table 3. Key Features of Product-Bank Alfalah Limited

Name of the Product	Purpose	Terms & Conditions	Type of contract	Mark-up rate p.a.	Tenure of loan	Maximum loan limit	Type of collateral required	Documents required
Sugar Value Chain	Grower financing to meet input costs	1) Mark-up servicing along with principle 2) Recovery through the processor from sale proceeds of sugarcane	Input supplier credit	1 year KIBOR + 3.5 percent	18 months	US$ 1,000 per farmer	Corporate guarantee of processor	1) Loan application form 2) Evidence of cultivation 3) Cane supply mechanism 4) Finance agreement

3.3.3 Challenges Faced in Implementation

The availability of authentic macro and micro economic data was a challenge that bank faced during the project implementation. The time, resources and the culture to perform sector studies was also limited. Operational challenges were also faced in the absence of infrastructural support as extra-ordinary work load was caused by accommodation of large number of farmers within a short sowing time. Loss of crop by natural calamities and other factors and side selling by the farmers with malafide intentions were the challenges faced by the mills.

3.3.4 Lesson Learnt and Recommendations

The great thing about this product was its outreach as large number of farmers was served under the buyer/processor driven model. It was learned that the health and efficiency of the Mills in this model should be carefully assessed as this mainly determines the success of the whole project. The Bank processes should be fully automated to improve turnaround time. For price stability, state role should be made better.

3.4 Value Chain Business Model – Faysal Bank Limited

The Faysal Bank Limited conducted a gap analysis which showed that some farmers did not supply crop to the sugar mills as per contract rather side-sell their crop to other sugar mills etc. Further, in the absence of formal arrangements, farmers used to sell sugarcane through the middlemen who purchased on discounted price. It was found that loans made by banks to the famers remain unpaid on the due dates with obvious implications.

The bank used following linkages of actors and terms of cash flow between various players;

- Banks to provide loan to sugarcane growers against recommendations/undertaking of sugar mills to repay the banks' loans on due dates by appropriation from the proceeds of sugarcane supplied by the borrowing farmers.
- The farmers to provide sugarcane to the sugar mills as per supply contract.
- Sugar mills to appropriate the amount of bank loan from the sale proceeds of sugarcane supplied by the farmers and to pay to the bank for realization of its dues.

3.4.1 Methodology for Product Development and Geographic Coverage

For selecting the geographical areas for financing project, the bank decided to initiate its activities from an agricultural rich area of Rahim Yar Khan, among others, for following reasons:

- The sugarcane crop of the district yields higher sucrose content among all areas of the province of Punjab.
- The number and installed capacity of the sugar mills operating in the district was highest compared to any other single district of the country.
- Availability of irrigation water was comparatively better to meet requirements of the highly water intensive sugarcane crop.
- A few of the sugar mills of the area were already maintaining their satisfactory banking and credit relationship with the bank for the purpose of their seasonal working capital requirements.

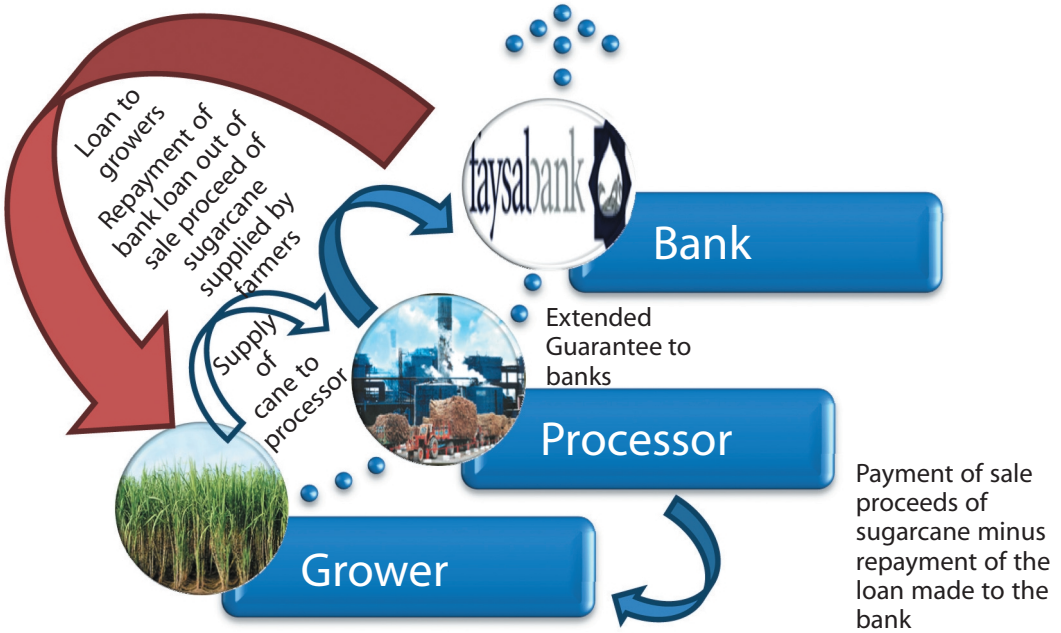
Being satisfied with the history of a particular Sugar Mill, negotiations were initiated and value chain financing agreement was signed with them covering following broad arrangements:

- Progressive farmers of the area would be identified by the Sugar Mill and recommended to the participating bank for consideration of credit facility to meet their input requirements for the sugarcane crop.
- The technical staff of Sugar Mill would advise the relative farmers on various agronomic practices and methods to yield the maximum output with resultant financial gains.
- In order to facilitate the farmers to have timely supply of high yielding varieties of sugarcane seed, Sugar Mill would provide the quality seed to them from their own research farms.
- Sugar Mill would also manage wholesale procurement of fertilizers and pesticides etc. to ensure their quality and timely supply to the farmers through credit arrangements.
- Sugar Mill would assess the credit needs of the relative farmers and recommend the amount of loan to participating bank.
- Sugar Mill would enter into a formal agreement with the farmers who would bind themselves to supply their sugarcane to Sugar Mill during the crushing season.
- Sugar Mill would, on the other hand also entered into an agreement with bank to deduct the amount of participating bank's loans advanced to the farmers out of the sale proceeds of sugarcane supplied by the latter. Sugar Mill also agreed, interalia, to furnish a corporate guarantee to bank for repayment of the loan if default was made by any other borrowing farmers.
- The Participating Bank would undertake a due diligence on the credentials of the individual farmers and their credit requirements. On completion of the procedural process and the necessary credit documentation (etc.), the bank would disburse the approved financial facilities in cash or in kind. Needless to add that supplies made by way of sugarcane seeds and fertilizers & pesticides etc. could also be reimbursed to Sugar Mill at the time of disbursement of the loans under authorization of the borrowing farmers. In order to simplify the documentation and approval process, a simplified process and documentation was devised by the bank.
- About 99 percent of the loans advanced to the farmers during first year got adjusted with up to date interest within the stipulated time.
- The nominal amount remaining unpaid was paid by Sugar Mill from their own sources in discharge of their moral and legal obligations.
- To enable Sugar Mills to meet their financial obligations a credit facility of adequate amount was also allowed by the bank, primarily secured against pledge of sugar produced during the crushing season.

3.4.2 Agriculture Value Chain Business role out model

Participating bank adopted an integrated Agricultural Value Chain Model which ensured a win-win situation for all parties to the model. The model is shown as below:

Figure 12. Agricultural Value Chain Roll out Model



3.4.3 Salient features of the product

Table 4 highlights the key features of the product of the Faysal Bank Limited as shown below:

Table 4. Key Features of Value Chain Product – Faysal Bank Limited

Name of the Product	Purpose	Terms & Conditions	Type of contract	Mark-up rate p.a.	Tenure of loan	Maximum loan limit	Type of collateral required	Documents required
Grower Loans under Sugarcane Value Chain Financing	To finance input require-ments of the sugarcane farmers	Repayment on harvest of crop. Disburse-ment in cash or kind as per requirement of the farmers	Bank Financing under Corporate Guarantee by the Sugar Mill	6 MK + 3 percent-4 percent per annum	18 Months Max.	US$ 1,000 per farmer	Corporate Guarantee of the Sugar Mill	– Financing Agreement – Corporate Guarantee

3.4.4 Challenges faced in implementation

Following challenges were faced during the implementation of the project

- *By Farmers*: Difficulty in getting the ownership and cultivation records verified from their local revenue authorities.
- *By Bank*: Extra-ordinary work load caused by accommodation of large number of farmers within a short sowing time.
- *By the Mills*: None supply by some of the farmers financed by the bank against their guarantee due to loss of crop by natural calamities and side selling by the farmers with mala-fide intentions.

3.4.5 Impact Study

The impact study showed that average sugarcane yield per acre increased tremendously as a result of application of improved cultivation process in the relative area. The sugar mills comfortably met their raw material requirements resulting in the highest capacity utilization.

The improved profitability of the sugar mills resulted in better dividends for their shareholders and larger contribution to the national exchequer through taxes. Overall economic development of the area has taken place on account of improved purchasing power of the rural population and the farmers of the area are getting timely payment against sugarcane supply made to the mills operating in the area.

3.5 Value Chain Financing Model – Habib Bank Limited

Habib Bank Limited – one of the leading banks in agriculture lending in Pakistan conducted a more detailed mapping to understand the legal and process descriptions of value chain model. The model reflects the role and legal implication of all the actors involved:

Figure 13. Agricultural Value Chain Actors

Processor	Input Supplier	Lead Firm	Financing Partner
• Sugar Mill has provided the venue for the experiment.	• In an enhanced role, Sugar Mill has also acted as the service provider of in-kind facilities of inputs.	• In one set of farmers, Sugar Mill has acted as Lead Firm to provide Finance which funded the above mentioned in-kind portion of the loans	• HBL rural banking has been the partner financial institution in the value chain experiment.

The loan in such a case is processed much faster with no requirement of the security from the farmer and a guarantee by the processor. The major gap in the informal value chain is the delay of payments to the farmer by the sugar mills, in this case due to an agreement between the sugar mill and the bank; the sugar mill is bound to make the payments to the farmer through the bank within specified time.

3.5.1 Methodology for Product Development and Geographic Coverage

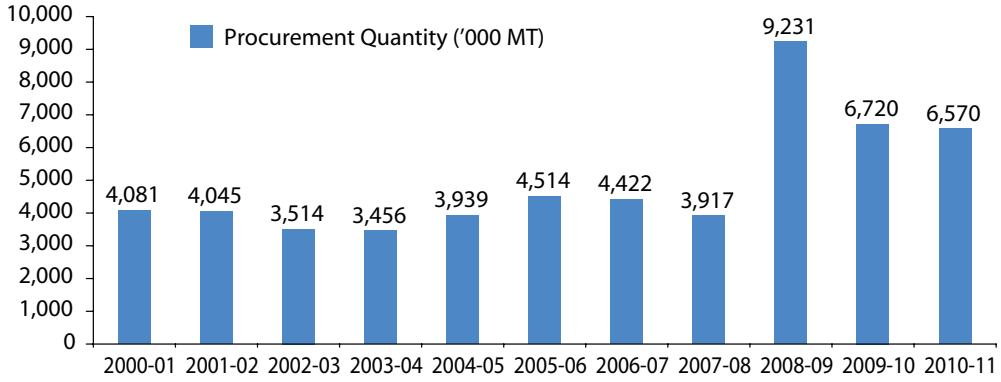
There are two basic actors required to initiate a VC which once tie in may make further efforts to get other formal actors involved in the VC. Value Chains are either initiated by the financial institution or by the buyer/large processor. In this value chain the geography didn't play a significant role as it was a buyer/processor initiated request for the value chain to participating bank. To initiate a study for product development on a prospective value chain two steps were carried out i.e. desktop analysis and literature review. The discussions and meetings with local markets/buyers/processors were carried out to seek their input/feedback for commodities and districts selection. Moreover, interviews with input dealers, farmers (small/med/corporate), processors and intermediaries were conducted to map a selected crop in a selected region.

Additionally a small survey was done to check if anything additional can be achieved in terms of yield and production. This included:

- Yield comparison to global yields for better seed and inputs
- Possibility of export earnings (high export earnings make it more attractive)

- Farmer Earnings/Hectare
- Government support price at any stage of value chain
- Price volatility and variation margins in at least 3 different market's on monthly basis
- Average land holding of medium and large farmers
- Possibility/Ease of bank intervention with the local actors

Graph 1. Measuring Price Volatility

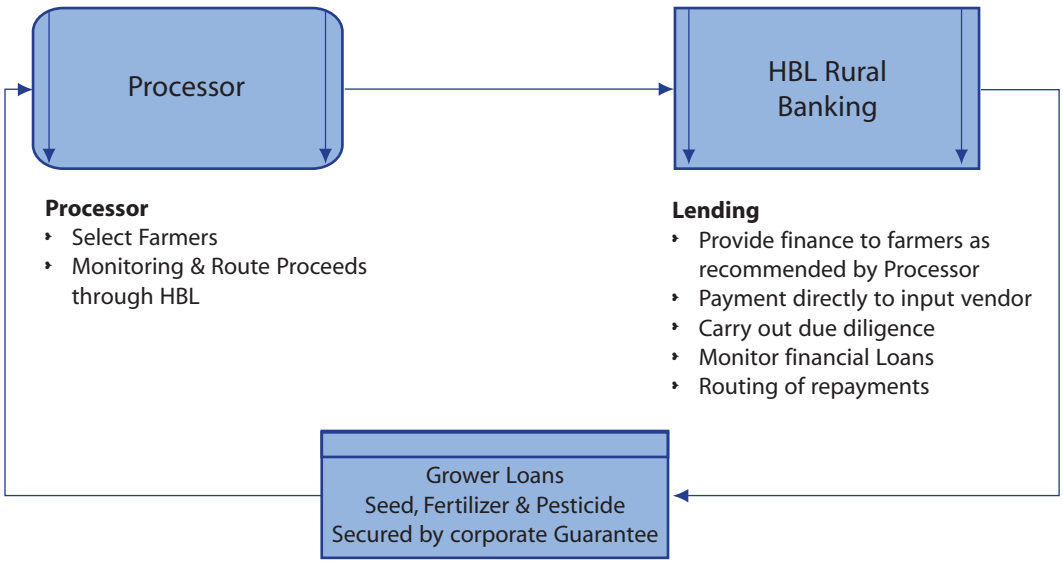


3.5.2 Agriculture Value Chain Business Roll out Models

Grower Finance Model: The bank offers grower finance loans through processors to growers backed by corporate guarantee of the processor (i.e. Sugar Mill) for 1/1.5 year(s) loan tenor. The borrower account management (ECIB, Verification, Account Opening, A/c Disbursement) is bank's branch responsibility, whereas the security approval in form of a corporate guarantee rests with Corporate Banking group. The Processor is responsible for settlement of grower's principal, mark up from grower sales proceeds and settlement of the grower finance loans. In case of Sugarcane Value Chain in South Punjab, the financing line is assessed in February and disbursed in March/April by the participating bank for February crop.

The Processor takes up the cost of the initial outlay in case of any delay in disbursement by the bank. The crushing goes for 120-140 days per year and payments are made during crushing season to the farmers. Figure 14 shows the Sugarcane Grower Finance Model of HBL.

Figure 14. Shows the Sugarcane Grower Finance Model of HBL



Model Strength: The basic model strength is to create a value chain between a grower and a processor which benefits both the parties whereas the overall exposure of the bank remains the same. Some other benefits for the linkage model are:

- Better relations with the processors covering a wider range of their financial needs including vertical supply chain
- Reduction in intermediation cost due to recommendations, guarantees and direct settlement of loan by the processor
- Marginal higher returns as compared to direct lending
- Lesser NPL/Provisioning due to diversified security structure

3.5.3 Salient features of the product

The product has been designed for the development of the farming community and to assist the farmers in their cultivation of high quality yield. Table 5 shows the salient features of Grower Finance Model of HBL.

Table 5. Salient Features of Grower Finance Model-HBL

Facility	Facility for sugarcane growers for purchase of input/machinery/implements.
Minimum Land Holding Requirement	Land Holding 10 Acres, Sugarcane cultivation 10 Acres, Sugar Mill to provide a Bona fide certificate containing verifiable information as per the format provided by the bank signed and stamped by the authorized signatory at the Sugar Mills.
Amount	Minimum: US$ 2,000; Maximum: US$ 5,000. Special Case US$ 10,000
Portfolio Size	Depending upon the Group Exposure
Pricing	6 Month KIBOR + <margin to be decided> serviceable before or at the end of loan tenure
Tenure	12 months (Zeroing of account at the end of the recovery cycle). Repayment of finance to be synchronized with the harvesting of crop.
Credit Limits	Minimum: US$ 2,000 – Maximum, US$ 5,000, Limit calculation: Per acre Cultivation cost (US$ 3,200) * No of Acres to be Cultivated * Discount factor depending upon the district yields and production.
Security	Corporate guarantee of Sugar Mill
Verification	Sugar Mills, AFO, & Branch Manager/Credit Manager
Monitoring	Portfolio monitoring on monthly & quarterly basis at regional offices by Regional Heads Rural Banking (after intimation of the start of crushing season).
Loan Repayment	Bank Loan principal along with due mark-up of individual growers will be credited/ adjusted by Sugar Mill out of net sales proceeds (net off of transportation charges) of the Growers harvest. The loan repayments would be done as per the purchasing cycle from the farmer, due payments of farmers who have supplied the sugarcane to the mill would be routed within 15 days of receipt of raw material.

3.5.4 Challenges faced in implementation

Following challenges were faced during the implementation of the project;

- Electronic Consumer Information Bureau (ECIB) of most of the growers was not clear.
- Company offered interest free loans to the growers; therefore, the growers were not interested in a loan even with minimum spread.
- Growers utilized the limit extended to them by the bank for non-productive purposes instead of buying fertilizers, seeds etc.

- Since value chains require a great level of structural changes in procurement and accounting system of the company so the largest impediment was to anchor companies on board to ensure that the agreements are fully covered.

3.5.5 Lessons Learned and Recommendations

The biggest lesson in VCF was to understand that it takes times and a very high level of relationship building both internally and externally with the anchor companies. The management of the bank should understand the importance of VC project design and take the responsibility to commence such initiatives.

As per the impediments, following steps may be adopted to address the above issues:

- If the company offers interest free loans then it means that the company is extending loans from their own cash flows (or a cash finance line from a bank) and also paying the markup of the same. If Sugar Mill is ready to subsidize the loan by picking the markup then bank can assist them with their cash flows by providing the finance. This way the company though still be taking the expense on their profit and loss but its balance sheet would remain intact without any loans extended to growers.
- Wrong utilization can be curtailed by the bank by giving the required product to farmer instead of cash, for example if a farmer needs tractor the bank can book a tractor for the borrower and pay the company instead of handing over the cash to the borrower, however, if the borrower needs a running finance line (which is mostly the case) for purchase of seed, fertilizer and pesticide then given that Sugar Mill has their own registered supply vendors (of seed fertilizer and pesticide) or nominated vendors (which confirm minimal prices of the farmer) the bank can pay directly to those vendors (of Sugar Mill) as per the requirement of the farmer stated at the time of the loan. This way cash would not be handed over to the farmer and the bank would be able to confirm utilization. If Sugar Mill doesn't have such vendors or the nominated vendors are selling costly commodities or don't have the product which farmer demands then the bank has no other way than to allow cash withdrawal by the farmer.

3.6 Cotton and Wheat Value Chain Business Model – NRSP Microfinance Bank Limited

3.6.1 Background for selecting a specific value chain product

The AVC Project for Cotton and Wheat covered two areas of district Bahawalpur. The bank already had a portfolio of agriculture financing with 22,741 beneficiaries in the target area. Field area for execution of the project was based on existing ratio of portfolio by evaluating the landholding size, socio-economic status, cultivation practices, agriculture business potential and previous loan history of the beneficiaries. Cotton and Wheat crops being cultivated largely in the selected area were chosen as the target crops for development of the value chain model.

3.6.2 Objectives

The bank in partnership with the Pakistan Poverty Alleviation Fund designed an Agriculture Value Chain intervention for its existing farmer clients. The project aimed to improve socio-economic development of small farmers by providing literacy on modern cultivation trends to improve yield and channelize favorable marketing system to raise income of small farmers along with financial services through Microfinance (MF) and Micro Insurance (MI). In order to cover the risks of farmers residing in the canal fed area, a comprehensive crop loan insurance product was developed which provided insurance

coverage based on the yield of the crop. The MI product covered losses based on calculation of historical yield pattern and provided insurance coverage in case of natural calamities and individual crop losses, declared by the local area revenue officer or individual loss. The product covered losses due to natural hazards, pesticide attack or any other factor affecting the yield of the crop.

The bank's Value Chain project facilitated the small landholding farmers by clubbing them into socio cooperative society to improve their produce through provision of trainings and extension services, backward and forward linkages, Farm advisory services, modern cultivation practices, agriculture business literacy, product storage and selling facility (namely warehouse receipts concept). In addition, Zinc foliar spray, for increasing the zinc uptake of clients, and implementation of Natural Enemy Farm Reservoir (NEFR) were also part of the AVC intervention. The AVC project was implemented in two phases, for wheat and cotton crops, and benefitted over 15,000 farmers in two areas of district Bahawalpur.

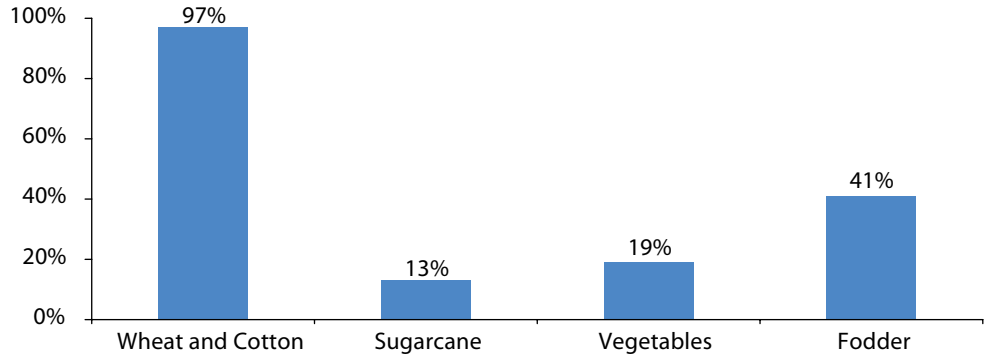
3.6.3 Value Chain Mapping

The broad objective of the value chain mapping exercise was to assess the agriculture potential and cultivating practices; to identify major problems faced by the agriculture sector in the area and to assess the potential of developing a value chain. This assessment was based on evidence and information gathered by interviews and the surveyor team observations. The specific objectives of assessment were to evaluate the current social and economic position of farmers, cultivating potential of the area, crop selling trends and financial benefits of the small farmers.

3.6.4 Insights from the Mapping Exercise

The mapping exercise revealed that major crop cultivated by the farmers of the target areas were wheat and cotton as shown in the Graph 2.

Graph 2. Major Cultivating Crops

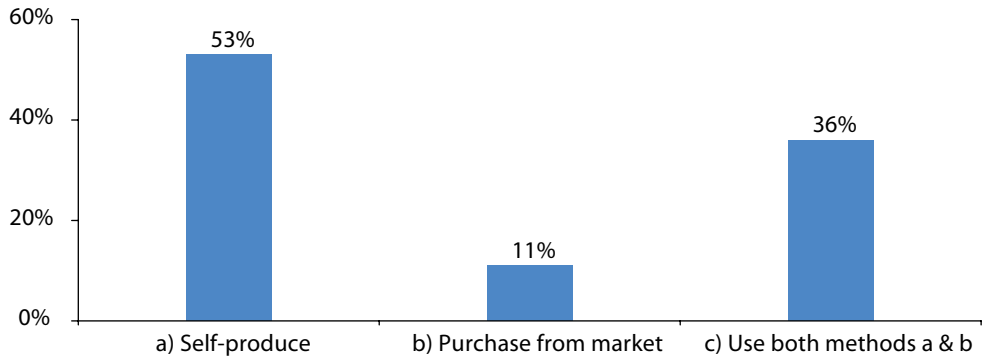


Analysis shows that 97 percent farmers grow wheat and cotton on regular intervals, while out of 150 farmers 41 percent farmers grow fodder for their livestock, 13 percent farmers are aware of soil efficiency and grew sugarcane on alternative intervals while 19 percent farmers from total 150 grow vegetables. Specifically, wheat farmers produce an average of 40 kgs compared to cotton farmers with 26 kgs.

In addition, it was found out that farmers are not selling any other crops; they are growing fodder and vegetables for their household use. According to information collected, farmers, on average, are producing 1,695.6 kg wheat and 1,042 kg cotton per acre respectively. As per overall assessment this ratio can be improved by implementing modern cultivating practices.

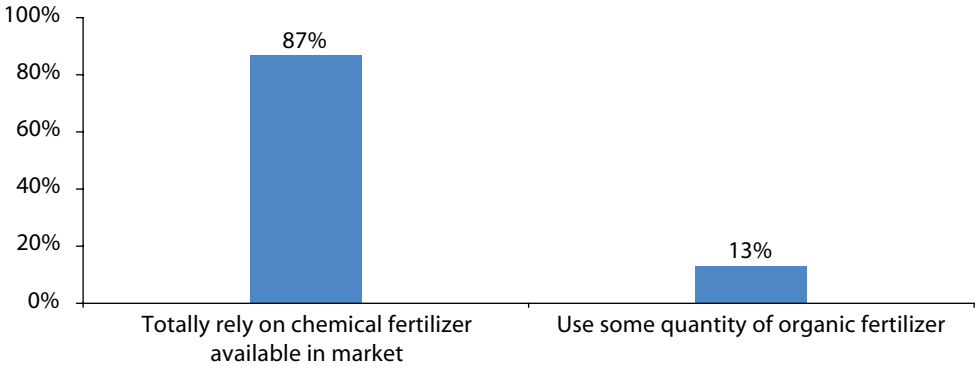
In terms of seeds cultivated, 53 percent farmers are producing seeds for themselves while 11 percent farmers totally rely to purchase seed from market which is costly, in 36 percent case farmers use both methods; the case of cotton farmers produce their own seed while wheat farmers purchase seed from the market for better productivity of crop as shown in Graph 3.

Graph 3. Seeds for Cultivation

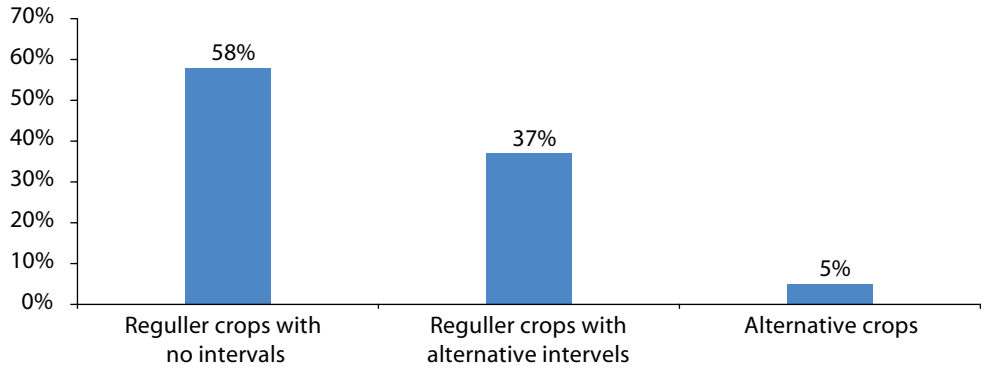


On the other hand, the farmers' inputs shows that 87 percent farmers completely rely on chemical fertilizer available in market, while just 13 percent farmers use organic fertilizer along with chemical. During sewing of cotton these farmers use organic matter in replacement of urea as shown in the Graph 4.

Graph 4. Fertilizer Input on Crops



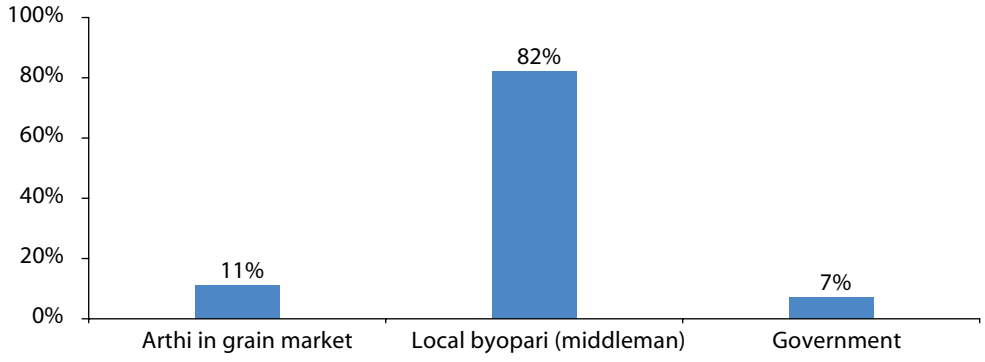
Graph 5. Crop Rotation Order



It was noted that 58 percent farmers hesitates to rotate alternative crops due to unawareness of modern cultivating trends and cultivate wheat and cotton without any alternative crop. For better productivity of crops alternative crop rotation order is important. As per information 37 percent farmers grow fodder to rotate crop that enhances soil properties and 5 percent farmers grow alternative crops on alternative intervals; they used to grow sugarcane as alternative crop.

Furthermore, it was noted that 82 percent farmers are selling their produce to local Byopari (middleman), major reason is the benefit of produce collection from the farm. Local Byopari collects the produce from the farms which attract them the most. But the middleman is not giving them proper financial benefits. About 11 percent farmers used to sell their crops in local grain markets and get comparative better financial benefit while 7 percent farmers sell their produce to the government.

Graph 6. Crop Selling Source



3.6.5 Gaps Identified

The following gaps were identified by the participating bank:

- The bank is providing microfinance facility in prescribed localities and during assessment average loan size was calculated US$ 3,300. While farmers are taking agricultural inputs from local venders in-kind.
- Cultivation trends and land holding size is decreasing generation to generation. Farmers are not aware of soil properties and cultivation. This knowledge would be highly beneficial for increased productivity and income.
- Small farmers are growing traditional crops, which are less profitable for them. They can cultivate short-term crops that can give them better financial benefits.
- Most farmers are willing to upgrade their cultivating trends, but there is no one to organize them and provide trainings on crop selection and productivity. As per analysis only 12 percent farmers took trainings from pesticide marketing officers.
- The only benefit for the farmer to sell his produce to middle man (local Byopari) is the collection of crop from their doorstep, which is less financially beneficial as they get low rates comparative to market.

3.6.6 Methodology for product development and geographic coverage

The Agriculture Value Chain Intervention designed by bank in partnership with PPAF was divided in two phases with the aim to target 15,000 beneficiaries. The first phase of wheat crop comprised of 10,000 farmers, while in the second phase additional 5,000 farmers were taken onboard during the cotton season.

All the beneficiaries were assisted in the following areas:

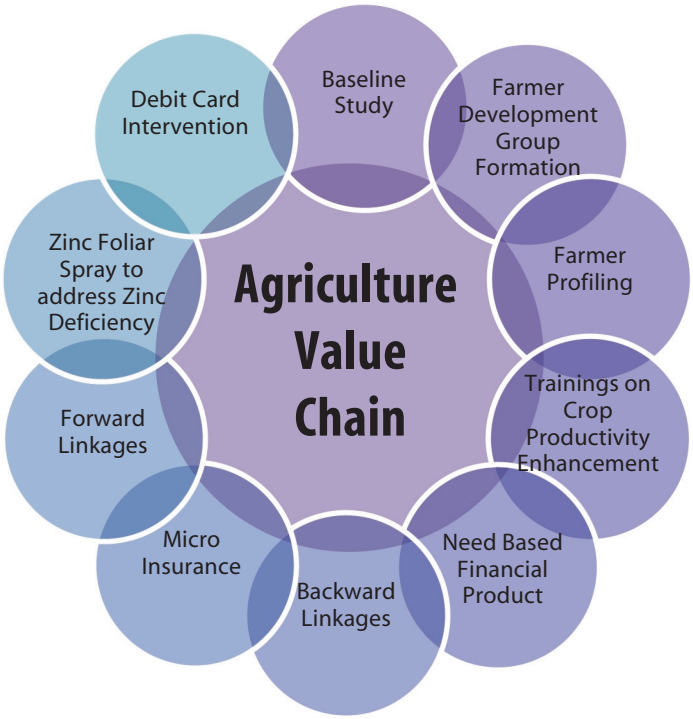
- Formation and Mobilization of Farmer Enterprise Groups
- Formation of Village Apex Bodies
- Farmer Profiling of Current Agriculture Practices
- Agriculture Financing
- Trainings Related to Modern Agricultural Practices
- Crop Insurance
- Distribution of Zinc free of cost
- Soil Testing
- Laser Land Leveling
- Development of Forward and Backward Linkages
- Warehouse Facility for Storage of Produce

Additionally, the beneficiaries were also imparted training related to Good Agricultural Practices (GAP) and Natural Enemy Farm Reservoir (NEFR). Women Training sessions were also arranged to educate female workers about the best practices of Cotton Picking and improved Health Care patterns for them.

3.6.7 Business Model

The participating bank adopted a Facilitator Driven Agriculture Value Chain model, in which the beneficiaries were facilitated in various areas by the value chain implementation team as shown in the Figure 15 below.

Figure 15. Facilitator Driven Agriculture Value Chain Business Model



3.6.8 Formation of Farmer Enterprise Groups (FEGs)

Following the community based lending model of the bank the beneficiaries of the AVCP were segregated into groups called the Farmer Enterprise Groups (FEGs). The group members ranged from 10-15 farmers of a similar geographic location during the first phase of Wheat crop and the second

phase of Cotton crop. By combining three or four FEGs in one place, an Apex Body had been successfully shaped on the basis of Union Council. The purpose of development of Apex Bodies was to create Collective Bargaining Capacity in the farmers for in bulk acquisition of inputs and adoption of best Agricultural Practices. Apex bodies were constituted by the selection of the villagers on basis of Mouza/ Union Councils and small rural towns.

3.6.9 Farmers' Profiling

A detailed database of 15,000 farmers was prepared during the first and second phase of the value chain project. The profiling pointed out not only the areas for improvement e.g. training needs but also provided ample data for comparison for the impact analysis of AVC at the end of the project.

3.6.10 Crop Loan Insurance

In order to cover the risks of farmers, a Crop Loan Insurance product was designed which provided insurance coverage in case of crop loss occurred due to natural calamities. Reference yield was calculated based on the crop yield data obtained from local markets and government department. During the project period insurance coverage for 9,450 acres of 3,965 farmers was completed. Further, an additional 24,100 acres were insured as an upscale of this initiative for cotton crop in other two districts.

3.6.11 Capacity Building Sessions for the Beneficiaries

Farm and Productivity experts were assigned to mobilize the farmers and arrange various training sessions for the farmers. The Farm and Productivity Experts mobilized more than 15,000 farmers and successfully raised awareness amongst the farmers for the modern farm practices, primarily aiming to increase the crop yield of the farmers. The farmers were trained on best farming practices such as effective water usage through land preparation, effective fertilizer application, procurement and timely utilization of quality agricultural inputs and cultivation of multiple crops. Renowned firms were also occasionally invited to share their expertise with the farmers and provide soil testing services to the farmers so that they are aware of their land's nutrient requirements.

3.6.12 Soil Testing

Soil testing is a major activity for precise farming. Farmers are linked with Farm and Advisory services of Fertilizer Firm for soil testing. Soil samples were also collected by AVC team directly from farmer's field. Major nutrients like Nitrogen, Potash, and Phosphorus (NPK) accompanied with micro nutrients like Zinc and organic matter were in deficiency category. It was the beginning of a systematic process of examining the soil properties so that the deficient ingredients could be administered to such tracts of lands.

3.6.13 Zinc Distribution

After having identified the deficiency of Zinc in the Bahawalpur region farmers were provided with free of cost Zinc and facilitated by Zinc Foliar sprays twice. The Crops treated with zinc foliar can offer higher price to the farmers, due to having attractive nutrient quality and more protection against diseases.

3.6.14 Development of Backward and Forward Linkages

Backward and forward linkages were created with Pakistan Agricultural Research Council (PARC), Regional Agricultural Research Institute (RARI), Punjab Seeds Corporation (PSC) and a renowned Fertilizer Company. The Farm Water Management Department also facilitated on-Farm Technical Assistance, research on Crops, Soil Testing and provision of Quality Seeds and Fertilizers. Moreover, forward linkages were created with suppliers interested to purchase farmers' harvest and with the Government Departments for timely uptake of harvested yield from farmers.

3.6.15 Warehouse Facility

To attain the full utilization of Wheat AVC, PPAF and the participating bank arranged a warehouse facility. Warehouse worked for storing and preservation of the Crop produce. Now, such saleable commodities are no more on the mercy of middlemen who used to exploit the farmers due to non-provision of storing facility. Further, to reduce possible delays in uptake of the AVC farmers' harvested yield, a limited number of farmers were provided storage facility, so that they do not have to sell their crop at throwaway prices.

3.6.16 Product Designed Under the Agriculture Value Chain Project

Initially, participating bank offered smaller loan sizes ranging from US$ 2,500 to US$ 6,000 within groups of minimum 5 members. Under the ambit of this initiative, cost effective need based financial loans for farmers have been introduced covering the per acre input cost for various crops i.e. wheat and cotton to fulfill agricultural input requirements of the farmers for crop cultivation.

Table 6. Key Features of Value Chain Product of NRSP

Name of the Product	Purpose	Terms & Conditions	Type of contract	Mark-up rate p.a.	Tenure of loan	Maximum loan limit	Type of collateral required	Documents required
Wheat & Cotton	Agriculture inputs	Group based	Bank account transfer	28 percent annual (declined basis)	Up to 9 months	US$ 6,000	Group based financing	CNIC

3.6.17 Impact

The value chain initiative has enhanced the farmers' income through increased access to financial services and also enhanced technical capacity of the poor farmers enabling them to increase productivity through adoption of modern and latest farming tools and techniques. Other positive outcomes are summarized as follows:

- Most of the farmers have reported a substantial decrease of up to 25 to 28 percent in the cost of the input that they procured, as compared to the same input procured through the middleman previously.
- It has also fostered adoption of productive farming patterns in the area, resulting in enhanced productivity and efficiency while bringing a positive impact on the social and economic status of the smallholder farmers.
- Farmers' capacity has enriched and they are now using latest tools and modern techniques to maximize their agricultural production resulting in socio-economic uplift of farming communities through better production.
- Various trainings conducted on financial literacy and crop management have increased knowledge and self-confidence of the farmers.
- Direct links created with the government departments have enabled the farmers to gain maximum profits through sale on government support price, minimizing the dependence of the farmers on the middlemen.
- Farmers have achieved an increase of 20 percent in the average yield which in turn has helped in creating monetary benefit of more than US$ 600 per acre of land.
- A comprehensive crop yield insurance product has been deployed that provides insurance coverage in case of crop loss occurred due to natural calamities and cover the risks of farmers.
- Moreover, creation of forward and backward linkages has benefitted farmers' to avail on-farm technical assistance, laser leveling and soil testing of the farmer's land. This has resulted in low utilization of fertilizers for crops and diesel for tube wells. Additionally, forward linkages are being created with suppliers interested to purchase farmers' harvest.

3.7 Tomato Value Chain Business Model – United Bank Limited

3.7.1 Background for selecting a specific value chain product

Tomato is one of the most important vegetables worldwide. As it is a relatively short duration crop and gives a high yield, it is economically attractive and the area under cultivation is increasing. Tomatoes contribute to a healthy, well-balanced diet. They are rich in minerals, vitamins, essential amino acids, sugars and dietary fibers. They can be processed into purées, juices and ketchup. Canned and dried tomatoes are economically important processed products. Worldwide, the annual production of fresh tomatoes accounts for approximately 159 million tonnes. However, more than a quarter of these tomatoes are grown for the processing industry, which makes tomatoes the world's leading vegetable for processing.

3.7.2 Objectives

The main objective is to enable the cultivators in transforming their farming into a high-yield export quality production of tomatoes so that it can be exported abroad. It is a crop of significant economic value in Pakistan. The annual export of tomatoes averaged about 9,832 tonnes during the past 5 years. Per unit export prices are low which are attributed to low produce quality. Tomato crop has a tremendous export potential due to its demand in the international market. Tomatoes are exported to Afghanistan, Iran, UAE, Saudi Arabia, Sri Lanka and India. Afghanistan, Iran and UAE are the main markets for tomato exports from Pakistan. Pakistan has the potential to increase share in these markets.

3.7.3 Trends, area, production and yield

The area, production and average yield of tomatoes in Pakistan has increased significantly to 50 thousand hectares. The present national yield of tomatoes based on ten years average is about 10.1 tonnes/ha which is quite low. To obtain a potential yield, high yielding varieties and improved production technology needs to be adopted.

Growing areas Balochistan and Khyber Pakhtunkhwa – two provinces of Pakistan, produce 70 percent of the total tomato yield, while Punjab and Sindh produce the rest of the percentage. Tomato is grown most of the year in some parts of the county. However, the supplies are substantially reduced during intense heat and rains of summer and monsoon months from June to August. In the hot-wet season, production shifts from lowlands to the relatively cooler and dryer highlands. Because high land production areas are limited, tomato supply dwindles in the wet season resulting in drastic price increases. Another period of stress is the onset of frost during December and January when production is depressed.

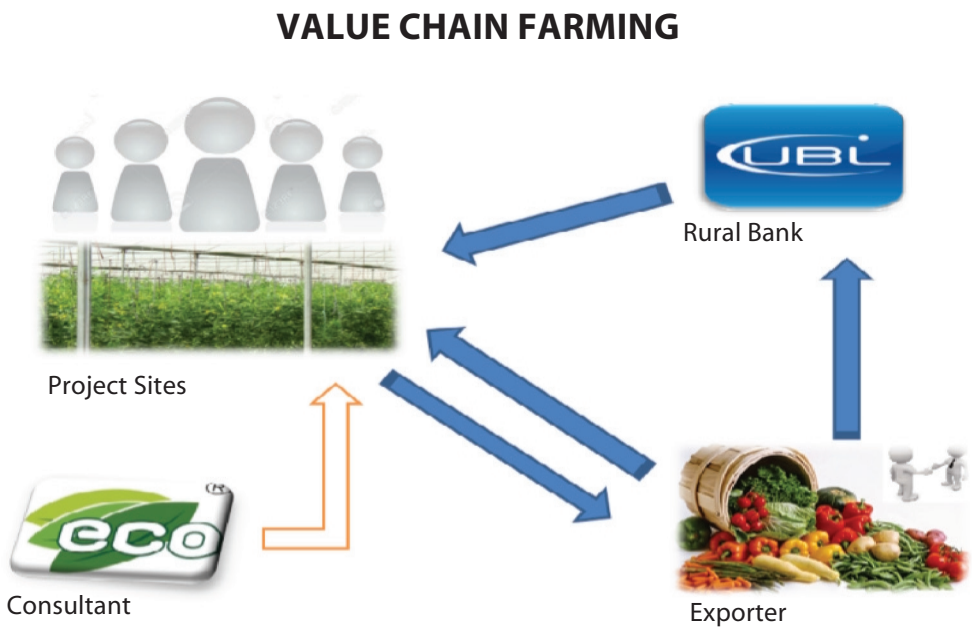
3.7.4 Value Chain Mapping

The Figure 16 shows the value chain farming of tomato as practiced and followed by the United Bank Limited. It shows the different actors involved in the value chain actively supporting and working together.

3.7.5 Methodology for product development and geographic coverage

Agricultural value chain offers an opportunity to reduce cost and risk of financing. The purpose is to increase the income and improve the well-being of small farmers, landless laborers and the rural poor so that they can produce high quality vegetable organically which will promote the agricultural export.

Figure 16. Tomato value chain actors under the United Bank Limited



3.7.6 Agriculture Value Chain Business role out model

Step 1 *Yield enhancement and Quality improvement*: The Rural Banking section of the bank collaborated with Food Firm-1 to provide technical assistance to improve per acre yield as well as quality of the produce.

Step 2 *End-to-End Value Chain Financing*: Hereby bank would facilitate in providing technical services to one of its existing customers.

Step 3 *Establishment of a model*: This pilot will ultimately lead towards an established model farm; specializing in production of export-quality tomatoes in target District.

Step 4 *Introducing Good Agricultural Practices (GAP)*: This will lead towards enhanced collaboration between the exporters and farmers which will ensure sale of high quality produce in the international and local markets.

Step 5 *Roll Out to other potential areas*: The results and the learning from this initiative will be cascaded to other rural areas of the country which will open an exciting frontier in sustainable development of the rural communities in the entire country.

3.7.7 Salient features of the product

The salient key features of the product are shown in Table 7 comparing the conventional and agricultural value chain farming.

Table 7. Salient Features of tomato value chain of United Bank Limited

Parameters	Conventional Farming	AVC Farming
Crop	Tomato	Tomato
Area	1 Acre	1 Acre
Bed Spacing	4.5 feet	3 feet
Plant Spacing	24 inch	24 inch
Plant Population	8,360 Plants	12,635 Plants
Yield/Plant (Average)	0.95 kg/plant	1.75 kg/plant
Production/Acre	7,942 kg/acre	22,111.5 kg/acre

3.8 Potato Value Chain Business Model of Khushhali Bank Limited

3.8.1 Background for selecting a specific value chain product

The participating bank started its 1st Agriculture value chain financing in 2013 under facilitator driven model. A pilot was done in partnership with "Connecting Agro-Value Chain Private Limited" – (CAVC) a firm which supplies 'Lady Rosita' potatoes to PepsiCo International for feeding raw material for the manufacture of world-renowned 'Lays' potato chips brand. The pilot that kicked-off at the Swabi branch was replicated in various other area of the country.

The CAVC has both the backward and forward linkages. In backward linkages the CAVC has relationship with small and medium sized farmers. The CAVC is providing quality potato seed, fertilizer, pesticide and technical support to potato farmers and then buyback produce at agreed market selling price from their fields. It has agreement with input suppliers and these suppliers are supplying input to registered farmers of the CAVC. Under this arrangement participating bank is catering registered farmers of CAVC by providing them financial assistance to purchase input from the selected input suppliers of CAVC.

In forward linkages, CAVC has relationship with processers like PepsiCo (Lays potato chips), candy land and whole sale channel stores like Metro and Green valley. After getting produce from registered farmers CAVC is selling this produce to these processers and whole sale channel stores. After getting payments from processers and whole sale channel store CAVC settle the outstanding loan of participating bank against their registered farmers.

3.8.2 Objectives

The objective is to minimize the role of middle man by integrating farmers with leading suppliers to enable them to get direct excess to end users and increase their income.

3.8.3 Value Chain Mapping

The mapping covered following inter-linked components:

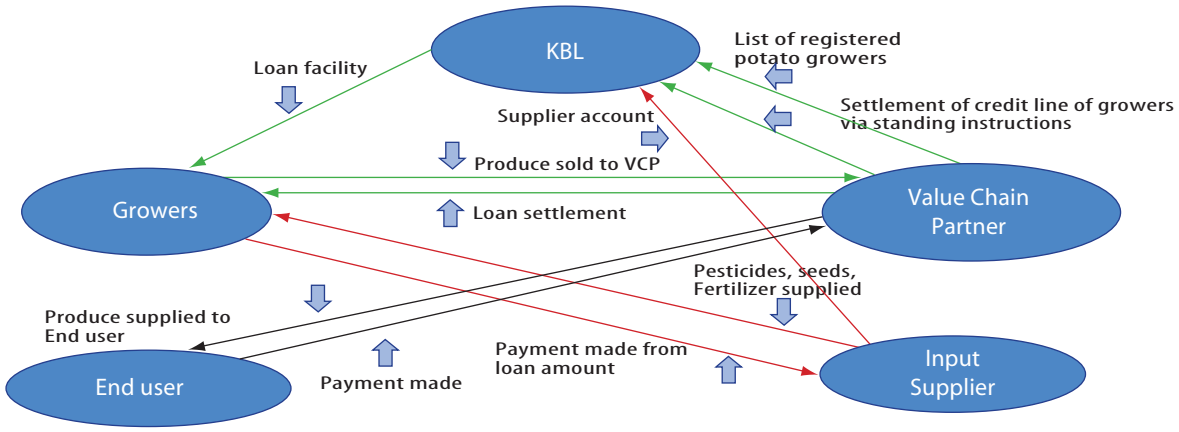
- The value chain partners were engaged that had relationship with potato growers. These value chain partners provided inputs like potato seeds, fertilizers, pesticide and buy back produce at market price without getting any commission, and they were bond to make arrangement of transportation of farmers produce from their farms to end user.
- Leading firms that had relationship with farmers/growers and were technically sound to provide extension services to farmers to get maximum yield and good quality produce.

The bank is directly working with value chain partners; they have their own farmer's mobilization teams. These VC Players have relationship with leading seeds and pesticide dealers. They engaged them and ensure provision of quality seed, fertilizers and pesticide to their associated farmers.

3.8.4 Agricultural Value chain Business Model

Figure 17 shows the model the participating bank is using through the buyer-driven agricultural value chain for potato.

Figure 17. Potato buyer-driven agricultural value chain



3.8.5 Salient features of the product

While selecting value chain partners participating bank ensured that only registered firm under Securities Exchange Commission of Pakistan or Chamber of commerce will be selected. After selection of value chain partners, legal agreement was signed with them. As per agreement VC partners are bond to settle all the obligation of farmers and farmers are also bond to settle financial obligation in case VC partners fail to do so.

Table 8. Key Features of Potato AVC of Khushhali Bank Limited

Name of the Product	Purpose	Terms & Conditions	Type of contract	Mark-up rate p.a.	Tenure of loan	Maximum loan limit	Type of collateral required	Documents required
Sarsabz Karobar	Financial access to farmers	Referral farmers of value chain partners	Loan to farmers and value chain partner providing input and extension services	25 percent approx.	Potato and Maize 6 months Citrus growers 11 months	US$ 15,000	Grantee backed by value chain partners	Farmers: CNIC, ECIB, and pre-verification of Land holding Debt burden

3.8.6 Challenges faced in implementation

Following challenges were faced during implementation;

- Majority of the firms do not have proper financial record for assessments thus making it difficult to engage reputed Value chain partners;
- Second major challenge was price fluctuation especially in Potato during last one year. Despite of getting maximum yield and good quality farmers are unable to cover 50 percent of their input cost.

3.8.7 Lessons learned and recommendations

It is recommended to engage one value chain partner at one location only. The bank worked with one value chain partner at different locations but the lack of field staff created several issues for bank as well as farmers while where bank engaged one value chain partner at one location no such issue was faced.

Moreover it is recommended to analyze price fluctuation properly while selecting a product as in case of potato, due to drastically decline in potato price serious recovery issues were faced.

3.9 Miscellaneous Value Chain Models of Bank of Khyber

3.9.1 Tobacco Value Chain

Tobacco is an important cash crop of Pakistan grown in the districts of the KPK province with specified marketing channels. There are two sets of players in tobacco value chain i.e. involving processors and involving market dealer. The bank is working on both models and prefers financing through group formation. In the first case processors i.e. different Tobacco Companies undertake procurement of cured tobacco from individual by securing agreement. In the second arrangement tobacco companies are replaced by reputed market dealers who purchase tobacco from growers and sell it to other cigarette manufacturing units in the area.

The bank has negotiated with tobacco companies and market dealers and it is a common understanding that by the start of tobacco cultivating season, bank will finance individual farmers having procurement agreements with tobacco companies and affect recovery from tobacco companies when farmers sell their produce to the companies. Alternately, in case of market dealers, bank will finance growers against guarantee of dealers and affect recovery upon sale of the produce. Table 9 shows the tobacco value chain model of Bank of Khyber with the salient features of the model.

Table 9. Tobacco Value Chain Model of Bank of Khyber

Background for selecting a specific Value Chain Product	Already established chain, easy to spot and readily available for financing.
Value Chain Mapping	**Value Chain Actors:** a. Tobacco Growers. b. Tobacco Processor(s). And/Or a. Tobacco Growers b. Dealer Pakistan Tobacco Board (PTB) is an important policy making body in the scenario and is working for bonding different stake holders in tobacco value chain through policy formation and frequent interaction.
Methodology for product development	Market Demand
Salient Features of the product	Basically it is Product Financing. Bank finances production activity/Risk Mitigation Product
Model adopted by the Bank	Buyer Driven
Implementation and monitoring mechanism	Farmers will be provided loans/finances for purchase of inputs for Tobacco crop and fire wood/labor charges for curing of tobacco. Utilization of fund by farmer, issuance of commodity purchase voucher by the processer to farmer and payment of voucher by bank to farmer will be closely monitored for timely recovery.
Challenges faced if any	• Awareness issues • History of heavy default • Tobacco Companies/PTB need to be cooperative
Impact Study	Tobacco is a cash crop. If properly tapped, this can provide lucrative business opportunities to banks. If Tobacco companies contribute a bit more, this can revolutionize lives of tobacco growing farmers.

3.9.2 Fruits Value Chain

District Chitral of Pakistan is famous for its apple, cherry and pear. Fruit is grown here in large quantities, however, individual farmer does not get rewarding prices due to less quantity and lack of market access. Fruit is a perishable commodity and needs special handling, plucking, packaging and transportation facilities for selling in the markets of KPK and Islamabad/Lahore. Table 10 shows the description of the fruits VC model.

Following are the major players in the value chain:

- Fruit growers
- Aggregators/Marketers
- Service Providers
- Packagers
- Transporters

The Bank has financed two cases to Aggregators/Marketers and service providers who are responsible for collecting the produce, processing and transporting them to various markets in the down districts. Credit made to service providers is recovered from Aggregators upon finalization of sales proceeds.

Table 10. Fruit Value Chain Model of Bank of Khyber

Background for selecting a specific Value Chain Product	Already established chain, easy to spot and readily available for financing.
Value Chain Mapping	Value Chain Actors: a. Fruit Growers (Farmers) b. Service Provider c. Aggregator
Methodology for product development	Market Demand
Salient Features of the product	Basically it is Product Financing. Bank finances production activity
Model adopted by the Bank	Buyer Driven
Implementation and monitoring mechanism	Facilitators and service providers were financed and recovery was affected through aggregators. Strict monitoring mechanism like fruit supply by farmer, quality of services i.e./plucking/grading/packing and cash flow of sale proceed of aggregator will be watched through branch ACO.
Challenges faced if any	Lack of safe plucking skill, Post harvest losses
Impact Study	Impact can be huge. Considering that lot of fruit is spoiled in Chitral valley, if properly tapped, this can bring revolution in economic life of growers as they are likely to get fair prices of their produce under competitive marketplace and usher a new fruit processing/marketing industry in Chitral District, providing ample job opportunities.

3.9.3 Dairy Value Chain

The bank has also worked on Dairy Farming Value Chain. Dairy farming is a risky business and involves number of risk factors need to be addressed while making a financing decision. There are two basic players in a dairy farming value chain, a milk producer and a milk seller. Milk seller purchases milk from the producer and sells it to final buyers. Hence this value chain may be buyer driven or facilitator driven value chain. The bank is treating this as facilitator driven value chain, by considering the seller as facilitator.

As per prevailing market trends, reputed milk seller ensures sustained supply of milk by making huge advance payments to one of the milk producers. Participating bank spotted one renowned milk seller and on his guarantee one milk producer/dairy farmer is financed. Sale proceeds are deposited in bank's branch on daily basis and finances made to the milk producer are recovered on monthly basis from milk seller's account. Table 11 shows the salient features of the dairy value chain model of Bank of Khyber.

Table 11. Dairy Value Chain Model of Bank of Khyber

Background for selecting a specific Value Chain Product	Already established chain, easy to spot and readily available for financing.
Value Chain Mapping	Value Chain Actors: a. Milk Producer (Farmer) b. Milk Seller (Retailer) c. Bank of Khyber Enabling Environment a. Bank has relevant agricultural financing policy b. Strong Market presence c. Milk is in great demand
Methodology for product development	Market Demand
Salient Features of the product	Basically it is Product Financing. Bank finances production activity/Risk Mitigation Product
Model adopted by the Bank	Facilitator-Driven Agricultural Value Chain
Implementation and monitoring mechanism	Milk producer is financed against guarantee of milk seller and recovery will be affected through account of milk sells maintained at BoK Branch. Strict monitoring mechanism like regular supply of milk by farmer to retailer and daily cash inflow in the account of seller will be ensured through branch ACO.
Challenges faced if any	No problem so far
Lessons Learned and Recommendations	In absence of Milk Processing units in areas like KPK this model can provide comfort level to the banker for dairy financing It is recommended that close monitoring of Retailer can make the product a Success.

CHAPTER 4
Case Studies in Agriculture Value Chains

There are several examples of institutions, generally grass-roots based NGOs working on agriculture value chain financing in order to address the multiple challenges faced by poor farmers, from poor crop productivity to lack of resources and lack of knowledge on modern cultivation techniques. These initiatives have not only increased access to easy and cost-effective financial services, but also focused on value addition services, capacity building of poor farmers and greater access to upstream/ downstream markets.

The following cases are presented and described which have had impact on agriculture value chains in Pakistan.

Case Study 1: Jinnah Welfare Society (JWS) – Farmers' Development through Agriculture Financing

Farmers Emancipation Loan was initiated by Jinnah Welfare Society (JWS) in 2010 in collaboration with PPAF. The prime objective of this program has been to strengthen the economic base of the low-income farmers with land holding of 4-6 acres, through increased and timely access to easy and cost-effective financial and non-financial services, capacity building initiatives and access to upstream/downstream markets.

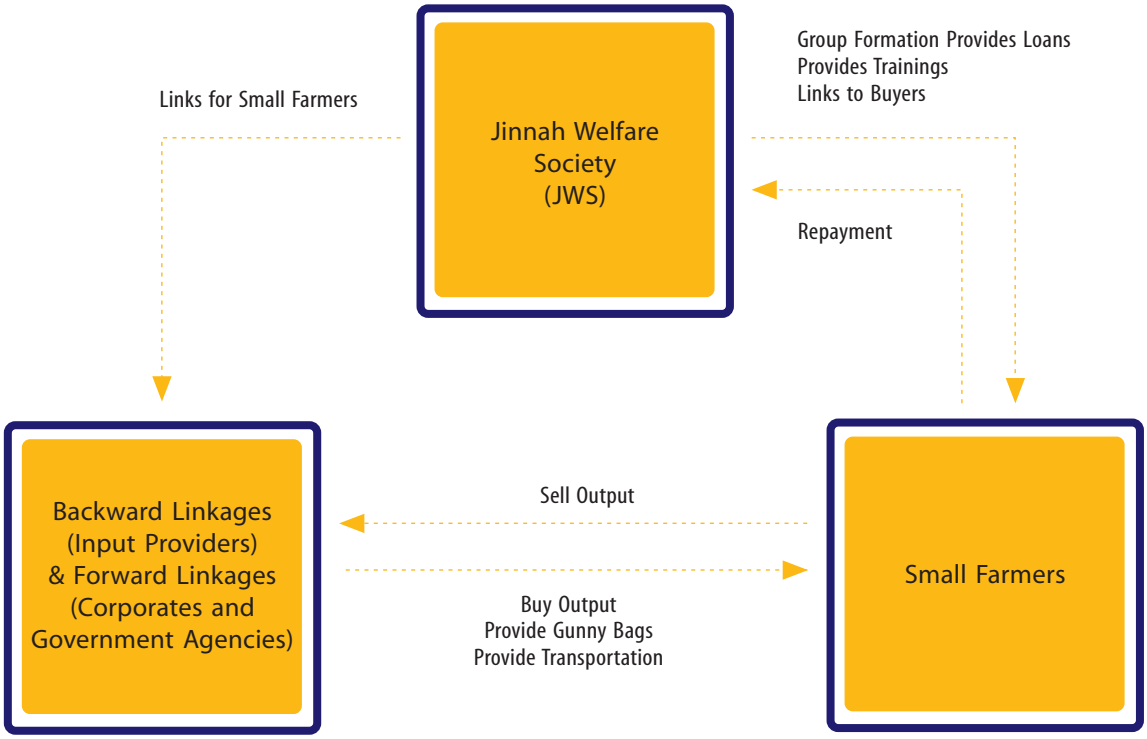
The project was piloted with 450 farmers in 7 villages in district Gujranwala targeting farmers with land holdings of less than 6 acres. The program consisted of two components: The first component consisted of providing loan facility to the targeted poor farmers to buy required agricultural inputs based on per acre cost of crop cultivation (PKR 10,000 per acre). Farmers were mobilized into Farmer Enterprise Groups (FEGs) for collective bargaining and purchase, resulting in lower prices of inputs while proving to be cost-effective and efficient in terms of availability and access. The project was designed to provide additional loan for the next harvest without waiting for the repayment of the first loan hence fulfilling their cash requirements for sowing of the next crop while looking for best buyers for their produce to repay the initial loan; resulting in less dependence on the middle man.

The second component consisted of providing business development services (BDS) to the targeted farmers. Provision of such services included training on crop management, on-farm technical assistance, soil testing and preparation, water testing, provision of quality seeds and fertilizers through development of strong linkages with the Government's agriculture department and Punjab Seed Department (PSD) for better crop production in terms of quality and quantity. Corporate linkages were developed with Engro Foundation for provision of trainings with the aim of increasing overall production. Engro also installed a rice processing unit in the vicinity for the off-take of the rice crop from the farmers at competitive prices; providing increased monetary returns and further reducing farmer's dependence on the middle man. Thus, this component contributed towards the development of the farmers' capacity to adopt modern farming and cultivation tools and techniques with improved access to profitable markets.

The overall outcome of the program has been very encouraging. An additional income of PKR 6,000 per acre was reported as a result of selling crop at market prices coupled with better quality and increased per acre yield. The initiative is running successfully and to date JWS has successfully implemented this

program in 43 villages of 14 union councils of 3 tehsils in District Gujranwala with 4,240 beneficiaries up till now (1,027 active clients). With the creation of sustainable market linkages, the average yield has increased by 20 percent and the average loan size currently being offered has increased to PKR 90,888 from average loan size of PKR 60,000 during the pilot phase of the project. The following flow chart depicts the agriculture value chain implemented in Gujranwala.

Figure 18. Wheat and rice value chain[15]



This value chain has reiterated that interventions aimed at improving value chains cannot be premised on financing alone but rather have to be holistic in nature. As such, it highlights the socio-economic benefits that accrue to small farmers at the base of the pyramid when partnerships are promoted between low income communities, financial institutions, government bodies and private corporations such as 'Engro'. It also showcases some of the challenges that can arise in the process:

- The process of Social Mobilization, though, integral to strengthening of value chains also entails challenges. Initially, JWS had some difficulty in organizing the community at the grassroots level because of divisions along the lines of clans and ethnicities. The deeply entrenched 'biraderi'(clan/tribe) system in the region posed a challenge as farmers belonging to different/rival 'biraderis' as they were somewhat hesitant to be in the same group. The MFP or other implementing organization needs to be sensitive, therefore, to issues such as these.
- In ensuring access to finance, proper care needs to be taken to design financial products sensibly and taking into account the socio-economic profile of the client as well as the risk to the MFP. While providing loans to small farmers was essential to strengthen the crop value chains highlighted in this section, JWS had to keep in mind the kind of collateral that small farmers had to offer and ensuring repayment, considering that these were relatively larger bullet loans.

[15] Source: PPAF Good Practice Note No. 4 "Pro-Poor Value Chain Development"

Outcomes of the Project

The value chain has played a favorable role in the lives of the farmers and their families resulting in improved income streams in addition to other positive outcomes summarized as follows:

- Through access to cost effective financial assistance, farmers are coming out of the middle-man's trap.
- The farmer's production cost has curtailed due to access to open market for buying agricultural inputs. Farmers are free to sell their production in profitable open markets to receive the true prices of their produce.
- Agricultural production increased to a significant extent due to technical assistance received from 'Engro' and Government food departments.
- Farmers' capacity has enriched and they are now using latest tools and modern techniques to maximize their agricultural production resulting in socio-economic uplift of farming communities through better production.
- Un-served households of the rural areas availed credit facilities as per their demand and requirements.
- Private sector's contribution in rural and agricultural development has increased.
- Increased knowledge and self-confidence of farmers.
- Farmers have achieved an increase of 20 percent in the average yield which in turn has helped in creating monetary benefit of more than PKR 5,000 per acre of land.

Case Study 2: Pakistan Poverty Alleviation Fund (PPAF) – Strengthening the Economic Base of Low-Income Farmers in Bahawalpur

Taking forward the success of the model developed for farmers in JWS, which contributed in strengthening the economic base of low-income farmers with timely access to easy and cost-effective financial and non-financial services, capacity building initiatives and access to upstream/downstream markets; Pakistan Poverty Alleviation Fund (PPAF) designed an agri-value chain model to benefit 15,000 farmers in district Bahawalpur through National Rural Support Program (NRSP) Bank. This multi-dimensional value chain consists of the following components:

Financial Product

Aimed to meet the needs and requirements of the farmers, NRSP Microfinance Bank offered larger loans of up to PKR 80,000, while the bank previously offered smaller loans ranging from PKR 15,000 to PKR 20,000. Easy and cost effective need based financial loans for farmers covering per acre input cost fulfill agricultural input requirements for crop cultivation.

Social Mobilization

Participant farmers of the value chain have been organized into Farmer Enterprise Groups (FEGs) through social mobilization, where 15,000 farmers are already organized into 1,356 farmer enterprise groups. Moreover, an apex body of the farmers has been formed to meet the agricultural needs of the clients collectively while also enabling the farmers to engage in collective bargaining and negotiation of improved rates for their output.

Capacity Building

In order to overcome the lack of awareness and education about best farming practices, Productivity experts have been hired to conduct trainings for the target farmers on crop management and farming best practices. The FEGs are also provided financial literacy trainings.

Linkages

Backward and forward linkages are created to facilitate on-farm technical assistance, soil testing and preparation, water testing, provision of quality seeds and fertilizers. Pakistan Agricultural Research Council (PARC) has been engaged for farmer trainings, Regional Agricultural Research Institute (RARI) for research on crops and provision of seed, Punjab Seeds Corporation (PSC) to ensure the supplies of quality seed to the farmers in growing season, Fatima Fertilizer Company Limited for provision of fertilizer and Fauji Fertilizer Company (FFC) for providing of farm advisory services to FEGs. Moreover, forward linkages are being created with suppliers interested to purchase farmers' harvest. The objective of forward linkages is to yield respectable and sustainable income streams for farmers.

Improved nutrition for farmers and communities

FFC has been engaged for the deployment of Zinc Foliar Spray for the wheat crop. Since Bahawalpur is one of the most deficient regions in terms of Zinc nutrition, Zinc Foliar Spray initiative is deployed for 1 acre of land for each farmer, and will help fulfill the Zinc deficiency of subsistence farmers and their families. FFC provided raw material for the zinc foliar spray at competitive prices and aided in provision of trainings to the Agri-Value Chain NRSP-Bank staff as well as Farmer Enterprise Groups – FEG leaders/ apex body heads, who further trained other farmers, about the Zinc Foliar Spray.

Insurance

To cover the risks of farmers a comprehensive insurance component has been developed, which provided insurance coverage based on the yield of the crop. Leading insurance companies were engaged and a total of 34,500 acres have been insured, for both the wheat and cotton crops, while 12,400 farmers have benefited from this risk mitigation tool.

Technology

Debit cards are being designed for the farmers, funds would be made available in a bank account in the farmer's name accessible through a bank card. Agreements between NRSP-MFB and supplier shops supplying fertilizer, seeds and pesticides would lead to transactions being completed between farmers and the supplier shop without the exchange of physical cash. The farmer would be able to withdraw cash (if required) for purchase of labor or hiring other services through agents of a branchless banking operator or from an ATM machine of a bank. Upon harvest, an agency agreement between PASSCO (the government procurement agency for wheat) would lead to settlement of dues with the farmers such that the farmer would be provided with the balance amount after deduction of loan repayment to the implementing partner. In order to build awareness and ensure that farmers remain up-to date about the latest best farming techniques, a SMS service is being initiated for the farmers participating in this value chain. The service would facilitate the farmers in deploying best agricultural practices in a timely manner.

Integrated Pest Management

Integrated Innovative techniques such as 'Natural Enemy Field Reservoir' have been piloted enabling farmers to protect their cotton crops from harmful pests and insects, without affecting the ecosystem.

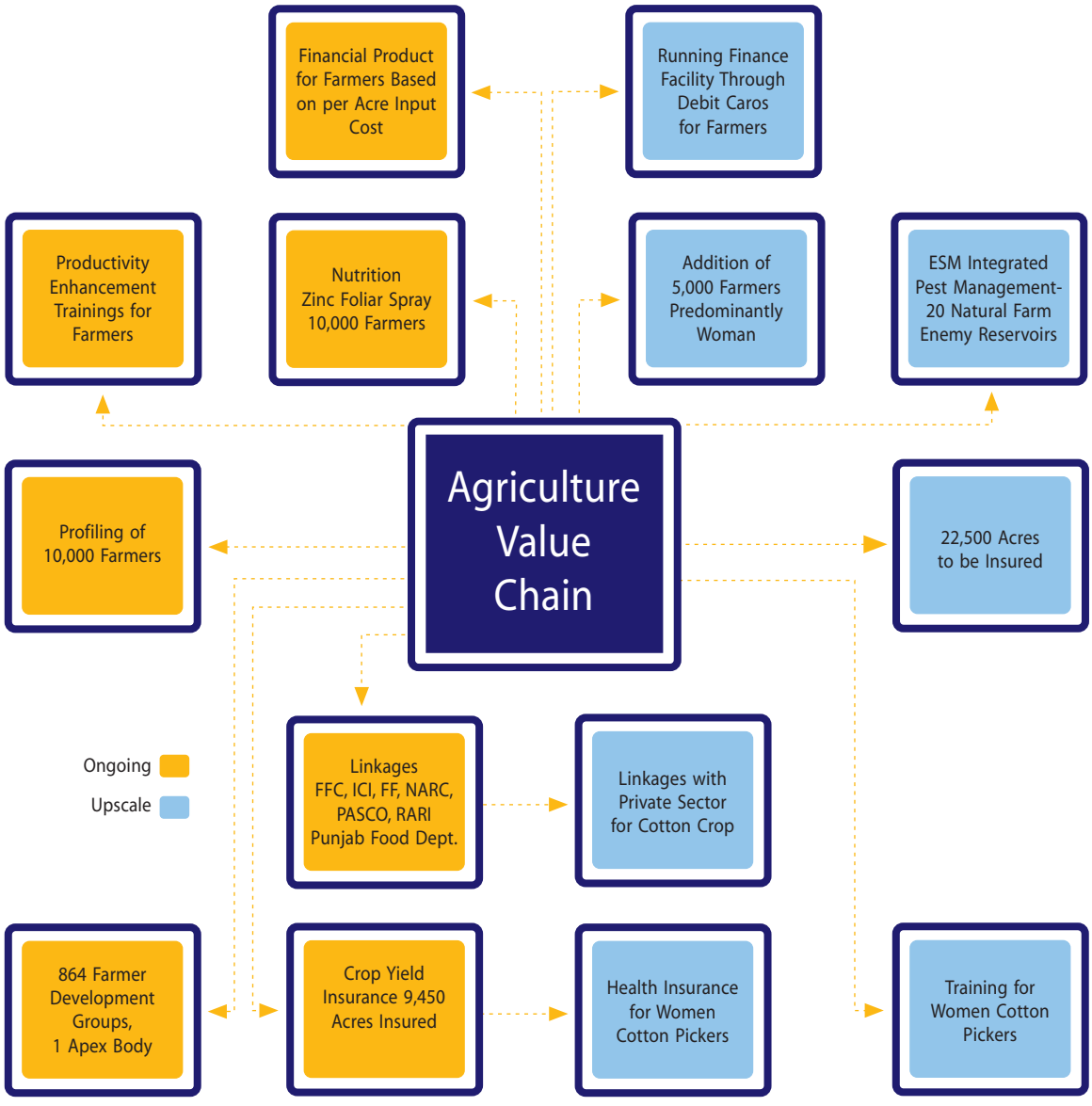
Gender Focus

In order to build the capacity to avoid risks and hazards associated with pesticides as well as pests, cotton picking training were provided to 1,500 women farmers. Based on the needs of the women farmers in the area, a women centric insurance product is being designed providing insurance coverage from diseases/animal bites which women cotton pickers are prone to.

The value chain implemented in Bahawalpur has fostered adoption of productive farming patterns in the area, resulting in enhanced productivity and efficiency while bringing a positive impact on the social and economic status of the smallholder farmers. The upscale of the AVC project, with additional 5,000 farmers (predominantly women farmers), is nearing completion and will help create sustainable and increased income streams for all the AVC beneficiaries.

The diagram depicts the various components of the agriculture value chain implemented in Bahawalpur (Figure 19).

Figure 19. Components of Agriculture Value Chain in Bahawalpur[16]



[16] Source: PPAF Good Practice Note No. 4 "Pro-Poor Value Chain Development"

Case Study 3: Fishery Value Chains in Pakistan

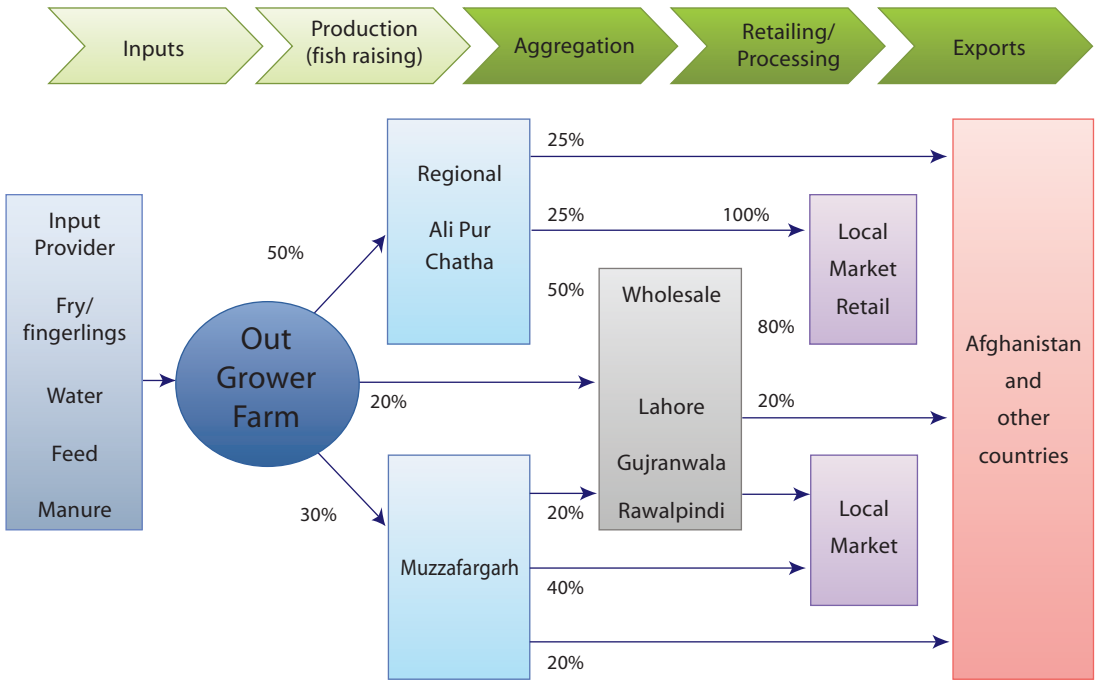
This analysis is based on regional clusters in Punjab, Sindh and KPK. Punjab fishery markets cater to the low end market of the region. Sindh and Balochistan fish production is directed at export markets or processing industry in Karachi. And KPK fish production which is mainly trout caters to the high end domestic markets.

Punjab Aquaculture Value Chain

In Punjab, aquaculture is divided mainly into two clusters; one in Sheikhupura, Gujranwala and Attock districts as they carry large number of farms and constitute around three quarters of the total number of farms in Punjab. The second cluster constitutes of small fish farms that are scattered throughout the province. The fish farms are developed along canal or river banks. One cluster is in Ali Pur Chatha where farmers sell their fish to four well organized fish markets. The other cluster is in Muzzafargarh/Dera Ghazi Khan which caters to large markets like Peshawar and Lahore. One example is Metro store Lahore which has contracted progressive fisher folks from this region to supply fish in quality and quantity.

Figure 20 below represents a typical value chain in Punjab where fish from farms go to regional markets in Ali Pur Chatha and Muzzafargarh, indicating directions of flow of commodity and its share going to different agents within the chain. Ali Pur cluster has four wholesale markets where farmers bring their produce in pickups starting from noon time, unload and sort out the fish according to sizes and species. On the demand side, buyers bring their pick up to buy the unprocessed fish from all four wholesale markets. The auction is designed in such a way that buyers can participate in all four auctions within the cluster. The fish from these markets are sold in larger markets such as Lahore, Gujranwala, Rawalpindi and Peshawar. Some of this fish is also exported to low end markets like Afghanistan, Middle East, Africa. But in order to compete in the large high end markets like USA, Canada, Singapore, we need to have significant investment in farms and post-harvest levels to measure up to tough food standards and safety rules.

Figure 20. Value Chain Mapping Punjab[17]



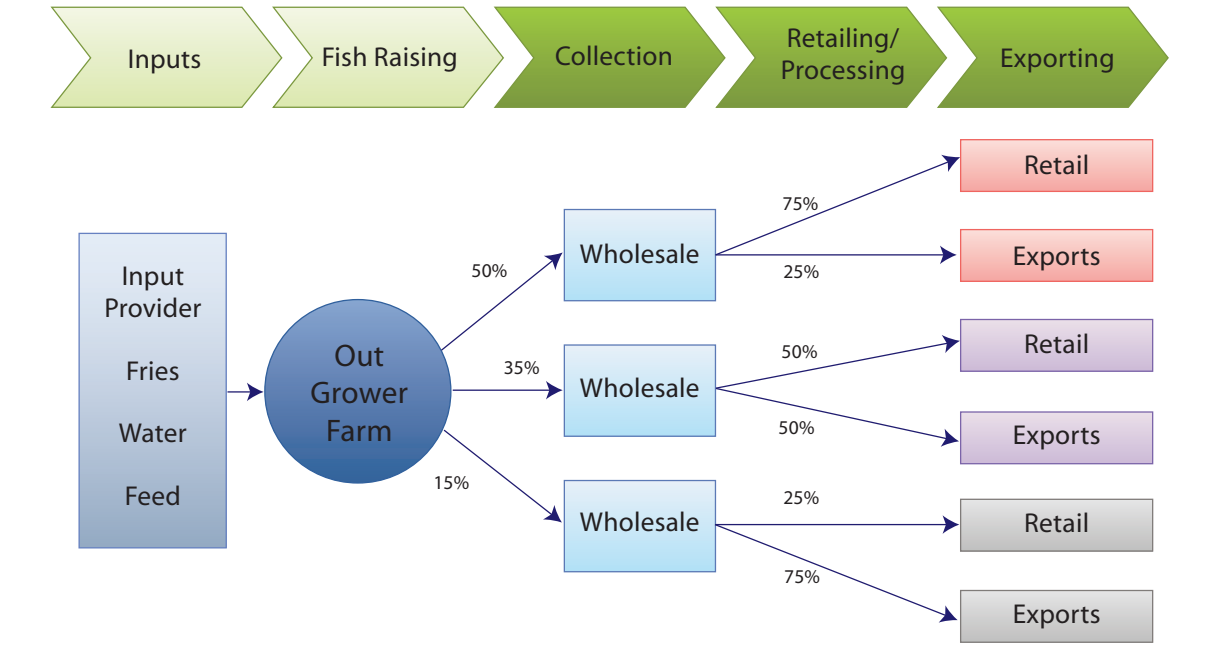
[17] SBP report on 'Report on Aquaculture and inland fishery value chain in Pakistan' http://www.sbp.org.pk/publications/ChainReport/index.htm

Sindh Aquaculture Value Chain

Figure 21 represents a typical value chain in Sindh where fish from farms go to regional markets in Thatta, Hyderabad and Karachi, providing the flow of commodity and its share going to different agents within the value chain. Fish farms from this cluster constitute carry species like Thala, Rahu and Mori as the main carp species, exotic fish include Grass, Silver, Gulfam and Big Head.

In Sindh, volume of available marketable fish determines the commodity flow. If the load of the truck is less than 5 or 10 maunds, the produce is marketed to Thatta and if the produce is between 10-40 maunds, it is marketed to bigger markets like Hyderabad and Karachi. The primary processing takes place at the retail level whereby the fish buyers clean it, slice it and pack it. At fried fish shops, the produce is sold with spices and chickpea flour that is used before frying and selling.

Figure 21. Value Chain Mapping Sindh[18]



Trout Value Chain

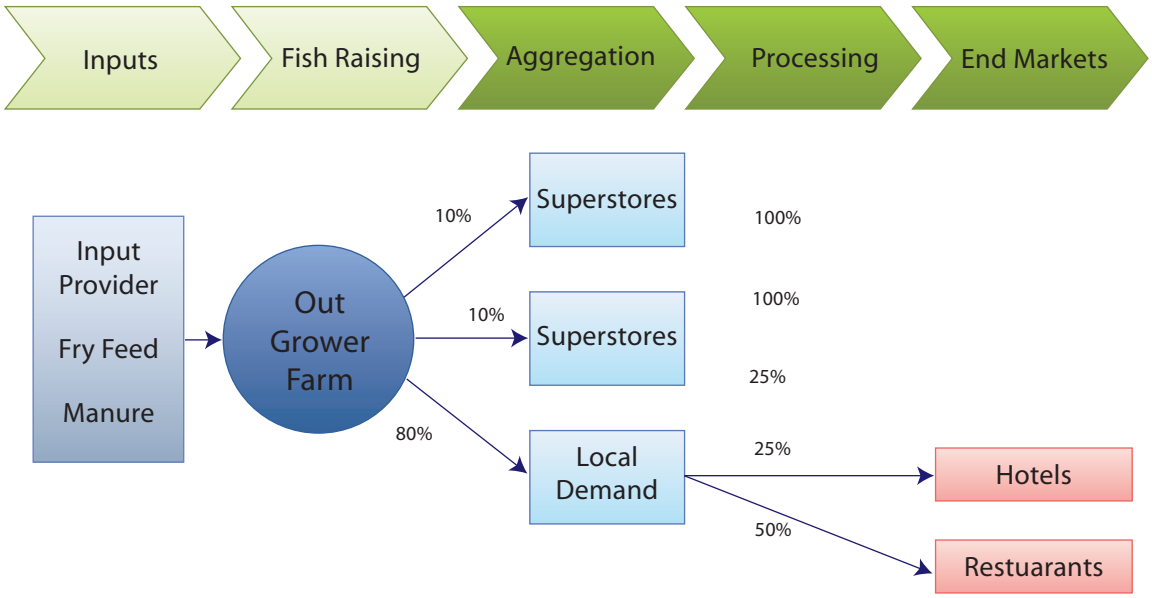
Trout is a renowned form of specie which caters to wealthy consumers due to its delicious taste. Demand for trout has been on the rise with increasing income levels and people getting more conscious about their health. Two types of trout, namely brown trout and rainbow trout are cultured in KPK; mainly in Chitral, Mansehra, Swat, Dir, Malakand and other parts.

Swat is a major producer of trout due to the terrain being ideal for its rearing. The marketing and production of trout is linked closely with the tourism industry and upper income class of the country. The fishing industry has been hit hard by the conflict and further by floods in 2010 which has badly affected the fishing industry with production levels dropping from its peak of 162 metric tonnes to almost zero. A business recovery project by USAID/FIRM Project has been developed for the fishing industry which aimed to rehabilitate farms and bring the production levels to at least 100 metric tonnes. According to USAID/FIRM report[19], recapturing this market depends upon the return of tourism in the region as well as the overall economic development of the country.

[18] SBP report on 'Report on Aquaculture and inland fishery value chain in Pakistan' http://www.sbp.org.pk/publications/ChainReport/index.htm

[19] Chemonics/USAID, 2012, Market Demand Analysis of Trout Fish, Islamabad, Pakistan

Figure 22. Value Chain Mapping Trout[20]



The business model of trout is very straight forward as it requires minimal post-harvest processing. The fish is purchased on the site and sold to onward points in hotels and restaurants in main tourist areas or it is transported to regional markets such as Lahore and Islamabad.

Fishery Value Chain Actors: Roles and Relationships

1. Input suppliers: Seeds that are the most important part of fishery can be acquired from a large number of hatcheries available both in small and large towns. Both the private and public sector is competing in this market. Around 10 pc-20 pc of the seeds are accessed through Arthi. This is true for small fish farms where farmers do not have access to working capital.
2. Contractors: They play a major role in marketing of fish from taking the contracts of public water areas from the Fisheries Department to managing catching of fishing and further supplying it to the market.
3. Fish Farmers: A typical fish farmer produces the fish in the farm and supplies it to the market. Most of the fish farms are scattered throughout the country with average farm size ranging from 2-10 acres.
4. Aggregators – Marketing Intermediaries (wholesalers, processors, retailers) are all the individuals who handle fish after it leaves the producers until it reaches the consumers. The aggregation of the produce takes place in local markets where the buyer buys the produce at auction and takes it to the regional market where it is once again aggregated into larger sizes through another auction. Fish retailing is done through small scale shopkeepers, street hawkers and large supermarkets such as Hyper Star or Metro in Lahore.
5. Processors: There are majorly two types of processers; shops selling fried fish with value addition and cleaning, packing and boxing of fish for export markets. In Pakistan, there are a total of 65 fish processing plants with the capacity of processing 800 metric tonnes of fish on a daily basis. (FAO 2009)[21]. Most of the machinery available in these plants is obsolete with poor cold store insulation. Equipment for fast freezing of fish for export purposes and to increase the shelf life of fish in in poor condition with non-uniform function.

[20] SBP report on 'Report on Aquaculture and inland fishery value chain in Pakistan ' http://www.sbp.org.pk/publications/ChainReport/index.htm

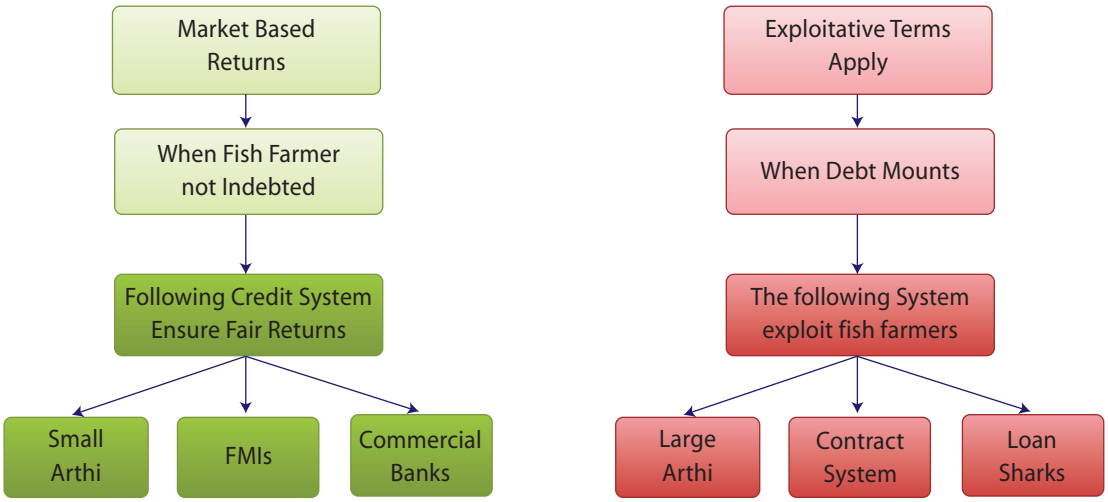
[21] Source: FAO 2009, Fishery and Aquaculture Profile, Rome

6. End Markets: In 2010-2011, Pakistan produced around 937,000 tonnes of fish from which 50 pc was consumed locally, 22 pc was exported and 28 pc was used as feed for poultry. (FAO 2009).

Access to Finance for Fishery Value Chains

Two kinds of financing exist in the fishery value chain; formal (in the form banks, government schemes etc.) and informal (through friends, relatives, arthis, wholesalers etc.). Unfortunately, around 90 percent of financing in fishing industry comes from Arthi. Figure 23 highlights the importance of credit in fishery industry.

Figure 23. Characterization Credit, Market based or Exploitive[22]



Source: Shaheen Rafi Khan. Fahd Ali. Azka Tanveer. "Compliance with International Standards in the Marine Fisheries Sector. A Supply Chain Analysis from Pakistan Sustainable Development Policy Institute (SDPI) December 2005.

Table 12 shows the financial needs of fish farmers at each stage and the institutions that cater to those needs.

Challenges faced by Fisheries Sector

- On production level, fishing industry faces the issue of insufficient sully of quality fingerlings. Not much attention being given to farm fishery practices, combined with lack of intensive culture, access to affordable financing and high costs of water brings down the overall of productivity of fishing. As most of the farms are on small scale and scattered throughout the country, the focus is not placed on quality using standardized practices.
- On a competitive marketing level, small fish farmers find themselves trapped in unstable prices for their produce due to lack of bargaining power as they have no equipment to store their produce. As majority of the farmers are operating on a small scale, they do not have a high appetite for risk, which leads to low investment in productivity.
- As discussed above, there is also a major issue of lack of access to formal financial services available to fish farmers. There is also lack of awareness of the minimal financial services available which ends up in farmers accessing informal credit, trapping themselves in debt.

[22] SBP report on 'Report on Aquaculture and inland fishery value chain in Pakistan' http://www.sbp.org.pk/publications/ChainReport/index.htm

- One of the biggest challenges faced by the fishing industry is absence of enabling environment for it to thrive in this competitive market. There is poor institutional setup to support the sector with processing plants obsolete and in need of complete up gradation with greater role of private sector.

Table 12. Working and Fixed Capital Needs with Fishery Value Chain[23]

Participant in the Chain	Financial Needs	Financing within the Chain	Financing from Outside the Chain	Awareness or Available Financial Products
Input Distributor	Working Capital (WC), Fixed Capital (FC)	Factory Purchased Capital	MFIs, Commercial Banks	None
Farmers	Working Capital (WC), Fixed Capital (FC), Household Budget (HB)	Self Financing Friends and relatives, commodity based per-finance and credit providers, Arthi, and input stockist	Informal Money Lenders, FMIs and ZTB	None
Processors	Working Capital (WC), Fixed Capital (FC)	Pre-financing from Exporter	Commercial Banks	Low
Whole sellers/ Exporters	Working Capital (WC), Fixed Capital (FC)	Pre-financing from Exporter	Commercial Banks, MFIs	Very Low

[23] SBP report on 'Report on Aquaculture and inland fishery value chain in Pakistan' http://www.sbp.org.pk/publications/ChainReport/index.htm

CHAPTER 5
Challenges, Conclusion and Recommendations

Value chain development, a relatively new market based approach to poverty alleviation for low income and marginalized communities, is particularly useful for agriculture and livestock.

International and local donor agencies such as USAID and PPAF as well as the State Bank of Pakistan have various on-going initiatives, particularly in the agriculture sector. However, there is potential for optimizing and reinforcing such value chains in the agricultural as well as other sectors to bolster the livelihoods of low income households.

Owing to the nature of agriculture activity, there are some general challenges that agriculture sector is more prone to more than any other sector. Being aware of these challenges is useful for understanding the way value additions can be made in this sector.

5.1 Challenges

- High catastrophic risks: Agriculture is more uniquely exposed to natural catastrophes or diseases (unlike any other sector) that make it burdensome for the financial institutions to cope up with in case of large scale damage. Such cases are aggravated in developing markets whereby government lacks the resources to redress the situation. The high risk attached with agricultural lending affects the value chain input that is required for agriculture. Example FMFB maybe? Or some floods?
- Missing agriculture insurance market: A closely related issue to high catastrophe risks in agriculture sector is lack of agriculture insurance market which bothers financiers. A common problem is that small level farmers or producers do not really understand or value insurance. Less diversification of insurance products and absence of government support add to this problem. Consider the example of Pakistan.
- Under-capitalized Agri-business sector: Most agricultural produce in Pakistan is not processed in the country. It is either exported or consumed domestically. On the other hand, imports of processed food are increasing to cater to the increasingly urbanized market and diversified economy. Capital in the form of machinery and low quality agricultural inputs, in addition to small land holdings of farmers is another challenge faced by agricultural industry.
- Lack of integration in wholesale credit markets: A healthy financial sector is usually defined as the one that has both high-quality and niche financial institutions benefiting in a conducive environment in the form of getting reasonably priced funding and managing risk management practices. In Pakistan, access to the market for rural and small cooperative banks is limited. Developing financial relationships between large commercial banks and smaller rural areas institutions can strengthen strategic partnerships that can add value to the agricultural sector in Pakistan.

5.2 Conclusion and Recommendations

The case studies discussed in the report highlight the importance of Agricultural value chain selection, methodology for product development and role of key value chain players along with backward and forward linkages. In addition, it provides a number of lessons related to project design, implementation,

participatory approaches and risk management. The discussion elicit that there is no single formula to develop a successful agricultural value chain. They are context specific, in terms of agricultural activity, value chain structure and business environments.

The participating financial institutions put greater attention during project design to value chain analysis and identification of high-value competitive markets for developing value chains. The different agricultural value chain models adopted by the participating banks suggest that a value chain requires flexible financing products and must be market-driven. A well-coordinated information system should also be placed to safeguard producers from the risk of exploitation due to information asymmetry.

The learning of the study recommends the financial institutions to adopt following key steps while developing AVCF products;

1. AVC should focus on inclusion of the poor, women and marginalized groups. Increasing the value of a product through a value chain approach has the potential to increase income for the poor, if suitable entry points can be identified. Given that production provides the largest employment opportunity for the poor, this is the most probable entry point. Value chains often require a high degree of production expertise, therefore, inclusion of the poor must be implemented using a staged approach that increases technical skills over time and reduces the risk of failure.
2. External support to AVCs is an important option for agriculture sector development, as higher financial returns can be realized through value-enhancing inputs. The improvements in AVC effectiveness and efficiency can enhance the benefits to all participants in the chain and contribute to food security and poverty reduction.
3. Value chain analysis carried out by value chain stakeholders should be critically interrogated, validated, and refined by the project team or other experts.
4. Practical concerns such as stakeholder interests and pressure should be considered but without losing focus of the project objectives.
5. To obtain a higher value or larger portion of the profit, smallholder farmers and agribusinesses will need to meet the demands of traders and entrepreneurs, which present challenges related to perishable products, safety issues, environmental concerns and postharvest problems. The risk of working with only one stakeholder may be considered in a value chain node, e.g. one input supplier or buyer.
6. Project managers and staff are keys to success. Hiring qualified managerial and technical staff that is capable of steering value chain analyses, design, and implementation is important.

In addition the following are some recommendations for the microfinance sector in extending their involvement in pro-poor value chain development:

- There is untapped potential between MFPs and value chain actors in terms of building strong linkages. While value chain finance is becoming more prominent within the microfinance sector, there is a lot more that can be done. This is particularly with reference to strengthening pro-poor agricultural value chains in rural areas. In this regard, there is a need on MFPs part to realize what they stand to gain in their organizational capacity from engaging in value chain finance. Increased rural outreach and presence, engagement with rural entrepreneurs at the base of the pyramid that get stuck in low investment/production cycles due to low access to finance, a creative way of entering into financial markets in rural areas, growth in loan portfolios and building of a stable clientele with good borrower characteristics in the longer run.
- There is a need for thorough value chain analysis before deciding which VC to support and strengthen. 'Financial institutions need to be assisted in terms of understanding the structure,

factors driving profitability, risks, and dynamics of a value-chain' (USAID, p.14). For example, within the agricultural sector there is a need for MFPs to 'identify crops and activities that need long term loans and to prepare farm models to establish the viability of such activities' (Sirinivasan, 2012: 14).

- There is an increasing need of scaling up of existing initiatives and pilots in unexplored VCs. Disseminating lessons from pilots completed is important to create information on what works well and why when it comes to pro-poor value chain development. Greater research needs to be conducted on sector and sub-sector value chain analyses to feed into product design as a precursor of new initiatives. In this respect, it might be useful for MFPs in Pakistan to collaborate with organizations such as SMEDA and BSF to learn more about different sectors for the low income communities to be employed in. The impact and outcomes of Agribusiness Project discussed in section 2 will be important indicators for the do's and don'ts of pro-poor value chain development in Pakistan. The IFAD's PRISM program provided an important window to the PPAF and its POs to innovate and test new ideas. Thus, donors should look into providing such windows/funds to encourage the growth of activities related to value chain reinforcement. An additional important consideration for MFPs is funding value chain financing. Products specific to different value chains will differ in structure and features. This has implications for MFPs that access funds from donors and apexes, as scaling up of VC finance may require more customized credit lines from funders. It is important for MFPs to understand that value chain finance must be combined with capacity building and training of the clients as well as strengthening of the market linkages to optimize the value chain. Apart from raising incomes of clients in a more sustainable way, this will also reduce the risk of MFPs. The importance of this recommendation can be seen in every case study presented in this note.
- The key to successfully optimize value chains is building of tripartite institutional arrangements. To improve the overall efficiency of value chains, MFPs need to collaborate with strong technical partners, local communities and other market actors. Such arrangements ensure a holistic approach to improving all links in the chain. NRSP's sugarcane production enhancement project highlights this approach. There needs to be a match-making forum perhaps, such as Ashoka in India that can pair up different financial and technical partners to distribute goods and services to low income groups.
- MFPs should take into consideration the role of social mobilization in strengthening value chains. The cooperative model is a powerful one; groups as opposed to individuals are more likely to receive finance, training and other services. In addition, in the group model, transaction costs for the MFP are reduced and outreach to a larger number of customers in increased (Sirinivasan, 2012: 14). It also gives them more bargaining power in negotiating prices with buyers and exploring new markets. The role of social mobilization in optimizing value chains is best highlighted in the GCMMF (Amul) dairy value chain in India.

Finally, the government policy is to ensure maximum food security through sustainable agricultural development and balanced growth of food sector to meet population needs and also to generate agricultural surplus to enhance the export of agricultural sector, which would eventually lead to enhance the country's growth performance. Value chain development is an important component of this objective, though the challenges associated with facilitating the system of agriculture finance remain. Value chain development is a type of approach to poverty alleviation that is increasingly being adopted by development organizations and donor agencies.

Value chain development, therefore, focuses on multi-dimensional interventions that bring together various partners who must act collectively to optimize the chain. Optimization of value chains often goes beyond improving access to finance alone, encompassing a range of other services: access to knowledge and skills, technology, and markets. The challenges and recommendations given above can

help shed some light on the areas of focus in agriculture value chains. This holistic approach can improve the well-being of low income communities in a more sustainable manner.

Pro-poor value chain development, as seen in the case studies, poses an interesting opportunity for Microfinance Providers in the country to join hands with other business and technical partners to help the low income communities improve their lives. Value chain financing is a way for MFPs to deepen their outreach and to engage with untapped markets: both at the base of the pyramid and the newly identified micro and small enterprise segment, particularly in rural areas. While there is enormous potential for MFPs to undertake value chain development, a good starting point is conducting detailed sector and sub sector analyses to select value chains that microfinance and other stakeholders will be able to develop and reinforce successfully.

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Annex

Pakistan Microfinance Network (PMN) overview

The Pakistan Microfinance Network (PMN) finds it origins in 1995 as an informal association based on the exchange of thoughts and experiences between microfinance providers operating in Pakistan. In 1999 this loose collaboration, the Microfinance Group Pakistan, sought and received financial support from the Aga Khan Foundation and the Asia Foundation. Through its expanding and more formalized operations it continued to build confidence and trust amongst donors, government and microfinance institutions. In 2001 it moved successfully to become a separate legal entity under the name of the Pakistani Microfinance Network (PMN).

Setting up of a microfinance division in the State Bank of Pakistan, followed by the ground breaking Microfinance Institutions Ordinance in 2001, has helped establish microfinance as an important sector for the economic development of the country. Since then, eight microfinance banks have been established, including two that emerged out of transformed NGOs (Kashf Microfinance Bank in 2008 and NRSP Microfinance Bank in 2011). In 2012 and 2013, Pakistan's microfinance sector has ranked number three with reference to regulatory framework and business environment globally. In addition to this, the formalization of the Pakistan Microfinance Network (PMN), the national association for microfinance providers, in 2001, helped ensure the sector continues to move towards a sustainable growth.

PMN is a network of organizations engaged in microfinance and dedicated to improving the outreach and sustainability of microfinance in Pakistan. PMN acts as a disseminator of microfinance information with the aim of enhancing the scale, quality, diversity and sustainability of microfinance providers in Pakistan. It is a national association of over 30 retail microfinance providers (MFPs), belonging to the four peer groups of service providers (the four peer groups are mentioned below) and collectively accounting for over 98 percent of the total microfinance outreach in the sector in terms of active-borrowers. The PMN's vision is to expand the frontier of formal financial services to all and pursues a mission of supporting the sector, in particular retail MFPs, to enhance scale, quality, diversity and sustainability in order to achieve inclusive financial services.

PMN works in three core areas:

- To serve as an *Information Hub* for the industry through undertaking data collection and analysis, research and publications, organizing events and policy roundtables, and promoting benchmarks on financial and social performance.
- To promote an *Enabling Environment* for microfinance in the country through close interaction with policymakers, donors and regulators, as well as through building strategic partnerships with local and international stakeholders, and setting up industry infrastructure for promotion of responsible finance.
- To work towards *Capacity Building* of the sector through local and international trainings, exposure visits and building linkages with academic institutions.

In addition to these three core functions, the PMN is committed to promoting *Responsible Finance* through a range of initiatives, including the development of a Microfinance Credit Information Bureau (MF-CIB), a client protection initiative to monitor MFPs against the Smart Campaign's international benchmarks for client protection, and a pricing transparency Initiative to encourage fair and responsible microfinance product pricing.

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