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Creating Access to Agricultural Finance

Based on a horizontal study of Cambodia, Mali, Senegal, Tanzania, Thailand and Tunisia

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Publications in this collection contain contributions based on research and feedback from researchers and field operators from AFD or its partners and are designed to be working tools. They target a public of professionals that are either specialists on the topic or the geographical area concerned.

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Past issues in the collection (see page 119)

[Foreword]

The analyses and conclusions contained in this document are the sole responsibility of the authors. They do not necessarily reflect the opinion of the Agence Française de Développement or its partner institutions.

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Summary

Efficient agriculture, agro-processing industries, and related distribution and logistics chains are essential elements of human development. In most developing countries, agriculture and agricultural value chains are inefficient and unproductive. Production yields fall short of potential, and products are spoiled during storage and transport. Crops regularly fail for various reasons, even though risk management and mitigation strategies exist. Rural populations – which make up the majority in most developing countries – are characterised by income and food insecurity, poverty, malnutrition and poor health. Consequently, all international development organisations, including AFD, have targeted rural communities, agriculture and the food chain in their strategies to reduce poverty and improve indicators of social development.

Farmers and rural populations, in general, in developing countries have always found it difficult to obtain credit financing. Indeed, the research underpinning this study reveals that most farmers in developing countries have no access to any kind of

financial service (payments, safekeeping and saving, credit, insurance), which hampers the efficiency and security of their operations. Many farmers struggle to pay their seasonal harvest inputs, and investing in agricultural technology and expansion is even more difficult. Lack of finance is one of the reasons why agricultural productivity in developing countries and sub-Saharan Africa in particular is very low. In spite of vast agricultural potential, many African countries import vast quantities of food, and this is not limited to countries where the climate is less kind to agriculture (*e.g.* Senegal, Tunisia).

Recent studies confirm that the lack of agricultural finance is as pressing as ever. In spite of government programmes undertaken over the years, supply and demand for financial services continue to be mismatched, both in terms of the types and the volume of services. Past government policies have not been able to remedy these shortcomings. Nevertheless, recent innovations in agricultural finance have created renewed interest in the sector. Such innovations include value chain finance approaches involving traders and processors, warehouse receipt finance, agricultural (index) insurance, (rural) microfinance, just to name a few.

Thus, in 2011 Agence Française de Développement (AFD) commissioned a comparative study on the financing of agriculture in developing countries. This horizontal study aimed to help AFD:

i. draw broad lessons from the history of public (and private) intervention in agricultural finance;

ii. analyse the reasons for gaps between supply and demand for agricultural finance, and analyse the public (and private) support strategies in various countries;

iii. develop proposals for support by governments, AFD, and other development partners that are responsive to the agricultural sector's needs, and which address the constraints that keep the financial sector from serving agriculture effectively.

The study drew on the experiences gained by AFD and others in the fields of agricultural finance, and used specific case material from country studies in Cambodia, Mali, Senegal, Tanzania, Thailand and Tunisia. In the first four countries, AFD has extensive experience, while the latter two were added to expand the scope of AFD's knowledge. As much as possible, the conclusions from the country studies were generalised as they may hold relevance for a wide set of countries (including others than the six above-mentioned).

The study's recommendations focussed on both institutional aspects (the financial sector) and technical aspects (financial products, risk-mitigation mechanisms). The current publication draws on the results of the above-mentioned study, but is more narrowly focussed on the role AFD and other development partners can play in creating access to agricultural finance in developing countries. After an introduction (Chapter 1) and brief review of supply and demand for agricultural finance, the publication analyses the factors that constrain agricultural finance (Chapter 2). The study goes on to describe and analyse the recent innovations in agricultural finance that have been shown to (partially) overcome such constraints (Chapter 3). This leads to a discussion of the actions governments and development partners (including AFD) can undertake to create access to agricultural finance (Chapter 4). This publication closes with conclusions and recommendations (Chapter 5). The six country reports are separately available from AFD on request.

1. Introduction

1.1. Background

Agriculture and agricultural finance have been the subjects of constant and often value-laden political debate. Faced with multiple and sometimes contradictory challenges of achieving national food security and supporting rural populations while providing food at accessible prices to urban dwellers, governments have always intervened in the agricultural markets, including in finance. In the post-colonial 1960s and 1970s, governments tried to ensure access to agricultural financing through administratively set interest rates and compulsory lending quotas on banks. In addition, and nearly universally, governments created development banks specifically mandated to finance agriculture. International development partners, such as the World Bank, AFD, EIB, AfDB, ADB, KfW, and IFAD, provided credit lines to national central banks or ministries of finance, which in turn refinanced local banks at concessionary interest rates where the state absorbed the exchange rate risk.

In parallel to interventions in agricultural finance, governments strongly intervened in agricultural value chains through (state-)monopolised marketing and price controls. Indeed, many countries took over or regulated entire value chains (*e.g.* cotton in Mali, sugar in Burundi) creating farmer cooperatives, input suppliers, agro-processors, and state-controlled marketing Boards. Farmers were often compelled to sell through the indicated channels, and had practically no influence on the prices and terms imposed on them. Export crops were often excessively and arbitrarily taxed (*e.g.* Guinea Bissau, Tanzania, Thailand). On the macroeconomic level, overvalued exchange rates created havoc such that Zambia went from being a large food exporter in the 1970s to a large food importer in the 1980s, because local farmers could no longer compete against imports.

Toward the 1980s, the strains imposed by the state-led model of agricultural development and finance became increasingly visible. Directed lending programmes showed poor results as they were inefficiently managed, generally ineffective (failing to reach poor farmers), and unsustainable because of loan losses (Yaron *et al.*, 1997). The agricultural development banks' business model of financing only one sector (agriculture, and often only a few crops) contradicts the principles of risk management in banking (diversification), and the banks' association with government

reinforced the farmers' impression that repayment was optional. Agricultural development banks disbursed loans based on assumed needs rather than demand, neglecting portfolio quality, non-farm rural incomes, and other financial services, such as payments, savings and insurance. Farmers, often forced into cooperatives, borrowed for the wrong reason – namely to get cheap credit – and not because of viable business opportunities. Governments often imposed agricultural debt forgiveness (*e.g.* Bangladesh, India, Sudan, Thailand, Tunisia) further confusing farmers on the differences between loans and grants. Meanwhile, the provision of subsidised loans through government channels, along with poor loan recovery and recurrent debt waivers, gave commercial banks every reason not to serve agriculture, in effect making farmers dependent on one or a few government-backed (subsidised) finance providers.

At the sector level, it became increasingly clear that strong state intervention in agriculture, including finance, had achieved the opposite of what had been intended. Agriculture had become unprofitable and investment did not take place. High-potential agricultural countries such as Guinea Bissau, Tanzania, Zambia had become food deficient. Most subsidies were captured by the rich rather than poor farmers; the social, nutritional and health indicators for the rural population were far worse than for their urban counterparts (and this gap had widened); and the rural populations were fleeing to towns to escape persistent poverty. Several of the initial generation of agricultural development banks folded (Burkina, Togo), while all of the others scaled down their operations and reformulated their business model to be less dependent on agriculture (*e.g.* in Senegal). The agricultural development banks in Mali and Thailand are among the few that still, more or less, fulfil their original mandate.

Starting from the early 1980s, and in response to the failure of state-directed lending programmes, interest-rate caps, recurrent debt forgiveness, and public intervention in almost all aspects of agricultural finance, most developing countries set out to liberalise financial markets, including opening access to foreign financial institutions. This vastly increased the volume and quality of financial services. The liberalisation of financial markets and interest rates also opened the way to new initiatives and experiments by microfinance institutions. Thus, attention shifted to the sustainable and cost-efficient provision of financial services to the poor. Although these concepts were pioneered by NGO-type microfinance institutions, these were soon embraced by governments, international development partners, and banks as well. The liberalisation of financial markets also created space for a large variety of member-owned and managed savings and credit associations, such as village and rural banks, which usually focus on rural populations. The focus in the new approach to finance

was on sustainable and market-based service provision, rather than on supply-led cheap credit. AFD, along with all other international development partners, has strongly supported this process.

Although microfinance mostly emerged from the urban areas, over the years MFIs have gradually increased their presence in the rural areas. For some, this was in response to their mission to serve the poor; for others, it was simply a growth ambition that could only be fulfilled by moving into virgin territories. Also, over the past ten years we have seen a concerted effort by many MFIs to move from group lending to the poorest segments, to individual loans, and finally to more advanced "micro" businesses including farmers. MFIs have created "microbanks" specifically catering to the "missing middle": too large to be included in solidarity groups, yet too small to be bankable. Indeed, increasing numbers of MFIs have asked and obtained bank licenses and now offer a full assortment of financial products to their clients. The new understanding that smallholder farmers can be served profitably also leads to increased competition. In Bosnia, for example, banks are downscaling to finance smallholder farmers, while microfinance institutions are moving upmarket.

Box 1 *The experience of BAAC Thailand*

One of the few "old" agricultural development banks that prospered under the new approach is the Bank for Agriculture and Agricultural Cooperatives (BAAC) in Thailand. BAAC practices a form of group lending for small loans (as MFIs would do). It also provides larger individual loans and loans to cooperatives. BAAC now also works outside of agriculture, and engages in savings collection as well.

The bank is seen as a showcase of the good that a dedicated agricultural development bank can do. It put much effort into developing deposit and credit products for smallholder farmers. The bank now reaches nearly all farmers and villages and, unlike most developing countries, smallholder farmers in Thailand have adequate access to credit. The bank is no longer reliant on government and donor funding.

However, the country studies undertaken in preparation of this publication reveal that the liberalisation of financial markets has barely had an impact on the amount of finance available to (smallholder) farmers. With the exception of Thailand, the large majority of farmers still cannot obtain any agricultural credit. While getting seasonal credit is hard, finding investment loans is practically impossible. The financial markets approach has not (yet) brought agriculture the hoped for, and sustainable, sources of finance. This is the main reason why governments continue to support the

agricultural finance markets through various supply-side measures and credit subsidisation. The euphoria about microfinance has also subsided. Many MFIs focus on urban areas, and when they do work in rural areas, they finance projects other than primary agriculture for clients other than farmers. In most developing countries, although ubiquitous, the volume of microfinance is still dwarfed by banks. Furthermore, MFIs are confronted with severe constraints in governance, internal control, risk management and debt collection once they grow beyond a certain level.

After five decades of intermittent intervention and liberalisation of the (agricultural) financial market, the lack of agricultural credit is as pressing as ever. Thus, a rethink of the mechanisms of agricultural finance and the role governments and developing partners can play in sustainable finance provision is opportune. This is what this publication is about.

1.2. Scope of the study

For the purpose of this study, it is important to define which types of farmers are the subject of discussion. One can generally distinguish farmers according to their profiles, as follows:

- **Subsistence farms** with a survival orientation. Subsistence farms are typically mixed farms with land often less than one hectare (ha), one cow and some small animals. This group consumes 80%-90% of what it produces. Farm income is often supplemented by non-farm income, such as remittances or employment.

- **Small-scale farms** with semi-commercial orientation. These farmers have a subsistence orientation, but manage to sell up to half of their production on the market. Operations are typically mixed – some crops, a few ha of land, animals, orchards.

- **Medium-scale commercial farms.** This group includes farms with product specialisation, selling most of their produce. Examples are farms with a substantial crop area (±20 ha), 20 dairy cows, farms with greenhouses, or orchards. The owners are developing their business in a more dynamic way than the previously described farm types.

- **Agricultural estates.** Examples are oil palm estates in Thailand, or coffee and tea estates in Kenya and Tanzania.

This study targets semi-commercial smallholder (small and medium-scale) farmers. It does not target subsistence farmers, who barely interact with the market, unless they aspire to "graduate" and develop semi-commercial operations. Agricultural estates are not targeted, either, as these are generally well-financed.

1.3. Supply of agricultural finance

Agriculture in developing countries, and sub-Saharan Africa in particular, continues to be largely overlooked by financial institutions as can be seen from the table below. In addition, research shows that much credit classified as "agricultural" is in fact used for purposes other than farm production, such as agro-food processing or agricultural storage. Although there is not a one-on-one relationship between agricultural activity/employment and the need for credit, and the activities of microfinance institutions and some value chain financing arrangements are not included, the data nevertheless suggest that little credit is available for agriculture. Many gaps remain in the agricultural financial markets, due to factors such as the scarce provision of seasonal credit to smallholder farmers in particular, the near-absence of medium and

Table 1 *Agricultural finance: a macroeconomic perspective*

Country	Agriculture in GDP	Employment in agriculture / Total employment	Rural population	Agricultural credit / Total bank credit
Cambodia	33%	58%	78%	7%
Ghana	34%	56%	49%	6%
India	16%	52%	70%	6%
Indonesia	17%	38%	56%	5%
Kenya	22%	75%	78%	5%
Mali	45%	80%	64%	15%
Senegal	15%	78%	58%	3%
Tanzania	42%	80%	74%	10%
Thailand	10%	42%	66%	2%
Tunisia	11%	18%	33%	4%
Zambia	20%	85%	64%	19%

Sources: Central Banks, CIA factsheets; most data are for 2009. Agriculture includes forestry and fisheries.

long-term financing for investment (in animals and long-gestating crops such as fruit trees), and the lack of deposit (savings) and payment services. Public policies have not been able to remedy these shortcomings.

Based on examples from the six countries studied in preparation of this publication, the various providers of financial services and their products are listed below. The role these can play in agricultural finance is further analysed in Chapter 3.

- **Commercial banks.** The six country studies revealed that the role of commercial banks in agricultural finance is insignificant. Agriculture constitutes just a small percentage of commercial bank loan portfolios. Commercial banks often have no offices outside of the main urban centres. Although commercial banks do finance some agro-processing units, agro-trading and related businesses (*e.g.* NMB in Tanzania, banks in Mali), primary farming is shunned, with the exception of some of the largest agricultural conglomerates. The reasons that lead commercial banks to avoid agriculture are presented in Chapter 2.

- **Agricultural development banks.** As noted above, nearly all developing countries established (agricultural) development banks in the 1960s and 1970s. In most countries, these have been restructured to serve a wider clientele of urban and non-agricultural clients, and the use of credit subsidies has been reduced, but not eliminated. With commercial banks avoiding agriculture, agricultural development banks, or their successor institutions, continue to play a role in agriculture, and this includes serving smallholder farmers. However, with a few notable exceptions, such as BAAC in Thailand, BRI in Indonesia and to some extent BNDA in Mali and BNA in Tunisia, the role of agricultural development banks is very limited and far from sufficient to satisfy agricultural credit demand.

  In Tunisia, for example, more than two-thirds of all formal agricultural credit is provided by the national agricultural development bank. This includes subsidised credit lines with clients selected by the government. Its work is supplemented by the "solidarity" bank, which provides highly subsidised credit to smallholders without collateral, and by microfinance associations, which focus on the poorest segments of society. However, these three distribution channels combined reach less than 10% of all farmers. Credit performance on these channels is weak - around 60%-80% repayment rate. Similar findings have been made in other countries with subsidised credit channels (*e.g.*

NBARD in India). The main reason is that subsidised credit often fails to consider repayment capacity.

- **Microfinance and user-owned financial institutions.** In most developing countries, a smallholder farmer in search of a financial service is likely to stumble upon a microfinance institution, savings and credit association (or something similar), rather than a bank. In Senegal, for example, MFIs have three times more distribution outlets than banks, even though the combined MFI balance sheet is less than 10% of the bank balance sheets. In East Africa, one finds thousands of MFIs and SACCOs, which often regroup people within one sector. In Asia, microfinance is also widespread, but the extent to which smallholder farmers are reached varies among areas (some are completely deprived of micro-financial services). The microfinance sector in Cambodia is quite mature, and most agricultural credit is provided by MFIs or microfinance banks (*e.g.* ACLEDA, AMRET). In Thailand and Indonesia, by contrast, agricultural development banks (BAAC and BRI Unit Desa) have introduced highly effective operations based on microfinance technology, even though they are not actually microfinance institutions. Consequently, there has been less need (or space) for a rural microfinance sector.

- **Value chain finance.** The six country studies indicated that the value chain is the most important source of finance in agriculture (see Chapter 3 for an in-depth discussion). This usually concerns simple suppliers' credit (input suppliers) or prepayments by buyers. Farmers also get credit through (sectoral) farmers' associations and milk collection centres. However, there are also elaborate contract-financing arrangements, for example, in horticulture in Tunisia (potatoes, tomatoes and peppers) and Senegal (tomatoes, sesame). There are machinery services on credit, and even the supply of equipment can be incorporated into value chain finance arrangements. In Tanzania, outgrower schemes are found in rice and tobacco, while such exist in the oil palm sector in Thailand. In Senegal, commercial banks finance the cotton and groundnut sectors in consortium with the agricultural bank (CNCAS). For groundnuts, the banks' direct partners are processors, warehouses, and seed suppliers. For cotton, it is the processors and the national cotton producers' federation. These are the remnants of old systems in which the state played a dominant role in agriculture. The cotton value chain in Mali is organised in a similar manner, including contract farming and financing arrangements. It absorbs about half of all agricultural credit in the country.

- **Leasing.** The country studies revealed a few interesting examples of agricultural leasing, which can be offered by banks, specialised companies, or directly as a service by the equipment provider. In Tanzania, some pilot programmes in agricultural leasing have taken place, and the results are quite promising. However, there is not yet an established agricultural leasing practice in any of the six countries.

- **Informal finance.** Research in the Philippines (Corpuz *et al.,* 2005) shows that the majority of borrower-farmers still obtain their loans from informal lenders, and this is not different from when the government was implementing supply-driven credit programmes at subsidised interest rates. Similar findings were made in the country studies for Cambodia, Mali, Senegal and Tanzania: that informal finance – including through ROSCAs, ASCAs, family and friends, as well as local moneylenders – is probably more important to the daily lives of smallholder farmers than microfinance, let alone banks. Moneylenders also continue their trade in Thailand and Cambodia. The interest rates charged by moneylenders are a least 5% per month, which is about double the rate used in microfinance. Nevertheless, moneylenders play a key role in the rural economy due to their capacity to respond immediately in case of urgent needs.

- **Agricultural insurance.** The country studies showed that, apart from some local pilot projects, agricultural insurance is not well-developed. Tunisia has a reasonably active agricultural insurance sector, but most farmers take this service because they are obliged to do so by their bankers. However, the biggest agricultural risks in Tunisia are drought and hard winds, and these are not covered by any insurance. Indeed, given the high risk, these events are basically uninsurable in Tunisia. In Senegal, one agricultural insurance company is active, for which the government covers half the risk premium. In spite of this, insurance is barely bought because it is too expensive – even with the subsidy. This reflects the high risk of agriculture in Senegal.

- **Guarantee funds.** The country studies also revealed some localised credit-guarantee initiatives, usually supported and subsidised by external aid donors, mostly with limited impact.

- **Public and donor funding.** The six country studies revealed substantial public funding of agriculture, which is a political and social decision explained by the large percentage of people involved in the agricultural sector. In Senegal,

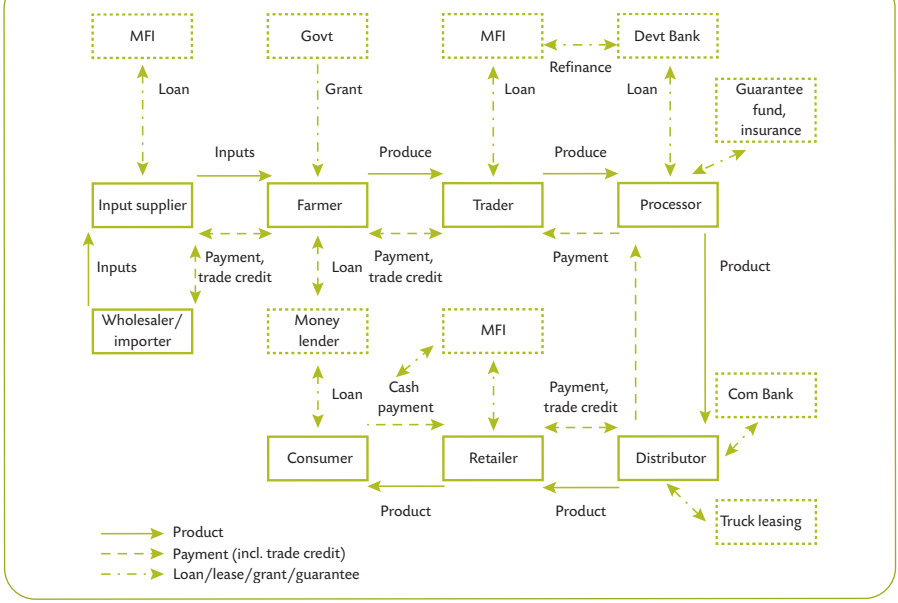
Mali and Tanzania, agricultural inputs (seeds, fertilisers) are heavily subsidised to the extent that this replaces credit demand. In Tunisia, there is heavy subsidisation in the cereals sector. In addition, loans to smallholder farmers in Tunisia benefit from subsidised interest rates along with recurrent debt relief. Even in relatively liberal Thailand, there are below-cost credits for smallholders. Thailand also extensively intervenes in (minimum) producer prices, to ensure farmers a minimum income, while it controls crop planting areas (also to influence prices).

International development partners' support (including that of AFD and IFAD) can take many forms, including concessionary credit lines, credit guarantees, direct subsidy or budget aid. Local governments are rarely capable of funding the continuation of these activities when donor funding comes to an end. International development partners have been particularly active in promoting rural microfinance, which has shown good results in terms of sustainability.

Integration of several finance providers within a value chain

Above, a variety of agricultural finance providers and instruments were introduced. Different value chain partners can use different finance providers offering different

Graph 1 *Example of financing within the value chain*



services, or several of them simultaneously, as is demonstrated in the example below. In developing countries, rural traders and farmers would most often rely on a combination of informal finance, MFIs and simple trade credit. Agro-processors and distributors would normally have access to banks, and occasionally to leasing facilities.

Sometimes, one finance provider uses another (through refinancing) to reach a client group normally beyond its reach. Coordination among the various finance providers would be useful for risk management. However, there are also examples where one single financial institution finances most or all of the value chain partners (*e.g.* BAAC in Thailand for rice, BNDA in Mali for cotton).

1.4. Demand for agricultural finance

A summary of the demand for financial services by the different value chain partners is shown in the table below.

As can be seen in table 2, the first and foremost financing demand of farmers is to cover production costs: (seasonal) labour, seeds, fertilisers, herbicides, pesticides, packaging materials, veterinarian services, medicines, water, electricity, fuels, and transport. Crop farming is characterised by periodic incomes after harvest, while production costs (and private expenses) are incurred throughout the season. Credit demand reflects this seasonality. To a lesser extent, this is the case for animal breeders as well (*e.g.* broiler chickens, bull fattening). The timing in harvest financing is critical. The right financing at the right time means greater efficiency, improved product quality and increased incomes. This is the attraction of microfinance, which is able to respond more quickly than banks could, in spite of the high interest rates charged. This is also the reason why moneylenders continue to fulfil a need: they can respond instantaneously, and the speed of their service delivery often compensates for the very high loan costs and often harsh recovery methods.

Farmers also need savings and insurance products for proper risk management. Farmers are confronted with high performance risk (crop failure) and market risk (no clients, low prices), which can be mitigated through a combination of access to saving and access to short-term credit. Furthermore, access to credit and savings products is essential to optimise the agricultural and financial cycles (*e.g.* purchase inputs when these are cheap and sell produce when it is expensive). Poverty often forces farmers to sell crops when the time is not right. Without access to finance (savings and credit), farmers remain in low-investment/low-productivity agricultural operations. Farmers can also make good use of insurance products in their risk management.

Table 2 *Demand for finance within a value chain*

Value chain partner	Role in the value chain	Demand for finance
Input suppliers	Provide seeds, fertilisers, chemicals, fuels, equipment, sometimes technical knowledge.	Working capital to buy and stock inputs in adequate amounts and at the right time. Provide these on credit to farmers.
Day workers	Provide seasonal labour.	Want to be paid by day's end.
Farmers	Grow crops and raise animals. May take part in some post-harvest processing and marketing.	Working capital to buy inputs and pay seasonal labour. Capital or term loans for investment in equipment, storage, animals and land, including clearing hitherto unused land. Payment services, saving products, various types of insurance including crop insurance.
Farmers' organisations (*e.g.* associations, cooperatives)	Bulking inputs and/or farmer outputs to gain economies of scale and better prices. Advocacy, access to technology.	Working capital to buy farm inputs for distribution to farmers. Working capital to buy produce from farmers for delivery to traders or other off-takers. Capital or term loans for investment in storage, transport and (pre)processing facilities.
Rural traders **Collection centres**	Buy agricultural produce and bulk-sell it. Sometimes testing and quality certification.	Working capital to buy agricultural produce. Capital or term loans for investment in storage facilities, transportation equipment or testing/certification equipment. Insurance.
Processors	Transform the product into a marketable commodity or consumer product.	Working capital to buy agricultural produce. Capital or term loans for investment in production facilities. Insurance (calamities, theft, loss).
Distributors, wholesalers	Sell to local retailers, supermarkets.	Working capital to buy processed agricultural products. Working capital to provide stock finance to retailers. Capital or term loans for investment in storage facilities and transportation equipment.
Exporters, importers	Sell to international buyers (commodities or processed products).	Working capital to buy processed agricultural products or unprocessed agricultural commodities. Factoring/forfaiting services (on behalf of suppliers). International trade finance (*e.g.* L/C). Insurance (calamities, theft, loss).
Retailers	Sell to consumers.	Working capital to buy processed agricultural products. Capital or term loans for investment in shop inventory. Insurance (calamities, theft, loss).
Consumers	Consume the product!	Personal loans or salary advances.

Source: adapted from "Value Chain Finance" (KIT/IIRR, 2010).

Finally, farmers need – and demand – credit to invest in equipment, animals, and infrastructure. The six country studies show that investment financing for agriculture is extremely hard to come by. Thus, farmers must either undertake investments using their own savings, or more likely they will not invest at all. The country studies also demonstrate a huge need for the financing of warehouse infrastructure, local feeder roads and irrigation systems. The latter mostly exceeds the capacity of individual farmers and farmer groups, and calls for a public response.

Farmer representative organisations, such as cooperatives, also need financial services. Cooperatives often ask that their off-takers pre-finance payments, allowing them to pay farmer-members cash on delivery (this to avoid famers selling through informal channels that pay cash). Cooperatives also need to invest in infrastructure.

However, needs turn into demand only when there is a willingness and ability to pay for the service, and when farmers actively seek such services. The country study for Tunisia shows that half of all farmers do not ask for credit because they fear debt, fear the interest to be paid, and are unwilling to mortgage house and land. Often, there are no bank/MFI outlets in the area, and where there are, farmers face cumbersome loan procedures and high costs. Many farmers do not demand credit because they assume they will be denied it, and indeed most are. Thus, many farmers would be able to improve their farm business and productivity through credit, but they just do not try. This points to a need for financial education (to better understand banking), as well as simplification of loan procedures and loan distribution.

However, even if farmers request credit, one can only speak of "demand" for credit when a number of key conditions are met. The farmer needs to generate cash to repay the loan, which implies a certain level of size and productivity, as well as willing buyers. This excludes most subsistence farmers (cannot even get microcredit), as well as part-time and absentee farmers, and this is observed in Cambodia, Mali, Senegal, Tanzania and Tunisia, and to a lesser extent in Thailand as well. The country studies also show many examples of agricultural value chains that are barely profitable (*e.g.* cereals in Tunisia and rice in Senegal in non-irrigated farms). In Mali, Senegal and Tunisia, entire agricultural sub-sectors survive because of government subsidisation, a fact that will not escape the attention of bankers and microfinance providers.

The country studies also reveal that smallholder farmers find it extremely difficult to access finance on an individual basis. Farmers in Mali, Senegal and Tanzania can obtain credit practically only when they take part in groups (associations, cooperatives), and this is even true when they benefit from value chain financing modalities or

warehouse receipts. Thus, to enable smallholder farmers to express their needs *via* "demand", joining forces with others is often necessary.

1.5. Supply and demand

In the six country studies conducted in preparation of this publication, an effort was made to quantify the demand for agricultural credit compared to supply. It was found that in Mali, Senegal, Tanzania and Tunisia no more than 20% of the demand for seasonal agricultural credit is satisfied, half of which consists of value chain finance. Research in Senegal, for example, shows that just 2.6% of the rural population has access to microfinance, and just 0.6% has a microcredit. Although many farmers may not have viable demand (*i.e.* the capacity to repay a loan with interest), or may not express such demand for various reasons, the above data suggest a vast actual or latent demand for agricultural credit in Senegal that goes unmet. Research undertaken in Tanzania by Finscope, shows that 60% of the rural population has no access to *any* kind of financial services. Half of these people essentially live by bartering. About 28% of the rural population obtain financing through traditional ROSCAs or moneylenders. Of the remaining, 8% have access to bank services and 4% to MFIs.

There are, however, great differences between sectors and regions. For example, the production of industrial tomatoes in Senegal is relatively well-financed based on pre-harvest sales contracts with processing factories. The same is true for cotton in Mali. Other sectors are much less well-financed, and this is particularly true for farming outside of the irrigated zones. In Cambodia, smallholder farmers have the advantage of an effective microfinance sector. Nevertheless, large segments remain excluded, and the consequence is that agricultural productivity in Cambodia is much lower than in the neighbouring countries. Thailand is one of the few countries in the developing world where agriculture is relatively well-financed. Smallholders, which form the backbone of farming in Thailand, are effectively reached through BAAC, cooperatives (with BAAC refinancing), and credit provision through the value chain. Reports from Latin America also suggest that key value chains, such as coffee, are relatively well-financed through a variety of sources and modalities.

The country studies and general literature reveal that the financing of investment in agriculture is essentially unavailable in Africa and Asia. Investment finance is also a big problem in Latin America, but recent initiatives such as the Fair Trade Access Fund (a consortium led by KfW) try to remedy this.

2. Constraints in Supply and Demand for Agricultural Finance

The six country studies undertaken in preparation of this publication confirm the findings of the literature that commercial banks, and to a lesser extent MFIs, avoid agriculture, and this is not the case only in developing countries. Thus, farmers – and smallholders in particular – lack access to savings facilities, payments or credit. The country studies also reveal that due to a persistent lack of credit, farmers must forego investing in equipment, land and working capital that would make their farms more efficient and productive. Due to poor payment facilities, farmers miss out on commercial opportunities, or waste money travelling to town to make a simple deposit/withdrawal. The lack of savings and insurance services limit the farmers' risk management tools, so they seek risk avoidance through sub-optimal solutions, such as farm diversification or part-time employment.

The country studies also show that farmers for their part hesitate to take on credit as they fear banks and debt, and do not want to offer their land as collateral. Research undertaken in Kosovo and Albania also reveals that farmers fear the community will look upon them badly if they cannot repay a loan (EFSE, 2010).

However, one of the main reasons for the lack of access to financing comes from the financial institutions' reluctance towards the agricultural sector. The country study for Tunisia shows that nearly a quarter of farmers are excluded from credit due to prior bad debts. Indeed, it must be acknowledged that historically farmers and, smallholder farmers in particular, have not been good credit risks. In most developing countries, the credit history of farmers is such that one cannot too hastily condemn bankers who shun agriculture.

The main reasons why banks and even MFIs avoid agriculture are summarised below.

2.1. High delivery cost, proximity

Banks and MFIs are discouraged by the high cost of delivering services to farmers. Distance, isolated and dispersed populations, and poor road and energy infrastructure make it difficult and expensive for financial institutions to open branches in rural areas and to serve and monitor clients. In addition, due to rural poverty, the market size is small, and so are the individual loans, savings accounts, and payment transactions. Farmers tend to be unable (or unwilling) to pay a price for financial services that matches the real transaction cost and risk (interest rates usually of at least 15% per year).

Farmers for their part want to deal with financial service providers that are located in their proximity. Many farmers do not interact with any bank or MFI because there is none at hand. In Mali, Senegal and Tanzania, the majority of the rural population does not have any financial service provider within walking distance. Travelling to a faraway financial institution is not just inconvenient; it is also expensive and sometimes dangerous. In addition, such institutions can be quite intimidating, and their procedures off-putting. The country studies show that mistrust between smallholder farmers and banks/MFIs is mutual.

2.2. Weak farming practices and farmers

In most developing countries, farmers operate low-technology businesses on small and fragmented plots of land without access to irrigation, proper seeds and other productivity enhancing methods. In Kenya and Tanzania, for example, due to the repeated splitting up of inherited farms, most farming families now exploit less than 1 ha of land. This is done with rudimentary technology and manual labour. In Tanzania, 70% of land is worked with hand tools only, reliant on rain for water, and mostly without the use of improved seeds, fertilisers and pesticides. In Mali, three quarters of the land is worked by hand, and just one quarter of land is fertilised.

However, this is not the case only in Africa. In India, for example, 80% of farmers have less than 2 ha (Mahajan, 2010), while the average smallholder in Cambodia has even less. In Albania and Moldova, the vast majority of "farmers" operate on extended household plots. Their sellable surplus consists of a few buckets of apples, and their one or two cows produce a sorry 2,000 litres of milk per annum. It is fair to say that these are home-gardeners rather than farmers, and not even the MFIs want to deal with them. The country studies also show that many farmers are not "professionals", being employed somewhere else. In Tunisia more than half of farmers are part-timers

and one third are absentees. The consequences for productivity are often dire. In Zambia, for example, smallholders growing maize obtain only half the yields of (semi-) commercial farmers (Onumah, 2003).

Farms are not unproductive only due to small and fragmented land plots and a subsistence orientation. In Southern Sudan, for example, land is plentiful and rainfall is decent, but farming is still marginal due to the low level of farming technology (total absence of farm mechanisation and hybrid seeds), in addition to completely absent value chains and infrastructure. Southern Sudanese farmers do not farm beyond their own needs "because nobody comes to buy". The country studies for Mali and Senegal show that some value chains consist of the farmer only, performing all functions, from seed production to direct selling to consumers. Important opportunities for specialisation and value added through the value chain (including transformation) are lost.

Photographs: villages in Southern Sudan (Bert van Manen) and Mali (Boubacar Diallo).

Lack of access to agricultural finance should also be seen in the context of the countries' natural conditions. In drought-prone Tunisia, less than 10% of agricultural land is irrigated (but produces nearly 40% of the agricultural output), while this is only 4% in Senegal. Even the systematic subsidisation of farm inputs has not made Senegal self-sufficient in food. Research in Mali shows that much of agriculture is not productive enough to warrant commercial credit. The same is true for Senegal and Tunisia, and bankers know this.

The more accomplished small, medium-commercial and semi-commercial farmers are faced with many of the same problems. Farmers are faced with (official or private) monopoly situations in input supply and product marketing coupled with state-controlled prices, which often results in inputs being too expensive and outputs too

cheap (*e.g.* sugar and tobacco in Tanzania). Value chains lack reliable storage, cooling, transport and distribution, as well as product testing and certification services. In addition, rural areas are often poorly endowed in terms of energy, water, and road infrastructure. Lack of secure land tenure in many countries is also cited as a factor that discourages farmers from investing in their land (*e.g.* sustainable farming and soil restoration, building feeder roads or irrigation, and preparing virgin land for agriculture). Due to all these adverse factors, yields are vastly below potential – even for relatively accomplished farmers – and in some countries half of agricultural production is lost due to spoilage on the field, in storage or in transit. This leads to a chicken and egg situation: Banks and MFIs cannot be blamed for not providing loans to farmers who barely generate any cash, but how will farmers develop this cash generation capacity without access to working capital and investment financing?

Financial institutions are also hampered by information asymmetries. Due to low levels of farmer education and financial literacy (no record keeping, business plans, or bank accounts) it is hard to put together a credit profile for a loan and monitor the loan once it is disbursed. Even the farmer cooperatives are often woefully weak in administrative and organisational skills. For the same reason, credit scoring techniques – which would reduce the cost of loan appraisal – are difficult to apply due to the lack of standardised and objective data. High levels of rural poverty also mean that agricultural loans are easily diverted for consumptive purposes because "business" and "private" are intermingled.

2.3. Lack of banking technology

Few banks have good knowledge of agriculture and few have developed the financial products that respond to its specificities, because many banks regard agriculture as fundamentally unprofitable or risky at best. Lack of understanding of agricultural finance by commercial banks is one of the main reasons behind recent proposals to establish specialised agricultural banks (*e.g.* in Southern Sudan, Tanzania). The weaknesses are the following:

- Analysing a farming household is complex as these are typically mixed farms with many activities and many unknown factors. Agricultural lending requires highly capable and specialised loan officers, who are in short supply. Opportunity Bank in Albania and the Rwandan Development Bank, for example, employ agricultural specialists who prepare integrated cash flow projections at the farm level to determine loan repayment capacity and structure a loan accordingly. BAAC in Thailand also employs specialised

agricultural credit staff in its wide network of branches. However, financial institutions with a more general profile cannot afford such specialists, thus they cannot identify those farmers who would be good clients. For them, making a loan to an urban trader is easier.

- Often, financial institutions lack financial service products that take into account the specificity of agriculture, such as seasonality in payment (only after the harvest), or a lengthy investment period without cash flow for long-gestation products, such as fruit trees or heifer cows. Thus, they present farmers with credit repayment proposals that do not match the reality of farming.

- Banks treat a smallholder farmer as if he/she were a large corporation. They expect information and offer tailor-made services that are not in accordance with the information opacity of smallholders and are not a cost-effective way of delivering small loans. Some banks have overcome this problem by offering a standardised product based on analysing the farmer's creditworthiness through a number of standard criteria (*e.g.* credit scoring). Successful agricultural banks also reduce the cost of lending by using group methodologies (*e.g.* involving farmers' associations) and involving technical operators through value chain finance.

- Although somewhat less of a problem now, banks in developing countries often have lots of short-term liabilities on their balance sheet, but few long-term savings deposits or capital. This limits their capacity to provide long-term credit to farmers. This is very much the case for microfinance institutions, as was revealed in the Mali and Senegal country studies, and is true even for agricultural banks.

- A final problem in many developing countries (*e.g.* Tanzania) is poor personal identification (no reliable ID cards), sometimes leading to identity confusion and theft. Furthermore, many developing countries do not have a reliable credit registration bureau, making it hard to identify people who have defaulted on another bank or MFI (*e.g.* Mali, Senegal, Tanzania). An exception is Tunisia, but this has led to nearly a quarter of the farmers being excluded from credit due to prior bad debt.

2.4. Collateral

All small-scale entrepreneurs face problems in providing loan collateral to financial institutions. Either they have few assets, or these are in a form that is not liquid and hence not acceptable as loan security. Related to this, small enterprises and farms often have little of their own capital to contribute as their "fair" share in the project. Banks argue that the less an entrepreneur contributes, the more he/she is likely to "walk away" from a project and default. This makes banks insist on collateral even more.

However, farmers in developing countries are particularly affected. Often, land cannot be privately held and thus cannot be mortgaged (*e.g.* Senegal), or there may be problems due to missing or non-existent land titles (*e.g.* Cambodia, Mali, Thailand), un-surveyed land (*e.g.* Cambodia, Tanzania), no mortgage register or expensive and complicated registration procedures, insecure property rights, as well as weak legal systems to enforce loan repayment/collateral execution. In Tanzania, legislation was enacted to encourage lending against land collateral, but this made changes in land ownership so complex that the opposite result was achieved. Tunisia, too, has very complex land legislation, which also discourages investment in the land. Even in relatively developed Thailand, pursuing a land claim through the courts is a lengthy and complex process with no guarantee of success. The loan security legislation and legal practice in Thailand shows many weaknesses. In Senegal, judges rarely side with bankers. In some African countries (*e.g.* Ghana, Lesotho, Southern Sudan), land issues are dealt with by tribal chiefs, which adds yet another complication for banks to deal with. Banks wanting to repossess land may also encounter opposition from local politicians and religious leaders. Finally, banks may not be able to dispose of repossessed land as villagers consider such land as "contaminated". In many countries, and African countries in particular, there are also severe disadvantages for women as they are (culturally and/or legally) excluded from land rights, thus from access to credit. This is on top of the many other constraints that women face in acting as independent economic operators.

In some countries (*e.g.* Kosovo, Rwanda) agricultural-finance providers have accepted alternative collateral, such as cars, tractors, animals, or the crop from the fields. In Romania, credit cooperatives may even accept household items (TV sets) as loan guarantees. However, recovery remains a complicated and costly affair. Warehouse receipt finance is a promising collateral alternative, but relatively complex to implement given the infrastructure requirements, and the legal and regulatory environment (see Chapters 3 and 4).

To add to the above problems, in many countries banking supervisors impose collateral requirements on banks that make uncollateralised lending (including to MFIs) very difficult (see Chapter 4 for an in-depth discussion). More generally, in many countries the legal environment does not foresee the pledging of movable assets, leaving banks unsure if they can foreclose on such items in case of default. This is one of the main reasons why financial services such as equipment leasing, inventory financing, invoice discounting and factoring (entirely normal in developed markets) do not take off in developing countries. Thus, in view of their existing risk-management policies and national regulations, many banks cannot finance agriculture other than some large, diversified agricultural enterprises with related processing and distribution capabilities and solid guarantees. This is precisely what was seen in the six countries studied, with the exception of Thailand, which is able to reach out to smallholder farmers through BAAC.

2.5. Exogenous risks

Above all, bankers decline to finance agriculture because of production and price risks, which make farm income (hence loan repayment) unstable and unpredictable.

The list of exogenous risks affecting agriculture includes excess rainfall (flooding) or lack thereof (drought), hale, night frost, hurricanes, locusts and other invading insects, fungal infections, and so on. In the six countries studied, drought risk is high in Mali, Senegal and Tunisia. Tunisia is also regularly hit by strong winds and sand storms, while Mali and Senegal must cope with locusts. Cambodia and Thailand face flooding. Thus, a farmer may have an excellent credit history, guaranteed sales through forward contracts, and access to technology, but an unexpected storm, drought or flood, pest or disease, can force him or her to default. The recurrent droughts in Ethiopia, India and the Sahel zone have wiped out not just crops, but cattle have perished as well. The results for individuals are especially severe because non-farm incomes are depressed, and because the entire rural economy is devastated by such extreme (yet recurrent) weather-related incidents.

Agriculture is also much more sensitive to price risks than any other sector of the economy, and this is true for both farm inputs and outputs. When the farmer must decide on which crop to grow in the next season, the prices of inputs and the final sales price for the product are mostly unknown. Prices vary with demand and supply conditions at the time of sale. Often, farmers take good prices in one year as encouragement to plant the fields, only to see a glut of supply the next season. Worse, a coffee farmer in Tanzania can have a fine harvest, and subsequently see

his/her income wiped out because Brazilian farmers had a bumper crop too. The prices of seeds, fertilisers, pesticides, and fuels all face sudden and unexpected increases.

Exogenous risks are made worse by demographic pressure and global warming. Worst of all, most farmers in a region, or sometimes even an entire country, produce similar products, making risk diversification in the agricultural loan portfolio difficult.

It is this type of covariate risk that bankers fear most, as it cannot be hedged or diversified away, and as farmers may be unable to recover (and repay) for many years to come. This is precisely the reason that many Tunisian farmers are now indebted and excluded from credit.

Some of these risks can be managed and mitigated to some extent (water management, early warnings for locusts and insect spraying), but this requires investment beyond the reach of most farmers. Crop insurance is not generally available in developing countries (see Chapter 3 for an in-depth discussion).

2.6. Government intervention

As noted in Chapter 1, governments have continuously intervened in agriculture, and have often done so in an *ad hoc* manner. Interventions have been undertaken for reasons of food security, to protect strategic export crops, or to ensure rural employment and incomes. The country studies revealed continued heavy government intervention in Senegal and Tunisia, and to a somewhat lesser extent in Mali, Tanzania and Thailand.

Thus, governments have imposed lending quotas on banks, capped interest rates, and have made subsidised loans through state-owned banks, thereby discouraging commercial lenders from agricultural financing. Worse, around election time politicians have proclaimed debt forgiveness even by financial institutions (private banks, MFIs) that have nothing to do with the government (*e.g.* Albania, India, Pakistan, Senegal, Thailand, Tunisia), thereby damaging the fundaments of sustainable finance. The country studies on Thailand and Tunisia suggest that farmers are truly confused regarding their debt-repayment obligations. Furthermore, governments have created marketing monopolies and fixed prices – not always obviously advantageous to farmers. Complex and excessive regulation is credited with the long-term decline of the coffee sector in Tanzania. Thailand and Tunisia also change the terms of trade for value chains through government-sponsored price measures.

The issue here is not necessarily the fact that government intervenes in markets, as there may be social reasons to justify this, but rather the *ad hoc* manner in which policies for agriculture and agricultural finance are introduced and changed. Research in Zambia revealed many instances of *ad hoc* policy that led to agricultural price spikes or slumps, namely: 1) *ad hoc* export or import bans; 2) introduction or removal of import or export duties; 3) volume, geography and pricing of government procurement; 4) off-loading public inventories of crop onto the market; 5) rumours surrounding any of the above (Taylor *et al.,* 2009). In 2010, microfinance in India came under fire for "loan sharking" and some politicians called on borrowers to default. In Bangladesh, interest rates are now capped after a political row (Meyer, 2010). Also in 2010, the Russian government imposed export bans on wheat, supposedly to protect local consumers but in effect imposing an opportunity tax on farmers. Such political risks exist in all sectors and businesses, but these are particularly prevalent in agriculture. The multitude and unpredictability of government interventions in the agricultural markets adds to the overall risk profile of agriculture, as perceived by financial institutions.

On the other hand, agricultural finance is hampered by what governments fail to do, namely putting in place the legal and regulatory environment needed to make agricultural-finance markets work efficiently. The role of government in promoting agricultural finance is further discussed in Chapter 4.

2.7. Weak collaboration among farmers

Experience worldwide shows that farmers, and smallholder farmers in particular, have much to gain by collaborating through associations or cooperatives. Joining forces in obtaining farm inputs, selling products, negotiating credit, and even creating mutually owned companies that operate within the value chain, can greatly help farmers. This type of cooperation increases farmers' bargaining position with traders and financiers, helps them access and develop technology, and has huge scale advantages through the bulking of inputs and outputs.

Agro-processors and agro-traders also prefer to work with farmer groups rather than farmers individually. Not only do economies of scale play a key role, farmer groups may also be more reliable partners than individual farmers, as individuals may not have a clear concept of what it means to sign a "contract". Member-farmers may not fully understand their obligations under the contract, and concepts like quality and certification may be new to them. But the farmers' group representatives can help them interface with the traders and agro-processors.

From the point of view of a bank, dealing with groups has great advantages as well, because the group helps in eliminating the weakest elements through self-selection. However, the country studies also indicated that collaboration among farmers is not always easy, and production cooperatives, marketing associations, and related groups are prone to collapse due to lack of solidarity and poor governance (*e.g.* Cambodia, Tunisia, and elsewhere). In Tunisia, just 15% of farmers participate in a group representing farmers.

Box 2 *Constraints on rural finance (according to Miller)*

Calvin Miller (Miller, 2004) describes 12 constraints on rural finance, and classifies these into four groups:

Vulnerability constraints:
1) systemic or covariant risk (the same type of risk occurring at the same time);
2) market risk (fluctuation of prices);
3) credit risk (lack of collateral).

Operational constraints:
4) low investment returns (rural capital turns over slowly, low profit margins, seasonality results in uneven cash flow);
5) low investment and assets (weak safety net);
6) geographical dispersal and low population densities.

Capacity constraints:
7) weak rural infrastructure;
8) low level of training and technical capacity of the rural population;
9) social exclusion (cultural, linguistic) affects market and financial integration;
10) limited institutional capacity (weak support systems).

Political and regulatory constraints:
11) political interference (subsidised and/or directed credit from state-owned banks, debt waivers, interest-rate caps);
12) regulatory constraints (land tenure laws, banking laws, arbitrary taxation).

3. Innovations in Agricultural Finance

3.1. Overview of innovations and constraints targeted

The past 10 years have seen numerous initiatives to improve the provision of agricultural finance, for smallholder farmers in particular. Many of these innovations show great promise in strengthening agricultural and hence rural livelihoods, although none is a "universally" applicable cure. Great progress was recently made in reaching out to smallholder farmers through a variety of financial services. In truth, most "innovations" are not new, and some date back decades, centuries or even millennia. What is new, however, is agricultural financing in new situations and for farmer types that were unbankable before – smallholder farmers in particular. Such innovations tend to combine several financing concepts, and are nearly always embedded in value chain development.[1]

The major financial innovations and the key factors of success for their implementation are discussed in this chapter. These innovations tackle specific constraints in agricultural finance and reduce lending risks (see Table 3 below).

3.2. Localised finance (rural banks, SCAs, microfinance)

In the context of agricultural finance, the importance of localised finance is its proximity to rural communities. Whereas in the 1960s and 1970s large (agricultural) development banks were created with a top-down approach to rural finance, in the past two decades the emphasis has been on the creation of rural and village banks, credit cooperatives/unions, self-help groups, and NGO-type microfinance institutions in many forms and shapes. Many are user-owned and managed, but nearly always regulated at the national level through an APEX body. Microfinance institutions, local savings and credit associations and rural (micro) banks are currently the most credible financial service providers to smallholder farmers in remote areas.

[1] Miller notes that "agricultural value chain finance is an approach to financing. It uses an understanding of production, value added and marketing processes to determine financial needs and how best to provide financing to those involved" (Miller, 2011).

Table 3 Innovations in agricultural finance

Innovation	Constraints targeted	Applicability
Member-owned localised finance (*e.g.* SCAs), rural banks, microfinance	1 Delivery cost, proximity 3 Banking technology 4 Collateral 7 Weak farmer organisations	All agriculture Rural households
Agricultural leasing	3 Banking technology 4 Collateral	Standardised equipment for which there is a second-hand market
Value chain finance, including contract financing and outgrower schemes	1 Delivery cost 2 Farm practices 3 Banking technology 4 Collateral 5 Exogenous price risk 7 Weak farmers' organisations	Export crops Relatively long and complex value chains, such as for speciality crops with quality requirements Can be integrated into broader value chain development actions
Agricultural factoring	3 Banking technology 4 Collateral	Export crops Product for which payment takes longer amount of time
Warehouse receipt finance	2 Farm practices 3 Banking technology 4 Collateral 5 Exogenous price risk	Working capital to buy agricultural produce. Capital or term loans for investment in storage facilities, transportation equipment or testing/certification equipment Insurance
Processors	Transform the product into a marketable commodity or consumer product.	Non-perishable crops such as grains, coffee, cashews, sesame Frozen meat and fish
Credit guarantees	4 Collateral	All agriculture; supplement for other instruments
Insurance (index) to support credit	1 Delivery cost 4 Collateral 5 Exogenous risks	Crops (index) Animals (not index)
Price smoothing	5 Exogenous price risk	Export crops
Technology: mobile banking (cell phone, mobile van); biometrics.	1 Delivery cost, proximity 3 Banking technology	Rural households
Extension services Financial literacy	2 Weak farm practices 5 Exogenous risks 7 Weak farmers' organisations	All agriculture Rural households

NGO-type microfinance institutions operate a wide range of saving and lending models, although the regulator often restricts the operations of MFIs (*e.g.* cannot collect savings deposits, or the imposition of interest rate caps in Tunisia and West

Africa). Most MFIs start as credit-only institutions, and introduce savings products later on. The lending model is often based on solidarity groups, which act as collateral substitutes. However, over time MFIs move to individual loans to serve the diverse needs of their (graduating) target group. This essentially obliges the MFI to undertake bank-like loan appraisal (*e.g.* assess loan repayment capacity, seek traditional collateral or personal guarantees). MFIs are now transforming into microbanks with a full assortment of financial products, full or partial bank licensing, new legal status, improved operational and risk management, and centralised governance. An early example was the ACLEDA bank in Cambodia, which started as an NGO and is the country's largest bank now. Although many MFIs have a rural orientation, they often hesitate to finance agriculture. In Burundi, for example, the microfinance sector mainly serves salaried personnel (*e.g.* government staff) and market traders.

Member-owned microfinance institutions vary from small, autonomous self-help village groups to large cooperative institutions with a national network. Savings and credit associations (SCAs), financial service associations (FSA – the IFAD model), Savings and Credit Cooperative Societies (SACCOs – East Africa), village banks and related types of entities are strongly embedded in the local community.[2] Usually, the long-term vision is one of cooperative banking – in particular when federated and in this way linked to the general banking system. In contrast to credit-led MFIs, member-owned microfinance is primarily funded through member equity and savings, and the members actively participate in the decision-making.

Photographs of SCA in Cambodia (by Bert van Manen).

[2] A comparative study of 154 microfinance institutions and member-owned finance providers revealed that member-owned organisations, typically following cooperative principles, had relatively larger rural outreach (65% rural clients) than NGO-type MFIs (less than 50% rural clients) (Athmer, 2008).

Member-owned microfinance often spawns from existing informal groups, such as employees, farmers or local entrepreneurs who pool their savings. Thus, in the start-up phase, SCAs and similar forms rely on internal capital and savings only. In subsequent phases, SCAs with excess liquidity start lending to SCAs with investment opportunities (normally through the APEX). In the next phases, SCAs (through the APEX) borrow from banks and IFIs on behalf of their members. The network of rural and community banks (RCBs) in Ghana, with 584 service outlets, now reaches most of the rural areas. The RCBs finance all sorts of rural activities, not just agriculture. The operations of SCAs, financial service associations (FSAs), and SACCOs show many similarities.[3] The essential characteristic of all these forms is that they concern user-owned and managed decentralised financial institutions – much more so than NGO-style MFIs.

The financial performance of microfinance is mixed. Institutions such as K-Rep in Kenya, Opportunity and Finca have a strong track-record. In Mali, however, microfinance is currently experiencing alarming default rates and some of these organisations have collapsed. Likewise, in Ghana, RCBs have been liquidated due to mismanagement and loan losses. Indeed, stories abound of member-owned institutions collapsing under bad debt, management fraud, abusive leadership, or insider lending. AFD has experienced severe governance problems in the SCAs it created in Guinea. IFAD has had similar problems in various countries in Africa. In Cambodia, out of the 700 SCAs created by the EU in the 1990s, none survive today, and the credit methodology was completely changed (to smaller groups and individual loans). SCAs established by the World Bank in Moldova and Kosovo face the same problems, while the credit cooperatives in Tunisia were closed. There have even been cases where donors had to compensate the depositors (*e.g.* AFD, the Crédit Mutuel in Guinea) or recapitalise rural MFIs (*e.g.* Belgian government, UCODE Burundi). However, nowhere is microfinance under pressure as in Bangladesh, India and Pakistan, where MFIs stand accused of recklessly expanding and needlessly indebting poor farmers.

This shows that creating and maintaining decentralised, member-controlled rural financial institutions is difficult, even with strong support from an APEX body and international assistance. The key weaknesses in localised finance are the following:

[3] For example, the FSA model is based on local resource mobilisation in the form of risk-bearing equity. Many others are based on savings deposits. In some cooperative models, the loan amount allowed depends on the amount of capital or savings.

- The small size of the institutions and educational limitations of the members hamper management and control; there may be a conflict of interest between the institution and its shareholders, who double as clients, and it is hard to maintain solidarity under adverse circumstances. In post-genocide Cambodia, trust among the local people was so low that most MFIs are centralised and governed in a top-down manner.
- Some focus too much on credit and not enough on savings, and end up attracting the wrong type of clients (*e.g.* SACCOs in Tanzania).
- Just like all other financial institutions that manage savings at large, microfinance providers need to be supervised either by a public body (*e.g.* a central bank) or a strong APEX body. However, in many developing countries, the supervisory framework for microfinance is weak (*e.g.* Tanzania, Thailand, among others) because no public institution wants to be supervising so many small financial operators.
- Those MFIs that do manage to develop, often find it hard to source external financing (*e.g.* through central bank refinancing, which is impossible in Mali and Senegal).
- There is little graduation from micro to small enterprises, resulting in a very high cost for micro lending.
- Lack of term capital makes it hard for most localised finance providers to offer investment credit.
- Lack of outreach: in spite of the ubiquity of microfinance institutions, large segments of the rural population continue to be excluded from financial services (*e.g.* Mali, Senegal, Tanzania).
- Many institutions focus on salaried members, and mainly provide consumer credit.
- Finally, due to self-selection, the poorest segments of the population are often excluded.

The sparse data on the loan portfolios of the above-mentioned local finance providers consistently show that loans are typically rural rather than agricultural, which is understandable as microfinance institutions and rural banks face the same constraints (and risks) as banks (see Chapter 2).

Box 3 *Without a trace – Poor records wipe out Sh 60m from SACCO (Kenya)*

The Standard, 10 May 2011, Kenya. Article by Joel Okwayo.

A cooperative society in Kakamega County is unable to recover over Sh 60m it loaned to members due to lack of records. Sukari Mumias Savings and Credit Co-operative Society has now been forced to declare the loans bad debts since members who borrowed the money are either retired or dead. A report by the Ministry of Cooperative and Marketing Development said the society will not be able to recover the money because records are not in their registry. "Some people who took the money retired. They vacated the houses of Mumias Sugar Company. We cannot trace them" said Mumias District Cooperative Officer Staunslause Wambani.

Nevertheless, examples exist of successful microfinance providers that concentrate on agriculture. Buusaa Gonofaa in Ethiopia and Fondersurco in Peru both have 80% of their loans in agriculture. UCODE and Cospec in Burundi also reach out to farmers, this in spite of their small scale and weak governance. Some large cooperative networks, such as Kondo Jigima in Mali and FUCEC in Togo, have been at the forefront of developing value chain financing for smallholder farmers. Indeed, many microfinance providers are taking initiatives to expand their geographical outreach and develop services for smallholder farmers. This shows a commitment to development and offers great scope for increasing the role of localised institutions and microfinance in financing smallholder farmers.[4]

Box 4 *Risk-mitigating strategy according to Confianza (Peru)*

Confianza MFI in Peru has adopted the following risk-mitigation policies in agricultural lending (Athmer, 2008).

1. Diversify the agricultural loan portfolio by sourcing from branches in areas with different climatic conditions.
2. Select households that have additional (non-farm) sources of income.
3. Place quantitative limits on agricultural lending in the portfolio (15%-30%).
4. Target clients who are not the very poorest, but still qualify as low-income households.
5. Match disbursement and repayment to clients' (agricultural and non-agricultural) cash flow.

The innovation in localised and microfinance activities consists in developing viable means to serve the rural poor cost-effectively (by bringing down transaction costs, managing agricultural risk). Overall, microfinance has made great achievements, but microfinance can do more to play its full role in agricultural finance.

Box 5 *Key elements of success in agricultural microfinance*

A study by Christen and Pearce for CGAP (Christen *et al.,* 2005) lists the key elements of successful agricultural microfinance. These combine the features of traditional microfinance, with traditional agricultural finance and other approaches – including leasing, parametric insurance, use of technology and existing infrastructure, and contracts with value chain partners – into a hybrid defined by 10 main features (with two added by the author of this publication).

1. Lenders such as Opportunity in Albania analyse the *cash generated by all farm and family activities,* not just the project for which the loan was obtained. Borrowers understand that they must repay from whatever source of revenue they may have.
2. Microlenders rely on local communities and *solidarity mechanisms* to evaluate the creditworthiness of collateral-poor clients and distribute financial products. However, they also employ specialised staff with knowledge of *agricultural technology* and marketing and make their own assessment of risk.
3. *Savings* services are provided, which is a valued service in its own right. Savings help farmers manage seasonal income patterns and reduce risk.
4. *Portfolio risk is diversified*. MFIs that have successfully expanded into agricultural lending have avoided exposure to a few limited agricultural activities (see for example Confianca, mentioned earlier).
5. Successful agricultural microlenders *disburse* in instalments as the crop season evolves, while the *repayment* schedule matches the (highly concentrated) income received from the crops. The same is true for

[4] A portfolio review of 154 microfinance institutions and member-owned finance providers found that institutions operating predominantly in rural areas had nearly the same level of sustainability as urban-focussed MFIs (Athmer).

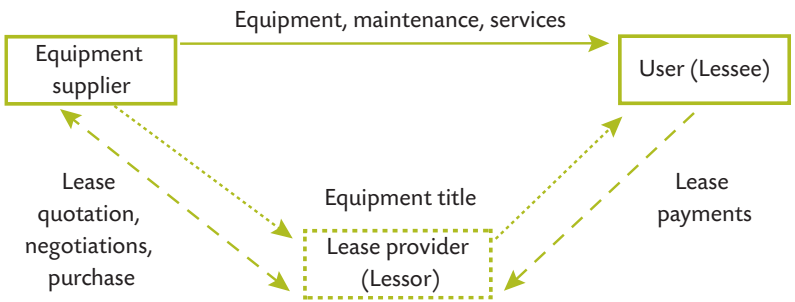
long-term investments such as trees and orchards (which may not give income for years to come), but this remains a challenge.

6. *Contractual arrangements* reduce price risk, enhance production quality and help guarantee repayment. Microfinance has been closely associated with recent successes in value chain development and financing. Indeed, MFIs have been at the forefront of developing many of the financial innovations described below.
7. Financial service delivery *piggybacks* on existing institutional infrastructure and technology. Microfinance is generally willing to work with other initiatives, such as value chain development programmes or information technology providers, to expand services to rural areas.
8. *Membership-based organisations* can facilitate rural access to financial services and be viable in remote areas.
9. Area-based *index insurance* can protect against the risks of agricultural lending (see discussion below).
10. Agricultural microfinance must be insulated from *political interference*, avoiding interventions in interest rates and debt repayment. However, institutions must be subjected to regulatory supervision by the Central Bank or APEX body.
11. Focus on institutional *sustainability*, seeking to recover operating costs and risk from loan and service income. This also includes good governance.
12. *Link with other financial institutions.* Increasingly, localised financial services have become partners of the formal financial institutions, through their APEX bodies (refinancing), this way directing additional funds to rural communities.

3.3 Agricultural leasing

Leasing is an investment financing methodology, whereby legal ownership of the leased item only passes to the user upon the final payment (financial lease), or whereby the lease company retains ownership indefinitely (operational lease, essentially a long-term rental contract). In most lease contracts, no collateral is needed apart from the leased item. Lease contracts practiced in developing countries are nearly always financial leases, essentially hire purchase (rent-to-own), implying that the lessee ensures maintenance and insurance.

Graph 2 *Agricultural leasing*



Note: Lessee may negotiate with supplier directly (and then inform lessor) or with lessor (who negotiates with the supplier).

In Kazakhstan, agricultural leasing has been practiced for more than a decade, typically for long-life farm equipment. These financial leases are promoted by banks' special leasing departments in collaboration with the equipment suppliers, who offer the equipment at a discount. The literature (Nair, 2010; Schrieken, 2007; KIT/IIRR, 2010) provides examples of profitable agricultural leasing in Ethiopia, Kenya, Mexico, Pakistan and Uganda. MFIs (micro-) lease such items as water pumps, dairy equipment and tools for honey production. There are also examples of animal leasing (*e.g.* cows by K-Rep in Kenya), and this is truly innovative. Agricultural leasing is quite well-established in Latin America, Brazil in particular.

The six country studies undertaken in preparation for this publication revealed some pilot projects in agricultural leasing (*e.g.* milling equipment, water pumps, small tractors and tools), mainly by MFIs. Some of the supplier credit provided for equipment in Tunisia takes the form of a hire-purchase arrangement (repayment over four years; transfer of equipment back to the supplier in case of payment default). However, in most countries the practice, the demand, the long-term capital, and to some extent the legal and fiscal framework for leasing, are underdeveloped. Agricultural leasing in Mali, Senegal and Tanzania is mainly in the experimental phase. However, such leasing experiments hold great promise for the more widespread use of agricultural leasing.

For farmers, access to equipment on reasonable terms, and with no or little collateral, is an attractive proposition. It is also attractive for the equipment manufacturers, as leasing helps them develop new markets, and reduces the need to provide (risky) supplier credit to farmers.

Box 6 *Agricultural leasing (Montenegro)*

In 2001, the EU undertook a modernisation project in the dairy sector in Montenegro. It leased 1,000 pieces of dairy equipment (milking machines, milk coolers, hay cutters) to dairy farmers as follows:

1. Farmers were identified through the extension services of the Ministry of Agriculture and through dairy factories. The criteria were the quantity and quality of cows, and volume of milk produced.
2. As the equipment was standardised and purchased in bulk after tender, it came cheap to the farmers.
3. The lease contracts were entirely standardised (it took the bank 15 minutes to process and sign the lease agreement). Farmers had to bring two people to co-guarantee them (by also signing the contract).
4. The equipment was popular with farmers, meaning there was a second-hand market for the repossessed equipment (which only happened in a few cases).
5. The lease was financial (hire-purchase), and ownership was transferred to the farmer after 36 equal monthly payments.

The key innovation was standardisation of the lease, and the fact that farmers did not need to provide extensive collateral.

Source and photographs: Bert van Manen.

The key elements of successful agricultural leasing are as follows:

1. Leasing is suitable for widely used equipment, because a standardised offer can be made (cost advantage). Leasing is much less attractive in cases of specialised equipment as the lease may turn out to be more expensive than a traditional loan. This is because the offer cannot be standardised, and repossession and disposal is more costly due to the lack of a second-hand market.

2. The legal and fiscal environment must facilitate leasing: the full cost of the lease must be a tax-deductible expense, and repossession must be legally and practically possible and enforceable (which is a problem in many countries, *e.g.* Senegal).

3. Other pre-conditions for effective leasing include the availability of insurance (fire, theft), and the quality of maintenance and after-sales services.

The authors of this study believe that agricultural leasing has great potential, which is mostly untested. Leasing can also be promoted as an Islamic finance product.

Table 4 *Advantages and disadvantages of agricultural leasing*

	Smallholder	Lessor (financial institution)	Equipment supplier
Advantages	Easy to understand Access to equipment No need to buy: frees up money Extra income generated pays for the lease Reduced requirements for collateral, capital, and credit history	Asset = collateral Lease = full payment of principal and interest Bought directly from supplier = less likely that client will deviate from the loan No need to go to court to repossess Can be packaged as Islamic product	Larger market Less credit provided by the supplier Potential market for after-sales and services
Disadvantages	May turn out to be more expensive than a simple equipment purchase *via* a loan (through a customised deal)	Technical knowledge about equipment needed Must maintain relationships with accredited suppliers	Leasing company may drive a hard bargain with the supplier
Risks	Non-performing equipment No access to maintenance and spare parts No additional profit Tax uncertainties	Legal and tax uncertainties Loss or spoilage of asset, in particular when service networks are weak which then leads to lease default Claims from others (banks, tax authorities) on the asset if there is legal ambiguity regarding ownership	Non-compliance by leasing company

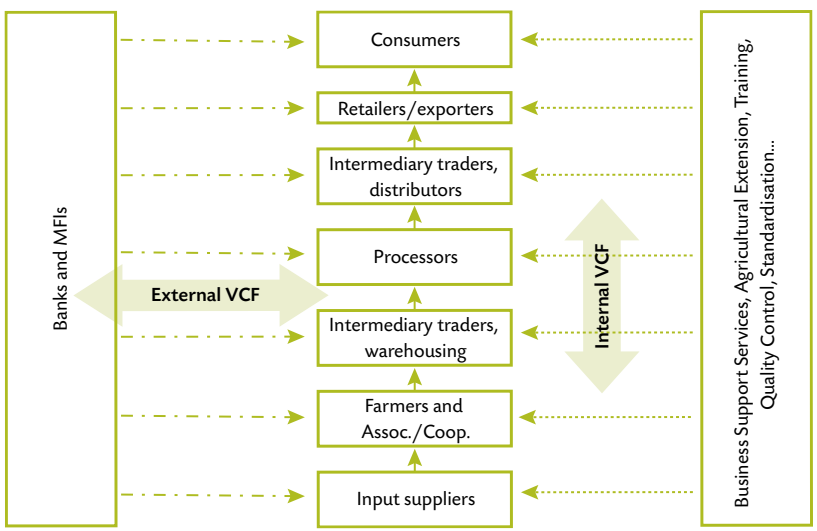
3.4. Value chain finance

The flow of funds to, and among, the various links within a value chain comprises what is known as value chain finance (Miller, 2011). Value chain finance makes use of the business relationships among the value chain partners (who are interdependent

but share business information), and in this way reduces performance, market and credit risks. Thus, the partners that the farmers regularly do business with, such as input suppliers and buyers, provide or facilitate credit to the farmers. An example of financial relationships within the value chain was given in Chapter 2.

Already before Independence, cotton farmers in Mali, coffee, tea and tobacco farmers in East Africa, and cotton and peanut growers in Senegal had been integrated into well-functioning value chains, which facilitated the farmers' access to seasonal credit. In Mali and Senegal, processing plants were the key credit facilitators, while marketing Boards played this role in Tanzania. Finance, including value chain finance, was always much more available for export crops than local food staples. This continued in the 1960s and 1970s, as many value chains were tightly controlled by the state and financed by state-owned agricultural development banks. State-mandated marketing organisations, processors, distributors and banks controlled key value chains, such as cotton in Mali, rice in much of Asia (Corpuz *et al*., 2005), and coffee in East Africa (Swinnen *et al.,* 2010), and used this to provide inputs and credit to farmers. Government involvement has been much reduced recently, but the country studies show that value chain finance (in many forms) prevails in all six countries, and it is almost certainly the most important source of agricultural finance – more important than direct-bank and MFI credit to farmers.

Graph 3 *Value chain finance (VCF) framework*



Value chain finance recognises that smallholder farmers are part of the network of input traders, buyers, agro-processors, warehouse and service providers, distributors, retailers and consumers. Credit is provided through the value chain, principally guaranteed by the anticipated sale of the crop in the future. Financial institutions can become involved when they finance one end of the value chain, which then channels funds to the other links (internal value chain finance), or they can finance value chain partners directly (external value chain finance). National Microfinance Bank (NMB) in Tanzania, for example, is involved in financing the sugar, tobacco, barley, rice and tea value chains. However, value chain financing is most visible in export crops, such as cotton, coffee, cacao, rubber, and cashews. These are all high-value products that undergo substantial industrial transformation, are subject to tight quality controls, and are distributed worldwide, with few local consumers.

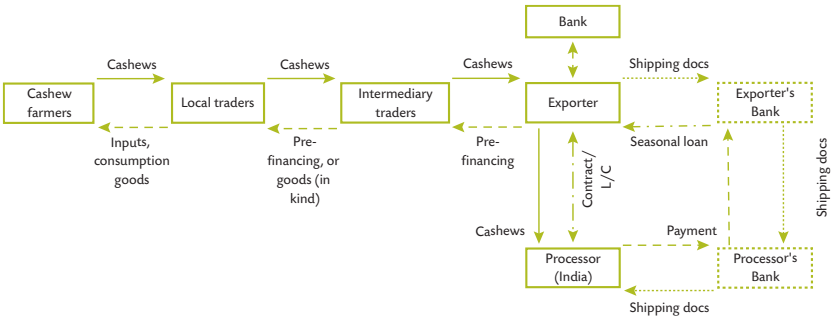
The term "value chain finance" covers many different concepts and modalities of financing, the most important of which are summarised below:

Table 5 *Types of value chain finance*

Types of VCF	Description
Trade credit (credit by input suppliers or buyers such as traders or processors)	Farmers receive credit from input suppliers, intermediary traders and shops, or agro-processors, pledging to repay from future harvest income. Typically, this does not directly involve a bank, and the agreement is usually informal and based on trust. Trade credit is often provided in-kind (seeds, fertilisers, consumption goods), and payment is made in kind as well (final produce). Such arrangements nearly always concern seasonal credit only. The cost of credit (interest) is embedded in the agreed prices for inputs and outputs, and may be quite high.
Contract farming	A trader, exporter or agro-processor establishes pre-harvest purchase contracts with selected farmers or their representatives (an association or cooperative). This involves forward contracting of the crop (the price or pricing formula is fixed). The main motivation is to secure a supply of produce, of a certain quality and at a specified time. Technical support to ensure quality may be part of the contract. Product standards are agreed to beforehand. As part of the forward contract, farmers receive partial prepayment. A bank can also be involved through a triangular arrangement (the sales contract becomes the surety). This arrangement nearly always concerns seasonal credit only. A special case is pre-harvest credit provided to cooperatives, enabling them to buy goods from their members. Pre-finance usually has a maturity of only several weeks.
Outgrower scheme	An outgrower scheme is an elaborate contract-farming arrangement emanating from a nucleus – a lead farm or processor (also called a "technical operator") – which gives outgrowers access to its marketing, operational and logistical capabilities. Technical support may be provided to the outgrowers. Loans may include investment financing (*e.g.* in trees and equipment). Outgrower schemes are most common in high-value, speciality crops with niche markets.
Warehouse receipt finance	Products stored in a certified and secured warehouse serve to guarantee credit, to be used for the next harvest or other purposes (post-harvest finance). This way, the farmer has more flexibility in timing the sale of products, thus benefitting from inter-seasonal price increases. Also, if products are tested and graded, their value may increase. This arrangement concerns seasonal credit because the farmer will probably want to sell the crop and repay the debt before the next harvest.

Trade credit (also called chain finance or chain liquidity) is very common in agriculture. Cashew farmers in Guinea Bissau receive credit (in cash or kind) through layers of traders, whereby the upper layer of exporters has access to bank loans. The arrangement with the farmers is informal, yet secured by mutual trust and long-established relationships between local traders and farmers. The six country studies reveal many examples of simple trade credit arrangements (*e.g.* the cereals chain in Tunisia, rice in Cambodia, Mali, Senegal and Thailand).

Graph 4 *Example trade credit, including export financing through L/C*



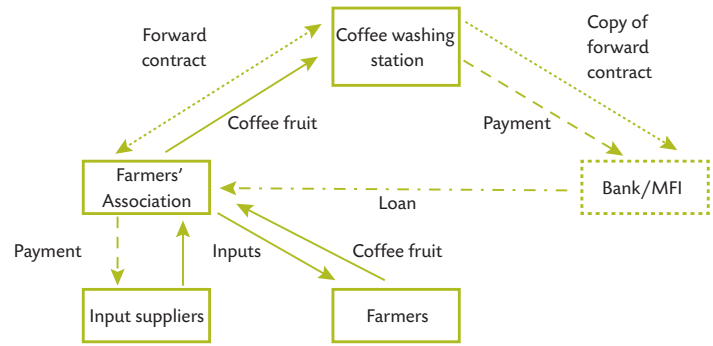
Whereas in the above example credit flows upstream to farmers, the opposite happens as well. Thus, specialised input traders advance seeds to farmers expecting to be repaid after the harvest. In dairy farming, it is perfectly normal for farmers to be paid every two weeks, meaning that farmers are pre-financing the dairy factory. Similarly, agricultural products are sold on consignment through supermarkets, with delayed payment – meaning that farmers carry the shops' inventory cost.

Contract farming involves traders and processors (technical operators) who provide or facilitate credit to farmers willing to sell their crop forward. These buyers are motivated by their wish to secure product supply (quality, timeliness), while farmers secure markets and lock-in prices. The forward contract specifies price and payment conditions, quantity, quality and time of delivery. For example, in Burundi and Rwanda coffee farmers organised in associations or cooperatives receive credit from banks and MFIs, but this is done through the coffee-washing stations to which they agree to deliver the crop. Credit repayment with interest is deducted from the value of the coffee fruit delivered to the coffee-washing station. This is achieved through a triangular agreement: bank – farmer cooperative – coffee washing station. The same happens in Mali and Senegal in cotton production, where farmers are

integrated into a value chain with the regional cotton processing plants. They receive credit in kind (inputs) through farmer unions. In addition, they receive cash advances, which can be used for other crops or consumption. Contract farming coupled with financing is also common in horticultural production in Mali, Senegal and Tunisia (*e.g.* green beans for export, tomatoes for processing).

The specific arrangements in regard to outgrower schemes and warehouse receipts are separately discussed below.

Graph 5 *Example of contract farming, through farmers' association*



In the above examples, farmers receive their loans mostly from banks but also through farmers' unions/associations/cooperatives. In Burundi, Mali and Rwanda, this operation has traditionally been funded by the (agricultural) development bank. Microfinance institutions take part as well. In Ghana, private commercial banks provide contract financing. The specific value chain solution is sector and region specific. In some countries, value chain finance has been used to invest in long gestating crops, such as rubber trees.

Value chain finance, in particular the financing of contract farming and outgrower schemes, is attractive to banks and MFIs because of:

1. Quasi certainty that farmers have a market and distribution channel. The close relationship between farmers and buyers, with or without a contract, becomes an element of loan surety. The mere fact of being in the value chain hugely adds to the farmers' creditworthiness.

2. Technical advice provided to farmers in contract farming, and outgrower schemes in particular, which reduces performance risk (harvest failure or below standard crop).

3. Reduced loan transaction costs:

   a. Much lower loan appraisal costs, since appraisal is mostly done by the value chain partners, who also help with loan monitoring.

   b. Much lower loan disbursement and recovery costs, because the lenders are dealing with only a few value chain partners who facilitate or directly distribute loans to farmers.

   c. As value chain partners usually provide part of the credit in kind, the risk that the loan will be diverted for other purposes is reduced.

   d. Easy loan repayment (*via* the buyers in the value chain) when the harvest comes in.

4. The key value chain partners tend to be well-established and well-known to the bank. Through their credibility, they can facilitate bank and MFI financing to farmers, by vouching for "their" farmers. In some cases, buyers provide collateral for loans on behalf of the farmers.

Value chain finance adds to the traditional "Cs" in credit appraisal (character, capability, conditions in the economy, capital, cash flow, collateral) some new Cs, namely "commodity" and "contract". The farmers' participation in a value chain with quasi-certain sales reduces performance and credit risk. The bank or MFI has better information on what the farmer is going to produce, to whom he/she will sell, and when cash income is to be expected.

The main risks and weaknesses in value chain finance are:

5. Harvest failure or sub-standard products, meaning that the farmer cannot deliver the products required for credit repayment. However, value chain finance often includes technical advice and training for farmers, along with delivery of quality seeds, fertilisers and pesticides, which reduces harvest risk. Agricultural insurance may also be included in the package of value chain services.

6. Side-selling, outside of the agreed to value chain partners, and intentional loan default by farmers. This was observed in all six country studies. This risk is mitigated in narrow value chains with relatively few buyers. Buyers may agree among themselves not to accept side-selling by farmers who are under contract with someone else. However, other value chain partners (and banks) can just as well shirk their obligations. Value chain finance is most effective when all partners benefit from playing by the rules.

7. Value chain finance does not offer a solution for investment financing. Only in outgrower schemes are investment loans common.

8. Farmers may not always get a "fair" deal, in particular when buyers have the upper hand in the value chain due to the lack of competition and the lack of market information available to farmers. The country studies for Thailand, Cambodia and Tanzania strongly suggest that this is the case. This is reflected in relatively high input prices (sold on credit) or low prices for the crop to be delivered, hence a high implicit financing rate. The only weapon farmers have is self-organisation.

Globalisation has greatly encouraged value chain finance as more and more farmers are linked to international value chains. Farmers, including smallholders in Ethiopia, Kenya, Senegal and Tanzania, now produce fruits and horticultural products for export markets. Meat and fish are exported as well through international value chains. However, quality and sanitary standards imposed by foreign importers are very high, which means that farmer-suppliers in developing countries must strictly adhere to prescribed agricultural inputs and production methods. Requirements for packaging, labelling, storage and transport are very high as well. Such standards can be met only through tight vertical coordination within the value chain. Thus, materials, pre-financing, bank credit (or credit guarantees), training, advice and quality-control instruments are provided to farmers through their value chain partners. The risk of side-selling by farmers is quite small, because the products are specific and local clients decline to pay the same price that international clients do.

Interestingly, a similar process now takes place locally as well. In most developing countries urbanisation continues apace, and the emerging urban middle class increasingly enjoys shopping in modern supermarkets. Thus, we see the emergence of Metro and Carrefour in West Africa, and Nakumatt, Pick'n Pay, Massmart, Shoprite and Woolworths in East Africa. In Asia and Latin America, urbanised populations have long ago copied Western shopping habits. Local value chains are established to bring

beautiful, fresh and healthy agricultural products to the urban middle class. Contracts by supermarkets for deliveries of fresh fruits, vegetables, dairy products and meat not only specify the production standards and delivery conditions, they may also include the provision of advice and training, inputs, technology and credit (or at least some pre-payments).

Value chain finance is not a new concept. What is new, however, is how ubiquitous it has become. Value chain partners reduce the information asymmetries that banks and MFIs are confronted with, efficient distribution of credit to smallholder farmers is made possible, and the loan is secured by a confirmed sales contract. Examples from the six country studies suggest that loan repayment in value chain finance is vastly superior than for credit provided outside of value chains (*e.g.* repayment by contract farmers in the tomato value chain in Senegal reached 98% in 2008). Perhaps most importantly of all, value chain projects transfer technology to farmers, thus removing one of the key bottlenecks to agricultural finance, namely the inefficiency of agriculture and consequently the low repayment capacity of farmers. The literature (Swinnen *et al.,* 2010) demonstrates that farmers included in value chains find it easier to access credit and do so in larger numbers than farmers who lack the backing of value chain partners. Indeed, in some countries and particularly in Southern Africa there is practically no financing outside of value chains.

Thus, the key elements to successful value chain finance are the following:

1. Value chain finance works best when all value chain partners have an interest in maintaining the chain relationship, in particular in integrated (cash crop) sectors where parties are willing to sign exclusive off-take and supply contracts, and when technology standards are high.

    a. Farmers get access to inputs and credit on convenient and favourable terms, have guaranteed markets, and receive attractive prices.

    b. Buyers secure farm products of the right quality and price on time.

2. In practice, value chain finance is most suitable for value chains that are relatively long and complex because all value chain partners then need each other (little to gain from side-selling).

    a. With emerging globalisation and urbanisation, most agricultural value chains are becoming longer and more complex.

b. Also, Fair Trade certified and organic products (*e.g.* cocoa) are suitable for value chain finance because the farmer needs the buyer to unlock the Fair Trade or EKO premium, and the buyer needs the farmer to fulfil his own forward obligations (Rabo Development, 2011).

3. Price and credit conditions must be transparent and fair, otherwise side-selling will be unavoidable.

4. Farmers need access to a "package" of technical assistance and financial services, so as to attain quality and certification standards, which must be part of the value chain finance design. The key problems in smallholder farming are often non-financial in nature. As discussed in Chapter 2, farmers lack technical knowledge, inputs and equipment, post-harvest management, market information, face inefficient distribution and, as a consequence of all this, lack access to finance.

5. Due to the complexity of value chains and finance, farmers best interact with the value chain and negotiate finance arrangements through a representative organisation, such as a cooperative.

6. Key to value chain finance is an enabling legal environment, including clear ownership rights, bankruptcy law, transferability of title documents, and timely and efficient dispute resolution.

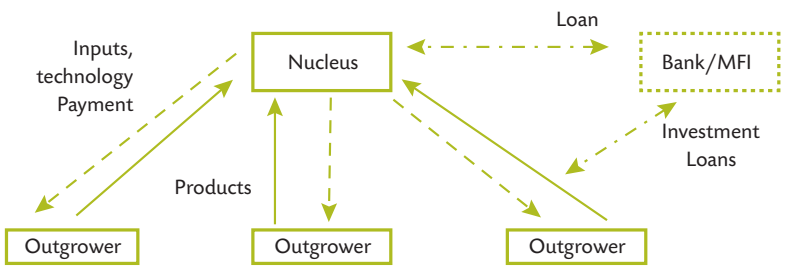
The key difference between "new style" value chain finance and the forms practiced in the 1960s and 1970s is that these are now introduced by the private sector, not by state-controlled entities. Private traders, retailers, agro-processors, storage providers and distributors contract with smallholders, banks and with each other to serve each other's business interests, including credit.

3.5. Outgrower schemes

Outgrower schemes are a specific type of contract farming, often long-term. Outgrower schemes often evolve around a lead farm, the nucleus, which expands its production by asking smallholders in the vicinity to grow the same crop as the nucleus farm does (*e.g.* tobacco in Malawi, pineapples in Ghana, rice in Tanzania). Outgrower schemes also exist in animal production (*i.e.* chicken breeding). In other cases, the nucleus is not a farm but an agro-processing company/cum exporter (*e.g.* PepsiCo, the potato outgrower scheme in India, palm oil producers in Thailand). Even

supermarket chains establish outgrower schemes. Typically, the nucleus firm provides the outgrowers with all they need, such as inputs, technology, credit, and of course a market. Investment financing, however, is usually left to the banks and MFIs. The outgrowers bring their labour and land, but they are not just employees in disguise. The outgrowers continue to bear the harvest risks, even though the lead farm helps them mitigate these risks, and they are paid based on their performance.

Graph 6 *Simple outgrower scheme*



The reasons for a nucleus farm (or firm) to involve outgrowers are:

1. To meet demand or to expand (*e.g.* Malawi tobacco outgrowers, whose nucleus has no land).

2. To secure a regular and quality supply, by organising and binding smallholders through a "package" of services (helping them to overcome technical problems in the upstream value chain).

3. Expansion *via* outgrowers is faster (less need for capital investment).

4. Downstream processing margins are better than with primary agriculture.

5. Outgrowers work more cheaply than in-house hired labour and land.

6. Risk diversification.

7. Social development aims (*e.g.* Fair Trade products).

The advantages to the outgrowers are that they gain access to:

1. New, better or more secure markets, often at good prices.

2. Inputs of the right quality, on time and *via* credit.

3. Practical technical advice.

The above factors help outgrowers increase production, productivity, quality, and often prices, hence their income. Note, however, that the cost of these advantages is factored into the product pricing offered by the nucleus.

Risks to be dealt with in outgrower schemes are:

1. Performance risk (due to weather-related harvest loss, diseases, quality of inputs) and side-selling. In the well-publicised PepsiCo potato outgrower scheme (index-based), harvest insurance is provided.

2. Market risk (prices for inputs and final sales prices for the produce; exchange-rate risk).

3. Credit risk. Credit may come through the nucleus (internal), or directly from a bank/MFI (external). Internal credit through the nucleus firm exposes this firm to credit risk from its outgrowers. However, in case of external credit, the bank/MFI may seek guarantees from the nucleus.

4. The outgrowers may be caught in a quasi-monopolistic and exploitative relationship. This risk is highest when the outgrowers are relatively resource-poor and risk averse.

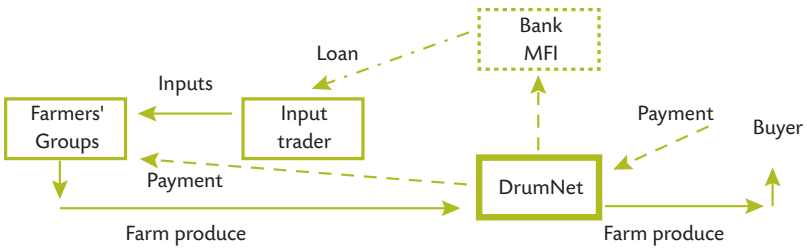
In the six countries studied, few real outgrower systems were found. The traditional value chains in Mali and Senegal (cotton, groundnuts) are contract farming rather than outgrower systems. This is the same for the rice and horticulture sectors. However, in Tanzania outgrower systems are found in the rice sector, linked to irrigation systems managed by former parastatal rice farms, as well as in tobacco, tea and sugar. In Thailand, there are some outgrower operations involving palm-oil-crushing mills. However, the practice is uncommon in rice and tapioca. No outgrower systems were located in Cambodia.

The key factors leading to successful outgrower schemes are the same as those listed for successful value chain finance (see previous sub-section).

3.6. Value chain intermediation

The literature (Campaigne *et al*. 2010; World Bank, 2005) presents a special type of value chain finance where an intermediary, which is not itself a value chain partner, facilitates the process for all parties. DrumNet Kenya has developed a technology platform allowing it to act as an intermediary between finance providers, farmers, input suppliers, and buyers. It combines elements of value chain finance and microfinance. The main objective of DrumNet is to simultaneously address credit and market limitations by integrating both into one approach. The programme has two features: 1) cashless microfinance; and 2) an integrated marketing and payment system.

Graph 7 *Value chain intermediation*



Source: Campaigne, Rausch, 2010.

Farmers organised into farmers' groups sign a supply contract with a buyer, which could be an (export) trader, supermarket or agro-processor. Usually, DrumNet negotiates the contract on the farmers' behalf. The price and supply conditions are set. With the contract in hand, the farmers' group obtains financing from a bank or MFI. The bank or MFI disburses the money to certified input retailers (with agreed upon quality standards), who release the inputs to the farmers. At harvest, the product is certified and sent to the buyer, which triggers a payment in favour of DrumNet. DrumNet then pays off the bank and gives the remainder (minus its fees) to the farmers.

This is essentially contract financing, but with the innovation that an independent party sits in the middle, and manages the process through a master contract. The fact that farmers receive their loans in kind and that the loan repayment is withheld from harvest receipts reduces risk to the bank. Transaction costs are reduced *via* Drumnet, which aggregates financing, technical advice, input supply and marketing. Risk is also reduced due to technical advice and access to premium markets. Nevertheless, DrumNet has faced the usual business risks, such as partner non-compliance (including banks) and harvest failure, which make loan repayment impossible.

Similar experiences are also found in Latin America. Intermediation is useful when farmers (and their representatives) have insufficient capacity to take on traders and finance providers.

3.7. Agricultural factoring and trade receivables finance

Another interesting example, also from Kenya, involves agricultural factoring (KIT/IIRR, 2010). Invoice discounting and factoring are completely normal financial services in developed markets.[5] However, such services are unusual in developing countries, and in agriculture in particular.

Kenyan smallholder tea farmers found that it took them a long time to be paid for their tea, which was because the processors and exporters were in turn kept waiting by their international clients. Farmers were often forced to sell tea to local traders at unfavourable prices to get quick cash. A factoring solution was devised as depicted below. The factoring company advances farmers 70% of the value of tea delivered to the Mombasa tea auction, and charges 2.5% interest per month for its service. The tea auction repays the factoring company directly, which is stipulated in a memorandum of understanding signed by all parties involved.[6] It is noted that the tea processor has offered its assets as collateral, partly on behalf of the farmers.[7]

The model was developed by Biashara Ltd. with support from the Gatsby Trust. It has also been introduced in other sectors, such as cotton and fish. The literature shows

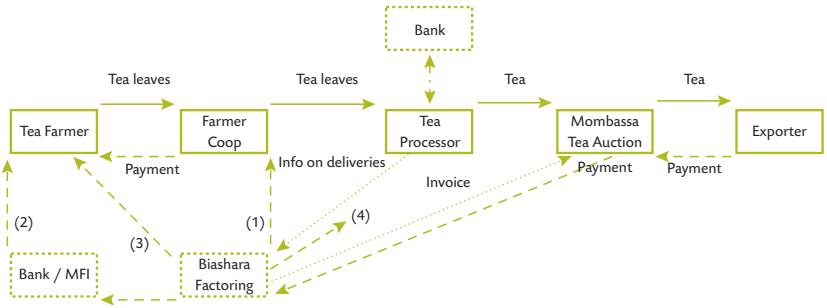
[5] Factoring is the sale of receivables to a "factor", an entity that ensures subsequent debt recovery and also bears the credit risk. Invoice discounting is a type of borrowing in which the receivable is used as collateral (the credit risk is not sold). A special case of invoice discounting is trade receivables finance. Forfaiting is a variant of factoring, this time involving negotiable instruments such as an international letter of credit.

[6] For details, see "Value Chain Finance" (KIT/IIRR, 2010).

[7] It appears this financial arrangement resembles trade receivables finance rather than factoring.

that similar practices of factoring or trade receivables discounting in agricultural exports are quite developed in Latin America.

Graph 8 *Factoring by Biashara in the tea sector in Kenya*



Note: farmers are paid: (1) through the coop, or (2) through the bank, or (3) through M-Pesa (mobile phone). The tea processor is also paid through the factoring company (4) (which sends the invoice to the tea auction).

Source: Royal Tropical Institute/International Institute for Rural Reconstruction (2010).

The innovation here is the payment and security mechanism.

Factoring, trade receivables finance, invoice discounting and forfaiting are of interest when:

1. Payment terms are long (mostly due to shipping times), which is common with export commodities.

2. The product is (physically) secured and the buyer is considered creditworthy.

3. The product is (ideally) non-perishable.

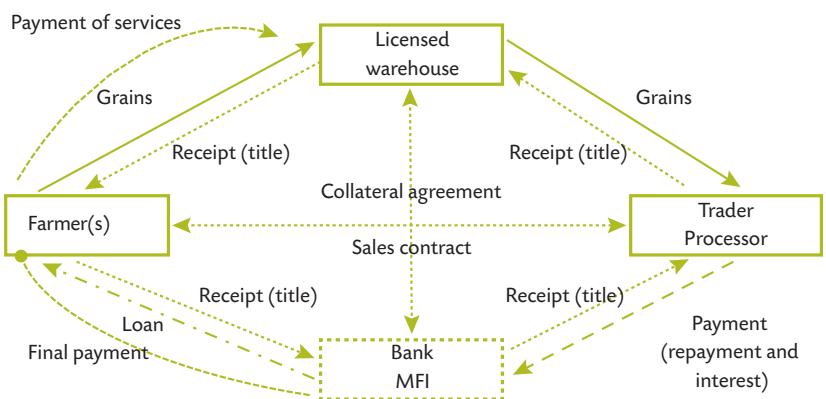
4. The legal and regulatory framework allows for this form of financing and covers the credit provider in case of default.

3.8. Warehouse receipts

Warehouse receipt finance has long existed in grain-producing countries in Northern America and the former Soviet Union. In fact, it was already being practiced in pre-Medieval societies. Warehouse receipt finance was rediscovered some 15 years ago in Eastern Europe (Kazakhstan, Poland, Russia, Ukraine), but is now being introduced in

Africa as well. It is applicable to agricultural commodities that can be stored, such as grains, coffee, cotton, wool or potatoes. The farmer delivers the grains to the (certified and secured) elevator for storage. The farmer subsequently hands the warehouse receipt to the bank as collateral for credit – often 70%-80% of the value in storage.[8] Upon selling the product, the farmer notifies the bank, which obtains repayment from the buyer in return for the warehouse receipt. The buyer now presents the receipt to the warehouse to retrieve the product. The bank transfers the balance (minus the loan amount + interest) to the farmer.[9] Default rates in warehouse receipt finance tend to be low – the borrower (producer) repays the loan with earnings from the sale of the product. Warehouse receipt finance is a self-liquidating loan product.

Graph 9 *Warehouse receipt finance*



Source: Triodos Facet value chain Finance Course.

Warehouse operators store all the produce received from all farmers in one silo, thereby losing track of its origin. However, since farmers offer products of varying quality, products must first be tested and graded upon receipt, and stored accordingly.

[8] Warehouse receipts are "documents issued by warehouse operators as evidence that specified commodities, of stated quantity and quality, have been deposited at particular locations by named depositors" (Onumah, 2003). The form of the receipt depends on local regulations, and consists in some legal systems of two documents: a certificate of title and a certificate of pledge. In Latin America, the documents used are (1) the warehouse receipt itself, confirming that the produce was received in storage; and (2) a warrant or chattel bond that represents ownership of the crop.

[9] Two possibilities: (1) the buyer pays the full amount to the bank, which pays the balance to the farmer; or (2) the buyer pays the bank the loan amount + interest due, and the rest to the farmer.

Warehouse receipt finance is most applicable to non-perishable commodities, such as grains (rice and millet in Mali), coffee and cashews (Tanzania). However, warehousing is also possible for some fruits, vegetables, and even meat. In Mongolia, meatpacking plants employ certified staff who grade beef in three categories and store it throughout the winter. Companies without freezing facilities (*e.g.* restaurants, shops) store their meat alongside the factory's, and the individual carcasses cannot be traced back to their original owners.

Warehouse receipt finance is well-established in the former communist countries because there was already a practice of delivering agricultural products to central warehouses, and the infrastructure was available. Even meat was centrally stored (see example above). In Asia, including Thailand, warehouse receipt finance is practiced in the rice sector. In Latin America, and notably in Brazil and Mexico, warehouse receipt finance of cereals is well-known, and some banks own warehouse infrastructure (Alcantara, 2006). A modest but rapidly increasing practice of warehouse receipt finance exists in Eastern Africa – for example in Tanzania for rice, coffee, cashew, maize, sesame and pepper. It also exists in Southern Africa (*e.g.* South Africa and Zambia, for maize and other crops). The practice is much less developed in West Africa, with Ghana as the main exception (maize). The main bottleneck to warehouse

Box 7 *How not to do warehouse receipt finance (the case of Thailand)*

Under the paddy (raw rice) mortgage programme in Thailand, farmers obtained loans by pledging their rice to BAAC; they would have to deposit their crop in one of the government-run warehouses or with private millers. Farmer-borrowers were given loans of up to 90% of an official set target price. The programme led to extensive corruption and collusion on the part of farmers and millers. The miller could give a receipt for rice deposited, while in fact none had been. The farmer could then use the fraudulent warehouse receipt to get cash from BAAC, which was split between the miller and the farmer.

In a second scam, high pledging prices lured border traders and millers into buying lower-priced paddy from neighbouring Cambodia and illegally putting it into the pledging scheme as "Thai" rice, thus tapping the Thai price subsidies. In March 2009, it was estimated that 1,000 tonnes of Cambodian paddy crossed the border each day to get the price subsidies under the paddy mortgage programme. As such, the Thai paddy mortgage programme (while ensuring high farm-gate prices for Thai farmers) had the unintended consequence of keeping paddy from being milled in Cambodia. It also burdened the Thai budget, while creating a large stock of rice that later had to be disposed of at a loss.

receipt finance in these countries is lack of reliable storage (spoilage), certification (grading) and security (theft) at the warehouses. Farmers may not trust the warehouse, and/or the legal environment may not favour such operations. The practice is also not well-developed in Senegal and Tunisia, although the potential must be there. Lack of rural warehouse infrastructure is one of the reasons.

The key innovation in warehouse receipt finance is that it solves a financing and collateral problem. It offers the bank a safe and liquid collateral asset, which is easy to monitor. In Tanzania, defaults on warehouse receipt finance are below 1%. However, warehouse receipt finance is a post-harvest financial product, applicable only when the farmer has already completed a harvest cycle. Therefore, the initial harvest cycle must be financed with the farmer's own funds or other credit resources.

The advantages for collateral-constrained farmers are many:

1. Farmers are not under pressure to sell immediately after the harvest, when all other farmers are selling and prices are low. Thus, warehouse receipt finance lets farmers decide the best time to sell the crop, benefitting from in-year price changes. This increases the farms' income and helps with cash flow planning.

2. The farmers' negotiation position *versus* the traders is improved, because agricultural traders can no longer dictate the terms for cash-strapped farmers desperate to find a buyer.

3. In addition, if farmers collaborate on marketing, the stockpiling of the crop in the warehouse increases the farmers' collective bargaining position and lets them reap scale advantages, which support the price.[10]

4. Furthermore, the fact that the product is tested, graded and certified nearly always increases its value (*e.g.* opens up export markets). Graded products can be traded on commodity exchanges, which greatly increases the competitiveness and transparency of the sales process.

[10] In many warehouse receipt finance contracts, the storage facility represents the farmers against traders/processors and negotiates prices on their behalf.

5. Also, the value chain may be strengthened as a market for durable-product storage is created, crop losses are reduced, incentives are created to produce quality, and standards for weighing and grading agricultural produce are established.[11]

6. Consumers may benefit as seasonal price fluctuations are reduced.

Warehouse receipt finance is financially advantageous to the farmer when the costs – warehousing, plus the cost of credit, plus the potential product losses due to

Table 6 *Advantages and disadvantages of warehouse receipt finance*

	Smallholder	Financial institution	Trader or Processor
Advantages	Higher price due to better timing, storing, grading, bulking and sometimes pre-processing. Grading gives incentive to improve quality Reduced crop losses as warehouse has better storage conditions than the farmer does	Outreach to smallholders Safe way to finance agriculture (provided bona fide warehouse) Very liquid collateral, simple foreclosure Simple monitoring. Establishes credit history for the farmers	Reliable, on-time supply in large, consolidated quantities Quality grading, certification and weighing Mostly dealing with warehouse, not smallholders individually
Disadvantages	Full payment not made directly upon harvest (allowing for periodic sales that optimise pricing) Cost of storage, conditioning, losses in storage Only works when the first cycle was already financed somehow	Transaction costs (but these can be reduced if dealing with farmers' associations) Not a solution for investment loans	Cost of storage and intermediation by warehouse
Risks	Product spoilage, fraud and theft Price decrease in storage. Governance issues if involvement of farmers' association/coop. Weak or fraudulent warehouse management, including fake receipts	Price decrease in storage No end buyers Side-selling (out of storage) Default by warehouse (sells or loses the pledged crop, or issues fake receipts)	Contract enforcement

[11] The Tanzania country study reveals that creating storage to avoid crop losses is one of the main reasons why international development partners support the warehouse receipt system.

spoilage or theft while in storage – are less than the anticipated value increase of the crop in storage. Pilot projects undertaken in Mali, however, show that is not always the case. For some crops (*e.g.* millet) the price increase was too small to justify the warehousing expense, while it was also found that farmers needed to store a minimum quantity to make it worthwhile (which many smallholder farmers could not). Experiments in Tanzania have suffered from the very high interest rates demanded by banks and MFIs. There were also cases of (perhaps unreasonably) high storage fees and administrative costs by the warehouse operator.

For successful warehouse receipt finance, a number of key conditions must be met:

1. Like other types of value chain finance, warehouse receipt finance requires an enabling legal environment, notably secure ownership rights (of the products in storage), bankruptcy law, transferability of title documents (including warehouse receipts as documents of title), and efficient dispute settlement among parties. In 2005, Tanzania passed specific legislation to this effect. This included the establishment of a Warehouse Licensing Board.

2. The policy environment must also be conducive. In Thailand, warehouse receipt finance is practiced in many value chains (rice, tapioca, oil palm). However, guaranteed minimum prices eliminate one of the key attractions of the instrument, namely to benefit from inter-seasonal price variations.

3. The availability of reliable (secured and certified) warehouse facilities, including testing and grading capacities, is a precondition because the whole system depends on their credibility. East and Southern Africa have made great progress in this respect. In West Africa, such infrastructure is lacking.

4. The role and capacity of the warehouse operator is fundamental. The warehouse acts as an inspection company (quality, quantity), and establishes tripartite collateral management agreements involving banks, borrowers and itself as collateral manager, which allows farmers to get bank credit. The model depends on the credibility of the collateral manager (the warehouse operator).

    a. This credibility can be reinforced when warehouses are suitably regulated and supervised. Licensed warehouses should meet and maintain standards for physical facilities, capital adequacy, liquidity, managerial qualities, and insurance.

b. Warehouses should be subject to unannounced visits by "examiners", who are responsible for enforcing the law and who can suspend or revoke a warehouse license (Onumah, 2003).

c. Crop-handling staff at the warehouses (weighers, samplers and graders) must also be individually licensed to carry out their duties.

d. Commodities are graded to national or international standards.

5. Due to the costs involved, the scale of operations must be quite large. Overall, warehouse receipt finance requires a relatively sophisticated legal and

Box 8 *How to do warehouse receipt finance (the case of Zambia)*

In Zambia, a warehouse receipt finance system was set up that involved the development of a national network of privately managed warehouses, authorised to issue transferable warehouse receipts, and where trust was developed through a strong certification and inspection regime. The main innovation was that a self-financing regulatory agency, outside government – the Zambian Agricultural Commodity Agency (ZACA) Ltd. – was incorporated to certify and inspect warehouse operators authorised to issue receipts against stored commodities.

Warehousing services are accessible to producers, processors and traders, with a minimum grain deposit of 10 tonnes. The stakeholder-controlled agency ZACA certifies and oversees warehouses, and issues and revokes warehouse licenses. A low capital threshold is established (USD 50,000), with warehouses being able to receive and store up to 10 times their net worth. The warehouse must meet solvency criteria, provide a financial performance guarantee, show evidence of professional competence and integrity, and accept unannounced inspections. The certification agency will ultimately depend on user fees, but was subsidised early on. Only commodities that meet weight and grading standards are accepted. The warehouse operators and their front-line staff (weighers, samplers, graders) are trained and certified in commodity quality and quantity assurance to facilitate enforcement of commodity standards.

Certified warehouse operators either own or lease sheds or silos on commercial terms and are free to charge market rates for storage. Warehouse receipt finance is also on commercial terms and does not include "soft" credit lines from government or international development partners. Considerable effort is devoted to gain the commitment of the various stakeholders with an interest in the scheme, notably farmers, traders, processors, bankers and policymakers.

Source: Onumah (2003).

economic environment, the absence of which appears to have been a problem in the trials conducted in Mali.

3.9. Credit guarantees

Credit guarantees can be provided to banks and MFIs to encourage them to finance agriculture. Credit guarantees work well when:

1. We are dealing with good farmers who use adequate technology, have good markets, and who have good loan proposals (projects that will generate cash flow).

2. We are dealing with well-performing and well-capitalised banks/MFIs.

3. The lending decisions are made by well-trained bank/MFI personnel with agricultural knowledge.

4. The bank/MFI has efficient risk-management procedures.

5. And because of all the above, the bank/MFI is eager to finance agriculture – the farmer just lacks the collateral to satisfy the risk-management requirements of the bank/MFI.

Regrettably, these conditions are often not met. Many agricultural credit-guarantee funds have been left underutilised because banks have found many reasons other than lack of collateral not to finance farms (*e.g.* Malaysia, Philippines, Romania, Thailand). Banks found agriculture to be too risky even with guarantees, or the procedures of the credit-guarantee programme were considered too cumbersome, or the guarantee fee was too high, or the guarantee fund itself refused clients proposed by banks (*e.g.* Romania). A critical issue is the amount guaranteed: when set too low, banks will not find it practical, and when set too high, banks will not be motivated to collect the debt. High guarantees may also lead to "moral hazard" as borrowers decline to repay, knowing that their loan is guaranteed regardless (Levitsky, 1997). AFD offers credit guarantees through ARIZ. However, hardly any agricultural guarantees are provided as banks do not ask for these.[12] Rabobank offers agricultural guarantees in Latin America, but the fees cannot cover the costs.

[12] Banks have asked for guarantees for agricultural working capital loans, but these are not presently covered by ARIZ.

The six country studies revealed few examples of successful agricultural guarantee funds. Agricultural guarantee schemes operate in Tanzania, but little information is available on their performance and impact. All are subsidised by government and/or international development partners, which raises questions as to their long-term viability. Tunisia operates an obligatory national guarantee fund (FNG). However, in practice the fund covers only the accumulated interest from loan rescheduling due to drought. Banks are rarely reimbursed for loss of principal on the loan, and the procedures to be repaid by FNG are complex and lengthy. As the past decade has seen six reasonably good and four bad harvests, many farmers in Tunisia have accumulated bad debts in spite of the guarantee for which they had paid a premium. Senegal has also established a guarantee fund, but failed to capitalise it sufficiently. In addition, the guarantee fund is only accessible to the agricultural bank (CNCAS), which may discourage other banks from financing agriculture. The cases of Tunisia and Senegal also show the limitations of agricultural guarantees under harsh weather conditions. In situations with high default probability, guarantee funds cannot be sustainable: the risk premium would be exorbitant.

However, loan guarantees for agriculture have again been put on the agenda by AGRA (Alliance for Green Revolution in Africa), an initiative of the Gates Foundation. A multi-donor initiative led by AGRA has issued USD 17 million in loan guarantees to reduce the risk of lending by banks. This way, AGRA and its partners have leveraged USD 160 million in affordable loans from commercial banks in Ghana, Kenya, Mozambique, Tanzania and Uganda. Compared to other guarantee programmes, this leverage ratio of ± 1 to 9 is high.

Although most AGRA guarantees in Africa benefit large farms, agro-traders and agro-processors, and no audited information is available on the guarantee losses (claimed to be few) *versus* the risk premium (a measure of financial sustainability), the programme undoubtedly has had an impact on farmers through the value chain. The programme also has had an impact on bankers, who gain more confidence with agricultural lending and see that agriculture is not so difficult and risky after all. Banks have been able to reduce their lending rates (because of reduced risk), and some banks have hired staff who specialise in agriculture. However, the programme is new (established in 2009) and how it will survive the next systemic harvest loss in East Africa remains to be seen. In addition, as no guarantee premium is currently paid by either banks or clients, the initiative is subsidy dependent. For now, the key innovation in the AGRA programme for Africa is not the guarantee mechanism, because that is well known, but rather the size of the programme and the fact that well-established, large African banks participate. Through syndication, the risk is shared among

institutions, and the fund relies on market-driven approaches. Banks are given technical assistance to develop agricultural finance.

Box 9 *NMB-AGRA-FSDT agricultural input guarantee scheme (Tanzania)*

In Tanzania, AGRA and FSDT have established a credit guarantee scheme with National Microfinance Bank (NMB) to finance agricultural input suppliers on a 50/50 shared-risk basis. If input suppliers have access to seasonal credit, they will be able to stock up on seeds, fertilisers and pesticides to sell to farmers. Adequate (quality, reliability, availability) provision of inputs is meant to increase the productivity of Tanzanian farming. In addition, if input suppliers have access to credit, they may be able to provide some inputs to farmers on credit too (with repayment after harvest). Thus, a (guaranteed) loan to an input supplier may indirectly become a loan to a smallholder farmer.[13]

The NMB-AGRA-FSDT scheme for input suppliers in Tanzania is innovative in that guarantees are used to strengthen the value chain. The ultimate objective is not to put credit in the hands of input traders, but to make farm inputs available to farmers, who can subsequently improve their farm business. In other words, a financial instrument is applied to bring about changes in farming. A recent evaluation of the effectiveness and impact of this scheme demonstrated that due to the loan guarantees, input suppliers indeed increased their stock of supplies,[14] and farmers gained better access to inputs, which increased farm productivity.[15] This way, the project is tackling the productivity and financing challenges of Tanzanian smallholders. Both input suppliers and farmers recorded improved business performance. Thanks to credit, input suppliers' inventory levels are more reliable than before and, as a consequence, their sales have gone up. Combined with the Tanzanian input-voucher (subsidisation) scheme, guarantees have increased farmers' access to, and use of, farm inputs. As a result, farmers' productivity levels, as measured in bags per acre, are showing an upward trend.

The NMB-AGRA-FSDT guarantee fund is also innovative in that it has facilitated input-supply credit to farmers. Thus, the scheme combines credit guarantees with the logic of value chain finance. By combining credit guarantees with value chain finance, the

[13] Most farmers, however, pay for their inputs with input supply vouchers – an input subsidisation scheme. This means that input suppliers are providing input credit not to farmers but to the government, as input suppliers need to redeem these vouchers from the Treasury. Unfortunately, the government has been slow in paying the input suppliers for vouchers redeemed. This is the main reason that 13% of input suppliers were overdue on their payments to NMB in July 2011.

[14] Input suppliers report that the credit facility is easily accessible, and that the guarantee has resulted in a somewhat reduced interest rate, as well as reduced collateral requirements (as half of the risk is guaranteed).

[15] Project review undertaken by Triodos Facet in July 2011.

cost of credit delivered to farmers is reduced (fewer loans to be made) and there is better credit management (local input traders usually know their client farmers better than NMB could.

As far as NMB's involvement in agri-finance is concerned, the scheme has contributed to increased confidence. Even in the absence of guarantees, the bank would probably be willing to continue financing the best performing agro-dealers. Fact is, however, that to date the bank has not yet done so on a large scale. Overall, NMB is not ready to finance broader sections of agriculture in the absence of a guarantee.

Financially, the guarantee fund is not sustainable (subsidy dependent) as the risk premium is zero even though losses will be incurred. To what extent these losses are compensated by macro-economic/agricultural development benefits cannot yet be ascertained. However, there is clear evidence of "additionality", in that most loans provided to agro-dealers by NMB (966 overdraft loans for Tsh 13,270 million, July 2011) would not have been made without the guarantee scheme.

The authors of this study have observed that credit guarantees are too easily embraced by banks, clients and aid donors as a solution for everything. However, credit guarantees do not reduce the risk of an agricultural loan – irrigation facilities, drought resistant seeds or mechanisation would. Credit guarantees just provide the lender a partner to *share* in the financial risk, and this is useful when the borrower does not offer the adequate collateral. Thus, the key elements in successful agricultural-credit guarantees are:

1. The instrument focusses on resolving the constraints on collateral *only*. All the other pieces of the credit puzzle should be in place (market, technology, agricultural potential, etc.), making the bank eager to work with this particular farmer if only the collateral can be sorted out. Guarantees cannot work when the default risk is high.

2. In any agricultural credit scheme it is essential banks not to be freed from their normal due diligence in credit assessment, and the instrument should be structured accordingly (*e.g.* through appropriate *pari passu* risk-sharing[16], and by sharing the cost of interest accrued during the loan recovery period, as well as the loan recovery cost on defaulted loans).

[16] The final credit loss should be shared by the bank and guarantee provider in agreed proportions. The guarantee should not be a simple element of loan security alongside other collateral (first loss guarantees should be avoided) that the bank may have obtained, because this would encourage the bank to call in the guarantee, repossess its own collateral, and disregard the interests of the guarantee provider. Because of the information asymmetries in favour of the bank, credit guarantees are best structured on a portfolio basis. A loan portfolio is much easier to monitor than a set of individual loans.

3. Guarantee procedures must not be burdensome (preferably through a portfolio approach) and compensation swift, otherwise banks will decline to use the instrument.

4. Practice shows that it is extremely difficult to establish sustainable agricultural credit-guarantee funds (which cover operational costs and losses of fee income). However, at the very least, the guarantee programme must be designed to foster specific improvement in agricultural performance, thus offering a social justification for its implicit or explicit subsidisation.

3.10. Agricultural Insurance (index insurance)

As noted previously in Chapter 2, smallholder farmers are confronted with many exogenous risks. In addition to risks related to the weather and other acts of nature, farmers are exposed to market and price risks on their inputs and produce. Traditional risk-coping mechanisms for farmers include savings (cash or in kind – *e.g.* in grain or cattle, building materials, even household items), agricultural diversification, relying on traditional solidarity such as family, seeking part-time employment to supplement farm incomes, leaving the land for an urban center, or hoping for government hand-outs. Mostly, these strategies are economically inefficient as they disperse the farmers' efforts, and make farmers less likely to adopt new technologies and to instead focus on subsistence. Farmers incur an opportunity cost by not using agricultural resources optimally, simply to reduce risk. Research undertaken in Albania, Kosovo and Moldova showed that specialised farms score higher on indicators of business development and social well-being than mixed farms with a subsistence orientation (EFSE, 2010). Furthermore, traditional risk management fails in case of catastrophic events – such as massive droughts, floods or hurricanes that affect the entire community or country. Farmers with access to better risk-management tools can afford more efficient – but more risky – production decisions, and can better overcome low-frequency/high-impact risk events. Effective risk management techniques would also turn farmers into more acceptable clients for finance providers. Agricultural insurance is one such risk-management methodology.[17]

Agricultural insurance has existed for decades. The crop can be insured against hail or drought. Animals can be insured against premature death or theft. The insurance

[17] Overview of agricultural risk insurance products: **A. Traditional crop and livestock indemnity products:** 1) Named-peril crop insurance (*e.g.* hail); 2) Multiple-peril crop insurance (yield guarantee); 3) Revenue insurance (yield and some price protection); 4) Livestock mortality insurance. **B. Index-based products:** 5) Weather index products; 6) Area yield index products; 7) Livestock index products (Dos Santos, 2010).

could also cover the full harvest risk (multiple-peril). However, such insurance is likely to be very expensive because it essentially covers all business risks, and is rarely sold. The same is true for single-risk insurance when the risk is very high (such as drought in Tunisia). Such coverage is extremely expensive and simply not sellable. This also explains why agricultural insurance in Senegal has failed to take off – this in spite of government subsidies. Furthermore, like any insurance, agricultural insurance entails the risk of moral hazard and adverse selection. Individualised insurance is also poorly suited to smallholders in developing countries because of the high closing costs for individual risk policies, claim assessment and monitoring. Finally, financially illiterate farmers may not understand the concept of insurance, and may try to reclaim their insurance premium if the insurer has not made any payouts (a risk event has not occurred).

Index insurance is an important recent innovation. It is a "derivative" instrument in that the pay-out to farmers is triggered when the threshold value for an underlying risk indicator (the "index") is breached, this without actually having to observe the damage done to the farmers' fields or livestock. This greatly reduces the transaction costs, the risk of moral hazard and adverse selection. In many index insurance policies, multiple thresholds are defined, with increasing pay-outs as the risk event increases in severity. The index can be based on the amount of rainfall (lack of or excess), humidity levels, arrival of locusts, water levels in a river, occurrence and strength of a hurricane, sea-surface temperature, frost, hailstones, etc. This requires highly capable and independent measurement tools, such as weather stations. Remote-sensing techniques with satellites are being used as well (*e.g.* Canada, USA). In some insurance systems, an estimate is made, *via* sampling, of the average crop yield in an agricultural region (*e.g.* Brazil). Farm losses are modelled with actuarial methods (given detailed and long-term data). Successful index insurance is characterised by a high level of transparency and rapid payment after the index has been triggered (both are a problem in traditional harvest insurance, which requires assessment of actual losses by an expert).

To be effective, the index used must be highly (and spatially) correlated with the damage that farmers actually incur (in order to avoid basis risk). Thus, the literature shows examples whereby the index consists of several risk variables (Dos Santos, 2010, example from India). Furthermore, to counter basis risk, the places where the index is being monitored (*i.e.* weather stations) must be sufficiently close to the farmers. This can be a problem in regions with many different sub-climates. Also, such weather stations must be of high quality, make very frequent measurements, and preferably transmit these real-time to a base station for analysis. To facilitate

acceptance by farmers, the index must be easily and objectively observable, and understood by all. An objective and easily verifiable index, with measurement conducted by an independent body, also facilitates re-insurance in the international market. This is crucial because the systematic nature of a natural disaster can easily overwhelm local insurers. Re-insurance policies can also be securitised and sold on the international capital markets.

In context of this agricultural finance study, the importance of index insurance is that it can be combined with credit products provided by banks, MFIs or input traders. The mere presence of natural disaster risk deters banks from financing agriculture, as banks cannot absorb the covariate losses that could be incurred by many of its clients simultaneously. Index insurance mitigates some of the exogenous risks that farmers are faced with, thus making farmers more bankable. The literature provides some examples of finance providers teaming up with an insurance company, notably in India, Malawi and Vietnam, thus covering part of the loan risk through index insurance (Dos Santos, IFAD, 2010). When the index is triggered, indicating that an agricultural risk event has occurred, the insurance pays a predetermined sum in favour of the financial institution. Although the farmer's family still has to deal with reduced income and food, at least it is not needlessly indebted.

Some of the problems in using index insurance to guarantee credits are the following:

- The main problem is basis risk, which is the risk that a payment is triggered when most of the farmers have either no losses or substantial losses. Clients may not understand or accept why they received no payment even though the harvest failed and their loan cannot be repaid. In the absence of sufficient and sufficiently capable weather stations with real-time data, risk modelling remains a challenge in many areas.

- The cost of index insurance is high, often around 10% of the insured amount.[18] It is impossible to "hide" this cost in the interest rate charged for an insured loan, and farmers may deem it too high. The literature reveals that most experiments in index insurance have been heavily subsidised. The high risk of adverse agricultural events and the extent of losses incurred is a major impediment to the development of a commercial agricultural insurance industry. Unsubsidised (hence sustainable) index-based drought insurance in drought-prone Mali, Senegal and Tunisia is a difficult business proposition.

[18] In Tunisia, the cost of drought index insurance would be around 20% of the insured risk, which is why this type of insurance may never take off.

- Furthermore, most index insurance focusses on one risk, most often rainfall, leaving the farmer (and loan) exposed to other natural risks (*e.g.* insects, fungi) as well as personal risks (illness, death, fire, theft).

- The regulatory environment, including prudential supervision of the insurance provider and re-insurance, is not always conducive to micro and index insurance.

- The distribution of index insurance remains a challenge, not in the least because of its complexity. However, in the case of index insurance linked to credit, distribution is normally ensured by the credit provider or related value chain partners.

The key innovation in combining index insurance with credit is the standardisation of the approach, making reinsurance possible, and thus reducing lending risk. In many of the successful examples, index insurance is part of a value chain finance approach. This also solves the problem of how to distribute the insurance. Index insurance incorporated into value chain financing is distributed by the same entities that provide the credit, namely traders, technical operators, farmers' associations, or (micro) finance institutions.

The key factors ensuring the successful combination of index insurance with credit are the following:

1. To start with, the index insurance must be viable, including strong and transparent risk modelling, sufficient and capable weather stations, efficient product distribution and swift claim processing.

2. In most examples of successful index insurance coupled with credit, insurance is embedded in a total package of production-enhancing assistance to farmers. In the much-cited potato outgrower scheme of PepsiCo India, for example, PepsiCo – in conjunction with local facilitators – provides an assortment of high-quality inputs, credit, training and advice, and risk management *via* index insurance to its potato outgrowers (IFAD, Dos Santos, 2010). An environment of mutual understanding and trust is created, and farmers understand and appreciate the value of the insurance offered to them.

3. Indeed, index insurance is most effective and most likely to be sustainable (not needing external subsidies) when it facilitates access to other services (markets,

technology, credit) that substantially increase farm productivity and expected income, thus helping farmers to recover the cost of insurance.

4. Sustainability also requires scale and standardisation.

In drought-affected northern Tanzania, insurance-backed farm loans of about USD 1,000 helped farmers raise their production from about 5 bags to 28 bags per acre in good years. After repaying the loan with interest and the insurance premiums, the famers saw a vast improvement in their incomes. Even if their harvests were to fail every third year, resulting in very high insurance premiums, the farmers would still be better off due to the productivity gains.

3.11. Price smoothing

Price smoothing is a technique experimented with by AFD in Burkina Faso in the cotton sector (AFD, 2010). The technique aims to reduce the impact of annual fluctuations in cotton prices. At the beginning of the season, the scheme sets a target for cotton producer prices based on a five-year moving average of world market prices. If the actual world market price after harvest exceeds this target price, the balance is deposited into a smoothing fund. If the actual world market price after harvest falls short of the target price, the shortfall is recovered from the fund. This is essentially how the ancient STABEX fund was supposed to have operated.

Experience from the first five years of operation (2006-2011) has been positive, and the fund has performed as planned. However, inter-annual price variations in this period were quite low. It remains to be seen how the fund performs when prices vary more widely, or when prices decline year-on-year, entering into a downward trend. Further experiments are needed to determine to what extent smoothing can be applied to other crops, in particular those that are exposed to rapid international price fluctuations.

From the point of view of a finance provider, a smoothing fund may reduce the price risk of the crop, hence making the farmer more bankable. Technically, price smoothing is price risk insurance.

3.12. New technology

The past five years have seen a wave of new technologies that vastly increase access to financial services for rural clients. By far the most exciting revolution is banking

through mobile telephones. Mobile payment technologies pioneered in Kenya and South Africa are now rapidly being introduced all over Africa (Ghana, Mali, Senegal, Tanzania) and beyond (*e.g.* Cambodia and Thailand).[19] Most mobile banking projects have been initiated by telephone companies, but banks and MFIs are increasingly joining up, either as partners with telcos or entirely on their own. In Mali, Senegal and Tanzania, the telcos have the upper hand. In Cambodia and Thailand, mobile banking is being pioneered by banks, which is explained by the much higher market penetration of the banking sector in these countries. In Tunisia, the introduction of mobile banking is under discussion.

Box 10 *ACLEDA launches mobile banking service in Cambodia*

Press release by ACLEDA Bank – Cambodia (July 2010)

ACLEDA Bank Plc. operates the largest bank branch network in Cambodia. The bank has just announced that it has launched mobile banking services for retail consumers. The service is called "Unity". It provides mobile subscribers with the ability to view account balances, obtain a mini-statement, transfer between their accounts, make payments to other people, pay bills and top up their mobile phones. A virtual "bank in your pocket" – it provides a convenient and secure way to manage all daily banking transactions any day, anytime, anywhere. It communicates in both the English and Khmer languages and handles transactions in Khmer Riels, US Dollars and Thai Baht, with other currencies to follow.

"Our aim is to offer access to financial services to the whole community", said Mr. In Channy, ACLEDA's President and CEO. "Unity works with all mobile phone networks and a very wide range of mobile handsets. It "unites" a whole selection of financial services under one umbrella that simplifies day-to-day banking through mobile phones anywhere in the country. For those customers who have global roaming it will even work throughout the world", he stated.

Operating on a 24/7 basis, with high-level multilayer security features, the bank claims that Unity gives customers the choice of using text message (SMS), Mobile Browser/WAP or a dedicated downloadable application interface.

Mobile banking started as a simple service, whereby one person could transfer the pre-paid units on his/her mobile phone to another person, for example a trader. This way, e-money came into being. Mobile banking has now evolved into a system whereby thousands of local shop traders accept e-money or act as payment agents

[19] The pioneering service M-Pesa in Kenya reached 13 million users in 2011. Some 60% of all payment transactions (by number) in Kenya take place through M-Pesa. The technology has been implemented in 40 countries.

to exchange e-money for real cash. This allows urban workers to send remittances to their families in the village. Also, people now routinely pay school fees, phone or water bills with e-money. Through the linkage of mobile operators with banks and MFIs, clients also get access to their savings or credit accounts. Clients can withdraw, deposit, and repay loans through the mobile phone, saving them the inconvenience and cost of travelling to the nearest bank or MFI office. This brings down the cost of providing financial services to farmers, and is vastly contributing to the monetisation of the rural areas.

It is too early to evaluate the impact of mobile banking on agricultural finance. However, in his keynote address to the AFRACA Central Banks Forum on 9 May 2011, the Governor of the Central Bank of Kenya noted that the financing of agriculture in Kenya increased from USD 335 million in 2007 to USD 620 million in 2011. This he mostly attributed to the introduction of mobile banking and other technology solutions. In India, the State Bank of India has been able to add 100,000 villages to its service network through a combination of mobile phone technology and cash points (within shops) in the village. This has brought millions of people into the banking network.

There have also been experiments with mobile service points by banks and MFIs (*e.g.* Albania, Malawi, Senegal), whereby a van visits the villages once or twice a week to offer financial services. This allows clients to withdraw or deposit cash, make payment transfers, make loan repayments or receive other services. There are even ATMs on wheels. There have also been experiments with biometric technology (fingerprints, eye scan) to better identify clients (to avoid identify fraud in India, catch serial defaulters in Malawi; Giné, 2010), and prevent the same farmer from taking loans from many MFIs simultaneously. In Malawi, the use of biometric identity verification was found to reduce loan default. Borrowers were more careful in their loan applications (asked for smaller loans) and more diligent in repayment. In Indonesia, Bank Tabungan Pensiunan Nasional (BTPN) uses several of the above technologies simultaneously to reach rural clients. Credit staff use portable electronic devices that scan fingerprints as well as bank cards, and send the information back and forth to the head office to get real-time access to the client's credit or debit situation.

3.13. Extension services and financial literacy

Little literature exists on the link between extension services and agricultural finance. For many years, the key paradigm was that financial and non-financial services needed to be separated. This paradigm has recently been challenged.

The generally low level of education and technical know-how of farmers is one of the main reasons why banks decline to finance agriculture. Farmers, and smallholders in particular, generate little cash, and even when they do, they may not be able to provide the documentation to convince bankers that this is so. Research undertaken in Moldova (EFSE, 2010) found a strong correlation between farm performance (increase in production and profits) and the use of extension services provided by the regional branches of the Ministry of Agriculture. Naturally, the farms' repayment capacity will have increased as well. In recognition of this finding, some banks in Moldova oblige their agricultural clients to seek government-subsidised extension services.

Research in India (Mahajan, 2010) found that credit to poor farmers has little impact on their income, hence levels of poverty. However, when combined with extension services and input supply for productivity enhancement, risk mitigation (through insurance), education and market development, the results were much better. It was found that farmers are willing to pay for these services. Farmers preferred cost-saving and risk-reducing solutions over yield-enhancing technology that requires investment. The country study for Tanzania also shows examples of extension, support and maintenance services that underpin lending activities. For example, Private Agricultural Sector Support Limited (PASS), based in Morogoro, provides Business Development Services that leverage credit products from banks and MFIs. Experiences in Tunisia also show that technical support to farmers can lead to increases in farm productivity, hence farmer creditworthiness.

These findings substantially challenge the old "minimalist" microfinance paradigm. It is noteworthy that in nearly all of the 13 value chain finance case studies described in "Value Chain Finance" (KIT/IIRR, 2010), technical support and training play key roles. For reasons of cost-effectiveness, this is usually done after prior group formation (*via* associations and cooperatives). However, all experiences with extension services cited above are faced with the challenge of ensuring long-term sustainability through the income generated from the services.

The literature also shows that financial education can play an important role in better preparing farmers for their interaction with finance providers (Cohen, 2010; IFAD, 2009). Farmers find it hard to provide financial institutions with the financial information required to assess the farmers' loan repayment capacity and risk. Likewise, poor farmers may not understand and appreciate the finance offer and conditions proposed to them. Thus, many microfinance providers, such as BRAC, invest substantial resources in financial literacy training. Indonesian MFIs and even

Graph 10 *Financial education by PROMIFIN (supported by the Swiss government and executed by Triodos Facet) in Central America*[20]

HOW MUCH DO I HAVE? (Specify in numbers)						
Month	Cows, bulls or horses	Pigs, goats or sheep	Poultry	Land or plots	Machinery, tools or infrastructure	Saving accounts
Start of year (January)						
End of year (December)						
Goal for December						
Did I meet my goal?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

HOW MUCH DO I OWE? (Specify in numbers)						
Month	Debt 1	Debt 2	Debt 3	Debt 4	Debt 5	Total
Whom do I owe?						
Start of year (January)						
End of year (December)						
Goal for December						
Did I meet my goal?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
HAVE I LOWERED MY DEBT? Yes ☐ No ☐						

banks also offer financial literacy training. Financial education has been shown to empower poor farmers through knowledge, with positive effects on their use of credit and creditworthiness. The main topics in financial education for farmers are farm-budgeting, savings, managing credit, and using bank services. Such financial literacy education can be provided by MFIs, or through the radio and TV.

3.14. Cooperative development

As noted in Chapter 2, in most of Africa and Asia the vast majority of farmers are smallholders who due to their size and education lack access to finance and markets.

[20] The PROMIFIN Project in Central America executed by Triodos Facet and financed by the Swiss government conducted 3,210 financial education seminars for 23,485 people involving 45 MFIs and cooperatives in Nicaragua and Honduras (until 2011). An impact assessment of the project showed that those who participated had, compared to non-participants, four times higher savings. Due to better money management (fewer unnecessary expenses and more savings) investment in income-generating activities increased, and so did incomes. Consequently, indicators of family well-being (access to food, health, and education) improved. Research also showed that spouses actively discussed and collaborated in the management of family finances, whereas this had not been the case before. Misuse of money by (mostly male) family members was greatly reduced.

Often, they are highly dependent on village merchants for both input supply and product sales, and the terms of sale may not be to their advantage.

It was also seen in Chapter 2 (constraint n° 7) and in this chapter, that farmers who are not united through associations, cooperatives or the equivalent are practically excluded from finance, including the above-mentioned innovative financing models. Indeed, the country studies (*e.g.* Mali, Senegal, Tanzania, Thailand) showed that farmers who are not members of a cooperative or association (and through this integrated into a value chain) have practically no access to finance of any kind, other than the local moneylender. Uniting individual farmers *via* producer associations, cooperatives and other forms of collective enterprise greatly improves their access to technology, markets, and finance, and reinforces their bargaining power in all of these areas.

Also, cooperatives can make the value chain more efficient, because they eliminate fragmentation and non-value-adding multiple trading, while enhancing appropriate post-harvest quality management. As the value chain is shortened (because the middlemen are cut out) all remaining parties can increase their margins, without raising prices for the end consumer. It is estimated that worldwide over 800 million people are members of a cooperative, and that these organisations employ about 100 million people (Rabo Development, 2011).

It would go beyond this study to dwell on all the requirements and details of cooperative development, but it is evident that professionally-led, business-like cooperatives can be very effective partners for banks and MFIs. In fact, many finance providers (SCAs, SACCOs) are cooperatives themselves.

3.15. Other innovations

The literature shows some other innovations that have not yet been tried out in the countries in our study. One of the ideas is securitising farmer loans so that the banks do not have to carry the entire credit risk. Interested investors/donors could buy the securities. This might get the banks to act more as originators and thereby get more outreach. Basically, this is what Farmer Mac does in the USA.

Another idea is to promote legislation at the macro level that allows input suppliers and buyers/processors in key value chains to open captive finance companies, through which they could finance farmers. This would formalise value chain finance, and provide for a stronger linkage with commercial banks.

In Brazil, commodity price options specifically for smallholders have been introduced. Banco do Brazil sells corn-price options to corn producers. Likewise, the government extends price options to smallholder families producing rice. If prices drop below production costs, the government settles the difference (Alcantara, 2006).

Box 11 *Agricultural value chain finance instruments (according to Miller, 2011)*

Miller categorises the various instruments used in agricultural value chain finance as follows:

A. Product Financing: 1) Trader credit; 2) Input supplier credit; 3) Marketing company credit; 4) Lead firm financing.

B. Receivables Financing: 5) Trade receivables financing; 6) Factoring; 7) Forfaiting.

C. Physical Asset Collateralisation: 8) Warehouse receipts; 9) Repurchase; 10) Financial lease.

D. Risk Mitigation Products: 11) Insurance; 12) Forward contracts; 13) Futures.

E. Financial Enhancements: 14) Securitisation instruments 15) Loan guarantees; 16) Joint Venture finance.

For a detailed presentation, see the annexes in Miller, Calvin (December 2011), "Agricultural Value Chain Finance Strategy and Design", Technical Note, FAO, Rome. Some instruments listed by Miller are not presented in this chapter on financial innovations because these instruments are not normally used by smallholder farmers.

4. Role of Government and Development Partners in Agricultural Finance

4.1. Introduction

The six country studies reveal that nearly all innovations in agricultural finance have been introduced and implemented by the private sector. However, governments play a key role in facilitation and regulation. For example, difficulties encountered in warehouse receipt finance in Thailand are partly due to the lack of regulation of warehouses. Tanzania and Zambia, by contrast, have passed legislation and created warehouse supervision that has encouraged warehouse receipt finance. Problems with land collateral in all countries are often due to the reluctance of governments to address this socially and politically contentious theme. Weak courts and legal processes, in rural areas in particular, are a huge impediment to successful implementation of *any* financial service. In addition, weaknesses in rural infrastructure, social services, and education all have a negative impact on agriculture, hence farmers' creditworthiness. One would normally expect governments to take the lead in solving such issues. Thailand has invested much in rural infrastructure and livelihoods, which is one of the reasons why this country massively overproduces its own food needs.

In a wider sense, governments must create an enabling environment, such as a legal framework for conducting financial operations, conflict settlement, law enforcement, infrastructure and social services. Governments also need to ensure prudential regulation and supervision of entities that act as custodians for somebody else's money or goods, such as (agricultural) banks, microfinance institutions, savings and credit associations, insurance and credit-guarantee providers, as well as public warehouses and weighing stations – or at least ensure that a properly qualified regulatory institution undertakes this supervision.

This study ultimately aims to generate ideas for the establishment of a financing offer by governments and national and international development partners, which is responsive to the needs of farmers, and which addresses the constraints that keep

the financial sector from serving agriculture effectively. It falls on governments to establish the regulatory framework for innovative financial products such as leasing, factoring, bond issues, certificates of deposit, futures exchanges, parametric insurance, payment systems that recognise electronic currency, and credit reporting agencies. Governments can streamline legal systems to improve contract enforcement. Finally, governments can support value chain coordination, as well as extension and technical assistance services. Governments can do this directly through the ministries of agriculture or by contracting a non-governmental organisation or consulting firm. In this chapter, the key government policies that affect agricultural (smallholder) finance are discussed. The supporting role that can be played by national and international development partners is indicated as well.

4.2 Macroeconomic stability and prices

The main problems impeding agricultural financial markets are poor macroeconomic policies, distorted financial policies, market rigidities, and legal and regulatory constraints (Yaron *et al.*, 1997).

It seems obvious, but macroeconomic policies for avoiding high budget deficits, inflation and overvalued exchange rates, are more important than any other policy. High budget deficits crowd out private credit provision. Inflation leads to high nominal interest rates beyond the reach of farmers, and uncertainty about the financial outcome of agricultural operations whose profitability is unclear to begin with. Overvalued exchange rates exclude farmers from export markets while benefitting importers.[21] The goals of prudent fiscal and monetary policy should be price stability, and sound, well-aligned, exchange rates.

Price interventions in agricultural markets influence production decisions (and indeed, that is the purpose), but may not lead to the most efficient allocation of natural and human resources. Public subsidisation of farmer incomes, product prices or interest rates has much the same effect, and in addition is rarely fiscally sustainable. Such policies may also have cross-border implications. High (officially set) minimum prices for rice (and other crops) in Thailand do not just burden the budget; they also invite corrupt practices by traders who try to capture the subsidies meant for farmers, lead to stockpiles of unsold products, and hamper downstream processing because of

[21] In the 1970s, scores of African countries turned from being food exporters into food importers (*e.g.* Tanzania, Zambia).

inflated crop prices. In the country study for Thailand, these type of problems are exported to Cambodia as well, as border traders put Cambodian rice on the Thai market to capture subsidies, this way impeding the emergence of a rice-milling sector in Cambodia. The country study for Thailand also suggests that price support postpones (much needed) consolidation in the agricultural sector by keeping unviable farms in operation.[22] The country study for Tunisia revealed that for some products minimum prices are imposed (cereals and meat), while for others price ceilings are applied (fruits and vegetables), which keeps farmers from switching to the latter. These price policies do little to raise farm productivity while they distort agricultural markets (*e.g.* drain Cambodian rice to capture the Thai subsidy). It may lead farmers to produce products that do not reflect their comparative advantages, or indeed, which would be money-losers were it not for the implicit subsidy by consumers (Thai farmers growing tapioca instead of oil palm, Tunisian farmers growing wheat instead of vegetables).[23] Examples of government-imposed price interventions with debatable results were found in Tanzania (*e.g.* tobacco and sugar), Mali and Senegal as well.

The above price interventions should be distinguished from mechanisms that aim to avoid extreme price fluctuations, because they do not aim to modify the terms of trade for certain agricultural sub-sectors at the expense of others (Grema study, 2011). Excessive fluctuations in agricultural prices may harm 1) consumers, due to the resulting food insecurity; 2) farmers, by making the profitability of investment uncertain, thus discouraging agricultural investments and credit; 3) national economies, because they threaten their fragile equilibriums, which may affect the entire economy (systemic risk). Policy responses may include the establishment of buffer inventories and various import/export controls. However, caution is warranted. Creating large stockpiles of product may eventually lead to the market being flooded with surpluses. Import and export restrictions also have obvious consequences for neighbours, undermining regional solidarity.

[22] The country study for Thailand argues that farm subsidies prevent agriculture from consolidating into larger units by keeping smallholder farmers on the land. Much needed productivity gains through mechanisation and demographic factors (the average farmer is over 50 years old with no successor) will inevitably require Thai farms to consolidate.

[23] The Thailand country study also casts doubt about whether these subsidies are actually needed as Thai farmers are productive, with currently strong crop prices in the tapioca and oil palm sectors in particular.

4.3. Direct subsidisation of agriculture and agricultural finance

The six country studies reveal that governments have often undertaken direct interventions in agriculture and agricultural finance. Such interventions have included: establishing state-owned farms (*e.g.* Tanzania, Tunisia); parastatal processing plants (*e.g.* Mali, Senegal, Tanzania); public warehouses (*e.g.* Thailand); public market centres (*e.g.* Cambodia, Tanzania, Thailand), state-owned agricultural development banks (nearly universal); marketing boards with associated legal monopolies (*e.g.* Tanzania, Tunisia); along with all sorts of quantitative restrictions, and subsidies on farm inputs and credit. Although such initiatives may have been logical at the time due to non-existent services by the private sector, the current tendency in all six countries is that government will gradually but progressively reduce and eventually disengage from such actions. Legal and regulatory constraints to agricultural finance in the form of lending quotas, interest rate caps and other impediments to money seeking its most profitable use have outlived their usefulness.

The current thinking in agricultural finance development suggests a more limited, market-friendly role for government. Direct public interventions are justified if they remove an identified market failure or social constraint; examples include the failure of the private sector to launch an innovate financial service for fear of fronting the development costs while others can copy the experience and harvest the results, or to tackle abject rural poverty that cannot be mitigated otherwise. Government interventions in rural financial markets should generally focus on piloting innovations (through seed money) and providing support for institutional development, rather than on introducing large-scale credit programmes through public institutions. In addition, governments still have a huge job to do in creating an enabling legal environment that lets the agricultural financial market operate efficiently (see below).

In the context of this study on agricultural finance, the subsidisation of agricultural credit merits closer scrutiny. Interest rate subsidies are controversial. Proponents argue that agriculture is insufficiently productive and profitable to warrant a commercial interest rate, also considering the high risk and high transaction costs of (small) farm loans. Interest rate subsidies are also justified as farmer income support, and distribution through financial institutions is relatively easy. Politically, interest rate subsidies are popular. Opponents argue that subsidised lending does little to make agriculture more productive. It might achieve the opposite effect by perpetuating inefficient farm practices. It is also argued that for smallholder farmers, the challenge

is not the interest rate, but getting credit in the first place.[24] This study underscores the unavailability of credit to smallholder farmers. Interest rate subsidies only benefit farmers who can access credit, and they are rarely the "poor" farmers whom policy-makers have in mind. Vast numbers of farmers remain excluded from credit, and by implication credit subsidies as well. The country studies also show that interest rate subsidies are typically channelled through one or a few financial institutions, in effect discouraging the others from offering agricultural credit, as their unsubsidised offer would not be competitive. Farmers may consider the subsidised rate "normal" and decline an unsubsidised service – even if they cannot actually get credit otherwise. Thus, due to interest rate subsidies, the supply of credit and competition on financial markets may decrease. Finally, and as with all subsidies, interest rate subsidies are easy to create but hard to abolish. However, they eventually fall victim to new policy priorities and the taxpayer fatigue.

The authors of this study are cautious regarding interest rate subsidies, and argue that they could be defended only if (1) they do not bring the interest rate charged below a long-term sustainable level, and (2) are available to all financial institutions.[25] The strategy could be one of kick-starting commercial agricultural finance. In practice, however, subsidies are often seen as a way to support incomes rather than to develop market-based access to credit. As governments tend to channel such subsidies through their own distribution portals, private banks feel discouraged by the ongoing (subsidised) competition. To some extent, this is a chicken and egg problem: governments are reluctant to withdraw from agricultural financial markets in the continued absence of private providers, which in turn stay away because of subsidised government competition. However, as long as the private sector does not finance smallholder agriculture, it cannot develop the cost-effective methods that would bring down agricultural interest rates, and hence remove the justification for subsidies.

The country studies also show many examples of direct subsidisation of agriculture. In Senegal and Tanzania, the government has opted to subsidise farm inputs. Like any subsidy programme, this may distort markets, traders may capture the subsidy instead

[24] If a farmer takes a harvest loan for 100,000 shillings at a 20% interest rate for six months, the amount to repay at harvest is 110,000 shillings. In a subsidised loan at 10% this would be 105,000 shillings – barely different. In Tunisia, the government subsidised AMCs (at a 5% interest rate) to work side-by-side with the MFI ENDA, which charges nearly 6 times as much (29% interest rate). Yet the farmers continue to come to ENDA to benefit from its superior service delivery.

[25] Operating subsidies to MFIs (often in capacity building projects) are largely equivalent to interest rate subsidies, as they allow the MFIs to set their rates lower than would be the case without such support. Any subsidy to an MFI, even a capacity building or training grant, in some way affects competition. Thus, sectoral support to MFIs is preferable to supporting individual MFIs.

of the famers, and it burdens the state budget.[26] However, at least these programmes target farm productivity rather than farm income, and if properly implemented should be available to all farmers. Tanzania has introduced a voucher scheme to ensure farmers (and not traders) reap the benefits, and use it for farm inputs.

The authors of this study emphasise government support for actions that raise agricultural productivity, rather than policies that support incomes. The most obvious role for government is in the provision of physical and social infrastructure, which continues to be a large impediment to agricultural development, and by implication to agricultural finance. Products rot because the road to town is too long, too slow, or too bumpy. The studies also show substantial difference in agricultural (and thus loan) performance between irrigated and non-irrigated zones (*e.g.* Mali, Senegal, Tunisia). As such, infrastructure is hardly provided by the private sector; support from the government and international development partners is needed. Building irrigation systems, rural roads, rural education, and providing agricultural extension services have a lasting impact on farm productivity, and hence the creditworthiness of farmers.

4.4. Legal and regulatory environment

Governments have a key responsibility to establish and maintain the appropriate legal and regulatory framework, which is a pre-condition for making agricultural finance work:

- Clear property rights (including for inventories) and transferability of title documents and pledges.
- Bankruptcy law.
- Speedy and transparent conflict resolution through arbitration or commercial courts, as well as less-formal mechanisms, depending on the complexity of the case and amounts involved, including loan foreclosure (possibly in special credit courts).
- Simple, speedy and low-cost procedures for registering, perfecting and repossessing collateral.

[26] In 2011, Tanzania was unable to pay input subsidies as promised.

- Simple regulations that make it possible to create an agricultural enterprise with little cost and time. Same for farmers' associations or cooperatives, which should be allowed to act as businesses, and not be subordinated to some ministry of "cooperatives".

- International standards for product grading, weighing and measuring agricultural products.

Such conditions are not just needed for banking, they are also vital for (internal) value chain finance, warehouse receipts and leasing. These innovative practices take off in countries that create the appropriate legislative environment and legal practice. International development partners can help developing countries build an enabling legal environment, which can have a positive impact on agricultural finance.

Specific legal and regulatory initiatives suggested are the following:

- Land legislation, including easily obtaining and transferring land titles. This also requires a functioning and inexpensive land cadastre.

- Leasing law (or the appropriate clauses in the commercial code), as well as tax regulations that do not disadvantage leases over loans.

- Clarification of the legislation relating to collateral and pledges, allowing for a wide variety in the types of pledges, including crops in storage, and priority given to title/pledge holders.

- Simultaneously, assisting banking supervisors (central banks) to put in place advanced risk-weighted collateral evaluation, along the lines of the Basel II/III guidelines.

The country studies also show the need for market-based licensing, regulation and prudential supervision of the following (to ensure good custodianship and avoid abuses of their market position):

- Banks and microfinance institutions, including their APEX bodies.

- Leasing companies, if these are not banks.

- Factoring and forfaiting companies, if these are not banks.

- Guarantee funds and (agricultural) insurance providers.
- Warehouses acting as collateral managers in warehouse receipt finance.
- Market centres or similar locations that weigh and grade agricultural products.
- Cooperatives or associations that deal with inputs, outputs or other valuables on behalf of farmers.
- Providers of mobile-banking services (if not banks, *i.e.* telcos).
- Weather stations used in weather-index insurance.
- Individuals performing key managerial, custodial and certification tasks in all the above.

Regulation must ensure that only properly qualified institutions act in such capacities, while supervision must ensure that they will always abide by their obligations to third parties (clients). Thus, supervision must ensure that custodians of money and goods remain solvent, and take proper care of the assets entrusted to them. Such supervision is not necessarily undertaken by government, but government must ensure that a qualified entity provides this function. Such supervisory bodies are usually specialised agencies, meaning that there would be different entities supervising the banks, insurance companies and telcos. Regulation and supervision must not restrain the workings of the market. In fact, supervision must ensure a free market by avoiding anti-competitive practices, such as the carving up of markets, collusion and price-fixing among the regulated market players. Publicly-owned bodies acting in a regulated market must not be excluded from the regulation and supervision regime. As local experience is often lacking, international development partners can help establish the regulatory and supervision framework and practice.

There is also great merit in establishing a central credit (default) database/bureau, and obliging all banks and MFIs to list their bad debtors. It would be even better to list all debtors with the amounts owed, so as to proactively avoid over-indebtedness. IFC has gained a lot of experience in implementing such projects. Countries also need a collateral registry for immovable property (land, real estate), and some types of movable property (*e.g.* transportation assets that need to be registered anyway for roadworthiness).

At the same time, some regulations can be reduced or suspended altogether:

- Interest rate caps that hinder microfinance (*e.g.* Mali, Senegal and Tunisia).
- Regulations that make it hard for MFIs to be refinanced by commercial or central banks (*e.g.* Mali).
- Regulations that make it hard for MFIs to be refinanced by other MFIs (*e.g.* Burundi).
- Quantitative lending targets for banks in regard to agriculture (*e.g.* India).

Governments must refrain from politically motivated debt waivers, interest rate controls, and similar practices that hamper financial markets (including microfinance). The mere possibility that this may happen discourages private provision of agricultural finance. Governments should also avoid installing actuarially unsound agricultural insurance and loan guarantee schemes as these are unsustainable and burden the state budget.

Some of the above-mentioned government actions are discussed in detail below.

Contract enforcement

Contract enforcement and dispute settlement are vital in agricultural finance, beginning with the loan contract. In Thailand, loan foreclosure through the courts takes years. In Senegal, courts tend to be unsympathetic to banks. In Tanzania, court capacity is greatly lacking in the quantity and quality of human resources. Rwanda is painstakingly rebuilding the legal profession wiped out during the genocide.

Contract enforcement is also fundamental to value chain finance, because the pre-harvest contract is the key element of loan security. Value chain finance is constrained if value chain partners can easily evade their obligations (*e.g.* side-selling by producers or buyers, thus failing to collect the products). However, in most developing countries trade contracts are hard to enforce through the justice system or the police. The amount involved with each farmer is usually too low to legitimise expensive legal action. Courts and police are sometimes so impotent, bureaucratic or corrupt that a fair (indeed any) outcome of a legal procedure is not guaranteed. The general culture of abiding by contracts tends to be weak, and those who do disregard their obligations find it easy to get away with it. A contract farming arrangement, whereby the benefits are not mutual, suffers from this inherent weakness.

One of the key contributions government can make toward agricultural financing is the establishment, training and upkeep of commercial courts, including regional and lower courts. This should also foresee less formalised dispute resolution for conflicts of lesser importance, notably those involving smallholder farmers.

Land rights

Agriculture in most developed countries is based on private land ownership, the right to pledge this land for collateral, and the actual enforcement of this pledge in case of loan default. In developing countries, land ownership and land rights are often less clear and culturally and politically sensitive. Often, land belongs either to the state or to the local communities, which have ideological, social and practical reasons to keep it this way. Where land can be privately held, it is often unsurveyed, or land titles may be absent or contested (*e.g.* Kosovo). However, even in countries that have attempted to create bank-friendly land legislation (*e.g.* Tanzania), using land as collateral is often problematic as the procedures to repossess and sell land are highly complex. Add to this the challenges banks face to obtain a court order in the first place (very difficult in all six countries studied), and it is easy to see why banks hesitate to accept land collateral. Finally, banks may be unable to sell land, as rural communities decline to purchase land just taken from their unfortunate neighbours.

Thus, lack of transparency in land ownership and land markets is a key challenge in agricultural finance. It is not just the role of land as possible loan security. Farmers with insecure land rights will decline to invest in the land, and merely exploit and deplete it for short-term gains. Key to proper land markets is that all land be surveyed and registered, and available for transfer with minimum bureaucracy, cost and time delays. This is not usually the case in developing countries.

Land reform is a highly complex issue, which goes beyond the scope of this study. It involves dealing with such challenges as boosting agricultural productivity, social equity, competing interests on the same land, reintegration of refugees, all going far beyond the single issue of land as loan security. A technical committee on "Land Tenure and Development" within AFD has prepared several studies in this domain.

Collateral laws

A related problem is that in many countries the legal framework for pledging assets as collateral is unclear or incomplete (*e.g.* Thailand, Uganda). In most developed markets, banks routinely accept pledges based on shop inventory, debtors, machinery, farm crops and animals, none of which are usually registered as collateral in registers. The bank obviously runs the risk that the client may lose or sell these assets to a buyer

who is unaware of this pledge (the sale takes place without the intervention of a notary and the pledge is not noted in public registers); however, this does not take away the bank's claim on the debtor, and this is upheld in the courts. A wide and flexible framework for collateral pledging is the basis for financial instruments such as leases, invoice discounting and factoring, inventory financing, and almost all forms of agricultural finance.

In many developing countries, by contrast, the law still considers collateral from the "pawnshop" perspective: something the financier must physically hold. For land and real estate collateral, the situation is usually cleared through mortgage law and a register. This is not so for immovable properties, farm animals and inventories of agricultural products. A bank seeking recourse *via* pledged assets may not actually have a legal basis (*e.g.* in Thailand). A bank involved in value chain finance may discover that the court declines a pledge based on farm output because the crop did not exist when the loan was signed. Weaknesses in security laws and practice hamper the introduction of financial innovations, such as agricultural leasing, warehouse receipts, factoring, and harvest and working capital finance (including all forms of value chain finance). Where legislation casts doubt on the capacity of assets to secure a loan, corrective legislation needs to introduced.

Related to this, many banking supervisors (*e.g.* Southern Sudan, Tanzania) in their prudential supervision regime either prohibit "unsecured" lending, or make it extremely unattractive due to very high prudential capital requirements. Often, the banking regulator foresees as secured only land and real estate securities, and considers anything else as unsecured. The collateral offset used in the calculation of Risk Weighed Assets (RWA) for prudential capital purposes is nil. Thus, central bank regulations often make it practically impossible to accept assets such as equipment, products in inventory, collectible debt or animals as collateral (this in addition to the legal constraints listed above). Banks need a more flexible collateral and risk-supervision regime, Basel II/III compliant, whereby collateral types are risk-weighted based on their risk characteristics and recovery potential.

Where collateral registries exist, registration must be simple and inexpensive. Collateral registration is nearly always performed by a public body, be it national or local. It is the government's responsibility to ensure this does not become an impediment to agricultural finance. High filing costs, delays in registration, and fees and constraints on obtaining information all add to the cost of borrowing, hence discouraging agricultural finance.

Legislation and legal practice must also allow for the perfecting of collateral, which is the process by which lenders establish the priority of their claim over the collateral. Before accepting an item as collateral, lenders must ensure themselves that the asset has not been pledged already, and they must be sure it will not be pledged to somebody else afterwards. Lenders face many practical problems in perfecting collateral, such as double registration, or successful claims from other parties on an asset that the lender considered secured.

Obviously, perfecting collateral is only possible for assets that are registered. Double claims on assets are particularly common when the pledged assets are not registered in a collateral register. Other creditors, including tax collectors, may try to seize assets pledged to a bank. Some countries allow for security registration of movable property, where registries already exist for other purposes, such as vehicles. In general, the fact that nearly all countries register ownership of transportation assets greatly helps leasing activities. The asset is simply registered in name of the lessor, which usually makes asset recovery a practical, rather than a legal problem. Additional registration in a collateral register should not be necessary if the legal protection of property is strong.

For non-registered equipment, such as leased farm equipment, the primacy of the lenders' rights must be covered through the commercial code. The absence of this is a major impediment to the introduction of equipment leasing in many countries. In case of warehouse receipt finance, the licensed warehouse operator must be authorised to issue title documents, which can be subsequently pledged to the financing providers, and which must take precedence over other claims on either the farmer or the warehouse. The legal framework pertaining to inventory pledges must protect the rights of the title and/or pledge holder.

The usefulness of collateral in securing a loan depends on the certainty and speed of enforcement and the ease of repossession. As demonstrated above, getting the appropriate court order is often a complex and lengthy process, which needs to be addressed by governments. Slow enforcement procedures also diminish the value of collateral (both movable and immovable) due to continuing financing costs, depreciation, and possible spoilage or loss. Obviously, going to court to repossess agricultural produce is a non-starter as the product will have rotted long before the court has reached its verdict. For this reason, the legal framework for pledging crops through warehouse receipts must allow for swift recovery of assets without court involvement.

All countries offer some protection to debtors. No country wishes to leave defaulters totally destitute. However, when debt protection is too strongly defined in favour of the borrowers, and smallholder farmer borrowers in particular, the latter often end up excluded from credit, as finance providers anticipate that they will be unsuccessful when pursuing their claims. The country studies for Senegal and Tanzania demonstrate this.

Leasing laws

As noted in Chapter 3, agricultural leasing holds great promise, but its practice in Africa is below expectations. The absence of a corresponding legal framework and fiscal uncertainty are cited as reasons.[27] In principle, a country does not need a leasing law. Leasing could very well be covered by the stipulations on ownership and rental in the commercial code, as is the case in the United Kingdom. In practice, however, many countries pass leasing laws to avoid ambiguity. A good legal framework for leasing includes (Nair, 2010):

- Clear definitions of a lease contract, leased items, and the responsibilities of lease partners.
- Primacy of ownership by the lessor because other creditors – including tax collectors – may try to claim leased assets as if they were part of the debtor's patrimony.
- Clarity on the responsibility of any third-party losses arising from use of the leased item.
- Easy recovery of leased items in case of default, without court intervention (*e.g.* through a bailiff). A legal framework that allows for the speedy recovery of assets from lessees in default encourages a sound leasing practice and reduces lease payments.

Also important is the tax treatment of lease payments. In equipment leasing, the borrower deducts from taxable income the depreciation cost, maintenance, insurance, and interest payments. VAT paid on the equipment is offset with other VAT to be paid. To be fiscally equivalent to equipment purchased with a loan, the lessee must be able to deduct the full lease payment as a tax-deductible expense (with a separate VAT offset), while the lessor must book the full lease as income (with added

[27] Tanzania has a leasing law, and also an embryonic but rapidly growing agricultural leasing practice.

VAT).[28] The lessor in turn must be able to tax-deduct all costs for depreciation, maintenance, insurance, and its own interest payments and management. This ensures the same fiscal treatment for equipment leases as loans, apart from the management costs incurred by the lessor. In practice, many developing countries have unfavourable tax treatment for leasing.[29] The full lease payment may not be tax deductible (because leases are confused with loans), or VAT offsetting may be impossible, so as to discourage leasing operations. This requires corrections to the tax code.

In some countries, the accounting standards may need to be reviewed to correctly incorporate a leasing practice. Well-functioning insurance markets also help with leasing. Government must put in place the legal and regulatory environment that makes insurance work.

Quality and standardisation

This study has shown that quality control and testing, grading and certification of agricultural products is increasingly important due to market requirements. Grading and certification are also key elements in all types of value chain finance. The aim of most value chain models is precisely to ensure buyers high-quality products. Graded and certified products command higher prices, and this is not only the case for export markets. Thus, to ensure efficient value chains and fair treatment of farmers, traders and processors, international weighing and grading standards must be established. However, the country studies for Cambodia, Tanzania and Thailand suggest that farmers may be cheated by traders who do not use the properly calibrated scales, or who fail to grade the product quality appropriately.

To overcome such problems, a national body must establish standards and ensure they are implemented. Weighing equipment must be certified and regularly tested. Product markets and warehouses must be regulated to ensure that grading and certification standards are upheld. Government need not necessarily do this itself, but must ensure that a reliable entity does. In the Thai rice value chain, this responsibility is assumed by local market centres (mostly privately-owned), which test and grade the rice, or by certified millers who can buy from farmers directly.

[28] In many countries, there is a VAT registration threshold below which the company is VAT exempt (*e.g.* Uganda). However, this makes leasing less attractive for VAT-exempt smallholder farmers because the VAT is assessed on the entire lease payment, which includes capital costs (interest) that would not have been VAT-taxed on a straight loan.

[29] It is quite common that tax authorities fail to understand that the amortisation component of a lease is equivalent to the (tax-deductible) depreciation cost of equipment purchased with a loan.

Warehouses

Warehouse receipt finance offers great potential as a means of providing post-harvest financing for smallholders. However, warehouse receipt finance requires physical infrastructure (lacking in Cambodia and Senegal), to protect the crop from the weather, rats and common theft, preferably built by the private sector. It is not recommended that governments start building and/or operating public warehouses. However, where such already exist, often the remnants of previous state-owned structures, they can be recovered and exploited, preferably by a private operator in a competitive environment.

As noted in Chapter 3, warehouse operators acting as collateral managers must have the technical capability to weigh, grade and certify agricultural products (see above), give out title and/or pledge documents, and do so under the supervision of a national regulator and certification body. Warehouses store liquid assets with monetary value on behalf of their clients (*e.g.* farmers, traders, processors and banks which hold a pledge), and must compensate titleholders for any losses of goods under their care, other than natural losses (*e.g.* weight reduction due to loss of humidity). This puts the warehouse in a similar situation as a deposit-taking bank, insurance company, or any other custodian, and regulation and supervision is required. Such supervision should entail a minimum quality of the infrastructure, solvency rules, and financial reporting. Government need not necessarily undertake such supervision itself, but must ensure that a reliable and trusted entity does. This can be a public, semi-public or private body under a sector association (*e.g.* Zambia, where it is private).

In addition, legislation must ensure that in case of liquidation of the warehouse, the warehouse operator's creditors will not be able to seek recourse to the commodities stored, as legal title should remain with the bona fide holder of the receipt (*e.g.* farmer, buyer or bank). Thus, governments promoting warehouse receipt finance need to ensure that warehouse receipts are legally valid documents of title, which can subsequently be pledged to banks as an enforceable security. The legislation must recognise the enforcement nature of the pledge, laid on the stored products with the knowledge of the warehouse manager, who acts as collateral manager. The legal form depends on local law (*e.g.* one document or separate title and pledge deeds), but products can be transferred to a buyer with the titleholder's (the bank) consent only.[30] Before embarking on warehouse receipt finance, it is necessary to review

[30] Mali presents an example of warehouse receipt finance where products are physically locked up in a warehouse with two padlocks, one for the farmers and one for the MFI. This is obviously a very primitive warehouse receipt finance practice.

which factors can diminish the holder's right to the underlying goods and/or security interest in them, under national law and legal practice.

Tanzania has passed a Warehouse Receipt Act which governs the operations of the Commodity Warehouse Receipt Systems, and established a Warehouse Licensing Board. This has helped warehouse receipt finance take off in Tanzania. In so doing, Tanzania follows similar experiences in South Africa and Zambia.

Farmers' associations and cooperatives

Experience worldwide shows that farmers have much to gain by joining forces in associations or cooperatives (see Chapter 3 above). Collectively, they can stand up stronger against agricultural traders and bankers, while benefiting from economies of scale in input supply, output trading, political advocacy, and access to technology. However, farmers are independent-minded by nature and find it hard to maintain solidarity in groups. There is clearly a role for government, as well as non-state actors in sensitising farmers and helping them unite; this, however, must be done without repeating the mistakes of forced cooperative policies, such as those implemented in Tanzania during the *Ujamaa* campaigns in the 1970s.

Photograph: Reuben Jessop (Cambodia).

At the very least, government must ensure that creating and legally establishing farmers' associations and cooperatives is simple, and not to burden them with complex registration procedures. Cooperatives could be registered at the Chamber of Commerce like any other private enterprise. Their tax treatment should correspond to their objectives: farmer groups that essentially represent farmers should be tax-exempt, while farmer cooperatives that undertake business operations should receive the appropriate fiscal treatment. Government should avoid double taxation of cooperatives and their members (Rabo Development, 2011).

In many developing countries, cooperatives have been created by the state or are strongly associated with it, and may be viewed as social rather than economic structures. However, cooperatives are a special form of private enterprise in which clients are also shareholders. Thus, governments need to simplify legislation to reflect that cooperatives are economic instruments for their members, allowing issues like voting rights and capitalisation to be defined through the cooperatives' own articles of association. Governments should limit their role to supervision only.

4.5. Spawning agricultural finance through direct support

While the previous section focussed on government actions in the legal and regulatory environment for agricultural finance, governments may also directly support financial institutions and programmes aimed at smallholder farmers. International development partners may be called upon to aid the process. Support programmes have shifted away from direct provision of credit through agricultural banks to supporting commercial banks, MFIs and NGOs that design and implement innovative agricultural finance. Assistance usually consists of preliminary market or feasibility studies, technical assistance, training, seed money or financial guarantees. Policy level support may be required if the legal and enabling environment is weak.

Public support to private sector providers of financial services can be justified if such innovations have a strong demonstration potential. Developing new financial products, such as warehouse receipt finance, factoring, or parametric insurance requires a large investment in methodology design and testing, initial operating losses and promotion, only to see the successful methods copied by the competition. This discourages private sector participants from innovating. Support programmes by international development partners can be designed to "crowd in" the private sector, not "crowd out" the private sector as has happened in the past when governments took it upon themselves to provide financial services. Thus, one or several partners in the private sector are helped to get a product to market, and others can then copy

this at their own expense. The case for public support is particularly strong where these new instruments enable the government to abandon other, much less efficient forms for subsidising rural finance.

While the authors of this study take the position that public support for innovative agricultural finance pilot projects may be worthwhile and justifiable, any publicly funded programme eventually suffers from political fatigue, leading to its abandonment. Thus, support programmes for agricultural finance should always include an exit strategy. Interventions should foresee a progressive reduction of public support, while increasing the private provision of financial services in a competitive manner. Examples of direct support are seed capital for establishing rural financial institutions in remote areas or piloting innovative financial schemes, so that it will be feasible to service hitherto neglected communities in the future. BAAC in Thailand was created by the government (in 1966), but operates sustainably in the market now. This is not so for the subsidised BTS and AMC in Tunisia, and there is no clear strategy to make it so.

Localised finance/microfinance

As the six country studies show, local member-owned saving and credit cooperatives, microfinance institutions, and related localised finance initiatives have captured an important position in the rural economy. Nevertheless, with the exception of Cambodia, microfinance typically reaches no more that 10% of the rural population, with the research revealing huge unfulfilled demand. The key to lower interest rates in micro-lending and increased outreach is the development of efficient microfinance practices and competition, both of which can be encouraged by government and international development partners. The country studies also reveal that microfinance has recently received very bad press, with institutions recklessly expanding and losing people's money in the process. This calls for licensing, regulation and tight supervision of the microfinance and cooperative sectors, preferably by the Central Bank.

Some specific actions governments and development partners can undertake are the following:

- Remove the many obstacles that keep microfinance from reaching its full potential. Examples are interest-rate caps (*e.g.* Mali, Senegal, Tunisia), or prohibitions on providing useful products, such as savings deposits or micro-insurance.

- Install prudential supervision of microfinance comparable to bank regulation, but the requirements (*i.e.* reporting) could be simplified given the lesser complexity of microfinance. Many microfinance regulatory regimes make a distinction between types of microfinance with a different risk profile, such as whether they collect savings or not, or whether they are cooperative bodies supervised by an APEX.

- Strengthen MFI capacity, notably operating, accounting and governance systems that fit the realities of rural communities with modest education. However, public support should consider the competitive realities on the ground, avoiding "favouring" one MFI too much, at the competitive expense of the others. In Burundi and Mali, MFIs apply for capacity building grants after a call for competitive proposals.

- Promote through training, awareness-raising and supervision that institutions must practice responsible finance, notably: 1) Avoidance of over-indebtedness; 2) Transparent pricing; 3) Appropriate collection practices; 4) Ethical staff behaviour; 5) Mechanisms to address client grievances; and 6) Privacy of client data.

- Improve governance of member-owned microfinance. Uniting such institutions under an APEX is usually a good idea. The APEX helps in capacity building, knowledge sharing and supervision. It also provides a link with the wider financial sector. The sector regulator can encourage or even oblige collaboration through an APEX body.

- Build the capacity of microfinance providers in analysing and structuring agricultural loans. MFIs often operate in an urban or peri-urban environment with high population densities (facilitating group formation), and the products provided by most MFIs (short-term loans, regular repayment plans) are best suited to commercial activities. The challenge to MFIs is to develop services that are adapted to the needs of a rural clientele with agricultural activities, while keeping delivery costs low for clients in low-density population areas. The country studies have revealed examples of MFIs successfully launching agricultural leasing, factoring, agricultural insurance, warehouse receipt and outgrower financing.

- To some extent, member-owned, as well as NGO-type microfinance institutions can be offered credit lines and capital, but the levels should not exceed their financial and governance capacity.

Donor support to encourage MFIs to finance agriculture should be combined with efforts to enhance agricultural productivity and reduce risk, such as value chain development or agricultural insurance. The current thinking in microfinance development is abandoning the old paradigm of "minimalist" microfinance, which assumed that access to finance would bring changes in the real economy. However, poor rural communities face many exclusions, not just an exclusion from credit alone. They are equally excluded from technology, agricultural inputs, information and risk management through insurance, education, and health services. This calls for international development partners to approach agricultural (micro)finance in a holistic way, and not just support microfinance in the hope that agriculture will develop somehow. International development partners can help make finance more relevant for agricultural development in several ways:

- Link microfinance with agricultural training, coaching or extension services, whereby such services would usually be provided by specialised agencies other than the MFI, but through a strategic partnership. Initially, such services would need to be subsidised. Over time, farmers will start to see the value of such support and be able to contribute to its cost. It is not generally a good idea to cross-subsidise advisory services *via* the interest rates charged, as this puts the MFI at a competitive disadvantage.

- Design financial products, such as credit lines, credit guarantees, index-based insurance or agricultural leasing in such a manner that they specifically support the introduction of agricultural technology (*e.g.* leasing of water pumps in Kenya and Uganda).

MFIs should not be pressured into agricultural lending (*e.g.* with special credit lines) when they are not ready for it (*e.g.* they lack specific financial products and risk management tools for agriculture). Furthermore, as diversification remains the core of any financial institution's risk management strategy, it is generally unwise to let MFIs expand their agricultural loan portfolios beyond 20%-25% of the total – depending on the local conditions and sub-sectors served. International development partners should take note of the six guiding principles for rural finance interventions as defined by IFAD (IFAD, 2009): *"(i) support access to a variety of financial services; (ii) promote a wide range of financial institutions, models and delivery channels;*

(iii) support demand-driven and innovative approaches; (iv) encourage – in collaboration with private sector partners – market-based approaches that strengthen rural financial markets, avoid distortions in the financial sector and leverage IFAD's resources; (v) develop and support long-term strategies focusing on sustainability and poverty outreach; and (vi) participate in policy dialogues that promote an enabling environment for rural finance".

Box 12 *Support programmes in rural finance by private Dutch development organisations*

A review of the rural finance support programmes by private Dutch development organisations revealed the following strategies (Athmer, 2008):

1. Building financially sustainable (NGO-type, credit-led) MFIs and sometimes banks, whereby they are gradually prepared for commercial funding. Also, they are assisted in expanding to rural areas through product development.
2. Support for member-owned MFIs, whose key source of funding is member equity (such as SACCOs and SCAs), including building good governance.
3. Support for the provision of financial services to the actors in the value chain, based on a rural development perspective (producer organisations, buyers of produce, agro-processors, and input suppliers).

Development organisations use a variety of instruments in all three approaches, namely grants, seed capital, guarantees, direct loans, equity and technical assistance.

Commercial and development banks

The country studies reveal that agricultural development banks have nearly universally not achieved their mandates. However, the cases of BAAC in Thailand and BRI in Indonesia show how old-style development banks have embraced microfinance principles to retain their relevance. Both combine the financial power of a state-backed financial institution with grassroots financial service delivery. This is not a proposal to establish "new style" agricultural development banks, but rather a plea to reform those development banks that still exist and aspire to serve the rural poor. The Rural Development Bank in Cambodia, for example, could be reinvigorated along these lines. Alternatively, governments could refinance rural microfinance institutions, a strategy now pursued in Mali. Thus, governments can leverage the agricultural development banks already in place, giving them a new lease on life for the benefit of rural communities. Governments should refrain, however, from using such institutions as instruments of farm subsidisation (*e.g.* through interest rates below the long-term sustainable level, free loan guarantees or debt forgiveness), as this shuts

out the commercial banking sector and even microfinance from agricultural finance markets.

Support from international development partners to commercial and development banks, helping them install an agricultural finance offer, remains relevant. The six country studies show that in spite of the success of microfinance, by volume most agricultural credit still comes from banks. Banks could be offered technical assistance and training to develop products for agriculture (*e.g.* agricultural leasing, seasonal credit), or to adjust their methods to better serve smallholders (*e.g.* community-based approaches such as BAAC in Thailand). Given their position in the economy, it is understandable that many banks wish to limit their services to agro-processing firms, input traders and intermediaries. This is still welcome, as credit is likely to reach farmers through the value chain. Specific support actions, such as those listed below, could be undertaken to mobilise banks in the arena of smallholder financing:

- Design value chain finance models (external or internal finance), *e.g.* finance the buyers who can then channel credit to the farmers with whom they have contracted. International development partners could (initially) part-guarantee such actions, helping the bank gain experience and confidence in the process.

- Support banks through TA and training in product development (see below). Cost-effective methods of loan delivery would bring down agricultural interest rates, hence removing the justification for subsidies.

- Link banks to rural microfinance (refinancing), possibly through a guarantee instrument. This strategy is being pursued in Ethiopia, although not very successfully (both banks and MFIs are hesitant).

- Train bank staff in agricultural lending, including analysis of the crop cycle and cash generating capacity, risk analysis and loan structuring. Banks that successfully finance agriculture generally rely on loan officers specialised in agricultural loan analysis.

- Initiatives are ongoing to develop standardised information or credit rating systems for agricultural producers and cooperatives in particular (*e.g.* Fair Trade Int., FAST, IRIS, ScopeInsight), aimed at providing better information to banks. Although these initiatives are yet to show results, they merit support.

Product development

Experience shows that banks and MFIs can be encouraged in agricultural finance through product development. Governments and international development partners can support specific efforts to develop financial technology. The six country studies show that value chain finance is "hot", and it is hot for good reason. The fact that a farmer has access to a market, and the technical advice and inputs that often travel through the value chain, all reduce the risk of an agricultural loan from the point of view of a credit provider, while also reducing the cost of loan delivery (since a trader, association or technical operator would aggregate loan demand). International development partners can support the emergence of value chain finance through technical advice to sector partners and financial institutions, along with financial support to pilot projects in this domain. The initiative can be taken by a bank, MFI, sector association, government or other entity.

Likewise, warehouse receipt finance has many benefits and as a secured post-harvest method is quite acceptable to banks and MFIs. Although the infrastructure can be built by the private sector, government and international development partners can encourage this through seed money and long-term credit lines, combined with technical advice on credit products. The same is true for infrastructure and the private provision of weighing, testing, grading and standardisation services, as well as rural and commodity markets. Along with supporting some pilot projects in warehouse receipt finance, international development partners must not forget to review and possibly rectify the legal and regulatory environment needed for this type of financing.

Agricultural leasing is another innovation whose time has come. Some initiatives are ongoing, to establish the leasing of agricultural tools, water pumps, and even animals by microfinance institutions with support from international development partners. International development partners can help to build up leasing knowledge and experience through technical assistance, training and possibly some seed capital or guarantees. Governments can be helped to put in place the necessary legal and fiscal provisions, since this is also a prerequisite for successful leasing (see above).

Agricultural insurance and credit guarantees

Agricultural index insurance (when combined with credit) is closely related to credit guarantees: both instruments share agricultural credit risk with a third party. However, in index insurance, payment is triggered by pre-defined agricultural risk events (the index), while in a credit guarantee, payment is triggered by loan default. A properly designed insurance product can induce farmers to engage in more "risky" agricultural

practices, such as more specialised cropping or use of hitherto unknown seed varieties that could increase their overall income, and for this they may need to borrow. Agriculture credit guarantee funds can (and should) also be designed so that the credit provided can be used as a lever for improving agricultural practice. Cases from Tanzania demonstrate this for both index insurance and guarantee funds.

Both agricultural index insurance and guarantee funds are donor-driven at present, and not yet piloted by the private sector. Public support for the development of insurance and guarantee schemes usually involves covering the cost to develop the methodologies, setting up service distribution, and absorbing the initial losses due to lack of experience and lack of economies of scale. International development partners usually capitalise agricultural guarantees and insurance initiatives, and may even have to subsidise these for some time.[31]

Temporary public support (*i.e.* subsidisation) of guarantee and insurance initiatives can be justified, if such are expected to lead to agricultural productivity and/or quality enhancement that would enable the service to be self-financing on a commercial basis later on. At the very least, the subsidised guarantee or insurance programme should generate socio-economic benefits (and tax revenue) whose value exceeds the subsidy cost.[32] An exit strategy and eventual transfer to private service delivery must be included from the start because one cannot count on public support in perpetuity. Thus, governments and international development partners that establish agricultural credit guarantee or insurance products must be careful to design them in such a manner that they have an immediate impact on the real economy (the farm), while also building up the future sustainability of the instrument.

Experience also shows that agricultural insurance as a stand-alone commercial product is very difficult to sell because the risk, hence premium, tends to be too large. Agricultural insurance should probably be embedded in a package of productivity-increasing services, which is why it is seen in outgrower schemes.

The support actions leading to the establishment of credit guarantee funds are very similar to those for index insurance. Just like agricultural insurance, credit guarantee

[31] When speaking about subsidisation of guarantee (and insurance) products, a distinction must be made between the initial capitalisation of the fund (capital in a funded scheme) and subsequent guarantee regarding losses (subsidy for the risk premium).

[32] In a guaranteed loan, the bank can reduce its lending rate relative to that of an unguaranteed alternative. The AGRA initiative in Africa has indeed reported that some (but not all) banks apply substantially lower interest rates.

Box 13 *Support actions for the development of index insurance, according to IFAD*

Concrete support actions that international development partners can undertake include the following (IFAD, 2010):

1. Take charge of the initial research and development costs, distribution, promotion and training. This includes technical assistance to the insurance providers, operators of weather stations, and those involved in distributing the product.
2. Cover (subsidise) some start-up losses, without however bringing the insurance premium below its long-term sustainable level (one where economies of scale can play a role and a re-insurance market can function commercially). Initially, international aid donors could reinsure part of the risk.
3. Build, maintain and initially operate the support infrastructure, such as weather stations or remote sensing technology and provide the information technology to analyse these data (and they may also serve other purposes).
4. Help build the legal and regulatory environment for agricultural insurance (see above), such as the possibility of using weather stations to assess crop losses, and gain access to international reinsurance.
5. Support studies into the efficiency, effectiveness and impact of existing insurance schemes, and recommend how to improve them.
6. Study to what extent agricultural insurance can be expanded to other value chain partners rather than just farmers, because all suffer in case of crop losses.

Public support is particularly justified where the agricultural insurance products designed are truly innovative, and which the private sector would not otherwise undertake – for fear of copycatting by their competitors.

funds will only have an impact on farmers (or indeed, be used at all) if they bring about productivity enhancements. This makes successful credit guarantees, just like index insurance, part of the logic behind value chain development .

For both index insurance and credit guarantees, governments must ensure that prudential supervision is in place.[33] Regulation and supervision ensure that providers of guaranteed coverage/insurers are able to make the required payments in case of risk events and subsequent claims, and this is equally true when the government provides such coverage. An additional element in insurance is that government must

[33] Private provision of agricultural insurance was found in Senegal, Tanzania, Thailand and Tunisia. Private provision of credit guarantees by the private sector is less common (it would take the form of credit loss insurance). However, even public guarantee facilities need to be regulated and supervised by the appropriate authorities.

ensure that the required legal framework is in place to facilitate the efficient operation of the insurance industry, including reinsurance. To note, government would remain the "insurer of last resort" in case of major natural calamities, which are commercially uninsurable or would drive the insurer into insolvency.

Mobile banking technology

As noted in Chapter 3, mobile banking is an exciting revolution that is rapidly transforming the face of financial services in developing countries and greatly impacting rural communities in particular. Indeed, developing and emerging markets are installing electronic payment and banking platforms that let them leapfrog the banking technologies in use in developed markets, vastly reducing the cost of financial intermediation and boosting rural outreach. This revolution is entirely led by the private sector. The mobile phone companies Orange in West Africa and MTN and Tigo in East Africa simply copy the technology solutions from one country to the next, while leveraging their existing infrastructures. However, as these services are expanded and financial products are added, there is a need for prudential supervision by the Central Bank or its equivalent (now under development in Tanzania). In addition, whereas payment services through different mobile phone systems can be interlinked easily (because they already communicate with each other), this is not the case when connecting the mobile phone applications with the IT systems of banks and MFIs. In Senegal, the government with help from KfW has started a project to build a payment interface that would connect all IT systems (operated by phone operators, banks and MFIs), as well as small shops and payment terminals, essentially creating one national mobile banking platform.

Extension services and financial literacy

There is compelling recent evidence that agricultural extension services have an impact on agricultural performance, probably to the extent that the impact on farming can outweigh the cost of these services (see Chapter 3). In contrast to the old minimalist microfinance paradigm, in some countries (*e.g.* India, Peru, Tanzania) microfinance has been successfully combined with advisory services. Tunisia has an old practice of credit combined with extension services, which has been shown to have an impact on agricultural productivity and loan repayment. In Moldova, agricultural extension services are subsidised by the government (with World Bank support) but implemented by private service providers. Given the hardship of farmers in Moldova, this subsidy may be justifiable and the results at the level of farmers are visible. However, the literature on agricultural finance and the country studies undertaken in this research project have shown it to be very difficult to continue service delivery sustainably once donor and government funding dry up.

If properly implemented, subsidised extension services should lead to economic benefits and increased tax revenues. Over time, increasing contributions can be asked of the beneficiaries (who then become clients). However, like any government subsidy, the possibility of government having to reach out and rely on user contributions must be evaluated *before* such subsidies are introduced. Experiences in many countries show that farmers' willingness to pay for such services is weak, and it depends on the extent to which they truly perceive the service as valuable.

5. Synthesis and Conclusions

Agricultural finance has been the intense focus of public and private support programmes, as this study has shown. In the 1960s/1970s, governments took a pro-active approach through state-owned agricultural development banks, directed lending and widespread subsidisation of agriculture and agricultural finance. Lack of results gave way to market-based approaches from the 1980s onwards. The emphasis on the development of financial markets, which were expected to find ways to serve farmers effectively, opened the door to microfinance initiatives. However, in spite of some great successes, the current situation is that smallholder farmers in developing countries continue to have inadequate access to seasonal credit and practically no access to investment credit. Payment services, savings vehicles, and insurance are also unavailable to most.

Apart from geographical factors that make distribution of financial services to rural clients difficult and expensive, bankers have (often rightly) concluded that agricultural loans are too risky due to low farm productivity and climatic factors that make harvest results unpredictable. Furthermore, banks and many MFIs lack the products and (risk management) tools to finance agriculture because the sector is simply not their commercial priority. Other problems include regulations that keep banks and MFIs from charging an interest rate that covers the true cost and risk of agricultural lending. Finally, continued subsidised agricultural lending (through state-affiliated distribution channels) discourages private commercial lenders from entering this market.

This study emphasises that the weaknesses and risks found in agriculture are not solved by financial institutions with financial products. The authors of this study propose that agricultural credit by itself does not make the wheat grow taller, and agricultural insurance does not stop the weather from destroying the crop. Indeed, decades of agricultural credit programmes have had little effect on agricultural development. To some extent, the opposite may have happened, as in Tunisia and India where farmers have become overindebted with little to show for it in agricultural results. To have impact on agriculture, financial services must be structured to induce farmers to make innovations in their operations. The six countries studied provide some examples where this indeed has been achieved. The elements key to innovative agricultural finance: 1) reduce delivery costs (efficient lending methodologies, technology); 2) adapt to agricultural growth patterns and

cash flow cycles; 3) use value chains to ensure proper loan repayment (that credit is used for the intended purpose, that it results in increased productivity, that the farmer sells to the intended buyer, and for a fair price allowing repayment).

Indeed, the value chain is central to nearly all agricultural finance innovations and key to banks' risk management. Many of the practical examples throughout this study are grounded in value chain logic. Credit risk is reduced by a viable sales contract and implicit technology transfer. The trigger in value chain finance is the linking of the value chain partners; finance is just the oil in the system. Likewise, most successful examples of agricultural credit guarantees or insurance aim to make value chains operate smoothly. By mitigating performance and price risks, producers and buyers can efficiently collaborate in the value chain. There is no doubt, therefore, that value chain thinking has to take centre stage in the development of agricultural finance.

Warehouse receipt finance is a case in point. The financing technology is simple: a farmer puts valuable liquid assets in a secured place, and pledges the crop to a bank or MFI in exchange for credit. However, from a value chain point of view, the benefits vastly exceed the increased access to credit. Through secure storage, crop losses are reduced. Price risk is reduced and managed. Farmers are encouraged to focus on quality because the warehouse grades and certifies their products upon arrival – which may not happen when the product is sold to village traders. Quality and grading open up export and high-value urban markets. Seeing such benefits, farmers start to look for proper farm inputs and seek collaboration with others to share knowledge, input supplies and sales. This in turn leads to lower costs for inputs and higher revenues from products sold in larger quantities. However, the country studies also show that warehouse receipt finance requires a relatively sophisticated economic and legal system, which is why the practice in Mali and Tanzania shows mixed results.

The country studies show that all six countries, except for Thailand, have an active and promising microfinance industry. However, the studies also show that like banks, most MFIs do not focus on agriculture. Although there are differences among institutions, MFIs, savings and credit cooperatives and similar entities do not on average invest more than 10% of their portfolios in agriculture. Thus, although microfinance in all its variations is important for rural communities, the impact on agriculture is somewhat disappointing. Just like banks, MFIs fear the risk of agricultural lending. Nevertheless, the country studies also show that at present, microfinance is the most credible channel for bringing financial services to smallholder farmers. Thus, microfinance is an important innovation, but requiring careful support, regulation and prudential supervision.

Furthermore, the past few years have brought about a rethinking of the old paradigm of minimalist microfinance. As noted above, there is little evidence that credit alone significantly raises agricultural productivity. This leads to an increased interest in combining credit with agricultural training and advice (mostly provided by outside specialists). MFIs and some banks in Asia and Latin America in particular, provide financial education to their clients. This helps them better manage their finances, use the credit wisely and avoid overindebtedness.

Some other innovations discussed in this study relate to the use of new technologies, mobile phones in particular. Mobile phone companies and banks in developing countries, either in collaboration or on their own account, are leapfrogging their rich-world peers in technology, innovation, and thereby efficiency and outreach. Millions of (previously) unbanked poor peasants gain access to increasingly advanced financial services over the mobile phone, which just about everybody carries now. By linking with village retailers who act as cash dispensers, a vast rural bank network is created. Banks and MFIs have also introduced ATMs on wheels, biometric technology, and a host of other technologies. The final impact on agricultural finance in developing countries is yet to be established, but it will almost certainly be huge.

The study also shows that successful agricultural finance for smallholders requires prior group formation through associations or cooperatives because this is the only way to reach such farmers cost-effectively. Collectively, farmers have a stronger bargaining position with input and output traders as they can reap economies of scale and advocate for their interests. Access to technology and finance is also increased because the group representatives can effectively intermediate between the farmers and service providers, whose understanding of doing business may not be the same.

This study reveals that nearly all innovations in agricultural finance are being introduced and implemented by the private sector. However, governments play a key role in facilitation and regulation. To start with, the authors of this study believe that government should do away with price and interest rate distortions, which misdirect agricultural resources and continue to this day. In addition, in order for the above-mentioned financial innovations to come to fruition, governments need to establish the required legal and regulatory environment. Financial institutions hesitate to conduct leasing, warehouse receipt finance or to finance farm contracts simply because they are not sure they are legally covered in terms of collateral, which often is not of the bricks-and-mortar type. Procedures to register and perfect collateral are slow and expensive, and once a loan is in default, seeking legal redress is complex and lengthy. Banks respond by being extremely risk averse and charging high interest rates.

Governments also need to license, regulate and supervise entities that are custodians of somebody else's money or goods, such as (agricultural) banks, microfinance institutions, savings and credit institutions, insurance companies, and certified warehouses acting as collateral managers. The same is true for providers of essential information, such as weather stations or product weighing/grading services. In support of financial innovation, governments can provide grants or guarantees, but must ensure this strategy results in "crowding in" the private sector, which could continue service delivery unaided after public support has ended.

International development partners, in collaboration with local government and the private sector, have a huge opportunity to help develop innovative agricultural finance, notably through the following main axes:

1. Help governments establish an enabling legal and regulatory environment (through technical assistance):

    a. Instruments such as leasing, warehouse receipt finance, factoring and contract financing (and generally all value chain finance) require a legal environment that recognises contractual obligations and title documents, and enforces them through appropriate dispute settlement.

    b. More generally, the legislation and legal practice regarding loan collateral must be well-developed (allowing for use of movable assets as well), and so must the legal practice upholding the rights of banks. Such a legal framework recognises the primacy of the owner of the leased assets (the lessor) and the lender in cases when the collateral pledged is crops stored in a warehouse.

    c. Bank and MFI regulation must be sufficiently flexible (Basel II/III compliant) to allow for a variety of loan collateral and pledges.

    d. Supervision must ensure that custodians of money and goods (banks, MFIs, insurance companies, warehouses, telcos in mobile banking) remain solvent, abide by their obligations, and take proper care of the assets entrusted to them. Such supervision is not necessarily undertaken by governments, but government must ensure that a qualified entity performs this function.

2. Support financial institutions that wish to finance agriculture, including agricultural development banks (in capacity building and training in agricultural

lending, product development, introducing microfinance methodologies, refinancing MFIs, agricultural risk management).

3. Programmes to assist banks and MFIs to finance agriculture should be combined or aligned with efforts to enhance agricultural productivity and reduce risk, such as value chain development or agricultural insurance:

   a. To have an impact on agriculture, innovations in financial instruments must induce farmers to make innovations in their agricultural operations, leading to improved productivity or quality, and this must be part of the financial product design.

   b. Value chain thinking is central to nearly all financial innovations.

   c. Financial services to smallholder farmers nearly always require prior group formation *via* assocations or cooperatives, because this is a prerequisite for cost-effective financial service delivery.

   d. Before a financial innovation is launched/supported, the legal and fiscal environment should be analysed. Prior or parallel efforts to correct shortcomings in the legal, regulatory and fiscal conditions may be needed. Where there is doubt about the ability of certain assets to serve as legally enforceable collateral for a loan, corrective legislation must be put in place.

   e. An exit strategy for the withdrawal of external support and the transfer of responsibility to private market participants must be part of the design from the start.

4. Credit guarantees make sense when the problem to solve is just lack of collateral. Both credit guarantees and agricultural insurance are best embedded in a broader package of productivity-increasing services, so that the instrument can be sustainably provided in the future based on client willingness to pay. Guarantees and insurance may support other types of financial services (*e.g.* credit).

5. Support-related institutions, such as those providing product standardisation, weighing, grading, and weather stations.

6. Agricultural extension services and financial education have been shown to enhance the effectiveness of agricultural credit. However, they are best provided through a parallel service provider, and not cross-subsidised by the interest rate charged for loans.

7. Although outside of the scope of this study, it is emphasised that physical infrastructure (roads, irrigation), as well as social infrastructure (education, health), in rural areas is fundamental to agricultural development, and hence the viability of agricultural financial services, and this deserves donor support.

The financial instruments that international development partners can use to support agricultural finance are:

- Grants issued after a call for competitive proposals, *e.g.* for bank/MFI capacity building and training or product development.
- Grants to government for legislative/regulatory development.
- Credit lines, equity or seed capital provided to financial institutions after due diligence and without hampering fair competition in the financial sector.
- Credit guarantees to remove the real or perceived collateral constraints for banks/MFIs willing to finance agriculture and MFIs.

Acronyms and Abbreviations

AFD: *Agence Française de Développement*

AGRA: Alliance for Green Revolution in Africa

ASCA: Accumulating Savings and Credit Association

BAAC: Bank for Agriculture and Agricultural Cooperatives (Thailand)

BRI: Bank Rakyat Indonesia (Unit Desa)

FAO: UN Food and Agriculture Organisation

FNG: *Fonds National de Garantie* (Tunisia)

FSA: Financial Service Association

FSDT: Financial Sector Deepening Trust (Tanzania)

GIZ: *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH*

IFAD: International Fund for Agricultural Development

IFI: International Financial Institutions (*e.g.* ADB, EIB, World Bank)

KfW: *Kreditanstalt für Wiederaufbau*

NGO: Non-governmental organisation

NMB: National Microfinance Bank

MFI: Microfinance Institution

RCB: Rural and Community Bank

ROSCA: Rotating Savings and Credit Association

RWA: Risk Weighted Assets

SACCO: Savings and Credit Cooperative Society

SCA: Savings and Credit Association

VCF: Value Chain Finance

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Creating Access to Agricultural Finance

Based on a horizontal study of Cambodia, Mali, Senegal, Tanzania, Thailand and Tunisia

Inadequate financing of the agricultural sector remains a major constraint in developing countries. Despite the existence of genuine financial needs of large magnitude, financial institutions face difficulties in serving the clientele in the agricultural sector. As a result, the financing requirements of a significant number of farmers, farmers' groups and small- and medium-sized agricultural companies are not covered in terms of production, bridging, or mid- and long-term investment credits – a situation that seriously hinders possibilities of progress in agricultural production, product transformation and sales.

This study intends to (i) draw broad lessons from the history of public participation and the support provided by international donors for agricultural finance in numerous countries; (ii) make a diagnostic of the current situation, put forward the reasons for inadequacy between supply and demand for financial services in the sector and analyse the various solutions that have been found; and (iii) submit proposals for the creation of financial products that are responsive to the agricultural sector's needs and constraints.

The study indeed elaborates on the elements that are key to innovative agricultural finance: reduce delivery costs, adapt to agricultural growth patterns and cash flow cycles and use value chains to ensure proper loan repayment.

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