

Agriculture Finance Diagnostic

Rwanda



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Acronyms and Abbreviations

AAPI	adults reporting agriculture as the primary income
AFR	Access to Finance Rwanda
AMIR	Association of Microfinance Institutions in Rwanda
BDF	Rwanda Business Development Fund
BNR	Banque Nationale du Rwanda (National Bank of Rwanda, central bank)
BPR	Banque Populaire du Rwanda
BRD	Development Bank of Rwanda
CAGR	compound annual growth rate
CIP	Crop Intensification Program
COGEBANQUE	Compagnie Générale de Banque
CSAF	Council on Smallholder Agricultural Finance
EAX	East African Commodity Exchange
EDPRS	Economic Development and Poverty Reduction Strategy
FIs	financial institutions
GDP	gross domestic product
GoR	Government of Rwanda
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
ISIC	International Standard Industrial Classification
KCB	Kenya Commercial Bank
MFIs	microfinance institutions
MICT	Ministry of Information and Communications Technology
MINAGRI	Ministry of Agriculture and Animal Resources
MINECOFIN	Ministry of Finance and Economic Planning

MINECOM	Ministry of Trade and Industry
MNO	mobile network operator
NAEB	National Agricultural Export Development Board
NAP	National Agriculture Policy
NFIS	National Financial Inclusion Strategy
NISR	National Institute of Statistics of Rwanda
NPL	nonperforming loan
PCG	partial credit guarantee
PFI	partner financial institution
PSTA	Plan Stratégique pour la Transformation Agricole or Strategic Plan for the Transformation of Agriculture
RAB	Rwanda Agriculture Board
RCA	Rwanda Cooperative Agency
RIPPS	Rwanda Integrated Payments Processing System
RDB	Rwanda Development Board
RF	Rwandan franc
RMA	Rwanda Meteorological Agency
RRA	Rwanda Revenue Authority
SACCOs	savings and credit cooperatives
SMEs	small and medium-sized enterprises
TA	technical assistance
UOB	Urwego Opportunity Bank
VAT	value-added tax
WB	World Bank
WRF	warehouse receipts financing



Executive Summary

Agriculture is critical to Rwanda’s economy and a key sector in Rwanda’s Economic Development and Poverty Reduction Strategy (EDPRS). Agriculture contributes nearly a third of the national gross domestic product (GDP), employs more than three-fourths of the workforce, and generates more than half of the country’s export revenues. The sector is a key driver of national economic growth and is estimated to have contributed to 35 percent of the total decline in poverty rates in 2000–15.

Agriculture finance is a national priority to achieve transformation of the agriculture sector and greater financial inclusion. The Financial Sector Development Plan (2013–18), the National Financial Inclusion Strategy (NFIS), and the National Agriculture Policy (NAP) (the latter two under development) include actions to support access to financial services for farmers and agribusinesses. The National Bank of Rwanda (BNR), the central bank, tracks lending to the sector disaggregated by key value chains and value chain stages. Rwanda also has two key market development entities—the Development Bank of Rwanda (BRD) and the Business Development Fund (BDF)—which are active in agriculture finance. Lastly, agri-finance is a key focus area for Access to Finance, Rwanda, a specialized donor-funded initiative and for World Bank’s lending projects in the agricultural sector.

Prioritizing agriculture finance has yielded substantial achievements, but farmers’ use of formal financial services remains suboptimal. The level of access to the formal financial sector for adults reporting agriculture as their primary income is comparable to the rest of the population, but usage of formal financial services is significantly lower. Their access to the formal financial sector is primarily through nonbanks—savings and credit cooperatives and mobile money providers in particular. Nearly half save with formal providers, but only around one in 10 borrows from formal providers; informal providers remain the primary providers of credit. Lastly, only 6 percent report having any type of insurance (not including social medical insurance and social security programs), and less than 1 percent report using agricultural insurance.

Demand-side data on the use of financial services by agri-enterprises are not available.

An enterprise survey that includes questions on access and use of financial services with an adequate sample size to allow comparative analysis between agri-enterprises and other enterprises (as done for individuals using Finscope 2016 data) is not available. However, interviews with key respondents suggest that agricultural small and medium-sized enterprises (SMEs) are likely to have less access to financial services than other enterprises.

The limited depth of the agricultural credit market is also reflected at the macro level.

While the overall credit to national GDP ratio is around 20 percent, credit to farmers and agri-enterprises represented only 4.6 percent of the agricultural GDP in 2016. However, it is growing, having increased from 3.6 percent in 2012.¹ The proportion of credit to agricultural GDP is also likely to be an underestimate because a nontrivial portion of the noncategorized credit (8 percent of total credit) and some credit reported under categories such as construction, trading, and consumer loans, also flow to farmers and agri-enterprises.

The report identifies several challenges to increasing access to financial services to the agricultural sector.

These relate to the enabling environment (limited availability and quality of publicly available data and fiscal disincentives) and demand (limited financial capability of farmers and producer organizations) and supply (limited operational capacity among financial institutions to serve the agricultural sector and limited availability of medium- to long-term liquidity) of financial services.

However, Rwanda has key institutional foundations in place to scale up agriculture finance. Key financial sector foundations include

substantial outreach of regulated financial institutions, a relatively well-functioning retail payment system, an integrated financial regulator that supervises banks and nonbank service providers (including insurance), a credit registry that covers both banks and nonbanks, and a functional secured transactions registry. Key agricultural sector foundations include a modern land-title system that provides more than four-fifths of farmers with clear land titles, a relatively well-functioning agricultural input supply infrastructure, and a substantial number of farmers organized into producer cooperatives.

The report identifies four key opportunities to further develop agriculture finance in Rwanda and recommends policy and institutional actions to realize these opportunities effectively.

These include opportunities to a) strengthen the enabling environment for agriculture finance, b) facilitate financial inclusion of commercially oriented farmers and agri-SMEs, c) deepen the agricultural credit market, and d) scale up the agricultural insurance market. Table 1 presents the actions recommended to realize these opportunities, maps these actions to expected outcomes, identifies the potential lead and supporting entities for each recommended action, and finally prioritizes the recommendations.

Two key caveats are important to note.

First, this report focuses on financial inclusion of commercially oriented farmers and agricultural SMEs. These segments are critical to achieving the transformation of Rwandan agriculture that was envisaged under the NAP and the Strategic Plan for the Transformation of Agriculture (PSTA4). Financial inclusion of all individuals, including subsistence farmers and rural households relying mainly on off-farm income opportunities, is important to achieve the broader goals of poverty reduction. The actions needed to achieve this objective are envisaged to be set forth in the NFIS

¹ It was 5.9 percent in 2015, but fell in 2016 as a result of decrease in lending to the sector.

under preparation. Second, this report is a diagnostic report and not an action plan or a strategy. It aims to provide robust analysis and recommend potential actions to scale up agriculture finance in Rwanda sustainably. These actions can potentially be integrated into the national and sectoral strategies as appropriate. Effectively implementing these actions will require further consultations and may require setting up an effective coordination mechanism, such as a steering committee.

The report is organized as follows: Chapter 1 presents an overview of the agriculture and financial sectors. Chapter 2 presents an analysis of farmers' financial access and use of financial services. Chapter 3 discusses key trends in agriculture credit and agriculture insurance markets. Chapter 4 discusses the key institutions and instruments of public sector support for agriculture finance. Chapter 5 identifies key challenges that are constraining the growth of agriculture finance, and lastly, chapter 6 identifies major opportunity areas and makes key recommendations to capitalize on the identified opportunities.

Table 1. Summary of Main Proposed Actions

Action	Outcome	Lead entity	Supporting entities	Priority
Strengthen enabling environment for agriculture finance				
Include financial inclusion in key household and enterprise surveys and improve quality of supply-side agriculture finance data	Improved data on agriculture finance to enable policy making and business decision making	NISR, BNR	MINAGRI and MINECOM	Medium
Strengthen agricultural and weather information system and establish an agriculture data platform	Enhanced availability of information for analysis and decision making of public and private players	MINAGRI	RDB, RMA, MINECOM, and BNR	High
Remove fiscal disincentives that constrain the development of the credit and insurance markets	Facilitated growth of credit and insurance markets	MINECO-FIN	RRA and MINAGRI	Medium
Facilitate financial inclusion of commercially oriented farmers and agri-SMEs				
Support professionalization and automation of producer cooperatives and their federations	Improved creditworthiness of producer cooperatives	RAB and NAEB	RCA and AFR	High
Support digitization of agricultural payments	Improved financial inclusion of farmers and credit worthiness of agri-SMEs	RAB and NAEB	MINAGRI, RDB, MICT, and AFR	High
Publish a directory of agribusiness enterprises	Improved creditworthiness of agri-enterprises, particularly SMEs	MINECOM	RAB and NAEB	Medium
Deepen the agriculture financing market				
Build capacity of commercial banks and MFIs in agricultural finance	Improved access to credit and other financial services for agri-enterprises	Banks and MFIs (including SACCOs)	AFR, AMIR, and MINECOFIN	Medium
Assess impact of ongoing grant and guarantee programs	Improved effectiveness of grant and guarantee programs	MINECO-FIN	BDF and BRD	High
Enhance BDF's capacity to serve the agricultural sector	Strengthened role of the BDF as a market maker in the agricultural credit market	BDF	MINECO-FIN	High
Strengthen BRD's capacity to serve the agricultural sector	Strengthened role of the BRD as a market maker in the agricultural credit market	BRD	MINECO-FIN	High
Scale up the agriculture insurance market				
Commission a detailed options assessment for a public-private partnership in agriculture insurance	Sustainable national scale up of agricultural insurance	MINAGRI	AFR	High
Build technical capacity and awareness on insurance		MINECO-FIN	MINAGRI, AFR, and BNR	Medium

Note: AFR = Access to Finance Rwanda. AMIR = Association of Microfinance Institutions in Rwanda. BDF = Rwanda Business Development Fund. BNR = National Bank of Rwanda. BRD = Development Bank of Rwanda. MFI = microfinance institutions. MINAGRI = Ministry of Agriculture and Animal Resources. MINECOFIN = Ministry of Finance and Economic Planning. MINECOM = Ministry of Trade and Industry. MICT = Ministry of Information and Communications Technology. NAEB = National Agricultural Export Development Board. NISR = National Institute of Statistics of Rwanda. RAB = Rwanda Agriculture Board. RCA = Rwanda Cooperative Agency. RDB = Rwanda Development Board. RMA = Rwanda Meteorological Agency. RRA = Rwanda Revenue Authority. SACCO = savings and credit cooperative.



Agriculture Sector and Financial Sector Overview

Agriculture Sector

The agriculture sector remains the backbone of the Rwandan economy in terms of contributions to national gross domestic product (GDP) and employment and income generation for the majority of households. Agriculture contributed nearly one-third (32.7 percent) to national GDP in 2015, and it continues to be a critical driver of economic growth (4.8 percent during the 2000–16 period).² Further, it contributed an estimated 35 percent to the decline in poverty over the past decade (World Bank 2017b). In 2014, the sector was the largest contributor to total employment in the country (more than 70 percent of 5.6 million total employment) and was the fourth largest contributor to nonfarm private sector jobs in the economy (contributing 7.4 percent of the estimated 351,000 jobs).³

The agriculture sector has an estimated 3.65 million agricultural operators, and most cultivate extremely small plots of land. Of these agricultural operators, an estimated one million are women (Seasonal Agriculture Survey, NISR 2016). Although agricultural land plots are generally very small (often divided into three to four plots), this masks a wide range. About 30 percent of households cultivate less than 0.2 hectares (accounting for about 5 percent of total arable land), while about 25 percent cultivate more than 0.7 hectares (accounting for 65 percent of the national farmland).

Staple crops such as roots and tubers and bananas dominate Rwanda’s agricultural production in terms of volume and land use. These two groups of crops account for two-thirds of production volume⁴ and more than half (55 percent) of the land use. Within these groups, cassava,

² GDP share and GDP growth contributed by agribusiness and trading of agricultural goods are accounted under industry and services respectively. Hence, the GDP share and growth captured in national accounts underestimate the contribution of agriculture if it is defined broadly to include production, trading, and processing. The overall economy grew 7.8 percent during this period, with industry growing 10.1 percent and services 9.7 percent.

³ Rwanda Firm Growth and Performance (2016) with data from the Establishment Census (NISR 2011, 2014). There were 26,151 nonfarm private sector jobs in the agriculture, forestry, and fishing economic sector. Between 2011 and 2014, jobs in this sector grew 16 percent, and the sector had some of the highest growth in jobs per firm.

⁴ 65 percent and 73 percent of agriculture production volume in Season A and B respectively in 2016.

bananas, and sweet potatoes seem to be more widely produced than other crops. Agricultural products account for 35–40 percent of all Rwandan exports, with coffee and tea representing about 50 percent of total agricultural exports.

Some value chains are better organized than others, providing secure market opportunities to farmers. Coffee and tea have more organized value chains with exporters, traders, processors, and established cooperatives (Box 1) that supply products according to the quality and quantity requirements of formal contracts. Buyers in the tea value chain in particular provide or facilitate technical assistance, inputs, and credit to their suppliers to maintain long-term and secure business relations. Coffee value chains are less organized compared with tea value chains. Traders, processors, and cooperatives aggregate coffee cherries for specific buyers, and financial institutions fund some of these transactions. While most agriculture transactions in these chains remain cash based, some buyers use transaction accounts in banks, microfinance institutions (MFIs), and/or mobile network operators (MNOs).

In contrast, staple crop value chains tend to have more and more heterogeneous buyers and traders, leading to less-organized transactions in the chain. Some producer cooperatives play more active roles than others in aggregating and marketing crops, but formal contracts with buyers rarely exist due to the high risk of side selling. Although maize is more organized than others and financed by banks and MFIs, side selling remains rather common. Rice and potato value chains seem to be the most commercially oriented and organized among the staple crops. Rice is often produced at the government-developed wetland, and producers tend to have designated buyers. Potato producers are required to sell their products at the local collection centers, which ensures structured transactions in the chain.

While Rwanda has a relatively well-organized system of producer cooperatives structured along major value chains, its coverage of the agricultural population remains suboptimal. The Seasonal Agricultural Survey (NISR 2016) found that just over 20 percent of agricultural operators (primarily smallholder farmers) are members in

Box 1. Rwanda's Commodity Cooperative Federations

FERWACOTHE, the federation of tea cooperatives, has 19 member cooperatives with around 43,000 tea-leaf producers as members. Along with its member cooperatives, it is involved in procurement and supply of fertilizers, while only member cooperatives play a role in facilitating their members' access to financial services. Pricing is set following a nationwide formula that tea factories and producers have agreed upon.

Rwanda Coffee Cooperatives Federation has 13 member cooperatives with nearly 19,000 coffee producers as members. The federation procured and supplied more than 500,000 seedlings to its member cooperatives and facilitated access to RWF 200 million in credit for four member cooperatives. It does not play a role in marketing.

Other major commodities that have cooperatives and cooperative federations are rice, maize, dairy, and horticulture.

Source: Author interviews

producer cooperatives. This suggests that even a substantial proportion of those who have agriculture as their primary occupation are not yet members in cooperatives.⁵ These cooperatives are organized along major commodity segments such as rice, maize, potatoes, beans, coffee, tea, horticulture, and dairy. Most of these cooperatives are also organized into federations, also by commodity. Interviews with the National Cooperatives Confederation of Rwanda and the Rwanda Cooperative Agency suggest that rice and tea cooperatives have the largest coverage among operators engaged with these commodities and among the most active. Some advanced federations and cooperatives in better-organized value chains often provide various support services to member farmers such as group procurement of inputs, provision of technical assistance, facilitation of finance, aggregation, and group marketing.

The agribusiness sector, including food manufacturing and trading, is expected to grow as Rwandans consume more high-value and processed foods. According to the Integrated Business Enterprise Survey Report 2014 (NISR 2016), food processing represents the largest number of companies (56 out of 198 in the survey sample) and is the biggest manufacturing employer. Other businesses along agriculture value chains such as agriculture commodity trading and food retailing are expected to grow, although no official statistics are available. One of the major issues that agribusiness companies face is stable procurement of crops (raw materials) from cooperatives and farmers. For example, processors of staple crops often suffer from side selling and must cope with issues concerning quantity and quality of raw materials. In this context, the envisaged support for

professionalization of agriculture cooperatives under the National Agribusiness Investment Promotion Strategy 2017 is a step in the right direction.

Rwanda's agricultural sector has several strengths. These include a diversified agro-ecological environment that permits the production of a wide variety of agricultural and livestock products; reasonably favorable rainfall, with at least two growing seasons in most areas; a strong state with popular support committed to economic development and poverty reduction; high population density; a relatively good primary and secondary road network, which facilitates market access; and location in the heart of Africa, with access to a large and rapidly growing regional market.

However, the sector also faces several challenges. These include relatively fragile soils that have been severely depleted and eroded; a hilly or mountainous terrain that contributes to erosion; long distance and high transport costs to and from the sea; small population size, limiting domestic market demand; and high and growing population density, which limits access by a large part of the rural population to enough land to sustain itself.⁶ In addition, the small landholdings limit the potential to use any mechanization. The challenges faced by the livestock subsector include scarcity of good-quality animal feed, poor genetic performance of local breeds, and limited knowledge regarding livestock management.

Rwandan agriculture has yet to meet its full potential and remains highly vulnerable to climate change. Although key agricultural yields have greatly increased since 2000, they reached a plateau in 2011 and are estimated to be at only 40–50

⁵ It is, however, notable that more than 70 percent of large farmers with more than 10 hectares report being members, indicating that many are likely to be providing "value for money."

⁶ More than half of Rwanda's soils are unsuitable for demanding crops. The very good soils occupy a small space and are found mostly in densely populated areas. Erratic rainfall in eastern Rwanda limits the production potential of crops sensitive to water stress. In mountainous western Rwanda, abundant rainfall has leached most soils and severely eroded others, requiring substantial investment to bring this land back into production. More than 70 percent of agricultural land is on slopes ranging from 5–55 percent.

percent of their potential. Similarly, livestock yields have remained consistently low over time. With less than 20 percent of agricultural land irrigated, Rwanda's agriculture relies strongly on rain-fed agriculture (NISR 2016). While Rwanda already experiences periodic floods and droughts with substantial economic impacts, climate change could raise these costs to one percent of GDP per year by 2030 (Downing et al. 2009). Climate change-sensitive crops include ones that Rwandans depend upon as staple and cash crops, namely common bean and maize, projected to decrease in suitability, and groundnut, cassava, and banana, projected to increase in suitability.

Notwithstanding these challenges, production of major agricultural commodities has made substantial gains over the past decade and half.

The total production of cassava and maize, as well as milk, meat, fish, and eggs, more than doubled between 2005 and 2015. Substantial productivity gains have also been made in other commodities (e.g., cereal and cassava yields have trebled, and sweet potato yields have doubled). Production areas of maize, cassava, Irish potato, and rice have increased rapidly, and increasing percentages of households are cultivating these crops.⁷

A well-established policy framework and implementation and increased public investment in agriculture and rural infrastructure represent attempts to address some of the challenges and have contributed to positive agriculture sector performance. The overall policy platform that the Government of Rwanda (GoR) has implemented is the *Plan Stratégique pour la Transformation Agricole (PSTA)*, or Strategic Plan

for the Transformation of Agriculture. The GoR has completed three phases of the PSTA and is currently preparing the fourth phase (PSTA4), placing strong emphasis on commercialization and transformation of the sector. Agricultural GDP growth in the first three phases of the PSTA was 5.8 percent; growth over the past decade in Rwanda has been among the highest in Africa (among the top seven out of 48 countries).

A key component of the PSTA is the Crop Intensification Program (CIP). In 2007, the GoR launched the Crop Intensification Program with the goals of increasing agricultural productivity of priority food crops, achieving food security, and increasing rural households' income. The CIP had four main components: farm land use consolidation, access to affordable farm inputs through government subsidies, proximity extension services, and post-harvest handling and storage. The CIP's design and implementation approach has evolved over the years; particularly relevant is that subsidy levels have fallen over time.⁸ Notwithstanding the need to strengthen the design and implementation further, the CIP is estimated to have contributed substantially to the agricultural sector's growth in general and productivity gains in the targeted crops.⁹ Rwanda is among the few African countries with close to 10 percent public spending on agriculture.

A major policy reform particularly relevant to agriculture finance has been the land tenure regularization program (ADB n.d.). Rwanda is one of the few African countries that have undertaken major land tenure regularization programs. During the program implementation in 2009–13, more than

⁷ Reported increases include Irish potatoes (from 53 to 61 percent), cassava for cooking (from 52 to 59 percent), and maize (from 75 to 81 percent) from 2010 to 2014 (NISR 2015).

⁸ Currently subsidized fertilizers are available for smallholder producers of maize, wheat, soybeans, rice, beans, cassava, Irish potatoes, and vegetables, while only maize, wheat, and soybean seeds are subsidized. From 100 percent in 2007–08 and 50–75 percent in 2009–10, the current subsidy levels are 16–36 percent for macrofertilizers and 50 percent for micronutrients. Seeds are currently subsidized at 75–85 percent for imported seed (hybrid maize, soybeans, and wheat) and 41–57 percent for locally produced seed (AGRA 2016).

⁹ Between 2006 and 2015, the total volume of fertilizers used in the country rose sharply from 6,000 tons to 59,000 tons and from 4.0 kg to 35.0 kg on a per hectare basis.

10 million parcels of land, accounting for 97 percent of the total land, were demarcated. The Rwanda Natural Resource Authority issued titles for the 83 percent of the parcels that had claimants. Following these efforts, the majority of rural households report using their land as collateral for loans. In the fourth round of the Integrated Living Standards Survey (EICV4), undertaken during 2013–14, among rural households that reported having a loan in the past 12 months from a formal or semi-formal source, 54 percent reported having used land as collateral.

The draft National Agricultural Policy (NAP) identifies key priorities for further development and transformation of the sector. These priorities include a) shifting the role of the state from being a market actor to becoming a market enabler, b) strengthening farmer cooperation and private-sector-led development of the agri-food economy, c) enhancing resilience to adverse impacts from climate change and market shocks, and d) supporting digitization to enable more effective sector administration and operations. The PSTA4 (under preparation) is expected to take actions toward achieving the goals of the NAP.

Financial Sector Overview

Rwanda’s financial sector has become increasingly diversified in recent years. It consists of a broad array of financial institutions (Table 1), comprising commercial banks, microfinance banks and nonbank microfinance institutions, savings and credit cooperatives (SACCOs), insurance companies, and pension funds. The banking sector still dominates the financial landscape with a 66.9 percent share of total financial sector assets at the end of 2016 (Table 2). The banking sector consists of 16 institutions, including 11 commercial banks, three microfinance banks, one development bank, and one cooperative bank. Nonbank financial institutions include 10 private insurers and two public insurers; one public pension fund and 54 private funds; two payment system operators, 13 payment service providers (including three MNOs), nine remittance service providers; and one credit reference bureau. In addition, a capital market is nascent but growing, with seven listed equities (two domestic and five cross-listings) and 12 listed bonds (10 government and two corporate) on the Rwanda Stock Exchange. Total market capitalization of the debt and equity market stood at 43 percent of GDP at the end of 2016, or US\$3.4 billion.

Table 2. Distribution of Financial Sector Assets, December 2016

Sector	# FIs	% Share of Total Assets ^a	% of GDP
Banking	16 ^b	66.9	38.0
Insurance	15	9.7	5.5
Pension	1	17.1	9.3
Microfinance institutions	472	6.3	3.6
TOTAL	504	100	56.4

Source: BNR 2017.

Note: FI = financial institution.

a. As of December 2016, total financial sector assets amounted to RF 3.5 trillion. The value considers assets of regulated financial institutions (banks, insurance companies, pension funds, and all microfinance institutions) and excludes the BNR (2017) Monetary Policy and Financial Stability Statement.

b. These are banks operating in Rwanda. The number excludes the Commercial Bank of Africa.

The microfinance sector plays a critical role in driving financial inclusion by connecting the rural population and lower-income groups to financial services. This subsector comprises entities with limited company status and SACCOs. As of December 2016, out of the 472 microfinance institutions operating in Rwanda, 17 are microfinance institutions with limited liability company status and 455 are SACCOs. The latter include 416 Umurenge SACCOs and 39 non-Umurenge SACCOs. Umurenge SACCOs are SACCOs that have been promoted at the level of Umurenge, the third level of administrative subdivision after provinces and districts.

Supported by agents, the financial sector ecosystem/footprint has grown substantially. In terms of the banks' branch network, as of December 2016, 194 bank branches, 174 subbranches, 181 outlets, 400 automated teller machines, 1,885 point-of-sale devices, and 4,411 banking agents were in operation. The insurance sector had 15 insurance brokers, eight loss adjusters, and 415 insurance agents. Mobile-money providers combined had 59,952 mobile money agents.

Mobile money infrastructure has grown rapidly and has contributed to the exponential growth rate in its use. Just in 2016, the number of mobile money agents increased 48 percent, from 40,467 to 59,952 agents. During this period, registered mobile money accounts increased to 9.7 million, active mobile money users increased to 3.3 million (by 34 percent from 2.5 million), and the number of transactions increased 22 percent to 205 million. The value of mobile money transactions, however, decreased marginally in 2016 over 2015 to RF 1,040 billion. A notable recent development has been the introduction of mobile banking products to complement mobile money products. In partnership with MTN, Commercial Bank of Africa introduced

MoKash, a suite of mobile-based banking products offered to MTN Mobile Money customers, which offers both a deposit product (microsavings with up to 7 percent interest) and a loan product (microloans with a one-time fee of 9 percent levied for each loan).

Rwanda has a relatively modernized national payment system. The main pillar of the Rwanda Integrated Payments Processing System (RIPPS) is the real-time gross settlement system for the country, which constitutes the main system for the settlement of interbank activities in the financial system. The system has commercial banks and the central bank as direct participants. Other key elements of the RIPPS include the central securities depository for holding both private and public securities, the automated clearing house, and a domestic switch for card-based transactions. The banks also participate in the automated clearing house system through which check clearing, direct credit transfers, and direct debits are processed. A key limitation that remains is the lack of full interoperability among all retail payments service providers. Nonetheless, the ratio of electronic retail payments transactions to GDP has steadily increased from 0.3 percent in 2011 to 21.6 percent in 2016.

Rwanda also has a strong credit infrastructure. Rwanda has a strong creditor and insolvency framework and a notice-based collateral registry. The credit bureau includes both positive and negative information, provides online access, and includes coverage clients of SACCOs. In the Getting Credit index of the World Bank's Doing Business database, Rwanda gets 11 out of a maximum value of 12 in the collateral subindicator and eight out of 12 in the depth of credit information subindicator. Credit bureau coverage of individuals is 16.6 percent.¹⁰

¹⁰ 1,056,117 individuals and 27,216 firms (World Bank 2017a).

Banks, MFIs, and insurance companies are regulated and supervised by the National Bank of Rwanda (BNR). BNR has dedicated departments for the supervision of banks, nonbank financial institutions (excluding MFIs), and microfinance institutions. All departments carry out regular offsite and onsite inspections of the supervised entities, although this has been a challenge for the microfinance supervision department given the large number of supervised entities. This is however expected to be addressed to a substantial extent once the ongoing effort to automate and consolidate the Umurenge SACCOs is completed.

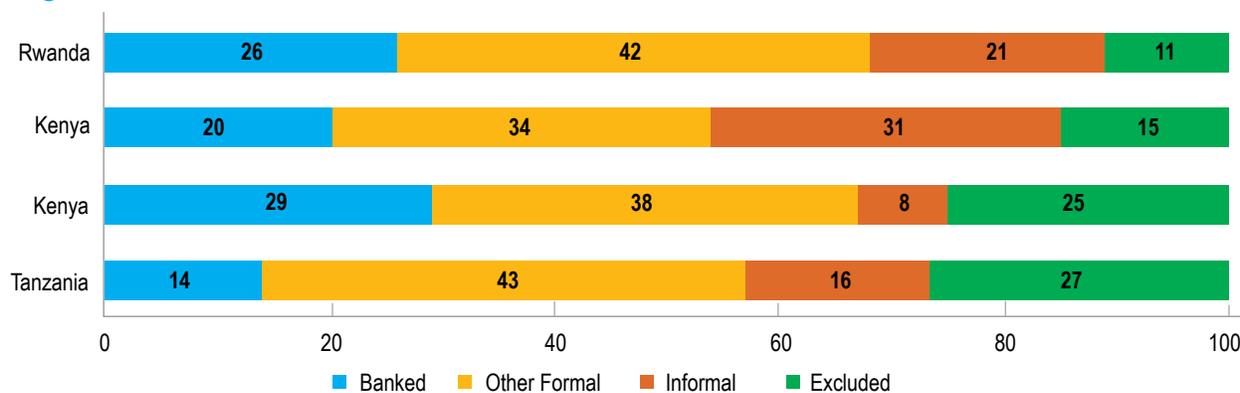
The performance of the banking and MFI sectors weakened in 2016. While the banking and MFI sectors remained profitable, the banking sector's gross nonperforming loans (NPLs) increased to 7.5 percent and those of the MFI sector increased to 9 percent. Nevertheless, NPLs are at much lower levels compared with the high levels of 25 percent in 2006 and 2007. However, the deterioration of portfolio quality in the case of the Umurenge SACCOs is an area of greater concern because the NPLs have been steadily increasing over the last five years and stood at 13.4 percent in 2016 (BNR 2017).

The insurance sector's overall performance improved in 2016, but private insurers' losses deepened. Total insurance sector capital grew by 16 percent, the sector's total gross premium written increased by 14 percent, and net profit also increased by 12 percent. However, the public and private insurers had a strikingly different performance: while the public insurers' net profits increased, the private insurers' net losses increased. The regulator assessed that the private insurers' poor performance was driven by unhealthy competition leading to price undercutting and an erosion of premiums underwritten, exacerbated by high claims ratios and management expenses. The Rwandan insurance industry comprises nine non-life insurers, four life insurers, and two public medical insurers (BNR 2017).

The Rwanda Financial Sector Development Plan II (2013–18) has advanced key aspects of financial sector development relevant to agriculture finance. These include ongoing efforts to consolidate and automate Umurenge SACCOs; build capacities of SACCOs and MFIs and their supervisors; facilitate access to the credit reporting system for SACCOs and other MFIs; strengthen customer protection and build financial capability of financial services customers; modernize payment systems, integrate the mortgage and land registry, and provide access to this information via mobile phones; and encourage use of moveable assets as collateral.

Rwanda has achieved a commendable level of financial inclusion with 68 percent of adults having access to formal financial institutions. The “other formal/nonbank” group, defined to include SACCOs, other microfinance institutions, insurance companies, and mobile money providers, drives access to formal service providers: this group reaches 42 percent of the adult population, while banks only reach 26 percent. Access to mobile money accounts (e-wallets) has increased exponentially in recent years and is currently estimated to reach more than 2.3 million adults, followed by SACCOs, which reach around 2 million adults. The level of formal inclusion is comparable to that in Kenya, among major East African countries (Figure 1). Umurenge SACCOs and uptake of mobile money were the primary contributors to the growth in population with access to the formal financial sector, from 42 percent in 2012 to 68 percent in 2016. Twenty-one percent of the adult population only uses financial services provided by “informal” service providers: savings groups, shops, farmer's organizations, and employers. The “excluded” neither use financial services from the formal providers (banks and nonbanks) nor from informal providers; if they use any financial services at all, they depend on family and friends.

Figure 1. Financial Access Strand in East African Countries



Source: FinScope 2016.

Usage of financial services from the formal sector has increased substantially. In 2015, 49 percent of adults reported saving with the formal financial sector (up from 36 percent in 2012). An increase in savings with SACCOs and mobile money providers (which increased from 22 percent in 2012 to 36 percent in 2015) primarily drove this increased usage. Borrowing from the formal financial sector also increased, though less markedly (from 9 percent in 2012 to 15 percent in 2015). Informal sources remain the major source of credit and have also grown (from 43 percent to 51 percent). Around 9 percent of Rwandans reported using at least one type of insurance in 2016.

Substantial increases in access and usage have also been achieved among traditionally underserved groups, though gaps remain. Between 2012 and 2015, the proportion of women reporting access to the formal financial sector increased from 36 to 63 percent, and the gender gap in access to the formal sector decreased from 15 to 9 percentage points. During the same period, the proportion of adults in rural areas with such access increased from 38 to 64 percent. The rural-urban gap remained substantial at 25 percentage points in 2015 though, having decreased only marginally from 28 percentage points in 2012.



Financial Inclusion of Farmers and Agricultural Small and Medium-Sized Enterprises

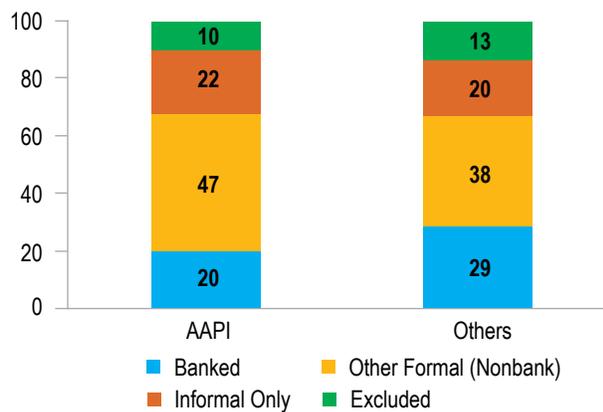
Based on Finscope 2016 survey data, this chapter presents a comparative analysis of the levels of financial inclusion of adults reporting agriculture as the primary income (AAPI) and the rest of the population. The AAPI comprises 36 percent of the total Rwandan adult population. While more of the population is involved in agriculture generally, this chapter focuses on the narrower group considered critical for the agricultural transformation agenda in Rwanda—the group that reports agriculture as *primary* income.¹¹ Focusing on the AAPI segment is not to suggest that financial inclusion of the broader segment is not important. It just suggests that focusing on financial inclusion of the smaller group should be a priority for agricultural sector stakeholders.

A brief methodological note: The “AAPI” segment is constructed based on those who responded that their main source of income is farming or fishing. The “others” segment, in turn, corresponds to all non-AAPI survey respondents. Proportion tests were carried out to evaluate the statistical significance of the differences between the AAPI segment and the rest of the population for the indicators discussed in the following discussion. Additionally, regressions were run for certain indicators to further examine whether being a member of the AAPI segment still appears to be associated with particular financial access and usage propensities after controlling for key sociodemographic and socioeconomic factors, such as age, gender, education, location, and wealth category.

AAPI have a comparable level of access to the formal financial sector as the non-AAPI population but a higher dependence on nonbanks. Among both the AAPI and the rest of the population, 67 percent report having access to the formal financial sector. However, as Figure 2 indicates, the agricultural population has much higher levels of access through nonbanks (primarily from SACCOs and mobile money providers). Controlling for key sociodemographic and socioeconomic factors, the AAPI segment still appears to be associated with higher levels of access through nonbank formal channels alone. The general differences in channel access proportions are statistically significant.

¹¹ Fifty-one percent of adults receive at least some income from agriculture, and 84 percent are estimated to live in rural areas.

Figure 2. Financial Access by Population Segment (Percent)



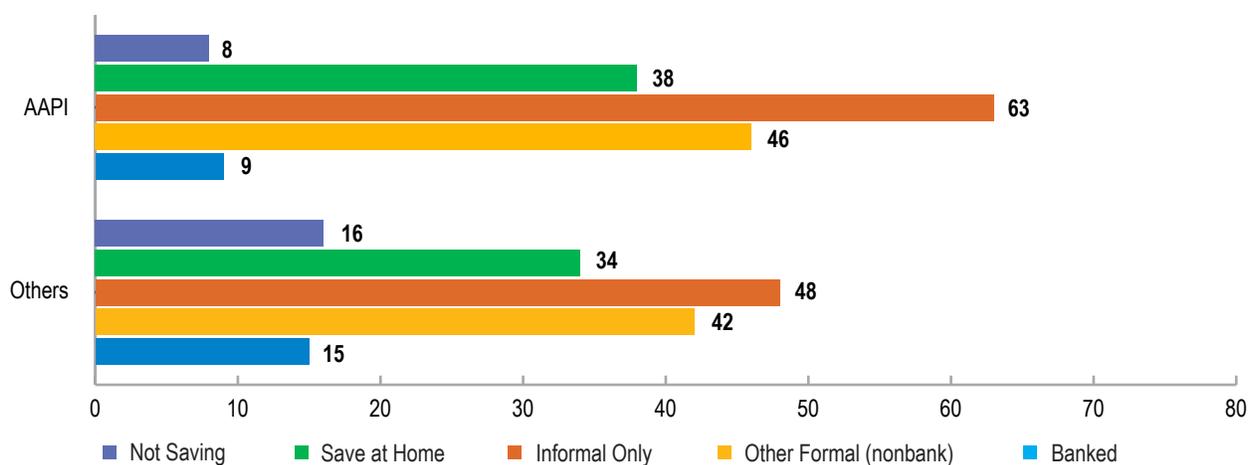
Source: Author estimates using Finscope 2016 survey data.

The main means of access are also reflected in usage of formal financial services. As Figure 3 indicates, the AAPI save more than others, but save primarily with nonbanks. AAPI use informal sources substantially more. The differences are statistically significant, and the relationship holds even after controlling for variations in other key variables. Saving for general living expenses far outweighs any specific purpose reported, but among AAPI saving for an emergency (medical and nonmedical) and for school fees is reported at the

same level as saving to buy livestock while saving for farming expenses is reported at much lower levels. These findings indicate an opportunity to strengthen access to formal saving opportunities for the agricultural population in general and potential need for specialized savings product not just for agricultural investments but also for nonagricultural needs such as school fees.

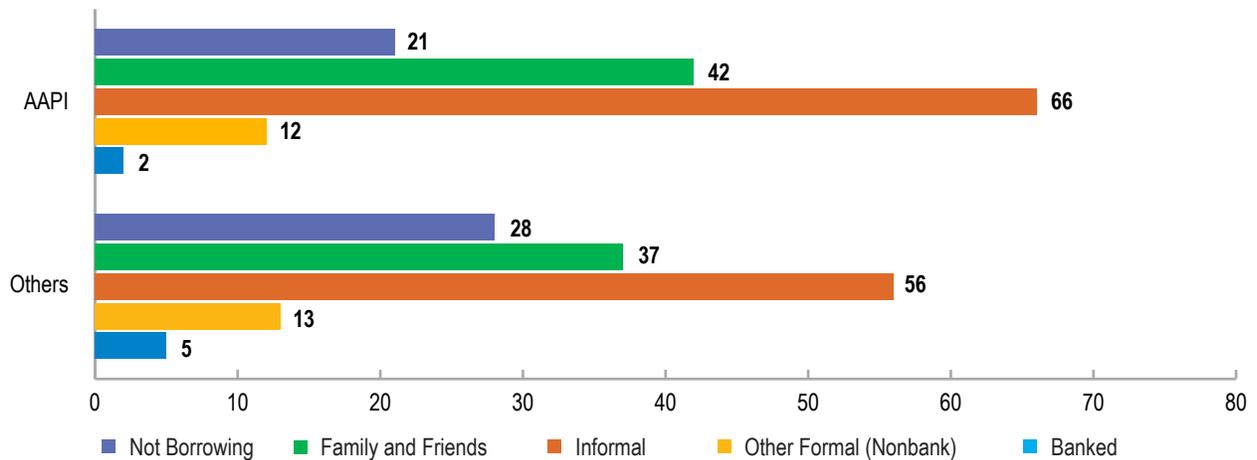
AAPI borrow more than others, but have a higher dependence on the informal sector. About 79 percent of the AAPI segment borrows, compared with about 72 percent of the rest of the population. As Figure 4 shows, AAPI maintain a higher dependence on informal sources and family and friends. While the difference in borrowing from nonbank entities is not statistically significant, differences in borrowing from other channels are significant. Additionally, controlling for key sociodemographic and economic factors, AAPI still appear to demonstrate a higher propensity to borrow. General living expenses are reported as the primary reason for borrowing, far outweighing other reasons (as in the case of savings). While farming expenses and buying livestock are significant reasons for borrowing for the agricultural population, so are emergencies and school fees. This again suggests

Figure 3. Savings Behavior and Saving Locations (Percent of Segment)



Source: Author estimates using Finscope 2016 survey data.

Figure 4. Borrowing Behavior and Credit Sources (Percent of Segment)



Source: Author estimates using Finscope 2016 survey data.

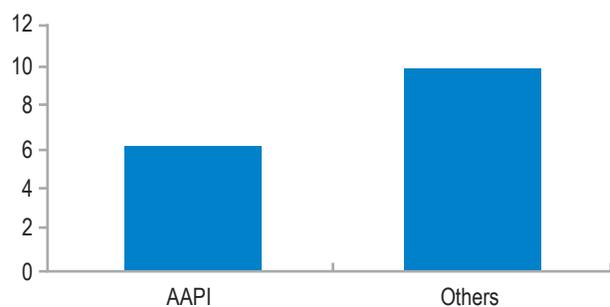
that access to credit in general is as important for the agricultural population as it is for the nonagricultural population, while also confirming the need for specialized credit products for working capital and agriculture-related investment needs.

Access to insurance is limited. Access to insurance services (not including the social health insurance through the Mutuelle de Santé program) is substantially lower for the agricultural population than it is for the nonagricultural population. This difference is also statistically significant. However, the significance does not hold after controlling for other key factors, suggesting that the lower insurance access for AAPI may be related to broader sociodemographic, socioeconomic, and market development factors than due to factors uniquely associated with the AAPI category.

Among the 6 percent of the agricultural population that reports any access to insurance, only 7 percent reports access to agricultural insurance (See Figure 5). However, this seems to be a substantial underreporting of access when

compared with the supply-side data. This suggests that many of those who have access to agricultural insurance are not aware that they have such access, indicating potential design and financial capability issues. Notable is that 63 percent of adults reported experiencing a crop failure or loss of livestock, the third highest incidence of risk reported (after health events and price increases), probably indicating an unmet demand for a well-designed agricultural insurance product.¹²

Figure 5. Access to Insurance (Percent of Segment Insured)



Source: Author estimates using Finscope 2016 survey data.

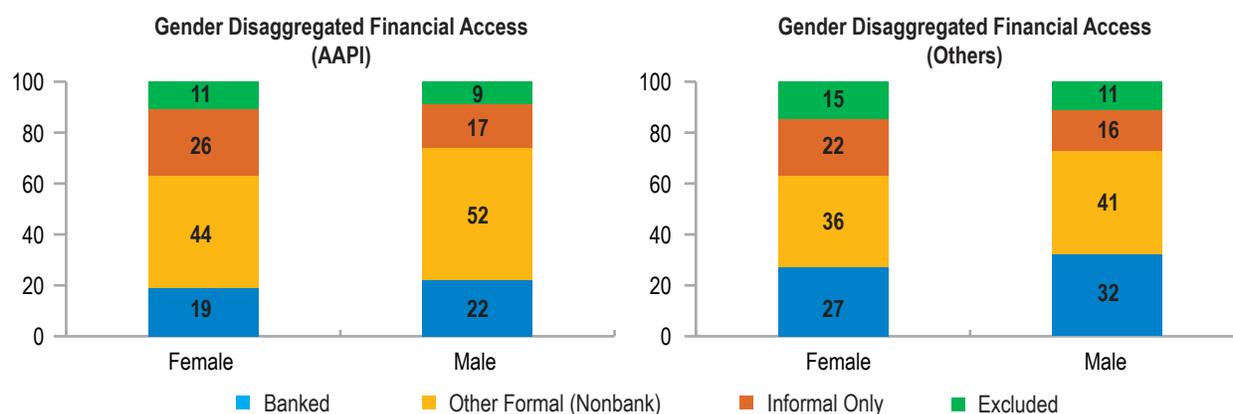
¹² Thirty-five percent reported coping by reducing expenses, 9 percent by using their savings, 6 percent by taking loans, and 5 percent by selling assets.

The gender gap in access to and usage of financial services among AAPI is comparable to the gap in the others category. As Figure 6 shows, the gender gap in access to formal financial institutions among AAPI is 11 percent, which is comparable to 10 percent in the others category. The gender gap in savings with formal financial institutions among AAPI is nearly twice that at 19 percentage points, which is comparable to the 18 percentage point gap observed in the others group. Finally, the gender gap in borrowing among AAPI is 5 percentage points compared to 7 percentage points in the others group.

Agricultural SMEs

An equivalent analysis of access to and use of financial services by agricultural small and medium-sized enterprises (SMEs) was not possible due to the lack of a comprehensive SME finance survey. The World Bank Enterprise Survey from 2011, which included some finance-related questions, was not used because the survey sample (241 firms) was too small to allow a comparative analysis between agricultural SMEs and all other firms. The Rwanda Integrated Business Enterprises Survey 2014 had a larger sample size (3,790 enterprises), but did not include questions on access to and use of financial services.

Figure 6. Gender Gaps in Financial Access (Percent)



Source: Author estimates using Finscope 2016 survey data.



Agriculture Finance Market Overview

Agriculture Credit

This report defines “agriculture credit” to include not only loans for agricultural production, but also loans for agricultural trading and agricultural processing. This approach is intended to capture, to the best extent possible, lending for all stages of the agricultural value chains. This is particularly relevant in a context of transformation toward more commercialization and value addition in the agricultural sector, as is the case in Rwanda. The agricultural production category includes farming, fishing, and livestock. For a full listing of loan purposes identified by the BNR for reporting by banks and those included in this report under the “agricultural credit” by banks, see Annex 1 (BNR Classification of Credit Categories Related to the Agriculture Sector). The BNR does not require a similar level of detailed/disaggregated reporting by MFIs (including SACCOs).

The loan portfolio to the agriculture sector from the formal financial sector has increased since 2012. The agriculture loan portfolio (agriculture production, trading, and processing) in the formal financial sector (banks, MFIs, and SACCOs) increased from RF 57 billion in 2012 to 90 billion in 2016 (Figure 7). The Development Bank of Rwanda (BRD), the largest lender in the agriculture sector accounting for 41 percent, increased its lending from RF 21 billion to 37 billion (compound annual growth rate or CAGR of 16.2 percent). This growth was mainly driven by agri-processing and tea production. Other banks followed with a share of 36 percent, but the growth for the last five years has been 3.8 percent. MFIs and SACCOs, representing 22 percent of loans, experienced the fastest growth among the three categories (with a CAGR of 25 percent) and reached RF 20 billion in 2016. During this period, the agriculture credit portfolio as a proportion of the agriculture GDP increased from 4.4 percent in 2012 to 5.9 percent in 2015, but decreased to 4.6 percent in 2016.

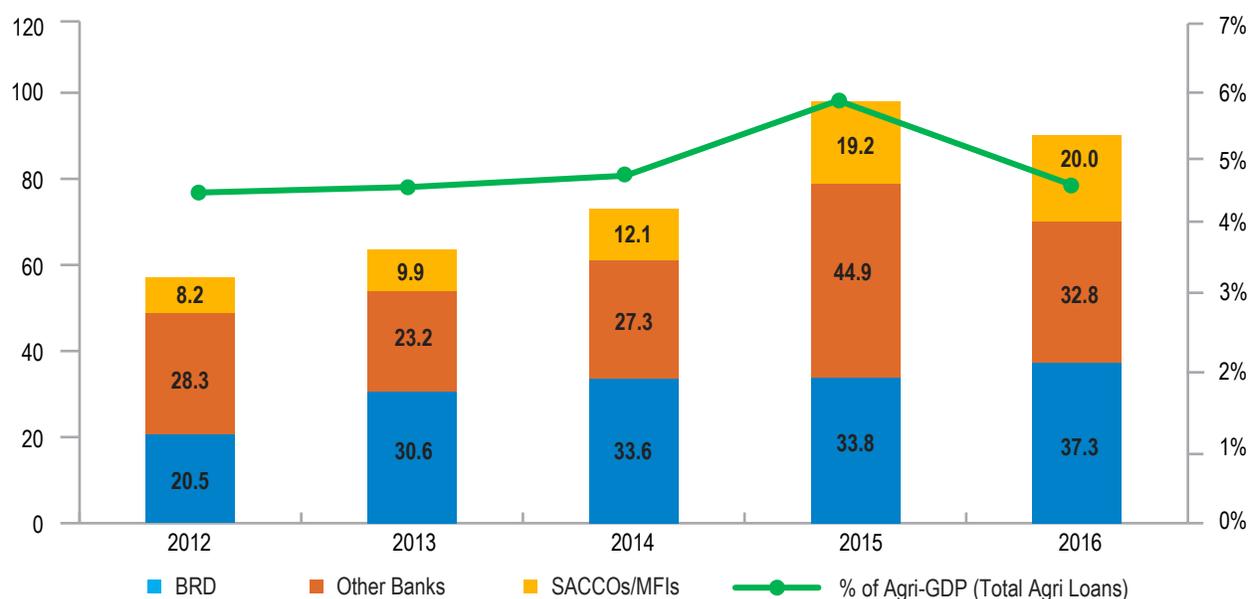
Several important caveats need to be made on the data for agricultural credit. First, these data are based on self-reported information from financial institutions and depends fully on the accuracy of the loan purpose classification at the time of loan origination. Second, the reported value of credit to the sector is an underestimate for several reasons: a) loans often classified under

other categories (e.g., salary loans) are likely to be used in the agriculture sector, b) financing by value chain actors (e.g., processors and traders) is not captured, c) the loans from MFIs and SACCOs include loans for agricultural production only and the BNR's aggregate data do not disaggregate loans for agricultural processing and trading within the broader manufacturing and trading categories, d) the central bank also reports a substantial share (8 percent) of the total credit portfolio as unclassified, and e) lending by specialized lenders to the sector who are not regulated by BNR is not captured. And lastly, it is not clear if wholesale lending by the BRD and other banks specifically targeted at agriculture are included in the data on agricultural lending reported by them. If this is the case, this would overestimate total agricultural lending.

Banks increasingly focus on agribusiness probably driven by growth and low NPLs. An increasing proportion of the bank lending (including by the BRD) is going to agribusiness (processing and trading) rather than agricultural

production (except in 2016). Average outstanding loans from banks for agriculture production were RF 30.1 billion in 2016, while outstanding loans for agribusiness (agri-processing and agri-trading) were RF 40 billion. Figure 8 shows that loans to agribusiness grew quicker than they did for agriculture production; over the last five years, the CAGR for loans for agriculture production was 5.9 percent, while that for agribusiness was 12.7 percent. The higher rate of growth of lending to agribusiness may reflect the growth of agribusiness activities in the country resulting from ongoing agriculture sector transformation and higher demand for high-value processed food products and the reduction in agribusiness NPLs until 2015. During this period, the agribusiness NPL ratio was even lower than that of overall banking sector (5–6 percent from 2012 to 2015). Agribusiness NPLs increased substantially in 2016, driven primarily by NPLs in the coffee subsector (to levels comparable to the overall banking sector NPL rate of 7.5 percent at the end of 2016).

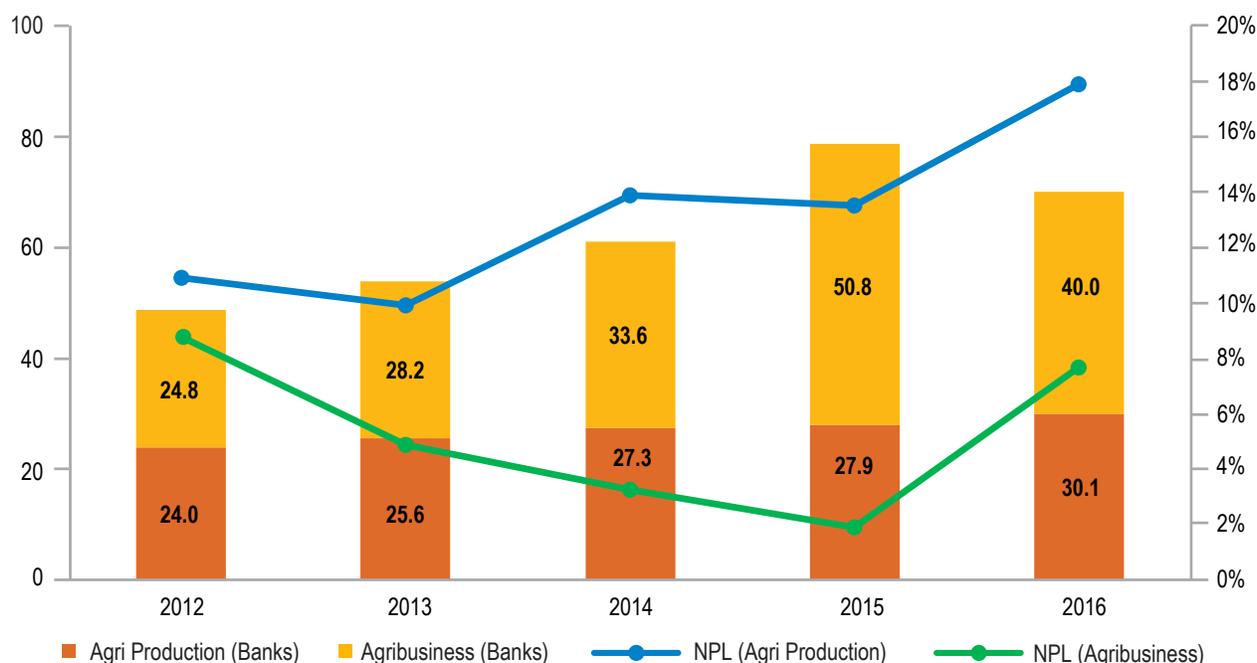
Figure 7. Trend and Composition of the Agriculture Loan Portfolio (in RF Billion and Percent of Agriculture GDP)



Source: National Bank of Rwanda, BRD, and the National Institute of Statistics of Rwanda.

Note: Other bank figures are an average of the quarterly data. The MFI/SACCOs figures are as of December of the respective years.

Figure 8. Trend in Composition and Performance of Bank Loans to the Agriculture Sector (in RF Billion and NPLs in Percent of Total Loan Portfolio)



Source: National Bank of Rwanda.

Note: The figures are an average of the quarterly data.

Agricultural production loans have been on a decreasing trend, probably driven by the high rate of NPLs. While the aggregate banking sector portfolio of agricultural production loans has been increasing in absolute terms, its share in overall agriculture sector lending has been contracting. The very high NPL ratios are probably driving this trend. The NPL ratio of agriculture production loans has been constantly higher than that of agribusiness loans and overall banking sector NPLs, and the gap has increased for the last five years.

Within production lending, lending for staples seems to be the largest segment, although its share is falling. Lending for staples represents around 40 percent of production lending followed by lending for livestock, which is about 25–30 percent; both segments have high levels of NPLs (Figures 9 and 10). The loans for export of tea and coffee account for about 30 percent of production

lending in 2016. The share of lending for tea has increased while continuing to maintain very low levels of NPLs, which is not surprising given that tea is the most structured of all major value chains in Rwanda. However, coffee production loans suffer from high levels of NPLs, amounting to more than 30 percent in 2016.

Within agricultural trading and processing, lending for coffee has the largest share but also suffers from high levels of NPLs (Figures 11 and 12). NPLs are particularly high for loans made for coffee collection (which is categorized under “coffee processing and trading”). This may be because some coffee cooperatives and traders provide prepayments to coffee producers, but are not able to enforce purchase agreements. In contrast, NPLs for coffee export have been zero for the last several years, indicating that some value chain actors manage risks better than others. The

share of lending for tea processing has decreased consistently although the credit risk seems to be very low. Bank credit seems to have been replaced with self-financing. Overall loan quality decreased substantially in 2016, especially in businesses such as storage of food products, other food processing, and coffee processing and collection.

The public-sector lender, the Development Bank of Rwanda (BRD), primarily lends to agribusinesses. The BRD primarily provides large loans for agri-processing companies and producer organizations in cash crop value chains such as coffee and tea. In 2016, agri-processing was the largest borrower in the BRD’s agriculture portfolio, accounting for 40 percent, followed by coffee/tea production (22 percent) and coffee/tea processing (21 percent; Figure 13).

Some commercial banks have agriculture finance strategies and dedicated agriculture teams to execute those strategies. These banks

offer a wide range of financial products covering pre- and post-harvest for select commodities such as maize, rice, Irish potatoes, and coffee. Urwego Opportunity Bank (UOB) and Kenya Commercial Bank (KCB), while operating with different market segments, pursue transaction volumes by focusing on widely produced crops (maize and rice) and taking a structured-financing approach (see Box 2). Despite the inherent risks involved, these financial institutions (FIs) pursue businesses in the agriculture sector to fulfill their mission and/or capture profit-making opportunities. Other commercial banks with significant exposures to the agriculture sector are Banque Populaire du Rwanda (BPR) and the Compagnie Générale de Banque (COGEBANQUE).

MFIs, particularly Umurenge SACCOs, likely finance a larger number of farmers. MFI loans increased from RF 8.2 billion in 2012 to 20.0 billion in 2016 (a CAGR of 25 percent). This represents approximately 22 percent of agriculture

Figure 9. Composition of Bank Loans to Agriculture Production (Percent of Total Agriculture Production Loans)

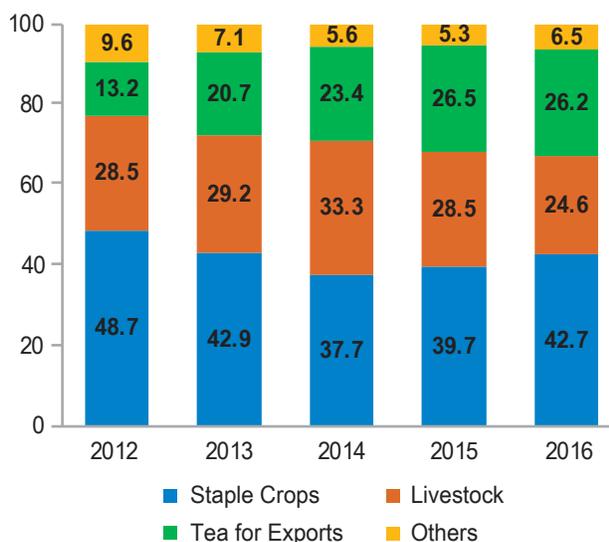
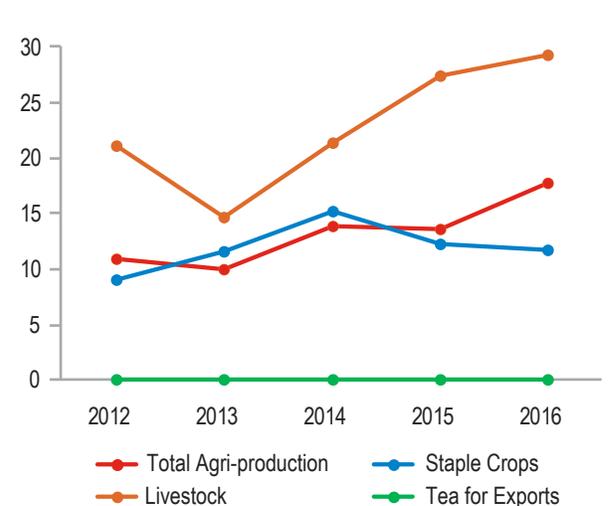


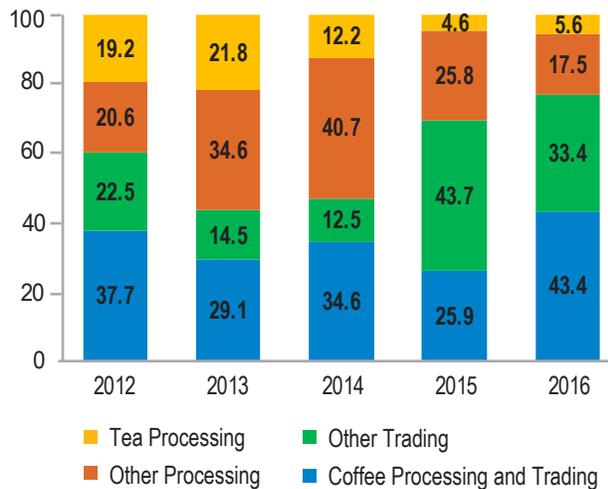
Figure 10. NPL Ratio in Major Subsegments of Loans for Agriculture (Percent of Loans)



Source: National Bank of Rwanda and the World Bank.

Note: The figures are an average of the quarterly data. “Staple crops” may include other crops. “Others” primarily include coffee production and fishing, etc.

Figure 11. Composition of Bank Loans to Agribusiness (Percent of Total Agribusiness Loans)



Source: National Bank of Rwanda and the World Bank.
Note: The figures are an average of the quarterly data.

Figure 12. NPL Ratio in Major Subsegments of Agribusiness Loans (Percent Loans)

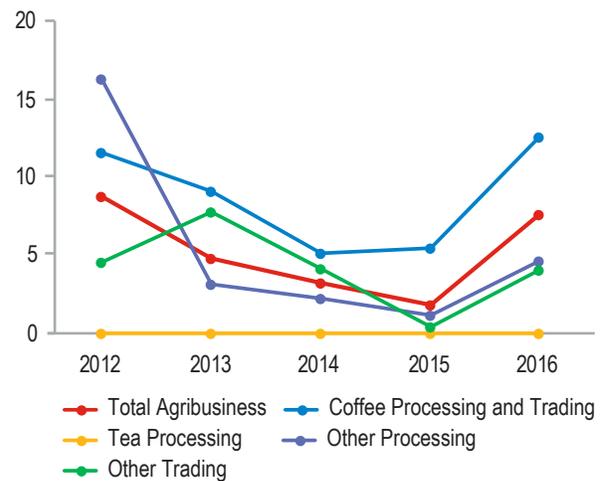
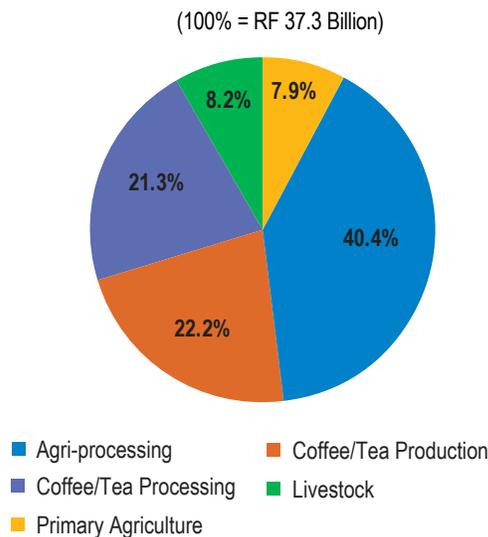


Figure 13. Outstanding BRD Agriculture Loans by Segment (2016)



Source: BRD agriculture financing presentation.

credit from all financial institutions and about 40 percent of credit for agricultural production. Given their higher rural outreach and focus on lending to individuals, they are likely to finance a much larger number of farmers and micro and small agri-enterprises than the banks.

However, Umurenge SACCOs, the major group of MFIs, typically do not have tailored financial products for agriculture. Umurenge SACCOs are somewhat small, which typically means relatively weak management, officers with limited capacity, and rather basic lending practices with smaller loans and frequent repayments. However, the proposed consolidation of the SACCO sector presents a major opportunity to build up their capacity to offer services tailored to the needs of the agriculture sector. However, exceptions exist. For example, MFIs such as Duterimbere, RIM (Réseau Interdiocésain de Micro Finance), and Ejo Heza focus strategically on the commodities grown in their respective districts (e.g., potatoes in the north and coffee in the east) with specific loan products.

Box 2. Examples of Commercial Banks' Agriculture Finance Practices

Urwego Opportunity Bank (UOB) has a dedicated agriculture finance unit comprising 11 loan officers with an agronomy background. The UOB offers pre- and post-harvest credit mainly for maize, rice, and potatoes, and tries to expand to other commodities such as beans, horticulture, coffee, and dairy. It also provides loans for capital investment (e.g., trucks, irrigation equipment, dryers, etc.). Their primary target has been individual farmers rather than cooperatives based on thorough household financial assessments. The agriculture sector accounted for 17 percent of its overall loan portfolio in 2016.

Kenya Commercial Bank Rwanda (KCBR) is also scaling up its operations in agriculture finance. The bank has a team of 11 staff that focuses on agriculture and provides input finance, post-harvest finance (including warehouse receipt financing), and investment finance. In 2017, the bank disbursed 81 agribusiness loans amounting to US\$5.3 million, benefiting 34 individual clients and a cooperative with 198 members. The bank's year-end portfolio was US\$2.7 million, and the NPLs on its outstanding portfolio at the end 2017 were 6.6 percent. The bank expects to finance at least 25 cooperatives with more than 15,000 members in 2018.

KCBR is partnering with the International Finance Corporation (IFC) to scale up its financing to the agriculture sector. IFC has provided KCBR a US\$4.5 million farmer financing facility, which can be used to provide financing to producer cooperatives, which are procuring maize for the World Food Programme's (WFP) procurement platform (Farm to Market Alliance), and for agricultural producers' working capital needs. In 2017, IFC also provided a US\$2.2 million risk-sharing facility, which partially covered KCBR's credit risk in this portfolio.

Source: Personal communication

Some banks and MFIs are using traditional and innovative risk-mitigation mechanisms to deal with smaller cooperatives and individuals in less-organized value chains. Pre-harvest loans in maize and rice are often backed by contracts with off-takers. UOB, KCB, and some MFIs manage credit risks by relying on such contracts. For example, Duterimbere (an MFI) offers two kinds of input loans for maize: smaller initial input loans with asset collaterals and larger pre-harvest loans backed by contracts that are usually

signed one month before the harvest. While this delayed engagement allows producers to remain flexible in selecting crops to produce, they have to procure inputs by themselves. In contrast, others, especially SACCOs, lend to farmers and producer organizations without formal market arrangements. Some FIs provide loans to individual farmers, taking advantage of group guarantees, while other FIs prefer lending to cooperatives and taking physical collaterals. Warrantage systems¹³ seem to be widely used in post-harvest financing.

¹³ Warrantage is an inventory credit system where farmers or farmer organizations use crops stored in warehouses to obtain credit. The producer organizations usually own and manage the warehouses, which are double locked by the producer organizations and local financial institutions. The crops from member farmers are stored and used as collateral to access loans from the local financial institutions. When the market price recovers, crops are sold and loans are repaid. One of the advantages of this system is lower transaction costs based on the trust among the stakeholders. However, the warrantage system often lacks proper risk-mitigation mechanisms against possible challenges such as mismanagement of stored crops and fraud.

The establishment of the East African Commodity Exchange (EAX) in 2014 has facilitated the introduction of warehouse receipts financing in Rwanda, but the scale remains limited. Over the last two years, the EAX issued 760 warehouse receipts against 15,850 metric tons of commodities stored in the EAX's 11 warehouses in the country. Four banks provided US\$2 million in financing for an average tenure of 5 months against 141 receipts, accounting for 13,500 metric tons of commodities. The volume of warehouse receipts financing (WRF) is expected to grow as the total volume of commodities traded through the exchange grows. Given that the EAX is still new to the market, stakeholders—both banks and agribusinesses—have limited understanding of the risks and returns associated with WRF. For example, one of the banks that provided WRF reported that some of their borrowers incurred losses and returned to the informal warrantage system to avoid the EAX fees. See Box 3 for more information on EAX.

Specialized lenders focused on aggregators or smallholders provide a significant volume of financing. Data shared by the Council on Smallholder Agricultural Finance (CSAF), which includes lenders that focus on lending to aggregators, indicate that CSAF members provided more than US\$50 million (approximately RF 40 billion) in loans during the period 2013–16. In 2016, CSAF members disbursed US\$11 million and had an NPL rate of just 1.3 percent. CSAF clients consist of 26 businesses, including cooperatives and exporters. The bulk of financing provided was working capital financing and went to aggregators in the coffee value chain, whose working capital loans and trade credit are usually backed by purchase contracts and used to purchase crops from farmers and cover other expenses. Root Capital, formerly an International Finance Corporation (IFC) investee, accounts for nearly 70 percent of the financing that CSAF members provide.¹⁴ One Acre

Box 3. East African Commodity Exchange (EAX)

Established in 2014, the EAX offers warehousing, collateral management, and commodity-trading services to more than 200 members in Kenya and Rwanda. Its members include producers, traders, brokers, millers, and banks. Its members also include agricultural cooperatives with more than 80,000 producers. Member banks include Ecobank, BPR, GT Bank, Equity Bank, and Urwego Opportunity Bank.

In Rwanda, the EAX operates 11 warehouses, issues electronic warehouse receipts, and facilitates financing against these receipts. It currently covers maize, beans, rice, wheat, and soy. The amount of trade was about 8,000 tons in 2015 and 2016, the exchange's first two years of operation, and reached 13,500 tons in 2017.

It charges a storage fee of RWF19 per kg or US\$22 per metric ton to cover warehouse management expenses and other administrative costs.

Source: Personal communication and www.ea-africaexchange.com

¹⁴ CSAF members active in Rwanda include Oiko Credit, Shared Interest, responsAbility, and Rabo Rural Fund. After growing steadily from 2013 to 2015, CSAF disbursements fell by 30 percent in 2016, largely attributed to high NPLs in 2015. This was caused by several CSAF clients suffering financial losses because of low coffee prices. Many cooperatives held on to stocks during the early part of the season speculating that prices would increase; however, prices continued to fall and the cooperatives finally had to sell at low prices because their inventories were full.

Fund (Box 4), however, provides credit directly to smallholder farmers for farm inputs (fertilizer and seed), accompanied by insurance, training, local delivery, and market facilitation. One Acre Fund has also played a key role in developing Rwanda's agricultural insurance market. One Acre Fund contributed to more than 90 percent of the value of agricultural insurance in Rwanda in 2012–16 and 100 percent in 2017.

SME-focused investment funds are attempting to address the limited availability of medium-term and long-term financing for capital investments in the agriculture sector. Although some commercial banks provide longer-term loans to agriculture clients with solid track records and ample collateral, the BRD seems to be the main provider of medium-term and long-term finance (defined as two to five years and more than five years, respectively). Definitive information on this is not available, however, because disaggregation of the loan portfolio or new lending by tenor was not available from the BNR. Examples of investment

funds that have invested in the agriculture sector include AgDevCo and Growfin. AgDevCo has invested in a mushroom-producing SME that engages 2,000 farmers as suppliers. Growfin, a SME fund management company, has invested in a few agribusiness SMEs.

Value chain actors such as traders and processors also provide some credit to cooperatives and farmers, but aggregate data on financing provided from these sources are not available. In coffee and tea value chains, some traders and processors provide inputs on credit and post-harvest finance for aggregation based on their business transactions with cooperatives and farmers (AFR 2016).

Agriculture Insurance

Agricultural insurance was piloted in Rwanda in 2011, but has failed to scale up in subsequent years. Figure 14 shows that the value of agricultural insurance (sum insured) was on a downward trend from 2013 to 2016, whereas farmer outreach

Box 4. One Acre Fund—A Vertically and Horizontally Integrated Distribution Model

One Acre Fund is a not-for-profit social enterprise that provides farm inputs, credit, and training to 614,800 smallholder farmers in Sub-Saharan Africa (Kenya, Rwanda, Burundi, Tanzania, Malawi, and Uganda). Agricultural insurance is bundled into One Acre Fund's comprehensive service package.

In 2017, One Acre Fund reached more than 216,000 farmers in Rwanda, provided inputs worth more than US\$5 million on credit, and provided more than US\$4 million in agricultural insurance coverage in addition to its training and market facilitation services. Its service package also includes a benefit akin to credit-life insurance, which waives its clients' outstanding debts if the client or his/her spouse dies, as well as a benefit that compensates farmers for poor input quality. In 2017, nearly 114,000 farmers received claims under agricultural insurance, 13,000 farmers received compensation for poor input quality, and 634 farmers had their outstanding debts waived due to his/her or spouses' death (with value of US\$171,516, US\$21,633, and US\$11,264, respectively).

One Acre Fund estimates that its clients increased their productivity by around 30 percent and incomes by more than 50 percent because of its services.

Source: Personal communication and <https://www.oneacrefund.org/results/impact>

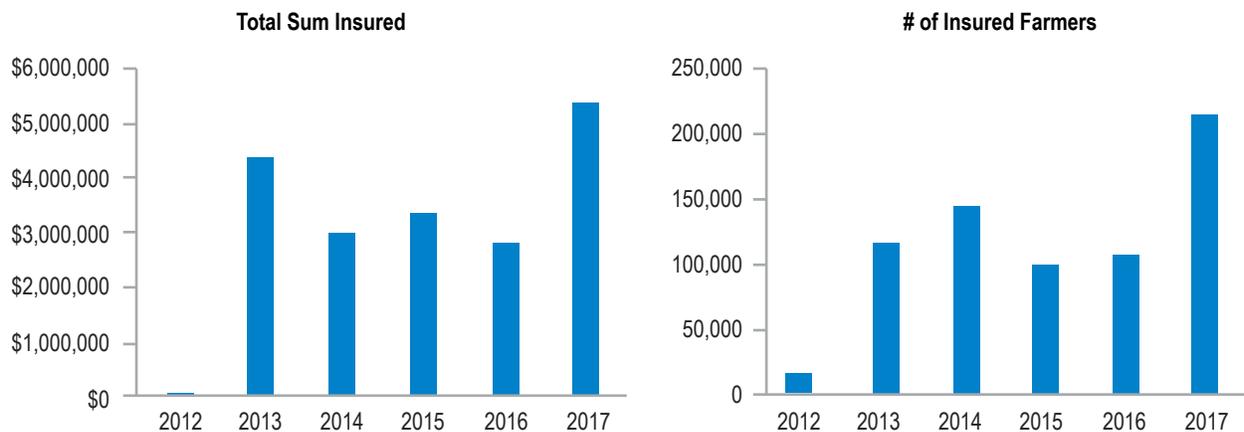
(number of farmers insured) presents a mixed picture. As discussed in the following paragraphs, local insurers have either exited the market or were not underwriting any insurance in 2017. The substantial increase in both the value of insurance and coverage in 2017 is due to the growth in insurance coverage offered by One Acre Fund in direct partnership with an international reinsurer.

Three insurance companies and three reinsurance companies have been involved in Rwanda’s agricultural insurance market. The insurance companies are Soras, Sonarwa, and UAP Old Mutual, and the reinsurance providers are Hollard, Swiss Re, and Great Lakes. Among these, Soras and Swiss Re have been the main service providers. Sonarwa, one of the two local insurers that piloted agricultural insurance in 2011, exited the market in 2013. Soras remains active in Rwanda, but did not underwrite any policies in 2017. UAP Old Mutual entered the market in 2015 and offered agricultural insurance in 2015 and 2016, but did not underwrite any policies in 2017. Both weather index insurance and area yield insurance have been offered in Rwanda, and crops covered include maize, rice, potatoes, and beans.

Of the three companies that offered crop insurance in Rwanda in the past, two now offer livestock insurance. These companies are Sonarwa and UAP Old Mutual. Sonarwa was the first to launch livestock insurance in 2011, and UAP Old Mutual added it to its insurance products in 2013. Statistics on the number and value of policies issued could not be obtained.

One Acre Fund (Box 4) has played a key role in developing Rwanda’s agricultural insurance market. One Acre Fund contributed to more than 90 percent of the value of agricultural insurance in Rwanda in 2012–16 and 100 percent in 2017. Insurance companies often work together with organizations such as input suppliers, microfinance institutions, cooperatives, or banks that act as intermediaries to reach smallholder farmers more easily. The KCB and agriculture cooperatives have reportedly shown interest, but insurers and reinsurers find the volumes to be too low to warrant investing their resources. ACRE Africa, an insurance intermediary, also reports difficulty in generating volumes that would interest insurers and reinsurers and has since reduced the resources for market development in Rwanda.

Figure 14. Value and Outreach of Agricultural Insurance



Source: Acre Africa, One Acre Fund, and UAP Old Mutual.

Global reinsurance providers were active in the market but have recently exited. Reinsurance is critical to any scalable agricultural insurance solution. Historically, Swiss Re Corporate Solutions used to provide reinsurance coverage, but has since stopped offering this capacity citing two reasons:

low premium volumes and the effect of a 15-percent withholding tax, which makes developing a product that offers sufficient coverage at an affordable premium rate difficult. Great Lakes started offering reinsurance directly to One Acre Fund in 2016 and is currently the only active reinsurer.



Public Sector Support for Agricultural Finance

The main instruments of public support for agriculture finance in Rwanda are retail and wholesale financing by the BRD, the public-sector bank, and matching grants (which are funded by donors) and partial credit guarantees provided by the BDF. Donors have also provided some support for institutional development. Notable is that Rwanda's public sector support is market oriented, in contrast to policies seen in several countries such as interest rate caps or mandatory lending quotas for agricultural loans.

The BRD is the only public-sector provider of both retail and wholesale loans for agriculture in Rwanda. The BRD has a professional management and board, and its profitability and loan portfolio have been showing an increasing trend. In 2015, the BRD had a return on asset of 2 percent, and the NPL ratio was 5.6 percent, slightly lower than the overall NPL ratio of the banking sector (the annual report for 2016 was not yet available). The bank made a strategic decision to refocus on its development agenda and divested its commercial business in 2014. Its Strategic Plan 2016–2020 commits to investing US\$712 million in its priority sectors, including agriculture, to facilitate Rwanda's transformation.

As was mentioned previously, the BRD is Rwanda's largest lender to the agriculture sector, representing 41 percent of the total lending to the sector in 2016. Agriculture has traditionally accounted for the bulk of the BRD's lending, although its share in the BRD's loan approvals fell substantially in 2016. The BRD seems to have a comparative advantage in larger loans for agri-processing companies and production or aggregation of cash crops, mainly coffee and tea. The BRD also offers wholesale loans to SACCOs and MFIs. Under its Strategic Plan 2016–2020, agriculture is highlighted as one of five priority sectors, and the BRD has an ambitious plan to approve loans for agriculture worth RF 286 billion for the next five years (BRD n.d.). The BDF also provides loans to SACCOs and MFIs, however, the operation seems to be rather small and lending is often based on specific development objectives such as promotion of start-up companies by youths.

Matching grants are provided to farmers and agribusiness SMEs to stimulate technology adoption, increased input use, and commercialization. In Rwanda, the major sources of matching grants include projects managed by the International Fund for Agricultural Development (IFAD) and bilateral projects managed by the U.S. Agency for International Development (USAID). The Business Development Fund (BDF), an entity jointly owned by the GoR and the BRD, is responsible for managing these grants. In 2015, RF 2.8 billion was provided in matching grants, and these grants leveraged RF 11 billion in loans.

All such matching grants are channeled through the banking system to help leverage credit to farmers and SMEs benefiting from these grants.

Upon approval from the BDF, the grant is deposited at a partner financial institution (PFI) when a loan is disbursed to a borrower. Once the borrower repays a predetermined portion of the loan, the grant is used to offset the balance of the loan. The level of grant coverage differs by grant programs and beneficiaries. If borrowers default, the PFI must return the grant to the BDF. The grant program and the guarantee are managed independently from one another, and both could be used for the same loan. The BDF proactively promotes its grant program to potential beneficiaries and financial institutions.

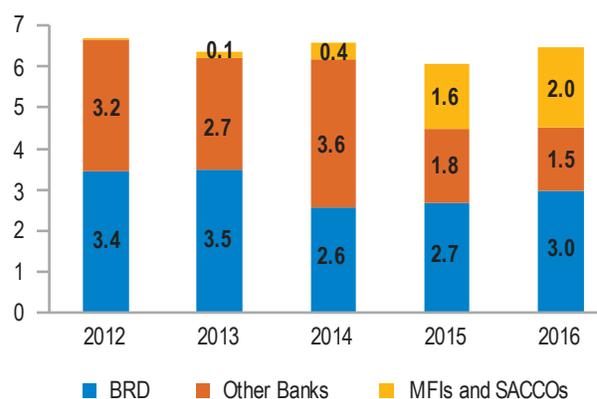
The BDF is the major provider of partial credit guarantees (PCGs) in Rwanda, and agriculture is the main economic sector that benefits from BDF guarantees, accounting for more than 65 percent of the guarantee portfolio. PCGs are a financial instrument often used to reduce lenders' risk in lending to market segments such as SMEs, which are considered a priority in an economy, but are riskier due to lack of adequate credit history and/or collateral and production or market risks. In 2016, the BDF provided RF 6.5 billion in guarantees to the agriculture sector, which leveraged RF 17.9 billion in loans, accounting for around 33 percent of total lending to the sector.

The guarantees are mainly funded through various government programs, and therefore the eligibility and qualification criteria vary depending on funding sources. The BDF manages these funds and issues guarantees in exchange for the management fees.

Figure 15 shows that the amount of agriculture guarantees has been largely flat for the last five years. The BDF provides guarantees to banks and MFIs (including SACCOs), and the BRD continues to be the largest user of the guarantees for the agriculture sector by value, accounting for more than half in 2012 and 2013. The share has decreased in recent years, but was still 46 percent in 2016 (RF 3.0 billion). The share of other banks in BDF guarantees has decreased substantially, but the share of MFIs, including SACCOs, has increased significantly.

The guarantees for the agriculture sector targets loans below RF 500 million for both short- and long-term loans and covers 30–75 percent of the loan amount depending on the purpose and target borrowers. The average size of the agriculture guarantees was RF 3.5 million, but the BRD's and other banks' average agriculture guarantees were much larger, RF 74.5 million and 29.0 million, respectively, in 2016. This suggests that the BRD guarantees tend to cover larger loans

Figure 15. BDF Agriculture Guarantees Issued (in RF Billion)



for commercial farmers, producer organizations, and SMEs in cash crop value chains such as coffee and tea.

While the BDF's primary services to the agriculture sector are matching grants and guarantees, the fund also offers business advisory services and, at a very limited level, venture capital investments. In recent years, including 2014, the organization was financially self-sufficient, covering operating costs by investment and operating income (advisory/guarantee fees). However, the expansion of its branch network in 2015, when it opened 30 new branches and increased employees from 26 to 144, resulted in operating expenses that exceeded investment and operating income. The government subsidy partially covered the additional costs for this expansion (BDF 2015).

In 2015–16, the World Bank Group provided multiyear technical assistance to the BDF to strengthen its governance, management, and operations. The BDF is currently implementing several recommendations made under this technical assistance provided under its Financial Inclusion Support Framework country support program.

The government has played a limited role in the development of the agricultural insurance market. The Ministry of Agriculture has supported the establishment and operation of the Hinga Urishingiwe Program, an agriculture and livestock insurance program. The Ministry partnered with two agriculture insurance intermediaries, MicroEnsure and Syngenta Foundation for

Sustainable Agriculture, under this program. The program offers farmers insurance bundled with loans for fertilizer and other inputs. In 2012, a total of 13,000 Rwandan farmers had their loans insured through area yield index insurance. After loss verification from the Ministry, more than 1,600 drought-affected farmers received payouts through the insurance company Soras. In 2013, Hinga Urishingiwe reached 50,000 farmers. Information for later years was not available.

There are various institutional development support mechanisms for financial institutions in agriculture finance. In addition to the support provided through the BDF and the BRD, development partners have supported technical and operational capacity in select financial institutions to provide services to the agriculture sector. During 2010–13, the World Bank supported the BPR in building an agriculture finance team, producing value chain sector studies, establishing a dedicated management information systems system for agri-finance, building new products and guidelines, and training staff. During 2014–16, Access to Finance Rwanda (AFR) supported the UOB and RIM in developing agriculture finance units at the head offices and field teams. Among other efforts in access to finance, AFR also supported value chain financing for coffee wet mills by involving coffee exporter and financial institutions such as the BRD, the BPR, and Root Capital. Technical assistance was also provided to develop an electronic warehouse receipt system through the East African Exchange.





Challenges

The findings presented in chapters 2, 3, and 4 identify several challenges in enhancing access to financial services for farmers and agricultural enterprises in Rwanda. These include supply-side and demand-side challenges and challenges related to the enabling environment. This chapter discusses the major challenges.

Enabling Environment for Agriculture Finance

Although Rwanda has a fairly developed and conducive enabling environment for agriculture finance, some important limitations exist, especially around data availability and reliability and fiscal disincentives.

Agriculture finance data availability and use are limited. Various public institutions such as the Rwanda Agriculture Board (RAB), the Rwanda Development Board (RDB), the National Institute of Statistics of Rwanda (NISR), the National Agricultural Export Development Board (NAEB), and the BNR already collect quite extensive data on the agriculture sector. For example, the NISR issues its Seasonal Agricultural Survey, which contains detailed information on agriculture production. The BNR has relatively good data on bank lending to the agriculture sector based on International Standard Industrial Classification (ISIC) codes. The RDB promotes concrete investment opportunities backed by market intelligence. However, the information does not seem to be adequately aggregated, analyzed, and disseminated to enable market monitoring and development by stakeholders, including financial service providers. While the BNR data contributed important insights to this diagnostic study, a need exists to further improve on the extent and quality of the data. For example, MFI and SACCO lending data only identifies credit to agricultural production and does not identify credit to agri-processing and agri-trading within manufacturing and trading respectively. The ongoing effort to automate data collection from FIs presents an opportunity to address this issue.

There is limited availability of high-quality crop yield data, weather data, and livestock mortality and morbidity data have limited availability. Until 2013, MINAGRI collected and reported district-level production data for a wide variety of crops. The NISR then took up this role; however, it uses a

different data sampling and reporting methodology. The NISR has more expertise and capacity to carry out data collection, analysis, and reporting, making this change more beneficial in the long run. However, insurers now have difficulty in offering the same area yield insurance products they had developed as the new data are no longer comparable to the historical MINAGRI data. This challenge is expected to continue until the NISR has collected a quantity of data sufficient for product development. In addition, the NISR currently reports crop yield data based on broad agri-ecological zones. This complicates the provision of area yield-based insurance products. For insurers offering livestock insurance products, arriving at a fair premium to charge for such products is difficult, which can affect long-term profitability. Additional efforts are required to estimate the frequency and severity of insurable risks. The availability of weather data is also limited. Despite these challenges, the decision to give data collection and analysis responsibilities to the NSIR was the right one given its strong technical skills, giving insurers comfort in the credibility of data and reported results.

Limited public availability of information on agricultural NPLs, disaggregated by value chains and geographic areas, also adversely affects lenders' ability to monitor and control their credit risks effectively. The BNR already has relatively good data on lending volumes and NPLs disaggregated by major value chains or commodity groupings. Making this aggregate data publicly available and adding additional data points such as geographic regions, number of loans, number of customers, etc., would further improve the usability of this information. Furthermore, reg-tech initiatives such as the BNR's electronic data warehouse are already making the process of collecting this information faster and more cost-effective.

High mortgage registration costs create disincentives for provision of agriculture credit.

As discussed previously, recent improvements in the land tenure system have allowed households in Rwanda to use their land as collateral to obtain credit. In EICV4, among rural households that had a loan from a formal or semi-formal source in the past year, 54 percent reported having used land as collateral. However, only a small proportion of these land pledges seem to be registered. The EICV4 data indicate that nearly 103,000 rural households had used land as collateral for a loan from a formal or semi-formal institution in the year prior to the time of the survey (2014–15). However, by the end of 2015, cumulatively, fewer than 15,000 mortgages against agricultural land had been registered in the collateral registry by the Rwanda Development Board (Ali et al. 2017). This suggests that only a very small proportion of the agricultural land being pledged as collateral with banks and other nonbank credit providers is being registered. A key factor driving this is likely the high effective cost of registering small mortgages because the registration fee is a flat fee of RF 20,000 (approximately US\$25) irrespective of the mortgage value. The Association of Microfinance Institutions in Rwanda (AMIR) reports that this indeed acts as a disincentive to MFIs, and hence they often just use written pledges from borrowers. Written pledges are however not legally enforceable in case of default, and hence AMIR has been advocating for a change to a proportional fee.

Although agriculture insurance has specifically been exempted from the value-added tax (VAT) on premiums of 18 percent, the 15-percent reinsurance withholding tax remains. This makes insurance expensive for farmers and limits the revenue generated by insurance companies, without making a substantial contribution to the government's tax revenues.

Agriculture Financing

Several factors constrain the growth of the agriculture credit market in Rwanda. These include few FIs possessing the institutional capacity to lend to the sector; liquidity constraints; and a limited number of farmers, cooperatives, and agribusinesses with the capacity to borrow and repay loan funds prudently.

FIs' capacity is limited. As discussed in chapter 3, the agriculture finance market overview, only a few financial institutions seem to possess the necessary institutional capacity (skills in appropriate market and credit-risk analysis and appropriate products) for lending to the sector. This limits their ability to realize all opportunities and to manage optimally the risks inherent in the loans they make. A particular need exists to further develop institutional capacity among institutions with a strategic commitment to financing the sector, such as most SACCOs, many MFIs, and select banks. The increasing outreach of mobile money in Rwanda and the ongoing effort to automate SACCO operations offer significant opportunities to develop appropriate products that can better address the needs of the sector, particularly those of smallholder farmers.

Availability of medium- to long-term financing is limited. The diagnostic was not able to make definitive estimates on the proportion of medium- and long-term loans in the agriculture sector portfolio because this information was not readily available. However, interviews with financial institutions suggest that limited longer-term financing remains a constraint. In contrast, commercial banks and SACCOs generally report adequate liquidity for short-term loans from deposits available from depositors or members.

The limited number of credible projects and coordination failures among the key stakeholders continue to be a challenge. Many farmers and producer organizations have limited management skills and systems, which affects the

quality of loan applications and management of loan funds. While some proportion of the high NPL rates in the sector are indeed attributable to genuine business failures, a substantial portion are also likely due to mismanagement of loan funds. While good results have been achieved in improving coordination among key value chain actors in value chains such as tea, coffee, potatoes, and rice, a need exists to further strengthen collaboration in many of these value chains and initiate similar efforts in other value chains. The notable contrast in portfolio quality between lending to the tea and coffee sectors suggests the need to strengthen coordination, even among the relatively more structured value chains.

Agriculture Insurance

Successfully scaling up agricultural insurance requires several challenges to be addressed. The major one relates to the data challenges previously discussed under the enabling environment section. Additional ones are discussed in the following paragraphs.

Microclimates vary widely. The country's mountainous terrain of means that the climatic patterns usually have large variations over fairly short distances. The Rwanda Meteorological Agency's network of weather stations is currently insufficient to cover all areas with microclimates. The agency has worked on improving this network in recent years; however, because many stations were recently installed or recommissioned, the quantity of weather data they provide is not yet sufficient for product development. This requires providers of weather index-based insurance products either to assist the Rwanda Meteorological Agency in installing a dense network of weather stations or to obtain access to satellite-based sources with very high spatial resolution to minimize basis risk, which can be expensive.

Robust product distribution channels are absent. Given that many Rwandan farmers operate on a small scale, robust distribution channels

that can reach many of these farmers in a cost-effective manner are critical. While many farmers are organized into cooperatives, most of these cooperatives are also not large enough to generate premium volumes and be cost-effective. Federations of cooperatives in some major value chains have the scale and could potentially take on this role but have not done so yet. The increasing outreach of mobile money in Rwanda also offers the potential to address the distribution challenge.

Global reinsurance providers show limited interest. Given the persistently low volumes of premium generated, at least one of the two global reinsurers that were engaged in past years has exited the market. The agriculture reinsurance market in Africa currently has very few players, hence

insurers are not always in a position to bargain for better rates if they do get reinsurance. And most important, given the high volatility of agricultural risks and relatively small size of the market, local insurers cannot sustainably offer agricultural insurance without reinsurance in place.

Local technical capacity is limited. Capacity in the insurance industry in the country is limited for all general insurance classes. In particular, few insurance professionals have expertise in designing, underwriting, and implementing indemnity and index-based agriculture insurance products. This includes the availability of service providers such as crop loss assessors and inspectors with experience in agriculture insurance to support offering multiperil crop insurance products.



Recommendations

Financial inclusion of commercially oriented farmers and agricultural SMEs is critical to achieving the national priority of accelerating the transformation to a more commercialized agriculture sector set out in the NAP and the PSTA4. The analysis and findings presented in this report and evidence on the impact of financial inclusion and access to finance for SMEs provide the rationale for focusing on these two segments.¹⁵

This chapter presents several recommendations to achieve these goals. The recommendations are organized into four areas: a) strengthening the enabling environment for agriculture finance, b) facilitating financial inclusion of commercially oriented farmers and agri-enterprises, c) deepening the agricultural financing market, and d) scaling up the agricultural insurance market.

Financial inclusion of all individuals, including subsistence farmers and rural households relying mainly on off-farm income opportunities, is important to achieve the broader goals of poverty reduction set out by the Economic Development and Poverty Reduction Strategy (EDPRS). However, this is not the focus of this report. The actions needed to achieve this objective are set forth in the National Financial Inclusion Strategy under preparation.

Strengthening the Enabling Environment for Agriculture Finance

Incorporate financial inclusion into the major surveys that cover farmers and agri-enterprises. The primary source of data on financial inclusion of farmers is currently the Finscope Survey. This survey provides robust analysis of nationally representative data on financial inclusion and identifies individuals engaged in agriculture and those who report agriculture as a source of primary income. However, because it is a specialized financial inclusion survey, it does not provide the opportunity to analyze financial inclusion in

¹⁵ Key literature on the economic benefits of financial inclusion include Ratna et al. (2017) on the linkages between financial inclusion and macroeconomic growth; Suri and Jack (2017) on the impact of mobile money; Demirgüç-Kunt et al. (2017), who present a literature review of select papers related to payments, savings, credit, and insurance; Banerjee et al. (2015), who report on limited benefits from programs that just focus on increased access to microcredit; and Dinh et al. (2010), who present evidence of the economic benefits of increased access to credit for SMEs.

cohort with other critical information such as crops cultivated or business performance. This would be possible if a limited set of financial inclusion questions were integrated into surveys such as the Seasonal Agriculture Survey and the Integrated Business Enterprise survey. This would allow better analysis of financial inclusion of farmers and agri-enterprises, which can enable designing more evidence-based policy and business solutions tailored to specific value chains and client segments.

Strengthen the quality of supply-side data on agriculture finance and publish data disaggregated by subsectors, client groups, and geographic regions.

The BNR already collects supply-side data that are disaggregated by major subsectors. However, the quality of these data could be improved significantly by collecting information related to clients (disaggregated by gender), products, tenor of financing, etc. Providing better guidance and support to financial institutions to improve the quality of data at origination is critical to improve the overall quality of industry information and thereby the potential to use it. The BNR's electronic data warehouse project can further improve the quality of data at origination and their timely availability. The BNR is currently able to collect data from eight banks, three MFIs, and one MNO automatically.¹⁶ Last but not least, data are only useful if they are available to institutions and individuals to undertake further analysis, produce value-added products, and carry out research. Hence, it is important that BNR not only improves the quantity and quality of available supply-side agriculture finance data but also makes it publicly available online.

Strengthen the quality of agricultural and weather data. This is the most important action to help scale up agricultural insurance. Offering good-quality insurance is not possible without granular and consistently high-quality data. Furthermore,

such data can also help in identifying and taking nonfinancial actions to reduce the risk in financing the sector and thereby contribute to increasing financing for agriculture. The government could undertake various initiatives to achieve this, including:

- **Data granularity.** The NISR should report production statistics at a more granular level than the current level of agri-ecological zones. This would make the data more useful for area yield-based insurance products. Allowing registered private companies with specialist skills in yield estimation to provide production statistics also should be explored, as this is the most preferable option for international reinsurers. These options are currently being pilot tested in Kenya and will soon be tested in Nigeria.
- **Livestock mortality statistics.** The government should consider commissioning regular (e.g., annual or biannual) surveys to collect data on causes of livestock mortality, availability of animal feed, animal growth and productivity level, and prevalence and occurrence of disease, across different parts of the country. This information could then be used by providers of livestock insurance in assessing the level of risk involved.
- **Ground-based rainfall data.** The Rwanda Meteorological Agency should expand the density of automated weather stations and make the data available to potential providers of weather-based insurance products. These data are also necessary to calibrate satellite-based rainfall data.
- **Satellite and remote-sensing-based data.** Researchers and providers of ground-based weather station and satellite-based weather data, such as the University of Reading, EARS Earth Environment Monitoring BV, and the

¹⁶ <http://blogs.worldbank.org/psd/leveraging-suptech-financial-inclusion-rwanda>. Accessed 06/22/17.

International Research Institute for Climate and Society, should be engaged in validating and providing high-resolution data that also show strong correlations with on-ground experience. Such data would still be useful in claims management even where area-yield and multiperil insurance product options are chosen. Remote-sensing-based data could also be used to fill the spatial and historical gaps, thus improving data series.

Establish an agriculture data platform for proper analysis and decision making by public and private players. Rwandan public sector organizations already produce various useful data on the agriculture sector, including number of farms, crops produced, land ownership and usage, crop yield, usage of inputs, and degree of mechanization. However, most of the data tends to remain at the national or regional level. Moreover, some critical information, such as rainfall and livestock mortality data, is rather limited or completely missing. Easy access to accurate information is indispensable for any decision making for both public- and private-sector stakeholders in agriculture development, including financial service providers. The GoR should make an extra effort to compile available data and to collect new and more detailed information in the sector and proactively disseminate them to a wider audience.

Remove fiscal disincentives that constrain the development of the credit and insurance markets.

The GoR needs to assess the costs and returns of reducing mortgage registration costs for the small loans. The Financial Sector Development Program II includes an action to waive the registration fee for mortgages on loans under RF 10 million, but this action has not yet been implemented. GoR needs to consider implementing this action or taking other actions such as moving toward a proportional fee for smaller loans, which can reduce the effective cost of registration. Having all or most collateral (both movable and immovable) registered has broad economic benefits. Furthermore, to complement its initiative in exempting the agriculture sector from the VAT, the government should consider removing reinsurance tax on insurance premiums to make the product more affordable. The reinsurance withholding tax is reported to be among the reasons for the major reinsurers' decision to exit the Rwandan market.

Facilitating Financial Inclusion of Commercially Oriented Farmers and Agri-SMEs

Strengthen producer cooperatives' and their federations' operations and facilitate their business transparency. As discussed previously, producer cooperatives play a key role in the agriculture sector and can play a key role in increasing access to financial services for their members. A critical prerequisite for them to be able to play their role effectively is to have professional management and information systems. Building

Box 5. Electronic Book Keeping and Business Transparency

AFR enabled 84 coffee cooperatives to use electronic book keeping using mobile phones. Key performance indicators based on this accounting information are then made publicly available through the web portal (www.coffeetransparency.com), which coffee buyers and financial institutions can access. This has facilitated improved access to productivity and price information for all stakeholders and enabled US\$10 million in loans from the BRD to facilitate purchase of cherries from more than 60,000 farmers (32 percent women).

Source: AFR Phase 1 report. n.d.

on the AFR-supported initiative discussed in Box 5, the government should support scaling up similar efforts with the objective of strengthening the operations of major producer cooperatives and their federations and making their noncompetitive business data available to key stakeholders. This can enable financial service providers to assess business opportunities and risks at a lower cost and thereby enhance the supply of services to the most deserving organizations. Lastly, producer cooperatives can also be an effective platform to build the financial capability of their members, which in turn can be critical in increasing demand for financial services and simultaneously ensuring their prudent use. Rwanda's experience in building the financial capability of SACCO members can be replicated with its producer cooperatives.¹⁷

Facilitate electronic payments in commercial transactions of agricultural commodities and in public income support programs targeting farmers. Electronic payments to producers can be

a stepping stone toward helping farmers access a broader range of financial services. Building on the lessons from the initiatives described in Box 6 and drawing on similar experiences from other countries (CGAP 2017; BTCA 2015), the government should encourage increased use of electronic payments by agri-enterprises in their financial transactions with farmers. Apart from the immediate benefits discussed, benefits in the medium term can include allowing improved savings and borrowing opportunities for producers. The experience of the use of the Colombian Coffee Growers Federation's smart ID to disburse a wide variety of payments (commercial payments, public income support payments, and loan payments) to the federation's nearly 500,000 members is particularly relevant to the Rwandan context given the existence of a large number of producer cooperatives and their federations. Further, digitization of payments is also an opportunity to build financial capability of payment recipients.

Box 6. Payments to Smallholder Tea Producers and Loan Repayments Using Mobile Wallets

With support from AFR, three SACCOs, comprising primarily smallholder tea growers, are making electronic payments to their members. Nearly 2,000 producers receive payments through the e-wallet. The immediate benefit is reducing time from delivery to payment from 5–15 days to a maximum of three days. This required installation of core-banking software in these SACCOs and deployment of a mobile banking platform that allows the SACCOs to make payments for tea leaf delivered via a Tigo e-wallet.

One Acre Fund is supporting the use of MTN and Tigo e-wallets by 13,000 farmers in four districts to make loan repayments.

Source: AFR Phase 1 report. n.d.; One Acre Fund, personal communication.

¹⁷ The Rwanda Financial Inclusion Support Framework Country Support Program, a technical assistance program implemented by the World Bank in Rwanda, supported the first phase of the national Umurenge SACCO financial education program. Management and leaders from 135 SACCOs received training and financial education materials and trained nearly 70,000 individuals, mostly SACCO members, 53 percent of whom were women. An impact evaluation showed that providing financial education to members of SACCOs and giving the SACCOs more operational autonomy to implement the program had the following effects: increased financial knowledge of SACCO members, shift in financial attitudes of SACCO members toward views that emphasize saving and responsible borrowing, increased likelihood of SACCO members reporting having and adhering to a written budget and financial plan, and increased propensity of SACCO members to save toward financial goals. However, no impacts were found on account usage, borrowing behavior, or financial security.

Assess the feasibility and benefit of digitizing the GoR inputs subsidy scheme. As discussed previously, the GoR has been subsidizing the retail cost of fertilizers for several years under the Crop Intensification Program. The subsidy disbursement mechanism has evolved over the years and is currently made directly to importers. A few years back, MINAGRI piloted the use of electronic retail vouchers to provide the subsidy directly to farmers, but the pilot failed due to technological challenges. In the years since, the penetration of mobile money in Rwanda has grown substantially, and efforts to automate the operations of Umurenge SACCOs, which provide the majority of farmers' access to the financial sector, are ongoing. These developments, taken together with potential efforts to rationalize and reform the program, offer an opportunity for the GoR to reassess the feasibility and benefits of digitizing the next version of the program, if one is retained under the PSTA4. The GoR can draw upon the experience in Nigeria in this effort (CGAP 2014).

Publish a directory of agricultural small and medium enterprises. The two major government boards, the RAB and the NAEB, can support financial inclusion of agricultural SMEs by publishing a directory of agricultural SMEs. This publication can provide key self-reported financial data on the enterprises that can serve as the first point of credit analysis for financial institutions considering financing them. This effort can start with well-established producer cooperatives and their federations and the active agricultural input dealers and, based on the uptake of the service, can be expanded to other agricultural enterprises. In the medium term, this effort can also be potentially transferred to the private sector, along the lines of the “Blue Book Services” in the United States.¹⁸

Deepening the Agricultural Financing Market

To deepen the availability of financing for commercially oriented farmers and agri-SMEs, the data and demand-side actions described previously need to be complemented by supply-side and enabling environment actions discussed in this section. These actions are related to building agriculture sector domain knowledge among financial service providers, improving effectiveness of the BRD and the BDF, and further facilitating secured transactions.

Strengthen the operational capacity of commercial banks, MFIs, and Umurenge SACCOs to provide financial services to agriculture sector clients. Although some FIs have been supported in agriculture lending through donor-funded projects, a need exists to scale up such support to increase the number of FIs that not only have this capacity, but also have the capacity to assess and provide other financial services, such as appropriate payments, savings, and investments. Such support should be provided to competitively selected FIs based on criteria that include strategic commitment in the sector. The consolidation of Umurenge SACCOs offers an opportunity to build such capacity in the district SACCOs and the national apex envisaged. Key areas of operational capacity building include recruiting staff with strong domain knowledge; building staff knowledge on value chain financing approaches; strengthening information systems to allow analysis that is disaggregated by gender, value chains, client types, geographic area, etc.; developing a segment strategy; and incorporating sector-specific elements into credit analysis and credit risk management.

¹⁸ <https://www.producebluebook.com/>

Assess the impact of the BRD’s and the BDF’s role as market makers in agriculture finance.

As discussed previously, the Government of Rwanda has supported matching-grant and guarantee programs through the BDF and retail and wholesale lending by the BRD with the objective of facilitating increased access to credit for priority sectors, with agriculture being the main one. While the grant programs and guarantee programs managed by the BDF have both been credit linked and have facilitated access to credit for farmers, producer cooperatives, and agricultural SMEs, it is not clear if these programs have had an systemic impact on increasing the number of financial institutions sustainably providing services to the sector, have targeted enterprises that were credit constrained while also being growth oriented, and have maximized/sustainably crowded in financing from private financial institutions. The GoR should commission a robust evaluation of the impact of these firms that can then be used to make policy decisions that could increase their impact on priority sectors without compromising their financial sustainability.

Strengthen BDF operations in general and enhance its agriculture sector domain knowledge and analytical capacity.

The ongoing BDF reforms that aim to streamline its core services and strengthen its governance as well as the aforementioned assessment of BDF and BRD represent an opportunity to strengthen its role in providing key financial services to the agriculture sector. Of particular importance are efforts to improve the management of the BDF’s portfolio guarantees (because most agricultural loans are small loans for which individual loan guarantees would not be appropriate) and efforts to reduce the NPL levels of the guaranteed portfolio (because the bulk of the NPLs are in the agriculture sector). While the BDF’s stated approach is to prefer portfolio guarantees, in practice many guarantee users are submitting individual guarantee applications to the

BDF for approval because their claims have been rejected in the past under the portfolio approach.

Improved domain knowledge in agriculture and analytical capacity to analyze both its exposure to the sector and market trends that can impact its exposure will enable the BDF to not only strengthen the performance of its guarantee portfolio in the sector, but also allow it to provide strategic advice to its partners—both FIs to which the BDF offers its guarantees and multilateral and bilateral projects, whose grant funds it manages. A need also exists to assess alternatives to its current model of having banks originate grant recipients, which has the potential of loans and guarantees being misunderstood as grants, leading to willful defaults on the loans. The BDF should also incorporate gender-disaggregated information of the end beneficiaries of its guarantees so that that it can develop gender-sensitive approaches and, if necessary, even subprograms that target women. Lastly, the BDF may also want to transfer its wholesale lending program to SACCOs to the BRD (discussed further in the following paragraph).

Reduce retail lending and expand wholesale lending to the sector by the BRD.

As in the case of the BDF, an opportunity exists to streamline BRD operations to serve the agriculture sector better—in this case by focusing more on wholesale lending to SACCOs and MFIs—and reducing its retail exposure to select high-impact investments. In view of funding shortages in some MFIs, the BRD’s wholesale lending, which currently accounts for about 40 percent of its agriculture portfolio, can be expanded to facilitate more on-lending to the agriculture sector. As mentioned previously, the BDF’s wholesale lending program can be taken over by the BRD to achieve further efficiency and accumulate experience and learning. As discussed in chapter 3, the agriculture finance market overview, commercial banks are already expanding lending to the agribusiness sector and managing the credit risk effectively as indicated by the modest NPL

ratio. Hence, in its retail lending, the BRD should primarily focus on crowding-in private sector capital into potentially high-impact investments. It can do this by scaling up its syndicated financing operations. However, to do this it needs to further strengthen its agricultural sector domain knowledge and credit analysis skills.

Scaling Up the Agriculture Insurance Market

Commission an options assessment for a public-private partnership. To fully assess the various options to scale up agricultural insurance, including premium subsidies and bundling of insurance with GoR programs such as the input-subsidy program and the one cow per poor family program, the GoR should commission a detailed options assessment. The assessment should evaluate the costs and benefits of the various options and help the government select an option that provides maximum economic and social benefits. The assessment can also provide insight into the commercial viability of agriculture insurance for select high-priority value chains. The study should also include an effort to draw lessons from the efforts to date. The key tasks would include:

- Identify different farmer and distributor segments within each value chain and evaluate the value of insurance and the ability of each cohort to pay the premium at full commercial rates and with different levels of government subsidy. This analysis should look at distributors such as seed companies, off-takers, agribusinesses, MFIs, nongovernmental organizations, and banks that support farmers and document the kind of services provided by each player and their potential role in the distribution of insurance.
- Perform a detailed analysis of current and projected net profit margins at the farmer/enterprise level with and without insurance, clearly identifying assumptions underlying the profit margin analysis. Premiums should be considered both before and after subsidies. The

level of subsidies considered should be clearly explained and justified.

- Estimate premium rates considered affordable and sustainable for each identified market segment.
- For each identified distributor segment in the value chain, clearly document the value proposition for bundling insurance with its current and planned bouquet of services.
- Using data from the above tasks, estimate the number of potential farmers and enterprises for each identified market segment and for the whole market. This information will help in evaluating whether business volume will be sufficient to interest local and international risk carriers.
- Evaluate the various options of delivering agriculture insurance either through a pool or supporting individual companies and explore whether to support agriculture insurance through direct premium subsidies or through a stop-loss facility.

Enhance technical capacity and awareness. Once the options assessment has been carried out and an option chosen following broad consultations both within the government and with external stakeholders, the government should make substantial investments to build the required expertise among key entities that will participate in the national scale-up efforts. Within the public sector, capacity building is needed so that officials can actively develop tools to support farmers, producer organizations, other agricultural enterprises such as input dealers, and financial institutions by closing existing gaps in knowledge or data. Substantial efforts would also be needed in raising awareness and understanding about the benefits of agricultural insurance among farmers and other stakeholders. These efforts should ideally be undertaken in partnership with regional and international training institutions and development organizations so that the Rwandan effort can benefit from the substantial global experience in this area.





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Annex 1. BNR Classification of Credit Categories Related to the Agriculture Sector

1000: AGRICULTURE

- 1100: AGRICULTURE AND OTHERS
- 1110: AGRICULTURE FOR EXPORTS
- 1111: AGRICULTURE FOR COFFEE EXPORTS
- 1112: AGRICULTURE FOR TEA EXPORTS
- 1113: AGRICULTURE FOR PYRETHRUM EXPORTS
- 1118: AGRICULTURE FOR EXPORTS
- 1119: OTHER AGRICULTURAL EXPORTS
- 1190: OTHER AGRICULTURE
- 1200: LIVESTOCK AND RELATED ACTIVITIES
- 1300: SYLVICULTURE
- 1400: FISHING AND PISCICULTURE
- 1900: OTHER AGRICULTURE, LIVESTOCK, FORESTRY AND FISHING

3000: MANUFACTURING INDUSTRIES

- 3100: MANUFACTURING OF FOOD PRODUCTS
- 3110: COFFEE FACTORIES
- 3120: TEA FACTORIES
- 3190: OTHER MANUFACTURING OF FOOD PRODUCTS

6000: TRADE, RESTAURANTS AND HOTELS

- 6121: COLLECTION OF COFFEE
- 6122: COLLECTION OF TEA
- 6123: COLLECTION OF LEATHER
- 6131: COFFEE STORAGE

6132: TEA STORAGE
6133: LEATHER STORAGE
6310: COFFEE EXPORT
6320: TEA EXPORT
6330: PYRETHRUM EXPORT
6350: QUINQUINA EXPORT
6360: LEATHER EXPORT

Note: The categories 1000 to 1900 are used to estimate lending for agricultural production, 3100 to 3190 to estimate lending for agricultural manufacturing, and 6121 to 6360 to estimate lending for agricultural trading.

Annex 2. List of People/Organizations Contacted

Organization	Title	Name
Access to Finance Rwanda (AFR)	Head of Agriculture & Rural Finance	Livingstone Nshemereirwe
Association des Assureurs du Rwanda (ASSAR)	Executive Secretary	Jean Pierre Majoro
Association of Microfinance Institutions in Rwanda (AMIR)	Senior Programs Manager	Jean Pierre Uwizeye
	Capacity Building and SACCO Promotion Senior Officer	Emmanuel Ruterana
Banque Populaire du Rwanda (BPR)	Head of Corporate	Jean Luc Cyusa
	RM Corporate Banking	Jonas Kamili
COOPRORIZ-Cyili (rice cooperative)	Cooperative Manager	Oswald Ndizihwe
COOPRORIZ-Ntende (rice cooperative)	Agriculture Dept. Manager	Etienne Isabane
Cristal Venture	Chief Corporate Officer	Iza Irame
Development Bank of Rwanda (BRD)	Senior Manager in Charge of Agriculture Investments	Juvenal Kalema
	Investment Officer	Jackson Ndaruhutse
Duterimbere	CEO	Dative Nzasingizimana
East Africa Exchange	Head of Operations	Olivier Ngoga
Equity Bank	Head of Credit	Chantal Mukandoli
FERWACOTHE (tea cooperative)	Coordinator	Hermenegilde Shyaka
IABM (maize cooperative)	Cooperative Manager	Viateur Nsengumuremyi
ICCO-Terrafina Microfinance		Martin Gapita
KCB Bank Rwanda	Agribusiness Manager	Alex Bizimana
KOABUNYA/TWITEZIMBERE (beans cooperative)	Cooperative Manager	Christine Uwumuremyi
KOABURA (beans cooperative)	Cooperative Manager	Japhet Kwitonda
KODBMB (beans cooperative)	Cooperative Manager	Fidele Manirakarama
MINAGRI	Director General	Octave Semwaga
MINECOFIN	Director General	Eric Rwigamba

National Bank of Rwanda (NBR)	Manager, Financial Stability Monitoring & Policy	Valence Kimenyi
	Principal Analyst, Data Management	Elonie Mukandoli
	Director, Non-Bank Financial Institutions Supervision Department	Sangano Bonaventure
National Cooperatives Confederation of Rwanda (NCCR)	Executive Secretary	Gerald Ngabonziza
One Acre Fund	Policy Analyst	Doreen Ndishabandi
	Senior Associate	Kristen Foster
	Insurance Associate	Junho Hyun-Sack
	Head of Partnerships, Rwanda	Sarah Bilson
RIM	Managing Director	Damien N. Gatera
Root Capital	Executive Vice-President, Strategy & Innovation	Brian Milder
Rwanda Business Development Fund (BDF)	CEO	Innocent Bulindi
	Fund Manager	Janet Kanyambo
	Finance Manager	Jacqueline Nkwihoreze
	Investment and Portfolio Manager	Diana Kareba
Rwanda Cooperative Agency	Cooperatives Inspection Division Manager	Gilbert Harerimana
Rwanda Coffee Cooperative Federation	President	Theopiste Nyiramahoro
Rwanda Development Board	Head of Investment Promotion and Facilitation Dept.	Winifred Ngangure Kabega
Rwanda Federation of Horticulture Cooperatives	Chairperson	Devothe Mukaselire
Soras	Commercial Director	Esdras Nkundumukiza
UAP Rwanda	Chief Operating Officer	James Mbithi
	Assistant Underwriter	Robinah Batamuriza
Urwego Opportunity Bank	Head of Credit	Christian M. Kamari
	Agriculture Finance Officer	Jackson Munyaneza
USAID PSDAG Project	Deputy Chief of Party	Kirsten Pfeiffer
WFP	Coordinator, Farm to Market Alliance	Saori Kitajima

