

THE PATIENT PROCUREMENT PLATFORM: DIAGNOSING RISK IN TANZANIA

CASE STUDIES ON PUBLIC-PRIVATE
AGRICULTURE INVESTMENTS



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“**I DON'T LIKE HOW COMMERCIAL BANKS PERCEIVE US FARMERS. YES, AS AN INDIVIDUAL I'M NOT FORMAL, BUT THROUGH OUR GROUP WE ARE. WE'VE BEEN REGISTERED, WE HAVE REGULAR MEETINGS, WE TAKE CONTRIBUTIONS, AND WE HAVE A DEFAULT RATE OF 3%. WE CAN PAY BACK OUR LOANS.**”

FARMER, Mpingo Farmer Organization, Arusha, Tanzania

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GROW AFRICA

Founded in 2011, Grow Africa is focused on accelerating investments for sustainable growth in African agriculture. Since then, Grow Africa partners have committed over \$10 billion of planned investment.

Grow Africa also promotes accountability and learning through targeted case studies on the effectiveness and performance of public-private investment partnerships, in particular their impact towards achieving the goals of poverty reduction and agricultural growth in Africa.

In this context, Grow Africa launched a series of studies on investments taking place by members of the Grow Africa partnership platform to identify successes and challenges, characterize the potential and actual impact of these investments, and extract lessons and recommendations for their future direction as well as for other initiatives in the sector.

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EXECUTIVE SUMMARY

TWO DECADES AFTER THE END OF A 15-YEAR STRUGGLE FOR INDEPENDENCE, MOZAMBIQUE IS OFTEN HERALDED AS AN AFRICAN SUCCESS STORY. SUSTAINED PEACE AND POLITICAL STABILITY HAVE ACCOMPANIED DECADE-LONG GROWTH RATES OF 7%,

Tanzania is not yet meeting its potential to become a regional breadbasket given a number of challenges across the value chain. Tanzania is Sub-Saharan Africa's fourth largest producer of maize and is currently running an annual surplus. Tanzania is well-placed to further increase production in order to serve its neighbours in the East African Community and Southern African Development Community, who import a combined total of approximately 2 million tonnes of maize every year. However, Tanzania's maize sector is constrained by stagnant productivity and poor market linkages. Tanzania remains 28th in terms of productivity in Africa, with yields averaging 1.31 tonnes per hectare from the period 2009-2013.¹ Low yields are compounded by minimal value addition and poor market linkages, contributing to losses of up to 40%.² Addressing lagging productivity, weak market linkages, and domestic and regional marketing would help Tanzania meet its production potential.

The United Nations' World Food Programme (WFP), whose mission it is to end global hunger, has created the Patient Procurement Platform (PPP) in partnership with Grow Africa and Rabobank to address some of the challenges facing food crop value chains. The Patient Procurement Platform (PPP) is a multi-partner platform that aims to create efficient value chains that enhance farmer incomes by establishing a stable demand-driven purchase system founded on forward contracts between producers and commercial actors. By aggregating demand from a consortium of buyers over longer periods than typical spot contracts (three to five seasons), the PPP seeks to develop the whole value chain, unlocking services downstream (e.g. inputs, extension, loans, insurance). A key challenge for

the PPP is to improve access to financial services for smallholder farmers.

Improving financial institutions' risk management solutions – assessment, reduction and mitigation – will stimulate increased lending activity. Financial institutions perceive lending to the maize sector as highly risky, discouraging commercial activity. Tanzania's financial infrastructure is currently unsuited to the country's loose, smallholder-dominated staple food crop value chains. The high cost of capital and stringent credit requirements exclude the majority of farmers and rural small and medium-sized enterprises (SMEs) from accessing banking loans. To increase access to finance for this segment, solutions are required in areas of credit assessment, bundled services, proximity to client, group lending, collateral, insurance and diversification strategy.

The PPP is well positioned to encourage the adoption of appropriate risk mitigation strategies to address demand-side risks in the maize value chain. Demand-side risks of loan defaults for agriculture can be grouped into three major categories: production risks, post-harvest and market price risks, and behavioural and financial risks. A diagnosis of maize-specific risks in Tanzania is as follows:

- Production risks. Farmers and off-takers consider production risks to be a key source of default, despite the widespread awareness of coping strategies. Weather risks, poor crop management techniques and constrained access to high-quality inputs continue to drive under-productivity and aggravate the risk of production losses. Financial institutions and value chain actors should be involved in encouraging sustainable,

1. Food and Agriculture Organization of the United Nations (2013), FAOSTAT database.

2. Journal of Stored Products Research (2014), "Post-harvest food losses in a maize-based farming system of semi-arid savannah area of Tanzania", <http://biblio.iita.org/documents/U14ArtAbassPostharvestInthomDev.pdf-608a86dd987926565841fccb38f388ce.pdf>.

climate-friendly production practices that reduce and mitigate the immediate and long-term threats to crop harvests. The PPP is well positioned to scale existing best practices to manage production risks among programme participants.

- Post-harvest and market price risks. Post-harvest and market price risks regroup the largest category of risk for agricultural loans, and the most important priority for all actors. The drivers of maize price volatility (government policy and long-term trends in supply and demand) are many and complex. For study participants, price fluctuations driven by inadequate storage options and poor transport were also identified as key factors in post-harvest loss and market risk. Market price risk reduction will require major commitments by PPP partners.
- Behavioural and financial risks. The risk of loan default due to diversion or other contractual breakdowns is considered an important risk to value chain actors. Major obstacles, such as poor trust relations between farmers and off-takers, widespread financial illiteracy and the cumbersome nature of the Tanzanian justice system, can be resolved with appropriate measures already in use. Some responses to rural behavioural and financial risks are well-known in Tanzania and abroad, and are already employed in a number of settings.

To manage these risks, the PPP should: i) sustain and scale practices to manage risk already employed during the pilot of the PPP; and ii) explore new avenues to strengthen the ecosystem for lending to food crop value chains in Tanzania. This study has identified seven major opportunities for WFP's consideration:

1. *Facilitate access to improved inputs and climate-friendly agronomic techniques. The PPP currently facilitates access to high-quality inputs and climate-friendly agronomic techniques, which should be maintained and scaled up to reach more farmers, encourage holistic crop management systems, and balance NGO and private sector involvement.*
2. *Serve as a buyer-of-last-resort for off-takers. The PPP currently encourages the adoption of long-term contracts by traders and processors by offering to act as a buyer-of-last-resort but it should align the interests of all the parties and more closely coordinate national efforts by government and donor programmes.*
3. *Improve market linkage infrastructure. The PPP currently integrates a range of interventions and investments to alleviate major deficits in market information systems, transportation and storage options, which should be maintained, expanded and scaled up.*
4. *Encourage sustainable contract farming. Large buyers in the platform, such as WFP, could exert pressure on its suppliers to provide forward contracts to smallholders in order to stabilize demand and reduce market uncertainty.*
5. *Leverage guarantee schemes and credit lines with technical assistance. Short-term interventions to facilitate bank lending through guarantees should be carefully designed to prevent imprudent banking behaviour and build the long-term capacity of banks.*
6. *Support the development and use of price insurance and commodity futures infrastructure. The PPP could consider a range of interventions to support providers*

1. MAIZE IN TANZANIA: A POTENTIAL BREADBASKET FOR THE REGION

TANZANIA IS THE FOURTH LARGEST PRODUCER OF MAIZE IN SUB-SAHARAN AFRICA (SSA) AND IT HAS GREAT POTENTIAL TO BECOME A REGIONAL BREADBASKET.

Maize is the most important food crop in SSA, consumed by 50% of the population and accounting for the largest single source of calories.^{3,4} Tanzania is SSA's fourth largest producer, after South Africa, Nigeria and Ethiopia, and is the 23rd largest producer globally, producing 5.3 million tonnes of maize in 2013 (see Figure 1).⁵ Historically, maize production in Tanzania has been higher than consumption, generating an annual surplus with significant growth potential and untapped export opportunities.⁶ Maize imports in the East African Community and Southern African Development Community have been growing at 131% and 250%, respectively, over the last five years. Forecasts suggest this will only increase as more people incorporate meat, poultry and dairy into their diets, for which maize is an important input.⁷ These markets import a combined average of about 2.2 million tonnes per year, of which half comes from five countries (see Figure 2). As such, Tanzania has the potential to supply its neighbours with maize, generating much needed foreign exchange and improving the livelihoods of smallholder farmers who cultivate the crop.

Despite strong potential, the productivity of the Tanzanian maize sector has not increased.

In the last 10 years, the growth rate of Tanzanian maize production lagged behind those of its peers. Neighbouring countries, such as Malawi, doubled maize production and new maize producing countries, such as Ethiopia, overtook Tanzania as the third largest producer in Africa. Although production in the last five years increased, likely due to the expansion of land under cultivation, productivity is decreasing, or stagnant. Tanzania remains 28th in terms of productivity in Africa, with yields averaging 1.31 tonnes per hectare from the period 2009-2013.⁸ Low productivity for maize in Tanzania is a result of the traditional, rain-fed cultivation techniques employed by the smallholder segment, which produces most of Tanzania's maize.⁹ If Tanzania's smallholder maize producers were to reach South Africa's yields of 3.8 tonnes per hectare, Tanzania would produce approximately 12 million tonnes per year, vying with South Africa for the position of Africa's

3. CGIAR, "Why Maize?", <http://maize.org/why-maize/>.

4. World Bank (2011), "Maize Revolutions in Sub-Saharan Africa", <http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-5659>.

5. Food and Agriculture Organization of the United Nations (2013), FAOSTAT database.

6. It is important to note that Tanzania overwhelmingly produces white maize, which may have limited export opportunities outside of Sub-Saharan Africa, where maize consumption is dominated by yellow maize.

7. Food and Agriculture Organization of the United Nations (2013), FAOSTAT database.

8. Food and Agriculture Organization of the United Nations (2013), FAOSTAT database; Tanzania National Bureau of Statistics (2013).

9. Respondents to an agricultural census in 2008 indicated that the cost of inputs, poor cultivation equipment and limited access to improved seeds were the top three constraints faced by farmers.

top producer (see Figure 3). South Africa's land under cultivation for maize is 75% that of Tanzania's but its productivity is three times as high. Higher production is driven by a number of factors (quality of inputs, differences in irrigation, better agricultural techniques and soil management, use of capital equipment, economies of scale in production, etc.) but access to finance is a key element in boosting access to inputs, training, equipment and the successful scaling of business models.

Low yields are compounded by minimal value addition and poor market linkages, contributing to losses of up to 40%.

For the most part, farmers sell their unprocessed maize immediately after harvest, tending to sell when the market is flooded and prices are depressed, given the lack of storage options. For downstream value chain actors, accessing smallholder maize in rural areas is problematic and, similarly, farmers struggle to reach aggregation points and markets.¹⁰ Despite improvements in the Tanzanian road system, market linkages are still weak, due to a deficient transport system.

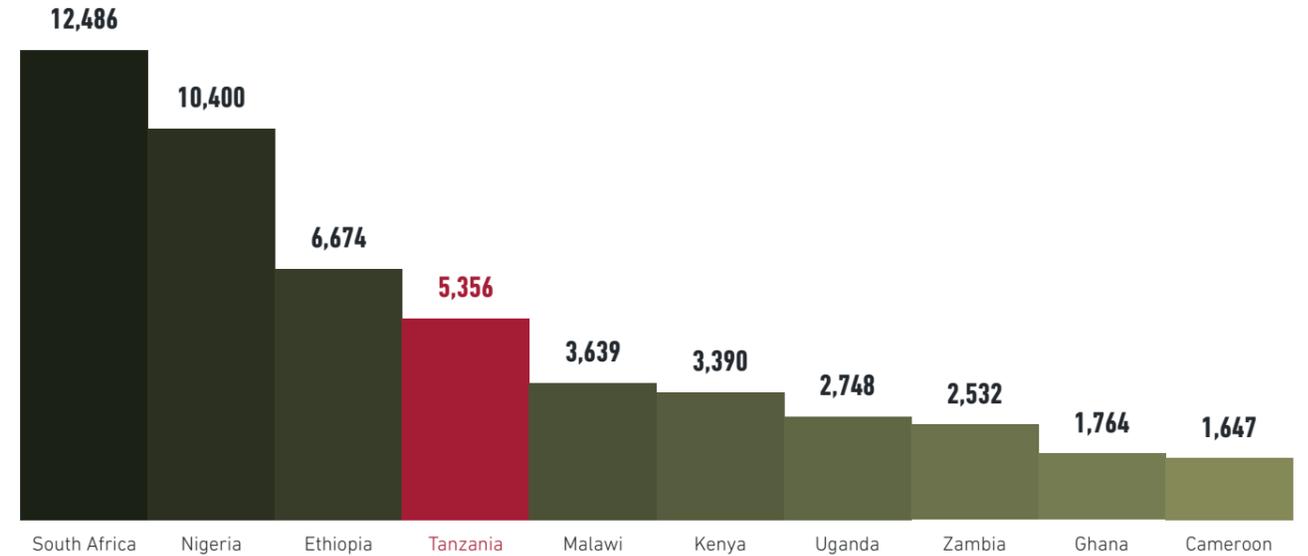
In addition to domestic marketing bottlenecks, the Government of Tanzania implement an export ban on four occasions over the last decade, the most recent in 2011, which has been lifted.

Potential exporters face difficulties securing export licenses and overcoming bureaucratic measures (the World Bank ranks Tanzania 131st of 189 countries in terms of ease of doing business).^{11,12} Both Tanzania's airport and deep-sea port are overshadowed by those of regional trade leader Kenya, although significant investment is being made to improve Tanzania's standing in international trade.^{13,14} Addressing lagging productivity, weak market linkages, and domestic and regional marketing would help Tanzania meet its production potential.

The United Nations' World Food Programme (WFP), whose mission it is to end global hunger, has created the Patient Procurement Platform (PPP) in partnership with Grow Africa and Rabobank to address some of the challenges facing smallholder food crop producers.

Through a holistic approach to develop the maize value chain, the PPP aims to tackle a number of these constraints, providing potential lessons for others working in this space. One of the initial pilot projects focuses on the maize value chain in Tanzania. This study focuses on understanding the risks involved in accessing agricultural finance in Tanzania, a critical prerequisite for the successful expansion of the PPP.

TOP TEN AFRICAN MAIZE PRODUCERS IN 2013 ('000 TONNES)
SOURCE: FAOSTAT Dalberg Analysis



TANZANIA MAIZE PRODUCTION AND CONSUMPTION TRENDS ('000 TONNES)
SOURCE: Tanzania National Bureau of Statistics, FAOSTAT, the World Bank, USDA

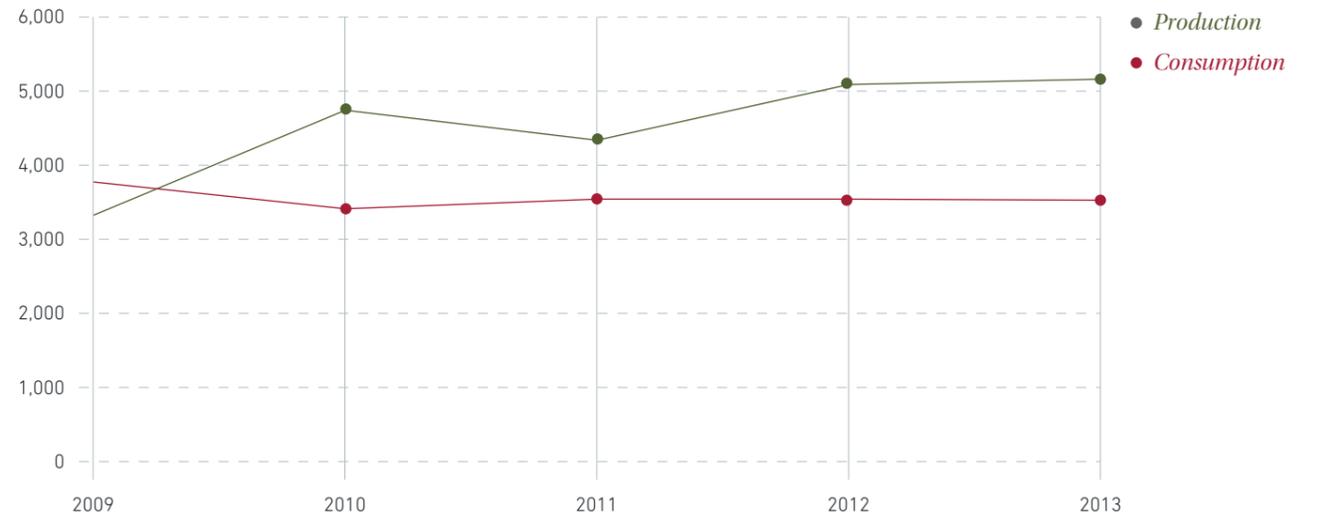


FIGURE 1. Maize Production Trends in Africa and Tanzania

10. Downstream value actors include traders, transporters, millers and end consumers.

11. FAO (2012), "Analysis of Incentives and Disincentives for Maize in the United Republic of Tanzania", <http://www.fao.org/3/a-at481e.pdf>.

12. World Bank Group, 2014 Ease of Doing Business ranking, <http://www.doingbusiness.org/rankings>.

13. Brookings (2014), "Africa's Powerhouse", <http://www.brookings.edu/research/opinions/2013/12/30-kenya-economy-kimenyi>.

14. Bloomberg (2013), "Kenya Fights Off Port Competition With \$13 Billion Plan: Freight", <http://www.bloomberg.com/news/articles/2013-08-20/kenya-fights-off-port-competition-with-13-billion-plan-freight>.

TOP 5 MAIZE IMPORTERS IN EAC AND SADC ('000 TONNES)
SOURCE: FAOSTAT, Dalberg Analysis

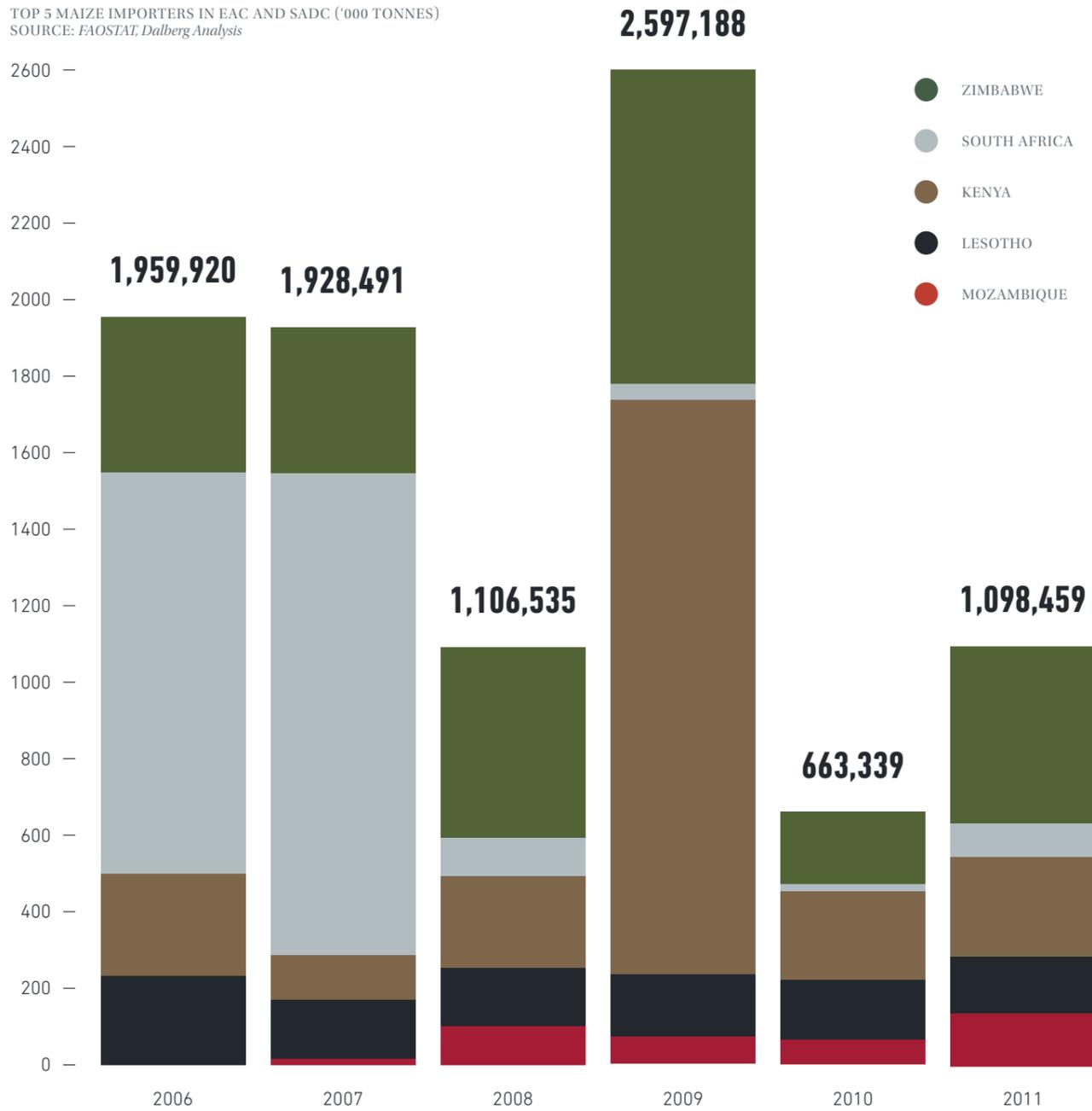
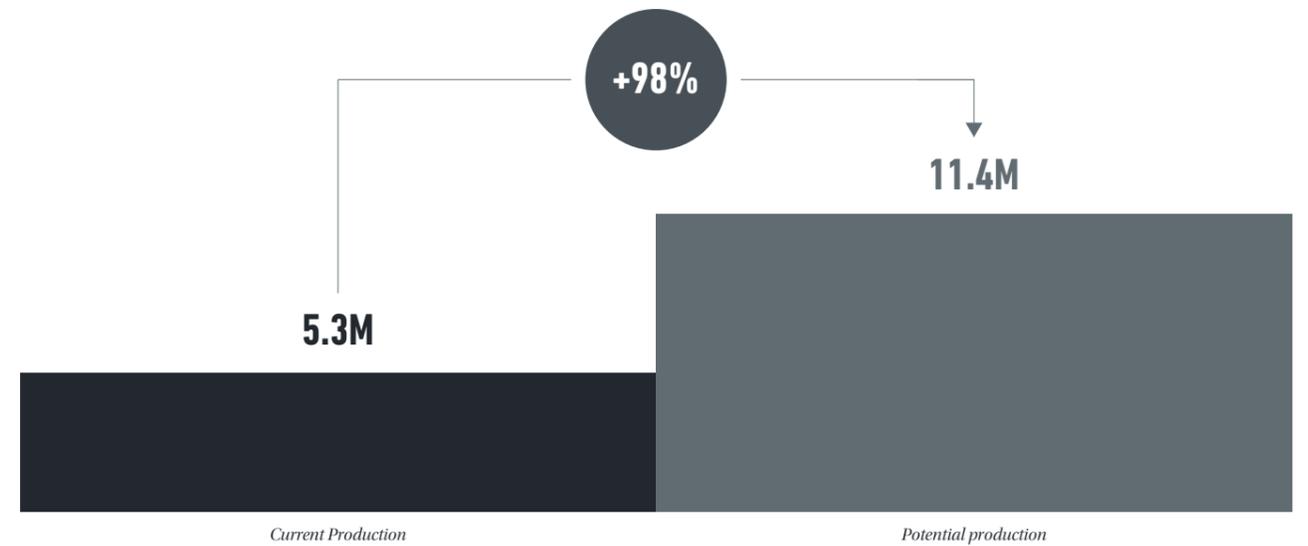


FIGURE 2. Top Five Maize Importers in the East African Community and Southern African Development Community

In 2006-2006 average maize imports indicate that Zimbabwe imports 461,353, South Africa 421,322, Kenya 426,627, Lesotho 148,833 and Mozambique 110,653 tonnes per year

In 2015, South Africa's Maize imports are expected to increase to 1.65m tonnes, the highest since 1991, given severe drought and increasing production costs. Forecast by Grain SA

POTENTIAL PRODUCTION INCREASE IF TANZANIAN FARMERS REACH THE SOUTH AFRICAN AVERAGE (TONNES)



TANZANIA MAIZE PRODUCTION AND CONSUMPTION TRENDS ('000 TONNES)
SOURCE: Tanzania National Bureau of Statistics, Dalberg Analysis

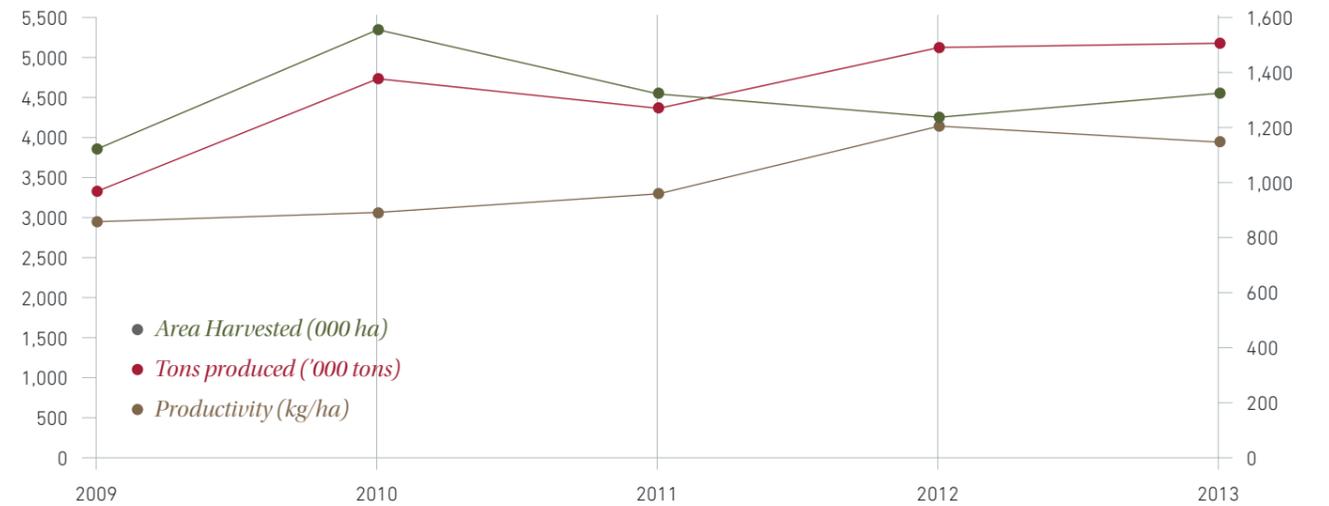


FIGURE 3. The Impact of Increasing Yields on Production
FIGURE 4. Trends in Production, Productivity and Area Harvested

2. THE PATIENT PROCUREMENT PLATFORM: DEVELOPING THE MAIZE VALUE CHAIN

THE PPP IS A MULTI-PARTNER PLATFORM THAT AIMS TO CREATE EFFICIENT VALUE CHAINS THAT ENHANCE FARMER INCOMES BY ESTABLISHING A STABLE DEMAND-DRIVEN PURCHASE SYSTEM BASED ON FORWARD CONTRACTS BETWEEN PRODUCERS AND COMMERCIAL ACTORS.¹⁵

The PPP is a multi-partner platform that aims to create efficient value chains that enhance farmer incomes by establishing a stable demand-driven purchase system based on forward contracts between producers and commercial actors. Annually, WFP purchases between 2.1 million and 2.5 million tonnes of food crops including maize (between \$1 billion and \$1.4 billion) on the open market through a tender-based system for humanitarian distribution. Where WFP's focus has historically been on the end-beneficiary, supplying food to insecure families through humanitarian assistance, WFP now also works to strengthen the supply chain, as half of WFP's 80 million-a-year beneficiaries are farmers. By aggregating demand from a consortium of buyers over longer periods than typical spot contracts (three to five years), the PPP seeks to develop the whole value chain, unlocking services downstream (e.g. inputs, extension, loans, insurance). As such, the PPP aims to achieve the sustainable integration of smallholders into commercial supply chains, through multistakeholder participation along the value chain (see Figure 5 for the PPP's Theory of Change).

Currently in its initial stages, the PPP aims to reach 75,000 farmers in each targeted country with approximately \$30 million in procurement power and a \$15 million loan portfolio within the next two years.

Tanzania, Malawi, Rwanda and Zambia are the four countries targeted for implementation of the first iteration of the PPP, with a pilot currently under way in Tanzania, the focus of this case study. The pilot, active as of February 2015 and aiming to reach 5,000 farmers in Arusha, Babati, Morogoro and Iringa, is testing two models for the expansion of the PPP. The first is an end-to-end model, where one off-taker takes responsibility for extension, input provision and aggregation. The second is an integrated model, where multiple actors work together in the chain to support last-mile activities (see Figures 6 and 7 for a visualization of the two models). While the end-to-end model reduces the need for coordination and centralizes value chain development, the reality in Tanzania is that it is uncommon to find buyers who have the downstream infrastructure and/or interest in taking on such a role. The WFP will therefore be working through both of these models to execute the Patient Procurement Platform. Bundling inputs and extension services with market linkages has been critical in the success of the programme, although it is important to note the continued significance of partnering with appropriate supply-side technical partners (e.g. AGRA, the Alliance for a Green Revolution in Africa, among others.) while developing the initial

15. The partner composition of the PPP includes international agro-commodity traders, input suppliers, financiers, government agencies, and platforms such as Grow Africa.

programme offering.

For both these models, the WFP and other private sector partners in the platform will act as the buyer-of-last-resort in case any particular buyer backs out.

The PPP has been able to integrate a range of different value chain actors into the pilot phase of the platform in its role as a neutral, non-profit-making convener. The PPP has brought together large multinational input suppliers and international NGOs on the production side, and large millers and multinational exporters on the marketing side. For the farmer, integration into the PPP unlocks benefits, such as inputs, extension and protection from price crashes. For the off-taker, many of whom have 10% local sourcing targets but do not know how to meet them, the PPP effectively bridges the gap between them and the producer to develop a direct smallholder sourcing relationship through support on the production side. The WFP facilitates the operationalization of the platform by selecting the farmer organizations based on previous work in Tanzania, and links up the actors in the chain. Targets for post-pilot expansion include 30,000 farmers by November 2015, 50,000 by November 2016, and 75,000 by November 2017.¹⁶

To ensure the successful expansion of the pilot, access to finance will be a critical input.

To-date, 5,000 farmers have been selected, two NGOs have been engaged, and three off-takers have issued forward contracts. As the number of farmers increases, the working capital available to input suppliers and off-takers to operate at scale will become a constraining factor if they are unable to secure a loan. While forward contracts have been issued, banks in Tanzania have not yet agreed to lend, given the perceived complex risk profile of lending to agriculture and maize specifically (see below). Access to finance is the remaining piece to ensure the PPP grows at scale and to build a market ecosystem that supports sustainable contract farming and smallholder maize markets.

16. Interviews with PPP officers conducted by Dalberg during the course of this study.

“IF YOU WORK WITH SMALLHOLDER FARMERS, YOU NEED TO WORK WITH THEM ACROSS THE VALUE CHAIN FROM INPUTS THROUGH TO MARKETING. ONE WAY IS TO GIVE THEM FORWARD DELIVERY CONTRACTS BEFORE THE PLANTING SEASON, UNLOCKING INPUTS AND TRAINING, AND PROVIDING INDEX PRICING TO PROTECT THEM FROM A CRASH. THIS IS WHAT THE PPP AIMS TO DO.”

WORLD FOOD PROGRAM

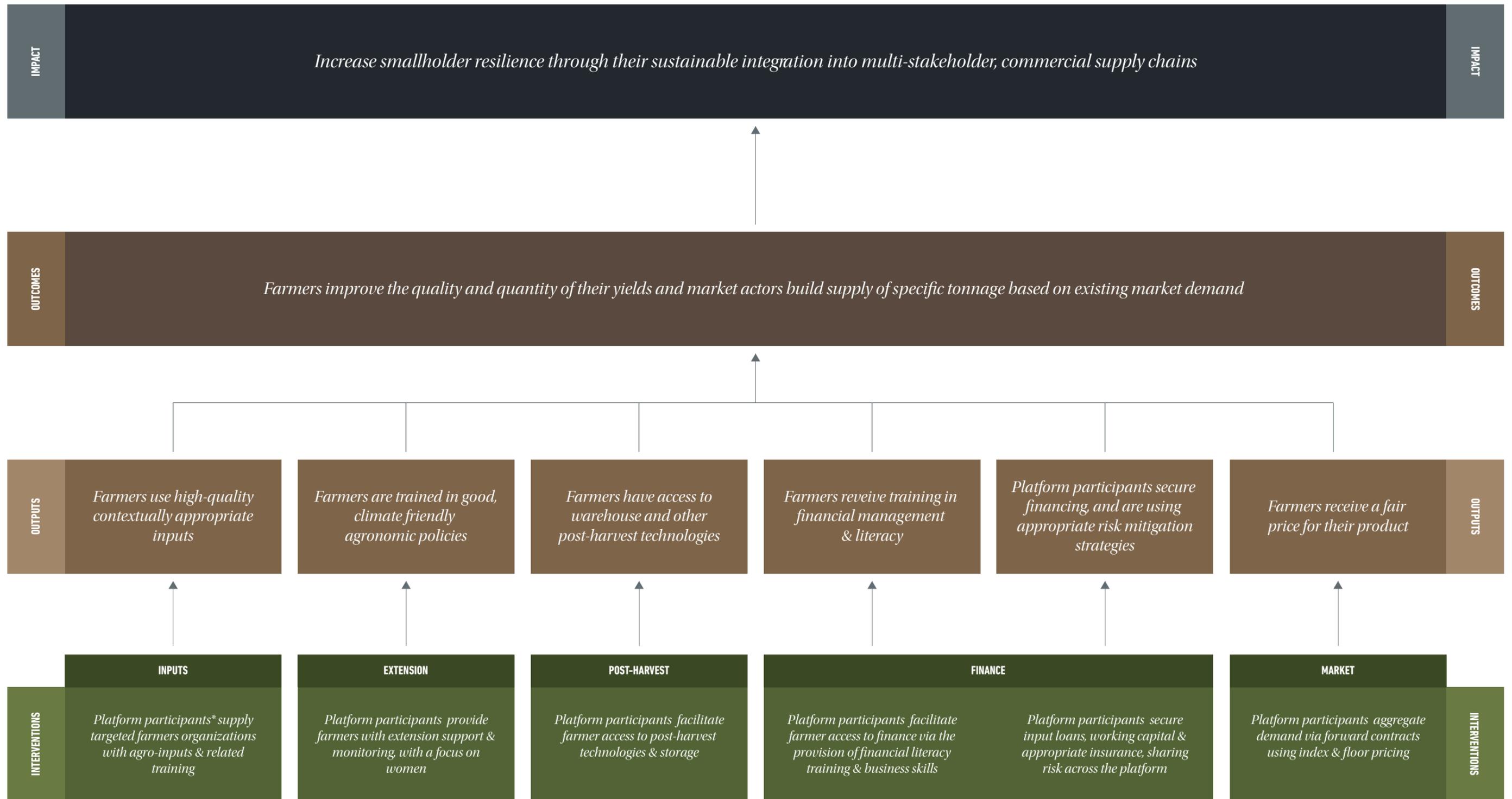
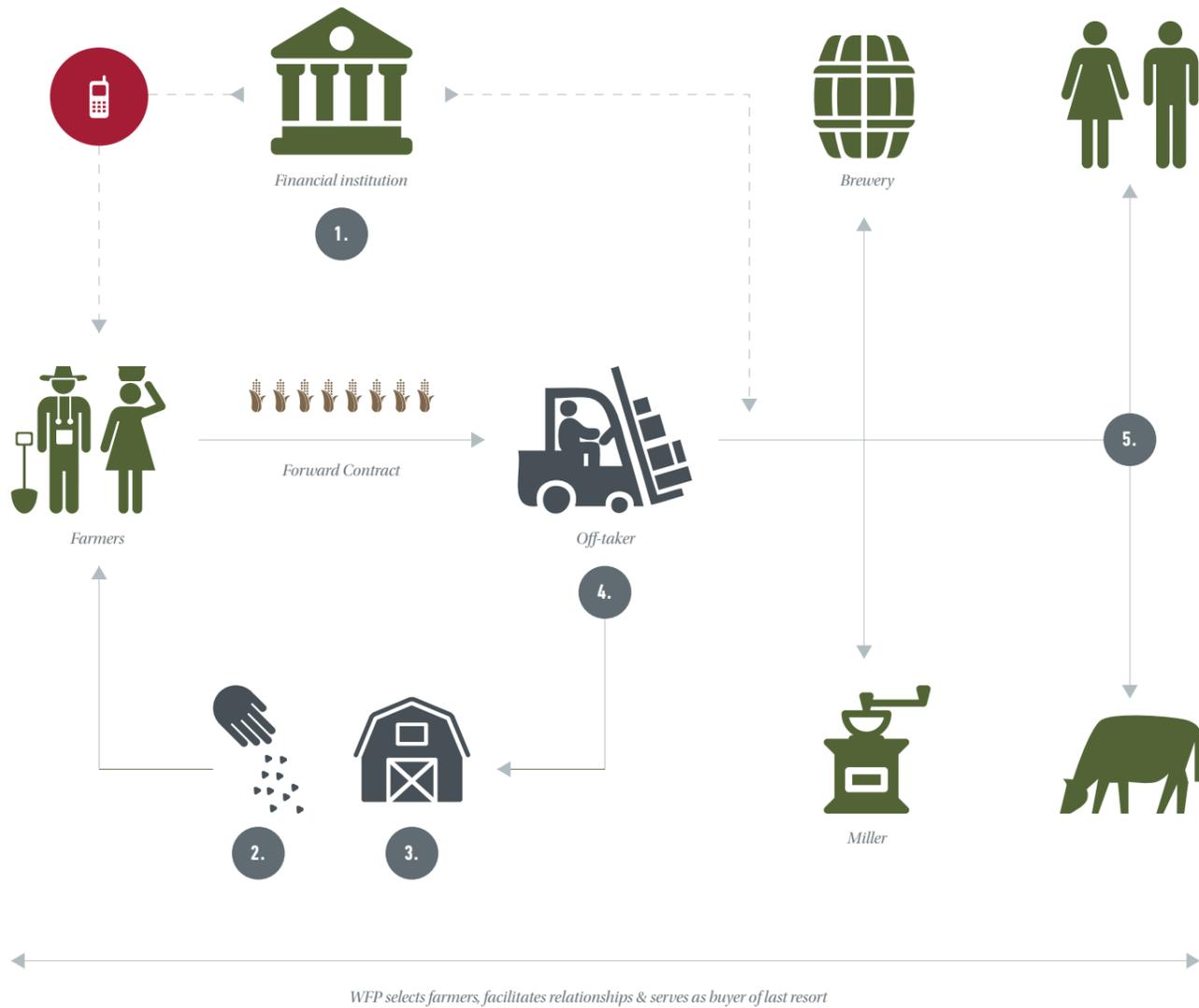


FIGURE 5. The Patient Procurement Platform's Theory of Change

* Platform participants include input suppliers, millers, buyers and NGOs

FIGURE 6. The end-to-end model



1. FINANCING INPUT LOANS & WORKING CAPITAL

Financial institution provides finance to off-taker for input loans and working capital. A mobile payment system for farmers is currently underway

2. SEEDS & FERTILIZER SUPPORT

Off-taker provides seeds, fertilizer extension support throughout the growing season

3. STORAGE & AGGREGATION SUPPORT

Off-taker provides post-harvest support with regards to storage & aggregation

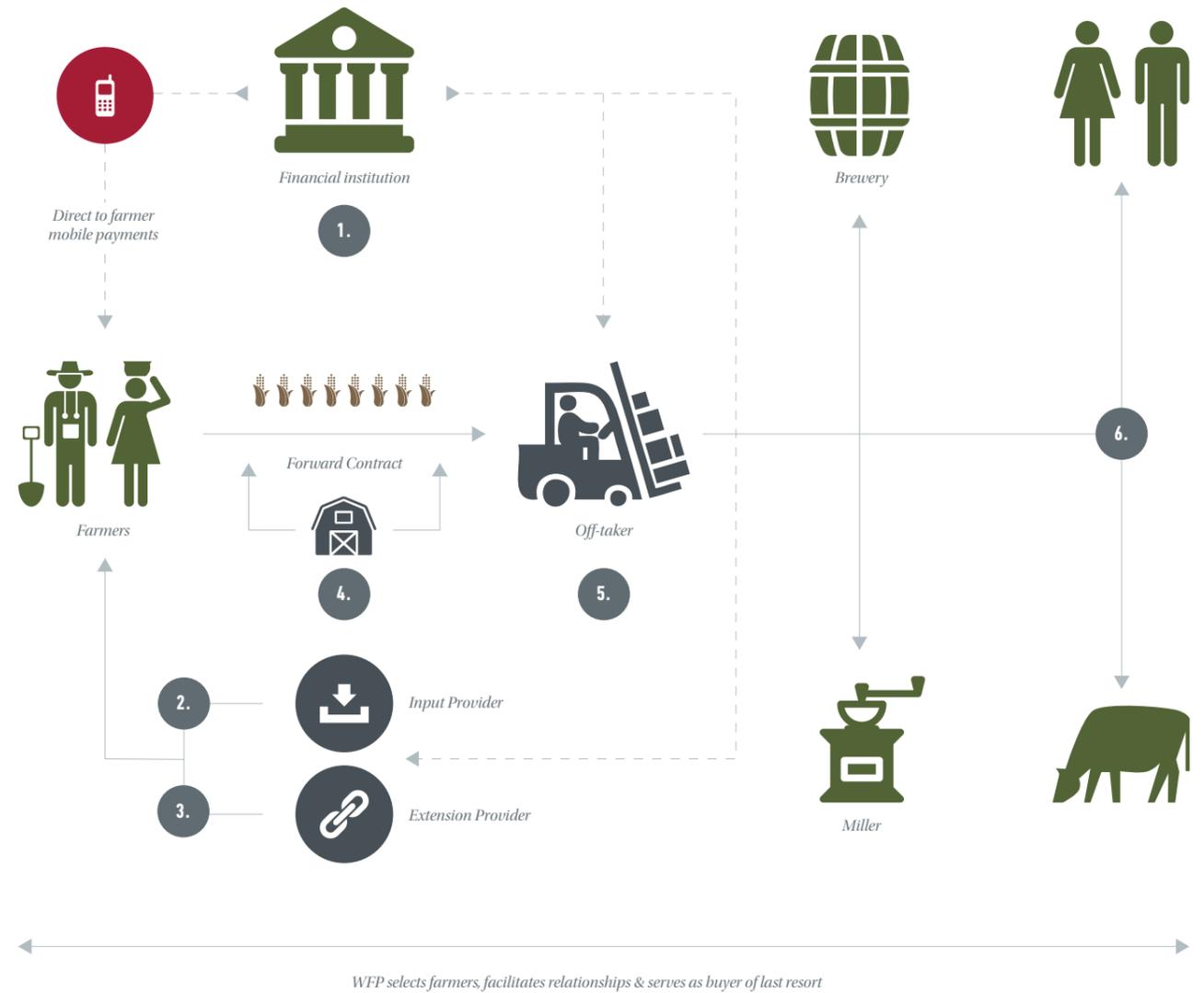
4. OFF-TAKER PURCHASES ON CONTRACT BASIS

Off-taker purchases farmers' product on a contractual basis, using index pricing should the market price increase, and agreeing on floor price should the market price drop

5. DEMAND FOR HUMAN & ANIMAL FEED

Strong demand on the rise for human and animal feed in domestic & regional markets

FIGURE 7. The Integrated Model



1. FINANCIAL INSTITUTION

Financial Institution provides finance to input suppliers (input loans) and millers (working capital). A mobile payment system for farmers is currently underway

2. INPUT PROVIDER PROVIDES SUPPORT

Input supplier provides seeds, fertilizer and training on credit

3. EXTENSION PROVIDES SUPPORT

NGOs provide on - the - ground extension support throughout the growing season

4. OFF-TAKER PURCHASES ON CONTRACT BASIS

WFP and other provides post-harvest support with regards to storage and aggregation

5. DEMAND FOR HUMAN & ANIMAL FEED

Off-taker purchases farmers' product on a contractual basis, using index pricing should the market price increase, and agreeing on floor price should the market price drop

6. DEMAND FOR HUMAN & ANIMAL FEED

Strong demand on the rise for human and animal feed in domestic and regional markets

3. AGRICULTURAL LENDING IN TANZANIA: SUPPLY-SIDE CONSTRAINTS

FINANCIAL INSTITUTIONS CONSIDER AGRICULTURAL LENDING, AND TO THE MAIZE SMALLHOLDER SEGMENT IN PARTICULAR, TO BE A HIGH-RISK ACTIVITY.

In Tanzania, despite a share of only 9% of total lending, agricultural loans represent over 20% of all non-performing loans, demonstrating the disproportionate risk involved with the sector's activity.¹⁷ Of the \$562 million in loans to agriculture, the Governor of the Bank of Tanzania, Benno Ndulu, remarked in 2014 that, "more than 92% of loans from commercial banks to agriculture are used for trade with only 8% being channelled to the actual crop production", benefiting traders, processors and exporters far more than smallholder producers.¹⁸ Financial institutions interviewed in the course of the study emphasized commercial banks' general hesitation to invest attention and resources in the smallholder segment, considered to be of limited profitability, given their focus on food crops such as maize. Consequently, less than 40% of rural residents have access to any financial services, of which the majority (70%) access only informal financing mechanisms from relatives, friends and neighbours. Half (50%) of agricultural SMEs also lack access to finance.^{19,20} Reversing the historical neglect of lending to maize production will require banking approaches that can respond appropriately to perceptions and realities of lending to this sub-sector.

Existing financial infrastructure and banking practices are unsuited to deal with rural smallholder needs and risks.

Smallholder farmers and agricultural SMEs in Tanzania struggle to access formal finance, due to the stringent terms ill-suited to their needs and realities. Financial institutions in Tanzania state that they struggle to find borrowers that meet their terms for lending. High interest rates (19-21%), inflexible collateral requirements (over 125%) and a lack of adequate products (e.g. working capital, insurance etc.) effectively exclude these segments from accessing formal financing. The density of bank branches in Tanzania is very low, at 2.1 per 100,000 adults, far below maize-sector leaders South Africa and Nigeria (10.1 and 6.5, respectively).^{21,22} A perceived lack of business skills by borrowers further complicates lending to smallholder and agricultural SME clients, and ultimately increases the risk to banks of default.²³

17. Bank of Tanzania (2014), "Financial Stability Report", <http://www.bot-tz.org/publications/Fin-stability/Financial%20Stability%20Report%20%20Sept%202014.pdf>.

18. East African Business Week (30 November 2014), "Tanzania central bank to ease farm lending", <http://www.busiweek.com/index1.php?Ctp=2&pl=2345&pLv=3&sr=84&sp=463>.

19. Financial Sector Deepening Trust (2013), "Agricultural and Rural Finance", <http://www.fsdt.or.tz/theme-areas/agriculture-and-rural-finance/>.

20. Financial Sector Deepening Trust (2012), "Agriculture Finance Markets Tanzania 2011 Technical Demand Side Report", http://www.fsdt.or.tz/fileadmin/downloads/agfims/AgFIMS_Tanzania_2011_Technical_Demand_Side_Report.pdf.

21. World Bank 2012 data indicators.

22. Dalberg 2015 interviews with commercial banks.

23. Interviews with financial institutions.

Increased loan penetration in rural communities will depend on the adaptation of traditional bank risk mitigation strategies to the smallholder farmer context.

The barriers to using traditional risk management techniques follow:²⁴

Credit assessment systems are hampered by a lack of reliable credit reference bureau and farm records.

A majority of farmers do not have accessible credit histories due to limited formal banking penetration and the predominance of paperless informal financial transactions. The response from financial institutions is to restrict lending to only the most well-organized and formalized producer groups: "If [producers] are backed by a strong off-taker and other issues like financial handling are controlled, lack of credit history can be mitigated." Banks will need to scale non-traditional credit assessment systems, finding creative proxies for farmer integrity and likelihood of repayment.

Bundled products and services are increasingly becoming part of financial packages to farmers and agricultural SMEs but there is still much room for improvement.

Farmers and SMEs face a variety of issues that compound their credit risk (e.g. poor payment systems, irregular cash flows, risks of theft/loss from saving in cash). Study participants indicate that banks are increasingly finding smallholder farmers attractive for full or partial product offerings (e.g. mobile payment from/to relatives in the cities): "When you want to lend to agriculture, you need to look for cash management solutions. [We have] integrated our system with Vodacom and Tigo, so mobile banking is there." However, full suites of rural microfinance credit products and support are still restricted to donor-funded development assistance programmes. Commitment from banks to tailor their offering to rural producers is an ongoing process.

Monitoring and relationship-building remain difficult to carry out due to financial institutions' limited rural presence.

Tanzania's two bank branches per 100,000 is insufficient given the geographical spread of potential clients and the relatively underdevel-

24. The status of these strategies and potential areas for improvement were explored during the course of interviews with 14 organizations (five financial institutions, five development actors, three off-takers and one farmer group). The challenges, trends and enabling factors for successful risk management highlighted in these conversations were consistent with themes documented in the existing literature.

WE HAVE THE MONEY, WE ARE LOOKING FOR CUSTOMERS, BUT WHO WILL WE LEND TO?

COMMERCIAL BANK

oped mobile banking space.²⁵ Partnerships with village savings and credit cooperatives, responsible for much rural lending in Tanzania, remain limited among financial institutions and off-takers, despite significant potential for synergy.²⁶ Itinerant vehicles that serve as mobile banks are currently used as one way of connecting with clients, but at high cost.

Group borrowing is a strong principle in current rural finance, but this alone does not solve access issues.

Borrower aggregation is a well-established practice in Tanzania as a mechanism to reduce transaction costs, leverage peer pressure dynamics to reduce defaults and side-selling, and facilitate assistance and capacity-building. Nevertheless, very few farmer groups are able to meet the stringent requisites to qualify for a loan, due to other factors outlined in this study.

Inflexible collateral requirements in Tanzania are a key barrier to expanding access to agri-finance.

Farmers in Tanzania, as in other Sub-Saharan African countries, have limited assets to offer as acceptable collateral to banks given opaque or non-traditional ownership systems and poverty. New methods of dealing with collateral have been successfully explored elsewhere: the Caisse Nationale du Crédit Agricole, responsible for nearly 80% of smallholder lending in Senegal, has extensive experience serving communities with limited traditional collateral.²⁷ The bank accepts group crops, forward contracts and warehouse receipts as collateral. It is able to secure these as loans because it has the long-term community presence, market connections and in-house knowledge to be able to value and act on this collateral if required. Unlike in Senegal, the regulatory system in Tanzania is unfavourable to non-traditional collateral, restricting banks from penetrating smallholder farmer supply chains. The Bank of Tanzania stipulates that 125% of the asset as collateral is a necessary prerequisite to qualify for a loan.

Insurance markets in Tanzania are expensive and out of reach for rural SMEs and producers.

Large-scale, multi-factor insurance is rare outside of countries with highly advanced risk measurement and monitoring systems and fi-

ancial infrastructure. The existing supply of insurance instruments is small and better suited for large cash crop exporters. Building insurance markets is likely to begin by focusing on single-factor insurance (e.g. weather) before comprehensive offers can be contemplated.

The diversification of portfolios is an additional strategy that could be employed to mitigate exposure to commodity risk but is difficult to implement in practice, due to the limited size of smallholder-oriented social lenders and the limited specialist knowledge of major commercial banks in food crop value chains.

Agricultural lending has several characteristics, which require particular investments in appropriate processes and knowledge to market and serve farmers (e.g. the timely disbursement of loans, seasonal monitoring, flexible cash flow schedules, long-distance banking options, etc.). This type of investment has traditionally been the remit of specialized, social impact-focused organizations with asset bases too small to effectively diversify.

Solutions to these constraints involve increasing the financial attractiveness of the sector through supportive regulation and improved market chain linkages as well as changes in banking sector practices.²⁸

Improving the profitability and margins involved in maize value chains is the ultimate driver of improved banking attractiveness, but in the meantime WFP could use a number of instruments to incentivize financial lending in the short term. Guarantee schemes are one example of such an instrument, recognizing that guarantees used without technical assistance can encourage irresponsible lending and may ultimately lead to overextended farmers and higher default rates. Guarantees can increase exposure to smallholder farmers if assistance is not given to the institution to design appropriate agricultural products and credit assessment mechanisms.²⁹

Supply-side constraints to managing risk are only one part of the story.

Demand-side risks at the farm level also require appropriate risk management strategies. They are the focus of the next section.

4. THE RISKS OF LENDING TO MAIZE IN TANZANIA: DEMAND-SIDE PERSPECTIVES

RISKS OF LOAN DEFAULTS FOR AGRICULTURE CAN BE GROUPED INTO THREE MAJOR CATEGORIES: PRODUCTION RISKS, POST-HARVEST AND MARKET RISKS, AND BEHAVIOURAL AND FINANCIAL RISKS.³⁰

The existing literature reveals a number of different frameworks to diagnose risk and its sources. The framework used in this study is consistent with the manner in which value chain actors conceive of agricultural lending risks, and with the risk mitigation strategies designed by financial institutions in Tanzania and elsewhere (see Figure 8).³¹ It is important to recognize that the agricultural value chain is deeply complex and interconnected, and that sources of risk interact with each other. The categories identified here have been developed to lead to comprehensive responses that address clusters of risk factors.

PPP partners have already begun to think through and identify solutions for risk mitigation. The additional analysis that follows therefore seeks to stimulate further discussion during the Grow Africa Investment Forum in June, 2015. Recognizing that the agri-lending risk mitigation space is relatively new territory in Tanzania, responses will require innovation adapted to the Tanzanian case.

25. World Bank 2012 data indicators.

26. Bank of Tanzania (2014), "Financial Stability Report", Op. cit.

27. Caisse Nationale du Crédit Agricole du Sénégal 2015 Dalberg interview.

28. These include innovative collateral requirements such as those used by Caisse Nationale du Crédit Agricole, responsible for nearly 80% of smallholder lending in Senegal. Developments in weather-indexed insurance are also promising, such as the work of Acre in Kenya or Opportunity International Bank of Malawi.

29. The Initiative for Smallholder Finance (2014), "Rethinking Technical Assistance to Unlock Smallholder Financing", Briefing 08, <http://www.globaldevincubator.org/wp-content/uploads/2014/12/Technical-Assistance-to-Unlock-Smallholder-Financing.pdf>.

30. Dalberg (2012), "Catalyzing Smallholder Agricultural Finance", http://dalberg.com/documents/Catalyzing_Smallholder_Ag_Finance.pdf; WFP (2014), "Reducing Risk for Smallholder Farmer Engagement at Scale for Private and Public Sector: WFP's Patient Procurement Platform"; FAO (2009), "Managing Risk in Financing Agriculture, Expert Meeting", http://www.ruralfinance.org/fileadmin/templates/rfic/documents/1267626159472_Proceedings_Managing_Risk_in_Financing_-_1391566911.pdf; OECD (2013), "Smallholder Risk Management in Developing Countries", <http://www.oecd-ilibrary.org/docserver/download/5k452k28wjl.pdf?expires=1431290443&id=id&accname=guest&checksum=AC017504B2AF5587975B-047C3646E4EF>.

31. Differences in perspectives among the stakeholders interviewed are noted where relevant in this section.

IT'S VERY RISKY LENDING TO AGRICULTURE – WHEN THERE IS A STRUCTURAL CHANGE LIKE MARKET INSTABILITY OR WEATHER, WE KNOW WE'RE GOING TO LOSE MONEY.

COMMERCIAL BANK, Tanzania

PRODUCTION RISKS

THE RISK OF LOSSES DURING PRODUCTION IS SEEN BY FARMERS AND OFF-TAKERS AS A KEY SOURCE OF DEFAULT, DESPITE THE WIDESPREAD AWARENESS OF COPING STRATEGIES.

Tanzania's multi-crop production losses hover between 10-20%, driven by adverse weather, pests, disease and nutrient loss, compounded by limited access to improved inputs and poor agronomic techniques.^{32,33} Study participants pointed to weather and access to improved inputs as the most important drivers of production losses in maize, followed by information asymmetries in input markets and the underutilization of agronomic best practices. Most farmers tend to use low-quality or no inputs for traditional rain-fed food crops, increasingly threatened by rainfall volatility. Limited productivity also drives low volumes and overall profits for farmers, further reducing their attractiveness for commercial banks. The high risk in agricultural production is a contributor to the high cost of capital offered by banks, and a source of uncertainty for value chain actors.

Weather risks from unpredictable or insufficient rain compounded by ill-adapted crop management techniques are a persistent challenge for Tanzanian agriculture, complicated by potential climate change effects.

In Africa as a whole, an estimated 40% of the region's maize faces periodic drought stress, leading to yield losses of 10-25%.³⁴ Several study participants identify adverse weather conditions as their biggest risk due to the high vulnerability of Tanzania's rain-fed agriculture to late rains or extended droughts. All study participants expressed concern over increasing climatic instability and the increasing limits to Tanzania's already limited historic weather data. Current patterns of increasing maize production through the

32. Journal of Stored Products Research (2014), "Post-harvest food losses in a maize-based farming system of semi-arid savannah area of Tanzania", <http://www.sciencedirect.com/science/article/pii/S0022474X1300101X>.
 33. Pests and disease, by comparison, were generally considered a low priority by study participants.
 34. CGIAR (2013), The Drought Tolerant Maize for Africa Initiative, <http://www.cgiar.org/consortium-news/partnerships-lead-to-measurable-impacts-for-drought-tolerant-maize-for-africa/>.

RISK CATEGORY	DRIVER OF RISK	POTENTIAL MITIGATION STRATEGY
PRODUCTION	<ul style="list-style-type: none"> Exogenous factors (weather, pests, disease) Limited access to or counterfeit inputs Poor agronomic practices 	<ul style="list-style-type: none"> Peril insurance (e.g. weather) Improved access to inputs (e.g. drought-resistant seed) Technical assistance and agronomic training
POST-HARVEST & MARKET	<ul style="list-style-type: none"> Poor infrastructure Changes to off-taker demand Changes in competition amongst farmers Policy change 	<ul style="list-style-type: none"> Investment in and facilitation of access to collection point infrastructure (e.g. warehouse receipting systems) Futures contracts and options Buyer of last resort (Government, other) Guaranteed demand (forward contracts)
BEHAVIOURAL & FINANCIAL	<ul style="list-style-type: none"> Character Poor cash flow Emergency cash needs Internal disputes (family, land etc.) Difficulty of enforcing contracts 	<ul style="list-style-type: none"> Group lending Cash management solutions Financial literacy training for farmers Working capital assistance to farmer or off-taker Enforcement of contracts in justice system

FIGURE 8. The Risk Diagnosis Framework

expansion of land under cultivation (often with "slash and burn" techniques) are not sustainable. Environmental change and population pressures are making it increasingly important for producers to integrate holistic crop management techniques, including responsible input usage. Farmers have mentioned that delays in rainfall patterns are now a common occurrence: "We are supposed to plant in February and March but the seeds that have been sown have not got rainfall until now (mid-March)."

Constrained access to high-quality inputs continues to drive under-productivity and aggravates risk of production losses.

Drought resistant maize seeds are not yet widely available in Tanzania and those that are available to smallholders tend to be prohibitively expensive. Conversely, the farmers who participated in this study explained that counterfeit agro-input, such as fertilizer, pesticides and seeds, were widely accessible on the local market.³⁵ Two-thirds of the farmers interviewed experienced counter-

feit inputs, leading to reported reductions of up to 70% in maize yields. This reflects indications in the literature that Tanzania is unusually subject to counterfeit agro-inputs (up to 40% of total agro-inputs).³⁶ Value chain actors working with smallholders to provide inputs should be aware of the counterfeit agro-input phenomenon and build a relationship of trust through, for example, the use of demonstration plots, to overcome farmer scepticism.

35. One focus group with approximately 25 maize farmers in Arusha was carried out in March 2015.
 36. Shao, D., and Edward, S., (2014), "Combating Fake Agro-Inputs Products in Tanzania using Mobile Phones", <http://ijcaonline.org/archives/volume97/number17/17099-7681>.

RAIN IS OUR BIGGEST RISK AND WHAT KEEPS US AWAKE IS RAIN. EVERYTHING ELSE CAN BE MANAGED.

OFF-TAKER

WE LOOKED AT CROP INSURANCE PROTECTION BUT THE PREMIUMS ARE TOO HIGH. IF YOU GIVE FARMERS THE OPTION, THEY'D RATHER TAKE THE RISK.

SOCIAL LENDER

Risk management

Financial institutions and value chain actors should be involved in encouraging sustainable, climate-friendly production practices that reduce and mitigate the immediate and long-term threats to crop harvests.

A selection of the major risk management mechanisms for production risks follows:

The PPP already integrates both access to improved inputs and agronomic training in its programme.

This reflects the near-ubiquitous awareness of the importance of farmer assistance by national and international actors. These elements should be sustained when scaling up. A number of government and donor-funded organizations are also involved in the provision of technical assistance and/or improved inputs, thus contributing to building the maize ecosystem from which financial institutions and off-takers can profit. Longstanding Tanzanian policy has put the Government front and centre in financing massive rural extension and input support programmes through the Ministry of Agriculture, Food Security and Cooperatives, with subsidies and investments such as the Inputs Support Programme.³⁷ Despite the price supports, vouchers and extension workers supported by public financing, use of modern inputs and agronomic techniques remains low for smallholder farmers. The reasons for this are many and varied, and include the distribution of counterfeit inputs, the inappropriately designed extension that is not tailored sufficiently to specific farmer challenges, and the inadequate supply of high-quality inputs given the large farming population. Large-scale value chain development efforts by platforms such as the PPP can thus contribute to instituting sustainable, market-driven mechanisms for quality input provision and extension for its farmers.

In addition to improved production techniques, a strong weather insurance infrastructure and ecosystem will be key in reducing production risks for market actors.

The strong examples set in other countries of successful weather (Acre Africa in Kenya, Innovative Insurance Products for Adaptation

37. Hatibu et al. (2002), "Soil and Water Conservation in Semi-arid Tanzania: Government Policy and Farmers' Practices" in *Natural Resources Management in African Agriculture: Understanding and Improving Current Practices* (C. B. Barrett, F. Place and A. A. Aboud eds).

to Climate Change in Ghana, Opportunity Bank in Malawi, etc.) depend on farmers' understanding of insurance programmes, local weather station networks and remote-sensing options, reliable historical data and a conducive policy environment. Several ecosystem actors have pointed to the deficiency of Tanzania's weather monitoring system as well as the lack of farmer familiarity with insurance as the major reasons why weather-based insurance has not yet taken off. Those that do exist are expensive, with

interviewed farmers preferring to take the risk than to take out insurance. A successful weather insurance provision programme requires the reinforcement of Tanzania's weather monitoring capacities and financial support to allow the provider to cover losses through the first few years of data collection. The PPP could consider sponsoring a weather insurance programme for its beneficiaries, which might ultimately be launched as an independent provider to service a larger set of clients.

PRODUCTION	POST HARVEST/MARKET	BEHAVIOURAL/FINANCIAL
PRODUCTION RISKS		
DRIVER		MITIGATION STRATEGIES
<ul style="list-style-type: none"> Exogenous factors (weather, pests, disease) Limited access to improved inputs Poor agronomic practices 		<ul style="list-style-type: none"> Peril insurance (e.g. weather) Improved access to inputs (e.g. drought-resistant seed) Technical assistance and agronomic training
MECHANISM	CURRENT USE	FIT FOR THE PPP
<ul style="list-style-type: none"> Index-based insurance for exogenous factors (weather) Poor agronomic practices 	<ul style="list-style-type: none"> Not widely used in Tanzania (very high premiums, poor weather monitoring services, lack of farmer awareness) Examples abroad (Acre Africa in Kenya, Innovative Insurance Products for Adaptation to Climate Change in Ghana, Opportunity International Bank of Malawi) 	<ul style="list-style-type: none"> Opportunity for inclusion in the PPP bundled insurance package to off-takers or farmers
<ul style="list-style-type: none"> Facilitation of access to improved inputs 	<ul style="list-style-type: none"> Widely used in Tanzania, subsidized by the Government, but problems with quality, farmer training on proper use, long-term access to inputs once programme is done 	<ul style="list-style-type: none"> Already engaged in facilitating access, to be scaled up
<ul style="list-style-type: none"> Agronomic training 	<ul style="list-style-type: none"> Widely used in Tanzania, provided by the Government, but the cost of quality training is very high for providers due to low population density, other issues of relevance/adoption 	<ul style="list-style-type: none"> Already engaged in facilitating training, to be scaled up

FIGURE 9. Major Risk Management Mechanisms for Production Risks

POST-HARVEST AND MARKET RISKS

POST-HARVEST AND MARKET RISKS REGROUP THE LARGEST CATEGORY OF RISK FOR AGRICULTURAL LOANS, AND THE MOST CRITICAL PRIORITY FOR ALL ACTORS.

The PPP programme aims to establish long-term and stable demand to avoid market failure and other ruptures in the value chain. However, an exceptional situation exists in Tanzania, where an environment of informal, opportunistic market linkages and systemic private underinvestment driven by poor local value chain infrastructure and general commodity price instability prevails.

The complex interactions of drivers of post-harvest and market risks contribute to cycles of crop losses, price volatility and, consequently, a lack of attractiveness to financial institutions.

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Underinvestment leads to a self-perpetuating loop whereby farmers with limited storage options are forced to sell at low prices. This disincentivizes off-takers (who know to wait for the post-harvest season for rock-bottom deals) from making long-term contracts, without which farmers have difficulty accessing bank loans. This, in turn, prevents farmers from investing in storage capacity, continuing the cycle.

In Tanzania, farmers, off-takers and financial institutions all ranked price risk as the largest risk for maize, both in terms of likelihood and impact.

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The drivers are varied and complex, including trends in domestic and international supply and demand, changes in government

policy and speculation. Volatility in the supply and demand of crops constitutes a risk for both buyers and sellers, given that it can drive profit losses, which in turn may threaten underlying bank loans. Loose value chains expose farmers to the effects of price shocks, and major international and national trends threaten to increase price volatility for all actors.³⁸

Inadequate market linkage infrastructure (storage, transportation, information) is a key contributor to price risk and post-harvest losses.³⁹

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Crops regularly spoil given the lack of access to off-takers, and even when an off-taker is accessible, poor transportation is a key contributor to 20-30% post-harvest losses.⁴⁰ Currently, only about 50% of smallholder maize farmers have storage facilities, given high costs and limited availability. Limited by storage inadequacies, farmers sell their unprocessed maize immediately after harvest. As such, farmers tend to sell in the high season, when the market is flooded and prices are depressed. Farmers ranked price fluctuations at the same level as weather risks, explaining that traders do not weigh their produce, and do not pay them enough to cover their production costs. Poor market information systems and the lack of guaranteed demand for producers and rural SMEs make it difficult for farmers to plan for the future. Given major information asymmetries about price patterns, farmers have limited capital assets and high economic interdependencies with other farmers, forcing them to unload their production on glutted markets, driven by urgent financial needs and the lack of

38. See the Annex for a more detailed description of the drivers of price risk.
 39. Other drivers such as losses during processing or failed quality inspections were not highlighted as pressing issues by farmers and off-takers during the study.
 40. Journal of Stored Products Research (2014), "Post-harvest food losses in a maize-based farming system of semi-arid savannah area of Tanzania", Op. cit.

PRODUCTION	POST HARVEST/MARKET	BEHAVIOURAL/FINANCIAL
PRODUCTION RISKS		
DRIVER		MITIGATION STRATEGIES
<ul style="list-style-type: none"> Poor storage, transportation or processing Lack of market information changes in off-taker demand Changes in farmer competition Government policy 		<ul style="list-style-type: none"> Investment in and facilitation of access to collection point infrastructure (e.g. warehouse receipting systems) Futures contracts and options Buyer of last resort (Government, other) Guaranteed demand (long-term supplier contracts)
MECHANISM	CURRENT USE	FIT FOR THE PPP
<ul style="list-style-type: none"> Government policy reform 	<ul style="list-style-type: none"> Highly interventionist, unpredictable, four export bans in the last 10 years 	<ul style="list-style-type: none"> Not a core activity, but could play a larger role with Grow Africa/New Vision for Agriculture
<ul style="list-style-type: none"> Improvement of market linkage infrastructure (storage, transportation, market information systems, organization of actors) 	<ul style="list-style-type: none"> Limited existing capacity for all market linkage structures Some existing technologies, strategies and actors with relevant expertise 	<ul style="list-style-type: none"> PPP is already involved, to be further scaled and developed particularly with regard to logistics and storage
<ul style="list-style-type: none"> Financial risk instruments (futures contracts, price insurance) 	<ul style="list-style-type: none"> Limited (mostly for export crops or large companies) due to high costs of hedging strategies and few providers Enforcement of contracts in justice system 	<ul style="list-style-type: none"> PPP can support growth of an ecosystem to provide risk mitigation instruments
<ul style="list-style-type: none"> Buyer-of-last-resort 	<ul style="list-style-type: none"> Government agencies somewhat fulfil this role 	<ul style="list-style-type: none"> PPP is already engaged in this, to be further scaled

FIGURE 10. Major Risk Management Mechanisms for Post-Harvest and Market Risks

storage options. This further perpetuates the cycle of informality, market unpredictability and underinvestment.

Government policy has played a part in exacerbating market uncertainty over maize prices. T

The state agencies of the Cereals and Other Produce Board and the National Food Reserve Agency wield enormous power in Tanzania, but the potential stabilizing effect of large government buyers has not yet manifested itself consistently. Governments throughout East Africa have highly interventionist attitudes towards staple cereal markets, which was noted as a significant contributor to bank aversion to serving these value chains. The export ban brought into force in 2011 caused maize prices to collapse and, despite the implementation of state reforms suggested in the Country Cooperation Framework for Tanzania to improve agricultural regime transparency, many of the study participants highlighted that the unpredictability of government policy remains a key contributor to bank anxiety about sudden downward price pressure on maize.

The major opportunities for post-harvest and market risk management are to strengthen market linkage infrastructure, deploy financial risk management instruments, and support contract use. A selection of the major risk management mechanisms for these risks follows:

Reform of government policy will allow the state to better serve its role as a price stabilizer for producers and value chains. Advocacy groups will play an important part in tailoring government policy to reflect key values for market chain actors and investors, and WFP, as a large market actor and influencer through Grow Africa, could be well positioned to play a role in encouraging supportive legislation and policy.

Continuous investment is needed in market linkage infrastructure through disruptive technologies and business models, as well as convening and organizing value chain actors.

The long-term growth of improved post-harvest storage, handling, transportation and information-sharing capacity by all parties is necessary to stabilize post-harvest losses as well as seasonal food price fluctuations. This will require a mix of innovative technological solutions (electronic warehouse receipts, mini dryers, portable refrigeration, etc.), producer and off-taker coordination and organization, and financial investment. The Government's existing storage offer has not been sufficient in the last year to absorb surplus production. Existing systems to distribute both goods and information in Tanzania are not up to par with the country's vast geographic distances. Better technological and

organizational capacity should be created in rural regions to allow farmers and off-takers to coordinate sales and collections in a timely manner.

The PPP has a key role to play in continuing to stabilize demand and can move further in stimulating the supply of tools for price risk management.

Markets for financial risk management instruments should be deployed to enable value chain actors to insure themselves against price shocks. Markets to trade and insure forward contracts even at lower volumes are important to replace the current system of opportunistic buying during harvest season with stable long-term contracts and production quotas. A government buyer-of-last-resort already exists but payment is not always delivered on time. WFP can continue to spur the adoption of long-term contracts by traders and processors by offering to act as a buyer-of-last-resort for off-takers that source from smallholder farmers, with conditions set at least one season in advance. WFP can also cover positions for promising providers of price insurance or futures options in order to enable value chain actors to hedge against price volatility.

BEHAVIOURAL AND FINANCIAL RISKS

THE RISK OF LOAN DEFAULT DUE TO DIVERSION OR OTHER CONTRACTUAL BREAKDOWNS IS CONSIDERED AN IMPORTANT RISK TO VALUE CHAIN ACTORS.

Tanzania's general default rate on bank loans is 3%, but non-performing loans in agriculture stand at approximately 20%, with financial institutions participating in this study placing high concern on farmer default due to loan diversion or other behavioural problems. Poor relations of trust between farmers and off-takers, limited education and difficulty of foreclosing on bad loans make loan non-performance as a result of non-crop-related problems a risk. Many of the risk management solutions used by microfinance institutions in Tanzania and abroad are most relevant in this context, making this category of risk also one of the more easily addressable.

Major obstacles, such as limited trust between farmers and off-takers, widespread financial illiteracy and the cumbersome nature of the Tanzanian justice system, can be resolved with appropriate measures already in use.

Rural producers, associations and SMEs often have limited financial management capacity and their cash flow constraints may incentivize farmers to sell crops earlier than anticipated, reducing their perceived trustworthiness to off-takers. The highly informal nature of maize value chains and widespread distrust by farmers for downstream market actors are major contributors to a cultural acceptance of side-selling. Tanzania's court system is slow and unpredictable, and the benefits to prosecuting parties are often outweighed by the costs and inconveniences associated with it. In the absence of judicial reform, it will take time and effort for all parties to develop a sense of trust so that contracts will be respected.⁴¹

Many of the responses to rural behavioural and financial risks are well-known in Tanzania and abroad, and are already in use in a number of settings.

Financial literacy training for producers and rural SME managers is already provided by social lenders and, increasingly, commercial banks, recognizing the challenges of formalizing rural clients.⁴² Savings and working capital assistance to producers and SMEs have yet to make major inroads against village savings and credit cooperatives. Integrated cash management solutions offer a major opportunity for commercial banks to diversify their service offering to rural communities.⁴³ Leveraging the penetration of mobile banking solutions, such as M-Pesa, is key to reaching rural producers and SMEs. Group lending to deter individual loan diversion or default is already well established in Tanzania.

41. Although post-harvest and market risk drivers also promote poor practices such as side-selling (e.g. changes in price that incentivize one party to break contracts to secure higher buy/sell prices), the fundamental element analysed here is the behavioural source of lack of respect of prior agreements by one or both parties.

42. Social lenders are impact-first agricultural lenders, such as Root Capital, Triodos, Oikocredit and Rabo Rural Fund.

43. Most banks already require farmers to open deposit accounts in order to be eligible to receive loans.

SMALLHOLDERS MUST FEEL LIKE THEY'RE PART OF THE BUSINESS. THEY NEED TO FEEL THE SOCIAL ASPECT OF WHAT YOU'RE DOING TO CREATE A RELATIONSHIP BASED ON TRUST.



VALUE CHAIN ACTOR

A culture of contract-based business arrangements will take time to create, but the PPP is well positioned to encourage this through its current activities.

The PPP has significant opportunities to continue to support interventions that stabilize the maize business environment by incentivizing financial actors and off-takers to build long-term contracts with smallholder farmers that equitably share and mitigate risk. It will take time and commitment for trust in contracts to spread throughout Tanzania.

PRODUCTION	POST HARVEST/MARKET	BEHAVIOURAL/FINANCIAL
PRODUCTION RISKS		
DRIVER		MITIGATION STRATEGIES
<ul style="list-style-type: none"> • Character • Poor cash flow management • Emergency cash needs • Internal disputes (family, land, etc.) • Difficulty enforcing contracts 		<ul style="list-style-type: none"> • Group lending • Cash management solutions • Financial literacy training for farmers • Working capital assistance to borrower or off-taker • Enforcement of contracts in justice system
MECHANISM	CURRENT USE	FIT FOR THE PPP
<ul style="list-style-type: none"> • Group lending models 	<ul style="list-style-type: none"> • Widely used as a precondition for credit, but existing groups have limited capacity to process and service loan 	<ul style="list-style-type: none"> • Already some capacity-building for beneficiaries, greater focus on building organizational capacity for producer groups
<ul style="list-style-type: none"> • Cash management systems 	<ul style="list-style-type: none"> • Mobile banking already widely present in rural Tanzania (M-Pesa) 	<ul style="list-style-type: none"> • High transaction costs, better suited for financial institutions
<ul style="list-style-type: none"> • Financial literacy training 	<ul style="list-style-type: none"> • Widely bundled with credit provision 	<ul style="list-style-type: none"> • High costs, better suited for banks and NGOs
<ul style="list-style-type: none"> • Bundled financial assistance 	<ul style="list-style-type: none"> • Occasionally used 	<ul style="list-style-type: none"> • Concentration of risk, better suited for banks
<ul style="list-style-type: none"> • Guaranteed demand through contract farming 	<ul style="list-style-type: none"> • Very limited use in maize value chains 	<ul style="list-style-type: none"> • Strong potential to scale existing efforts
<ul style="list-style-type: none"> • Judicial system reform 	<ul style="list-style-type: none"> • Judicial system currently marred by low public confidence, perceptions of incompetence and corruption 	<ul style="list-style-type: none"> • Not a PPP core activity, better suited for advocacy groups

FIGURE 11. Major Risk Management Mechanisms for Behavioural and Financial Risks

5. THE PATIENT PROCUREMENT PLATFORM'S ROLE IN MANAGING RISK

THE PPP HAS A NUMBER OF OPTIONS TO MANAGE THE RISKS ASSOCIATED WITH LENDING TO MAIZE IN TANZANIA.

The programme should: i) sustain and scale practices to manage risk already employed during the pilot of the PPP; and ii) explore new avenues to strengthen the ecosystem for lending to food crop value chains in Tanzania. This study has identified seven major opportunities for the WFP's consideration:

Facilitate access to improved inputs and climate-friendly agronomic techniques.

The PPP currently facilitates access to high-quality inputs and environmentally appropriate agronomic techniques, both from a single source (end-to-end model) and from a dispersed set of actors (integrated model). For the integrated model, the PPP should guarantee alignment between the actors to ensure sustainable input use is integrated at the core of holistic crop management techniques. It will also be important to closely monitor the development of the integrated model to avoid a monopoly of private sector companies, such as input suppliers, and to ensure impact is not adversely impacted by NGO funding cycles.

Serve as buyer-of-last resort for off-takers willing to enter forward contracts with producers.

The PPP encourages the adoption of long-term contracts by traders and processors by offering to act as a buyer-of-last-resort. However, given that WFP's procurement capacity is capped at 50,000 tonnes in Tanzania, the PPP should consider how to scale

the programme or consider alternatives to address long-term sustainability. A long-term guaranteed demand programme should integrate major donors, the private sector and the Government of Tanzania, particularly the National Food Reserve Agency, in order to develop a united national solution to stabilize price. Furthermore, buyer-of-last resort offers can incentivize overly risky behaviour by off-takers and unsustainable expansion, requiring significant oversight capacity by guarantors to monitor the risk exposure of their portfolio, discourage poor business practices, and set conditions to best align the interests of all parties involved. The PPP should consider how to mitigate the potential adverse consequences of the buyer-of-last-resort offer, such as moral hazard among suppliers.

Improve market linkage infrastructure.

The PPP can alleviate major deficits in market information systems, transportation and storage options through well-considered interventions and investments. Opportunities include supporting traditional infrastructure developments, such as warehouse rehabilitation, integrating strategic technologies such as mini dryers, mobile information systems, or electronic warehouse receipting, and organizing market actors to find synergies with existing market linkage support programmes. Appropriate responses should be designed to address Tanzania's varied geography and vast distances; a successful initiative will reflect the diversity of Tanzania's cultural and geographic landscape rather than a one-size-fits-all approach.

Encourage a culture of sustainable relationship-based contract farming.

The PPP does currently exert pressure on its suppliers to provide forward contracts to smallholders in order to stabilize demand and reduce market uncertainty. To further encourage the development of long-term, contract-based relationships in Tanzania, the PPP can also facilitate dialogue between producers and millers and invest in strategic capacity reinforcement where needed. Building trust between producers and off-takers will require sustained, equitable business transactions and cultural changes in the maize business culture to closely implicate companies in these direct sourcing relationships. Addressing the informality of maize value chains and the major infrastructure gaps is a necessary precondition to enabling more systemic contract-based relationships between farmers and millers.

The PPP could consider strengthening the ecosystem for lending to food crop value chains by:

Leverage existing guarantee schemes and credit lines, ensuring they are paired with technical assistance.

The current underinvestment trap in maize value chains requires short-term interventions to kick-start bank lending and build out value chain infrastructure and capacity. Existing models, such as the AGRA-Standard Bank Agricultural Guarantee Fund Scheme, which guarantees \$100 million in loans, can offer important lessons and partnership opportunities for the PPP. These include how to encourage commercial banks in Tanzania to increase business activities in this sector, while mitigating moral hazard risk and preventing unsustainable lending. However, a guarantee programme should be carefully designed to best align the interests of guarantor, lender and borrower. Past experience indicates that the responsible use of guarantees often requires commitment to technical assistance for financial institutions, with business practices and product offerings tailored to the context of maize value chains.⁴⁴

Support the development and use of price insurance and commodity futures infrastructure.

Accessing insurance options for agricultural SMEs will stabilize prices throughout the value chain, positively impacting market linkages and behaviours, such as the use of forward contracts. Reduced price risk through secondary and tertiary commodity markets will give farmers more security in investing in improved productivity and encourage banks to lend to insured parties. The PPP could cover positions for promising providers of price insurance or futures contracts, encourage large buyers and international exporters to act as conduits for insurance options or set up commodity exchanges, as WFP has successfully done in Malawi. Support the development and use of weather insurance and enable the growth of a mass-market weather insurance provider for major crop-growing regions. A successful weather insurance provision programme requires the reinforcement of Tanzania's weather monitoring capacities and financial support to allow the provider to cover losses through the first few years of data collection. The PPP is in a position to sponsor such a programme in order to mandate weather insurance for its beneficiaries.

Other major opportunities to enable the sustainable development of credit to the staple food crop sector may offer a chance for the PPP to play a supporting role to more dedicated actors.

These include:

The reform of trade policy, particularly for the Kenyan maize export market.

Trade policy between Tanzania and neighbouring states, and particularly the prize market of Kenya, is unpredictable and generally unfavourable to the growth of long-term commercial relationships. Sales and export permits are cumbersome to obtain. Furthermore, inappropriate regulation and oversight can lead to trade further increasing market volatility and accelerating price dips and hikes, feeding into the price fears of both Tanzanian and Kenyan farmers regarding trade openness.

⁴⁴ The Initiative for Smallholder Finance (2014), "Rethinking Technical Assistance to Unlock Smallholder Financing", Op. cit.

SUPPLY-SIDE	DEMAND SIDE		
	PRODUCTION RISKS	POST-HARVEST & MARKET RISKS	CONTRACT RISKS
<i>Sustain & Scale up</i>			
	<ul style="list-style-type: none"> Facilitate access to improved inputs and climate friendly agronomic techniques 	<ul style="list-style-type: none"> Serve as a buyer of last resort for off-takers Improve market linkage infrastructure 	<ul style="list-style-type: none"> Encourage sustainable contract farming
<i>Explore new avenues</i>			
<ul style="list-style-type: none"> Leverage guarantee schemes and credit lines, ensuring they are paired with technical assistance 	<ul style="list-style-type: none"> Support the development and use of weather insurance 	<ul style="list-style-type: none"> Support the development and use of price insurance and commodity futures infrastructure 	

FIGURE 11. Major Risk Management Mechanisms for Behavioural and Financial Risks

Government intervention to support the growth of the lending ecosystem.

This will require the adroit management of key government institutions to better reflect values of transparency, consistency and support for market actors. Other market enablers are also well-suited to developing and providing new high-yield, low-impact inputs, advocating for reform of the justice system, or strategically reinforcing key capacities and expertise at various points in the value chain; the PPP programme should be coordinated with the efforts of these other actors to ensure directional consistency and avoid duplication. Market actors should complementarily organize and commit to deepening and formalizing linkages, arrange equitable risk-sharing agreements and share best practices among each other. The PPP does not currently engage in policy advocacy given the small scale of the programme in Tanzania, but the various platforms connected to the PPP leave the programme well positioned to advocate for transformative reform with the support of other actors.

Commitment from financial institutions to adapt business practices and risk management strategies to small-holder farmer value chains.

Non-traditional credit assessment models, innovative collateral requirements, tailored credit offerings, mobile banking products and flexible repayment systems are a few of the changes that will require sustained contact with farmers and iterative approaches to innovation and change. The PPP can play a role to encourage commercial lenders to organize major initiatives to improve lend-

ing conditions (e.g. a credit reference system introducing rural credit databanks, facilitating banks' exchange of information, and developing improved metrics and proxies to gauge informal credit history). The organizational capacity and commitment of financial actors, backed by supportive government policy, are the sine qua non of the development of agri-lending.

Advocacy and support to the Tanzanian Government. This could be geared towards installing a transparent and sustainable regulatory framework to stabilize food prices and support the long-term growth of private sector value chain actors.

The widespread provision of technical and financial training to producers is already being pursued by several ecosystem actors and should be further supported in consideration of the major skill gaps still present today.

The tools available to the PPP must be adapted appropriately to the programme's current structure,

Highlighting innovative cost-reduction mechanisms and key synergies. Innovative risk reduction strategies may be costly to implement, particularly due to the lack of existing supportive infrastructure in Tanzania. Innovative cost-cutting methods adapted from programmes in other countries, or arising from economies of scale and synergies with other strategies, must be identified to produce a cohesive, comprehensive and financially sustainable package that supports smallholder agriculture and access to finance.

6. ANNEX

THIS CASE STUDY IS BASED ON AN IN-DEPTH EXAMINATION OF THE PPP CARRIED OUT IN MARCH 2015 IN TANZANIA.

The team carried out an extensive review of the existing literature into constraints on lending to upstream maize value chain actors and conducted interviews with a range of actors, including financial institutions, off-takers, NGOs, farmers and input providers. The study aims to highlight the experiences and perspectives of actors from the entire ecosystem to develop solutions that WFP and its PPP partners could implement.

TYPE OF STAKEHOLDER	NAME OF ORGANIZATION
Off-taker	ETG
Off-taker (potential)	Kenmillers Ltd
Off-taker	Quality Food Producers
Development Actor	AgDevCo
Development Actor	Financial Sector Deepening Trust (FSDT) Tanzania
Development Actor	SNV Tanzania
Development Actor	UK Department for International Development/DID
Development Actor	Technoserve
Farmers	Mpingo Farmer Organization, Arusha
Financial Institution	AgDevCo
Financial Institution	National Microfinance Bank
Financial Institution	National Microfinance Bank Foundation
Financial Institution	Private Agriculture Sector Support Trust (PASS)
Financial Institution	Root Capital
Input Provider	Yara International
Platform Coordinator	WFP

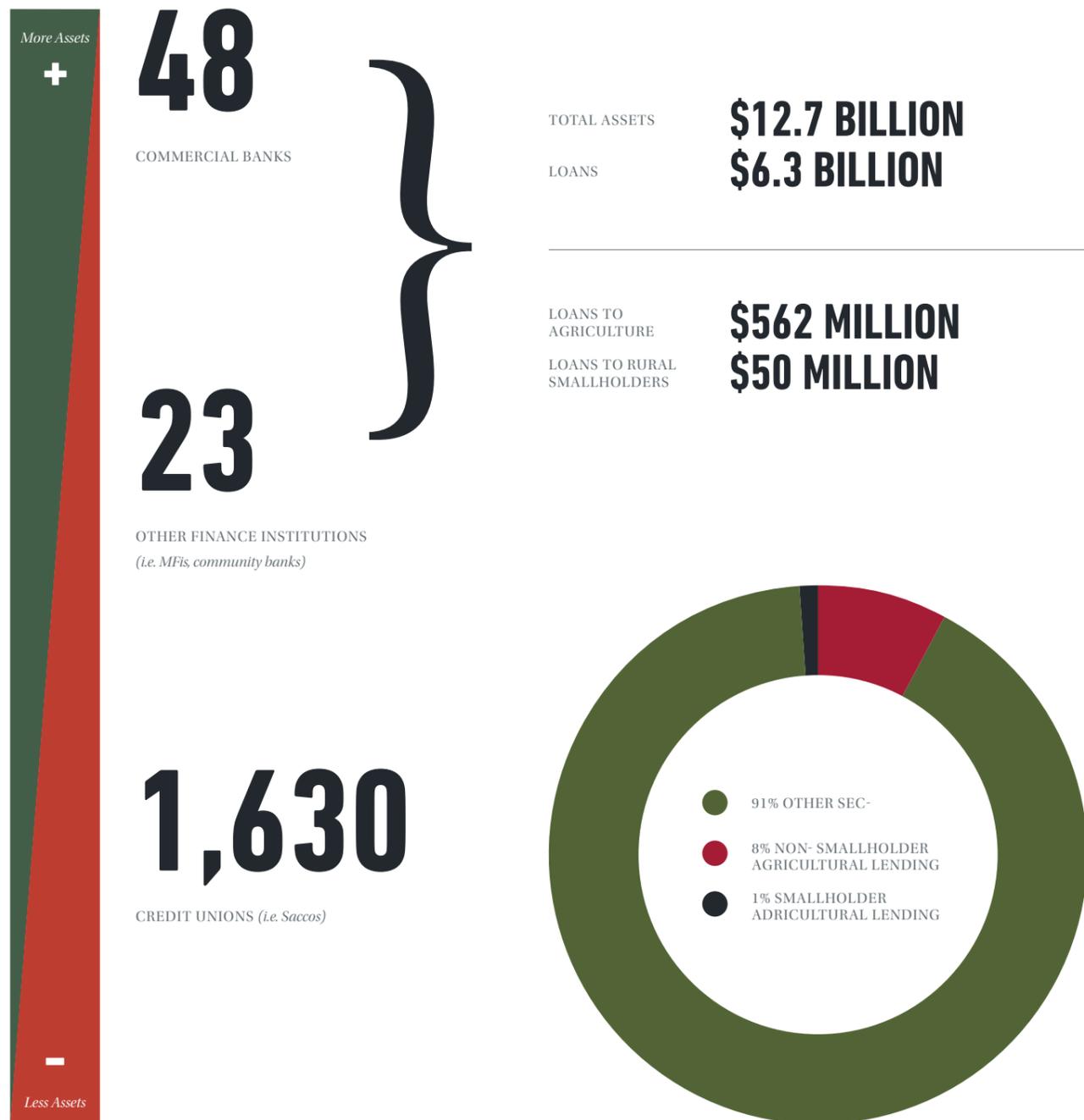


FIGURE 14. Landscape of Financial Institutions in Tanzania

NOTE: SACCO = Savings and Credit Cooperative Society
*This data comes from a study undertaken by the BoT in 2005. It is likely that these have since increased.

SOURCE: Bank of Tanzania (2014), Dalberg Analysis

AGRICULTURAL LENDING LANDSCAPE

Tanzania fits within the broader trend on the African continent, with less than 9% of commercial lending (approximately \$562 million) directed to the agriculture sector in 2014, despite accounting for 22% of the country's GDP (see Figure 14).⁴⁵ Seasonal credit, input loans, crop purchase loans and credit lines are important levers for value chain actors to invest in capital infrastructure, strengthen market linkages, stabilize buying and selling activities, and support day-to-day and long-term operations.^{46,47} Improving access to finance for production and trade offers a chance to improve incomes for many of the country's rural poor, 80% of whom are involved directly or indirectly in agriculture.

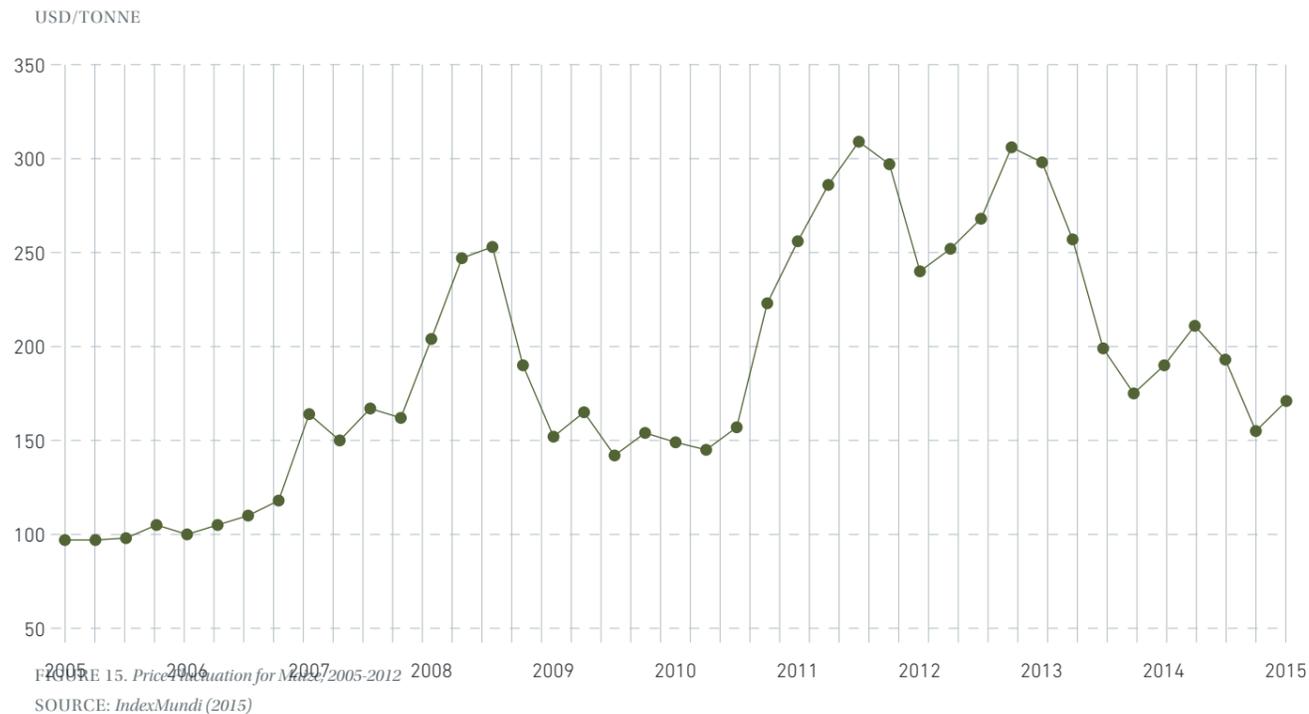
The majority of lending to agriculture in Tanzania does not benefit smallholder farmers. While microlending to smallholder farmers has steadily increase from 55 to 89 billion Tanzanian shillings in the last two years (2012-2014), this represents 3.7% of all micro-finance activities and 0.7% of total lending in Tanzania.⁴⁸ This low figure indicates the magnitude of the challenges associated with serving Tanzania's smallholder farmers. Only a small portion of non-microfinance agricultural loans are directed at maize, with cash crops benefiting from the lion's share of commercial lending. This makes it difficult to generalize the success of banks' past agricultural lending experiences to currently underserved value chains like food crops.

45. Bank of Tanzania (2014), "Financial Stability Report", Op. cit.

46. Value chain actors include farmers, input suppliers, traders, processors, exporters, enablers and others.

47. The growth of private sector lending is also necessary for the growth of sustainable maize exports.

48. Bank of Tanzania (2014), "Financial Stability Report", Op. cit.



DRIVERS OF PRICE RISK

International maize price volatility is a major concern for all sector participants from government to smallholder producers. The last decade has highlighted the dangers of commodity price cycles, whose uncertainty makes it difficult for market actors to anticipate needs and revenues. Unable to calibrate production to expected price, producers may over- or underproduce in response to the financial situation of the previous year. This unstable supply exposes consumers to risks of shortages, producers to risks of gluts, and financial institutions to systemic portfolio risk exposure. The lack of diversification of rural economies and producer communities aggravates risk exposure for market participants and creditors, as market fears can quickly lead to mass liquidation events for crops and loans.

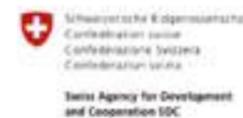
Major international and national trends further threaten to increase price volatility.

International and domestic trends in supply and demand contribute to the tumultuous trajectory of food prices. Government interventions to defend food stores have contributed to jumps in commodity price as recently as 2008, when countries as diverse as Vietnam and Egypt pushed forth export bans or rushed to lock in purchases of large stores of grain on the open market. Long-term rising demand due to burgeoning global middle classes and their increased demand for maize-based food products and animal feed inputs will apply consistent upward pressure on prices, potentially guiding future destabilizing government actions. Furthermore, global climate change can threaten national production, and crises in major grain producers could cause sudden price hikes. On the other hand, reduced demand from large buyers, due to erosions in public budgets or rises in domestic productions, can rapidly cause prices to collapse. Speculation by investors and governments, uncertain about the future food needs of their population and the consistency of the global population, is a global concern and will remain so for the foreseeable future.

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