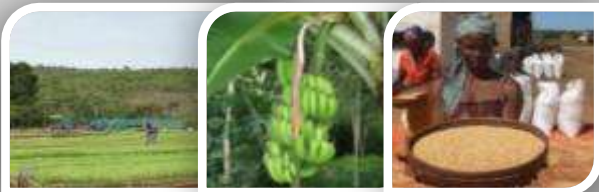


# Mozambique



## Stimulating Private-Sector Agribusiness Investment In Mozambique

*Multi-Stakeholder Action Plan  
September 2012*





# Abbreviations and Acronyms (1/2)

*Common acronyms used across documents in alphabetical order*

<b>ACD</b>	Agribusiness Commercial Development	<b>DUAT</b>	Land Use Right (Name for Land Title)
<b>ACIANA</b>	Commercial, Industrial and Agricultural Association in Nampula	<b>EC</b>	European Commission
<b>ACIS</b>	Association of Commerce and Industry	<b>EMBRAPA</b>	Brazilian Agricultural Research Corporation
<b>AGRA</b>	Alliance for a Green Revolution in Africa	<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>AVIMU</b>	Aviculture Association	<b>FOB</b>	Freight on Board (Price until Ship)
<b>BAGC</b>	Beira Agricultural Growth Corridor	<b>GAPI</b>	Gapi – Investment Society
<b>BNI</b>	National Investment Bank	<b>GAZEDA</b>	Special Economic Zones Office
<b>CAGR</b>	Compounded Annual Growth Rate	<b>GIZ</b>	German Development Cooperation
<b>CEPAGRI</b>	Center for Agricultural Promotion	<b>GoM</b>	Government of Mozambique
<b>CFM</b>	Ports and Railways of Mozambique	<b>IFAD</b>	International Fund for Agricultural Development
<b>CIM</b>	Matola Industrial Company	<b>IFDC</b>	International Fertilizer Development Center
<b>CPI</b>	Investment Promotion Center	<b>IIAM</b>	Mozambique Agricultural Research Institute
<b>CTA</b>	Confederation of Business Associations	<b>IKURU</b>	Commercial Company of Associated Producers
<b>DANIDA</b>	Danish International Development Agency	<b>IPEX</b>	Institution for the Promotion of Exports
<b>DASP</b>	Direction for Private Sector Support	<b>IRRI</b>	International Rice Research Institute
<b>DFID</b>	Department for International Development	<b>JFS</b>	João Ferreira dos Santos Group
<b>DPA</b>	Provincial Direction of Agriculture – Nampula	<b>JICA</b>	Japanese International Cooperation Agency
<b>DPPF</b>	Provincial Direction for Planning and Finance – Nampula	<b>KPIs</b>	Key Performance Indicators



## Abbreviations and Acronyms (2/2)

*Common acronyms used across documents in alphabetical order*

<b>MBFI</b>	Mozambique Bio Fuel Industries	<b>SOP</b>	Standard Operating Procedures
<b>MCC</b>	Millennium Challenge Corporation	<b>SPA</b>	Provincial Services of Agriculture – Beira
<b>MIC</b>	Ministry of Industry and Commerce	<b>SPEED</b>	Support Program for Economic and Enterprise Development
<b>MINAG</b>	Ministry of Agriculture	<b>SPFFB</b>	Provincial Services for Forest and Fauna – Nampula
<b>NCL</b>	Port operating company for Nacala port	<b>VAT</b>	Value Added Tax
<b>NEPAD</b>	New Partnership for Africa's Development	<b>UNDP</b>	United Nations Development Program
<b>PEDSA</b>	Strategic Plan for Agricultural Development	<b>USAID</b>	United States Agency for International Development
<b>SADC</b>	Southern African Development Community	<b>USG</b>	United States Government
<b>SNV</b>	Netherlands Development Organization		



# Intended Audience and Purpose of this Action Plan

## *Intended Audience*



**Public Sector**



**Private Sector**



**Development  
Community**



### Purpose of the Multi-Stakeholder Action Plan

- ***Provide context on the investment climate within Mozambique***
- ***Highlight agricultural investment opportunities in the country***
- ***Identify what still needs to be done across sectors to further attract and stimulate this investment***



# Institutional Context for Project

*This project was conducted at an opportune time to align with and support pre-existing government and international activities*

## **CAADP** *(Comprehensive Africa Agriculture Development Program)*

- Provide guidelines for both the Mozambique's agricultural strategy and investment plan

## **PEDSA** *(Strategic Plan for Agricultural Development)*

- Covers years 2010-2019
- Focused on value chains across six corridors

## **growafrica**

- Connects private sector and governments, focusing on accelerating investments



- Brings together government, G-8 donors, and private sector to further agricultural development

## **PNISA** *(National Agricultural Sector Investment Plan)*

- Five-Year Plan for government investment in agriculture and food security
- Currently in progress, with planned approval in late August

**THIS PROJECT**



**CEPAGRI**



**USAID**  
FROM THE AMERICAN PEOPLE

**MONITOR GROUP**

Project work was design to inform these other activities



## Key Contributors

**The Monitor Group would like to specifically thank and recognize the following organizations for their ongoing collaboration and assistance throughout the project as part of the Working Team**

- Agriculture Promotion Center (CEPAGRI)
- Zambezi Valley Development Agency (ZVDA)
- USAID
- AgriFUTURO
- TechnoServe
- Investment Promotion Center (CPI)
- Beira Agricultural Growth Corridor (BAGC)
- Japanese International Cooperation Agency (JICA)



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- **Executive Summary**
- Country Overview
- Mozambican Agricultural Sector
- Value Chains of Focus
- Key Actors and Activities in Value Chains of Focus
- Value Chain Gap Identification and Recommended Actions
- Appendix



# Executive Summary (1/3)

## Overview

---

- A** Mozambique is a stable, **high economic-growth country** with recent and projected growth of 8% per year and substantial **agricultural potential** due to significant land availability as well as excellent agro-climatic conditions
  - The country exhibits **numerous economic improvements** as well as **strong performance** within the region **related to protecting investors**
- B** To reduce poverty and attain food security, **agriculture is one of the key priorities of the Mozambican government**, with the national strategy focused on production of staple foods, replacing imports of food crops, and expanding cash crops for export
- C** **Six corridors** have been identified **in Mozambique's agricultural strategy**, with this report focusing on three: **Nacala** (Niassa and Nampula provinces), **Zambezi Valley** (Zambezia and a portion of Tete province), and **Beira** (Manica, Solafa, and a part of Tete province)
- D** The Mozambican government is dedicated to providing a strong **enabling environment for investments in agriculture**. Additionally, strong senior government support, investment incentives, investment promotion and corridor-level organizations further demonstrate Mozambique's commitment.
  - **Ten key barriers** are perceived by the private sector
  - **Activities are underway to address these concerns**, but additional efforts are still required





## Executive Summary (2/3)

### Overview

---

- E** A **prioritization process** was utilized to determine four value chains to be the focus of this report to enhance coordination between the private sector, government and donor / development community
- The filtering process was based on **private sector, government, and donor / development community interest**, as well as **economic attractiveness** and **social impact**
  - The four selected value chain are **rice, bananas, soybeans, and maize**, but other value chains also present substantial potential
- F** For the **rice value chain** there are significant **investment opportunities** in **rice processing** in partnership with smallholders, the government, and donors/development community in the **four clusters** identified by the National Rice Strategy
- The **government** can best help by **investing in infrastructure, providing funding for irrigation, policy changes**, and **basic seed research**, whereas the **donor / development community** involvement should target **training of farmers extensionists, creating farmer associations, financing studies of needed policy change**, and **enhancing government capacity**
  - The coordination of private sector, government, and donor actions is particularly important to the success of this business model as it is a more nascent industry



## Executive Summary (3/3)

### Overview

---

**G** In the **banana value chain**, there is investment opportunity for the **private sector** in the **development of mid-size plantations** that can benefit from scale across plantations in the **north of the country**, and the **creation of adequate storage for refrigerated containers near the port of Nacala**

- **300 ha banana plantations** require a **4.5 to 6.0 MM investment** and can provide up to **15% IRR**
- The **government** can best help through focusing on **infrastructure improvements**, while the **donor / development community** should target **funding research and extension programs**

**H** Due to the **rotational crop** aspect of **soybeans** and **maize**, these value chains present several similarities. For the **private sector** there is **opportunity to act as an aggregator and market organizer, while entry into production** for soybeans in particular, but also maize, can support the growth of the poultry sector

- The **government** can best help with improving **market information and enhancing roads connecting producers and processing**, while the **donors / development community** should focus on **silo development** as well as assisting **smallholders organize and improve skills**



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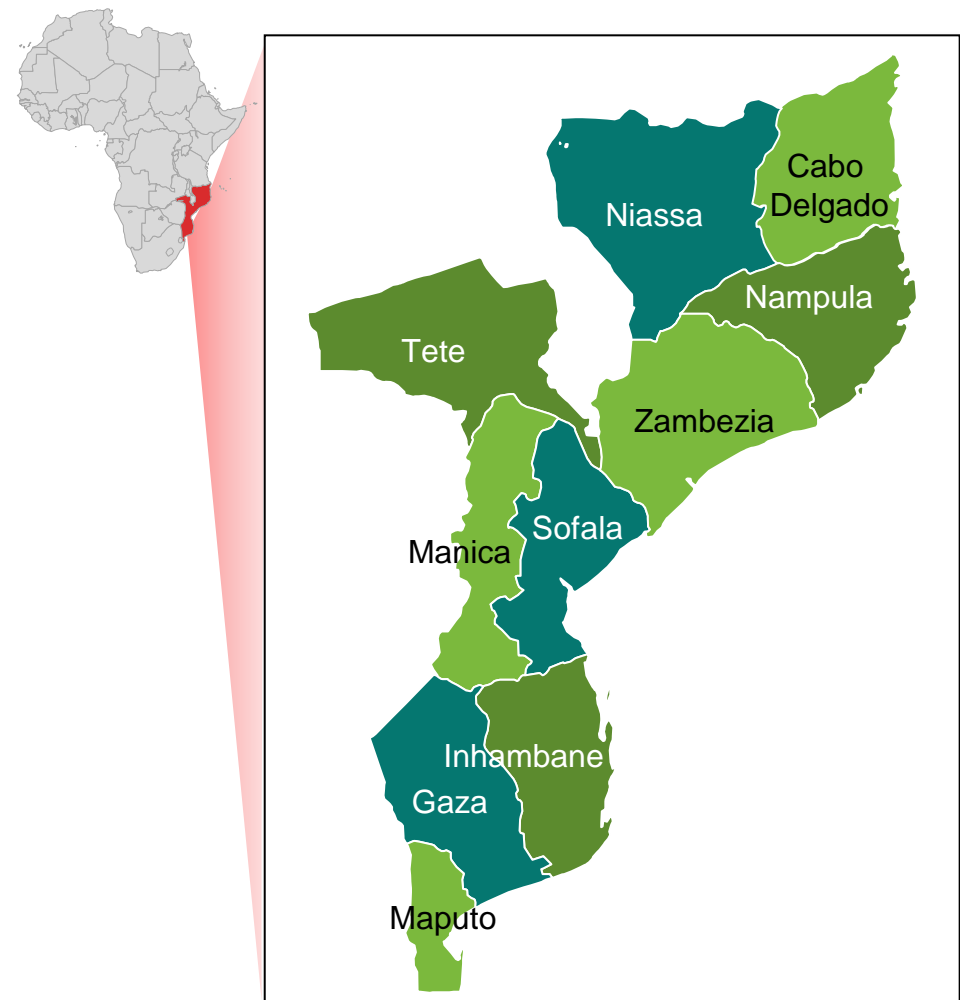


# Country Overview

## Mozambique at a Glance



*Mozambique is a stable, high economic growth country with substantial agricultural potential*



### Demographics (2011)

- **Population:** 23.9 million
- **Population Growth (5 Year CAGR):** 2.4%
- **Capital:** Maputo
- **National Language:** Portuguese
- **Business Languages:** Portuguese & English

### Land and Climate

- **Area:** ~80 million ha
- **Arable Land:** 36 million hectares
- **Climate:** Tropical to Sub-Tropical

### Key Economic Indicators (2011)

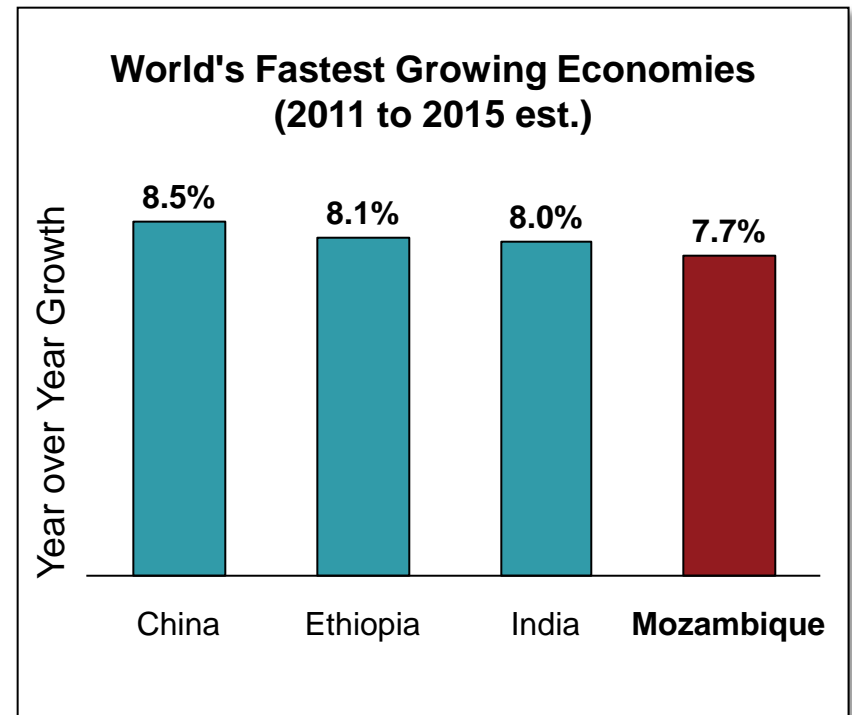
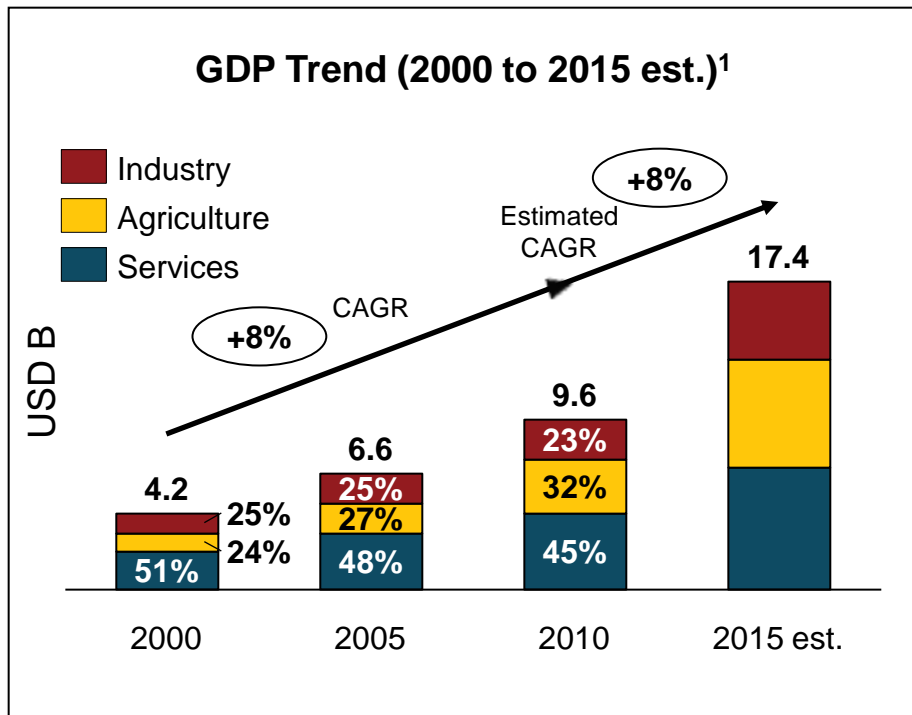
- **Currency:** Metical, Abbreviation: MZN
- **GDP:** USD 12.8B
- **GDP per Capita:** USD 535
- **Projected Annual GDP Growth:** almost 8% per year average until 2015
- **Agriculture Contribution to GDP:** 32%



# Country Overview

## Strong and Growing Economy

The Mozambican economy has displayed strong growth and is expected to continue growing at one of the fastest rates in the world, second only to Ethiopia in Africa



Note: 1) Growth rates are based on nominal prices  
 Source: IMF World Economic Outlook Database, September 2011; World Bank, April 2012; The Economist Intelligence Unit; National Institute of Statistics



# Country Overview

## Opportunity through Mozambican Workforce

*Despite recent economic growth, opportunity exists to improve agricultural productivity and the standard of living*

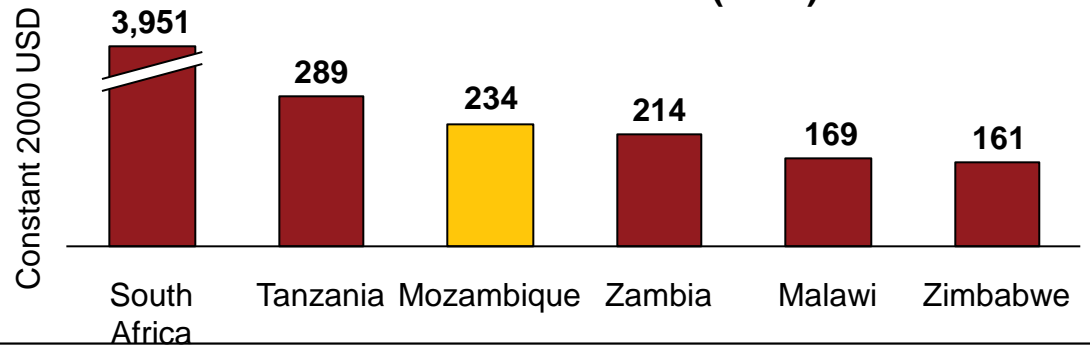
### Labor Market Indicators (2010)

**Labor Force: 11.1 Million**

**Labor Participation: 85%**

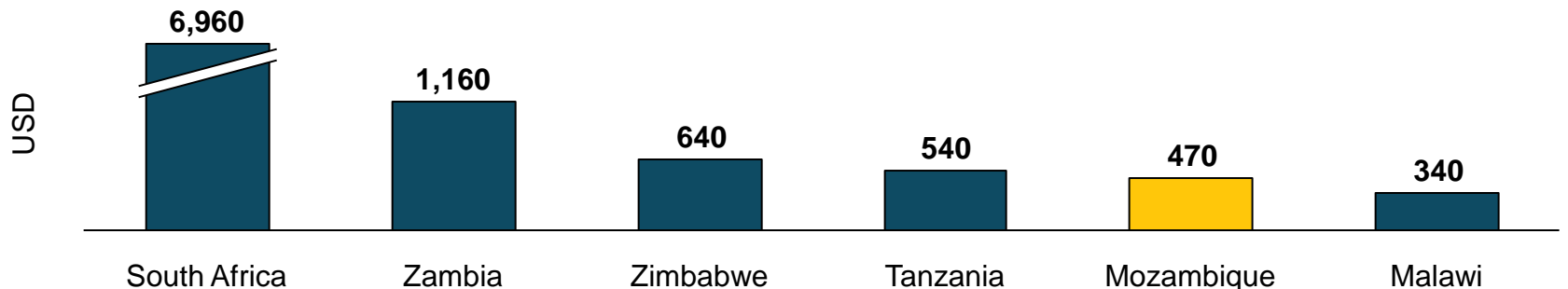
**Employment in Agriculture:  
80%**

#### Agricultural Value Added Per Worker Compared to Select SADC Countries (2010)



### Standard of Living Indicators

#### GNI per Capita (Atlas Methodology) Compared to Select SADC Countries (2011)



Note: The GNI per capita is the dollar value of a country's final income in a year, divided by its population. It reflects the average income of a country's citizens. Source: World Bank



# Country Overview

## Location with Optimal Market Access

*Mozambique has an advantageous geographic positioning, providing an ideal gateway to both international and regional markets*

### Mozambique: Proximity to High Opportunity Markets



- **Natural gateway to the Middle East, Mediterranean, and Asia**
- **Bordering regional markets like South Africa, Zimbabwe, and Malawi**
- **Port upgrades at Nacala and Beira will further trade opportunities**



# Country Overview

## Trade Potential as a SADC Member

As a member of the Southern African Development Community, Mozambique has access to an agricultural market worth over USD 3B

### Southern African Development Community Members



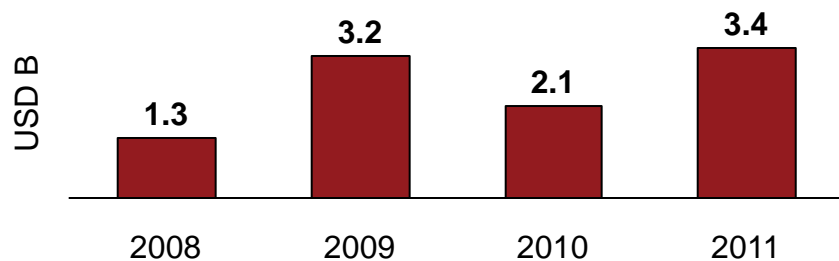
*Under SADC trade agreements, Mozambique aims to have **access to barrier-free trade** with other member states*

### SADC Trade Agreements

- The SADC trade agreements aim to:
- **Eliminate barriers** to intra-SADC trade
  - **Eliminate import duties** based on a phased approach
  - **Eliminate all export duties**
  - **Eliminate non-tariff barriers**
  - Apply **no new quantitative import restrictions**
  - **Eliminate quantitative export restrictions**

### Trade Opportunity Within SADC

**Balance of Trade Value for Agricultural Products in SADC Region<sup>1</sup>**



Note: 1) Trade balance calculated as total value of imports less total value of exports Source: SADC; International Trade Center



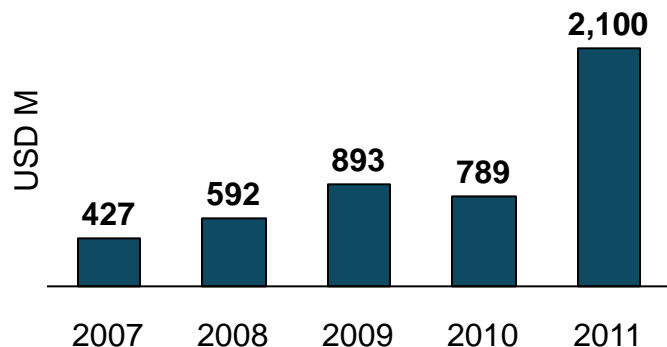


# Country Overview

## Growing Foreign Direct Investment

*Mozambique has recently attracted many large private sector investments, ranging from the mining and natural gas sectors to agriculture*

**FDI Inflows (2007 to 2011)**



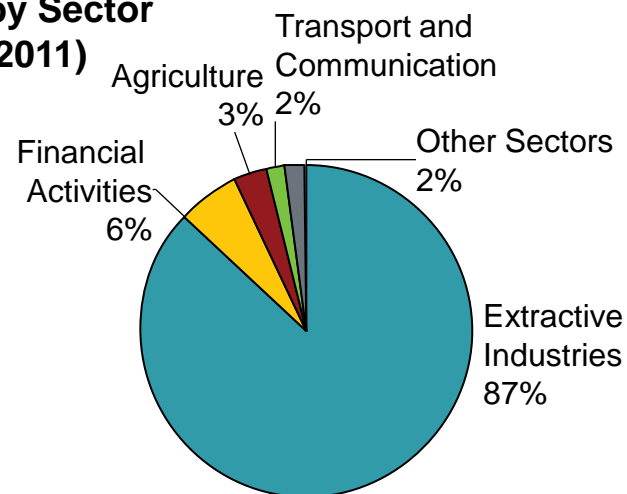
- **Foreign direct investment (FDI)** in Mozambique **grew nearly fivefold** from 2007 to 2011
- **Aggregate FDI** from 2007 to 2011 amounts to **USD 4.8B**
- FDI is largely **led by the expanding mining and natural gas sectors**

*“Mozambique is the 3<sup>rd</sup> most attractive African country for foreign direct investment (FDI)”*  
*- Rand Merchant Bank, August 2012*

### Sample of Large, Recent Projects

- **Vale: USD 6B** coal mine
- **Anadarko: Estimated USD 30B+** by 2017
- **Mozal JV: USD 2.5B** aluminum project
- **Green Resources: USD 2.2B** eucalyptus plantation and industrial infrastructure
- **Matanuska: USD 60M** invested to date focused on bananas
- **Olam: USD 50M+** investment in rice

**FDI by Sector (2011)**

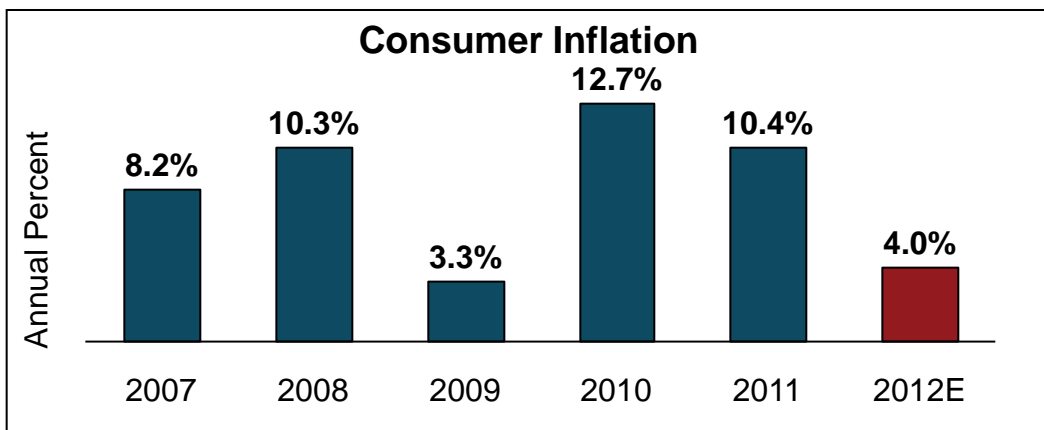




# Country Overview

## Stable Inflation Rate and Currency

*Mozambique's policies relevant to currency and interest rates have greatly reduced the inflation rate, making the country more stable for investment*



*Mozambique's year over year consumer inflation is expected to be 4% for 2012, according to the Central Bank*

### Inflation and Interest Rates

- Mozambique's **policies** to reduce inflation have yielded noteworthy results
  - Inflation decelerated from double digits in 2011 to **2.28 percent YOY in May**
- **Interest rates** are a **key lever for controlling inflation**
  - Lending interest rates for 2011 rose to about 19% from 16% in 2010 in efforts to curb inflation; however, rates were lowered to 11.5% in July 2012 – the fourth cut of the year

### Currency Performance

- The metical appreciated against the dollar 21 percent in 2011, far outstripping other currencies
- The strong metical has made **imports cheaper**, greatly **reducing food prices**, but also has made it more **difficult for local producers to compete**

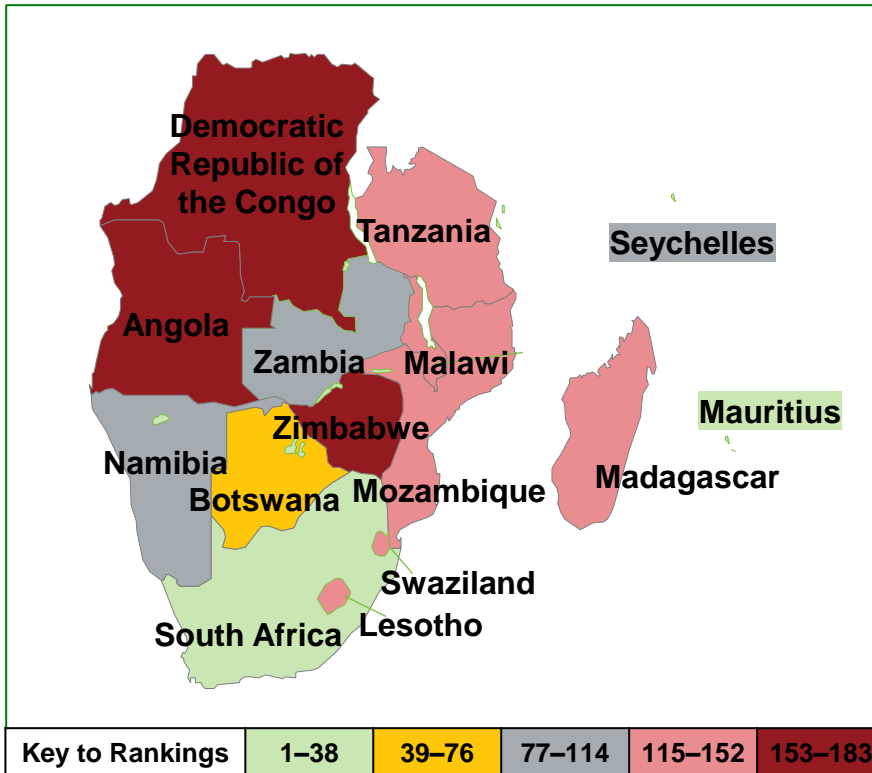


# Country Overview

## Business Environment

*While Mozambique has evidenced numerous economic improvements and strong performance in protecting investors, opportunity still exists to improve*

### Ease of Doing Business Rankings (2012)<sup>1</sup>



<b>Mozambique Overall Ranking</b>	<b>139</b>
<b>Protecting Investors</b>	<b>46</b>
<b>Starting a Business</b>	<b>70</b>
Paying Taxes	107
Dealing with Construction Permits	126
Enforcing Contracts	131
Trading Across Borders	136
Resolving Insolvency	143
Getting Credit	150
Registering Property	156

*Mozambique performs particularly well on protecting investors and starting a business, especially in comparison to other SADC countries*

As is evidenced by the Emergency Action Plan<sup>2</sup>, the Mozambican government is actively engaged in the process to improve the business environment within the country

Note: 1) 183 countries are ranked globally; SADC's average rank for ease of doing business is 114; 2) The Emergency Action Plan includes key policy changes the government desires to adjust to improve the country's business environment. Source: World Bank-International Finance Corporation, Doing Business, 2012



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# Agriculture in Mozambique

## Importance of Agriculture in Mozambique's Strategy

*Agriculture is a key priority for the Mozambican government for poverty reduction and attaining food security, as is detailed in the country's ten-year strategy plan*

### Summary of the Strategic Plan for Agricultural Development (PEDSA), 2011 to 2020

#### Vision:

*An integrated, prosperous, competitive and sustainable agriculture sector*

- **6 corridors targeted** to align efforts across public, private, and development sectors through:
  - Agricultural potential
  - Support services (research centers, educational institutions)
  - Connection to market (infrastructure)

1

*Agricultural production and productivity to increase ability to compete*

2

*Infrastructure and services for markets and improved marketing*

3

*Land, water, forest, and wildlife resources used sustainably*

4

*Agricultural institutions strengthened*

#### Four Discrete Pillars in Progress to Achieve Agricultural Vision

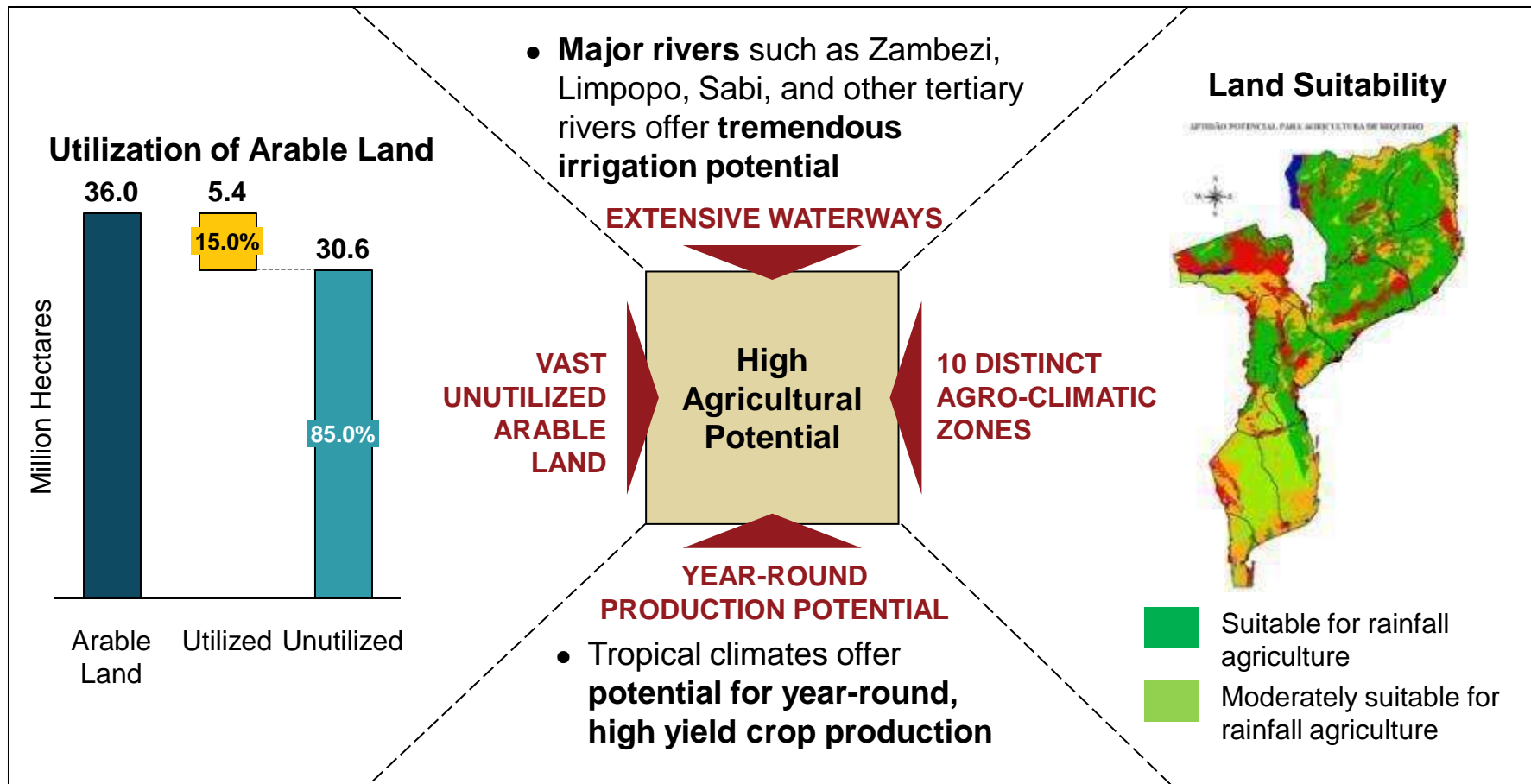
***Mozambique plans to allocate 10 percent of its budget to agriculture by 2015, as resolved in the Maputo Declaration of 2003 by the African Union***



# Agriculture in Mozambique

## Overview – Excellent Conditions for Agriculture

*Mozambique boasts ideal growing conditions – plentiful water supply combined with diverse micro-climates to support a broad range of agricultural commodities*

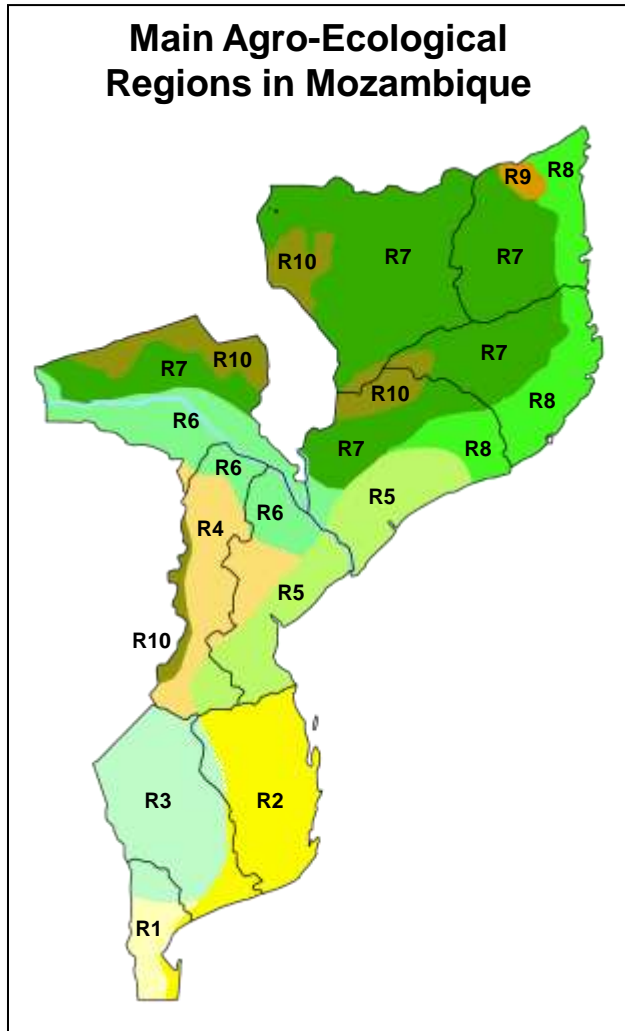




# Agriculture in Mozambique

## Mozambique's Agro-Ecological Zones

There are 10 distinct agro-ecological zones in Mozambique offering potential for a wide variety of crops to be grown



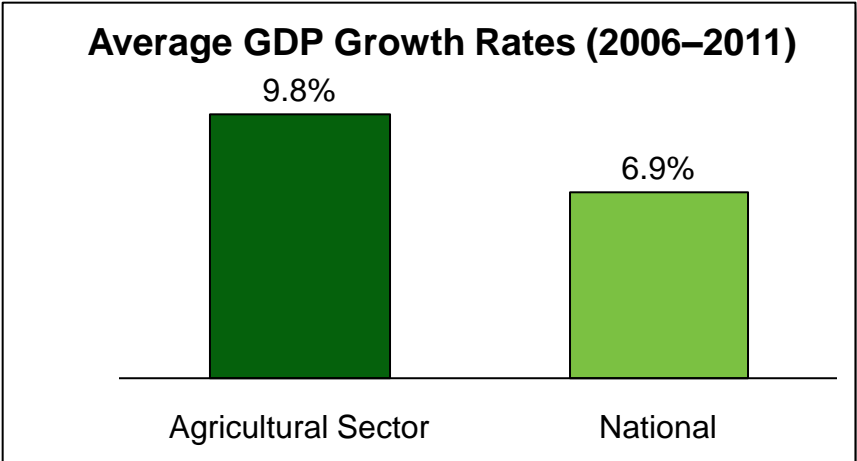
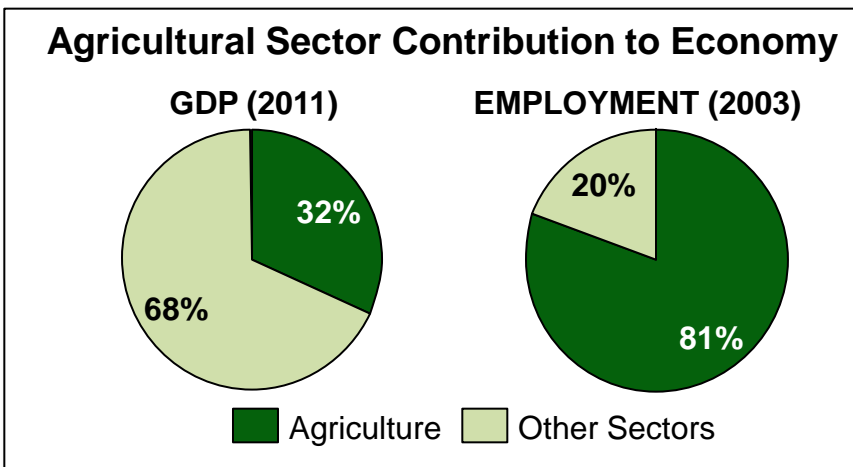
Region	Part of Mozambique	Ag. Commodities Produced
R1	Inland Maputo and south Gaza	Maize, cowpea, groundnut, cassava, sweet potato, banana
R2	Coastal region south of the Sabi (Save) River	Maize, sugar, cowpea, sweet potato, groundnut, cassava, rice
R3	Center and north of Gaza, and west Inhambane	Cattle, goats, rice
R4	Medium altitudes of central Maputo	Maize, sorghum, cassava, cowpea, soybeans
R5	Low altitudes of Sofala and Zambezia	Rice, cotton, cashew, soybeans
R6	Semi-arid region of Zambezi Valley and Southern Tete	Sorghum, millet, sugar, rice
R7	Medium altitudes of Zambezia, Nampula, Tete, Niassa, and Cabo Delgado	Maize, soybeans, sorghum, cassava, cowpeas, groundnuts, rice, sesame
R8	Coastal litoral of Zambezia, Niassa, and Manica	Banana, cassava, millet, rice, cashew
R9	North interior of Cabo Delgado	Maize, sorghum, cowpeas, cassava, sesame
R10	High altitudes of Zambezia, Niassa, and Manica	Soybeans, maize, common beans, potatoes, rice



# Agriculture in Mozambique

## Agriculture's Contribution to the Economy

Agriculture is a key driver of the Mozambican economy, although the importance of agriculture is expected to decrease as the mining and natural gas sectors develop



The agricultural sector accounts for 32% of national GDP and 81% of national employment

From 2006 to 2011, Mozambique's national economic growth averaged 6.9% a year while the agricultural sector grew at 9.8%

### Impact of Other Sectors' Growth on Agriculture

- The expected **rapid expansion of other sectors**, namely mining and natural gas, is expected to outpace agricultural growth in the medium term
- While potentially reducing agriculture's percentage contribution to the economy, **this growth will likely have indirect benefits on the agricultural sector** through enhancements in infrastructure, transportation and logistics, market functioning, and consumer purchasing power, amongst others

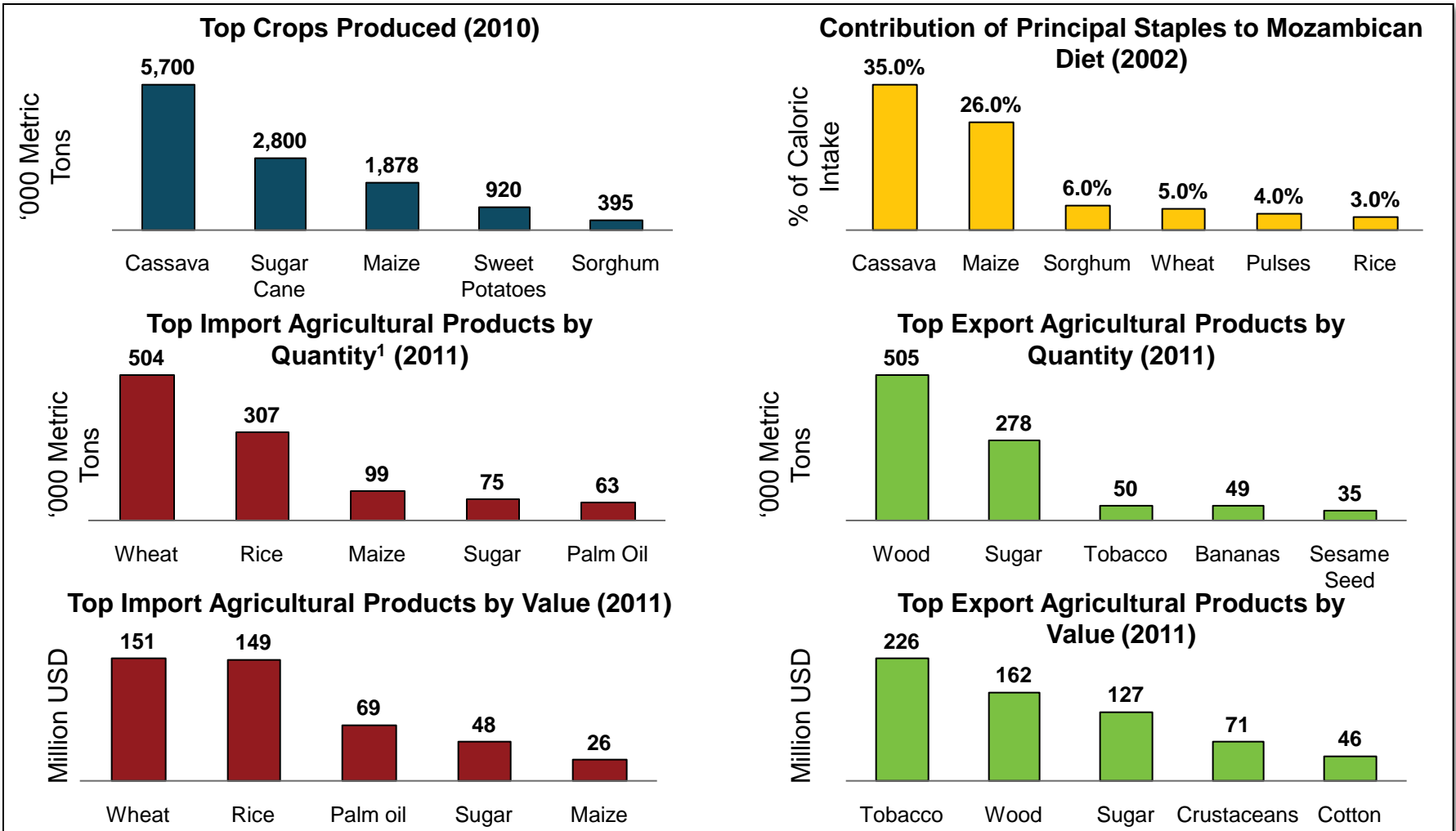




# Agriculture in Mozambique

## Major Crops

*Production is focused on staple foods – with cassava and maize being most important – while the country’s imports are driven by food crops and exports are largely cash crops*



Note: 1) Although potatoes are cited as a large import by some local sources, this was not corroborated by international trade databases used  
Source: Ministry of Agriculture; FAO; International Trade Centre



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# Overview of the Corridors

## Agricultural Growth Corridors

*Of Mozambique's six agricultural corridors, Nacala, Zambezi Valley, and Beira corridors have been highlighted due to their high agricultural potential*

Of the six corridors identified in Mozambique's strategy...

Six Corridors in Agricultural Strategy

Nacala

Zambezi Valley

Beira

Pemba Lichinga

Limpopo

Maputo

...this action plan will focus on the following three corridors

Provinces within Beira, Nacala, and Zambezi Valley Corridors<sup>1</sup>



### Why These Three Corridors Have Significant Potential

- Agricultural opportunity due to soil and climate, while most of country's water is here
- Level of existing or planned infrastructure, including ports
- Existing framework to attract / manage investments<sup>2</sup>
- Alignment with other efforts<sup>3</sup>
- Economic zones<sup>4</sup>

Note: 1) Color coding represents approximate positioning of corridors; 2) Zambezi Valley Development Authority and Beira Agricultural Growth Corridor; 3) ProSAVANA in Nacala Corridor; 4) Nacala Economic Zone exists now with Beira Economic Zone planned  
 Source: PEDSA, Government and Expert Interviews



# Overview of the Corridors

## Nacala Agricultural Growth Corridor

The government has focused significant resources and business-friendly investment programs on the Nacala Corridor

Attractiveness of Nacala	
Multi-Country ProSAVANA Initiative for Nacala Corridor	<ul style="list-style-type: none"> <li>Joint effort of Brazil, Japan, and Mozambique to <b>develop a master plan and fundraise public &amp; private investment for agriculture</b></li> <li>Also includes land potential mapping and infrastructure investment</li> </ul>
Nacala Special Economic Zone	<ul style="list-style-type: none"> <li>Nacala Special Economic Zone provides <b>500 ha industrial free zone with no VAT and customs duties, as well as technical assistance</b></li> </ul>
Nacala Port Potential	<ul style="list-style-type: none"> <li>Upgrade of the <b>deepest port</b> on East African coast at Nacala</li> </ul>
Demand from Mining	<ul style="list-style-type: none"> <li>The mining sector is <b>increasing demand for agricultural products; currently imported from South Africa at high cost</b></li> </ul>

Investments Made	
Soybeans	<ul style="list-style-type: none"> <li><b>Rei do Agro:</b> Mozambican company investing <b>USD 5M</b> for soybean and maize production</li> </ul>
Forestry	<ul style="list-style-type: none"> <li><b>Green Resources:</b> <b>USD 2.2B</b> eucalyptus plantation and industrial infrastructure</li> </ul>
Bananas	<ul style="list-style-type: none"> <li><b>Matanuska:</b> <b>USD 60M</b> invested to date focused on bananas</li> </ul>
Mining	<ul style="list-style-type: none"> <li><b>USD 4.4B</b> upgrade to rail by Vale</li> </ul>



# Overview of the Corridors

## Zambezi Valley Corridor

*Zambezi Valley has the greatest agricultural potential, with the highest concentration of the country's water resources*

### Attractiveness of Zambezi Valley

#### Vast Water Reserves

- **80% of the country's water reserves** are found in the Zambezi Valley corridor

#### Broad Crop Variety

- **Diverse topography and good rainfall** during cropping season provides **perfect climate for a variety of crops**

#### Large Local Demand

- **Local market potential** as one of the most densely populated provinces

### Investments Made

#### Agro-Processing

- Chinese government **USD 50M** investment for **cotton, maize, and rice** processing facilities

#### Irrigation<sup>1</sup>

- **~USD 90M PROIRRI<sup>1</sup>** irrigation project, mainly aimed at **irrigation for rice**

#### Rice

- OLAM is investing **USD 50M** over the next 4 years



# Overview of the Corridors

## Beira Agricultural Growth Corridor

*Beira currently has the most developed infrastructure and linkages to neighboring countries*

### Attractiveness of Beira

#### Infrastructure and Connectivity to Region

- **Well-developed** infrastructure with **road and rail network linking** Zambia, Malawi, Zimbabwe and Mozambique to the **port of Beira**

#### Demand from Mining Activities

- A number of **multi-billion dollar coal mining investments** are in progress
- These investments will **improve access to infrastructure** in the region and **boost local demand**

### Investments Made

#### Catalytic Fund

- **USD 20M** for the BAGC Catalytic Fund
- **First catalytic fund dedicated to agriculture** in Africa, which is **already leading to a number of investments**

#### Irrigation<sup>1</sup>

- **~USD 90M PROIRRI<sup>1</sup>** irrigation project, mainly for **rice irrigation**

#### Beira Port

- **USD 67M** from JICA and EU for **upgrades to the Port of Beira**
- Estimated **USD 1B** port investments by Rio Tinto

Note: 1) PROIRRI project is part of both the Beira and Nacala Corridors  
Source: BAGC



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# Enabling Environment and Barriers

## Government Support

*Agricultural transformation is a priority within the highest levels of government and investors are offered attractive incentives and support*

### FOCUS ON AGRICULTURE



### INVESTMENT INCENTIVES



### INSTITUTIONAL SUPPORT



- **President Guebuza** is a co-founder and champion of *Grow Africa*<sup>1</sup>
- **Agricultural growth** is a high priority for the government to:
  - Enhance employment and income potential
  - Enhance food security
- **10-Year Strategic Plan (PEDSA)** for agricultural sector development in place
  - Focused on six growth corridors

- **Exemptions on equipment importation duties**
- Real property transfer tax reductions
- **Reduction in corporate income taxes:**
  - Agriculture corporate income tax generally 10%
  - **Effective tax rate can be 2% until 2015 and 5% until 2025**
- **Low cost land**
  - 50 year lease with 49 year potential extension of land for **~USD 1/ year/ hectare**

- Agencies dedicated to facilitating investment
  - The Investment Promotion Agency (**CPI**) and Centre for Promotion of Agriculture (**CEPAGRI**) **promote and support agricultural investment opportunities**
  - **GAZEDA** dedicated to the Nacala Economic Zone
- Some corridors also have organizations focused on **developing and coordinating investments**

Note: 1) Grow Africa is a series of conferences and interactions that connect the private sector and governments, focusing on accelerating investments  
Source: Investment Promotion Agency Website





## Perceived Barriers to Investment Overview

*Despite efforts by the government to date, the private sector perceives the following ten barriers to investment within the enabling environment*

### KEY BARRIERS FOR PRIVATE SECTOR INVESTMENTS

- |   |  |   |    |
|---|--|---|----|
| 1 | INFRASTRUCTURE    |  CAPACITY BUILDING       | 6  |
| 2 | BUREAUCRACY       |  INFORMATION             | 7  |
| 3 | FINANCING         |  TAXES                   | 8  |
| 4 | ACCESS TO LAND  |  POLICY AND REGULATION | 9  |
| 5 | COORDINATION    |  MACRO ISSUES          | 10 |

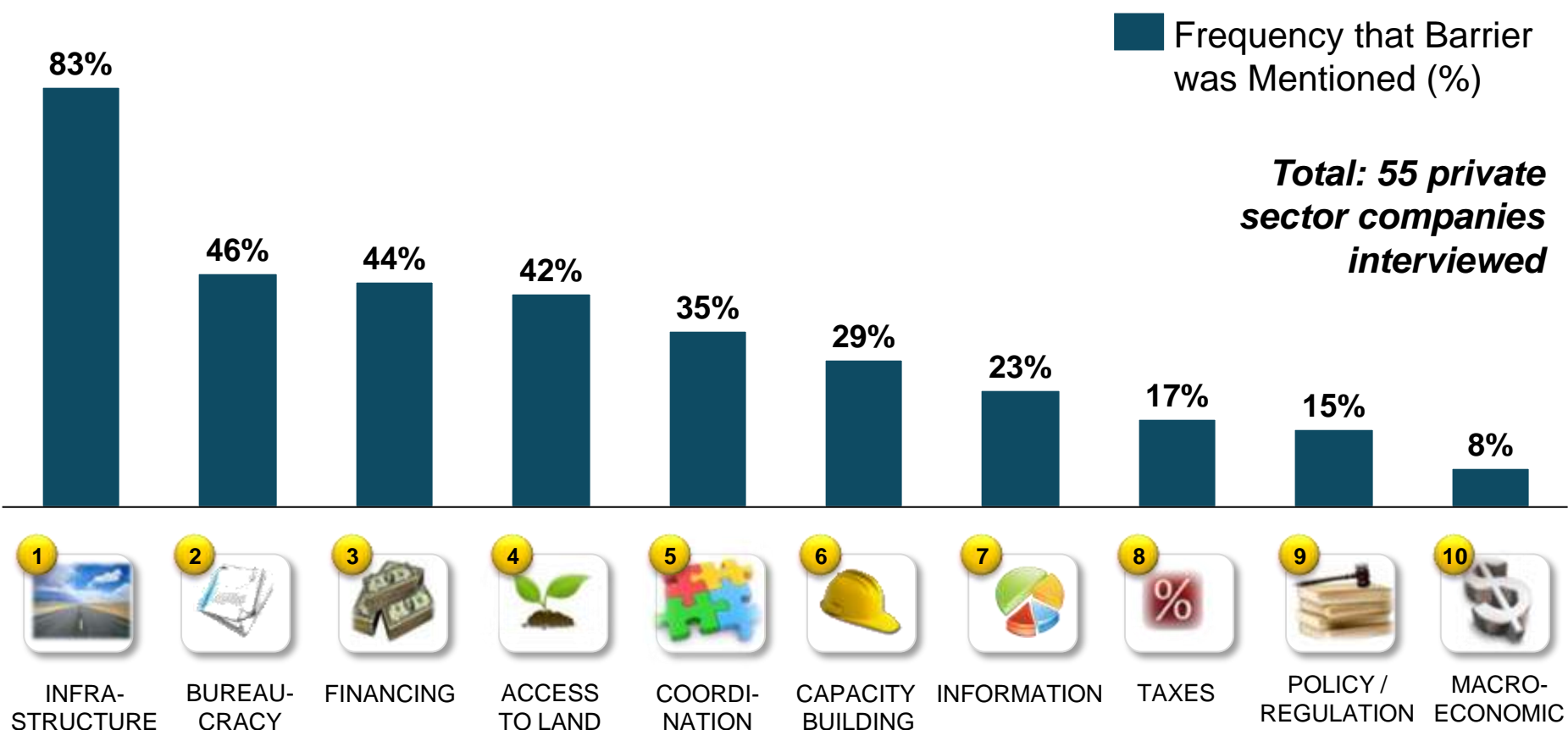


# Enabling Environment and Barriers

## Perceived Barriers to Investment (1/2)

Barriers were perceived with varying levels of importance based on the percentage of companies that raised them – with infrastructure a concern across almost all investors

### Most Frequently Cited Barriers by Private Sector





# Enabling Environment and Barriers

## Perceived Barriers to Investment (2/2)

The frequency with which each barrier was mentioned differs within each group of investors

Within the identified groups, are any barriers **more or less prevalent?**

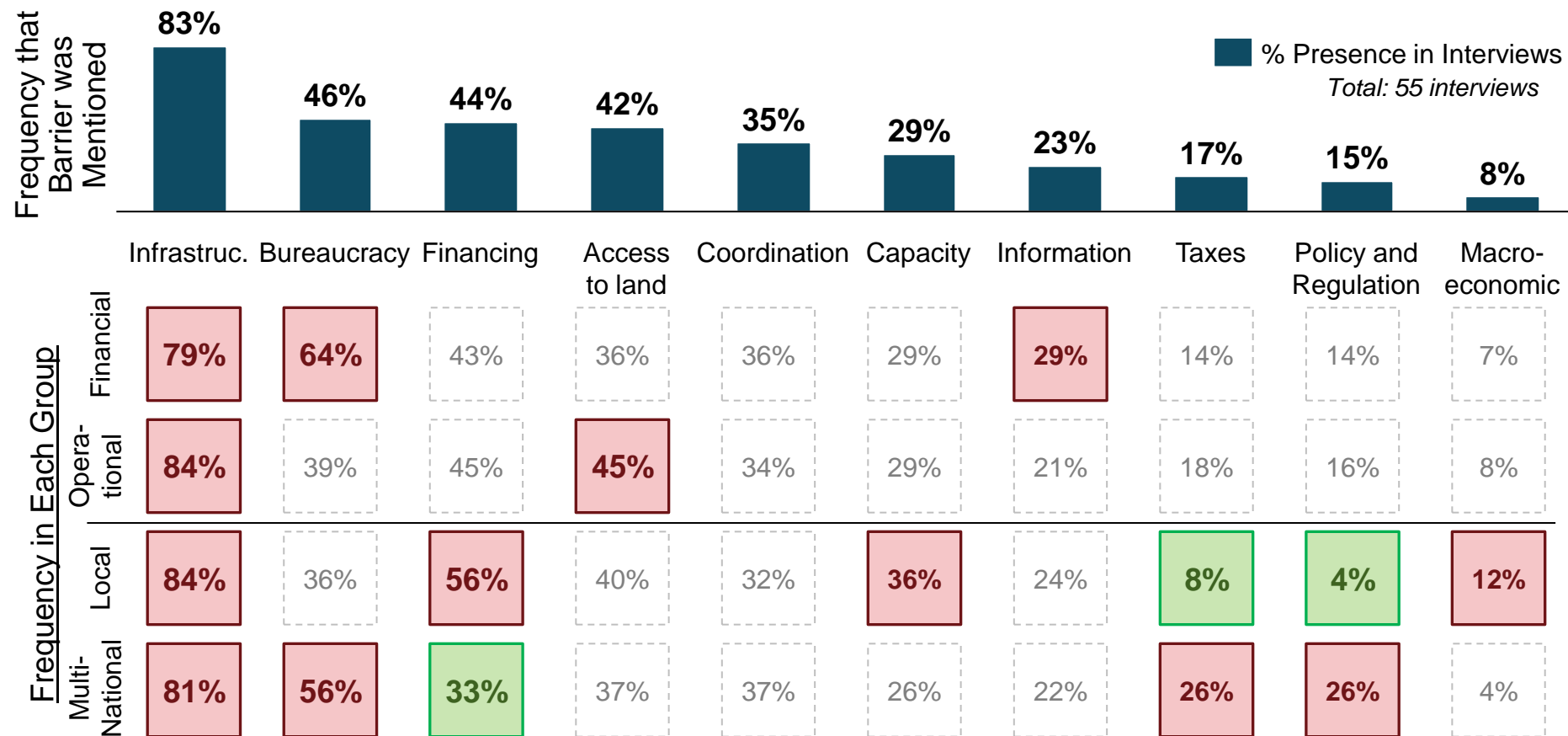


If YES, the data is **HIGHLIGHTED** in

  For High Frequency

  For Low Frequency

### Most Frequently Cited Barriers by Private Sector<sup>1</sup>



Note: <sup>1</sup> Investors frequently cited more than one barrier. Source: Monitor Analysis



# Enabling Environment and Barriers Infrastructure



*Poor access to infrastructure discourages investment, with many companies setting up their own infrastructure like electric lines, irrigation systems, storage facilities, and roads*

## Specific Barriers (Key sub-topics and descriptions)

**Lack of Infrastructure**

Lack of transport infrastructure, warehousing, irrigation, & port inefficiency affect transport costs

**Need to Set Up Own Infrastructure**

The private sector typically has to set up their own infrastructure, such as electric lines and roads

**Lack of Agriculture-Specific Storage**

Storage and cold storage facilities are limited, causing production loss

## Investor Quotes

*"I had to pay USD 12,000 per kilometer over 6 kilometers to get electricity to my farm. If you add my irrigation costs, **over 50% of my initial investment went to infrastructure**"*

## Illustrative Government and Donor Community Response to Barriers

Initiative	Description
<b>Significant Upgrades to Infrastructure in Focus Corridors</b>	<ul style="list-style-type: none"> <li>Agencies of the government of Mozambique, as well as private companies such as Rio Tinto and Vale, are involved in major upgrades to road, rail, port and electrical infrastructure               <ul style="list-style-type: none"> <li>– Most of these upgrades are due to be completed by 2015</li> </ul> </li> </ul>






# Enabling Environment and Barriers

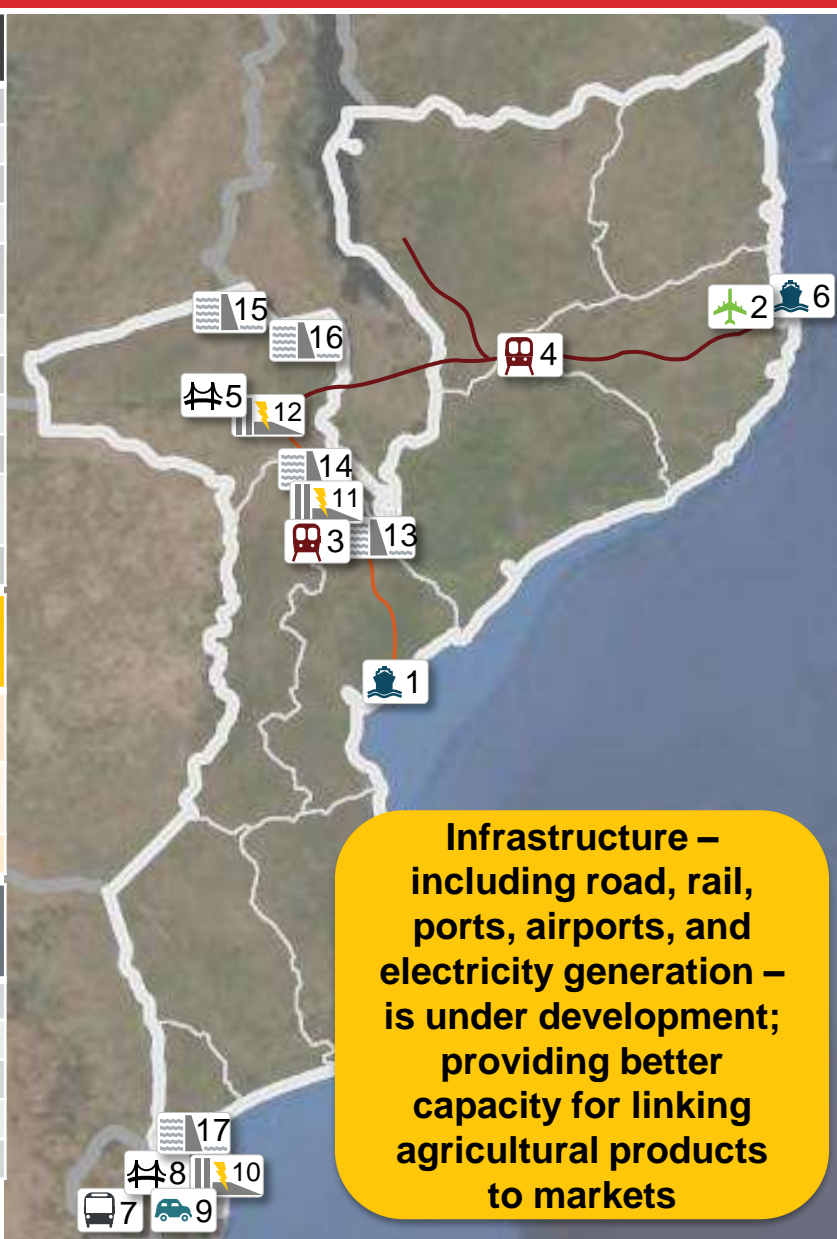
## Ongoing and Planned Infrastructure Projects



	Project	Investment (USD M)	Date of Completion
 <b>TRANSPORT INFRASTRUCTURE</b>	1 Deepening of Beira Port	300	2012
	1 Beira Coal Terminal	140	2012
	1 Beira Coal Terminal	400	2012
	2 Nacala Airport	111	2012
	3 Rehabilitation of Beira railway (570km, 5–8MT/Y)	120	2013
	4 Nacala Corridor (24MT/Y)	2,600	2014
	5 Tete Bridge	190	2014
	6 Nacala Port (20–25MT/Y)	295 (phase 1)	2015
	7 Public Transport Network	980	Unknown
8 Catembe Bridge and Ponto do Ouro Roads	750	Unknown	
9 Maputo Public Transport	310	Unknown	

	Project	Capacity (MW)	Investment (USD M)	Type	Date of Completion
 <b>THERMO-ELECTRIC POWER</b>	10 Gigawatt — RG	100	230	Natural gas	2013
	11 Moazite — Phase 1	300	1,500	Coal	Unknown
	12 Benga	600	1,300	Coal	Unknown

	Project	Capacity (MW)	Investment (USD M)	Date of Completion
 <b>HYDRO-ELECTRIC POWER</b>	13 Lupata	520	800	2016
	14 Boroma	165	250	2016
	15 Cahora Bassa North	1,200	1,100	2017
	16 Mphanda Nkuwa	1,500	2,600	2017
	17 Moamba Major	17	500	2020



**Infrastructure – including road, rail, ports, airports, and electricity generation – is under development; providing better capacity for linking agricultural products to markets**

Source: Banco Nacional de Investimento, Ministry of Energy, Ministry of Public Works



# Enabling Environment and Barriers

## Bureaucracy



*Bureaucracy-related limitations are a key frustration for the investors we interviewed, especially multi-nationals*

### Specific Barriers (Key sub-topics and descriptions)

#### Inefficient, Unclear Processes

Bureaucratic and inefficient processes cost the private sector significant time, making investment expensive

#### Corruption

Perceived corruption in numerous forms, facilitated by bureaucratic processes

### Investor Quotes

*“The **time** it takes to **get things approved** and **bureaucracy** can be **destructive** to the process”*

*“In this country, **the same task** can be **both possible and impossible** depending on the **money** you have and **who you know**”*

### Illustrative Government and Donor Community Response to Barriers

Initiative	Description
<b>Mapping of Processes</b>	<ul style="list-style-type: none"> <li>• CEPAGRI is finalizing a detailed process guide for new investors that would like to start an agricultural business in Mozambique (Portuguese and English)</li> <li>• ACIS, an association of private sector companies, is also involved in mapping processes such as starting up a company and acquiring land rights, in order to make current processes more clear for investors</li> </ul>



# Enabling Environment and Barriers Financing



*High financing costs and collateral requirements for loans are critical barriers to investment, primarily for local investors, who do not have access to finance abroad*

## Specific Barriers (Key sub-topics and descriptions)

### High Interest Rates

Meticais interest rates are high (>20%) and USD loans cannot be obtained without exporting

### Collateral Requirements

Banks require minimum 100% collateral, which many small companies cannot afford<sup>1</sup>

## Investor Quotes

*“It is **cheaper** for investors to **buy and import** machinery from **South Africa** than to buy and **finance** it here due to **high interest rates**”*

*“Many small to medium companies do **not own enough assets** for the required collateral. It does help that donors are providing loan guarantees, but this is **not sustainable**”*

## Illustrative Government and Donor Community Response to Barriers

Initiative	Description
<b>Donor Loan Guarantees</b>	<ul style="list-style-type: none"> <li>USAID can provide loan guarantees up to 50% of the loan for agricultural loans<sup>2</sup></li> </ul>
<b>Lowering of Interest Rates</b>	<ul style="list-style-type: none"> <li>The Central Bank has consistently lowered interest rates in 2012, with the final rate cut in 2012 resulting in a central bank lending rate of 11.5%</li> </ul>
<b>Agricultural Development Fund</b>	<ul style="list-style-type: none"> <li>The Ministry of Agriculture has an agricultural development fund aimed at promoting access to finance for producers</li> </ul>

Note: 1) Unlike in most places land cannot be used as collateral by farmers . 2) Companies qualifying for the loan guarantee are typically not told that they have received one to avoid non-compliance. USAID backing is not available in all cases by any means.

Source: Monitor Analysis



*Land issues were frequently raised by the private sector regarding the DUAT process, challenges with local communities, and the need for greater formalization of property rights*

### Specific Barriers (Key sub-topics and descriptions)

**Cumbersome Process with Unclear Criteria**

Lack of understandable processes and criteria to concede the access to land someone else

**High Level of Community Engagement Required**

Need for significant local negotiations to operate on the land granted by DUAT

**Overlapping / Inadequately Documented Land Claims**

Need for comprehensive, electronic land database

**Inability to Formally Transfer Land**

Law does not allow farmers to transfer ownership of DUAT for a fee, limiting value of land

### Investor Quotes

*“It is almost impossible to get land that is not at least partially occupied. **Dealing with the local community can be very difficult and can make a business unfeasible**”*

### Illustrative Government and Donor Community Response to Barriers

Initiative	Description
<b>Land Mapping</b>	<ul style="list-style-type: none"> <li>MCC has conducted the first systematic, large-scale land regularization and titling program in Mozambique (mostly in Nampula) <ul style="list-style-type: none"> <li>The focus of the project is mostly on urban land parcels, with some rural land parcels also being registered</li> </ul> </li> </ul>
<b>Video Consultation Process</b>	<ul style="list-style-type: none"> <li>TechnoServe is involved in developing a video documentation process for land consultation with communities to ensure proof of consultation</li> </ul>
<b>Geographic Information System</b>	<ul style="list-style-type: none"> <li>The Mozambican government has recently acquired a geographic information system to assist in planning through capturing land information, amongst other data points</li> </ul>





*Both local and multinational investors believe that poor coordination within and between sectors limits the effectiveness of the considerable efforts underway to develop the agricultural sector*

### Specific Barriers (Key sub-topics and descriptions)

**Insufficient Facilitation of Business Connections**

Desire for government agencies to do more to facilitate introductions between potential investors and current businesses

**Insufficient Coordination Amongst Public Agencies**

Coordination within and across government groups is low, both at provincial and national levels

**Insufficient Coordination Within Donors**

Many development efforts are believed to fail because they are not designed as integrated solutions throughout value chain

**Low Visibility of Donor Activities to Private Sector**

Private sector is not fully aware of what donor groups are doing and find donor processes slow and inflexible

**Limited Coordination Amongst Sectors**

Lack of coordinated efforts amongst public, private, and donor sectors to achieve common goals

### Investor Quotes

*“Government and the donor community should be working with and supporting the private sector, but sometimes **it seems like they are not all going in the same direction**”*

### Illustrative Government and Donor Community Response to Barriers

Initiative	Description
<b>Associations</b>	<ul style="list-style-type: none"> <li>Numerous private sector associations, such as Frutisul and ACIS, serve as an interface between the private sector, government and donors</li> <li>The CTA is a confederation of these associations that communicates private sector concerns to the government</li> </ul>



# Enabling Environment and Barriers

## Capacity Building



*Lack of well qualified mid-level managers and basic labor force as well as capacity limitations in government roles requires significant investment in training*

### Specific Barriers (Key sub-topics and descriptions)

<b>Lack of Skilled Management</b>	Lack of mid-level farm managers with the skills and experience required to manage others and operations
<b>Lack of Well Trained Basic Labor Force</b>	Lack of well trained basic labor force on farms requires significant investment in technical schools and agriculture practices
<b>Need for Capacity Improvement in Government</b>	Competencies of staff do not necessarily align with desired roles of ministries, necessitating additional training

### Investor Quotes

*“There **are few programs** that produce **well-trained farm managers** with the required technical skills”*

*“Mozambique produces **too many people with soft skills** rather than **needed practical skills**. We should analyze good practices implemented abroad to **improve the quality of our basic labor force**”*

### Illustrative Government and Donor Community Response to Barriers

Initiative	Description
<b>Agricultural College</b>	<ul style="list-style-type: none"> <li>Young Africa Agri-Tech is an agricultural skills training center being launched in Dondo               <ul style="list-style-type: none"> <li>The main objectives are to teach short-term courses in agriculture, horticulture, livestock, fish culture, forestry, farming support tech, food processing, and packaging</li> </ul> </li> </ul>



# Enabling Environment and Barriers Information



*Financial investor interviewees highlighted the quality of and access to data as limiting factors in attracting new investment and facilitating agricultural development*

## Specific Barriers (Key sub-topics and descriptions)

## Investor Quotes

### Lack of Market Information

Up to date and reliable information is not readily available

*“A **complete mapping of the land**, its soil conditions, crop opportunities, etc. **does not exist and should**”*

### Inadequate Mapping of Land Potential

Need for easy access to system, identifying correctly what crops can be grown where

*“**Additional market data** is critical, while currently available information is hampered by **inadequate cooperation** between statistical groups”*

### Inadequate Research Capacity

Significant deficiency in developing local technology and lack of coordination between them

## Illustrative Government and Donor Community Response to Barriers

Initiative	Description
<b>Land Potential Mapping</b>	<ul style="list-style-type: none"> <li>• PROSAVANA, a partnership between Brazil, Japan, and Mozambican governments, has started mapping of land potential in the Nacala corridor</li> <li>• World Bank program underway to map additional areas throughout Mozambique</li> </ul>
<b>Geographic Information System</b>	<ul style="list-style-type: none"> <li>• The Mozambican government has recently acquired a geographic information system to assist in data capture and availability of information such as agro-climatic conditions, crop potential, land title, and other information helpful to potential and current investors</li> </ul>



*Especially for multinational investors, taxes on production, exports, and imports inflate costs, which they say are then passed on to the consumer or smaller farmers*

### Specific Barriers (Key sub-topics and descriptions)

#### Withholding Tax

Withholding tax is not paid back to companies, making them reluctant to deal with smallholders

#### VAT Charges

Due to the fact that many small holder farmers do not have Tax ID's, purchases from them are not treated as expenses, required higher VAT charges

#### Port Charges

There are charges for use of port services that should be part of the expenses of the port, such as scanning

### Investor Quotes

*“Companies are reluctant to deal with small farmers because they will not get their **withholding tax** back. This tax **should not be applied to the informal agriculture sector**”*

*“What the government does not realize is that when companies get charged these ‘unnecessary costs,’ the **cost gets further passed on to the consumer or small farmer**”*

### Illustrative Government and Donor Community Response to Barriers

Initiative	Description
<b>G-8 New Alliance</b>	<ul style="list-style-type: none"> <li>As part of the G-8 New Alliance for Food Security and Nutrition, the government of Mozambique is currently identifying key tax related opportunities for improvement to address some of these concerns</li> </ul>



# Enabling Environment and Barriers

## Policy and Regulation



*Multi-national investors noted poor implementation and enforcement of regulations, as well as misaligned incentives, as hindrances to agriculture investment and sector growth*

### Specific Barriers (Key sub-topics and descriptions)

<b>Need for Focus on Implementing Policy/ Regulations</b>	Perception exists that, while existing policies need improvement, the current focus should be on implementing existing policy
<b>Misdirected Incentives</b>	Some investment incentives are thought to not be very useful to investors and may actually serve as disincentives
<b>No Incentives for Smaller Producers</b>	It is perceived that a low level of government incentives exist for smaller farmers, thus limiting agricultural development
<b>Input Market Distortion</b>	Government (and donor) programs that give free inputs to farmers distort the local input market
<b>Inefficiency of Justice System</b>	The inefficiency of the justice system (and the absence of any kind of enforcement body) makes banks more risk-averse, which has an effect on access to funding

### Investor Quotes

*“Stability is what is needed in policy and regulations. **Leave the policies as they are.** Get them well documented, easily accessible, and understood, then evaluate how well they work. Only then should policies be changed”*

### Illustrative Government and Donor Community Response to Barriers

<b>Initiative</b>	<b>Description</b>
<b>G-8 New Alliance</b>	<ul style="list-style-type: none"> <li>As part of the G-8 New Alliance for Food Security and Nutrition, the government of Mozambique is currently identifying and will be approving policy changes to better facilitate private sector investment in agriculture</li> </ul>



*The strong currency and competition for resources from mining companies make the overall environment appear unfavorable for some investors interested in agriculture*

### Specific Barriers (Key sub-topics and descriptions)

<b>High Value of Currency</b>	The over-valued currency makes Mozambique attractive for importers, reducing competitiveness of local products
<b>Competition from Mining</b>	Threat exists of mining activities creating competition for access to logistics and workforce

### Investor Quotes

*“I understand that the **high value of the currency helps control inflation** and food prices, but it is **killing the local agricultural sector**”*

*“Everyone talks about the new **rail lines** being built and how this will help agriculture. What they do not mention is that the mining **companies will monopolize** these rail lines”*

### Illustrative Government and Donor Community Response to Barriers

<b>Initiative</b>	<b>Description</b>
<b>Infrastructure Agreements</b>	<ul style="list-style-type: none"> <li>As part of new infrastructure agreements with mining companies such as the railway line being built by Vale, the government has secured a percentage of the railway for passengers and transport of other goods</li> </ul>



# Contents

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- Country Overview
- Mozambican Agricultural Sector
- **Value Chains of Focus**
  - **Prioritization Process and Analysis**
  - Value Chain Overviews
- Key Actors and Activities in Value Chains of Focus
- Value Chain Gap Identification and Recommended Actions
- Appendix



# Why prioritization is important?

Though **investment** in any value chain **is always welcome** and the **government** should always **lead in developing its own strategy**, ...

... sectors can **maximize impact by focusing** in areas **where** government, private sector and donors **all have interest**

**Resources are Limited**

The government's and donors' constraints (time, staff, and money) **limit # of value chains that can be sustainably assisted**

**Private Sector Unlikely to Invest Without Profitability**

Value chains **require conducive enabling environment to attract investors**

**Private Sector Interest Critical**

**Significant private sector interest necessary** to ensure sustainable growth

**Develop Model on Investment**

Prioritized value chains will be **pilots for how to coordinate investment** that can be later used for other value chains





# Prioritization Process and Analysis

## Value Chain Selection and Prioritization Overview

To determine the most suitable value chains for investment, the team filtered crops through three sets of criteria to determine which to prioritize for future action planning

### First Filter:

Investors Priority

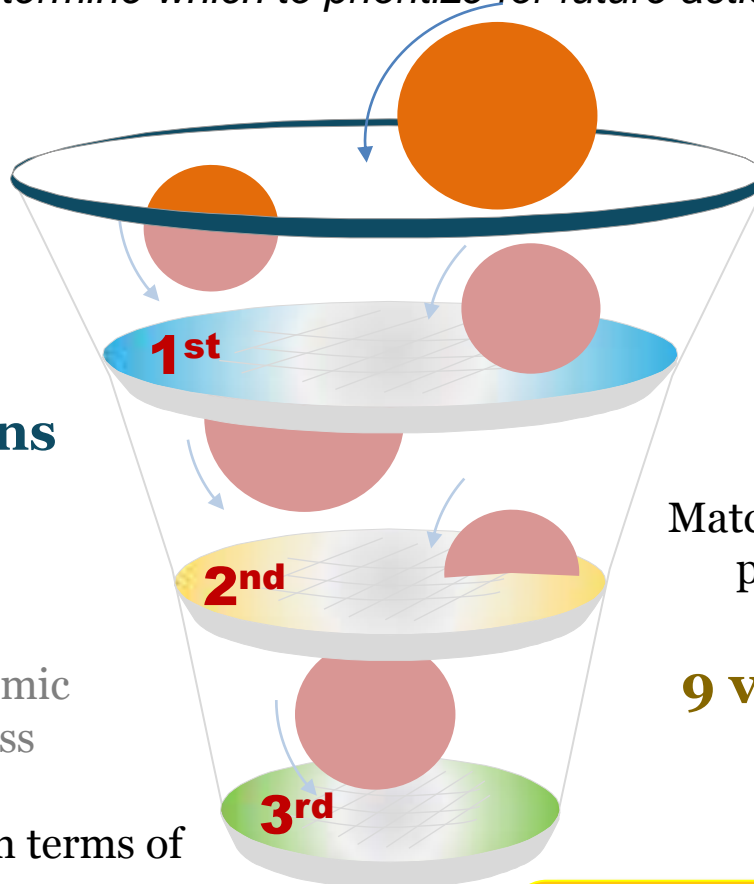
Identifies relevant value chains based on private sector interest

**12 value chains**  
at the end

**Third Filter:** Economic and Social Attractiveness and Feasibility

Assesses value chains in terms of market potential, country competitiveness and social impact

**4 value chains**  
at the end



### Second Filter:

Government and Donor Priorities

Matches government and donor priorities with private sector interest on value chains

**9 value chains**  
at the end

**Note: Given food security or other national interests, the government may chose to prioritize some value chains not emphasized by other stakeholders**

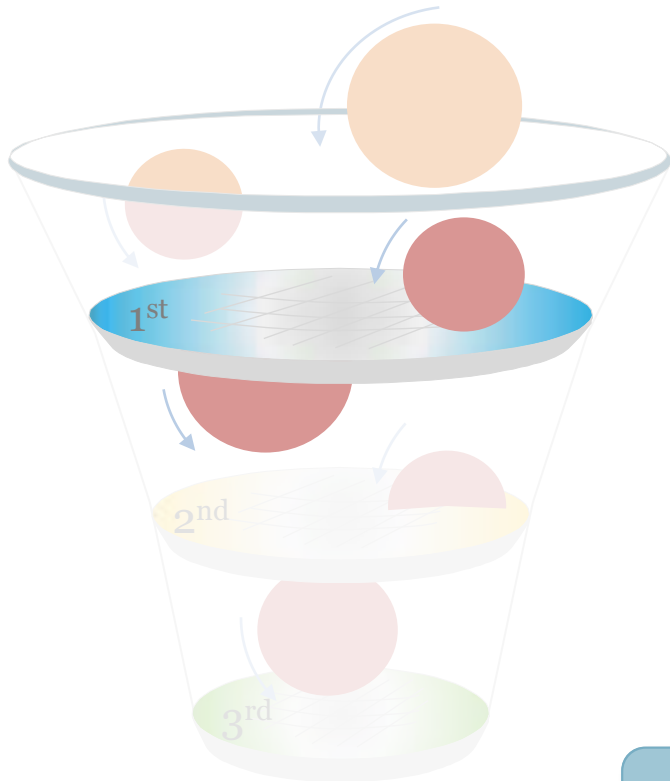


## First Filter: Investors Priority

Based on input through the first filter, we arrived at twelve value chains for further analysis

### 12 value chains

at the end



### Does The Value Chain Have Sufficient Investor Interest?

<b>Private Sector Preference</b>	High	<b>Cashew Maize</b>	<b>Soybeans Sugar</b>	<b>Vegetables</b>
	Medium	<b>Bananas Cassava Cotton</b>	<b>Groundnuts Poultry</b>	<b>Rice Sesame</b>
	Low			

### Criteria

- Percentage of companies showing interest
- Degree of interest
- Size of potential investment

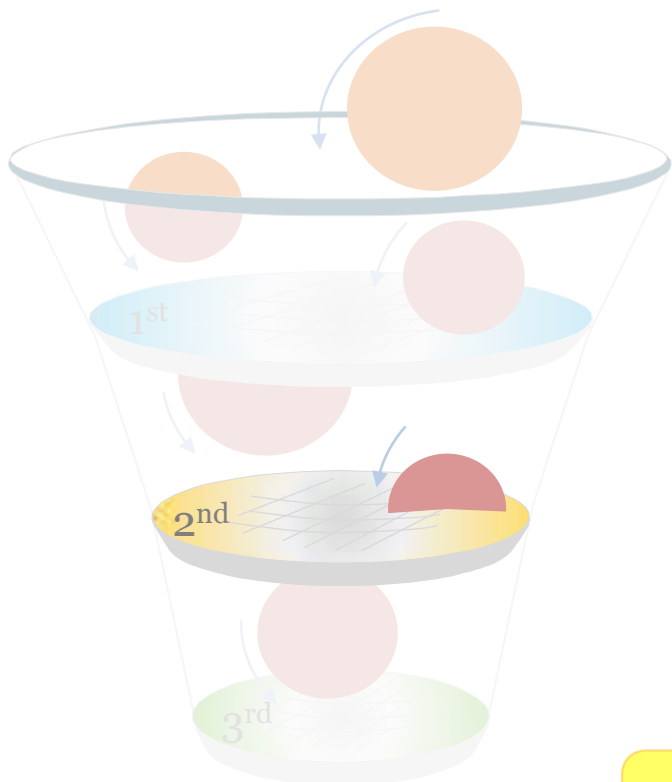


# Prioritization Process and Analysis

## Second Filter: Government and Donor Priorities

Based on input through the first two filters, we arrived at nine value chains for further analysis

**9 value chains**  
at the end



How Does Government and Donor Interest Compare to Investor Interest?

<b>Private Sector Preference</b>	High	Cashew	Maize Soybeans Vegetables	
	Medium	Banana Poultry	Cassava Rice Sesame	
	Low			
		Low	Medium	High
		<b>Government / Donor Priority</b>		

### Criteria

- Alignment of government and donors priorities with private sector interest



## Third Filter: Economic and Social Attractiveness

To narrow to a short list of four value chains to be included in this Multi-Stakeholder Action Plan, the team developed quantitative analyses based on economic and social dimensions

### Economic Attractiveness

- Market Potential Analysis
  - **Current and potential market** in either domestic and/or international markets
- Regional Competitiveness Analysis
  - Potential for **value chain to prosper in Mozambique**, given current environment and regional competition

### Social Impact

- Importance of the commodity to **secure food** (or increase) income for farmers

### Market Potential

- Market Potential
  - Sales potential (domestic import deficit & regional trade imbalance)
  - Market growth
  - Mozambican production

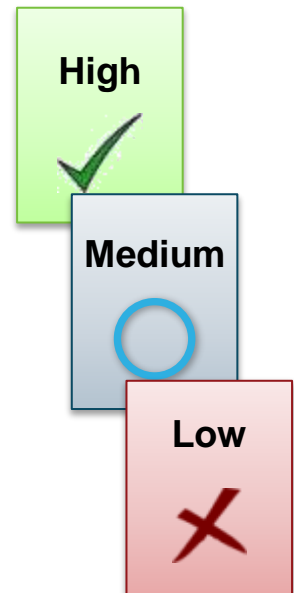
### Regional Competitiveness

- Regional Competitiveness
  - Relative yield
  - Relative regional market size

### Social Impact

- Number of farmers impacted
- Nutritional importance (calories and protein per USD)

### Filter Classification

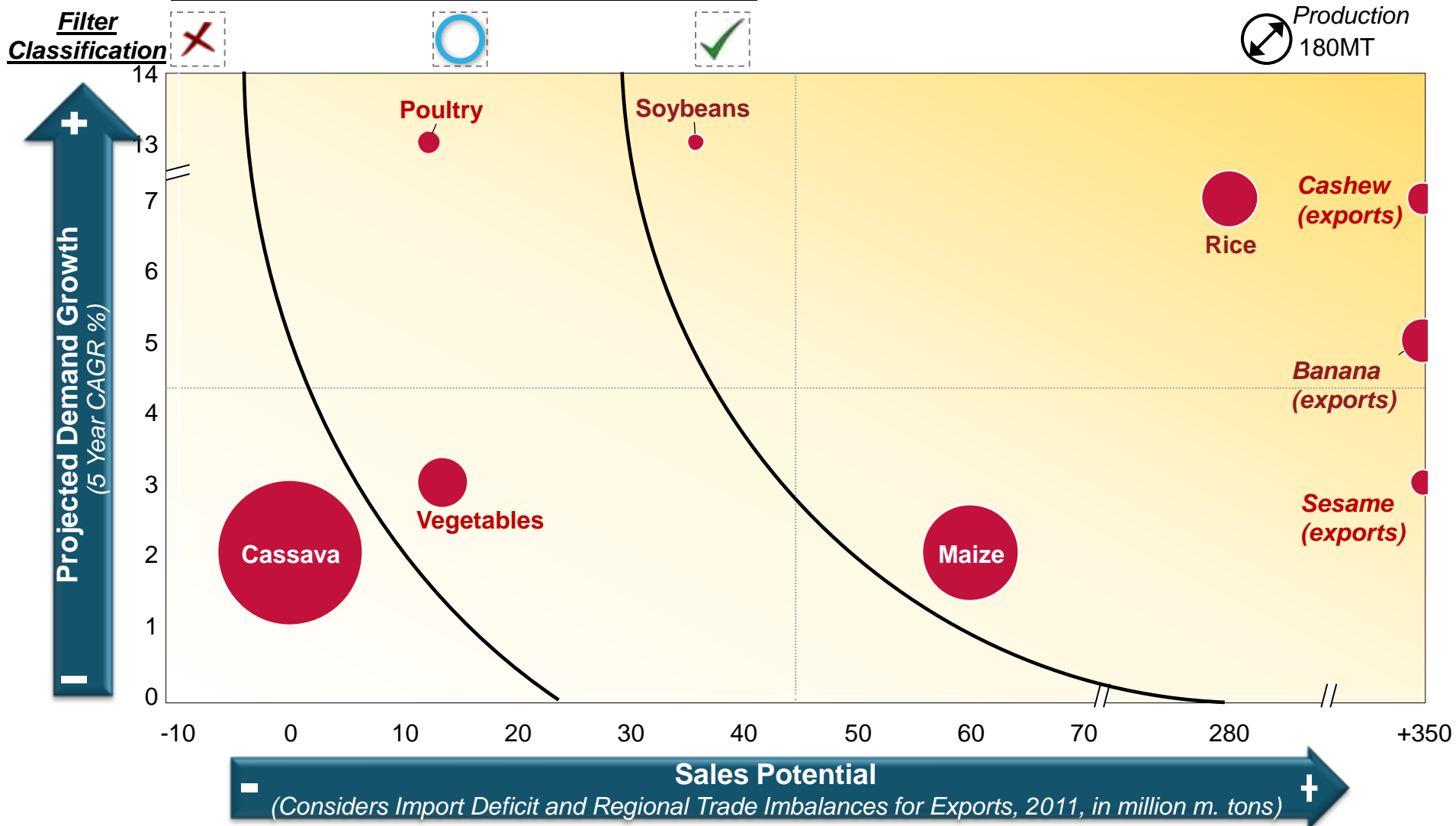




# Prioritization Process and Analysis

## Third Filter: Market Potential

Sales potential opportunities are greatest for export crops, though significant opportunity still exists for rice, maize, and soybeans, which are focused on the domestic market





# Prioritization Process and Analysis

## Third Filter: Market Potential Indicators (1/2)

*Indicators used in analyzing market potential include production and demand trends, as well as current demand in the domestic and export markets*

### INDEX DESCRIPTION

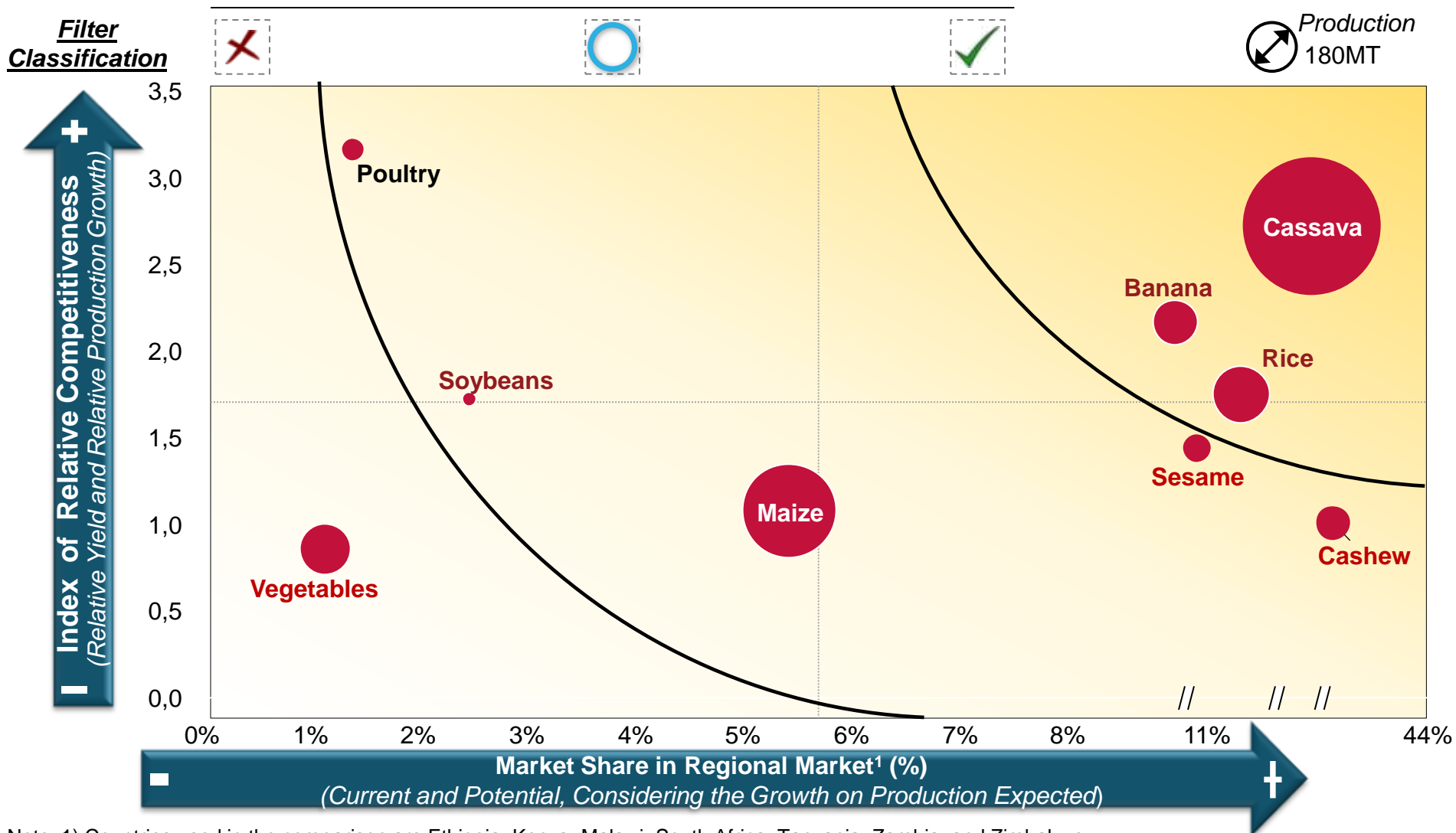
<p><b>Production, 2010</b> (‘000 metric tons) BUBBLE SIZE</p>	<p><i>Total volume produced in 2010 in Mozambique. The series was calculated by the Statistics Division of the Food and Agriculture Organization of the United Nations (FAO). Accessed in July, 2012</i></p>
<p><b>Projected Growth in Demand</b> AXIS Y</p>	<p><i>Expected growth in domestic demand for each crop, according to studies from the Ministry of Agriculture, TechnoServe, and the World Bank. Accessed in July, 2012</i></p>
<p><b>Sales Potential</b> (‘000 MT) AXIS X (A+B)</p>	<p><i>Estimate that aims to capture the sales potential for each crop, considering the size of the domestic market (A) and the trade balance of potential external markets that could be supplied by Mozambican production (B)</i></p>
<p><b>Import Deficit</b> (‘000 MT), (A)</p>	<p><i>Imports of crude grains or equivalent products according to the Ministry of Agriculture, FAOSTAT, or TradeMap databases. Accessed in July, 2012</i></p>
<p><b>Regional Market Trade Balance</b> (‘000 MT), (B)</p>	<p><i>Market potential for each crop, considering the group of countries to which Mozambican producers could potentially supply, in the case of crops that could be exported. Accessed in July, 2012</i></p>



# Prioritization Process and Analysis

## Third Filter: Regional Competitiveness

Cassava, banana, and rice are most attractive when considering competition within the region



Note: 1) Countries used in the comparison are Ethiopia, Kenya, Malawi, South Africa, Tanzania, Zambia, and Zimbabwe  
 Source: FAO; Ministry of Agriculture; Nutrition Data; National Institute of Statistics; TechnoServe; Monitor Analysis



# Prioritization Process and Analysis

## Third Filter: Regional Competitiveness Indicators (1/2)

Comparative yield, market share indices, and production in comparison to other countries in the region<sup>1</sup> were used to analyze relative competitiveness

### INDEX DESCRIPTION

<p><b>Production, 2010</b> (’000 metric tons) BUBBLE SIZE</p>	<p><i>Total volume produced in 2010 in Mozambique. The series was calculated by the Statistics Division of the Food and Agriculture Organization of the United Nations (FAO). Accessed in July, 2012</i></p>
<p><b>Index of Relative Competitiveness</b> AXIS Y (A)*(B)</p>	<p><i>Estimate that aims to capture the relative competitiveness of Mozambique for each crop, considering comparisons with neighbor countries in terms of yields (A) and production growth (B). Outliers were disregarded when appropriate</i></p>
<p><b>Relative Yield</b> (2010 Five Year Average) (A)</p>	<p><i>Ratio between the production yield of Mozambican farms in 2010 and the weighted average yield of the region for 2010 (based on production volume). . Ratios calculated using data from FAO, outliers were disregarded where appropriate</i></p>
<p><b>Relative CAGR of Production</b> (2010 Past Five Year Average) (B)</p>	<p><i>Ratio between the 5 Year CAGR<sup>2</sup> of production for each crop in Mozambique and the 5 Year CAGR of the same crops produced in neighbor countries. Ratios calculated using data from FAO, outliers were disregarded where appropriate</i></p>
<p><b>Potential Share in Regional Market</b> (% Total Production in 2015) AXIS X</p>	<p><i>Estimate of the potential share of regional market in terms of production size, considering the current share of Mozambique and the expected growth on the production of each crop. Outliers were disregarded where appropriate</i></p>

Note: 1) Countries used in the comparison are Ethiopia, Kenya, Malawi, South Africa, Tanzania, Zambia, and Zimbabwe; 2) Compound Annual Growth Rate  
Source: FAO; Ministry of Agriculture; Nutrition Data; National Institute of Statistics; TechnoServe; Monitor Analysis

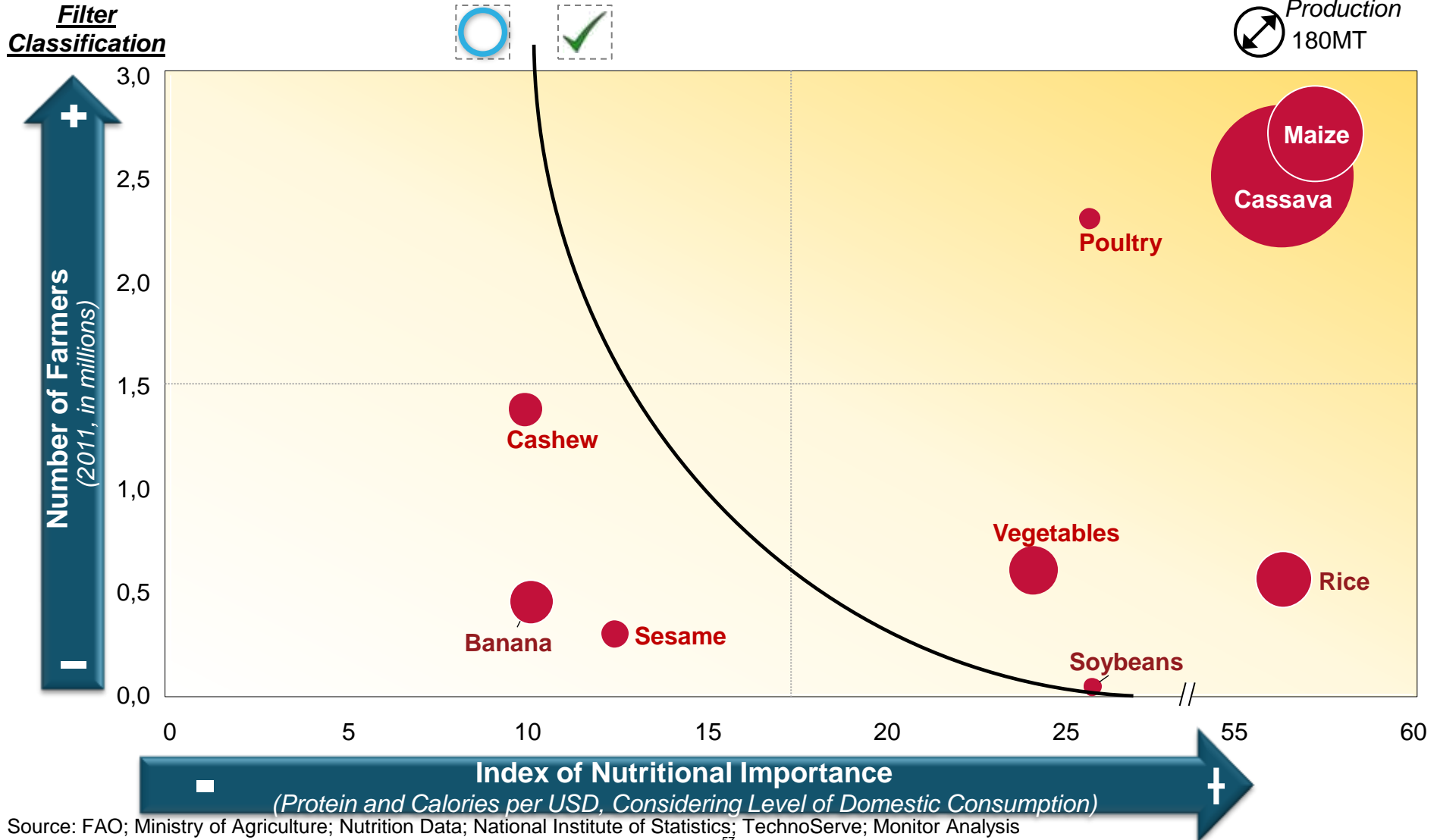




# Prioritization Process and Analysis

## Third Filter: Social Impact

The three main export crops identified below (banana, cashew, and sesame) received lower social impact scores, in part due to the cost per calorie/protein ratio





# Prioritization Process and Analysis

## Third Filter: Social Impact Indicators (1/2)

*Nutritional relevance, impact on smallholder farmer income, as well as number of farmers involved in production were used as indicators for the social impact analysis*

### INDEX DESCRIPTION










<p><b>Number of Farmers, 2010</b> (‘000s) AXIS Y</p>	<p><i>Number of farmers that produces the crop in Mozambique, according to the National Census of Agriculture 2010</i></p>
<p><b>Index of Nutritional Importance</b> AXIS X (A)*(B)*(C)</p>	<p><i>Measures the nutritional importance of each crop, containing two components:</i></p> <ul style="list-style-type: none"> <li>• <b>Nutritional Content:</b> <math>((\text{Protein g/USD (A)} / \text{Recommended daily allowance}) + (\text{Calories g/USD (B)} / \text{Recommended daily allowance})) / 2</math></li> <li>• <b>Importance for Domestic Food Consumption (C)</b></li> </ul>
<p><b>Protein Content</b> (Protein grams per USD), (A)</p>	<p><i>Estimate of protein content that can be acquired in Mozambique with USD 1.00, considering 2012 prices. Data from Ministry of Agriculture; Nutrition Data, and National Institute of Statistics</i></p>
<p><b>Calorie Content</b> (Calories per USD), (B)</p>	<p><i>Estimate of calories content that can be acquired in Mozambique with USD 1.00, considering 2012 prices. Data from Ministry of Agriculture; Nutrition Data, and National Institute of Statistics</i></p>
<p><b>Importance for Domestic Food Consumption, (C)</b></p>	<p><i>Monitor’s perception about the importance of each crop on Mozambican diet based on interviews and document analysis</i></p>



# Prioritization Process and Analysis

## Summary Results of Analysis

Using several metrics to assess each factor, we arrived at four value chains of focus to include in this Multi-Stakeholder Action Plan

Priority Value Chains from Second Filter	Market Potential	Regional Competiveness	Social Impact	Multi-Stakeholder Planning Potential
BANANA 	✓	✓	○	Value Chain of Focus
CASHEW 	✓	○	○	Other High Potential VCs
CASSAVA 	✗	✓	✓	Other High Potential VCs
MAIZE 	✓	○	✓	Value Chain of Focus
POULTRY 	○	○	✓	Other High Potential VCs
RICE 	✓	✓	✓	Value Chain of Focus
SESAME 	✓	○	○	Other High Potential VCs
SOYBEANS 	✓	○	✓	Value Chain of Focus
VEGETABLES 	○	✗	✓	Other High Potential VCs

 High
  Medium
  Low

Note: Monitor leveraged available data across each category to arrive at overall results



# Prioritization Process and Analysis

## Plan for Addressing Identified Value Chains

Based on our analysis, the following four value chains should be selected to align efforts across the sectors, while the others will continue to welcome investment

### VALUE CHAINS OF FOCUS

Banana



Rice



Maize



Soybeans



**Multi-Stakeholder Action Plan**

### OTHER HIGH-POTENTIALS<sup>1</sup>

Cashew



Poultry



Cassava



Vegetables



Sesame



Sugar



Groundnuts



Cotton



Similar multi-stakeholder plan can be developed once sustainable competitiveness and growth **have been reached in initial opportunities**

Above groupings apply to the Beira and Nacala Corridors and the Zambezi Valley

Note: 1) Also includes priority value chains for private sector that did not proceed past the second filter



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- Value Chain Gap Identification and Recommended Actions
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# Prioritization Process and Analysis

## Value Chains of Focus

*As evidenced in the previous analyses, these value chains proved particularly attractive and thus are included in this Action Plan (further detail in appendix)*



### Banana

- Most attractive of exporting value chains
  - **Most of value is captured within Mozambique**
  - Mozambique is **very cost competitive** in production year round (up to shipping)
  - **Additional scale** could allow shipping **efficiencies to be realized**
- Focus here would facilitate improvement in other exports value chains



### Rice

- **High food security importance** and well as significant import imbalance
- **Mozambique**, along with Tanzania, are **best suited to serve domestic and regional demand** based on growing conditions
- **Significant investment underway from private sector and donor / development community** creating an opportunity to maximize efforts



### Maize

- **Supply to poultry industry**
- **Rotational crop for soy**
- **Private sector investment in storage will have significant impact on value created**
- High food importance / grown by many farmers (71%)
- High upside with improved productivity



### Soybeans

- **Critical supply to poultry industry**, with high protein content that is unlikely to be substituted with other inputs
- **Significant import substitution potential**, which could help in making domestic poultry industry more competitive
- **Oil processing potential**, which can add to financial attractiveness of value chain



## Other High Potential Value Chains (1/2)

*Although these value chains are not the focus of action planning activities, they still present very viable opportunities for growth and investment (further detail in appendix)*



### Cashew

- **Demand** in the international market is **increasing in both value and quantity**
- Most exports are of raw cashew nut, providing **investment opportunity in cashew processing for export markets** to capture greater value
- **Current challenges** within market are seen as having **relatively attainable solutions** (e.g. yield for sprayed trees is ~3x higher than non-sprayed)



### Poultry

- **Demand for poultry has more than doubled** in over 10 African countries over the last decade, with **high dependence of imports** from Brazil, Asia, and US
- **Future domestic demand** is expected to **more than triple** in the next 10 years
- Opportunity for **local players to supply this demand** due to geographic advantages



### Sesame

- Mozambique has **ideal growing conditions for sesame**
- Proximity to **importing markets** such as **the Middle East, Asia, and Europe**
- Opportunity to **build origin identity to satisfy niche markets for organic and fair trade sesame**
- Sesame **provides high income for farmers**, with farmers capturing ~50% of FOB value



### Cassava

- Cassava does and will continue to have a **strong demand advantage** versus staple crops
- **Substitute opportunities** exist, given **strong cost advantages** over other commodities
  - Cost for cassava is roughly half of some related commodities
  - Up to **25% of wheat used in bread can be substituted by cassava at 55% of cost**



## Other High Potential Value Chains (2/2)

*Although these value chains are not the focus of action planning activities, they still present very viable opportunities for growth and investment (further detail in appendix)*



### Vegetables

- **Large markets** exist in **Maputo and South Africa** for vegetables, with additional potential through mining operations
  - Significant **opportunity for import substitution** in several vegetables
- Recent **entry of large-scale supermarket buyers**, such as Shoprite and Massmart/ Wal-Mart further enhances domestic market potential



### Sugar

- **Domestic production** has almost **doubled over the last 5 years** and is expected to **keep growing** in both **yield and area**
- **Optimal weather conditions** and **high-quality, available land** benefit the sector's expansion
- Commercial agreements in EU and SACU allow for exporting with favorable financial conditions



### Cotton

- Mozambique's cotton has a **long history as a significant export crop**, traditionally to Europe as well as more recently to Asia
- Opportunities exist for more **ginning of cotton for export of high quality cotton lint** and **processing of cotton seed into oil and cake**
- Industry has proven to have a **successful concession model** in Mozambique and provide significant employment potential



### Groundnuts

- **High potential** in domestic market for **both food and vegetable oil** (later as **import substitution**)
  - Oil yields of 45-50%
- **High energy and protein food**, particularly in comparison to main staple crops produced in Mozambique
- **Significant growth** in both domestic production (30% CAGR) as well as consumption suggestions continued market opportunity





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# Key Actors and Activities in Value Chains of Focus

## Overview on Organizations Identified



To assist interested parties in moving beyond the action plan and towards investment, this section identifies key actors across the three sectors related to these value chains

### **MOST RELEVANT INSTITUTIONS FOR THE SELECTED VALUE CHAINS**

*Considering the four value chains prioritized...*

## **VALUE CHAINS OF FOCUS**

Banana



Rice



Maize



Soybeans



*...What are the most relevant institutions within each sector?*

**A**

**Organizations that typically span value chains**

Government

Donor

**B**

**Organizations that typically are value chain-specific**

Private Sector



Several government institutions play key roles in agricultural development relative to the identified value chains

Government

NON EXHAUSTIVE

### Organization

### Activities and Responsibilities

<b>CEPAGRI</b>	<ul style="list-style-type: none"> <li>• Promote of agri-business opportunities, including the attraction, development, and monitoring of investments in the industrial and commercial agrarian sector</li> <li>• Create and distribute of agricultural value chain knowledge</li> <li>• Develop of agricultural value chains within Mozambique</li> </ul>
<b>CPI</b>	<ul style="list-style-type: none"> <li>• Promote and attract national and foreign direct investment</li> <li>• Provide institutional assistance to investors in the approval and implementation of investment projects and approve investment projects for all foreign investors</li> <li>• Provide information on and approval for fiscal and customs incentives to investors</li> </ul>
<b>Directorate of Economics</b>	<ul style="list-style-type: none"> <li>• Identify, formulate, monitor, and evaluate programs of interest to the MoA</li> <li>• Elaborate, update, and harmonize the annual and multi-annual plans</li> <li>• Evaluate the effects of macro-economic policy on agrarian production and propose actions</li> </ul>
<b>GAZEDA</b>	<ul style="list-style-type: none"> <li>• Coordinate and develop activities to promote national and foreign investment initiatives for the Special Economic Areas (ZEE's) and Free Industrial Areas (ZFI's)</li> <li>• Receive, check, and register investment proposals to be implemented for the ZEE's and ZFI's, approve investment projects, and issue investment certificates/licenses.</li> </ul>
<b>IIAM - Mozambique Agricultural Research Institute</b>	<ul style="list-style-type: none"> <li>• Conduct research on behalf of the government, developing and disseminating agrarian technologies in Mozambique</li> <li>• Assist in testing and approving new seed varieties for Mozambique</li> </ul>



Several government institutions play key roles in agricultural development relative to the identified value chains

**Government**

**NON EXHAUSTIVE**

### Organization

### Activities and Responsibilities

**Ministry of Industry and Commerce**

- Oversight and policy development for downstream agricultural activities including storage, product commercialization, and distribution, in coordination with the Ministry of Agriculture

**Ministry of Public Works and Habitation**

- Responsible for several directorates, among them: Habitation and Urbanism, Economics, Water, and National Road Administration, which play a role in agricultural sector development

**Ministry of Transportation and Communication**

- Responsible for transportation infrastructure, including maritime, railroads, and airports, excluding road infrastructure.

**National Directorate of Agrarian Services**

- Promote the construction and usage of irrigation systems
- Ensure the elaboration and implementation of policies, laws, and strategies

**National Directorate of Land and Forestry**

- Oversee agricultural land information relative to land potential and DUATs
- Promote the development of the private sector and of producer organizations

**PROIRRI**

- Program launched by the government and funded by donors to develop irrigation in Mozambique, with a focus on rice. The program plans to invest USD 90M over the next 6 years in Manica, Sofala, and Zambezia provinces



Several government institutions play key roles in agricultural development relative to the identified value chains

**Government**

### Organization

### Activities and Responsibilities

**NON EXHAUSTIVE**

**Zambezi Valley  
Development Agency**

- Develop strategies and provide technical assistance for economic and social development within the Zambezi Valley
- Activities include fundraising and channeling those funds to beneficiaries, as well as assistance to local governments in the areas of planning, land planning and local social and economic development
- Operates in over 35 districts in the provinces of Manica, Sofala, Zambezia and Tete, amongst others



## **A** Key Actors and Activities (1/4)

*A number of important donors and development agencies are present, or could be present, across the selected value chains in Mozambique*

Donors / Dev.

**NON EXHAUSTIVE**

### **Organizations / Projects Currently Present**

### **Activities and Responsibilities**

<p><b>ACDI / VOCA</b></p>	<ul style="list-style-type: none"> <li>• ACDI/VOCA is a private, nonprofit organization that promotes broad-based economic growth, higher living standards, and vibrant communities in low-income countries and emerging democracies</li> </ul>
<p><b>Africare</b></p>	<ul style="list-style-type: none"> <li>• Present in 25 countries in Africa, with more than \$1 billion in assistance delivered. Within agriculture, focused on extension services, association development, and assisting private sector interactions with communities</li> </ul>
<p><b>AgriFUTURO</b></p>	<ul style="list-style-type: none"> <li>• Improving Mozambique’s agricultural sector by increasing Mozambique’s private sector competitiveness and strengthening targeted agricultural value chains</li> </ul>
<p><b>AGRA – Alliance for a Green Revolution in Africa</b></p>	<ul style="list-style-type: none"> <li>• Non-governmental organization that forms partnerships with different stakeholders to provide food security for Africa.</li> </ul>
<p><b>BAGC – Beira Agricultural Growth Corridor</b></p>	<ul style="list-style-type: none"> <li>• Partnership between the government, private investors, donor agencies and regional organizations in the Beira Corridor which aims to boost agricultural productivity through seed (patient) capital</li> </ul>



*From the development community side, several institutions are present, or could be present, across the value chains in Mozambique*

Donors / Dev.

**NON EXHAUSTIVE**

### Organizations / Projects Currently Present

### Activities and Responsibilities

<p><b>CLUSA</b> (part of the National Cooperative Business Association)</p>	<ul style="list-style-type: none"> <li>• Not for profit organization funded by USAID, World Bank, as well as other institutions whose mission is to build and strengthen cooperatives and other forms of private, group-based enterprises by providing technical assistance and training</li> </ul>
<p><b>DANIDA</b></p>	<ul style="list-style-type: none"> <li>• Promotion of international cooperation as well as the development of Danish and global economy by supporting the socioeconomic development, recovery, or economic stability of developing regions</li> </ul>
<p><b>FABI – Forestry and Agricultural Biotechnology Institute</b></p>	<ul style="list-style-type: none"> <li>• Post-graduate research institute established in 1997 at the University of Pretoria (South Africa) based on a recognition that the future of forestry and agriculture will strongly depend on the incorporation of new and emerging technologies into these industries</li> </ul>
<p><b>FAO – Food and Agriculture Organization of the United Nations</b></p>	<ul style="list-style-type: none"> <li>• Intergovernmental organization whose mandate is to raise levels of nutrition, improve agricultural productivity, better the lives of rural populations, and contribute to the growth of the world economy</li> </ul>
<p><b>FARA – Forum for Agricultural Research in Africa</b></p>	<ul style="list-style-type: none"> <li>• Umbrella organization bringing together and forming coalitions of major stakeholders in agricultural research and development in Africa</li> </ul>



*From the development community side, several institutions are present, or could be present, across the value chains in Mozambique*

Donors / Dev.

NON EXHAUSTIVE

### Organizations / Projects Currently Present

### Activities and Responsibilities

<b>GIZ – Deutsche Gesellschaft für Internationale Zusammenarbeit</b>	<ul style="list-style-type: none"> <li>• Promotion of international cooperation as well as the development of the German and global economy by supporting the socioeconomic development, recovery, or economic stability of developing regions</li> </ul>
<b>iDE Mozambique</b>	<ul style="list-style-type: none"> <li>• Development institution that designs low-cost irrigation systems</li> </ul>
<b>IITA - International Institute of Tropical Agriculture</b>	<ul style="list-style-type: none"> <li>• Global research institution that works with cowpea, soybean, banana, yam, cassava, and maize with the goal of finding a solution for hunger, malnutrition and poverty</li> </ul>
<b>JICA - Japan International Cooperation Agency</b>	<ul style="list-style-type: none"> <li>• Promotion of international cooperation as well as the development of Japanese and global economy</li> <li>• Within Mozambique, large focus on the Nacala Corridor and rice</li> </ul>
<b>ICRISAT - The International Crops Research Institute for the Semi-Arid Tropics</b>	<ul style="list-style-type: none"> <li>• Non-profit, non-political organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world, with a focus on reducing poverty, hunger, malnutrition and environmental degradation in the dry land tropics</li> </ul>





*From the development community side, several institutions are present, or could be present, across the value chains in Mozambique*

Donors / Dev.

NON EXHAUSTIVE

### Organizations / Projects Currently Present

### Activities and Responsibilities

<p><b>ProSAVANA</b></p>	<ul style="list-style-type: none"> <li>• Effort of Brazil, Japan, and Mozambique to develop a master plan and fundraise public &amp; private agricultural investment for Nacala Corridor</li> <li>• Also includes land potential mapping and infrastructure investment</li> </ul>
<p><b>TechnoServe</b></p>	<ul style="list-style-type: none"> <li>• Non-governmental organization for corporate partnership that works in the developing world to build competitive farms, businesses, and industries</li> </ul>
<p><b>USAID</b></p>	<ul style="list-style-type: none"> <li>• Has the twofold purpose of furthering America's interests while improving lives in the developing world. USAID carries out U.S. foreign policy by promoting broad-scale human progress at the same time it expands stable, free societies, creates markets and trade partners for the United States, and fosters good will abroad</li> </ul>
<p><b>World Bank</b></p>	<ul style="list-style-type: none"> <li>• Worldwide poverty alleviation in close coordination with the International Development Association, and other members of the World Bank Group</li> <li>• Within Mozambique, involved in a board array of activities including supporting policy reform, irrigation (PROIRRI) and land mapping</li> </ul>



# Selected Value Chain – Rice



## **B** Key Actors and Activities

There are several private sector actors resident within the rice value chain in Mozambique

Private Sector

NON EXHAUSTIVE

Company Name	Activities and Interests	Investment in the value chain
<b>EOZ (APAC)</b>	<ul style="list-style-type: none"> <li>• Association of rice farmers in Zambezia</li> <li>• Owners of mill facility with yearly capacity of ~15k ton</li> </ul>	<ul style="list-style-type: none"> <li>• Apparent interest in attract private sector investor for mill</li> </ul>
<b>Mozfoods (MIA)</b>	<ul style="list-style-type: none"> <li>• Mozfoods main operations are in vegetables (Manica Province), rice (Chókwè), and seeds, with a focus on rice, soy, and pulses</li> </ul>	<ul style="list-style-type: none"> <li>• Rice operations for both export and domestic consumption</li> <li>• Partnership with local farmers</li> </ul>
<b>Myang</b>	<ul style="list-style-type: none"> <li>• Large mill facility located in Zambezia, current administrated by the government</li> <li>• Built in partnership with Chinese investors</li> </ul>	<ul style="list-style-type: none"> <li>• Potentially will be incorporated by private sector investor interested in rice value chain</li> </ul>
<b>OLAM</b>	<ul style="list-style-type: none"> <li>• Current operations in cotton and cashew</li> <li>• In planning for development of a completely integrated Mozambican rice value chain</li> </ul>	<ul style="list-style-type: none"> <li>• USD 50 MM investment in rice production and processing facility in Zambezia</li> </ul>
<b>Palmeira</b>	<ul style="list-style-type: none"> <li>• One of the largest mills in Mozambique, with estimated capacity of ~18k ton of rice paddy</li> </ul>	<ul style="list-style-type: none"> <li>• No immediate new investment planned, though focused on expanding utilization</li> </ul>



# Selected Value Chain – Banana



## **B** Key Actors and Activities

*There are several private sector actors resident within the banana value chain in Northern Mozambique*

**Private Sector**

**NON EXHAUSTIVE**

<b>Company Name</b>	<b>Activities and Interests</b>	<b>Investment in the value chain</b>
<b>ENICA</b>	<ul style="list-style-type: none"> <li>Currently setting up banana production in the region of Cabo Delgado               <ul style="list-style-type: none"> <li>Creation of a 300 ha plantation and possible further expansion to 3,000 ha</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>About US\$ 6 MM of capital (raised locally and abroad from private investors) for the creation of a 300 ha banana plantation</li> </ul>
<b>Matanuska</b>	<ul style="list-style-type: none"> <li>Operates a banana plantation in the Nampula province, also created electrified storage docks for refrigerated containers in the port of Nacala               <ul style="list-style-type: none"> <li>Goal of reaching 3,000 ha</li> <li>Possesses capacity for 70 containers at port</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>About US\$ 60 MM invested in the creation of the plantation</li> </ul>
<b>Bananalândia</b>	<ul style="list-style-type: none"> <li>Operation of a banana plantation in the south of Mozambique, with about 80% of production for export to South Africa, Swaziland, and Botswana</li> </ul>	<ul style="list-style-type: none"> <li>Investment in a banana plantation with 40,000 tonnes / year capacity</li> </ul>
<b>Corvus</b>	<ul style="list-style-type: none"> <li>Several agricultural projects in Mozambique in different value chains</li> </ul>	<ul style="list-style-type: none"> <li>Intention to invest USD 500 MM in the next 8 years in selected value chains</li> </ul>



# Selected Value Chain – Soybeans & Maize



## **B** Key Actors and Activities (1/2)

*There are several private sector actors resident within the soybeans and maize value chains in Mozambique*

**Private Sector**

**NON EXHAUSTIVE**

<b>Company Name</b>	<b>Activities and Interests</b>	<b>Investment in the value chain</b>
<b>Abilio Atunes</b>	<ul style="list-style-type: none"> <li>Currently produces medium-low and full-fat soy cake and has farm supply contracts</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<b>African Century</b>	<ul style="list-style-type: none"> <li>Company created to develop a portfolio of investments in sub-Saharan Africa, principally in East and Southern Africa</li> </ul>	<ul style="list-style-type: none"> <li>The company has investments in maize and soybeans processing and poultry (e.g.: Frango King)</li> </ul>
<b>Gett Ltd</b>	<ul style="list-style-type: none"> <li>Acting in Mozambique in the production of medium-low and full-fat soy cake , and is exploring linking with producers and adding silos to sites</li> </ul>	<ul style="list-style-type: none"> <li>Currently produces 750 kg/hr</li> </ul>
<b>KPSA</b>	<ul style="list-style-type: none"> <li>New domestic company focused on agricultural production in the Beira corridor</li> </ul>	<ul style="list-style-type: none"> <li>KPAS will start with 100 ha of soybeans production</li> </ul>
<b>Novos Horizontes</b>	<ul style="list-style-type: none"> <li>Multinational company with business in the poultry industry that also produces full-fat soy cake and is exploring options to produce medium-low fat soy cake</li> </ul>	<ul style="list-style-type: none"> <li>Currently has a poultry farm and is producing 140k chickens/ mth and soy cake processing capacity of 120 – 130 MT /week</li> </ul>



## **B** Key Actors and Activities (2/2)

*There are several private sector actors resident within the soybeans and maize value chains in Mozambique*

Private Sector

NON EXHAUSTIVE

<b>Company Name</b>	<b>Activities and Interests</b>	<b>Investment in the value chain</b>
<b>Pannar</b>	<ul style="list-style-type: none"> <li>• South African company that produces maize hybrids and a large range of seeds</li> </ul>	<ul style="list-style-type: none"> <li>• Plans to expand the production of soybeans seeds, with projects to set up cold storage facilities in 2013</li> </ul>
<b>Plantafrica</b>	<ul style="list-style-type: none"> <li>• Company created in 2011 to invest in maize, sugar cane, cotton, and cattle in Beira and Nampula</li> </ul>	<ul style="list-style-type: none"> <li>• The company intends to set up two properties of ~2,000 ha in each province</li> </ul>
<b>Priofoods</b>	<ul style="list-style-type: none"> <li>• Multinational processing company with business in Romania, Portugal, Brazil and Mozambique</li> </ul>	<ul style="list-style-type: none"> <li>• To be finalized, but interest in maize and soybeans</li> </ul>
<b>Rei do Agro</b>	<ul style="list-style-type: none"> <li>• Commercial agricultural grain production company situated in Gurue district, Zambezia Province, which cultivates soybeans and other grains through its own farm concession</li> </ul>	<ul style="list-style-type: none"> <li>• The company is currently planning to increase production of soybeans to 2,000 MT by 2013</li> </ul>

*Other companies also present in the soybean and maize value chain are: JAM, G.S. Holding, Somoil, SAN-oil, SANAM, ProAlimentar, C.I. Monapo, and Alif. Química*



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# Rice Overview

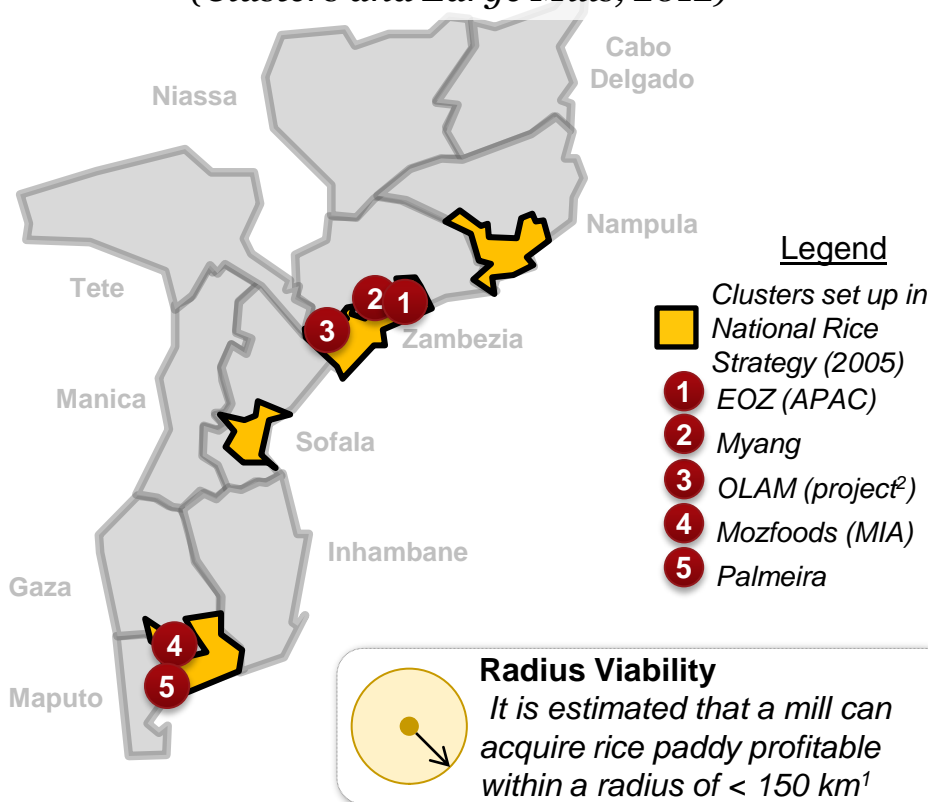


The National Rice Strategy identifies four clusters with higher potential for rice production in Mozambique, some of them without large scale mills

## REGION

ILLUSTRATIVE

### Rice Industry in Mozambique (Clusters and Large Mills, 2012)<sup>1</sup>



## ATTRACTIVENESS

- Areas with significant natural potential for rice production, with reduced need of fertilizer
- Significant donor/ government investment in irrigation assistance should dramatically increase yield over the next 5 years
- Maximum distance to port ~100km, reducing logistic costs to import machinery, irrigation equipments and fertilizers

## INVESTMENTS

- Ongoing investments in new research centers totaling more than USD 30MM (IIAM and GdL<sup>3</sup>)
- OLAM is investing USD 50MM on rice production and a processing facility in Zambezia
- PROIRRI program plans to develop irrigation lines in more than 3,000 hectares in Manica, Sofala, and Zambezia provinces over the next 6 years
  - The program launched by the government will invest ~USD 90MM in agriculture financed by the World Bank

Note: 1) Estimated location and capacity of rice facilities, based on interviews; 2) To be completed; 3) Regional Centre of Rice Investigation and Leadership  
Source: Expert Interviews; National Rice Conference (2012); National Strategy Plan for Rice (2005); Monitor Analysis



# Rice

## Opportunity Analysis



*The relative immaturity of the rice value chain in Mozambique presents the following development opportunities that can be best achieved through coordinated efforts*

### Inputs

- Leverage existing rice **research & development** institutions to enhance use of improved varieties by small and medium-sized rice producers beyond current level of 3%
- Reduce use of **multiple seeds** simultaneously by smallholder farmers

### Production

- Achieve a greater **consistency** in quality and yield
- Increase use of techniques for preparing and **leveling** soil
- Significant investment in **irrigation** and **drainage** is needed
- Entry of medium-large players in middle of value chain to **stabilize the market**

### Harvest & Post-Harvest

- Enhance non-manual harvesting to improve quality of the harvested grain (**mixture** of different varieties, “green” grains with “mature” grains)
- Greater use of **producer associations** to improve organization

### Processing & Refining

- Improve **market** between small and medium producers, who are frequently located in center of country, and mills, which exist in the South, and have to reduce idle capacity
- Improve **separation** of different size grains to reduce breaking or other losses

### Distribution

- Enhance / create **national brands** at a commercial scale with ability to distribute throughout country to take advantage of **consumer preference** for national rice





The identified opportunities can be realized through the following activities across sectors

### Actions to Capture Opportunities

<b>Benefits the Whole Value Chain</b>	<ol style="list-style-type: none"> <li>1 Create a <b>private-sector led task force</b> within geographic clusters to identify areas, implement projects, and promote <b>dialogue</b> between three stakeholder groups<sup>1</sup></li> <li>2 <b>Enhance government</b> planning and implementation practices</li> <li>3 Assist in <b>creation of associations</b> and <b>cooperatives</b></li> <li>4 Evaluate impact of current <b>duties</b> and import tariffs</li> </ol>
<b>Inputs</b>	<ol style="list-style-type: none"> <li>5 <b>Develop varieties</b> more adapted for local areas</li> <li>6 Provide credit for private sector seed <b>multipliers to enhance distribution</b></li> </ol>
<b>Production</b>	<ol style="list-style-type: none"> <li>7 <b>Provide more extension training</b>, including “training-the-extension trainer”</li> <li>8 Finance and <b>support irrigation</b> projects<sup>2</sup></li> </ol>
<b>Harvest &amp; Post-Harvest</b>	<ol style="list-style-type: none"> <li>9 Form <b>commercial partnerships</b> with farmers to increase production volume by ensuring a market</li> </ol>
<b>Processing &amp; Refining</b>	<ol style="list-style-type: none"> <li>10 Develop <b>storage facilities</b> to reduce loss and guarantee sufficient supply of rice</li> </ol>
<b>Distribution</b>	<ol style="list-style-type: none"> <li>11 Improve <b>rural roads</b> and highways where needed for rice</li> </ol>



KEY QUESTIONS

**Which actions should be developed by the government, donors, and the private sector? Which should be prioritized? What is the investment required?**

Private Sector

Government

Donor / Dev.

Note: 1) Strategic investments and projects led by private sector; 2) Private sector conducts own land while government provides for small holders  
 Source: Expert Interviews; Monitor Analysis



# Rice

## Business Model: Private Sector



Significant private sector opportunity exists through investment in rice processing in partnership with smallholders, the government, and donors/development community

Private Sector

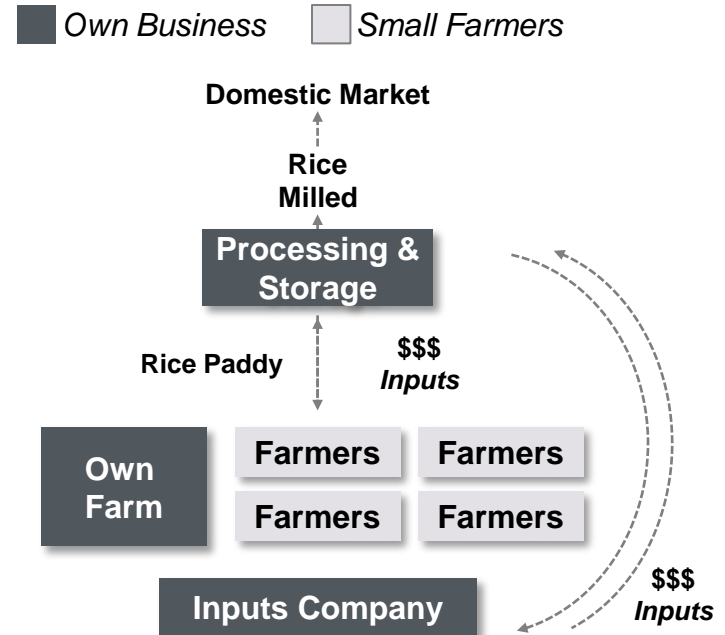
### POTENTIAL OPPORTUNITY

#### Opportunity for Investment in Aggregation & Milling Facility

- 10 USD 2.2M - 3.0M investment in brownfield (existing mill) or greenfield (new mill) opportunity for 30k ton/ year<sup>1</sup> **rice mill and storage facility**, leveraging partial production by smallholders
- 6 **Sell / lease inputs** (seed, fertilizer, machinery) through credit to smallholders
  - With goal of reaching at least a 50/ 50 model in 5 years, gradually increase percentage of smallholder inputs with total of ~6,000 hectares
  - Encourage production by offering **subsidized credit**, paid back at the moment of sale of the grain and a minimum reference price
- 9 Requires investments in **irrigation** and **land preparation** on company land (50% of land required for processing)
- 7 Help fund development work with smallholders

### BUSINESS MODEL

ILLUSTRATIVE



#### SUPPORT

#### MAIN AREAS

**Government**

Basic seed research, infrastructure investment, smallholder irrigation

**Donors / Dev.**

Training of farmer extensions, association formation

Note: 1) By final phase;  
Source: Expert Interviews; Monitor Analysis



# Rice

## Government: Roles



The greatest needs for government involvement are in infrastructure investments, allocation of irrigation funding, policy review, and research of basic seeds

Government

Changes Required	Priority Level	Investment Size	Possible Institutions	Expected Impact
1 Create a <b>private-sector led task force</b> within geographic clusters to identify areas, implement projects, and promote dialogue with the government and donors	●	Meeting costs to run task-force Project	● <b>Zambezia rice task force</b>	<ul style="list-style-type: none"> <li>• Improve alignment of interests and enhance communication between private sector, government, and donors</li> <li>• Greater information for each stage of the value chain about needed actions</li> </ul>
4 Based on donor studies, review and adjust tariffs and taxes <sup>3</sup>	●	Minimal staff communications costs	● <b>DE<sup>2</sup></b>	<ul style="list-style-type: none"> <li>• Reduction in market distortions created by trade policies</li> </ul>
8 Utilize donor allocated money to develop <b>irrigation</b> system for small holders partnering with mills	●	~USD 8k/ ha	● <b>PROIRRI</b>	<ul style="list-style-type: none"> <li>• Optimize donor provided resources by investing in integrated model with private sector and smallholders</li> </ul>
11 Improve <b>rural roads</b> and highways where needed for rice	◐	USD 9k – 700k/ km (re-graveling vs. paving)	● <b>MOH<sup>4</sup></b>	<ul style="list-style-type: none"> <li>• Lower transportation costs and improved utilization of mills and to “greater” reach</li> </ul>
5 Research rice varieties best adapted for the main production areas	◐	USD 120 M (Develop ~GdL in each cluster)	● <b>IIAM</b>	<ul style="list-style-type: none"> <li>• Enhanced yield and quality in rice production</li> </ul>

● High ◐ Medium ◑ Low

Note: 1) To be created by government but with individual projects led by private sector; 2) Directorate of Economics; 3) Includes ensure effective implementation and communication; 4) Ministry of Public Works and Housing; Source: Interviews, Monitor Analysis



# Rice

## Donors / Development Community: Roles



The greatest needs for donor / dev. community involvement are in training farmer extensionists, creating associations, financing studies of policy review, and enhancing government capacity

Donors / Dev

Changes Required	Priority Level	Investment Size	Possible Institutions	Expected Impact
3 Assist in <b>creation of associations</b> and / or <b>cooperatives</b>	●	Staff costs for farmer engagement	<ul style="list-style-type: none"> <li>• Africare</li> <li>• CLUSA</li> <li>• JICA</li> </ul>	<ul style="list-style-type: none"> <li>• Easier communication between sellers and buyers</li> <li>• Better producer organization and negotiation abilities</li> </ul>
4 Finance studies to evaluate impact of current <b>tariffs</b> and taxes	●	Funding for specific studies	<ul style="list-style-type: none"> <li>• AFAP</li> <li>• AGRA</li> <li>• WB</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction in market distortions created by trade policies</li> </ul>
7 Provide <b>more extension training</b> , including “training-the-extension trainer”	●	~1,500 USD/extensionist / year	<ul style="list-style-type: none"> <li>• Africare</li> <li>• AGRA</li> <li>• GIZ</li> <li>• KOICA</li> </ul>	<ul style="list-style-type: none"> <li>• Greater number of skilled extensionists</li> <li>• Higher yields and correct seed and land usage</li> </ul>
2 Enhance skills of rice-related government groups in planning and implementing activities	◐	Continuous training and capacity building	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• More focus on planning, with defined actionable targets and greater organization for the industry</li> </ul>
6 Provide <b>credit</b> for private sector seed multipliers and work with banks to distributors	◐	Opportunity costs	<ul style="list-style-type: none"> <li>• AGRA</li> <li>• DANIDA</li> <li>• IDE</li> <li>• WB</li> </ul>	<ul style="list-style-type: none"> <li>• Optimize resources provided by donors, aligned with interest of gov. and private sector</li> </ul>

● High ◐ Medium ◑ Low

Note: 1) Average cost includes cost related numbers of promoters and field supervisors  
 Source: Interviews, Monitor Analysis



# Rice

## Combined Business Model



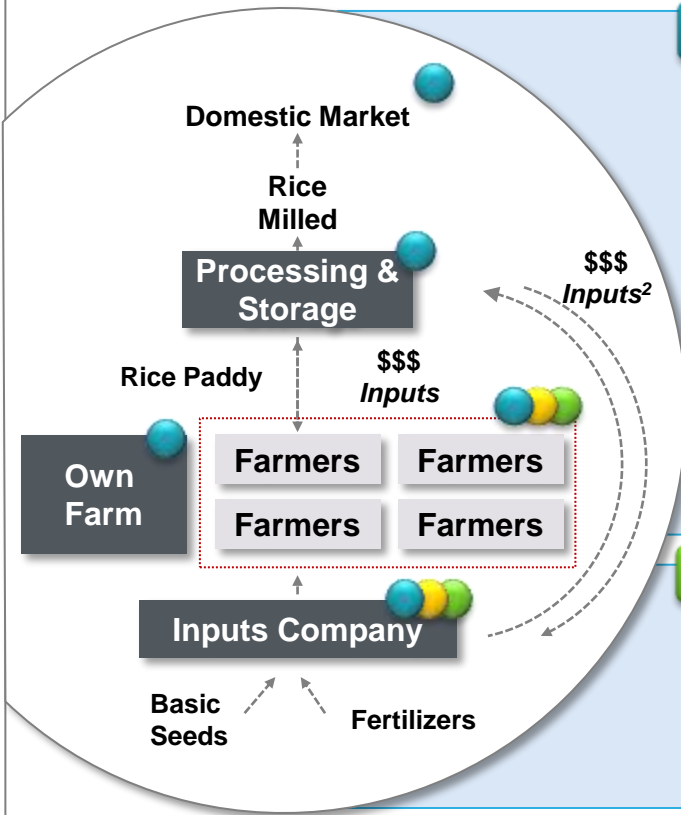
The coordination of private sector, government, and donor actions will maximize the success of the rice aggregation and milling business model

### ENABLING ENVIRONMENT

NON EXHAUSTIVE

#### Opportunity for Investment in Aggregation & Milling Facility

STAKEHOLDER INITIATIVES THAT COULD HELP DEVELOP THIS BUSINESS MODEL



- #### Private Sector
- USD 2.2M – USD 3M investment in brownfield **processing facility / storage** with 30,000 tons/year capacity in Zambezia
  - **50% private/ 50% smallholder** production
  - Build **irrigation** for own land
  - Provide **credit** for inputs and minimum reference pricing for farmers
  - **Associations:** work with donors / development agencies to enhance organization as well as production quality and yield

- #### Government
- **Finance irrigation and land development** on smallholder land and connection to major water way

- #### Donors/Dev Community
- **Finance and conduct trainings** of smallholders and extension workers
  - **Organize farmer association** to facilitate interaction between smallholders and company
  - Assist with **companies** and smallholders negotiation



# Rice

## Recommended Actions



### Actions to Capture Opportunities

#### RECOMMENDED LEAD AGENTS

		Priority	Private	Gov.	Donors
Benefits the Whole Value Chain	1 Create a <b>private-sector led task force</b> within geographic clusters to identify areas, implement projects, and promote <b>dialogue</b> between three stakeholder groups <sup>1</sup>	●	■	■	□
	2 <b>Enhance government</b> planning and implementation practices	◐	□	□	■
	3 Assist in <b>creation of associations</b> and <b>cooperatives</b>	●	□	□	■
	4 Evaluate impact of current tariffs and taxes	●	□	■	■
Inputs	5 <b>Develop varieties</b> more adapted for local areas	◐	□	■	□
	6 Provide credit for private sector seed <b>multipliers to enhance distribution</b>	◐	□	□	■
Production	7 <b>Provide more extension training</b> , including “training-the-extension trainer”	●	■	□	■
	8 Finance and <b>support irrigation</b> projects <sup>2</sup>	●	□	■	□
Harvest & Post-Harvest	9 Form <b>commercial partnerships</b> with farmers to increase production volume by ensuring a market	◐	■	□	□
Processing & Refining	10 Develop <b>storage facilities</b> to reduce loss and guarantee sufficient supply of rice, even during the dry season	●	■	□	□
Distribution	11 Improve <b>rural roads</b> and highways where needed for rice	◐	□	■	□

● High ◐ Medium ◑ Low ■ Selected Agent

Note: 1) Strategic investments and projects led by private sector; 2) Private sector conducts own land while government provides for smallholders

Source: Expert Interviews; Monitor Analysis



## Overview

- 1 **Government** allotment of ~USD 24M for **irrigation** and land preparation of 3,000 hectares<sup>1</sup> from many provided by donors for each similar-farm investment
- 2 **Land availability** in Zambezia close to adequate infrastructure (6,000 hectares in total, 3,000 private sector, 3,000 smallholders) per integrated operation
- 3 **Private sector willingness** to invest approximately USD 26M / property
  - USD 8,000 / hectares for irrigation and land preparation
  - Inputs as credit for farmers (e.g: warehouse receipts model)
- 4 **Donor / development agency** investment of approximately USD 500k (could be partially supported by private sector) for **extension** and **association** development over 5 years<sup>2</sup> per integrated farm
- 5 Smallholders need to have a **requested DUAT** in order to have access to PROIRRI funds



## Key Challenges

- Amount of **time required** to get approval of **land**
- Amount of **time required** to get approval of **irrigation** funding and construction of system
- **Donors willingness** to pay for projects that are associated with private sector
- Length of time it will take smallholders to **produce** at required quality / quantity (estimated ~3-4 years)
- **Risk aversion** of smallholder farmers may require greater risk sharing initially by private sector

## Next Steps

- Define cluster where the first private-sector led task force will be set up
- Identify participants to create the task force, considering members from the private sector, government, and development community
- Confirm land availability and investment (business case) required to transform this area
- Propose and implement a multi-stakeholder action plan on the selected cluster
- Define next area to replicate this model, making adjustments when necessary





# Contents

- Executive Summary
- Country Overview
- Mozambican Agricultural Sector
- Value Chains of Focus
- Key Actors and Activities in Value Chains of Focus
- **Value Chain Gap Identification and Recommended Actions**
  - Rice
  - **Bananas**
  - Maize and Soybean
  - Cross-Value Chain
- Appendix



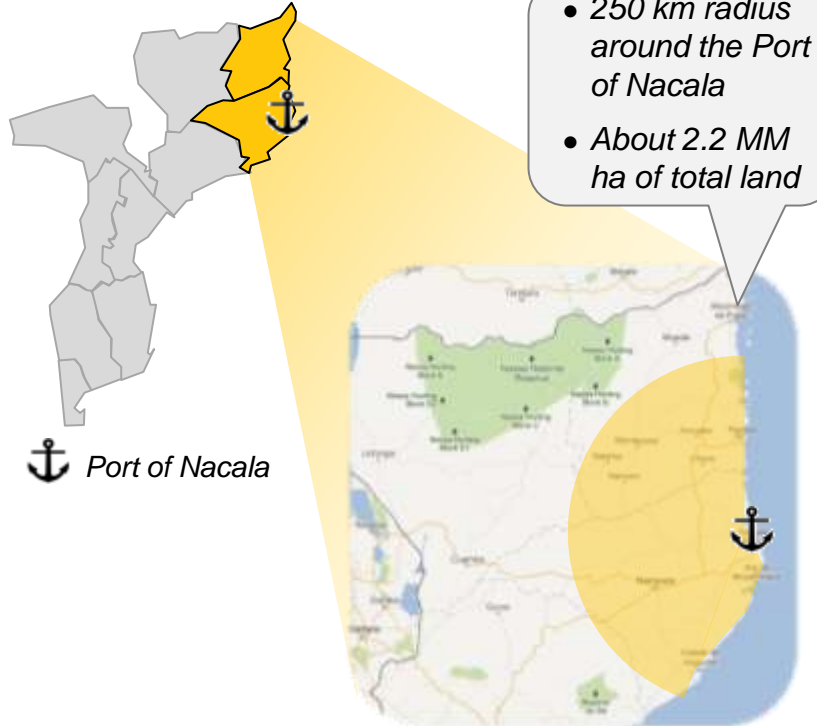
# Banana Overview



The most promising area for banana production is located in the vicinity of the port of Nacala, with growing scale in the region that can be leveraged

## REGION

### Potential Areas for Banana Plantation<sup>1</sup>



## ATTRACTIVENESS

- Climate in the northern region of Mozambique provides the optimal conditions for **banana growing year round**
  - Temperature ranges from 15°C to 30°C
- Proximity to the **port of Nacala** allows for the exportation to major markets
- **Absence of disease** is partly responsible for very low, if not lowest, farm-to-gate costs globally

## INVESTMENTS

- Investments in **production:**
  - Matanuska (USD 60M – 3,000 ha)
  - ENICA Bananas (1,000 ha)
  - Corvus (To be completed)
- Investments in the **Port:**
  - Matanuska (Holding yard for reefer containers – capacity for 70 containers)



# Banana

## Opportunity Analysis



*The banana value chain is rapidly approaching the necessary scale to maximize efficiency, but can be further assisted through the following*

<b>Inputs</b>	<ul style="list-style-type: none"> <li>• Greater <b>research on bananas</b> conducted, particularly related to Mozambique's conditions <ul style="list-style-type: none"> <li>– Focus on optimal banana varieties with reduced susceptibility to diseases</li> </ul> </li> </ul>
<b>Production &amp; Harvesting</b>	<ul style="list-style-type: none"> <li>• Enhanced <b>production handling</b> by smallholders, which can cause product losses and limit viability for export, as well as <b>access to irrigation for smallholders</b></li> </ul>
<b>Washing &amp; Packing</b>	<ul style="list-style-type: none"> <li>• <b>Improve washing and packing procedures</b> by smallholder farmers, mainly through proper facilities, to limit damages to fruit and reduced value</li> <li>• <b>Better cold storage conditions</b>, mainly due to lack of electricity, and road quality, to extend life of bananas and reduce susceptibility to fruit fly</li> </ul>
<b>Land Transportation</b>	<ul style="list-style-type: none"> <li>• <b>Improved road quality</b> to reduce bruising while also improving availability and reducing costs of reefer containers critical to cold storage</li> </ul>
<b>Port &amp; Shipping</b>	<ul style="list-style-type: none"> <li>• <b>Product life could be extended</b> and <b>costs reduced</b> by: <ul style="list-style-type: none"> <li>– Increasing number of reefer container depots with plugs to extend life of bananas</li> <li>– Reduced port times and costs in comparison with competing ports in Philippines and Central America</li> </ul> </li> <li>• With higher level of production, Mozambique would be <b>able to obtain economies of scale</b>, significantly expanding the markets that can be reached and reducing associated costs</li> </ul>
<b>Market Access</b>	<ul style="list-style-type: none"> <li>• Addressing <b>fruit fly concern</b> could increase <b>exportability</b> within SADC</li> <li>• Solutions to sanctions on Iran and Somali <b>pirate issues</b> could further expand number of available markets</li> </ul>



# Banana

## Recommended Actions



The previously identified opportunities can be realized through the following activities across stakeholders

### Actions to Capture Opportunities

<b>Inputs</b>	<b>1</b> Work with <b>existing African scientific entities</b> focused on bananas to <b>identify better varieties</b>
<b>Production &amp; Harvesting</b>	<b>2</b> <b>Create</b> mid-size <b>banana plantations</b>
	<b>3</b> <b>Assemble associations</b> for small farmers to achieve adequate scale
<b>Washing &amp; Packing</b>	<b>4</b> Create <b>adequate washing &amp; packing facilities</b> with stable electricity for refrigerated containers
	<b>5</b> <b>Construct</b> and <b>maintain electricity lines</b>
<b>Land Transportation</b>	<b>6</b> <b>Invest in road infrastructure</b> , mainly on secondary roads that will directly impact banana transport
<b>Port &amp; Shipping</b>	<b>7</b> <b>Construct near port depots with electricity</b> for refrigerated containers
	<b>8</b> Invest in <b>port infrastructure</b> and new processes to reduce wait times
<b>Market Access</b>	<b>9</b> <b>Support banana exports</b> through SADC regulations to neighboring countries



KEY QUESTIONS

**Which actions should be developed by the government, donors, and the private sector? Which should be prioritized? What is the investment required?**

Private Sector

Government

Donors / Dev.



Given already existing production around Nacala, the opportunity exists to develop mid-size plantations that can benefit from scale across plantations

Private Sector

### POTENTIAL OPPORTUNITY

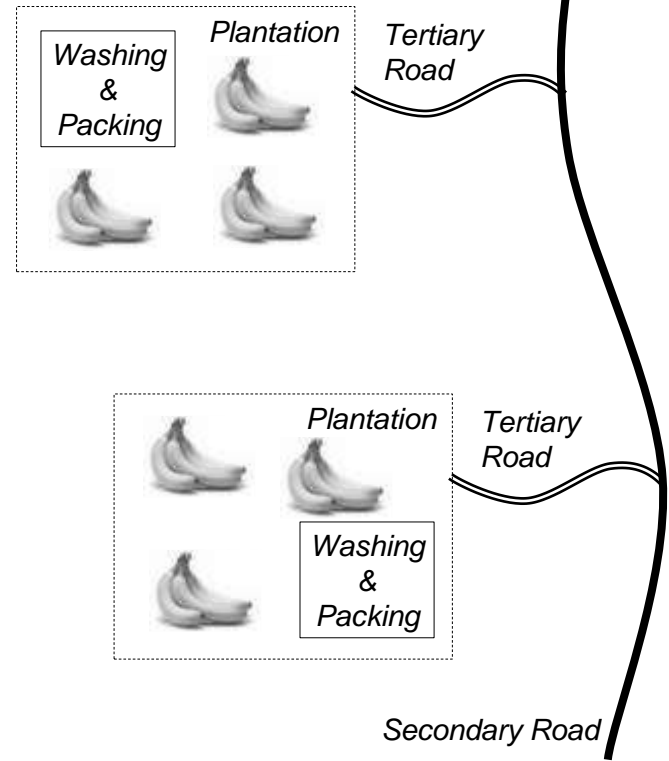
#### Investment in integrated banana plantations for exportation

- 2 **Commercial production** with professional workforce
  - Farm of **300 – 500 ha**, with several nearby farms which can be used to achieve scale
  - Workers can leverage learnings in own farms
- 4 Value chain integration with the **creation** of adequate **facilities for washing and packing** in each farm
  - These facilities should include **electrified docks for refrigerated containers**
- Use of the port of Nacala for exportation
- 3 While not initially working with smallholders, once **groups of smallholders<sup>1</sup>** can achieve **~10 ha** of high quality bananas opportunity exists for **out grower model**

### MODEL

ILLUSTRATIVE

NACALA AREA



Note: 1) Likely to be current employees who also have land  
Source: AgriFUTURO; Expert Interviews; Monitor Analysis



# Banana

## Production Business Model: Private Sector (2/2)



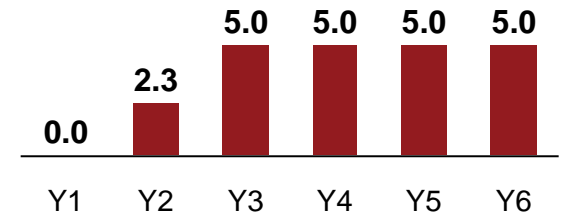
A 300 hectares banana plantation can become profitable starting from the third year, providing internal rates of return of up to 15%

Private Sector

### FINANCIALS

- A banana plantation can usually reach **full productivity in the third year, quickly becoming profitable**
- Investments for such a plantation usually range from **15,000 to 20,000 USD per ha**, with the total investment ranging from **USD 4.5M to USD 6.0M**
  - Investments include necessary infrastructure, such as irrigation, and washing and packing facilities, as well as all inputs and other costs for the first year (until the first harvest)
- A commercial plantation can produce on average **36 to 40 tons / ha**
  - **Losses** along the value chain usually amount to **15% of production**
  - Possibility for further **yield increase (up to 44 tons/ha)** depending on climate, inputs and techniques used

Evolution of Revenues  
(MM USD)



### Key Numbers

(3<sup>rd</sup> year and beyond, \$ in MM USD)

<b>Revenue</b>	\$ 5.0
<b>Costs</b>	\$ 4.0
<b>Net Income</b>	\$ 1.0

### Internal Return Rate<sup>1</sup>

From 10% to 15%

Note: 1) IRR calculated using the cash flow for the first 6 years. Based on feasibility analysis conducted by TechnoServe  
Source: AgriFUTURO; ENICA; TechnoServe; GDS; Expert Interviews; Monitor Analysis



To address needs for lower cost and higher reliability, near-port electrical depots provide a viable business opportunity

### POTENTIAL OPPORTUNITY

#### Investment in electrified depots

- 7 **Creation** of adequate near-port **storage for depots with refrigerated containers (reefers)** near the port of Nacala
  - Storage facility with **electric outlets for refrigerated containers**, that has generator to ensure power supply
  - Due to limited consistent port space, the facility could be located in the **vicinities of the Nacala port**
  - Initial construction and equipment for capacity of **50 containers**
    - Likely expansion opportunity to **capacity for 100 containers** in the coming years as regional production increases

Private Sector

ILLUSTRATIVE

### AREA



  Area required for container yard with 50 containers capacity (40 ft, non-stacked)<sup>1</sup>
 Potential Areas for Electrified Container Yard

Note: 1) According to ISO regulations a maximum of nine containers can be stacked  
 Source: AgriFUTURO; Expert Interviews; Monitor Analysis







# Banana

## Government: Roles



To maximize the investment and potential viability of the private sector, several actions are needed from the government, mainly around infrastructure improvements

Government

ACTIONS RECOMMENDED	Priority Level	Investment Size	Possible Institutions	Expected Impact
<p><b>6</b> <i>Paving, repaving, or leveling of secondary roads off of main corridors through banana farms</i></p>		<p>USD 9k and 100k / km (re-gravelling and paving)</p>	<ul style="list-style-type: none"> <li>• <b>MOH<sup>1</sup></b></li> </ul>	<ul style="list-style-type: none"> <li>• Reduce banana losses and bruising, container damage, lower associated costs and less transportation time</li> </ul>
<p><b>8</b> <i>Investment in new machinery (especially loading cranes)<sup>2</sup> and improved processes to speed up times and reduce costs at the port of Nacala</i></p>		<p>~USD 60M / equipment</p>	<ul style="list-style-type: none"> <li>• <b>Ministry of Transportation and Communications</b></li> </ul>	<ul style="list-style-type: none"> <li>• Reduced waiting time at ports and associated costs</li> </ul>
<p><b>9</b> <i>Use international TEAM<sup>3</sup> fruit fly research to ensure free trade<sup>4</sup> of bananas is allowed in SADC (e.g. bilateral trade agreements)</i></p>		<p>Minimal cash investment</p>	<ul style="list-style-type: none"> <li>• <b>Ministry of Commerce</b></li> </ul>	<ul style="list-style-type: none"> <li>• Expanded and new market access</li> <li>• More consistent application of SADC agreement</li> </ul>
<p><b>5</b> <i>Construction and upkeep of electricity lines with continuous power connected to banana plantations</i></p>		<p>USD 12k/ km</p>	<ul style="list-style-type: none"> <li>• <b>Ministry of Energy</b></li> </ul>	<ul style="list-style-type: none"> <li>• Reduced need for private sector investments</li> <li>• Less banana losses due to poor storage conditions</li> <li>• Greater ability for smallholders to participate in banana export market</li> </ul>

● High   ● Medium   ● Low

Note: 1) Ministry of Public Works and Housing; 2) Loading cranes will require retrofitting or reconstruction; 3) Tephritidae workers of Europe, Africa, and the Middle East. Conference in July 2012, in which it was shown that green bananas are not a host to the fruit fly; 4) Also ensuring free trade inside the country (north-south trade). Source: World Bank; DAPSA; USAID; AgriFUTURO; Expert Interviews; Monitor Analysis





# Banana




## Donor / Development Community: Roles



*Further involvement of the donor community is required to achieve the expected results, such as funding for research and extension programs*

Donors / Dev.

### ACTIONS RECOMMENDED

	Priority Level	Investment Size	Possible Institutions	Expected Impact
<p><b>1a</b></p> <p><i>Fund research for the development of new banana variations that are more productive and disease resistant</i></p>		<p><i>Ongoing funding</i></p>	<ul style="list-style-type: none"> <li>• IITA, FABI, FARA and ICRISAT<sup>1</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Greater potential yields with lower levels of losses</li> <li>• Potential for greater success for smallholders depending on new varieties</li> </ul>
<p><b>1b</b></p> <p><i>Fund specific disease related monitoring and research to guard against regional/global threats to banana production and market access</i></p>		<p><i>Individual solutions and event specific funding</i></p>	<ul style="list-style-type: none"> <li>• IITA, FABI, FARA and ICRISAT for research</li> </ul>	<ul style="list-style-type: none"> <li>• Quicker identification of potential diseases</li> <li>• Quicker responses to new diseases within Mozambique</li> </ul>
<p><b>3</b></p> <p><i>Create associations of current plantation employees with own farms into groups with at least 10 hectares to supply plantations (medium farm)</i></p>		<p><i>Staff for farmer engagement</i></p>	<ul style="list-style-type: none"> <li>• CLUSA</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunity to integrate smallholders into commercial scale export of bananas</li> </ul>

● High    ◐ Medium    ◑ Low

Note: 1) Mozambique Agricultural Research Institute, International Institute of Tropical Agriculture, Forestry and Agricultural Biotechnology Institute, Forum for Agricultural Research in Africa and International Crops Research Institute for the Semi-Arid Tropics. Source: World Bank; DAPSA; USAID; AgriFUTURO; Expert Interviews; Monitor Analysis



# Banana

## Recommended Actions



The previously identified opportunities can be realized through the following activities across sectors

### Actions to Capture Opportunities

#### RECOMMENDED LEAD AGENTS

Priority Private Gov. Donors

		Priority	Private	Gov.	Donors
Inputs	1 Work with <b>existing African scientific entities</b> focused on bananas to <b>identify better varieties</b>	Medium	Not Selected	Not Selected	Selected
Production & Harvesting	2 <b>Create</b> mid-size <b>banana plantations</b>	High	Selected	Not Selected	Not Selected
	3 <b>Assemble associations</b> for small farmers to achieve adequate scale	Medium	Selected	Not Selected	Selected
Washing & Packing	4 Create <b>adequate washing &amp; packing facilities</b> with stable electricity for refrigerated containers	Medium	Selected	Not Selected	Not Selected
	5 <b>Construct</b> and <b>maintain electricity lines</b>	Medium	Not Selected	Selected	Not Selected
Land Transportation	6 <b>Invest in road infrastructure</b> , mainly on secondary roads that will directly impact banana transport	High	Not Selected	Selected	Not Selected
Port & Shipping	7 <b>Construct near port depots</b> with <b>electricity</b> for refrigerated containers	High	Selected	Not Selected	Not Selected
	8 Invest in <b>port infrastructure</b> and new processes to reduce wait times	Medium	Not Selected	Selected	Not Selected
Market Access	9 <b>Support banana exports</b> through SADC regulations to neighboring countries	Medium	Not Selected	Selected	Not Selected

● High ● Medium ● Low ■ Selected Agent



## Overview

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- 1 Government** allotment of capital for **infrastructure investments** and **ensure free trade of bananas**
  - *~USD 9k and ~USD 100k /km for regravelling and paving of rural roads*
  - *Port investments in machinery and processes*
  - *USD 12,000 / km of electricity lines*
  - *Leverage existent research for free-trade of bananas in SADC, lifting barriers imposed by neighboring countries on banana trade*
- 2 Private sector willingness** to invest in production and port storage
  - *USD 4.5M to USD 6.0M for each medium farm*
  - *Adequate storage for refrigerated containers near the port*
- 3 Donor/ development agency** funding of research and efforts at creating farmers associations



## *Key Challenges*

---

- Irregular or inadequate **infrastructure, improvement and/or maintenance** by the government
- **Opening of SADC market**, allowing free trade of bananas
- **Transition period** before the infrastructure investments are in place
- **Donors willingness** to fund for research that is associated with the private sector
- Amount of **time required** to get approval of **land**
- Amount of **time required** to achieve adequate **production scale**

## *Next Steps*

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- Identify potential private sector investors
- Confirm land availability for plantations and storage depots
- Conduct mapping of road improvements required at new and existing plantations and identify capital
- Identify potential groups of smallholders farmers who can meet standards of production quality to sell to plantations



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# Soybeans Overview

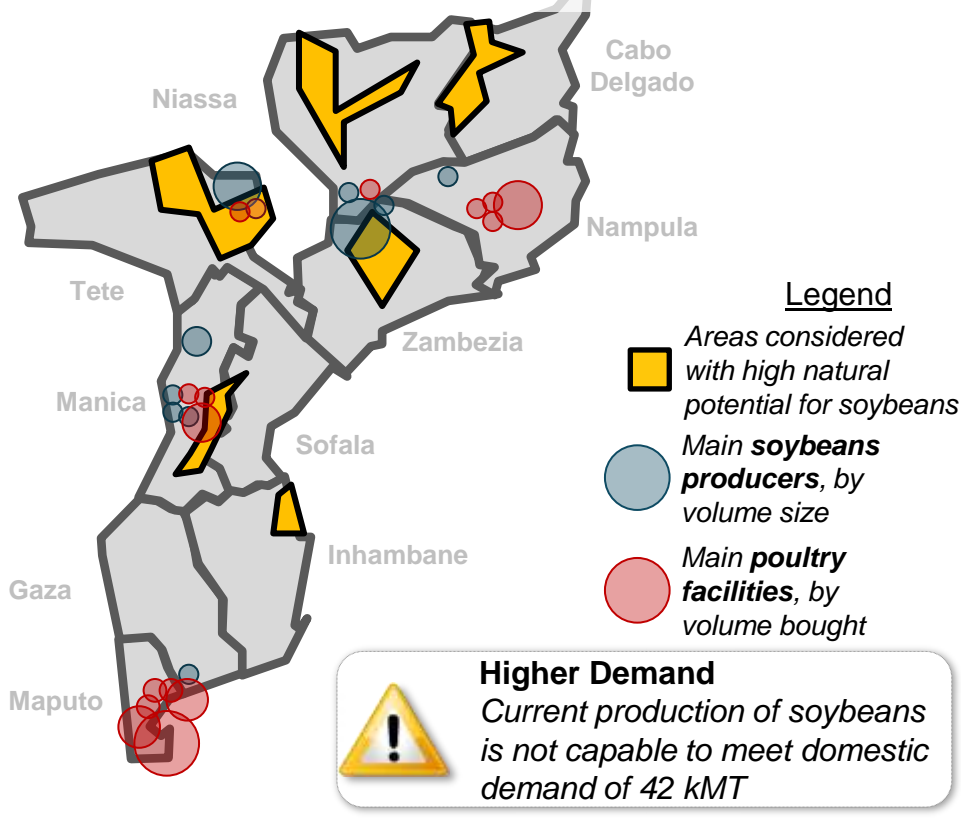


Soybean is a new but fast-expanding crop in Mozambique, with areas of higher potential concentrated in the Center and North of the country

## REGION

ILLUSTRATIVE

### Soybeans Industry in Mozambique (Potential Areas, Producers, and Consumers, 2012)



## ATTRACTIVENESS

- Poultry's consumption is growing throughout Africa and is projected to continue expanding in Mozambique at 13% per year over the next decade
- Several areas of high natural potential for soybeans, with current plantations, align with areas of domestic consumption of poultry
- Soy cake is a critical input to poultry feed
- Domestic soy oil market is nascent, relying almost entirely on imports, providing significant growth opportunities

## INVESTMENTS

- **Rei do Agro:** Mozambican company that is currently planning to increase production in soybeans to 2,000 MT by May 2013
- **KPSA:** new domestic company focused on agricultural production in the Beira corridor



# Soybeans

## Opportunity Analysis



*The recent and strong growth of the poultry sector has been transforming, the soybeans industry in Mozambique; however, significant new production is needed in line with the following opportunity*

### Inputs

- **Enhance** institutions to **identify varieties** well adapted to Mozambique (assuming adequate scale to justify cold storage investment needed for seed research)
- Expand **use of inoculation** to enhance yields
- **Improve secondary roads** to reduce cost of bringing inputs to production areas, which are typically far away from ports

### Production

- **Increase production** to meet internal demand (and substitute imports) to reduce cost for feed processor
- Improve practices for **planting** and producing to improve crop yields
- Expand **registration of farmers** to reduce “VAT disparity” with imports

### Harvest & Post-Harvest

- Potential for **aggregation role** to enter between smallholders and producers to increase capacity utilization and facilitate market structure
- **Develop storage** to capture value from significant price structure changes during season and reduce waste

### Processing

- Improve **processing** to extract soy oil and produce soy cake rather than full fat soy cake
- **Expand collection** and refining of crude soy oil to meet domestic needs versus importing crude soy oil in South

### Market & Distribution

- Improve **North / South connector roads** to allow for supply of Southern poultry industry



# Maize Overview



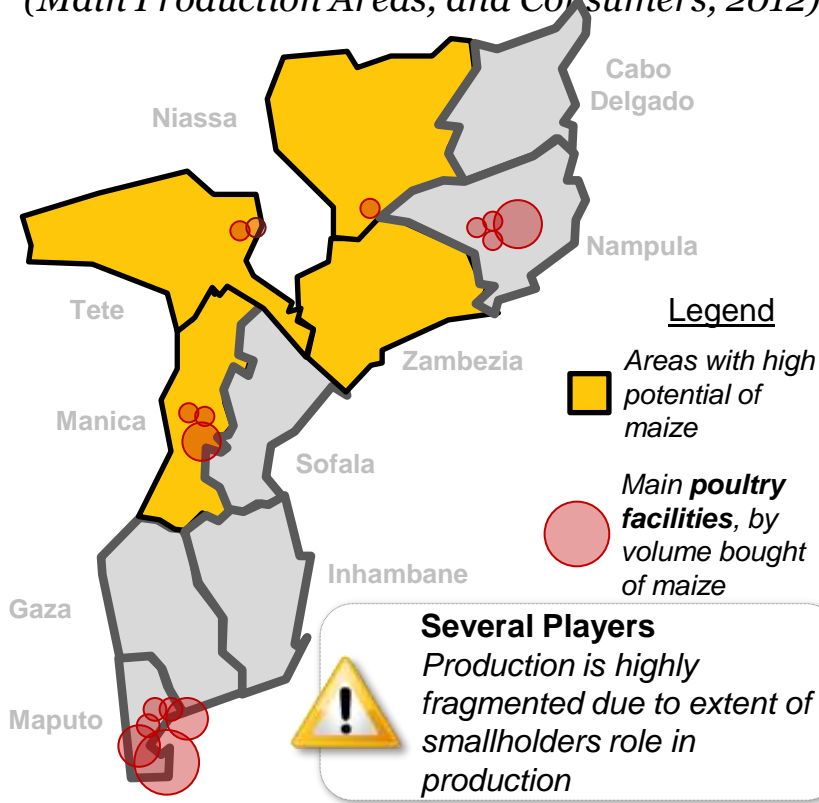
Maize is the most commonly grown crop in Mozambique given its role in human consumption, but also has significant growth potential in poultry

## REGION

ILLUSTRATIVE

### Maize Industry in Mozambique

(Main Production Areas, and Consumers, 2012)<sup>1</sup>



## ATTRACTIVENESS

- **Staple food** essential in the Mozambican diet and therefore **widely consumed**
- **Largely produced** by farmers
  - **71%** of all farmers grown maize
- **Rotational crop** for soy, allowing for **higher yields** due to nitrogen fixation
- Possibility to be used as **animal feed** in the **growing poultry industry**
  - Currently **5-15%** of maize produced is consumed as animal feed, but this will increase steadily

## INVESTMENTS

- The ministry of agriculture invested about **USD 35M** in **2011** in the **National Program for Seed Value Chain Fortification**, **50%** of which will be utilized for maize
- **Plantafrica** intends to invest in the **creation of 350 ha** of maize in Mozambique





# Maize

## Opportunity Analysis



*Maize is a highly important but also unorganized value chain in Mozambique, which can reach full potential through the following actions*

<b>Inputs</b>	<ul style="list-style-type: none"> <li>• The <b>wider use of improved hybrid varieties, fertilizers, lime (for pH) and pesticides</b> can help increase yields for this value chain</li> <li>• Development of alternatives to government seed distribution can help improve planting times and seed availability, as well as overall production</li> </ul>
<b>Production</b>	<ul style="list-style-type: none"> <li>• <b>Potential for greater production of yellow maize</b>, preferred by poultry farmers (as warranted by price)</li> <li>• <b>Dissemination of proper farming techniques</b> and <b>access to machinery for small farmers</b> could help improve yields</li> </ul>
<b>Harvest and post-harvest</b>	<ul style="list-style-type: none"> <li>• <b>Creation of adequate storage facilities</b> capable of drying grains properly to prevent aflatoxins and <b>reduce production losses</b></li> <li>• Increase in private sector <b>aggregating / trading actions</b> could reduce <b>high price fluctuations</b> during harvesting</li> <li>• <b>Dissemination of information</b> on production and demand to allow for proper planning</li> </ul>
<b>Processing</b>	<ul style="list-style-type: none"> <li>• <b>Develop market</b> between mills and smallholders to enhance growth opportunity and reduce excess capacity, particularly during lean periods</li> <li>• Continue more common processing of flour and animal feed, but <b>increase focus on additional “value” add processing</b> for human consumption, which is less common</li> </ul>
<b>Distribution</b>	<ul style="list-style-type: none"> <li>• Expand market reach of mills beyond small, local communities</li> <li>• Dissemination of information on processed tonnage, capacity, and price</li> </ul>



# Soybeans & Maize

## Recommended Actions



### *Actions to Capture Opportunities*

<b>Benefits the Whole Value Chain</b>	<ol style="list-style-type: none"> <li>1 Assist in <b>creation of associations</b> and <b>cooperatives</b></li> <li>2 Facilitate registering of farmers to eliminate VAT disparity<sup>1</sup></li> </ol>
<b>Inputs</b>	<ol style="list-style-type: none"> <li>3 Production of <b>improved seed</b> according to market demand (e.g.: yellow maize) and investments required (e.g.: cold storage facilities for soybeans)</li> <li>4 <b>Develop varieties</b> more adapted for local areas</li> <li>5 Provide implied credit to smallholders to buy and use inputs</li> </ol>
<b>Production</b>	<ol style="list-style-type: none"> <li>6 <b>Provide more extension training</b>, including “training-the-extension trainer”, to train small farmers in farming techniques and use of inputs</li> <li>7 Expand production to meet demand trends</li> </ol>
<b>Harvest &amp; Post-Harvest</b>	<ol style="list-style-type: none"> <li>8 Develop and manage <b>storage facilities</b></li> <li>9 Enhance <b>market information</b> about volumes and prices</li> <li>10 Create <b>aggregator role(s)</b> to improve market between producers and processors</li> </ol>
<b>Processing &amp; Refining</b>	<ol style="list-style-type: none"> <li>11 Improve <b>collection of soy oil byproduct</b> for refining</li> <li>12 Increase processing of <b>higher value</b> add products</li> </ol>
<b>Distribution</b>	<ol style="list-style-type: none"> <li>13 Enhance quality of <b>rural roads</b> and highways</li> </ol>



KEY QUESTIONS

***Which actions should be developed by the government, donors, and the private sector? Which should be prioritized? What is the investment required?***

Private Sector

Government

Donors / Dev.

Note: 1) Given recent short-term policy changes, this is less critical in the near term, but will be important in the longer term; Source: Expert Interviews; Monitor Analysis



# Soybeans & Maize

## Producer / Aggregator Business Model: Private Sector



Investors interested in the Mozambican market could focus on production, but also play the role of market aggregator in working with smallholders<sup>1</sup>

### POTENTIAL OPPORTUNITY

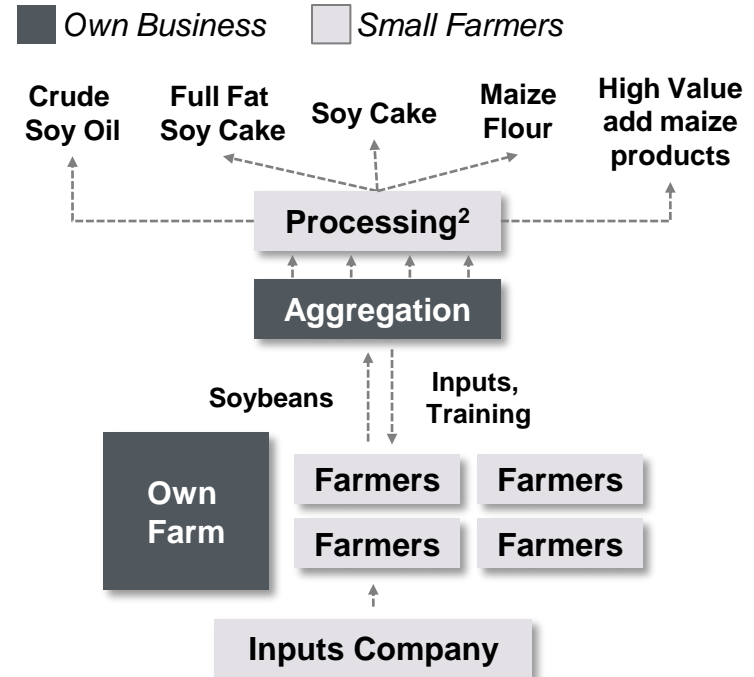
#### Opportunity for Investment in Soybean / Maize Plantation and Aggregator

- 7 Entrance as a **producer** with **potential aggregator role** to capitalize on the lack of a developed market within this step of the value chain
  - Opportunity exists to **capture value in price change**, with the role of helping to stabilize price and improve information access by buying and storing soybeans and maize
- 2 **Partnership** with small holder farmers can help in cementing aggregator role, including providing credit
- 8 Working with government or donors, potentially **invest in / manage storage facilities** (warehouse receipts model as a future option)

**!** Given *rotational crop advantages*, and the fact that *poultry producers are large buyers of soybean and maize*, opportunity exists to enter in *both value chains*

### BUSINESS MODEL

Private Sector  
ILLUSTRATIVE



#### SUPPORT

**Government**

**Donors**

#### MAIN AREAS

Basic seed research, infrastructure investment, tariff assessment  
Training of farmer extensions, association formation

Note: 1) While maize production is closer to current demand levels, growth of poultry sector and rotational benefits make maize production possible; 2) Future role in processing soybeans and collecting soil oil for refining or conducting maize processing  
Source: Expert Interviews; Monitor Analysis  
107



*In maize, the opportunity exists for the private sector to invest in aggregation*

## POTENTIAL OPPORTUNITY

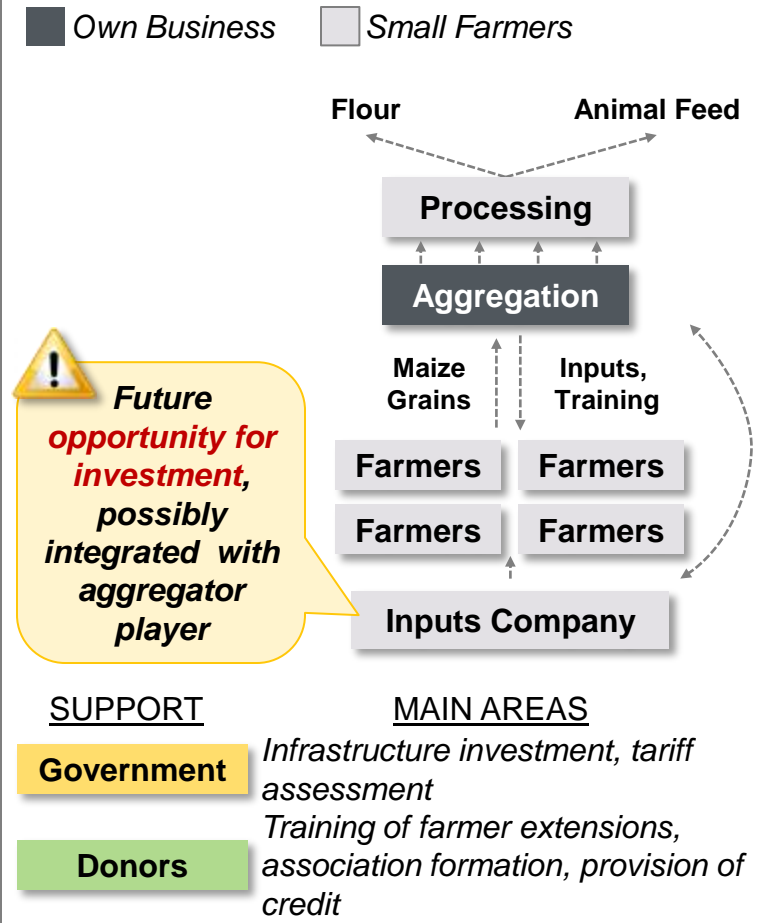
*Opportunity for investment as an aggregator purchasing maize after harvest*

- 9 Act as **mid-large scale buyer from small holders** and associations, **paying a minimum reference price** to encourage small holder investment, including providing credit
  - Utilize scale obtained to provide better market stabilization
- 7 **Invest<sup>1</sup> and manage silos and create adequate storage processes** and conditions to reduce post-harvest waste and aflatoxin contamination (e.g.. low moisture, heat and light)
  - Only about 15% of farmers have access to adequate storage facilities
  - **Leverage storage capacity** to take advantage of price fluctuations to obtain better margins (warehouse receipts financing)<sup>2</sup>

## BUSINESS MODEL

Private Sector

ILLUSTRATIVE



Note: 1) The private sector must work with the government and donors to obtain the desired level of financing / financial support; 2) Ex: a number of the policy changes is required before this is possible; Source: Expert Interviews; Monitor Analysis

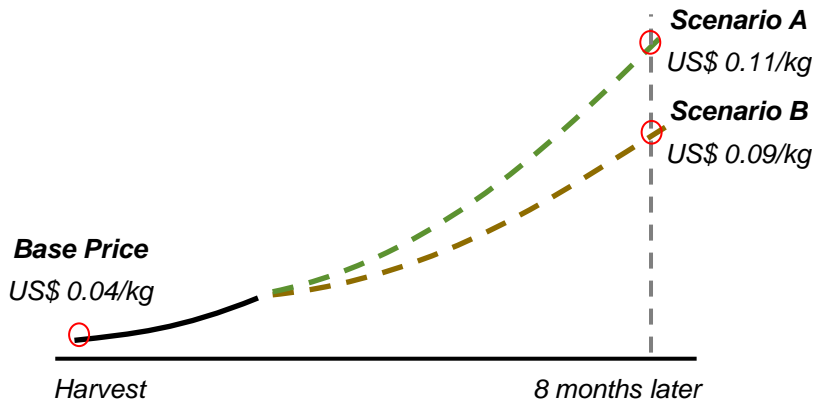


An aggregator can achieve a net margin of up to 27% if market conditions are favorable with possibility for an increase in gains

Private Sector

### FINANCIALS

- Lower **maize availability between harvest** (“lean period”) influences **price fluctuations**
  - Aggregator would act by **purchasing** maize **after harvest** and **reselling** after **8 months**



- Total production of 1,878 kT and about 85% of production without adequate storage leaves a **total opportunity of ~1,600kT**

- An aggregator possesses **storage, handling and transportation as main costs**
  - Collection of production from several small farmers (versus associations) or later distribute to small mills versus large ones could impact transportation costs significantly
  - **Total operating costs** amount to **~USD 0.04 / kg**
    - **Economies of scale and quality** can significantly help **minimize these costs and increase revenues**

#### Key Numbers (USD/kg)

	Revenue	Net Income	Net Margin
<b>Scenario A</b>	0.11	0.03	27%
<b>Scenario B</b>	0.09	0.01	11%



# Soybeans & Maize

## Government: Roles



To maximize the investment and potential viability of the private sector, several actions are needed from the government, mainly in information dissemination and facilitation

Government

ACTIONS RECOMMENDED	Priority Level Maize	Priority Level Soybean	Investment Size	Possible Institutions	Expected Impact
9 Enhance market information about volumes and prices	High (Solid black circle)	Medium (Half black circle)	Staff costs for dedicated group	• SIMA <sup>1</sup>	• Facilitates private sector entrants and more informed business decisions
13 Enhance quality of rural roads and highways through soybeans and maize farms	Medium (Half black circle)	Medium (Half black circle)	USD 9k and USD 100k /km (re-gravelling and paving)	• National Road Adm. (ANE)	• Lower associated costs, less transportation time, and expand market reach • Ease domestic market access
2 Facilitate registering of farmers to profit from tax benefits <sup>2</sup>	Medium (Half black circle)	Medium (Half black circle)	Marketing costs and staff for support	• Ministry of Agriculture	• Tax exemption from purchase of production of local smallholders leading to prevalence of local suppliers (medium term)
4 Develop varieties more adapted for local areas	Medium (Half black circle)	Medium (Half black circle)	USD 100k /research	• IIAM, IITA, FABI, FARA, and ICRISAT <sup>3</sup>	• Increased yields leading to improved profitability to producers

● High    ◐ Medium    ◑ Low

Note: 1) Agricultural Market Information System; 2) In near term, government has adjusted policy to eliminate this challenge, but is only a temporary change; 3) Mozambique Agricultural Research Institute, International Institute of Tropical Agriculture, Forestry and Agricultural Biotechnology Institute, Forum for Agricultural Research in Africa and International Crops Research Institute for the Semi-Arid Tropics Source: World Bank; DAPSA; USAID; Expert Interviews; Monitor Analysis



# Soybeans & Maize

## Donor / Development Community: Roles



Further involvement of the donor community is required to achieve the expected results, such as investments on infrastructure and assistance

Donors / Dev.

### ACTIONS RECOMMENDED

	Priority Level Maize	Priority Level Soybean	Investment Size	Possible Institutions	Expected Impact
8 <i>Development of adequate storage facilities, working with private sector to manage</i>	●	◐	~USD 100 /ton	<ul style="list-style-type: none"> <li>• AGRA</li> <li>• EU</li> <li>• World Bank</li> <li>• WFP</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced post-harvest loss and greater value at sale</li> </ul>
2 <i>Assist governmental registering of farmers to profit from tax benefits<sup>1</sup></i>	◐	◐	<i>Marketing costs and staff for support</i>	<ul style="list-style-type: none"> <li>• AFAP</li> <li>• AGRA</li> <li>• CLUSA</li> </ul>	<ul style="list-style-type: none"> <li>• Tax exemption from purchase of production of local smallholders leading to prevalence of local suppliers (medium term)</li> </ul>
1 <i>Assist in creation of associations and cooperatives</i>	◐	◐	<i>Staff costs for farmer engagement</i>	<ul style="list-style-type: none"> <li>• ACDI/VOCA<sup>2</sup></li> <li>• Techno-Serve</li> <li>• Others<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Organize farmers to allow to better capture of value added and facilitate negotiations</li> </ul>
6 <i>Provide more extension training, including “training-the-extension trainer”, to train small farmers in farming techniques and use of inputs</i>	◐	◐	~USD 1,500 / extensionist	<ul style="list-style-type: none"> <li>• ADRA<sup>4</sup></li> <li>• AGRA</li> <li>• FAO</li> <li>• IFAD</li> <li>• European Union</li> </ul>	<ul style="list-style-type: none"> <li>• Increased yields leading to improved profitability for producers through the use of enhanced techniques and inputs</li> </ul>

● High ◐ Medium ◑ Low

Note: 1) In the near term, this is less of an issue until government reinstates VAT differential; 2) Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance; 3) AGRA, European Union, FAO, IFAD, WFP; 4) Agência de Desenvolvimento e Recursos Assistenciais  
 Source: World Bank; DAPSA; USAID; Expert Interviews; Monitor Analysis



# Soybeans & Maize

## Recommended Actions



### Actions to Capture Opportunities

#### RECOMMENDED LEAD AGENTS

Priority Maize   Priority Soybean   Private   Gov.   Donors

		Priority Maize	Priority Soybean	Private	Gov.	Donors
Benefits the Whole Value Chain	1 Assist in <b>creation of associations</b> and <b>cooperatives</b>	Medium	Medium	None	None	Selected Agent
	2 Facilitate registering of farmers to profit from tax benefits	Medium	Medium	None	Selected Agent	None
Inputs	3 Produce <b>improved seed</b> according to market demand (e.g.: yellow maize) and investments required (e.g.: cold storage facilities for soybeans)	Medium	Medium	Selected Agent	None	None
	4 <b>Develop varieties</b> more adapted for local areas	Medium	High	None	Selected Agent	None
	5 Provide implied credit to farmers to buy and use inputs	Medium	Medium	Selected Agent	None	None
Production	6 <b>Provide more extension training</b> , including “training-the-extension trainer”, to train small farmers in farming techniques and use of inputs	Medium	Medium	None	None	Selected Agent
	7 Expand production to meet demand trends	Medium	High	Selected Agent	None	None
Harvest & Post-Harvest	8 Development and management of <b>storage facilities</b> <sup>1</sup>	High	Medium	Selected Agent	None	Selected Agent
	9 Enhance <b>market information</b> about volumes and prices	High	Medium	None	Selected Agent	None
	10 Creation of <b>aggregator role</b> to simplify relation between producers and processors	High	Medium	Selected Agent	None	None
Processing & Refining	11 Future improve <b>collection of soy byproduct</b> for refining	Low	Medium	Selected Agent	None	None
	12 Increase processing of <b>higher value</b> add products	Medium	Medium	Selected Agent	None	None
Distribution	13 Enhance quality of <b>rural roads</b> and highways	Medium	Medium	None	Selected Agent	None

Note: 1) Including providing credit (warehouses receipts)  
Source: Expert Interviews; Monitor Analysis

● High   ● Medium   ● Low   ■ Selected Agent





### Overview

---

- 1 **Donor / Private sector willingness** to invest approximately USD 4.5M per silo for storage of soybeans and maize after harvest
- 2 **Land availability** in Manica, Zambezia, Tete, or Niassa close to adequate infrastructure (for modeled farms ~3.5k - 4k ha in total, 50% private sector / 50% smallholders)
- 3 Government willingness to fully capture and transmit **information of supply and demand**, as well as **sales price information**
- 4 **Government** effort to facilitate registering of farmers to profit from tax benefits
- 5 **Donor / development agency** investment of approximately USD1.5k / extensionist (could be partially supported by private sector) for **extension** and **association** development<sup>1</sup>



### Key Challenges

- *Interfacing with number of farmers required to have **adequate size and scale***
- *Amount of **time required** to get approval of **land***
- *Number of registered farmers to reduce **“VAT disparity”** with imports*
- *Quality of **North / South connector** roads to allow for supply of Southern poultry industry, particularly for soybeans*
- **Dissemination of information** on production and demand to allow for proper planning
- *Amount of **time required** for seed approval*

### Next Steps

- *Identify potential donors who are interested in partnership with private sector for silo development and management*
- *Confirm land availability*
- *Detailed business modeling of opportunities*
- *Private sector aggregators partnering with donors / development groups to create associations in areas they want to operate*
- *Government work with private sector to determine information that would be most useful and set processes to capture and disseminate*



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### Overall Recommendations (1/3)

*These actions could have a positive impact on investments and the agriculture potential across value chains in Mozambique*

- 1 Each **corridor** requires a **group to coordinate** the actions of the **three stakeholders**, which could be done by leveraging existing groups. For example:
  - Zambezi Valley has the Zambezi Valley Development Agency, but a more formal relationship with the donors/development community and the private sector is required
  - BAGC (Beira Agricultural Growth Corridor) could look to take the lead in increasing this kind of interaction in the Beira Corridor
  - Nacala Corridor should have a similar institution to promote more alignment between the three stakeholder groups, potentially leveraging CTA
- 2 The **donor / development community** should look to **enhance alignment** of their efforts with others in the donor / development community to **maximize impact**
- 3 The **donor / development community** should also try to **enhance alignment** with the **private sector** so as to have a **more sustainable impact** on agriculture and small holders
- 4 The **donor / development community** should continue a concerted effort **with the government to finalize mapping of land potential and DUATs** to assist with opportunity identification and speed the investment evaluation process



*These actions could have a positive impact on investments and the agriculture potential across value chains in Mozambique*

- 5 **Donors** could add **significant value** by working with government to invest in **obtaining the data** to be used in the **new GIS system** (which will be used for infrastructure planning) as well as **finalizing data entry** on topics such as land potential and DUATs
- 6 The **private sector** should ensure the **development of value-chain specific associations** to allow for more effective communication with the government
- 7 The **Ministry of Agriculture** should create a **prioritized investment list** of critical **infrastructure investments** for each province to facilitate growth in key value chains and either work with other ministries or the private sector to complete these investments
- 8 The creation of a **credit bureau** is critical to help the private sector and donor / development community evaluate the **risks associated with farmers**, which will increase comfort in providing credit
- 9 Ensure the existence of a **one-stop-shop for the private sector** to simplify the process of moving from investment interest to an actual investment
  - Creation of a **one-stop-shop website** that includes a simplified, short, easy to follow overview of processes for land use rights and company start up



*These actions could have a positive impact on investments and the agriculture potential across value chains in Mozambique*

- 10 **Identification** of the most important **capabilities for managers** in agricultural value chains (and gaps), couple with **communication to existing schools** about desired curriculum
- 11 Focus government information gathering activities to reduce overlap between groups and enhance outputs
  - **Desired information** should be decided within **input from the private sector**
- 12 **Throughout the input step for many value chains** (seeds, fertilizers, agrochemicals, irrigation pipe, machinery, etc.), **there is a significant entry opportunity**, particularly when working with and providing a **“unified front” for loaning inputs with credit to small holders**



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# Prioritization Process and Analysis

## Filter Three – Market Potential Indicators (2/2)

Indicators used in analyzing market potential include production and demand trends, and current demand in the domestic and export markets

	Production, 2010 (‘000 metric tons) BUBBLE SIZE	Projected Growth in Demand (5 Year CAGR% <sup>1</sup> ) AXIS Y	Sales Potential (‘000 metric tons) AXIS X (A+B)	Import Deficit (‘000 metric tons) <sup>2</sup> (A)	Regional Market Trade Balance (‘000 metric tons) (B)
Banana	115	5%	2,175	-	2,175
Cashew	67	7%	1,457	-	1,457
Cassava	5,700	2%	4	4	-
Maize	1,878	2%	60	9	51
Poultry <sup>3</sup>	24	13%	12	12	-
Sesame	46	3%	867	-	867
Soybeans	18	13%	35	35	-
Rice	180	7%	280	280	-
Vegetables <sup>4</sup>	130	3%	10	10	-

Note: 1) CAGR stands for Compound Annual Growth Rate; 2) Positive values refer to deficit on trade balance; 3) Poultry refers to chicken meat;

4)Vegetables used for analysis are potato, tomato and onion and values are total/ average of these three vegetables

Source: FAO; Ministry of Agriculture; Trademap; TechnoServe; Monitor Analysis





# Prioritization Process and Analysis

## Filter Three – Regional Competitiveness Indicators (2/2)

Comparative yield, market share indices and production with other countries in the region<sup>1</sup> were used to analyze competitiveness of value chains within the region

	Production, 2010 ( <sup>000</sup> metric tons) BUBBLE SIZE	Index of Relative Competitiveness AXIS Y (A)*(B)	Relative Yield (2010 Five Year Average) (A)	Relative CAGR of Production <sup>4</sup> (2010 Past Five Year Average) (B)	Potential Share of Regional Market <sup>5</sup> (% Total Production in 2015) AXIS X
Banana	115	2.15	0.52	4.12	8%
Cashews	67	0.99	0.99	-4.80	43%
Cassava	5,700	2.72	1.09	2.50	38%
Maize	1,878	1.07	0.55	1.94	5%
Poultry <sup>2</sup>	24	3.16	0.68	4.66	2%
Sesame	46	1.43	0.74	1.95	21%
Soybeans	18	1.71	0.53	3.29	8%
Rice	180	1.74	1.04	0.67	25%
Vegetables <sup>3</sup>	130	0.84	0.51	1.76	1%

Note: 1) Countries used in the comparison are Ethiopia, Kenya, Malawi, South Africa, Tanzania, Zambia, and Zimbabwe; 2) Poultry refers to chicken meat; 3) Vegetables used for analysis are potato, tomato and onion and values are total/ average of these three vegetables 4) Calculated as 5 Year CAGR of Mozambique divided by CAGR of region; 5) Includes projected growth in Mozambique production versus current regional figures. Source: FAO; Ministry of Agriculture; Nutrition Data; National Institute of Statistics; TechnoServe; Monitor Analysis



# Prioritization Process and Analysis

## Filter Three – Social Impact Indicators (2/2)

Smallholder farmer income and nutrition, as well as number of farmers that can be reached were used as indicators for the social impact analysis

Highest Importance  
 Lowest Importance

	Production, 2010 ( <sup>'000 metric tons</sup> ) BUBBLE SIZE	Number of Farmers, 2010 ( <sup>'000s</sup> ) AXIS Y	Index of Nutritional Importance <sup>3</sup> AXIS X (A)*(B)*(C)	Protein Content (Protein grams per USD), (A)	Calorie Content (Calories per USD), (B)	Importance for Domestic Food Consumption, (C)
Banana	115	441	10	24	1,925	
Cashew	67	1,372	9	525	15,941	
Cassava	5,700	2,507	56	45	5,161	
Maize	1,878	2,716	57	315	12,236	
Poultry	24	2,303	25	748	867	
Sesame	46	288	12	1,907	6,173	
Soybeans	18	32	25	11,545	13,149	
Rice	180	550	56	84	4,034	
Vegetables <sup>2</sup>	130	598	24	41	539	

Note: 1) Poultry refers to chicken meat; 2)Vegetables used for analysis are potato, tomato and onion and values are total/ average of these three vegetables; 3) Index Calculation =  $(0.2 * ((\text{Protein g/USD} / \text{Recommended daily allowance}) + (\text{Calories g/USD} / \text{Recommended daily allowance}))/2) + 0.8 * \text{Importance for Domestic Food Consumption}$ . Source: FAO; Ministry of Agriculture; Nutrition Data; National Institute of Statistics; TechnoServe; Monitor Analysis



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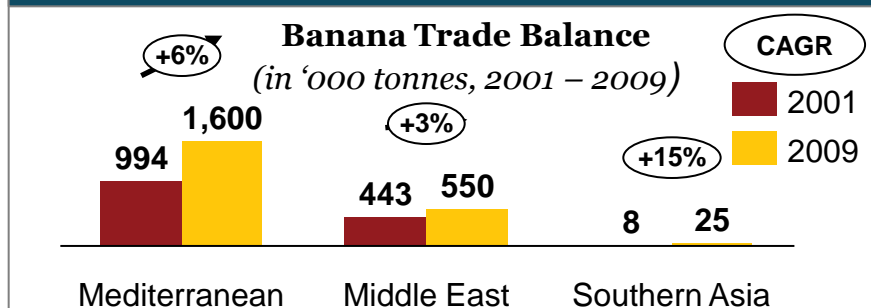


## Banana – Potential

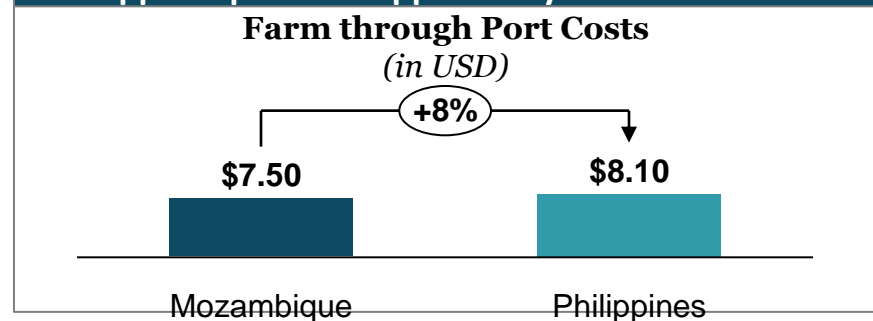
Mozambique's banana industry is well situated to benefit from both its geographical position as well as potential cost advantage

- 1 **Year-round, high-yield crop potential** within Mozambique provides **additional export opportunities** and **improved margins**
- 2 Ability exists to feed large demand imbalances in the **Middle East** and the **Mediterranean**
  - Greatest growth has occurred in the Mediterranean, but significant opportunity still exists in Middle East (depending on sanctions)
  - **Europe**: Has **competitive export tariff advantage** for African countries over most of Latin America (value of USD 3 per box)
  - **Middle East**: Only **8-10 days<sup>1</sup>** from Mozambique **versus 20 days** shipping transit time from Latin America and Philippines
  - Philippines' production has been diverted to China, **enhancing Middle East opportunity<sup>2</sup>**
- 3 Despite high transport costs, Mozambique **has a farming through port cost advantage versus the Philippines**, partly due to a reduced number of plant disease occurrences

**Mozambique can feed large demand imbalances in the Mediterranean and Middle East**



**Mozambique's lower farm to port costs than Philippines provides opportunity in the Middle East**



Note: 1) Assuming direct shipping; 2) Current sanctions on Iran reduce near term opportunity in the region

Source: FAOSTAT; TechnoServe; AgriFUTURO; Expert Interviews; Monitor Analysis



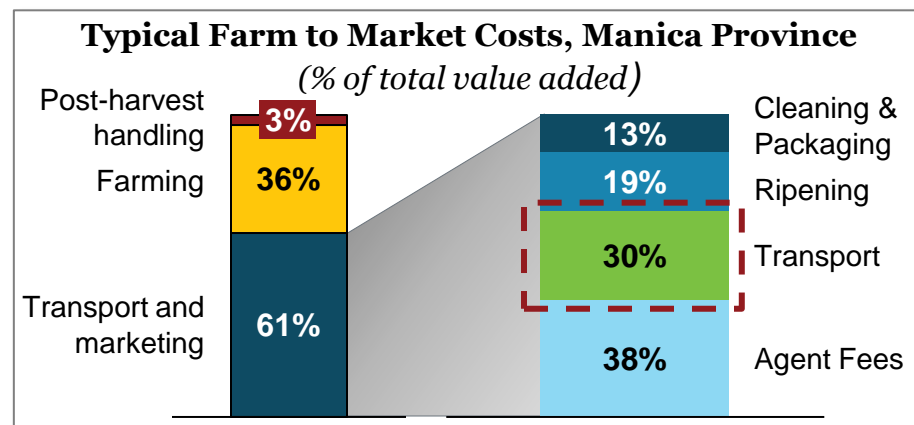
# Discussion of Priority Value Chains for Investment

## Banana – Challenges and Barriers



*Industry operations require greater scale to maximize Mozambique's potential cost savings and market reach, while cold storage options and overall infrastructure will need to improve*

- A** **Transport costs** are a key challenge for banana producers in Mozambique, as one of the **main drivers of costs**
- **Port costs are high, from Nacala in particular**, with charges such as scanning charges making price competitiveness more difficult
- B** **Lack of cold storage** significantly limits quality and ability to reach distant consumer markets
- While using refrigerated containers from farm site via truck is feasible, the lack of quality infrastructure limits the number of companies that provide them (due to wear and tear on the containers), as well as significantly increases the cost
  - **Cold store warehouses** at different points in value chain are **not sufficient** to handle current, yet alone future, capacity



- C** **Inadequate scale does not allow for full shipments**, which hampers Mozambique's ability to serve markets such as Europe due to need for direct shipments
- Additionally, lack of backload arrangements leads to higher shipping costs
- D** A recent **fruit fly problem** in Mozambique could hamper banana exports, though efforts are underway to demonstrate that green bananas are not a proven host for the fly



# Discussion of Priority Value Chains for Investment

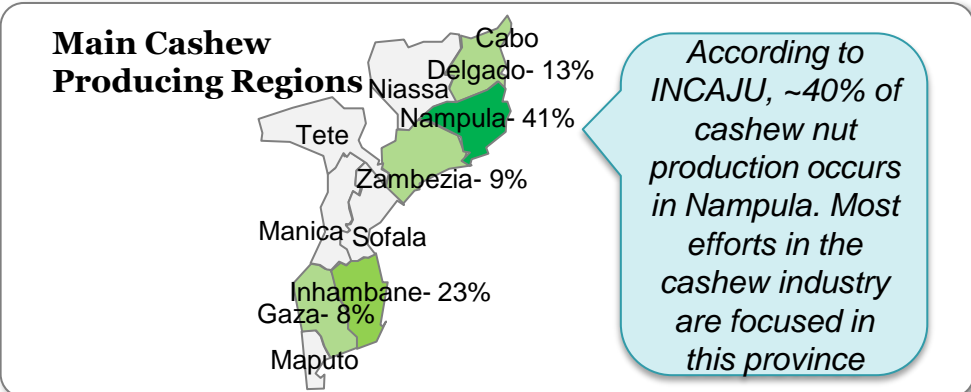
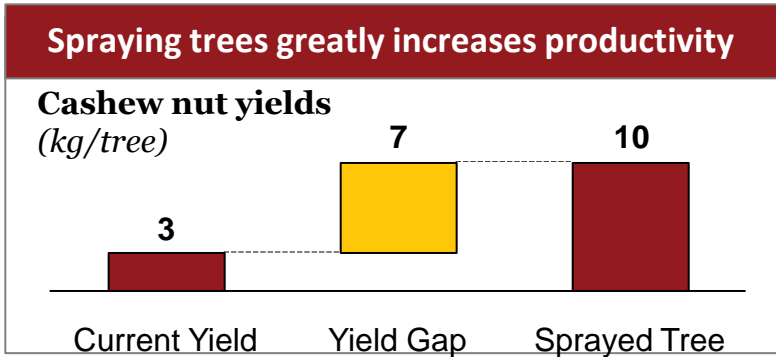
## Cashew – Potential



Mozambique has the potential to regain its place as a top cashew producer and exporter, while capturing more value with participation throughout the value chain

- 1 Prior to independence in 1975, **Mozambique was one of the leading producers / exporters of cashew nuts**, evidencing the country’s suitable climatic conditions and knowledge
  - Production was once as high as 200,000 metric tons (versus 65,000 today)
- 2 A significant **limiting factor** on Mozambique’s success (diseased trees), can be relatively cost effectively prevented
  - **Spraying the trees** against disease **greatly improves productivity**

- 3 Cashews can be grown throughout much of the country, but are **particularly successful in the Nacala corridor**
- 4 **Significant** government and donor **efforts are underway to revitalize the industry**. For example:
  - INCAJU (Government Cashew Initiative) **plans to grow 3.3 million cashew saplings** in 2012 to be planted as new trees
  - TechnoServe now supports **16 cashew processing plants** with **~36,000 metric tons processing capacity**





# Discussion of Priority Value Chains for Investment

## Cashew – Challenges and Barriers

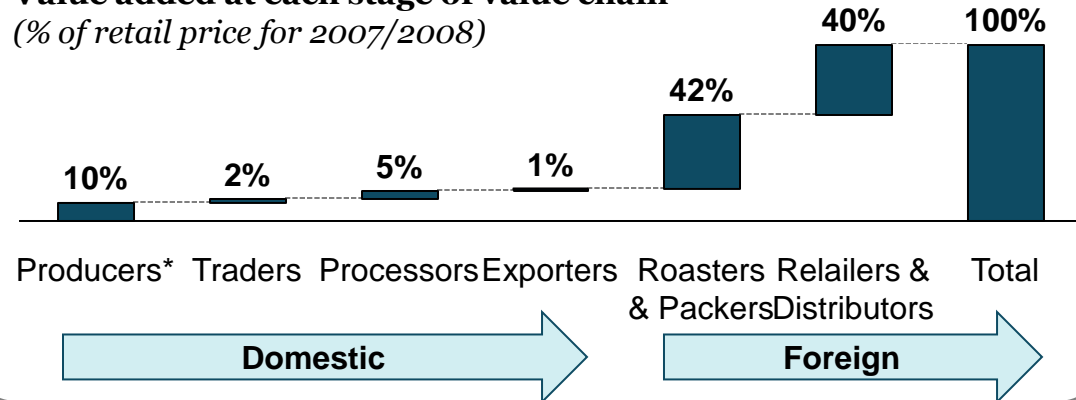


*In addition to the replacement of old trees requiring significant investment, the processing industry needs to be supported for more value to be captured domestically*

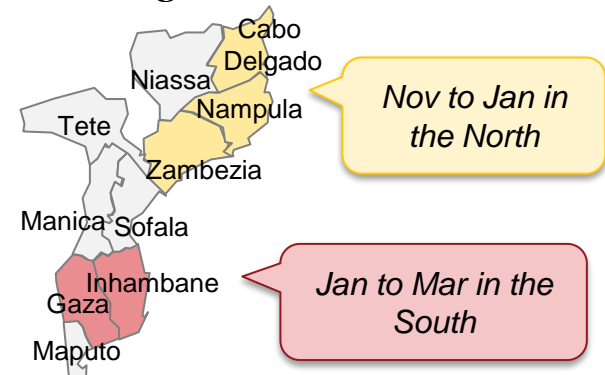
- A** Replacing and spraying trees will be a significant undertaking
  - Old, unproductive **trees must be cut down**, as they are hosts to the disease
  - **Farmers must be supported in intercropping** cashew trees with income-producing crops, such as sesame and groundnut for them to be willing to wait 6-7 years for cashew trees to be in full production
  - Although multiplying seedlings is relatively easy, **transport infrastructure to farming regions limits farmers' access to new trees**
- B** Majority of **value comes from the more capital-intensive downstream activities**, limiting the income impact that farmers within Mozambique can experience, and thus limiting social impact
  - Approximately 50% of Mozambique's production can be processed locally with current capacity
  - Currently, **only ~20% of the value added in the final retail price takes place in Mozambique**
- C** If the local processing industry is to grow, the **short harvesting season** of cashew will require either **high storage costs or enhancement of imports** from countries such as the West African producers

**Value added at each stage of value chain**

(% of retail price for 2007/2008)



**Harvesting Season (Nov to Mar)**



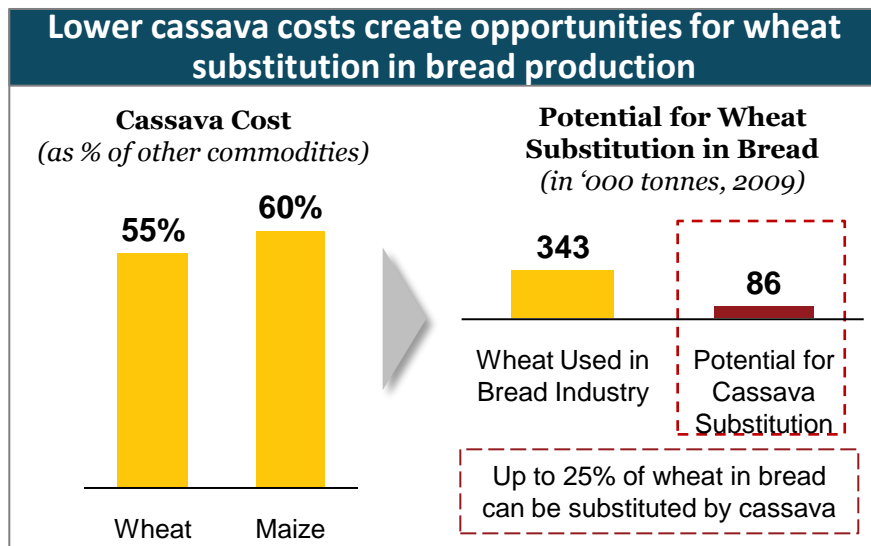
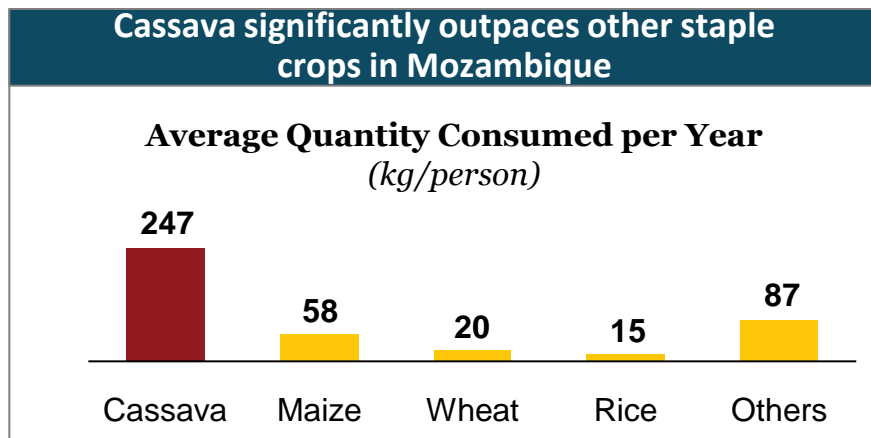
Note: \*Producers prices represent kernel prices, which are assumed to be 20% of the weight of raw nuts  
 Source: FAOSTAT; TechnoServe; African Cashew Initiative; INCAJU; Expert Interviews; Monitor Analysis



## Cassava – Potential

*New processing technology is expanding market opportunities for cassava, which has been mainly considered a staple crop of significant food security importance in Mozambique*

- 1 **Cassava** does and will continue to have a **strong demand advantage versus other staple crops** in Mozambique, particularly in the north
  - Cassava is **an easy-to-produce and drought-resistant crop** with food security importance
- 2 Substitution opportunities exist for cassava within Mozambique, given **strong cost advantages** over other **commodities**
  - **Cost** for cassava is **roughly half** of some related commodities
  - Example: Up to 25% of **wheat**<sup>1</sup> used in bread **can be substituted by cassava at 55% of cost**
- 3 **Potentially significant market opportunities have been created** by a mobile cassava processing unit created by DADTCO
  - This allows for additional uses of cassava in **livestock feed, industrial raw materials, alcohol brewing, and ethanol**
  - For example: **SABMiller** will invest an **additional \$124 M** over the next two years to continue to develop its **cassava beer (Impala)**, made possible by the mobile processing units







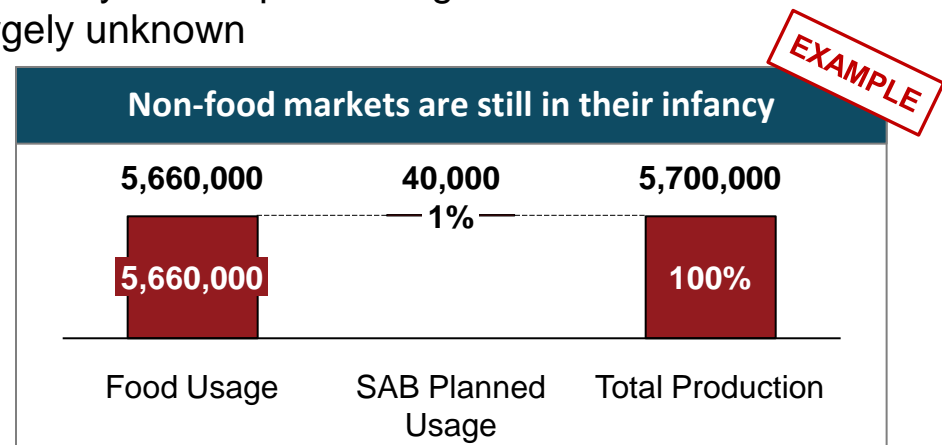
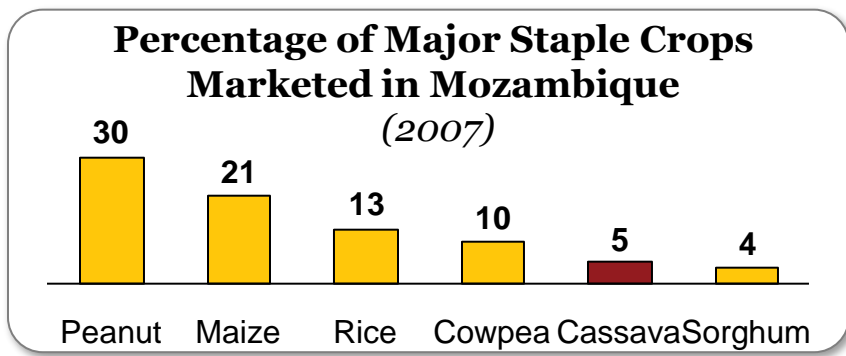
# Discussion of Priority Value Chains for Investment

## Cassava – Challenges and Barriers



*Unless new markets created by mobile processing technology are exploited, it is unlikely that the Mozambican cassava market will grow significantly*

- A** Cassava is **grown almost entirely for subsistence**, with **little focus on market opportunities**
  - Outreach and training will be required to develop a market place for cassava
- B** Mozambique currently **meets its domestic needs for cassava** and **significant demand growth** is not projected for cassava as a food product
  - In addition to this, **margins on cassava for its current key uses are relatively low**
- C** The **heavy and highly perishable** nature of fresh cassava, coupled with inadequate transport infrastructure makes it difficult to transport fresh cassava from farming regions
  - The mobile processing units developed by DADTCO have not yet reached a scale where they completely eradicate the need for transport of fresh cassava
- D** **New potential markets** for cassava brought about by mobile processing units still **need to be proven as viable**, as these markets are still largely unknown



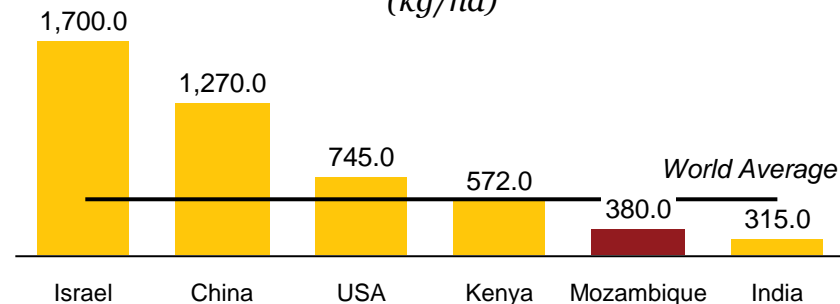


*Cotton in Mozambique is a well established commodity with a long history and high possibilities for productivity improvement*

- 1 Mozambique’s cotton lint has a **long history in accessing important international markets**, traditionally in Europe as well as more recently in Asia
- 2 High **potential for increased productivity**
  - Current productivity is one of the lowest in the world (380 kg/ha)
- 3 Opportunities for **ginning of cotton for export of high quality cotton lint** and **processing of cotton seed into oil and cake**

**Low yield provides opportunity for productivity increase in the country**

**Cotton Yield by Country**  
(kg/ha)



### Possibilities for Cotton Production



Cotton



Cotton Lint



Cotton Seed



Cotton Oil

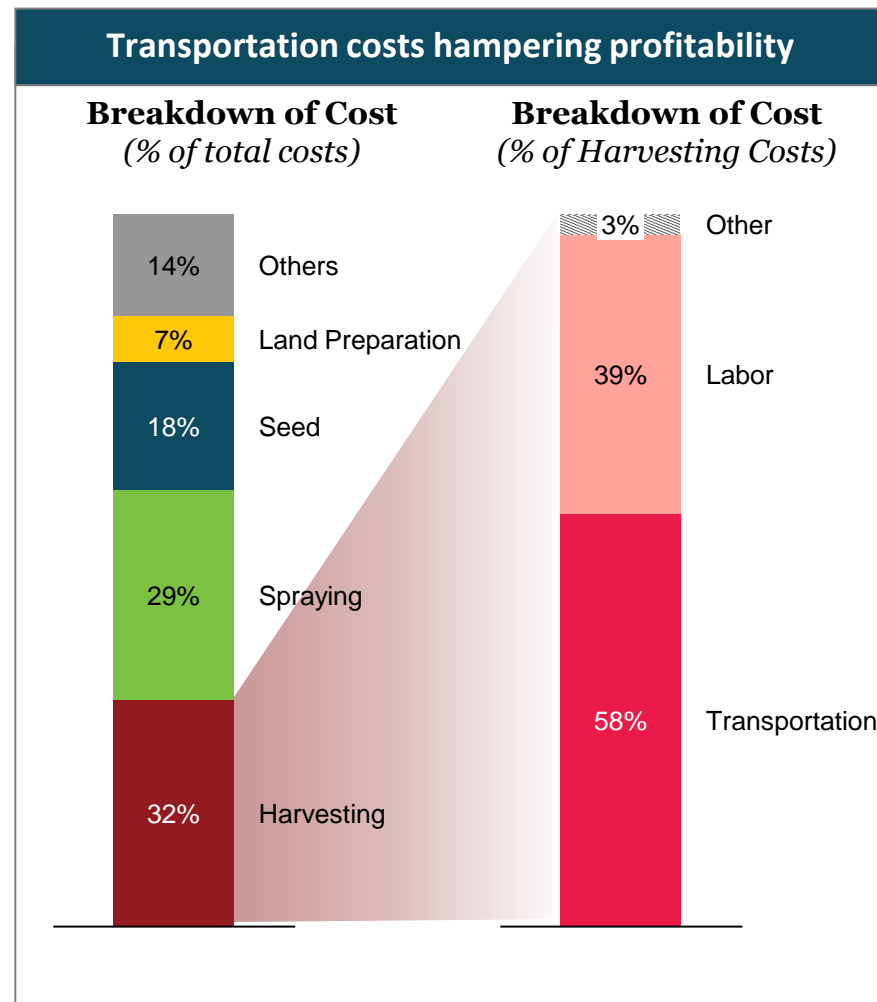
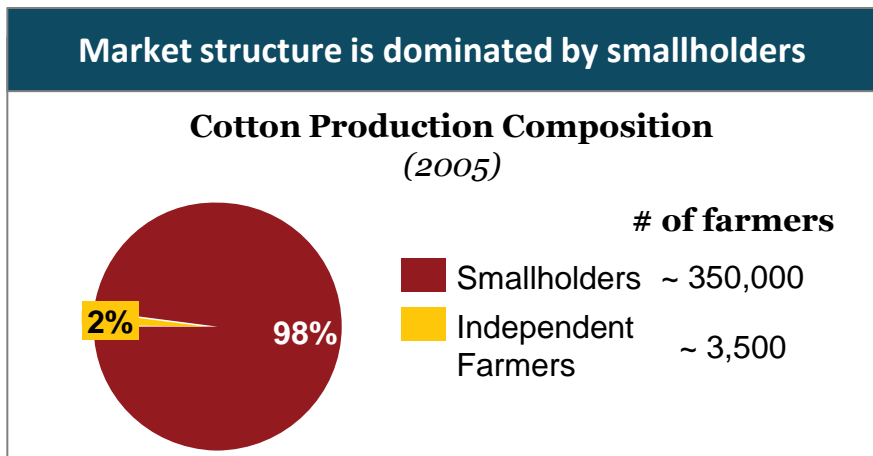


Cotton Seed Cake



High price variability and costs associated with transportation hamper profitability with the Mozambican value chain

- A** **Highly variable cotton seed price can make**  
– 40 USD to 120 USD per ton
- B** **High collection costs due to transportation** lead to lower profitability
- C** **Production and logistics dependant on concessionaires with** the right to purchase cotton in their areas
  - Concessionaires typically work with smallholder farmers that **grow on between 0.5 – 1 hectare**
  - This results in **smallholders with 98% of the production market**



Note:  
Source: TechnoServe; GDS; Interview with experts; Monitor Analysis



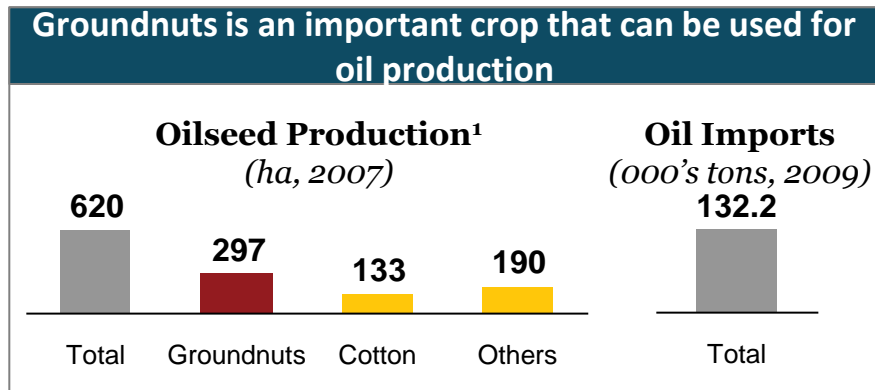
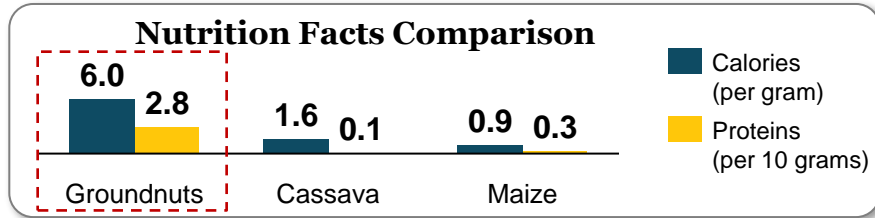
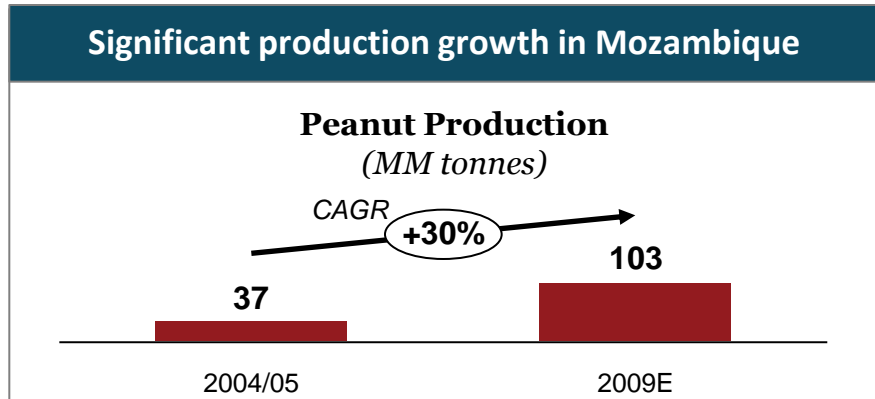
# Value Chains Overview

## Groundnuts – Potential



*Groundnuts production has been increasing rapidly to meet food and oil demand growth, with continued opportunity expected through import substitution*

- 1 Already, widely grown in Mozambique, groundnut **production has been increasingly rapidly** to meet growing demand
  - **30% CAGR since 2004**
- 2 **High energy and protein food** that has multiple food uses, particularly in comparison to most common crops in Mozambique
  - Can be consumed in its raw form, boiled or even roasted
  - Groundnuts can also be used to produce processed food, such as peanut butter
- 3 **High potential in domestic market** as well as **import substitution** for vegetable oil from seeds
  - Oil yield can reach up to 45-50%, against 20% of soy and cotton
  - There is interest by ICRISAT and other research institutions to **develop new** higher oil **variations** – further increasing productivity



Note: 1) Does not include production from palm trees  
 Source: TechnoServe; Minister of Agriculture and Fisheries (Nampula Province); Nutrition Data; Interview with experts; Monitor Analysis



*Unless pest control is established, linked with focused investments and efficiency improvements, it will be challenging to achieve attractive growth in the near future*

**A** Groundnut **exports are limited** by **high levels of aflatoxin**, which are caused by mold infections

- Improved post harvesting handling and aflatoxin testing required to open markets

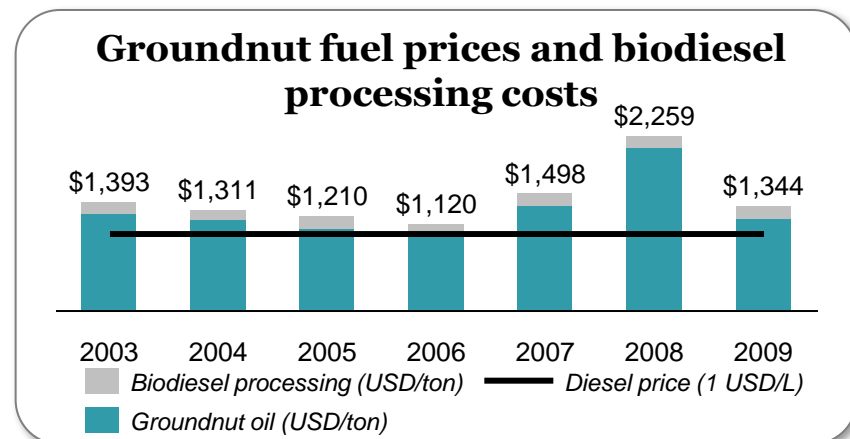
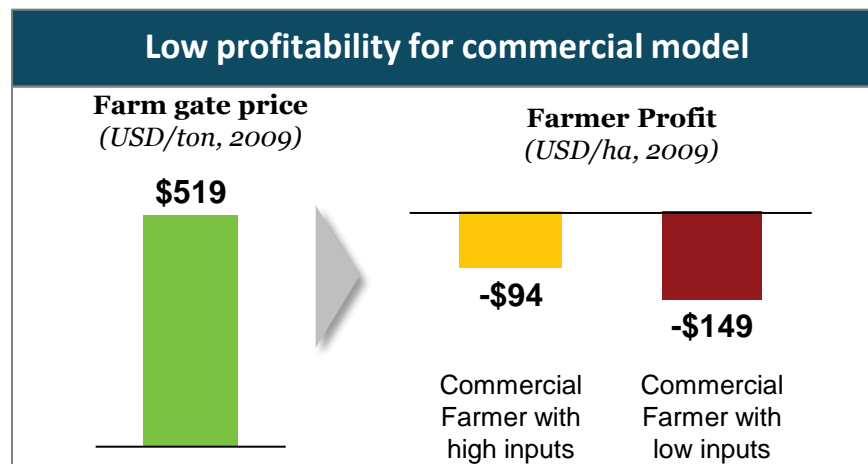
**B** **Lower profitability in large scale models, due to high energy costs**

- More suitable to smallholders or to operations that can enhance efficiency

**C** **Lack of efficient processing units** inside Mozambique

- **Mechanical extraction** is more often used leading to **lower profitability**

**D** **High current groundnut fuel production costs** within Mozambique lead to difficult market in current structure

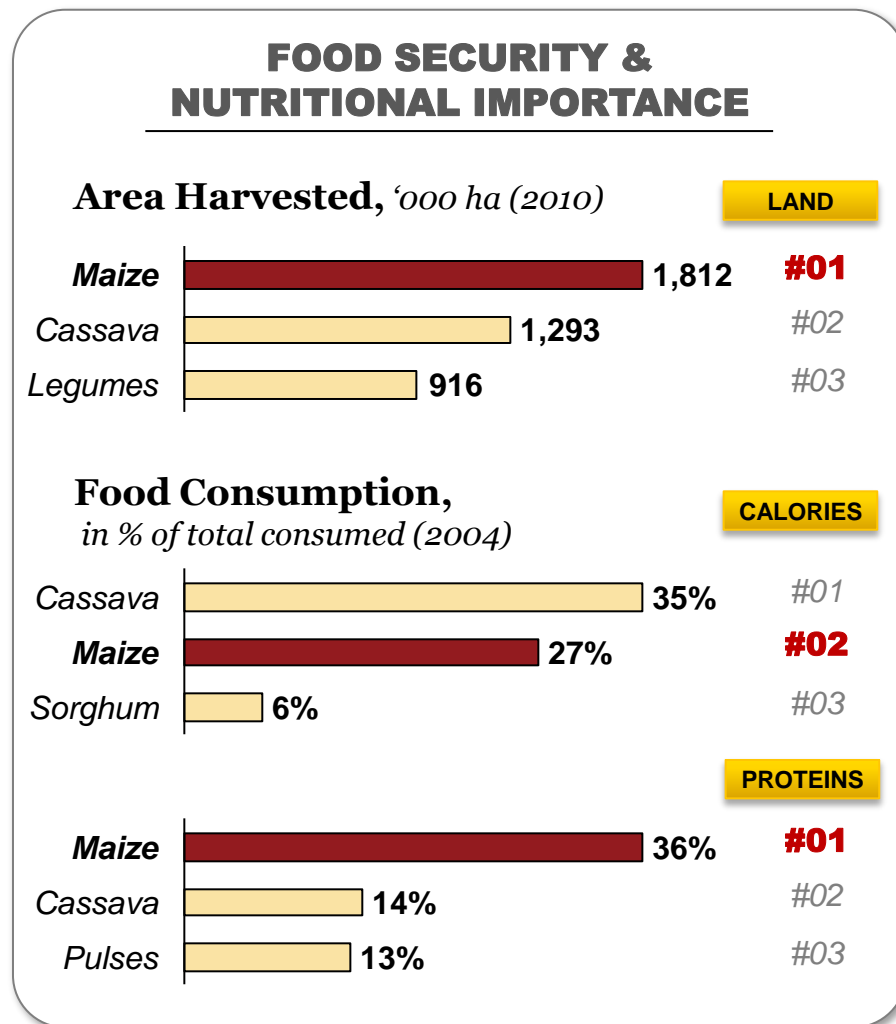




## Maize – Potential

*Produced largely by small farms, maize has significant growth potential to meet poultry demand growth and boost rural income*

- 1 Maize is one of the most **consumed staple crops** in southern African, with high relevance in terms of food security
- 2 Though **71%** of all farms in Mozambique produce some maize, most **rural households** are **net buyers**, and the country need to import ~99,000 MT yearly
- 3 Additionally, **increasing demand** for feed will parallel **poultry industry** growth in domestic and foreign market, including meaningful exports to Malawi and Zimbabwe
- 4 Several key investments – particularly in the high potential Northwest of Zambezia, West of Nampula, or Central and South of Niassa – could help **transform the country into a regional breadbasket**
  - E.g.: Invest in **silos** and adequate storage processes to reduce post-harvest waste and aflatoxin contamination





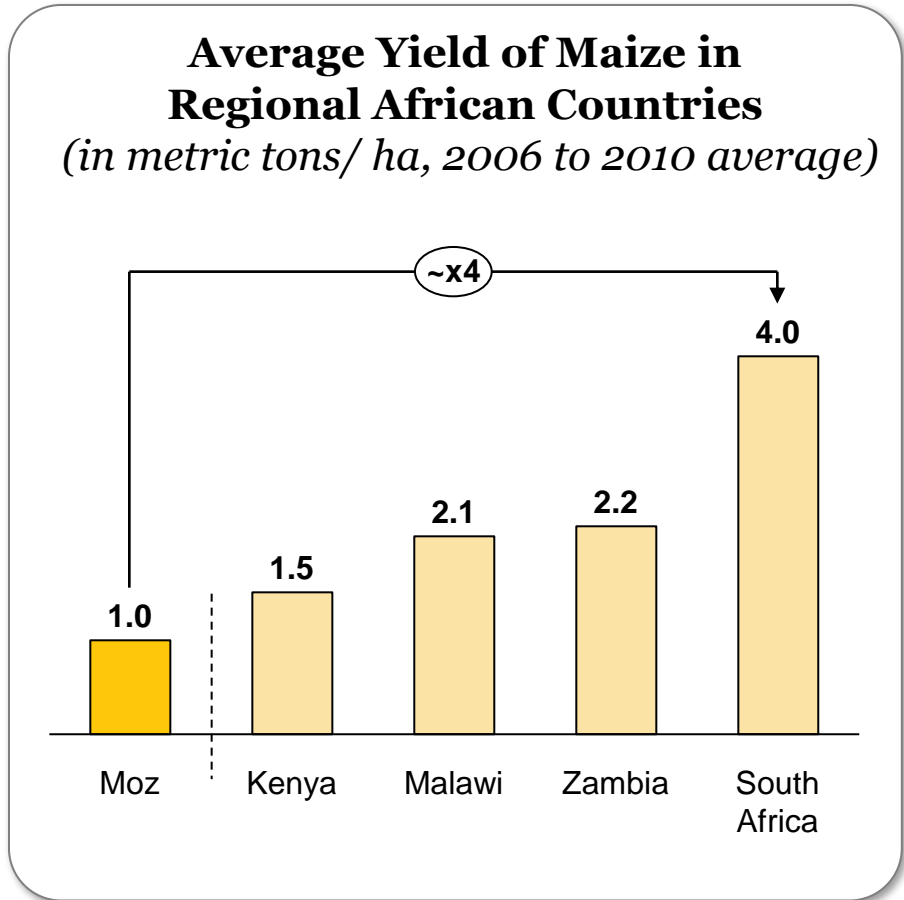
# Discussion of Priority Value Chains for Investment

## Maize – Challenges and Barriers



*Inadequate inputs and insufficient storage infrastructure contribute to low margins for many producers*

- A** Low use of improved seeds, fertilizers, and best practices reduce maize **yields** to one of the lowest in Africa
- B** Limited supply of small-mid size **storage facilities** prevents farmers from storing grains produced, leading to significant price volatility
  - **Inability to store grains** leads to market excess at harvesting, significantly reducing price
  - Without sufficient storage facilities, high volumes of grains are **lost or spoiled**
  - As a result, **higher prices** later in season cannot be easily captured by farmers

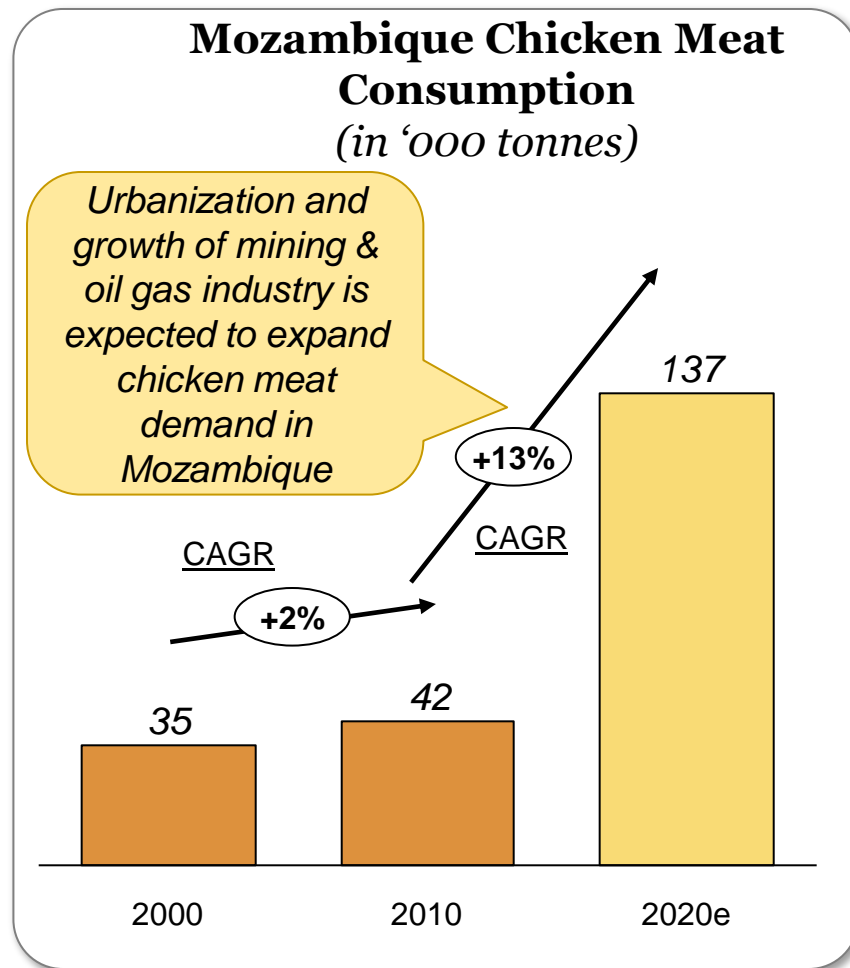




## Poultry – Potential

*Increased demand for chicken meat will drive strong poultry sector growth, facilitated by potential gains in competitiveness of soy cake and other inputs*

- 1 Demand for chicken meat has grown** meaningfully across Africa and is expected to keep rising
  - Within Mozambique, demand is expected to more than **triple**, in parallel with urbanization and income growth (mining, oil & gas)
- 2** With much of imports coming from distant locations (Brazil, US, Asia), high sea freight costs for competitors should provide attractive margin potential
- 3** Expected domestic expansion of **inputs production** (mainly soybeans and maize) should push down costs allowing for greater competitiveness
  - **Feed** correspond to **~75%** of total costs
- 4** Limited land and time requirements for poultry production can allow small holders to pursue poultry in addition to other farming activities







# Discussion of Priority Value Chains for Investment

## Poultry – Challenges and Barriers



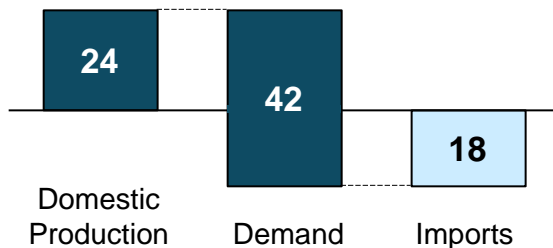
*Issues related to costs of inputs, infrastructure, efficiency, and legal enforcement will need to be addressed to maximize the development of the domestic poultry industry*

- A** **Lack of domestic feed** and individual inputs (e.g.: soy cake, soy oil, maize) requires importation of expensive inputs from Brazil, South Africa, and Argentina
  - Impact of domestic input production will be limited until infrastructure can better connect soybeans and maize areas in the North with poultry production regions in the South
- B** High capital investment requirement for electricity infrastructure and temperature controlled huts to improve poultry production and weight limit cost competitiveness
- C** Without **official punishment** for robberies below Mt 1,000, judicial system is not adequately protecting producers (individual chicken cost less than Mt 200)

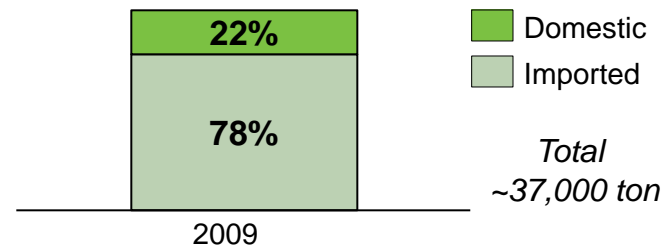
### HIGH DEPENDENCE OF IMPORTED INPUTS

#### Deficit of Soybean Production

(in '000 tonnes, 2009)



#### Consumption of Imported Soy Cake





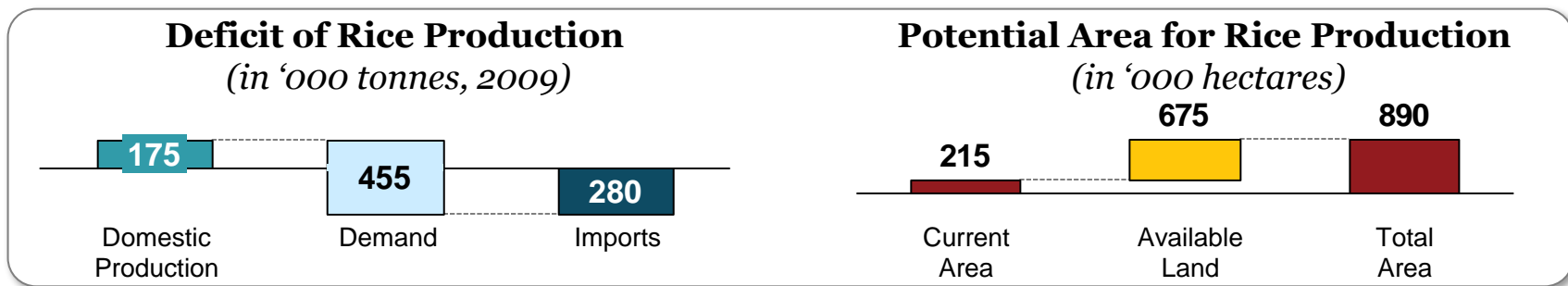
# Discussion of Priority Value Chains for Investment

## Rice – Potential



*Natural potential for rice in much of the country has driven investments focused on import substitution*

- 1 There is a **major gap** between rice production and domestic demand in Mozambique, providing an import substitution opportunity
  - Mozambique is the 3<sup>rd</sup> highest rice **consumer** in SADC (~455,000 tons/ year)
  - Yet only 38% of demand is addressed locally (imports from Thailand, Pakistan, Vietnam)
  - Without increased local production, **this gap will only grow** due to a projected **7% domestic demand increase per year**
- 2 Mozambique’s **climate** and **soil** are very well-suited to rice, with opportunities for year-round production given rainfall and extensive river systems
  - Only Mozambique and Tanzania are considered capable within region to address rice demand of SADC countries (imports ~1 million tons annually)
- 3 **Significant investment is underway**, including \$70MM for irrigation and research center development by World Bank



Note: (\*) According to “National Strategy for Rice Plan” developed in 2012 by the Ministry of Agriculture.

Source: FAO; USAID; TechnoServe; Monitor Analysis



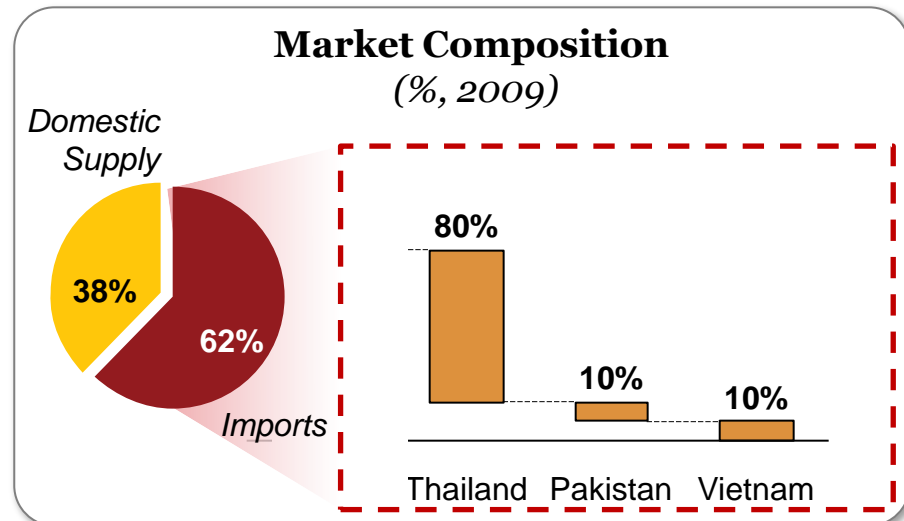
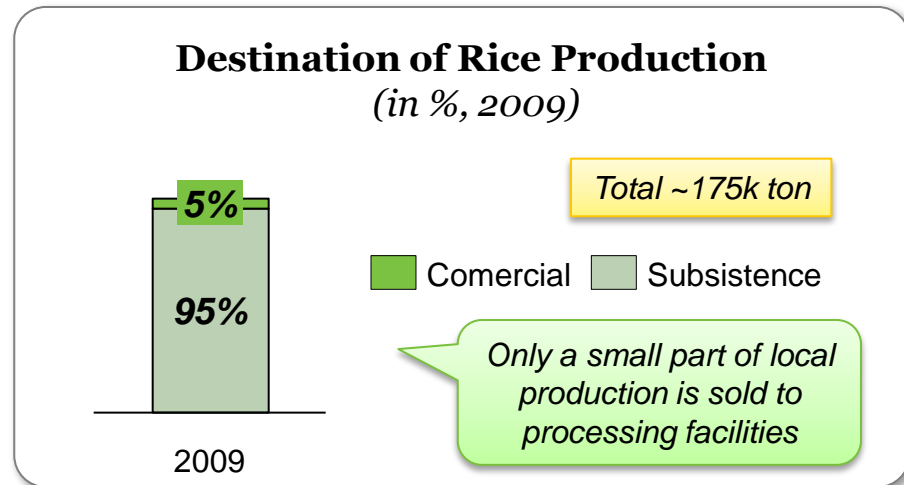
# Discussion of Priority Value Chains for Investment

## Rice – Challenges and Barriers



*Besides the huge availability of soil well-suited to rice, low volumes of commercial production and poor infrastructure reduces the competitiveness of local industry*

- A** **Commercial production** is almost **non-existent**, with only 5% of local rice production being commercialized
  - **Insufficient volumes** and low quality paddies challenges processing millers with poor inputs supply
  - **Strong competition** in domestic market, with imported brands (responsible for address ~62% of local demand)
- B** Necessity of coordinated investments to promote **extension** programs, repair **irrigation** systems and develop **storage** facilities
- C** **Need for local varieties with preferred flavor** that can compete against lower price imports



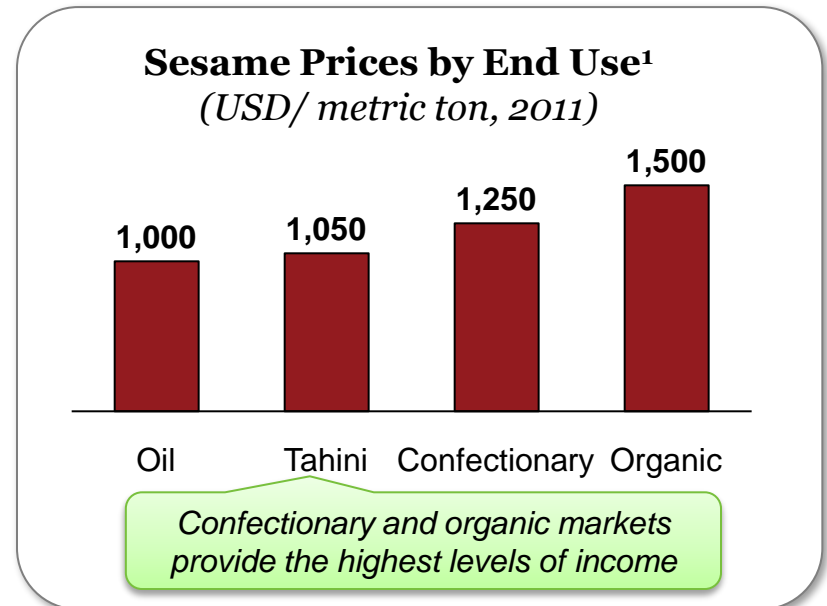
Note: 1) Includes Vietnam and domestic companies  
 Source: FAO; USAID; TechnoServe; Monitor Analysis



## Sesame – Potential

Sesame is an emerging crop in Mozambique with high potential for higher valued exports such as for the premium confectionary market ,and organic/ fair trade sesame

- 1 Mozambique has **ideal growing conditions for sesame**, especially in the tropical and sub-tropical climates along the coast
- 2 Mozambique could **export sesame to markets in the Middle East, Asia and Europe**
  - More immediate opportunities are in export of sesame seed, while with increased production processing in to sesame oil may become viable
  - Sesame is currently mostly exported to Asia and the Middle East with no processing
  - Opportunity for **export of cleaned and de-hulled sesame seed to premium confectionary market in Europe**
- 3 Mozambique has the opportunity to **build origin identity to satisfy niche markets for organic and fair trade sesame**
  - As an emerging grower, the current volumes grown could justify entering these niche markets for potentially higher margins
- 4 Sesame **provides high income for farmers**, with farmers capturing ~50% of FOB value



Note: 1) Highest recorded prices  
Source: TechnoServe; SNV; Expert Interviews; Monitor Analysis



## Sesame – Challenges and Barriers

*Sesame faces challenges related to high logistics costs, as well as a high incidence of the striped flea beetle. Increased government support for sesame is required for the industry to grow*

- A** Sesame has been **viewed as a minor crop** for a long time by the government, and as such does not have sufficient policy support and focus in government programs
  - There is **not enough investment in growth of local production** from both the government and the private sector
- B** As an export crop, **port and logistics inefficiencies have a great effect on the competitiveness** of sesame
  - **FOB costs** for sesame in Mozambique are **200% of competitors** such as India, Burma, and Ethiopia; largely due to logistics costs
- C** **High incidence of the striped flea beetle** is a **challenge for both production volumes and access to organic markets**
  - The flea beetle can reduce yields by up to 90%
  - Pesticides used to kill the beetle mean that sesame seed cannot be certified organic, and higher prices for organic product can thus not be accessed

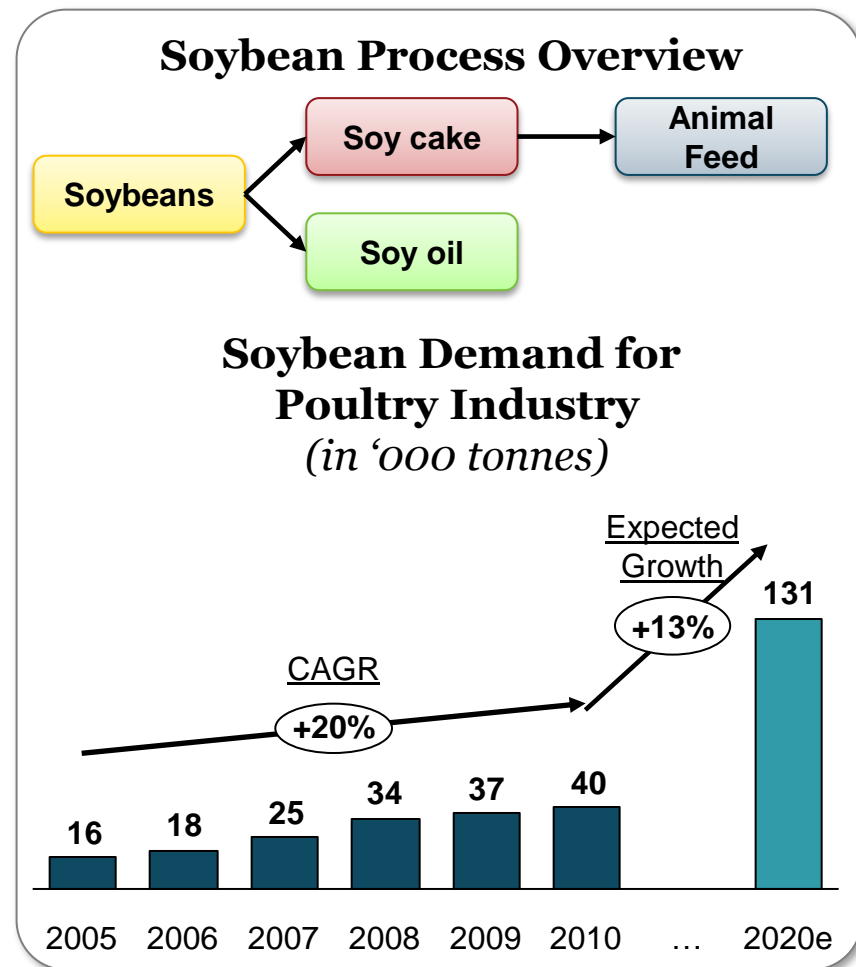


## Soybeans – Potential



Strong demand from poultry industry and opportunities to refine soy oil domestically will continue to transform the soybean industry in Mozambique

- 1 Substitution of imported **soy cake** to supply a booming domestic poultry industry will drive local market growth, if price competitive
- 2 **Nutritional value** (high protein content and amino acid composition) leaves soybeans with little substitution threat for feed
  - Soybeans is the most dominate protein crop for livestock rations, containing 440-480g/ kg crude protein and having the best protein/ cost ratio
- 3 Growing soy oil industry will further enhance viability of soy value chain (soy oil prices are 22% higher than vegetable oil)
  - Soy oil producers currently import the vast majority of crude oil for refinement
  - **Unutilized oil byproduct** from domestic soy cake production can be processed and substitute importations of crude soy oil





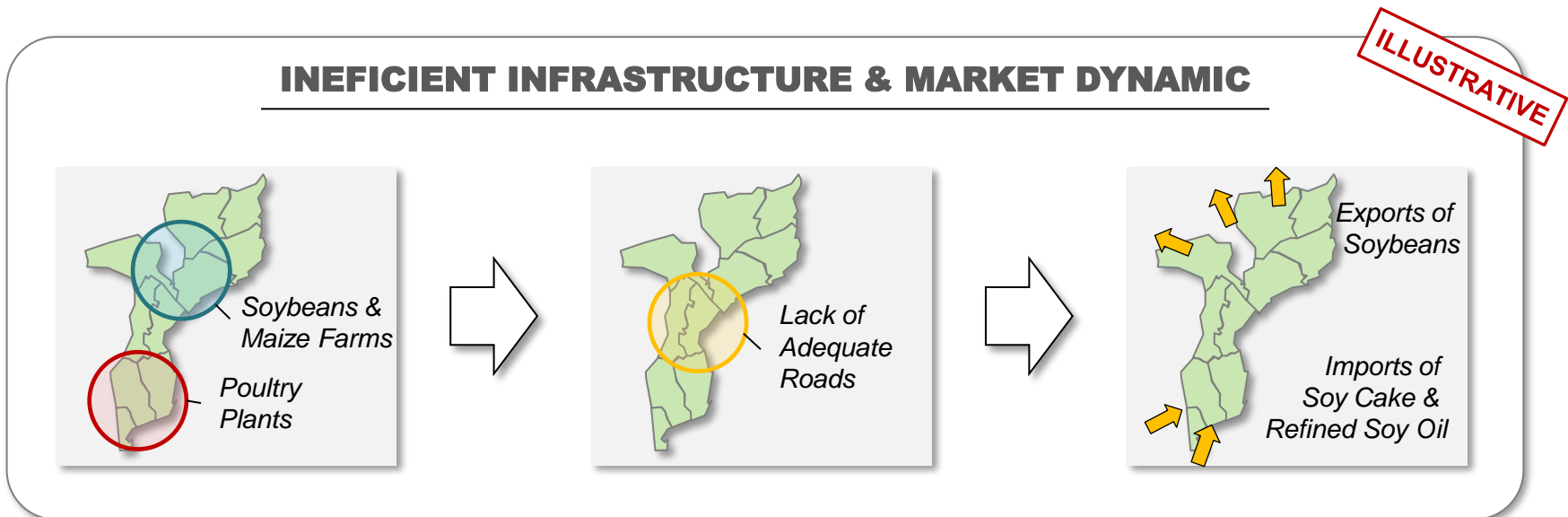
# Discussion of Priority Value Chains for Investment

## Soybeans – Challenges and Barriers



*Distance between poultry facilities and soybeans farms, in addition to the poor condition of local roads, will limit competitiveness of domestic soybean production*

- A Inadequate North / South roads and railways** linking important consumer markets in the South will hamper soybean growth soybeans/ maize farmers in the North
- B** Lower quality standard and higher exposure to currency strength
- C Recent reduction / removal of import duties** on Soy Cake will limit Mozambican farmers ability to compete





# Value Chains Overview

## Sugar Cane – Potential



*Continued market expansion, as well as attractive producing conditions, create promising opportunities for sugar cane in Mozambique*

**1 Domestic production** has almost doubled over the last 5 years and is **expected to keep growing** in both yield and area

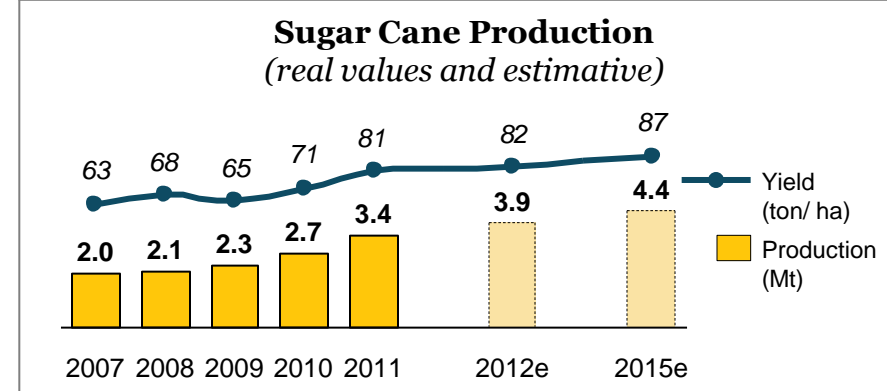
**2 Environment conditions and increased training** favor the production of sugar cane, such as:

- **Optimal weather** conditions and **high-quality, available land** benefit the sector's expansion
- **Training of local farmers, including more than USD13 MM in transference of technologies to sugar farmers** from Europe, has enhanced the quality and yield of sugar cane harvested

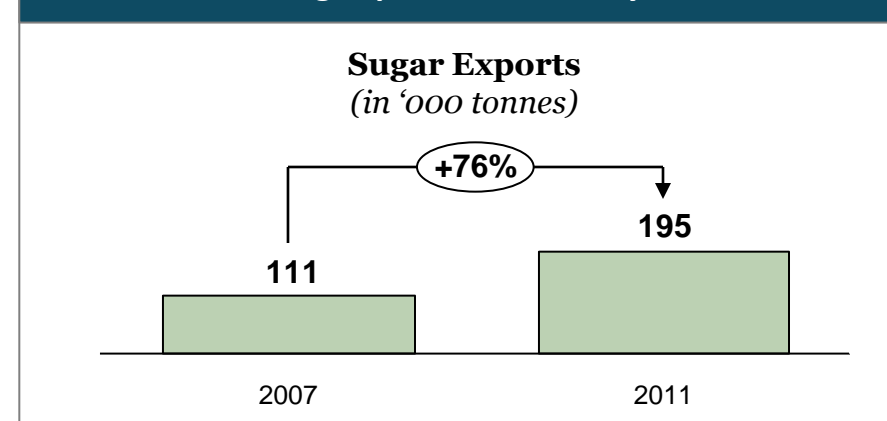
**3 Commercial agreements** in EU and SACU<sup>1</sup> allow for exporting with favorable financial conditions

**4 Growing exports** for sugar highlight increased market potential in the future

**With higher yields, Mozambique has produced and exported more sugar over the past 5 years**



**Growing exports in the last years**



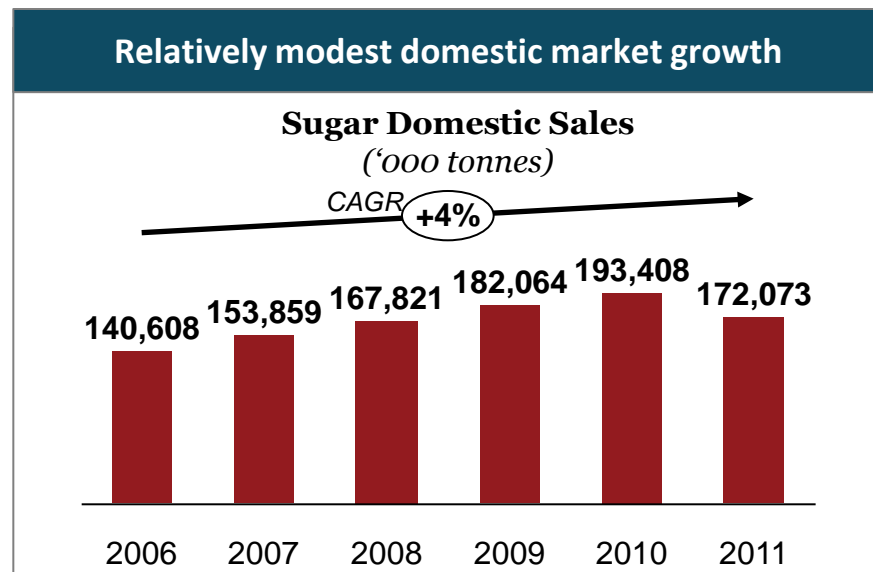
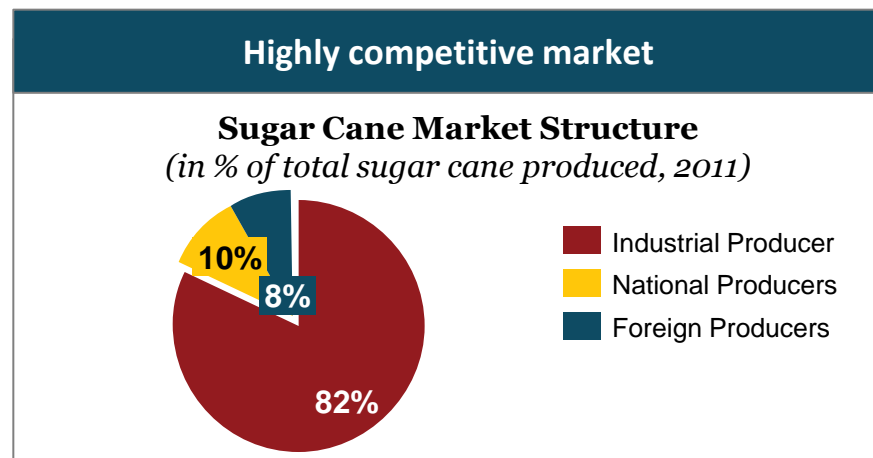
Note: 1) Agreement signed in 2011; SACU (Southern Africa Customs Union) is the group formed by Botswana, Lesotho, Namibia, South Africa and Swaziland. Source: Balanço Anual do Açúcar; Interview with experts; Monitor Analysis





*Highly competitive market and limited domestic growth diminishes the attractiveness of the sugar cane value chain in Mozambique*

- A** Presence of **large companies** suggest **difficulty for smaller players** to be competitive
  - Well established companies have typically very large scale and significant capabilities
- B** Heavy government **subsidies are unlikely to increase**, suggesting further profitability will need to come from cost reduction and / or enhanced productivity
- C** **Strong presence of established sugar factories** that buy small farmers production leaving little room for upstream value chain integration for producers
- D** **Somewhat modest domestic market growth**
  - 4% CAGR over the last 5 years is lower than other value chains in Mozambique





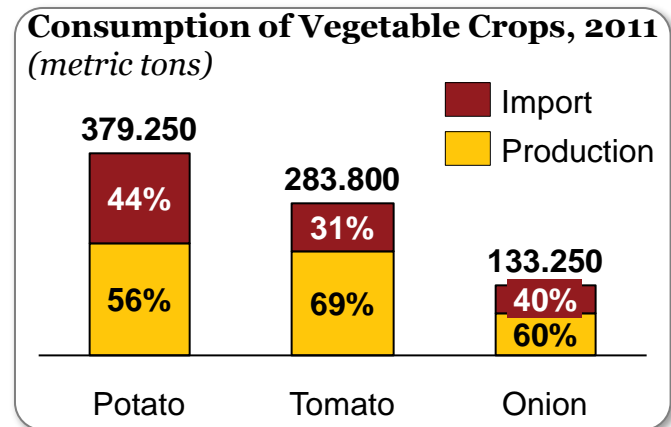
# Discussion of Priority Value Chains for Investment

## Vegetables – Potential



*Mozambique has the potential to both supply key vegetable crops domestically, substituting imports, and export additional crops to nearby countries in Africa as well as other continents*

- 1 Vegetables in Mozambique are an **important income earner with high growth forecasted**
  - Despite occupying only 6.6% of cultivated land, they **accounted for USD 15M and 3,500 jobs in 2009**
  - World Bank projects the total formal domestic vegetable market will be USD 100M by 2021 from USD 65M in 2006
- 2 **Vegetables present a significant opportunity for import substitution** within Mozambique
  - The three largest vegetable crops are **tomato<sup>1</sup>, potato, and onion**. Combined they represent a **local supply deficit of 310,000 metric tons**
  - **Recent entrance of supermarkets** such as Shoprite and Game, as well as **mining operations, provide potentially large buyers** of locally grown vegetables
- 3 **Export of vegetables is also an option for Mozambique**
  - **Most of Southern Africa cannot produce frost-sensitive export crops** like baby-corn, beans, and chilies during winter months **but Mozambique can**, particularly in the tropical coastal climates found **in the Beira corridor**



Note: 1) Actually a fruit, but grouped with other key value chains of potatoes and onions  
Source: TechnoServe; Ministry of Agriculture; World Bank; Monitor Analysis



## Vegetables – Challenges and Barriers

*Production of vegetables in the focus areas is greatly limited by a lack of cold storage and air freight infrastructure, with a need for irrigation also affecting vegetable production*

- A** **Lack of cold storage and air freight infrastructure** in the Beira and Nacala corridors, and Zambezi Valley make production of vegetables less feasible in this region
  - **92% of production is in the south of Mozambique** due to proximity to commercial centers and cold storage facilities
  - **Beira and Chimoio airports are not equipped for fresh produce freight**, so vegetables for the export market produced in the focus areas are air freighted from Harare, Zimbabwe or Johannesburg, South Africa at great cost
  - **Without cold chain integrity**, vegetables **cannot be sold to larger buyers** such as Shoprite and the mining companies
- B** **Diverse agro-ecologies make production and logistics more complex**
  - Current production in ten widely dispersed agro-ecological zones, making collection and distribution challenging
  - Production of most **vegetables best suited to temperate climates**, limiting production to the cold season or higher elevations
- C** **High competition for exports to Europe** from established suppliers to the EU such as Kenya, South Africa, Zambia and Zimbabwe create a **need for the best quality at the best price in order to penetrate the European market**
- D** **Large-scale irrigation is required** for sustainable, year-round production of vegetables