



Koninkrijk der Nederlanden



## INVESTMENT OPPORTUNITIES FOR DUTCH AGRIFOOD COMPANIES IN MOZAMBIQUE

A Challenge for Patient Money



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## 1 Executive summary

This report was commissioned by the Agricultural Council from the Netherlands Embassy in Pretoria, it was compiled and edited by Agrix. The objective of this report is to inform Dutch agrifood companies on recent developments in Mozambican agrifood and identify investment opportunities for Dutch agrifood companies in Mozambique.

An investment trajectory as defined by Agrix usually requires at least three parties to be involved: an initiator (that takes the operating and investment risk), a financing party (that supplies debt and/or equity finance) and a supplier of key equipment (equipment that brings crucial technology).

The basic assumption of this report is that greenfield operations in a developing country like Mozambique are per definition extremely complicated with a high risk of failure. Therefore an investment initiative generally needs a local counterpart to be involved. As a consequence, the first step when compiling this report was to identify local agrifood companies that managed to outperform other local companies in their line of business. The report describes around 45 local Mozambican agrifood companies active in different agrifood subsectors. The second step was to identify the sources of finance that are available for agrifood ventures in Mozambique, as finance is considered an important condition to set up a venture. Some 50 financial institutions and equity funds are active in Mozambican agrifood, listed in this report, that supply finance for debt or equity, soft loans and grants.

The Republic of Mozambique has 25 mln inhabitants and a GDP of USD 14 bln (equal to that of the Dutch province of Drenthe); nominal GDP per capita is USD 565 (2012). Predicted growth of GDP is 7 to 8 % (The Economist).

The total area of arable land in Mozambique is 36 mln ha of which only 8 mln ha is currently under cultivation. Agriculture is the main source of income of 80% of the population; 98% of farmers can be considered as small holders with an average land area of 1.1 ha. The agricultural sector is dominated by self-subsistence agriculture; less than 20% of agriculture produce is marketed. The main crops are maize and cassava covering a total of around 3 mln ha. Only 55,000 ha is irrigated, mainly for sugarcane production. Most crops only yield around 25% compared to yields in South Africa. The central provinces of Nampula and Zambezia have the highest contribution to agricultural GDP (45% combined) and have the highest population density (close to 8 mln people).

For the sake of structuring development plans, Mozambique has been divided into three “corridors” (see figure below). Each of these corridors offers distinct climatological conditions, different soils and different levels of water availability (rainfed and irrigation options).

Provinces Covered by Corridors	Nacala	Zambezi Valley	Beira
<p>Note: Color coding represents approximate positioning of corridors</p>	<ul style="list-style-type: none"> <li>• Nacala Special Economic Zone provides <b>500 ha industrial free zone</b></li> <li>• Development of the <b>deepest port</b> on East African coast at Nacala</li> <li>• Significant <b>mining investments</b> including <b>USD 4.4B</b> upgrade to rail by Vale</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Largest water reserves</b> in country</li> <li>• <b>Rail infrastructure linking</b> area to <b>Port of Beira</b></li> <li>• Estimated <b>USD 1B</b> port investments by Rio Tinto</li> <li>• Chinese government <b>USD 50M</b> investment for <b>cotton, maize and rice</b> processing facilities</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Well-developed infrastructure with road and rail network linking</b> Zambia, Malawi, Zimbabwe and Mozambique to the <b>port of Beira</b></li> <li>• Ongoing foreign aid infrastructure investment for upgrades, such as <b>USD 70M World Bank irrigation project</b></li> </ul>

Land cannot be owned by private entities but only obtained through a 49 year lease arrangement called DUAT.

The main export crops are tobacco and sugar; the main import crops are wheat, maize and soybean (processed). The use of farming inputs like crop protection chemicals, fertilizers and certified seed is extremely low. Only around 5% of farmers has access to improved seed. Phoenix Seed and Lozane Farms produce seed for open pollinated varieties.

Animal production is mainly practiced on small sized farms, with broiler production as the most important subsector (25 mln broilers), the layer subsector is small (9.5 mln layers). Poultry meat consumption is low at around 2 kg per capita. African Swine Fever is endemic, as a consequence there is hardly any pork production at a commercial scale. Only 410,000 dairy cows are present in Mozambique, dairy consumption is low at less than 5 kg per capita. Companies active in (integrated) animal production are: Empresa Avicola Abilio Antunes, Novos Horizontes, Astral Foods, Frango King, Tsetsera Pork, DanMoz Dairies, AgroMaco and MozAgri.

The total area of vegetable production is around 100,000 ha, with tomato and onion dominating (each around 28,000 ha). The bulk of Mozambique's commercial horticultural production is in the Beira corridor area. Potato area is estimated between 10,000 and 13,000 ha; potatoes are produced in 9 provinces with Tete province as most important production region. Mozambique imports some 50% of potatoes consumed. Some companies active in vegetable and potato production are: MozFood (Vanduzi), CB Farm Fresh, FrutiManica, Fruto de Ouro, Mozambique Organicos, AgriSul, The African Food Company, PiriPiri Elefante, Enica, Matanuska, Montesco, Jacaranda Agricultura and Horta Boa.

Cassava is the most important staple crop. Dadtco is pre-processing cassava for SabMiller to produce cassava based beer and Cleanstar produces a cassava based gel for cooking purposes. The only commercial flower producing company was Vilmar Roses, the company started in 2002 and closed down in 2006. Companies that are active in producing, handling and processing agro commodities at a larger scale include NMI Group, Deca Ltd, Compagri, JFS Holding, V&M grain, Rei do Agro, Hoyo-Hoyo Agribusiness and Corridor Agro. The ProSavana project is a joint operation of the Brazilian, Japanese and Mozambican government to develop some 250,000 ha of arable land for the production of commodities like soybean, maize and sunflower.

Wageningen University and Research Centre (WUR) in November 2013 performed three quick-scans in the Zambezi Valley region. The report-summaries are included in this report and cover three sub-sectors: potatoes, vegetable cold chain and aquaculture. Also included in this report are the findings

of KIT on the Mozambican seed sector. WUR identifies some investment opportunities in the vegetable and potato sub-sectors, based on a value chain analyses. It seems however that most of these suggestions are primarily very local, require low technology input, lack economy of scale and generate margins too low to justify involvement of foreign companies.

Money seems to be available for mid-size and large agrifood ventures that qualify, which means they are sustainable, inclusive (out-growers), contain a development component and offer some perspective of profitability on the longer term. Commercial lending is problematic and covers only 10% of agrifood financing needs. The only serious player in this respect is Banco Terra, a Rabobank participation. Finance for smaller ventures, less than USD 100,000, is difficult to secure.

All of the agrifood ventures that were scrutinized within the context of this report were wholly or partly financed by some kind of “patient money”; no exceptions. Be it through NGO’s, investment funds, private equity funds, hedge funds, family funds, development banks, philanthropic and charitable institutions, all equity or debt finance is on relatively soft terms. The term “patient money” covers both equity finance and concessional debt finance. Most ventures also received grants.

Public-private partnerships must pave the road, in which public stands for institutional development, creating the conditions that enable companies to be initiated and ultimately successful. Public also stands for support to Dutch agrifood companies that participate in Mozambican entities. Many tools already exist for business support in developing countries and many of the present investment vehicles offer “patient money”. The individuals interviewed for this report stated that it is important not to initiate an agrifood venture in Mozambique on too large scale. Most of the mega-projects failed. But on the other hand, a common venture abroad will take management time and money and needs a certain scale of economics to be able to succeed.

The stronghold of the Dutch agrifood cluster has been developed around the main agrifood exporting sub-sectors. These are the sub-sectors in which The Netherlands is technologically relatively advanced compared to the rest of the world. Investment, or export, in relation to Mozambique will most likely originate from one of these sub-sectors.

Agrifood sub-sectors identified in Mozambique after a first analyses to be the most appealing for Dutch agrifood companies to enter are:

- Broilers and layers (poultry meat and eggs);
- Animal feed (integrated);
- Flowers (roses);
- Vegetables (canning, labor intensive crops);
- Cashew and groundnut;
- Starch (cassava).

Broilers	Parent stock	Hatchery	1 day chicks	Broilers	Slaughtering	Processing	Wholesale / retail
Layers			1 day chicks import	Layers	Grading	Packing	Wholesale / retail
Feed	Raw material input	Premixes and concentrates import	Feed mill		(Integrated egg or broiler production)		Local B2B sales
Flowers (roses)	Cuttings import	Greenhouse	Packing	Transport			Export
Vegetables	Haricots Verts	Open field (shading)	Canning				Export
Vegetables	(Green) Asparagus	Open field (shading)	Canning				Export
Cashew	Out-grower	Collection	Processing				Export
Groundnut		Open field	Drying	Shelling			Export
Starch	Cassava Out-grower	Starch processing plant		Transport			Export

This report must help realistically inform Dutch agrifood companies on the business opportunities that Mozambique has to offer and the hurdles that can be anticipated. As a follow up to this report a business meeting will be organized early July of 2014 in The Netherlands to further discuss the matter with Dutch agrifood companies . Depending on the outcome, this meeting may lead to an agrifood trade mission to Mozambique in the autumn of 2014.



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### 3 Introduction

Early October of 2013 the office of the Agricultural Councillor based in Pretoria, South Africa, approached Agrix, based in Deventer, The Netherlands, with the request to visit Mozambique to identify concrete agrifood business opportunities for Dutch companies in Mozambique. Agrix is specialized in agrifood business analyses and in the economic appraisal of agrifood ventures, worldwide. The visit and its resulting report should be preparatory to an extended trade mission from the Netherlands to Mozambique to be organized in February 2014. The Agrix intervention would elaborate on the outcome of a rapid appraisal mission to Mozambique as performed by WUR from October 26<sup>th</sup> to November 2<sup>nd</sup> 2013, the initiative was further discussed during a meeting at the National Export Event on November 14<sup>th</sup> in Rotterdam<sup>1</sup>. WUR exemplified the three quick scan reports on aquaculture, potato production and cold chains during a meeting at WUR in Wageningen on November 19<sup>th</sup> <sup>2</sup>. The WUR rapid appraisal mission was supervised by the Zambesi Valley Development Agency (ZVDA) and therefore focussed on the Zambesi Valley region around the city of Tete. ZVDA is supported by the Dutch embassy with a large capacity building programme. The Dutch embassy is also involved in the Beira Agricultural Growth Corridor (BAGC) initiative through the Catalytic Fund. The latter is a venture capital fund that supports commercially viable agrifood ventures in the Beira corridor region; the fund is managed by the Agricultural Development Corporation (AgDevCo).

Business opportunities as defined by Agrix are either trade leads or investment trajectories. Trade leads are concrete propositions in which Dutch companies can export or import products, equipment, services and technology to or from Mozambique.

An investment trajectory usually requires at least three parties to be involved: an initiator (that takes the operating and investment risk), a financing party (that supplies debt or equity finance) and a supplier of key equipment (equipment that brings crucial technology). This report focusses on real investment opportunities for Dutch agrifood companies in Mozambique.

Agrix intervention should serve a double purpose: it must clearly define some concrete investment opportunities in the Mozambican agrifood sector and it should motivate Dutch companies to join a trade mission to be organized sometime in 2014. The Agrix intervention should help the mission participants to efficiently benefit the trade mission for their business purposes, serving both the interests of the Dutch participating companies and their potential Mozambican business partners.

Although the trade mission of Mrs. Ploumen proceeded as planned by the end of February 2014, participation of Dutch agrifood companies did not go through because of limited response from the sector. The outcome was reached before this report could be published.

Agrix visited Mozambique from January 5<sup>th</sup> to 13<sup>th</sup>, 2014. Several companies were visited in the Maputo and Chimoio area. Both in Mozambique and in The Netherlands many stakeholders, active in the Mozambican agrifood business community were interviewed. This report was compiled based on the company visits, interviews and desk research.

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<sup>1</sup> Present at the National Export Event meeting: Niek Schelling (agricultural council embassy Pretoria), Ton Negenman (first secretary embassy Maputo), Gerrit Ribbink (Enclude), Jan Alderliesten (embassy council Luanda) and Anton Graumans (Agrix)

<sup>2</sup> Present at the WUR Wageningen meeting: Gerrit Ribbink (Enclude), Mathijs Montsma (WUR scientist on postharvest technology), Herman Brouwer (WUR specialist multi-stakeholder processes CID), Arjo Rothuis (WUR researcher aquaculture development), Anton Haverkort (WUR crop ecologist) and Anton Graumans (Agrix)



## 4 Brief economic outlook Mozambique<sup>3</sup>

Mozambique's transition from a post-conflict country to one of Africa's "frontier economies" has been quite impressive. Economic growth has been bolstered by a boom in large foreign investments in the energy and natural resources sectors. The country has become a destination for mining and natural gas development. Vast untapped coal reserves have attracted multinationals such as Brazil's Vale and Australian Rio Tinto. Recent figures indicate that foreign direct investment (FDI) doubled to an amount of USD 5.2 bln in 2012.

<b>Mozambique</b>			
<b>National facts</b>		<b>Social and governance indicators</b>	
Type of government	Republic	Human Development Index (rank)	rank / total 185 / 187
Capital	Maputo	Ease of Doing Business Index (rank)	146 / 185
Surface area (thousand sq km)	799	WEF Global Competitiveness Index (rank)	137 / 148
Population (millions)	25.2	Corruption Perceptions Index (rank)	123 / 176
Main languages	Portuguese (official) Emakhuwa	Press Freedom Index (rank)	73 / 179
Main religions	Catholic (28.4%) Muslim (17.9%) Zionist Christian (17.5%)	Gini index (income distribution)	45.66
Head of State (president)	Armando Guebuza	Population below \$1.25 per day (PPP)	60%
Head of Government (prime-minister)	Alberto Clementino Vaquina	<b>Foreign trade</b>	
Monetary unit	Metical (MZN)	<b>2012</b>	
<b>Economy</b>		<b>2012</b>	
<b>Economic size</b>		<b>Main export partners (%)</b>	
	<i>bn USD</i>	<i>% world total</i>	<i>Main import partners (%)</i>
Nominal GDP	14	0.02	Netherlands 36
Nominal GDP at PPP	26	0.03	South Africa 42
Export value of goods and services	4	0.02	Belgium 15
IMF quotum (in mln SDR)	114	0.05	China 11
<b>Economic structure</b>		<b>Main export products (%)</b>	
	<b>2012</b>	<b>5-year av.</b>	
Real GDP growth	7.4	7.0	Aluminium 33
Agriculture (% of GDP)	30	29	Coal 11
Industry (% of GDP)	25	24	Gas 7
Services (% of GDP)	46	47	Electricity 7
<b>Standards of living</b>		<b>Main import products (%)</b>	
	<i>USD</i>	<i>% world av.</i>	
Nominal GDP per head	565	5	Mega-projects 35
Nominal GDP per head at PPP	1,047	8	Capital goods 24
Real GDP per head	417	5	Petroleum products 16
		<b>Openness of the economy</b>	
		Export value of G&S (% of GDP)	30
		Import value of G&S (% of GDP)	72
		Inward FDI (% of GDP)	36.8

Factsheet of Mozambique (Source: Rabobank, adapted by Agrix)

Alongside its natural resources, Mozambique's long coastline positions it as a natural gateway to global markets for neighboring land-locked countries. The country has weathered the global economic and financial crises with economic growth dipping to 6.3% in 2009 but rising to 7.2% in 2011 and 7.5% in 2012.

The Economist expects GDP growth to accelerate from 6.5% in 2013 to 7.7% per year on average in 2014-18, but political volatility could undermine economic performance<sup>4</sup>. However, this impressive trajectory of growth will not be matched by a reduction in poverty and creation of jobs and livelihoods, prompting questions about the current development model and the need for greater inclusiveness and economic diversification.

<sup>3</sup> <http://www.worldbank.org/en/country/mozambique/overview>

<sup>4</sup> <http://country.eiu.com/mozambique>

## 4.1 Political Overview

Following independence from Portugal in June 1975, the country underwent a 16-year armed conflict that ended in 1992. The transition to peace, political stability, and democracy culminated in the country's first democratic elections in 1994 and the emergence of the Front for the Liberation of Mozambique (Frelimo) as the dominant political force in the country, a fact that still holds true today.

Looking ahead, the next two years will be marked by several political milestones like the well anticipated designation of the Frelimo's candidate to succeed President Guebuza who is due to step down at the end of his term in October 2014. In the meantime, the country is undergoing political turmoil since the leader of the largest opposition group (Renamo) decided to boycott the municipal elections and the subsequent general elections of 2014, following years of successive poll defeats. Delegations of both sides have been holding talks since the crisis first erupted mid last year.

<b>Mozambique</b>							
Selection of economic indicators	2008	2009	2010	2011	2012	2013e	2014f
<i>Key country risk indicators</i>							
GDP (% real change pa)	6.8	6.3	7.1	7.3	7.4	6.5	7.3
Consumer prices (average % change pa)	10.3	3.0	13.0	10.4	2.1	4.4	4.2
Current account balance (% of GDP)	-12.1	-12.9	-16.4	-23.8	-36.3	-39.5	-37.8
Total foreign exchange reserves (m USD)	1,578	2,099	2,159	2,469	2,770	2,990	3,210
<i>Economic growth</i>							
GDP (% real change pa)	6.8	6.3	7.1	7.3	7.4	6.5	7.3
Gross fixed investment (% real change pa)	11.3	-7.8	46.6	24.9	39.0	10.0	12.0
Private consumption (real % change pa)	14.2	9.6	1.6	3.8	1.6	3.2	5.7
Government consumption (% real change pa)	12.4	20.6	-0.4	14.7	5.9	31.2	6.5
Exports of G&S (% real change pa)	0.3	-5.3	-8.5	4.2	14.4	10.2	9.2
Imports of G&S (% real change pa)	18.0	1.1	0.1	11.1	19.4	12.2	9.2
<i>Economic policy</i>							
Budget balance (% of GDP)	-2.5	-5.5	-4.2	-5.3	-4.2	-8.7	-7.4
Public debt (% of GDP)	31	36	46	39	42	47	49
Money market interest rate (%)	12.8	8.7	10.2	14.1	5.8	4.0	3.9
M2 growth (% change pa)	20	33	25	8	29	10	14
Consumer prices (average % change pa)	10.3	3.0	13.0	10.4	2.1	4.4	4.2
Exchange rate LCU to USD (average)	24.3	27.5	34.0	29.1	28.4	30.0	29.9
<i>Balance of payments (m USD)</i>							
Current account balance	-1,193	-1,246	-1,523	-2,996	-5,168	-5,890	-6,350
Trade balance	-990	-1,275	-1,179	-2,249	-2,698	-3,130	-3,310
Export value of goods	2,653	2,147	2,333	3,118	3,470	3,920	4,450
Import value of goods	3,643	3,422	3,512	5,368	6,168	7,050	7,760
Services balance	-423	-457	-685	-1,423	-3,191	-3,450	-3,620
Income balance	-642	-277	-341	-190	-39	-70	-150
Transfer balance	862	763	682	866	761	750	730
Net direct investment flows	592	890	1,019	2,660	5,229	4,890	4,700
Net portfolio investment flows	-8	5	1	-34	17	0	10
Net debt flows	449	637	199	145	727	1,540	1,690
Other capital flows (negative is flight)	293	237	365	535	-504	-320	180
Change in international reserves	133	522	60	309	301	220	220
<i>External position (m USD)</i>							
Total foreign debt	3,489	4,138	3,734	4,097	4,694	6,220	7,840
Short-term debt	580	632	479	125	159	370	450
Total debt service due, incl. short-term debt	1,433	1,526	1,626	1,142	261	300	540
Total foreign exchange reserves	1,578	2,099	2,159	2,469	2,770	2,990	3,210
<i>Key ratios for balance of payments, external solvency and external liquidity</i>							
Trade balance (% of GDP)	-10.0	-13.2	-12.7	-17.9	-19.0	-20.9	-19.7
Current account balance (% of GDP)	-12.1	-12.9	-16.4	-23.8	-36.3	-39.5	-37.8
Inward FDI (% of GDP)	5.7	9.3	11.2	21.1	36.8	32.7	27.9
Foreign debt (% of GDP)	35	43	40	33	33	42	47
Foreign debt (% of XGSIT)	82	108	95	82	86	103	118
Debt service ratio (% of XGSIT)	34	40	41	23	5	5	8
Interest service ratio incl. arrears (% of XGSIT)	11	13	13	8	1	1	1
FX-reserves import cover (months)	4.2	5.6	5.4	3.9	3.3	3.1	3.1
FX-reserves debt service cover (%)	110	138	133	216	1,062	996	599
Liquidity ratio	103	109	108	95	87	84	83

Economic Indicators of Mozambique (Source: Rabobank)



Frelimo selected Filipe Nyussi, the defense minister and a close ally to the outgoing president, as its candidate for the presidential election. As negotiations with the opposition Renamo have moved forward and Renamo will participate in the election, a return to civil war is unlikely.

An unexpected government-guaranteed USD 850 mln European bond issue was sold on 5 September 2013, called the “Ematum bond”. Donors were surprised and not too happy. The bond issue reflects a rapid change in Mozambican donor-government relations. For more than two decades, Mozambique was heavily donor dependent, which gave the donors much more power than they have in many African countries. But at the same time, with the very large investments in coal and gas, along came the realization that donor funds would become less important (Walraven, 2013). Foreign aid paid 51% of the state budget in 2010 but only 34% in 2013. The United States Millennium Challenge Corporation (MCC) refused to grant a second aid package to Mozambique. MCC gave no reasons, but three factors seemed important: the Ematum bond further soured relations with the US, several MCC projects were not completed on time and Mozambique refused to agree on land privatization.

## 4.2 Development Challenges

The deceleration of poverty reduction in the face of robust economic growth is the defining development challenge in today’s Mozambique. The challenge is to diversify the sources of economic growth; integrate capital-intensive mega-projects with the government’s poverty reduction strategy; and develop the agriculture sector which employs close to 80% of the workforce but remains largely unproductive and subsistence-based. According to Worldbank officials Mozambique needs to improve provision of public goods, like infrastructure, education and health, to facilitate inclusive growth; set up well-targeted safety nets for the most vulnerable; promote greater voice and citizen participation while building transparent and accountable systems and accelerate investment climate reforms. The scale of Mozambique’s challenges is enormous (WorldBank, 2013). The World Bank’s Doing Business Report 2014 has Mozambique rising from the 142th place to the 139th among the 189 economies ranked<sup>5</sup>. A local businessman commented on the Mozambique agrifood business environment as cited in the text block below.

“Natural gas is going to be the big hype in Mozambique, a huge gas field runs through Northern Mozambique into Tanzania (Afonso, 2014). This will create demand for the catering sector, an estimated 30,000 people, maybe even more, will need three daily meals. Pork production is problematic because of African Swine Fever. Many investors have put a claim on large areas of land to get a DUAT, but actually only produce on 1,000 ha and then try to sell the assets, therefore the government now introduced temporarily DUAT’s first for 2 yr. An agricultural operation would be in its infancy for the first 10 years, a fast buck cannot be made, and investors should realize that. Most farm operators lack the ability to administrate, even at a modest level. Vegetable processing near Maputo might be an interesting venture. Some considered tomato paste production by importing in bulk from RSA and canning in Mozambique. Very little infrastructure in the country and therefore some investors are less interested in the North with currently no access to ports or whatever. Vegetable processing might be something for Dutch party. Market potential in general very small, so focus on export or import replacement. The Catalitic Fund is a potentially useful investment tool. Capital expenditures in Mozambique are relatively high: developing 1 ha of sugarcane in RSA would take USD 9,000 /ha and for banana USD 12,000 /ha. In Mozambique capital expenditures would be 25% higher. It’s also difficult to get trained personnel. A new company starts sourcing tractor drivers and would start with 900, half of these cannot drive, halve of the remainder cannot read nor write, only 150 are ultimately left. Starting small scale is an often

<sup>5</sup> <http://www.doingbusiness.org/rankings>

heard advice. Banana production in the North is doing well but took a long time to start export. None of large scale agricultural projects has been very successful so far. Tobacco out grower scheme is doing fine because of a lucrative export market. Actually large abandoned areas don't exist in Mozambique; there is people everywhere. There is no functioning phytosanitary service present and therefore there is no seed export, all testing needs to be done in Johannesburg. Aflatoxine testing in peanuts takes around a month. Cargill announced a 40,000 ha project a few years ago but nothing materialized so far. Cargill has one representative in Mozambique that does mainly internal trade and no export. Cleanstar seems to have come to a hold because of a sourcing issue (cassava). The Brazilians are raising funds for a large agricultural project in the North; the Brazilian private sector seems to be hesitating, even in sugar”.

## 5 Agriculture in Mozambique

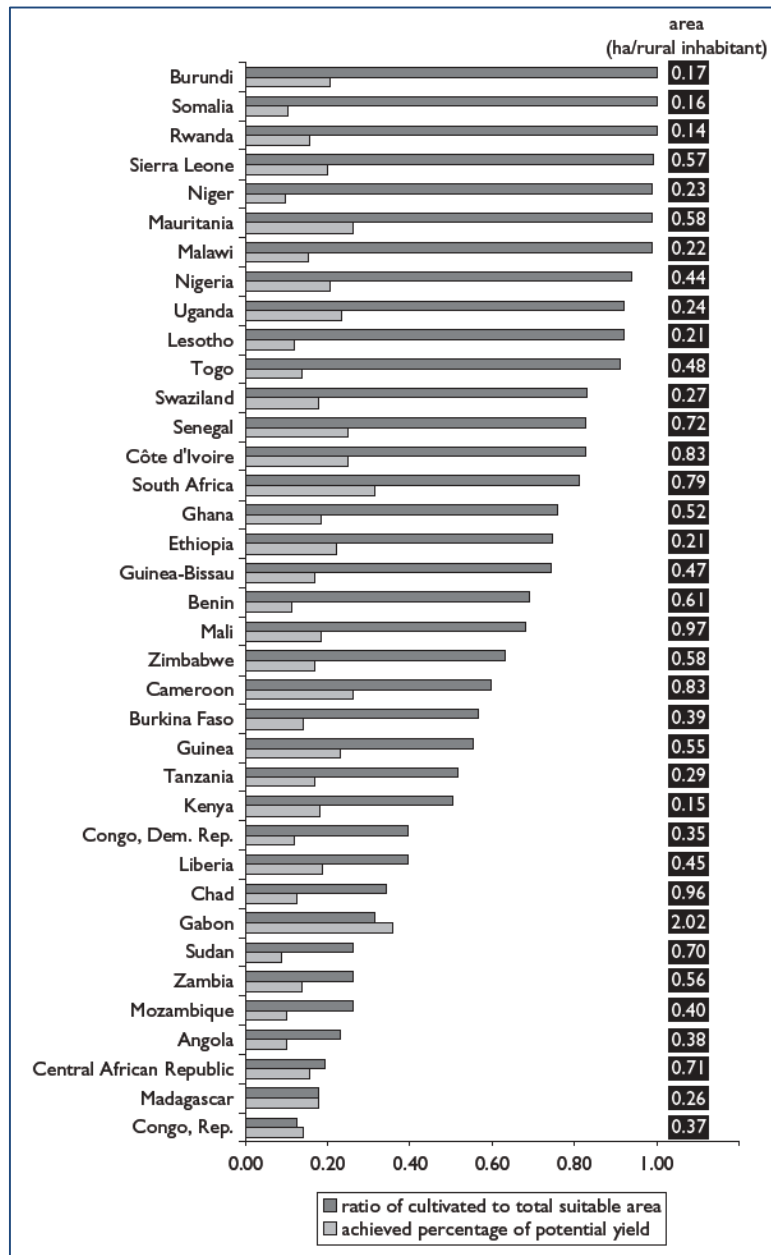
Although agriculture contributes only 23% to GDP and represents just 20% of total exports, it is the main source of income for more than 70% of the population, provides employment for 80% of the total workforce and generates 80% of the income of rural households (IFAD, 2011). The sector grew by an average annual 8% between 2003 and 2008, with much of the growth due to the expansion of the cultivated area and to favorable rainfall, while yields stagnated at levels between 30% and 60% of their potential.

Smallholders represent the greater part of the country's farming sector, constituting more than 98% of the total number of farmers and accounting for 95% of the national agricultural production from about 90% of the total land under use. Their main asset is land, with an average of 1.1 ha per household. These smallholders mostly use traditional farming methods, with low-yield seed varieties, manual cultivation techniques and little use of agrochemicals.

In 2008, only 8% of farmers had access to extension services, down from 13% over the period 2003-2007. Low availability of modern inputs, seeds in particular, lack of appropriate technologies and limited access to finance and other support services are the main determinants of low yields and low returns. Most smallholders still operate close to subsistence level and their integration into the market is limited. Less than 20% of them regularly sell their products. The lack of storage infrastructure, high post-harvest losses, poor transport facilities, high transaction costs and difficult access to financial services are among the main constraints.

Some sources state that the number and diversity of market agents is increasing, from agribusinesses to farmers associations to small/medium-sized traders and larger trading companies. Public extension services are now present in many of the country's districts and efforts are under way to strengthen their capacities. Some agribusinesses provide extension services, access to inputs and, in some cases, credit. Furthermore, farmers organizations are increasingly supplying advisory and marketing services to their members. The coverage of essential economic infrastructure is improving, with 90% of main roads considered passable, but substantial investment is still needed for feeder roads, a mobile communication network covering 75% of the country and 72% of district capitals that now have electricity. Bank agencies are present in only 39% of the 128 rural districts, but their number is expanding, albeit slowly.

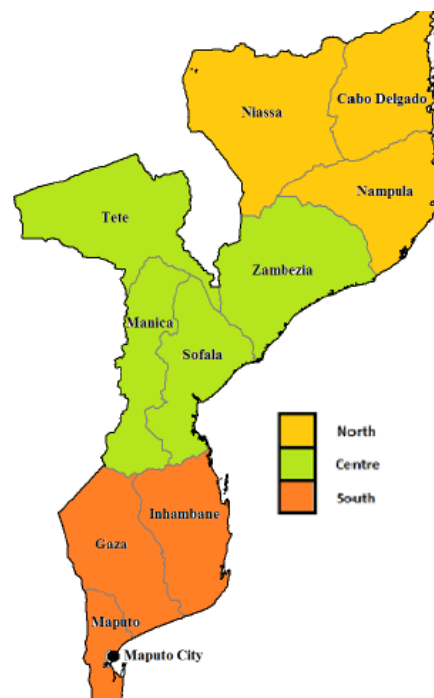
## 5.1 Land availability



Availability of farmland in Mozambique (source: Worldbank)

Mozambique has large amounts of land that are not currently cultivated (Deininger, 2011): FAO estimates that of the country's 36 mln ha of potentially arable land, at most 8 mln ha are currently cropped.

## 5.2 Agricultural land use



Most crops have performed disappointingly during 2000–2010, growth in agricultural output was largely driven by land expansion and not so much by productivity growth (Pauw, Thurlow, Uaiene, & Mazunda, 2012). Rising population density has forced many farming households to increasingly cultivate marginal lands, with the result that average yields have declined.

The northern region of Mozambique is a prime example of this. Cereals and root crops, in particular cassava, dominate agricultural GDP in the northern region with (32% and 27% percent GDP shares respectively). Most of the region forms part of a tropical high-rainfall climatic zone, which means expected yields for this region are high compared to the other regions. This was certainly true earlier in the 2000's, but the sharp decline in yields means that the region no longer enjoys a yield advantage over other regions in Mozambique. However, its size, favorable agro-ecological conditions, agricultural potential, and prospects of further development along the major Nacala trade route suggest the northern region has the potential to become an important contributor to agricultural growth. The region also boasts some of the lowest poverty rates in the country.

Mozambique's central region is also its largest in terms of area. Agro-ecologically speaking it is quite diversified. The mostly arid province of Tete is found in the north-west, to the east lie the tropical and wet coastal provinces of Zambezia and Sofala, while more inland the Manica province has a cooler climate given its high altitude. Although the region spans several distinct agro-ecological zones, agricultural conditions are generally favorable, while its strategic location around the Beira corridor, a major trade route linking Zimbabwe with the port city of Beira, implies equally great potential for continued growth in agricultural trade. The region contributes to 58% of national crops and livestock GDP. Cereals are important, contributing 40% to regional agricultural GDP. Although historically households in the central region have faced low levels of poverty, the drought of 2008 had a severe impact on household incomes.

The southern region clearly lags behind the other regions in terms of average crop yields. The region, which includes Inhambane, Gaza, and Maputo provinces, is mostly dry, with small semi-arid pockets

along the eastern border and a wetter coastal strip. On average it has the lowest precipitation levels of all the regions. Pulses, nuts, and oilseeds, including the important coconuts subsector, are important crops, contributing 22% of regional agricultural GDP. Horticulture, however, contributes one-third of regional GDP. In contrast to the other regions, cereals and root crops are less important in terms of GDP contribution. The region as a whole is prone to drought, has a high population density, and only contributes 17% to national agricultural GDP. It is therefore also highly impoverished and suffers high levels of caloric deficiency due to persistent food deficits. Its proximity to South Africa has led to a situation where the region (and Maputo city in particular) imports large amounts of food from its neighbor. This means the southern region is vulnerable to international price shocks. Land expansion in the southern region was only about half the population growth rate during 2002–2008, which together with the slow or even negative yield growth of many crops contributes to the region’s import-dependency.

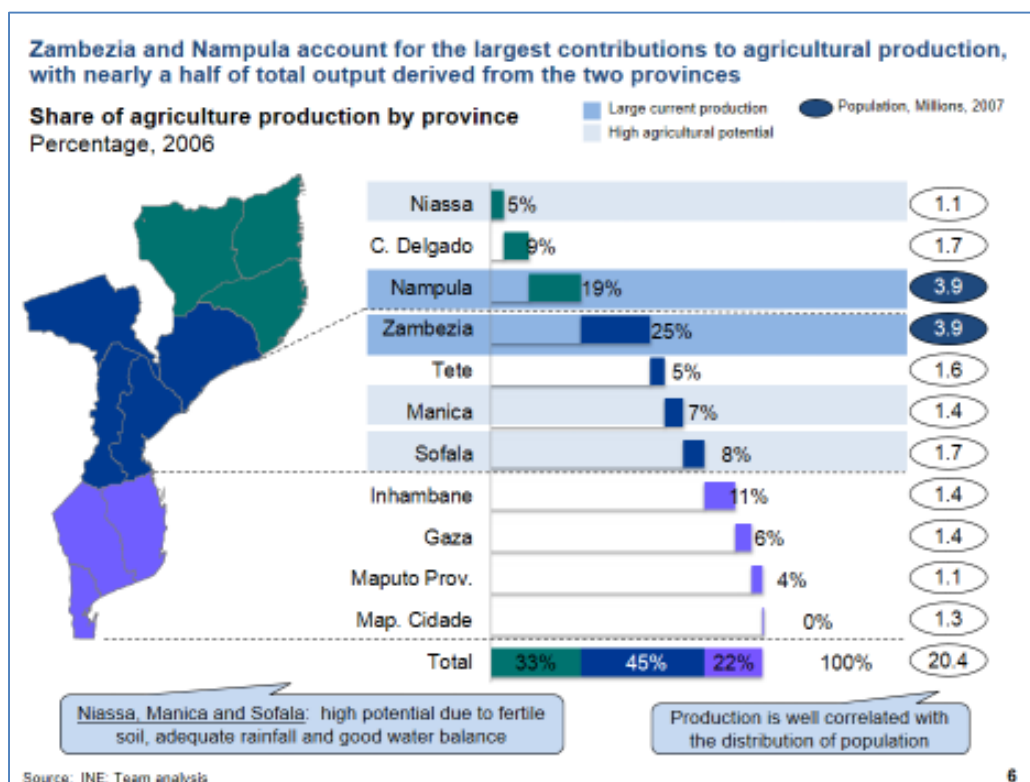
Crop area Mozambique				
	<i>ha</i>			<i>ha</i>
Maize	1.812.717		Cow peas, dry	98.695
Cassava	1.293.568		Coconuts	83.826
Beans, dry	700.000		Tobacco, unmanufactured	66.000
Sorghum	639.000		Bananas	45.000
Pulses, nes	337.876		Sunflower seed	45.000
Groundnuts, with shell	288.000		Vegetables fresh nes	45.000
Rice, paddy	238.778		Sugar cane	42.702
Sesame seed	200.000		Onions, dry	29.000
Seed cotton	189.000		Fruit Fresh Nes	28.500
Castor oil seed	185.000		Tomatoes	25.000
Cashew nuts, with shell	140.000		Tea	15.800
Oilseeds, Nes	131.751		Potatoes	13.100
Sweet potatoes	119.000		Wheat	11.941
Millet	113.642			

Source: FAOSTAT

Mozambique’s diverse soils and climatic conditions, influenced by latitude, altitude, topography and proximity to the coast, offer a wide range of agricultural production opportunities. However, as agricultural systems are predominantly rain fed, production can fluctuate widely from year to year. According to MINAG, the existing potential for irrigation, where basic infrastructural requirements are already in place, is 120,000 ha. However, only 55,000 ha are used at present; about 35,000 ha of this is under sugarcane and most of the remaining 20,000 ha is under rice and vegetables.

Perennials, especially coconut and cashew, grown by small farmers are an important source of foreign exchange earnings and contribute to household food security. Other major cash crops grown by small farmers include cotton and tobacco, grown on 189,000 ha and 66,000 ha respectively. These cash crops, along with oilseeds, tea, citrus and horticultural crops (particularly tomatoes), offer alternative sources of income to the small farmers in inland districts, where coconuts and cashews are not grown.

Maize and cassava are the major staples, together covering around 3 mln ha; other food crops of significance include sorghum, beans, groundnuts and rice. Cassava is grown mainly in the north where it is the main staple food and it is being introduced, along with sweet potatoes, under a Government initiative in drought-prone areas throughout the country. The area under sweet potatoes is also increasing.



Agricultural production per province (source: Technoserve)

### 5.3 Land title

In 1997 Mozambique passed a progressive land law to recognize community's land rights. It later established a mechanism to formally recognize these rights through the issuance of land use rights known as *Direito de Uso e Aproveitamento da Terra* or DUAT's. The National Directorate of Land and Forests (DINATEF) can also issue provisional and nontransferable DUAT's to investors based on an approved investment proposal, payment of (nominal) annual rents, and a community consultation. In theory, provisional DUAT's can be converted into "definitive" rights once the investment has been implemented but lapse if the proposal is not implemented within a specified period of time. In practice, provisional DUATs are rarely cancelled, and most DUATs remain provisional.

The large areas of potentially productive land in Mozambique and their location close to ports and South African markets prompted leaders to aggressively market land resources to potential investors. Their efforts resulted in a flood of applications, with informal requests for 13 mln ha received within an 18-month period, according to the investment agency. The overwhelming response, together with results from a land audit suggesting that less than half of the land awarded to investors had actually been used, led to a reversal of policy, the imposition of stricter requirements for economic analysis, and a moratorium on the allocation of land for biofuel projects until proper zoning to identify suitable land for different crops was completed. By 2010 DUAT's were granted for just over 1 mln ha to 259 projects; another 117 project proposals, involving more than 1.27 mln ha, are being reviewed.

The application process for land in Mozambique requires that all projects involving areas from 1,000 to 10,000 ha be reviewed by the Minister of Agriculture and those involving more than 10,000 ha should be reviewed by the Council of Ministers.

## 5.4 Yield gap

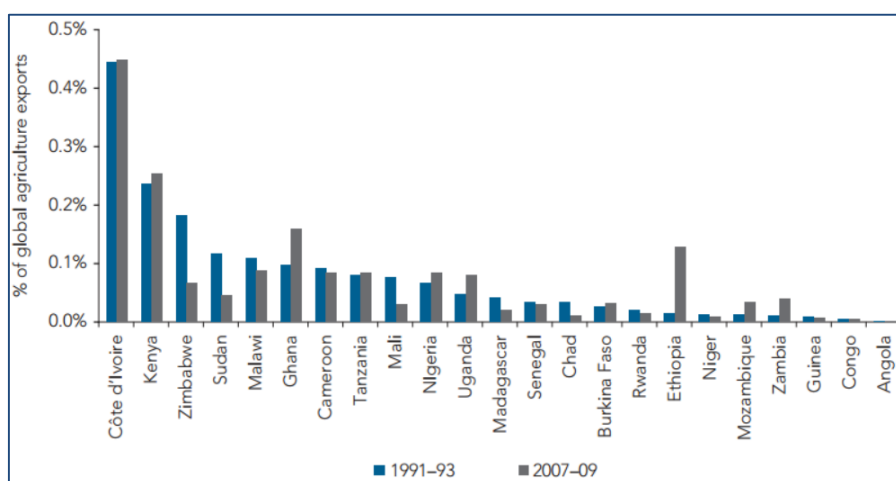
Mozambique ranks low in the use of available land and even lower when the achieved percentage of potential yield is considered. The Government of Mozambique and donor agencies would like to promote more intensive and productive agriculture among smallholders, but progress has been limited for a number of reasons. The agricultural sector continues to consist mainly of smallholder farmers using minimal inputs of improved seeds, chemical fertilizer, and irrigation. They cultivate small and fragmented plots of land. If an agricultural transformation is to occur in Mozambique, smallholder farms will have to develop either as viable agribusinesses or will need to be linked to commercial enterprises that support the use of modern inputs and facilitate access to markets. If not, smallholder agriculture will continue to underperform as crop yields are currently low and have been stagnant.

Crop yields compared	2012 (t/ha)		Δ
	<i>Mozambique</i>	<i>South Africa</i>	
Groundnuts, with shell	0,29	1,29	22%
Maize	0,75	3,76	20%
Onions, dry	2,83	23,02	12%
Potatoes	14,43	34,62	42%
Sugar cane	73,91	53,99	137%
Wheat	1,68	3,74	45%

Source: FAOSTAT

The table above depicts average yields for some crops compared to crops as grown in South Africa. A crop like onions only yields 12% of the South African average and corn only 20%; only sugar cane performs better in Mozambique compared to South Africa.

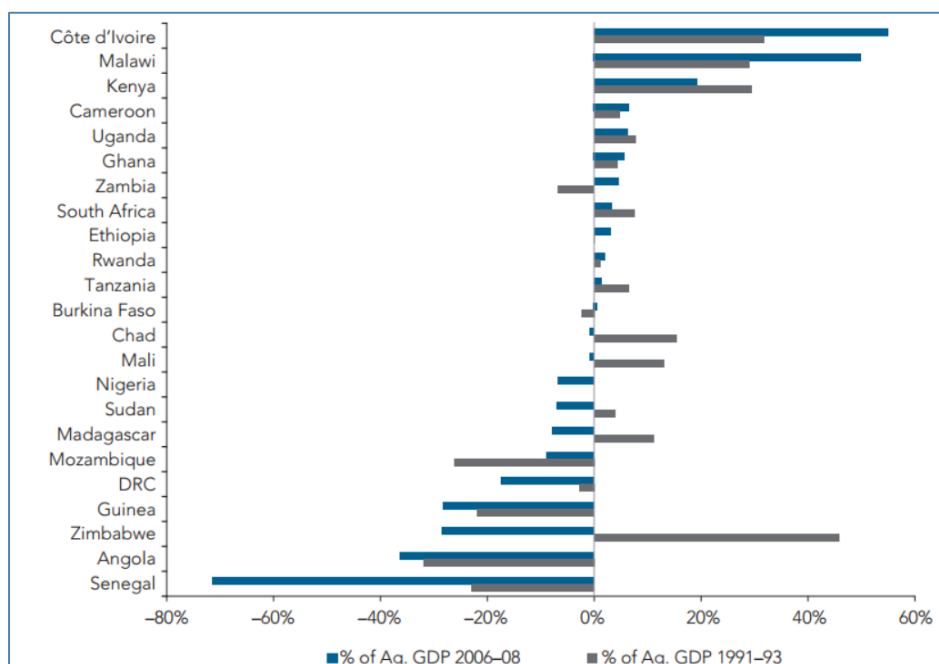
## 5.5 Agrifood trade



Mozambique contribution to agrifood world trade (source: WB)

Mozambique's contribution to agrifood world trade is limited to around 0.05% but increasing slightly.





Mozambique agrifood export as percentage of agri GDP (source: WB)

Export of agrifood as a percentage of total agrifood GDP is negative because of the deficit on the agrifood trade balance. However it improved from -30% in the 1991-93 period to -10% in 2006-08.

Despite the agricultural sector's generally weak performance, national domestic production of staple food has increased, according to national statistics. Mozambique is self-sufficient in some crops, such as cassava, sweet potatoes, sorghum, and groundnuts, yet highly deficit in rice and a major importer of wheat for urban consumption and soybean cake for animal feed.

Statistics on agrifood production are very difficult to obtain and verify. The table below depicts the import and export figures on maize and how FAO presents this statistical info.

Maize trade Mozambique							
	2005	2006	2007	2008	2009	2010	2011
Maize export (t)	931	10.320	19.123	29.156	15.190	16.132	8.309
Maize import (t)	179.000	239.000	28.150	100.893	81.794	75.826	138.255
	Estimated data using trading partners database						
	Unofficial figures						
	FAO estimate						

Source: FAOSTAT 2013

Certain regions in Mozambique remain food insecure, including much of the drought-prone southern provinces (Gaza, Inhambane) and central provinces, where irrigation remains limited and the frequency and distribution of rainfall are inadequate in some years (Manica, Sofala). Flooding also disrupts agricultural production in some years. The very long distances from north to south make shipment of grain costly, so crop surpluses produced in the productive northern provinces (Nampula, Niassa, Cabo Delgado, Zambézia) cannot economically supply population centers in southern Mozambique, which is strongly linked to the proximate South African economy.

	<b>Export agrifood Mozambique</b>		
	Volume (t)	(x USD 1,000)	(USD/t)
Sugar Raw Centrifugal	151.130	98.897	654
Molasses	126.379	14.538	115
Tobacco, unmanufactured	52.734	216.945	4.114
Bananas	49.309	10.618	215
Flour of Wheat	37.817	19.736	522
Cashew nuts, with shell	35.802	46.519	1.299
Sesame seed	25.871	30.781	1.190
Cotton lint	16.486	40.088	2.432
Sugar Refined	11.114	6.798	612
Cottonseed	9.812	2.069	211
Maize	8.309	1.451	175
Groundnuts Shelled	6.862	5.577	813
Coconut (copra) oil	3.647	6.675	1.830
Cashew Nuts Shelled	3.464	20.908	6.036
Flour of Maize	2.920	917	314
Food Prep Nes	1.339	1.464	1.093
Tea	1.324	1.936	1.462
Grapefruit (inc. pomelos)	1.039	754	726
Oranges	710	501	706
Cigarettes	538	3.348	6.223
Source: FAOSTAT 2013			

	<b>Import agrifood Mozambique</b>		
	Volume (t)	(x USD 1,000)	(USD/t)
Wheat	378.353	92.000	243
Rice (grain equivalent)	348.870	173.966	499
Maize	138.255	41.405	299
Cake of Soybeans	110.762	50.356	455
Palm oil	66.200	50.000	755
Soybean oil	51.915	66.746	1.286
Sugar Refined	49.906	37.999	761
Potatoes	28.062	10.285	367
Food Prep Nes	25.729	63.248	2.458
Flour of Maize	17.978	10.791	600
Sunflower oil	13.477	17.857	1.325
Chicken meat	12.797	22.938	1.792
Wine	11.088	18.697	1.686
Fatty Acids	11.041	10.021	908
Sugar Confectionery	8.131	16.701	2.054
Tobacco, unmanufactured	6.796	25.777	3.793
Cotton lint	6.501	16.962	2.609
Beverage Non-Alc	5.284	9.472	1.793
Pastry	3.847	9.808	2.550
Milk Skimmed Dry	3.403	10.014	2.943
Chocolate Prsnes	2.921	10.261	3.513
Source: FAOSTAT 2013			

## 5.6 Farming inputs

The use of purchased agricultural inputs, (improved seeds, fertilizers and pesticides) is limited to a small number of modern farm enterprises growing cash crops and vegetables and to out-growers of tobacco and cotton, producing crops on contract. The yields of cereals in the peasant sector are generally low, and losses in the field and stores are high. Production of staple food is, as stated, dominated by smallholders; the use of purchased inputs is very limited; according to a national survey conducted in 2009; only 4% of farmers use fertilizers.

Mozambique's efforts to expand agricultural productivity through increased access to and use of inputs have not yielded significant results and have not fostered the emergence of an input supply network led by the private sector (Holtzman, 2012).

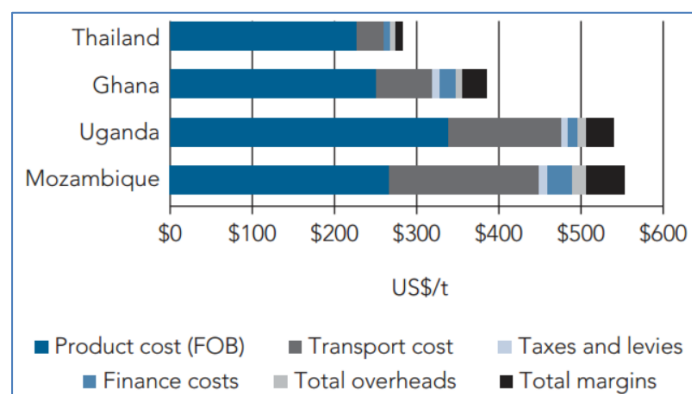
	Farmers access to improved seed (%)		
	2005	2006	2008
Maize	5,6	21,1	10,0
Rice	3,3	22,1	1,8
Millet		31,4	3,6
Sorghum		5,8	
Groundnuts	2,0	12,2	3,8
Cowpeas	4,3	26,7	4,7
Beans	4,9	8,9	7,1
Pigeonpeas	3,5	3,9	4,2

Source: Worldbank

Percentage of farmers using improved seed in Mozambique

Seed supply is constrained by inadequate production of basic seed and foundation seed (Worldbank, 2012). The low use of certified seed for basic grains, particularly maize and rice, causes yields of rain fed-crops such as maize to be lower than yields in most other countries in sub-Saharan Africa (SSA). Ministry of Agriculture (MINAG) data show that the supply of certified maize seed would cover only an estimated 6% of the 2010/11 maize area. Improved seed was used only on an estimated 14% of the 2010/11 rice area, largely in irrigated production zones. In most years, maize production relies heavily on seed of open-pollinated maize varieties rather than of hybrid; hybrid seed represents 13% to 15% of total seed volume.

Private sector seed multiplication is expanding, though slowly. The Basic Seed Production Unit (USEBA), which is a parastatal subsidiary of the national agricultural research institute (IIAM), produces most basic seed (except for rice seed), but volumes are typically too low for sufficient multiplication and wide scale distribution to farmers. Seed costs are reportedly high and improved seed is often distributed through donor- or government-funded projects and programs, such as a two-year European Union (EU) scheme that subsidized certified seed and fertilizer for up to 25,000 small farms per year in 2009/10 and 2010/11. The vast majority of fertilizer is applied to leaf tobacco (51%) and sugarcane (42%).



Fertilizer costs compared (source: WB/Growing Africa)

The relative low use of fertilizer in Mozambique is partly caused by the fact that fertilizer is expensive compared to other developing countries, the price is about double compared to Thailand. As demonstrated by the figure above only in Uganda is the fertilizer FOB price higher. All other price components are higher in Mozambique: transport, taxes, finance, overhead and total margins (Worldbank, 2012).

The law permits imports of seed of registered varieties. Seed of varieties that are not registered can also be imported by individuals for direct use, subject to obtaining an import license from MINAG.

## 5.7 Wholesale and retail

Mozambique's mass grocery retail industry is extremely underdeveloped (Business Monitor International, 2013), with an estimated 98% of food retail sales accounted for by the in-formal sector. The vast majority of food shopping is done at kiosks and markets. The fact that organised food retailing is so poorly developed makes it difficult to efficiently access consumers.

Mozambique's infrastructure is inadequate and will require substantial investment in order to transport resources to ports, and goods and services to consumers. It is especially difficult to reach consumers outside Maputo. Logistics and finding good real estate at affordable prices remain two major challenges for food retailers looking to expand into Mozambique. However, that has not stopped Shoprite (RSA) from opening stores in Mozambique. Shoprite currently owns five stores in Mozambique, located in Maputo (2), Chimoyo, Beira and Nampula. Pick n Pay, the second largest retailer in RSA, recently also opened a store in Maputo.

## 6 Livestock

	Animals present in Mozambique (x 1,000)							
	2005	2006	2007	2008	2009	2010	2011	2012
Layers	2.100	2.200	3.000	3.900	4.500	5.600	6.200	9.500
Dairy cows	405	400	390	392	394	395	400	410
Broilers	18.940	26.000	25.149	26.857	32.947	31.444	30.030	25.230
Ducks	1.507	1.254	1.671	1.865	1.882	1.882	2.100	2.100
Goats	2.020	1.750	1.800	2.000	1.600	1.600	1.640	1.800
Beef cattle	125	107	147	124	124	125	127	169
Pigs	1.957	1.420	1.620	1.850	1.560	1.620	1.650	1.700
Sheep	79	58	88	73	76	80	82	83

Source: FAOSTAT 2013

Animal production in Mozambique is mainly practiced on small and medium sized farms. Poultry is the main subsector throughout the country, while cattle breeding is concentrated in the South and centre, particularly in Gaza, Inhambane and Tete provinces (Ministry of agriculture, 2010). The northern region generally has relatively little cattle, particularly Cabo Delgado province (12,057) and Niassa (2,099), mainly due to the high prevalence of tse-tse and tripanosomiasis. Pigs, all over the country are seriously affected by regular outbreaks of African Swine Fever, which is endemic for Mozambique. Small ruminants are present in every province, and of particularly importance in the North because of greater resistance to tse-tse and tripanosomiasis. Cabo Delgado, Niassa and Nampula provinces house around 19% of the national total of goats. Some areas in the north, like Cabo Delgado and Nampula, are less affected by tse-tse, and cattle is being introduced there through development programmes, also to be used as animal traction.



Beef cattle in Chimoio (Agrix)

	Animal production in Mozambique (t)							
	2005	2006	2007	2008	2009	2010	2011	2012
Beef	18.729	15.978	22.088	18.631	18.602	18.685	19.083	25.383
Poultry	17.000	23.332	22.634	24.171	29.652	28.299	27.027	22.707
Duck	1.808	1.506	2.005	2.238	2.258	2.258	2.520	2.520
Sheep	948	696	1.056	876	912	960	984	996
Goat	24.240	21.000	21.600	24.000	19.200	19.200	19.680	21.600
Pork	117.450	85.200	97.200	111.000	93.600	97.200	99.000	102.000
Milk	68.850	68.000	66.300	66.631	66.965	67.150	68.000	69.700
Source: FAOSTAT 2013								

## 6.1 Beef

Beef production only takes a limited share in total commercial meat production in Mozambique but is expanding with currently around 170,000 heads of beef cattle present in the country. At a self-subsistence level beef production is still more important than poultry.

### 6.1.1 Mozbife

Mozbife is a vertically integrated cattle ranching and feedlot beef producer and manages a 6,900 head herd on three farms of in total 22,000 ha, a feedlot with 3,000 head /month capacity and a slaughterhouse with 4,000 animal /month capacity. The Company's objective is to build a total herd

in excess of 10,000 head by 2015, which would provide up to approximately 3,800 animals per year for slaughter. Mozbife is an Agriterra investment and by large the biggest beef producer in Mozambique.

The Mavonde farm is 2,350 ha with 1,200 animals; some 1,000 adjacent ha has been acquired recently. The animals are of the South African Beefmaster breed. The Dombe farm is 15,000 ha with currently 3,400 animals. The Inhazonia farm is 2,500 ha that can be irrigated year round. The Vanduzi feedlot has a capacity to fatten 3,000 animals each 90 days at a slaughter weight of 500 kg. It also uses corn bran from the DECA plant to feed the cattle. Currently around 370 heads are slaughtered per month.

The Chimoio abattoir is the most modern in Mozambique. It receives animals from the feedlot and from out-growers; Agriterra intends to export to the Middle East

## 6.2 Poultry

Region	Province	Chickens	Ducks	Geese	Turkeys	Guinea fowls
South	Maputo	1 921 900	506 159	1 488	22.091	126.402
	Gaza	1 284 164	144 496	1 165	3.242	58.802
	Inhambane	2 395 580	306 508	3 456	47.005	42.919
Center	Sofala	2 459 246	143 367	1 397	4.762	169.457
	Manica	3 253 206	52 693	383	19.503	120.477
	Tete	2 042 535	52 764	107	0.033	36.967
	Zambezia	4 108 424	194 882	1 897	10.716	129.363
North	Nampula	3 587 519	260 967	5 797	1.621	62.952
	Cabo Delgado	1 633 460	140 441	49	0.138	5.663
	Niassa	1 236 158	79 450	0	4.392	14.709
<b>TOTAL</b>		<b>23 922 192</b>	<b>1 881 736</b>	<b>15 739</b>	<b>113.503</b>	<b>767.711</b>

Distribution of poultry by province (Source: FAO poultry Mozambique)

According to the figures from the 2009-10 agricultural census the national chicken population was at 23 mln birds (table above). The highest concentration of poultry was found in the central part of the country (Sofala, Manica, Tete and Zambezia) with 50% of the total national flock. The share of the northern part of the country was 27% of the national flocks and the South had a share of 23% (FAO, 2013).

Ducks, as the second most important poultry species, are mainly found in the South of the country (51%) and guinea fowl have the highest concentration (59%) in the central region of the country. The largest number of turkeys (41% of total national) is found in the Inhambane province of the South and the highest concentration of geese (39%) is found in the southern part of the country.

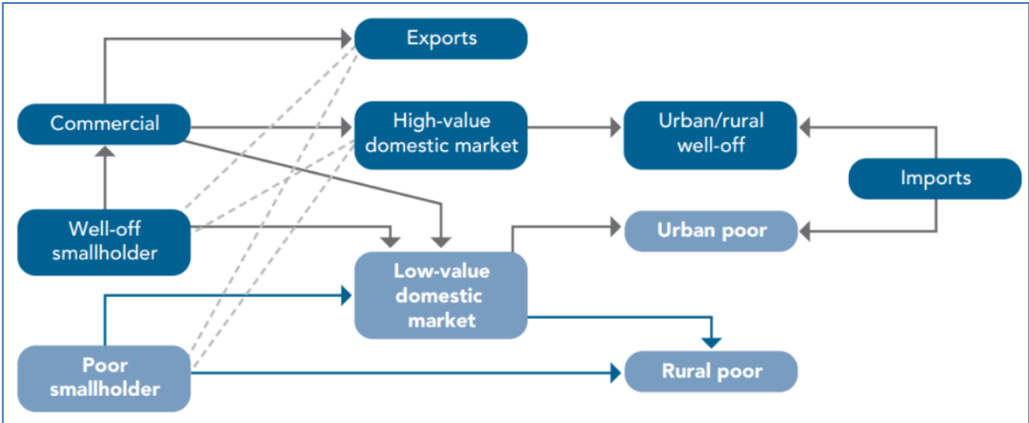
	Poultry meat in Mozambique						
	2006	2007	2008	2009	2010	2011	
Import of poultry meat (t)	10.812	8.461	9.199	12.605	9.748	12.797	FAO
Import of poultry meat (t)	9.324	10.076	9.075	7.992	6.069		DNSV
Consumption of p.m. (t)	32.037	32.513	33.075	36.521	46.572		FAO/DNSV
Local production of p.m. (t)	7.154	13.198	18.822	48.062	39.735	40.493	DNSV
Per capita consumption (kg)	1,28	1,30	1,32	1,46	1,86		

Statistics on the poultry sector in Mozambique are not very reliable. The table above presents import, local production and local consumption of poultry meat. According to FAOSTAT the import of poultry meat is fairly stable at around 12,000 t/yr. The local veterinary institute however signals a decreasing trend on poultry imports (DNSV (National Directorate of Veterinary Services), 2006-2013). FAOSTAT has used cross-reference on its import data, so the systems uses export data from other countries to estimate imports by Mozambique. The difference between FAO and DNSV import data could be partly explained by illegal imports. With per capita consumption low, at less than 2 kg, but on the rise, local production of broilers is definitely increasing.

According to the National Poultry Farmers Association (AMA) there was a considerable increase in poultry meat production starting from 2008 and 2009 due to increased hatchery capacity in the Northern region, establishment of new hatchery companies in Maputo region and an increase in the production of day-old chicks by the main producer in the central region to 60,000 per week. The increase of chicken meat production was mainly the result of the Government's support for the development and reform of chicken production through greater control on imported chicken, financing of the AMA and the Maputo Farmer Association (ADAM). Also TechnoServe intervention and banking corporation involvement that established credit lines to poultry farmers had significant influence. TechnoServe supported the poultry industry development by launching a comprehensive program in 2005 that brought together public and private partners. In 2011, 31% of the total meat production in the country was from the small farmers in the family sector.

In 2011, Maputo province was the lead producer of poultry meat with a production of 26,000 t (63% of the total production), followed by Manica province, with 8,800 t (22%) and Nampula province with 4,200 t (10%). The provinces of Niassa, C. Delgado, Zambezia, Tete, Sofala, Inhambane and Gaza only had a share of the total production between 0.02% (Zambezia) and 2% (FAO, 2013).

Poultry is sold alive or slaughtered and prices are variable. The local type birds are sold alive at the farm gate or in urban markets. The price is higher compared to the commercial birds and varies from USD 6.60 to 8.30 per chicken. Live commercial Mozambican chickens of 1.1 kg are being sold for between USD 5.20 and 5.60. Currently, imported frozen poultry is 15% cheaper than Mozambican. The eggs are sold at the door of the producers on a cardboard container of 30 eggs for about USD 4 to 5 and in supermarkets and butcher shops packed in boxes containing 6 to 12 eggs at a price of USD 1.60 per dozen.



Agrifood product flow in lower-income countries (source: WB/Growing Africa)

The figure above depicts the typical flow of animal produce from primary producer to final consumer. Actually this model works for most agricultural produce. Smallholders produce for extended families (subsistence) and have a small percentage available to sell on rural markets. A



medium sized commercial farmer would sell on both rural market and in a higher segment, like supermarkets and the service industry. Large corporate farms typically produce for export on a world market.

### 6.2.1 Empresa Avicola Abilio Antunes

Currently only one integrated poultry farm in Mozambique has a bio security level to international standards.. The company Empresa Avicola Abilio Antunes is based in Chimoio, Manica province and is vertically integrated with separate profit centres: parent stock, hatchery, poultry farms, slaughterhouse and feed mill. Antunes keeps both broilers and layers. The company procures an estimated 13,000 t of soybean and 20,000 t of corn annually. The company slaughters around 50,000 broilers per day. Antunes bought a high quality Danish corn-drier and sufficient storage to be able to buy early, at a low price, the larger part of his feed needs. A lot of poultry is imported into Mozambique from Brazil, but Antunes manages to be competitive.

### 6.2.2 Novos Horizontes

Novos Horizontes (NH) started in Nampula in 2005 and had some early support from TechnoServe and received a Dutch PSOM subsidy. NH went into profit in 2009 (Hanlon & Smart, 2013). NH now supplies 40,000 day old chicks per week to 187 out-grower families, that produce 40 t of poultry per week. Families build a chicken house to NH specifications, which includes a biosecurity fence. NH provides day old chicks and feed. Chickens are vaccinated at days 1, 3, 14 and 18. The broiler production cycle is seven weeks: five weeks to raise the chickens and two weeks to clean the chicken house. Farmers must sell to NH, which then deducts the cost of the inputs. Profits range from MZN 3,000 to MZN 30,000 (USD 100 to USD 1,000) per cycle or MZN 21,000 to MZN 210,000 (USD 700 to USD 7,000) per year, depending on size of flock and management. NH has recently expanded into egg production and expects to do that with out-growers as well.

NH basically runs a vertical integration from breeders to slaughterhouse. The out-growers are generally subsistence farmers that used to live on less than USD 2 /day. Contracted out-growers received training from company extension workers who travel into the villages on motorbikes to supervise production. The out-growers are required to build their own chicken houses under guidance with their personal funds. A house is generally 5 x 25 m in size and made from local material, including thatch, wood, and sand. Each farmer receives approximately 1,600 day old chicks and feed. The one day old breeder's chicks come from surrounding countries such as Zimbabwe, Zambia and South Africa (FAO, 2013).

Three aspects of the NH model are typical:

- NS monitors its producers closely and contracts families, not individuals or associations;
- There is no debt or credit involved; NH carries all the risk;
- NH tries to keep a fixed price for feed and absorb the volatility in global grain prices.

The current group of farmers is only 30% of those who started, and the company did lose money on the first group of out-growers. But those who remain have a close and profitable relationship with NH; farmers meetings have a high turnout, with many arriving on motorbikes bought with chicken profits.

### 6.2.3 Astral Foods

Astral Foods, one of South Africa's leading integrated poultry producers, is establishing

itself as an integrated broiler producer in Mozambique. The company initiated its presence by establishing a feed mill (Meadow Mozambique Limitada) in 2010, in partnership with a local businessman and farmer. It now produces on average 12,000 t of animal feed per year. A hatchery and a breeder farm opened in 2012 near Mozpintos. The hatchery has a capacity of 158,000 day old chicks per week. Construction began in 2011, 45km SW of Maputo. Three poultry houses will be refurbished to house broiler breeders. Astral also plans to build three new broiler breeder sheds, allowing the hatchery to be self-sufficient in the supply of hatching eggs.

The company is now looking at developing a broiler processing plant in Mozambique and is in the final stages of registering a chicken consumer brand called 'Festiva'.

#### 6.2.4 Frango King

Frango King (FK) is owned and operated by African Century (Mauritius based investment fund) and is one of the largest poultry producers and distributors in Northern Mozambique (Nampula). FK produces and distributes day old chicks, poultry feed, live and frozen birds. These products are sold domestically, through their own network of shops; current production is around 3 mln birds per year. The business is fully integrated with its own hatchery, feed mill, production, processing and distribution.

As stated, Mozambique currently imports the majority of its poultry consumption. FK states that through efficient production, there is a substantial opportunity to both grow the overall poultry market in Mozambique and increase the domestic producers market share.

#### 6.2.5 APAM

APAM is the new regional organization of Chimoio broiler producers and currently has 11 associated out-growers. Antunes (see above) supplies one-day-chicken to APAM members, but sometimes no chicks are available when Antunes needs them for own production. Therefore APAM Intends to set up parent stock and hatchery by themselves and is subsequently in need of working capital. Feed is no limitation. The APAM chairman (Muchone, 2014) produces 1,000 broilers / 45 days. APAM is currently preparing a business plan for expansion assisted by CEPAGRI.

APAM might be working together with Guita Chicken that intends to set up a hatchery and slaughterhouse. Guita would be working with 70 out-growers; their objective would be to replace cheap Brazilian imports

### 6.3 Pork

Commercial pork production in Mozambique is under developed, there are less pigs in the country than goats (respectively 1.7 mln and 1.8 mln) but it is by far the most important meat sub-sector. While poultry is taking off in Mozambique there is very little investment in commercial swine production. The main cause might be the presence of endemic diseases. While African swine fever is the most serious disease that affects pigs at all levels of production in Mozambique, it is likely that productivity is also reduced by the presence of scab and gastrointestinal parasites. In traditional systems the conditions are favourable for the development of porcine cysticercosis which poses a health risk to communities. Porcine cysticercosis is more prevalent among pigs in traditional, free-ranging systems, while scab becomes a serious factor when pigs are permanently confined.

### 6.3.1 Tsetsera Pork

Tsetsera Pork, Chimoio, works with out-growers in a pig farming integration covering the production of piglets, pig rearing, slaughtering, processing and marketing of good quality pig meat products. TP found an immediate market opportunity to supply the mining companies in Tete.

The farm works with 10 out-growers that are each provided with five castrated male weaner pigs, feed and technical support. Over time each out-grower will rear up to 40 pigs every six months, generating an estimated profit of at least USD 30 per pig, and an annual income of USD 2,400 per out-grower. Increased demand for soya, sunflower and maize grown by smallholders for pig feed will have development impacts in the area.

## 6.4 Dairy

The commercial dairy industry in Mozambique is at a very low level. The country depends almost entirely on imports from South Africa and Europe. It is estimated that around 120,000 kg of milk equivalent is imported each day. The only milk bottling company is owned by Parmalat Mozambique and uses powdered milk imported from RSA and sells it as UHT milk. Milk consumption by Mozambicans is estimated to be only 6 l/capita/yr compared to a world average of 79 l (Fidelis Zvomuya, 2009).

Within the USDA funded Mozambique Food for Progress (FFP) program Land O'Lakes<sup>6</sup>, a large US based dairy cooperative, has assisted 4 local coop's near Chimoio to improve dairy herds. The program seems to do well, local farmers get half the price of heifers subsidised and the other half financed. The milk is sold to Danmoz that actively participates in the "generic dairy marketing campaign" by donating yoghurt for consumer trials. Also involved is the Higher Polytechnic Institute of Manica (ISPM). Some 300 in calf heifers have been shipped from the US to Mozambique.

### 6.4.1 Danmoz Dairies

Danmoz is located in Chimoio and started in 2000 on a 250 ha farm with the production of milk, cheese and yoghurt. Is the only commercial scale cheese and fresh milk plant in Mozambique. The company produces cheese under the brand name of "Goudagold". Danmoz was supported by the Dutch PSI program in 2006. The own herd of 70 Holstein currently produces 16,000 kg of milk per month, additional milk is coming in produced by out-growers. At full capacity the plant should process close to 50,000 kg of milk per month, of which 15% produced by 5 selected local farmers.

### 6.4.2 AgroMaco Farm

AgroMaco consists of three farms (Guizado, 2014) and a construction company. The farm is milking 80 Jersey cows and delivers its milk to DanMoz Dairies. To reach a higher milk price (DanMoz MZN 17 /kg) , AgroMaco intends to set up its own milk processing; maybe something between pasteurizing and sterilizing (UHT) with shelf life of 6 months. The farm produces its own forage: buffalo grass and lablab. Through the Land O'Lakes project the farm can procure 10 cows each year of which 50% subsidized. AgroMaco intends to milk 500 Jersey's within 5 years. The cows produce 3,000-3,500 kg /lactation of 9 months; 12 L/day/cow, some cows are at 18 l/day. Milking takes place in a 2 x 6 herringbone milking parlour.

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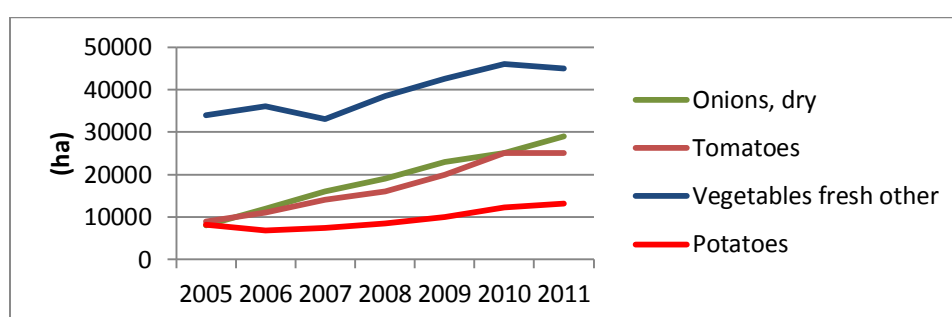
<sup>6</sup> <http://www.idd.landolakes.com/>

## 6.5 Goats

### 6.5.1 MozAgri

MozAgri (MA) is an AgDevCo participation and produces goat meat in the Manica region (120 km North of Chimoio) (Serfontein, 2014), the company owns and operates a slaughterhouse with capacity of 120 goats /day max, some 500 goats are owned, another 500 are provided through out-growers. MA intends to expand to 5,000 goats. MA also grows protein crops, the final fattening of goats is in a feedlot. New genetic material is being introduced from RSA. MA intends to set up a range of protein shops (as a chain), selling fast food beans and goat meat. Goat meat is very popular in Mozambique and could compete with poultry and fish at around USD 3.50 /kg slaughtered weight.

## 7 Vegetables and potatoes



Vegetable and potato area Mozambique (source: FAOSTAT)

The total vegetable area in Mozambique is expanding and currently around 100,000 ha; tomatoes and onions are the main crops with respectively 25,000 ha and 30,000 ha. Other vegetables cover around 45,000 ha. Potato area seems to be increasing and is estimated to be 10,000 ha (Haverkort) to 13,000 ha<sup>7</sup>; Mozambique currently imports around 50% of its potato needs.

### 7.1 Vegetables

Historically, Mozambique was a significant exporter of horticultural products and fruit, annually exporting around 11,000 t of grapefruit, 7,000 t of oranges and between 20,000 and 25,000 t of bananas in the 1970's (Kaiser Associates, 2006). However, during the civil war, much of Mozambican production capacity was lost or left to deteriorate. Production and exports are increasing again and Mozambique has some clear advantages that might ensure its competitiveness in the global market:

- Tropical climate and good growing conditions;
- Relatively low labour costs;
- Large amount of available land;
- Growing presence of skilled farmers who have relocated to Mozambique;
- Coastal position with sea freight infrastructure.

The bulk of Mozambique's commercial horticultural production takes place in the Beira corridor (Manica, Tete and Sofala provinces). Maputo province is also home to significant horticulture production. There is additional production in other provinces such as Zambezia and Nampula (both subsistence and some commercial).

Each province is typified by a particular climate that is more suitable to certain products. The

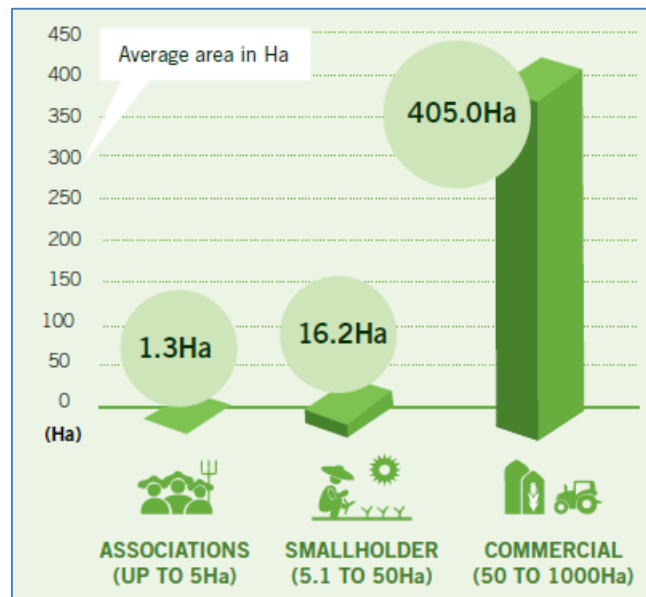
<sup>7</sup> Source: FAOSTAT

Sofala province is more tropical, closer to the coast with higher humidity levels, and is therefore more suited to products such as bananas and papaya. Manica province has less humidity and is more suitable to sub-tropical products such as mangoes, and baby vegetables in the drier North. The Maputo province is cooler and is better suited to citrus. The Zambezia and Nampula provinces are typified by high heat and humidity and are likely suited to more tropical fruits. The table below details current and potential production of the priority products for this report as well as other products growing in the main areas of horticulture production in Mozambique (Manica, Sofala and Maputo).

Province / area	Climate	Hectares under cultivation - 2003 <sup>12</sup>	Production: Priority products	Current production: Other products
Northern Manica	▶ High temperature, lower humidity	▶ Estimated - 9,000 ▶ Possible - 990,000	▶ Current production: - Mangoes - Pumpkins - Tomatoes ▶ Potential/suitable: - Baby vegetables	▶ Potatoes ▶ Cabbage
Central Manica	▶ High temperature, medium humidity	▶ Estimated - 23,000 ▶ Possible - 900,000	▶ Current production: - Bananas - Mangoes - Pineapples - Tomatoes ▶ Potential/suitable: - Baby vegetables - Various flowers	▶ Cabbage ▶ Roses ▶ Onions ▶ Green beans ▶ Garlic ▶ Peas ▶ Peppers ▶ Beans ▶ Lettuce
Southern Manica	▶ Medium temperature, medium humidity	▶ Estimated - 5,000 ▶ Possible - 1,350,000	▶ Current production: - Avocados - Bananas - Mangoes - Pumpkins - Tomatoes ▶ Potential/suitable: - Litchis - Citrus - Pineapple	▶ Potatoes ▶ Cabbage ▶ Lettuce
Central Sofala	▶ High temperature, high humidity	▶ Estimated - 12,000 ▶ Possible - 1,080,000	▶ Current production: - Bananas - Mangoes - Pineapples - Tomatoes ▶ Potential/suitable: - Papaya	
Maputo	▶ Lower temperature, medium humidity		▶ Current production: - Bananas - Citrus - Litchis	

Area suitability for vegetable production in Mozambique (source: Worldbank)

Companhia de Vanduzi (subsidiary of Mozfood, see below) works with outgrowers in the Chimoio area on labour intensive crops. The small-holder farmers and farmer associations mainly produce Cabbage, Covo, Lettuce, Onion, Potato, Sugar beans, Tomato, Green pepper, Carrots, Peas, Green beans, Okra, Garlic, Butternut, Pumpkin, Strawberry and Green mealies. The Commercial farmers in addition to the above also produce Chinese cabbage, Spinach, Cauliflower, Broccoli, Sweet corn, Paprika, Chillies, Yellow pepper, Watermelon and Beetroot (Mutenga, 2012).



Average production area of vegetable producers (source: Vanduzi)

### 7.1.1 Mozfood

Mozfood started as a seed (rice, maize, soy bean and beans) and rice producing company funded by Aquifer Limited (AL). AL that has one shareholder: The Gatsby Charitable Foundation (funded by one person that stays at the back ground: Lord Sainsbury of Turville). AL was initiated to invest in rice and seed production (Chokwe) and production and export of vegetables (Chimoio) and invested over USD 40 mln in Mozambique and employs around 2,000 people, it is one of the top 10 agricultural enterprises in Mozambique. Mozambique was chosen after extensive review for its investment and industrialization gap, policy attitude and prospects for achieving internationally competitive scale in selected sectors. In Mozambique Aquifer operates under the brands: Mozfoods (holding, trading, distribution Maputo), MozSeed (seed Chokwe) , Compania de Vanduzi (vegetables Chimoio), Mia (rice milling Chokwe) and Tia Rosa. The company expanded to vegetable production mainly for the Mozambican market but is now during 4 months exporting to the UK, supplying all of the main retailers (WorldGAP certified). Catering is an important business segment (gas industry). Production was initially focused around Chokwe (there was 20,000 ha of rice and 2,000 ha of corn in this region), much production was destroyed because of flooding of the Limpopo river. Mozfood will retract from this region and focus on the Chimoio region; Mia, the rice processing company, was closed down and is for sale now.

Companiha de Vanduzi has some 500 ha in use (Austin, 2014) and takes 3 harvests per yr, around 120 ha is from outgrowers (actually 40 ha, producing 3 harvests). 3.5 Ha is under plastic, a limited area because capital expenditures are high: setting up greenhouses is double the price of western Europe (around USD 250,000/ha). The company employs 2,000 people. Vanduzi produces large peppers, baby corn, sugar snaps, beans and peas for export, the product is harvested and packed, not washed or further processed, trucked to Johannesburg and flown to the UK (!). Rice and soy bean are grown as rotation crops. Outgrowers grow mainly small peppers and other products that are very labour intensive. MozFoods supplies inputs (seed, fertilizer, argro chemicals), the costs are deducted from sales. Labour is not pre financed by MozFoods, that is an issue, farmers often don't have money for hired labour and loose crop for that reason. The risk for MozFoods in pre financing the whole crop has proven too big. Chimoio is at an altitude of around 1,000 m and has a favourable climate for almost any production. Further north into the mountains one can produce excellent seed (-potatoes) at an even higher altitude. MozFoods will further specialize in seed production, the Brazilians have surprisingly not introduced any varieties (like for soy bean).



Several issues were discussed with MozFood's CEO (Henriques, 2014):

- MozFood's CEO suggests that Dutch companies when entering Mozambique should focus on vegetables, flowers, potato, pork or poultry. Finding a local partner is essential, greenfield will not work. Chimoio is part of the Beira Corridor but can also be considered part of the Zambezi Valley provinces and therefore fits in the embassy's initiative (ZVDA). Production in the Maputo region is difficult because of vicinity of RSA that produces much more efficient;
- In case of flowers it is important that a group of producers should come to get sufficient size for infra-structure, transport is an issue. Maybe flights to Harare (Zimbabwe) could be set up, Johannesburg is too far;
- Abilio Antunes established a nice poultry integration in Chimoio (both eggs and broilers). He annually procures an estimated 13,000 t of soybean and 20,000 t of corn. Bought a Danish corn-drier and sufficient storage to be able to buy early (low price) large part of his feed raw material needs. This would be a good person to cooperate with. A lot of poultry (broilers) is imported from Brazil, Mozambique could compete on poultry;
- There is virtually no commercial pork production left in Mozambique, although it used to be an important commodity, consumption now is fairly low. There used to be a pork slaughterhouse and sausage plant near Maputo, African Swine Fever is endemic;
- Potato issue is clear, hardly any processing (except for street side local frying), no local seed, import better paid than local produce;
- MozFood is willing to look into the possibilities of further processing vegetables in a joint operation, but that would be for export only since there is no market size for processed vegetables (washing, packing, freezing).

Rain fed crops are increasingly problematic, some farmers tried an NGO funded rain insurance but that didn't work, there was 700 mm a year, but it all dropped in one month; climate change seems to affect the region.



Companhia de Vanduzi greenhouses (Agrix)

### 7.1.2 CB Farm Fresh

CB Farm Fresh was visited by the WUR delegation in November 2013 (Brouwer, Haverkort, Montsma, & Rothuis, 2013). CB Farm Fresh has processing facilities with cold stores and its own refrigerated transport. In the near future they will expand their activities with a small freezing plant. CB Farm Fresh has a clear growing strategy that includes small holder participation. The company is supplied by trained local farmers and by their own production farm.



### 7.1.3 Horta de Inhambane Lda

Horta de Inhambane is a fairly recent startup near the city of Chamane, some 500 km North of Maputo. The company was set up by mr. Rik le Poole, a Dutch national, and operates some 8 ha. Currently the main produce is strawberries that are flown to Maputo. In the near future the company intends to expand into a wide range of vegetables and invest in shade netting and poly greenhouses (Poole, 2014).

### 7.1.4 Fruta de Ouro

Fruta de Ouro Lda is a fruit trading and handling company based in central Mozambique, it is developing banana production (with FrutiManica, below) and will set up ripening and wholesale depots. The first of these depots is in Tete, supplying ripened bananas, apples, citrus, potatoes and other main line fruit and vegetables to both the formal and informal markets. Additional depots will be developed in Beira and other main centres in the central provinces of Mozambique in due course.

### 7.1.5 FrutiManica

FrutiManica is an AgDevCo participation and a j.v. between Fruta de Ouro Ltda (above) and Agriza Messina Agricola Ltda, owned by Matanushka from Zimbabwe. The company produces, stores and packs bananas and other fruits in Manica province. The idea is to expand the current area of 40 ha of banana and 30 ha of lychees to 400 ha in total to provide the Tete and Beira market and export to Zimbabwe and RSA.

### 7.1.6 Mozambique Organicos Lda

Mozambique Organicos Lda (MO) is financed by Banco Terra and supported by TechnoServe. The company produces eggplant, baby corn, sweet corn, chile peppers, haricot verts, carrots, French beans and sweet peppers for export to RSA and Europe. MO also works with out-growers. The company benefits from a European cooperation program PIP, managed by COLEACP, financed by the EU development fund and implemented on request of the ACP countries (Africa, Caribbean and Pacific) to promote export from these countries to the EU.

### 7.1.7 AgriSul Lda

AgriSul was set up as an arable and vegetable farm based in Macarretane near Chokwe (Gaza province, 250 km North of Maputo) and an Annona participation (Thirkettle, 2014). The company currently focuses on sugar cane on 240 ha but a large part of it was destroyed by the flooding. 80 Ha of banana will be planted now to replace some sugarcane. In the past other crops were tried like: baby corn, chillies, tomatoes, soybeans and maize, actually in total some 36 crops were tried. A yielding business opportunity might be the production of hot pepper, turning this into a paste (in which some fermentation takes place) and export for Tabasco company (US); 20.000 t regional production could be possible at 4 harvests per year; the product is much like tomato paste. AgriSul did a lot of practical research and has developed a rotation scheme including perennial and annual crops; the most challenging aspect is to identify suitable summer annual crops. Most summer crops are perennials; dry rice might prove to be a suitable annual summer crop.

### 7.1.8 The African Food Company

The African Food Company (AFC) is an Alden Impact Capital investment. It is an organic banana plantation in the Gaza province, in the southern part of Mozambique. The company was established as an agricultural project in 2010 to meet the growing demand for premium organic bananas and to uplift the local community through job creation, skills training, knowledge transfer and the introduction of new technology.

### 7.1.9 Piri-Piri Elefante

Piri-Piri Elefante based in Maracuene (PPEM), 40 km North of Maputo is an Annona participation that was set up with Dutch PSOM support. The farming operation is part of the Elephant Pepper group that manages chilli out-grower programmes in several African countries. PPEM sources its chillies in several ways. Next to their own farm where chillies are grown and processed, the company actively involves local farmers and larger out-grower networks. Farmers are provided with seedlings and training against a guaranteed off take agreement based on market prices. Organic growing principles are followed where possible, including the use of integrated pest management and natural compost rather than chemical fertilizers.

### 7.1.10 ENICA

ENICA is a new business created by a group of Mozambicans that want to set up banana farm in northern Mozambique to supply the regional and international market. The farm will be located in Cabo Delgado province and started with 300 ha in 2013, to expand to 1,000 hectares. The company plans to produce 12 mln t /yr by 2015 and employ 400 people.

### 7.1.11 Matanuska

Probably the largest recent agricultural investment in Nampula province is Matanuska, a major banana producer in Namialo. Begun in 2008, investment is estimated at MZN 1,500 mln (USD 50 mln); 1,426 ha of bananas have been planted. The company exported 2.1 mln boxes (28,000 t) last year (Hanlon & Smart, 2013).

Matanuska Mozambique is owned for 1/3 by Norfund and 2/3 by Rift Valley. Norfund invested USD 3.7 mln in equity, USD 4 mln in loans and USD 13 mln in guarantees. The owners seem patient having stated repeatedly: "We are going to learn what it takes to be successful in the long term and expect to be part of East Africa in 50 years. Success is about having a long term view and doing what it takes to have a sustainable business. This is bold but patient capital. That is what distinguishes between those who succeed here and those who fail. Family companies have totally different thinking than multinationals. They are not driven by quarterly earnings reports".

Banana harvest and packing is labour-intensive and the company now has 2,400 employees. Bananas must be irrigated 14 hours per day, so water is the biggest issue. The company built a dam on Mesica River in Netia and then water is brought down the Mesica and Monapo rivers in an open system (which can be used by others along the river). The dam is only large enough to hold water to irrigate 3,000 ha, so the company is already looking for other possible dam sites.

Matanuska so far has not been profitable. It ran into trouble with neighbouring communities. By 2011 there were complaints that the company had still not resettled the 56 families forced to move for the new dam, and had not built the health post it promised. It came into conflict with the Ministry

of Labour in 2009. A joint venture agreed in 2008 with Chiquita collapsed in 2011 because Matanuska did not meet the specifications. The company exports to the middle East and early exports to Iran suddenly stopped when sanctions were imposed. There are problems with both customs and erratic electricity supply.

Bananas are exported green, packed in boxes and then in reefer containers, and must arrive at their destination within 30 days of being picked.. For Mozambicans, bananas are a cheap food and are bought buy ripe from a market stall and they are often blemished and damaged.

### 7.1.12 Mosagri

Former Cefetra (Cebeco Feed Trading) CEO mr. H. Stam initiated an agricultural venture in 2012 called Mosagri Lda; the project is located in the Nacala corridor. First objective is to grow Moringa trees and process and export products derived from Moringa. *Moringa Oleifera* is widely cultivated and has become naturalised in many locations in the tropics. It is a rapidly-growing and drought-resistant tree that is multi-functional and can be used for food, feed, fibre, oil, medicine or water purification. The nutritional and medicinal benefits of Moringa products are said to be undisputable. Also involved in the Moringa project are Universidade Lúrio, WUR (Wageningen, The Netherlands) and a Dutch University of Applied Sciences.

### 7.1.13 HAK (NL)

HAK is an innovative producer of canned and preserved foods in The Netherlands (Dekker, 2014). The company is the largest player in this segment in NL and one of the largest in Europe. The production process does not involve any preservatives or artificial colorants or taste additives. Besides vegetables, pickles and onions in glass the product range includes dried pulses and tin canned fruits. The company is innovative in its production process and marketing. HAK has a market share of 35% in NL and 10% in both Belgium and Germany. Export overseas is limited to Dutch emigrant clusters, like in Canada or Australia. The product is sold in a 500 km range that hosts 55 mln consumers. HAK decided to quit with private label production, the brand name HAK is very strong in the current service territory and all efforts will be directed into further developing the brand name HAK. HAK uses 35,000 t of raw material.

HAK is focussed primarily on quality and a quality image; this is achieved by using only first class raw materials and rather unique mixtures of ingredients.

Canning can be a sustainable business for the tropics and even create a base for export in the case of Haricots verts (and white or green asparagus) in which labour constitutes an important cost factor. Canning can solve storage and transport problems and investments can be limited. Products can be canned during the harvest period and have a shelve life of several years. HAK is interested in looking into Haricots Verts production in Mozambique. In Madagascar already exists a substantial canning industry with export to Europe. Asparagus could also qualify as a potential product for export canning.

## 7.2 Potatoes

Potato is produced in 9 provinces of Mozambique. The Districts of Angonia and Tsangano in Tete province account for about 90% of the national production. Niassa province is the second most important producing province, followed by Zambezia province. In Manica province production is done in Chimoio, Sussundenga, Rotanda, Tsetsera, and Mossurize. In Maputo province, potato is

produced in Moamba and Namaacha. Other producing provinces include Nampula, Inhambane, Gaza and Sofala in the Gorogozo área (Demo, Dominguez, Cumbi, & Walker, 2006)

In Maputo and Manica provinces, there is no rain fed potato crop. Production is done with irrigation during the cool period between March and August. Some farmers plant a second irrigated crop from July to October. In Angonia, Tsangano and Lichinga Districts, 2 to 3 crops are possible per year with a rain fed crop from November to March, and 1 to 2 irrigated crops between March and October. Farmers have reported that they obtain yields of 10-20 tons/ha (in Moamba), 10-30 tons/ha (in Manica), 10-25 tons/ha (in Lichinga) and 20-30 tons/ha (in Angonia and Tsangano). Quantity and type of fertilizer used and quality of seed planted have great influence on yields.

Considering the agro-ecological conditions, land availability, proximity to most potato farmers and possibilities for low-cost storage of seed tubers from season to season, the districts of Angonia and Tsangano are the most suitable areas for seed multiplication, followed by the Lichinga area and the high land of Manica province (Tsetsera highlands).

The cost of production of table potatoes reported by farmers ranged from MZN<sup>8</sup> 55,000 to 100,000 /ha in Moamba, and from MZN 81,000 to 184,000 /ha in Manica. The farm gate price of table potato ranges from MZN 2.0 to 6.5 /kg in Angonia/Tsangano, MZN 3.0 to 4.8/kg in Lichinga, and from MZN 7.0 to 10.0 /kg in Moamba and Manica. The price of imported table potatoes in major cities varies from MZN 15.0 to 22.0 /kg. The price of seed imported from South Africa varies from MZN 20.5/kg in Moamba to MZN 29.0 /kg in Lichinga through Angonia while locally produced seed sells at MZN 15.0 /kg in Manica, MZN 5.5-6.0 /kg in Lichinga and MZN 7.0-9.0 /kg in Angonia/Tsangano. Based on the farm gate prices and yield levels reported by farmers, the total revenue per ha of potato crops ranges from MZN 30,000 in Lichinga to MZN 300,000 in Manica province.

Major constraints include non-availability and high cost of fertilizers, lack of quality seed at affordable price, lack of credits. Other constraints and threats to seed and table potato production include bacterial wilt that is present in all regions, late blight, viruses and ignorance of farmers on the benefits of planting quality seed and of crop husbandry and disease control.

### 7.2.1 Montesco

Montesco is a newly established seed multiplication farm located in Manica (Brouwer, Haverkort, Montsma, & Rothuis, 2013). AgDevCo participates in Montesco. The company multiplies HZPC varieties like Mondeal and Zafira. The intention is to import elite seed and plant in November, yielding 200 t of quality seed and 500 t of ware potatoes. After a few years annually 1,000 t of seed potatoes should be produced beside 1,500 t of ware potatoes (oversized seed potatoes). Montesco intends to train growers in other areas (Tsangano, Angonia) that may act as agents. Small holders cannot afford to buy large quantities of seed so it envisions to locate low temperature containers at such sites out of which small quantities can be purchased by small holders (Plomp, 2014).

### 7.2.2 Jacaranda Agricultura Ltd

Jacaranda Agricultura (Stier & Hansen, 2014) is located in the Chokwe area and imported seed potatoes from The Netherlands for the last three years. Their potato area is 30 ha to be expanded to 80 ha. Potatoes are lifted by a Turkish made windrower and are collected and graded by hand in three sizes and packed into 10 kg paper bags, a fourth grade is small and damaged but can also be sold at lower price; 25 t /ha is the current yield, used three varieties (Metro, Dido and Messi) but also

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<sup>8</sup> Exchange rate: EUR 1 ~ MZN 43 (April 2014)

planted BPI and Avalange from RSA. The larger the potatoes, the more expensive (> 75 mm, 50% is big: low number of tubers /plant); one receives a farm gate price of +/- USD 0,50 /kg (big potatoes MZN 270, medium MZN 150 and small MZN 160 /10 kg), all produce is destined for Maputo; potato production is profitable as a winter crop. Local out-growers are trained and involved. Jacaranda also produces goats, currently 1,000 to expand to 8,000. The company tried sweet potatoes but that was not a success because no market present, CIP is promoting the production of pink sweet potatoes, the company also tried tomatoes. Seed potatoes from Zimbabwe would cost USD 1.80 /kg delivered, RSA and NL seed potatoes at USD 0.85. Labour is at USD 3.00 /day; 15 people work 4 days to harvest 1 ha at 8 hrs/day. Chokwe region provides 21,000 ha of irrigation area but waterways are not maintained well; a lot of damage was caused by flooding.

### 7.2.3 Horta Boa

Horta Boa is probably the largest potato grower in Mozambique with 300 ha under cultivation in Moamba, some 200 km West of Maputo. There are several more large scale potato producers in this area. Horta Boa has leased from the District Government five 50 m<sup>3</sup> (total 250 m<sup>3</sup>) cold storage containers for the storage of potatoes (the price is 50% higher at Christmas, two months after harvesting) and of seed potatoes for the next growing season. Smallholders can also store there for a fee, but this is not yet happening much in practice. Horta Boa is interested to provide more storage and packing house services to smallholders (Heemskerk, 2014).

### 7.2.4 Agroplant (NL)

Agroplant is the third largest exporter of seed potatoes in The Netherlands (after HZPC and Agrico). The company sells a wide range of “free” varieties and has some own varieties. Agroplant has exported seed potatoes to Mozambique. The company has developed an interesting concept called “Qualituber”. This allows clients to procure mini-tubers of a certain variety, these are multiplied at a selected “clean” grower in The Netherlands, multiplied at the client’s site and then sold (to processors or fresh market). Agroplant has a serious interest in participating in potato handling chain development in Mozambique (Sepers, 2013).

### 7.2.5 Den Hartigh (NL)

Den Hartigh is also a Dutch seed potato breeder and exporter and very much interested in export to African destinations. The company sells some sturdy potato varieties that do very well under difficult conditions like heat and water stress. Especially the old variety Granola seems to outperform newer breeds (Eising, 2014)

### 7.2.6 HZPC (NL)

HZPC, the leading Dutch seed potato exporter, recently (re-)started exporting seed potatoes to Mozambique and works closely with Montesco (above) (Plomp, 2014)

### 7.2.7 Flevostar (NL)

Flevostar is a medium sized Dutch packer and trader in mainly ware potatoes, but also carrots and onions. Mr. Jaap Kodde (Kodde, 2013) is sole owner and managing director. Flevostar procures potatoes from local farms in Flevoland but also from other regions in the Netherlands. Potatoes are graded, washed, brushed and packed. Packing is in 2.5 and 5 kg poly bags, in 10 kg net or paper bags, in crates and in big bags. Clients are Dutch and international wholesalers. Flevostar features a business model that could be established in Mozambique. Flevostar received several delegations

from Africa in previous years, including Mozambique in 2013, usually accommodated by NIVAP and WUR.

### 7.3 Cassava

Cassava is an important staple crop for Mozambique, the total area is around 1.3 mln ha, second after corn. Sab Miller, the South African beer brewer, recently started brewing beer based on cassava in Mozambique. The beer, called Impala, tastes good and is 30% cheaper compared to malt beer. It is the first country in which SAB Miller produces cassava beer.

Cassava needs to be processed within 24 hours after harvest before it deteriorates. In a country with little infrastructure like Mozambique this complicates matters. Therefore SAB Miller entered in an agreement with Dutch DADTCO (Dutch Agriculture Development & Trading Company) in Mozambique.

#### 7.3.1 Dadtco (NL)

Dadtco developed a mobile cassava processing unit built on a 40ft truck trailer, the AMPU. The unit operates close to the cassava production fields and can be towed to another location when cassava harvest is finished to start processing cassava in a region that harvests later. The intermediate product is a cassava cake, sealed, that due to a fermentation process can be further processed up to 12 months after harvest. The cake can be used for brewing or cassava starch production. This solves the storage and logistic complications. Dadtco states to be the only company in Africa to have succeeded in developing and implementing sustainable, proven and profitable commercial cassava supply chains in Nigeria, Ghana and Mozambique with Zambia to follow. Import substitution of wheat and starch (derivatives) is considered to be an excellent business opportunity (Bolt, 2013).

#### 7.3.2 Cleanstar

Based in Dondo, Sofala Province, Cleanstar planned to produce 2 mln litres per year of an ethanol-based cooking gel from cassava supplied to the company by local farmers. The plant is a key part of the integrated food and energy business of CleanStar Mozambique, a company formed in 2010 by Novozymes<sup>9</sup> and CleanStar Ventures<sup>10</sup>.

The project is around USD 20 mln. Also participating is the Soros Development Fund with USD 6 mln. The Danish Industrialization Fund for Developing countries supplied USD 3 mln and Novozymes USD 1 mln.

Clean Star currently works with several hundred small-holder farmers to produce cassava and other agricultural commodities using conservation agriculture techniques that the University of Tennessee is assisting them with. Some of the funding for Clean Star comes from carbon credit markets.

The facility produces ethanol-based cooking gel for sale with the company's cookstoves in Mozambique's capital Maputo. CleanStar's "NDZiLO" cooking solution<sup>11</sup> should offer Mozambican households an affordable new form of cooking that is cleaner, faster and safer than using charcoal.

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<sup>9</sup> <http://www.novozymes.com/en/news/news-archive/Pages/CleanStar-Mozambique-launches-world%E2%80%99s-first-sustainable-cooking-fuel-facility.aspx>

<sup>10</sup> <http://www.cleanstarventures.com/>

<sup>11</sup> <http://ndzilo.com/>

Cleanstar seems to have difficulties sourcing sufficient Cassava to keep the plant running at an economically feasible level (J.Grob & T.Kirkbride, 2014).

## 8 Flowers

The production and distribution of cut flowers and ornamental plants is a neglected area of commerce in Mozambique. Domestic sales of cut flowers and ornamental plants are relatively weak and often dependent on imported products from neighbouring countries.

With the Mozambique economy on the up, demand for cut flowers, especially in urban communities, is growing significantly. Mozambicans are beginning to return to more conspicuous celebrations of formal occasions, like births, birthdays, weddings, funerals or even everyday house decoration. But flower supply side is still limited. Kenya, South Africa, Zimbabwe, Zambia, Ethiopia and Uganda have all expanded flower production.

Multiflora is Africa's largest flower auction and sells 300 mln flower stems per year from its premises in Johannesburg. Around 600 growers currently deliver flowers to be auctioned at Multiflora. Multiflora has suppliers from Zimbabwe, Zambia and as far north as Kenya and Ethiopia. The climate, especially further north, is very suitable for growing certain varieties. The more moderate climate makes it unnecessary for greenhouses and thus production costs are lower. In South Africa, however, expensive electricity tariffs push up production costs. Mozambique could become a supplier of Multiflora.

### 8.1 Roses

#### 8.1.1 Vilmar Roses

Vilmar Roses was setup in Messica between Manica and Chimoio in 2001 by Vilmar Investimentos Lda being an investment vehicle of Dutch flower company Flodac. It received a USD 650,000 grant and a EUR 1.8 mln Norsad loan (Saunders, 2006). Vilmar also received support by USAID. Advertising firm Young & Rubicam even developed a marketing campaign and brand identity. In 2003 Vilmar exported more than 4 mln roses from Mozambique to Europe and employed 250 people. The venture was taken over in 2004 by Farmarama and Lanichi and was terminated in 2005 for "undisclosed reasons". Flodac was taken over in 2010 by Vianen and continued under the name Flodac Vianen in the flower business.

Although this project proved to be a bad example of commercial rose production in Mozambique, it clearly demonstrated that rose production is physically possible in the Chimoio region. The introduction of new transport methods by container, as described in 8.1.2 might change the odds.

#### 8.1.2 Greenchainge (NL)

Plant breeders, growers and wholesalers, import and export, are working together in the Dutch GreenCHAINge project<sup>12</sup> to further increase the sustainability of transport flows. GreenCHAINge intends to stimulate sustainable logistical combinations in the international floricultural sector to reduce CO<sub>2</sub> emissions and lower transport costs. An important aspect is the switch from air freight to sea freight and from road transport to rail transport. Energy savings at international floriculture transport is an essential objective in this project. The Dutch Association of Wholesalers in Floricultural Products (VGB) coordinates and arranges practical tests in cooperation with horticultural

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<sup>12</sup> <http://www.greenchainge.com/>



network LTO Glaskracht Nederland and WUR. The project is being funded by the Netherlands Ministry of Economic Affairs.

GreenCHAINge targets for 2020 are:

- to have 40% of imports to Europe and 20% of export flows within Europe transported by sustainable logistical combinations, with the emphasis on rail and ship;
- to realize an annual reduction of 160 million kg in CO2 emissions for the (international) floricultural sector.

Dutch Minister Ploumen recently inaugurated the first flower shipment by sea container from Kenia to The Netherlands.

Sea transport of cut flowers like roses might pose new opportunities for Mozambique. Traditional transport by plane is too complicated and expensive because there are no nearby direct air connections to the world main markets and distribution centres, like to Aalsmeer near Schiphol. The Chimoio region seems to qualify best for flower production but the nearest airports with good connections are either Harare or Johannesburg, respectively at some 400 and 1,300 km distance. Using the mining railroads and container ports for containerised flower transport would constitute a new business model.

### 8.1.3 FloraHolland (NL)

FloraHolland is a cooperative organisation of flower growers. It is predominantly a sales and distribution organisation that has developed a strong international trading platform in the interest of its members (Kok, 2014). The combination of a market place and sales support services allows FloraHolland to support growers in doing business.

FloraHolland has the ambition to use its services to improve the market position of its members by:

- expanding an international service network to bring together supply and demand;
- adding value and strengthening distinctive qualities in the sales and marketing of flowers and plants;
- reinforcing the central position of the Dutch horticultural cluster in the international market;
- ensuring an efficient, capable and thriving organisation.

FloraHolland has an annual turnover of EUR 4.4 bln and employs 4,000 people. The cooperative has 5,000 associated members of which 600 from abroad. Direct and indirect employment within the sector provides 250,000 full-time jobs.

The Greenport, as the FloraHolland auction system is called, is, together with Schiphol airport and the port of Rotterdam, one of the three economic 'mainports' of the Netherlands. The Greenport is responsible for 20% of the Dutch trade surplus.

It is especially the rose production by Dutch producers that transport directly to final destinations in North America that might be of interest to Mozambique, this business represents a substantial value. Roses can only be produced around the equator at a certain altitude. FloraHolland intends to be part of this commercial chain and would be a suitable partner to develop flower production in Mozambique. Roses, and other cut flowers, are currently shipped by plane, but in the near future this will increasingly take place by conditioned atmosphere sea containers (see GreenCHAINge).

## 9 Feed and commodities

As stated above, Mozambique imports huge quantities of wheat (380,000 t), rice (350,000 t), maize (140,000 t) and soybean cake (111,000 t). Although maize is an important staple crop, the volume produced at a self-subsistence level is not enough to feed people and animals. Several companies are involved in promoting the production of commodities, some are traders working with out-growers, some are integrators that produce their own feed and others are corporate ventures that (intend to) produce for export. Mozambique relies on imports for all its domestic wheat requirements. Imports of rice account for about 75% of total domestic consumption and that of maize (mostly from South Africa) accounts for about 13% of total domestic consumption. As discussed above, Mozambique is a net importer of basic food commodities. The cereal deficit varies from 430,000 to 580,000 tonnes and is mainly composed of wheat (mostly imported from Argentina) and rice. Mozambique’s food insecurity problem is further exacerbated by the fact that the country is vulnerable to natural disasters such as cyclones, floods and droughts, which affect the total amount of food harvested and available almost every year (Biacuana, 2009).

Soybean is a fairly new crop in Mozambique, but agricultural and market scenarios suggest a high potential in the northern Zambezia and southern Niassa area of northern Mozambique, and in Manica and Tete provinces in central Mozambique. In both production areas, improved soybean production can strongly benefit from a local good demand of soybean sub-products and investments in new industrial units, and from already existing roads and railways linking to the important consumer markets of Beira in the centre and Nampula and Nacala in the north (Worldbank, 2012).

Soybean can be a good crop for Mozambique:

- it’s a legume (fixes N);
- high in protein to meet local protein demand;
- as a crop more tolerant to drought and acid soils than maize;
- fits well in a crop rotation scheme.

<b>Legumes Mozambique</b>	<b>ha, 2012</b>
Groundnut	315.000
Pigeonpea	190.000
Cowpea	126.000
Common bean	106.000
Soybean	15.000
<b>Total</b>	<b>752.000</b>

Source: ICRISAT

Major constraints to soybean production are many and diverse due to contrasting agro-ecologies and include the following (Monyo, 2013):

- Non-availability of improved varieties adapted to various production systems until recently;
- Lack of seeds for the farming communities;
- Lack of varieties resistant to foliar diseases such as rust;
- Inadequate N2 fixation of varieties due to non- availability of inoculants;
- Limited use of P fertilizers due to limited availability and high prices;
- Lack of organized seed production and delivery systems;
- Poor seed viability from one season to the next;
- Frequent drought in some regions;
- Weak market linkage with producers, processors and consumers.

**9.1 Feed**

### 9.1.1 NMI Group

The South African NMI Group is a holding entity that manages a portfolio of investments in wheat and maize milling, animal feed, pasta, biscuits, sugar and poultry. NMI is a major supplier of staple food and animal feed in the southern African region and employs nearly 3,000 people in South Africa, Namibia, Botswana, Swaziland and Mozambique.

In Mozambique the NMI Group operates Companhia Industrial da Matola (CIM), based Matola. It is the largest local food producing company in Mozambique. The company produces wheat flour, maize meal, pasta and biscuit. It also produces animal feed under the brand names CIM and Madrugador.

CIM employs more than 750 people throughout Mozambique and sells its products through a national distribution network consisting of 7 depots and a large number of agents. In addition to the company's facilities in Matola, CIM also operates a maize and wheat mill in Beira and has a controlling interest in CIMPAN, a maize mill situated in Nampula in northern Mozambique. CIM Feeds is also involved in broiler and egg production.

### 9.1.2 Koudijs Brokking De Heus (NL)

DeHeus is the largest privately held animal feed company in The Netherlands (EUR 2 bln turnover). ForFarmers (EUR 7 bln) and Agrifirm (ER 3 bln) are larger but cooperatives. DeHeus acquired Koudijs and since then owns 5 feed plants in South Africa. DeHeus has, so far, no investment plans in Mozambique but considers it an export destination from RSA, apparently for pre-mixes and concentrates (Schimmel, 2013). Koudijs has been in touch with Novos Horizontes however, the poultry integration, which might offer an opportunity.

## 9.2 Commodities

### 9.2.1 DECA Ltd

DECA is an Agriterra investment based in Chimoio in Manica Province, it was founded in 2005 to handle and process corn. The Company purchases maize directly from thousands of local smallholder farmers, whereby Agriterra provides the necessary infrastructure at specific buying points across the Chimoio region.

Local farmers bring their produce to these designated points and are paid cash directly by DECA. In Chimoio the corn is dried, fumigated, prepared and processed into maize meal, a key staple food in the region and country as a whole. The corn bran is used throughout the region as livestock feed. DECA is quite a strong brand and provides a market outlet for some 350,000 farmers.

### 9.2.2 Compagri Ltd

Compagri is also an Agriterra investment and was established in 2009 in Tete, some 400km North of Chimoio, as a second agricultural buying and processing facility in Mozambique for Agriterra.

As at Chimoio, operations at Tete are focussed on the purchase of maize from out-growers, which is then processed into corn flour/maize meal. The current total storage capacity for maize at the facility is 15,000 tonnes. The company owns a 80 truck transport fleet.

DECA and Compagri had combined total revenues of USD 15.6 mln in 2013, up from USD 9.7 mln in 2012.

### 9.2.3 JFS holding

JFS was established in 1897 and has activities in agriculture. Companhia Agricola JFS exploits 200 ha sisal and through Sociedade Algodoeira do Niassa the Company exploits a cotton ginning plant with capacity of 30,000 t /yr, over 15% of the national production level.

### 9.2.4 ECA Smallholder

Mr. Grant Taylor that set up ECA (Empresa de Comercializacao Agricola) near Chimoio. It is very successful in operating with some 2,500 out-growers on maize and higher value crops such as sesame, sorghum, soya, cow peas, and sugar beans. ECA intends to enter the groundnut business.

ECA aims to provide small holders with extension services, agricultural inputs (fertilizer, improved seed and insecticides) and access to markets. By directly marketing their commodities ECA can offer crop prices which are higher than those offered by local traders. ECA expressed a keen interest in working on conservation agriculture. ECA is working with a local bank to provide group loans to farmers to enable them to pay for their inputs.

### 9.2.5 V&M Grain

Owned by a Dutchman (Vonk, 2014), V&M grain has been present in Mozambique for 25 years and is currently based in Chokwe. V&M trades commodities, both domestically and export. Associated to the company owner is a restaurant in Chimoio, a honey project, honey wine production and a catering business. V&M is involved in a joint venture with Bunge. Downstream integration might offer opportunities (feed, broilers, pork, etc). V&M sees good perspectives for a food security project with Bunge, operating silo's and managing distribution of corn and wheat; all wheat is currently imported.

### 9.2.6 Rei do Agro

Aslan through Aslan Group Africa set up Rei do Agro in Nampula with a DUAT for around 2,500 ha but so far only cleared some 250 ha; RdA intends to acquire another 10,000 ha for mainly soybean production. The farm will also produce corn, wheat, barley and sunflower. Rei do Agro provides feed raw material to the larger poultry integrations in the North.

### 9.2.7 Hoyo-Hoyo Agribusiness

Quifel Natural Resources, a BXR investment vehicle, through its subsidiary Hoyo-Hoyo Agribusiness set up farming sunflower, sesame and soybeans and also some potatoes near the village of Ruasse (Zambezia province). H-H managed to acquire the best land around. The company has a dubious reputation in dealing with the locals; Rei do Agro is performing well to this respect.

### 9.2.8 Corridor Agro

Corridor Agro (CA) has completed four seasons and is mainly a company buying grain and oilseeds from contract producers. CA works with 1,850 farmers in Iapala, Ribaué (Cabo Delgado province), that together grow 500 ha of soya and 400 ha of sesame. Both sesame and soya production require quite some skills from the farmer. There is for instance only a two week window for planting and one week for harvesting.

Most Corridor farmers are small and produce on contract; Corridor provides high quality seeds treated with insecticide and fungicide plus extension services. Corridor is trying to move to larger farmers. In Iapala, 300 of its contract farmers have more than 1 ha and 30 have more than 4 ha. Larger farmers receive land preparation, seed, fertiliser, crop protection, and sometimes loans for weeding. Corridor owns four tractors and ploughed 240 ha last season.

The other area where Corridor is active is Namialo (Nampula province), where the land is not very suitable for soya. For the 2012/13 season it worked with 136 out-growers with 1 to 10 ha each. They did 100 ha of Zimbabwean hybrid maize, 100 ha of sesame and 100 ha of mung beans (feijão holoco). Mung beans and sesame make a good intercrop. Corridor is also moving into cassava for Dadtco and out-growers produced it on 10 ha.

Corridor figures suggest that its farmers should have gross revenues of MZN 15,000 to 30,000 (USD 500 to 1,000) /ha, of which 30% to 50% are operating costs for soil preparation, seed and weeding. Farmers are extremely reluctant to take on debt and most don't use fertiliser and inoculants (for soya); some skip weeding, even though the profitability is clear.

CA did two experiments with block farming. Promoted since the 1970's, block farming involves adjoining farmers have their land ploughed all at once, having extensionists monitor the whole block during the season, and all harvesting and selling at the same time, although each group member keeps their own land and sells their own crop. Handling a block is clearly more efficient, but peasant farmers are rarely willing to cooperate in this way

Corridor is doing some farming on its own land in Namialo but complains about the very high cost of, for instance, an electricity connection. The state company Electricidade de Moçambique (EDM) charges Corridor MZN 8 mln (USD 250,000) for a 10 km electricity connection. Although EDM has a lower tariff for agriculture, the connection cost is so high that Corridor is continuing to use a much more expensive diesel generator (Hanlon & Smart, 2013).

### 9.2.9 Trade Development Group

The Dutch Global Trading & Agency<sup>13</sup> set up the Trade & Development Group (TDG) processing and trading cashew and macadamia nuts, active in Nampula. TDG, owned by the Klijn family, also operates within RSA, Benin and Burkina Faso. A venture into tea, vegetable oils, palm kernels and palm oil proved to be complicated. The Klijn family started with cashew in Mozambique some 20 years ago and was very successful, postponed business in Mozambique a few years ago but is picking up again.

The three major processing and export countries of raw cashew nuts (RCN) are India, Vietnam and Brazil. India is the largest kernel-exporting country. However, India's position as an exporter is in decline, as the domestic market is increasingly taking up the ready product, so demand for RCN remains high (Plaat, 2012). RCN is processed and roasted into the ready cashew nuts, which are marketed in the US, Europe, India, North Africa and increasingly in China.

Although African producers have overtaken India's position as a producer of RCN, India's ability to trade, sort, process and export is still dominant. The processing companies recently established in African countries are often owned by Indian companies.

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<sup>13</sup> <http://www.globaltrading.nl/>

Also intensively involved in cashew processing in Mozambique was Minkjan BV. The purpose of this intervention was to not only process the cashew nut, but also the apple. This would add to the returns of a cashew processing operation and make the project as such more sustainable. It happened to be very difficult to get farmers organized in first and second tier cooperatives, which was a sub-objective. Commitment of farmers was very low. Technology to process the cashew nut and apple is available (Minkjan, 2014).

#### 9.2.10 Intersnack (NL)

Intersnack Nederland is part of the Intersnack Group, an European supplier of savoury snacks, nuts and related products, such as peanut butter. It has production sites throughout Europe. The Intersnack Group was formed in 2008 as a result of a merger between Intersnack and The Nut Company. Intersnack Nederland supplies an extensive range of savoury snacks, nuts and peanut butter. These products are sold both under its own brands, such as Jack Klijn, Pom Bär, Millies and Chio, as well as under private labels. Intersnack Nederland also supplies a wide range of semi-finished products for the food industry. Total turnover of Intersnack is EUR 2.3 bln, the company is headquartered in Dusseldorf, Germany.

Intersnack is already involved in a cashew project in Nampula but expects the most of ground nut production. Intersnack buys ground nuts from Annona (investment fund, see below) investments in Bolivia and has a dedicated sourcing officer for Africa. Intersnack has a profound interest to expand its sourcing base and is therefore very keen on cooperation with nut producing ventures in Africa, more specifically Mozambique (Schipper, 2014).

#### 9.2.11 Export Trading Group

The Export Trading Group<sup>14</sup> (ETG) was first established in Kenya and is now based in Cotonou (Benin) and currently has two cashew processing plants in Mozambique and Tanzania. Cashews are packed and marketed under the “Koroshu” brand in Europe, North America and the Middle East. ETG will be further investing in cashew processing plants in West Africa.

ETG was founded in 1967 and purchased by its current directors in 1986 and manages the most vertically integrated agriculture supply chain on the African subcontinent with operations in procurement, processing, warehousing, distribution and merchandising. In addition to ETG’s presence in more than 30 African countries, it is actively present in North America, India, China and South East Asia.

By owning and managing the supply chain from start to finish, ETG is able to move agricultural commodities between regions, strategically matching one area’s market origination capabilities with consumption patterns in another. ETG has the capacity to store commodities close to their origin for extended periods of time and controls transport and logistics. In 2012, almost 1.4 mln t of 25 different commodities (maize, pulses, wheat, rice, sugar, oilseeds, edible nuts, coffee, tea, fertiliser and farm implements) were handled by ETG. ETG has invested over USD 150 mln during the last decade.

#### 9.2.12 Cargill

Cargill presumably has one person active in Mozambique and intervenes in local commodity trading. The local office was established in Beira in 2013. The company invested USD 2.3 mln in a three-year

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<sup>14</sup> <http://www.etgworld.com/>

partnership with the Aga Khan Foundation (AKF) to provide support for the Bilibiza Agriculture Institute, the only full secondary vocational school for agriculture in Cabo Delgado. Cargill has also provided USD 180,000 to Swiss based ASED, towards supporting two vocational schools in the country, one is a dual education agricultural school in Mecuburi and the other a carpentry school in Marrere.

### 9.2.13 Messica Irrigation Project: rice

The Messica Irrigation Project (MIPP) might result in a rice production revival (Moor, 2014). The main objective would be to set up 3,000 ha of rice production and also aquaculture (Chokwe area). The project is managed by Alterra and is part of PROIRRI program (Government of Mozambique and Worldbank), also involved are KIT, Royal Haskoning DHV, Vitens and two local institutes.

Rice production in Mozambique was seriously hampered by flooding in the Chokwe region. In this region there is some 25,000 t irrigable land available, a project that was developed by the Portuguese in the early fifties. There are currently 3 large rice mills present in Mozambique (Elmont, 2014). The best is the MIA (Mocfer, Mozfood) rice mill, with fine equipment: Buhler; 3 to 4 t/hr. Another rice mill belongs to EOZ (Empresa Orizicola de Zambezia) with capacity of 2 to 3 t/hr near Quelimane, Zambezia (Chinese equipment of low quality) and there is another one with capacity of 5 t/hr.

Ubunto (Mozambican company) together with the Libian state investment vehicle LAP wanted to set up 5,000 ha integrated rice project near Matutuine but this did not materialize.

Problems with previous rice project were: rice import at rather low price, politics, corruption, and mismanagement. Production of a specialty rice for export to Europe might offer an opportunity; spicy rice like basmati. Many African rice varieties are more spicy, compared to the neutral taste of Surinam rice.

### 9.2.14 GADCO

GADCO is a rice producing company in Ghana. It grows paddy rice on 1,600 ha and collects two harvests per year. GADCO seems to be one of the few profit making large agri ventures in Africa, which makes it relevant for this report. Hedge fund Summit Capital participated in Gadco for around USD 15 mln making a 40% return. The next phase should be and USD 100 mln investment in five more African countries, including Mozambique.

Mr. Toks Ambiola, Nigerian, former London banker and initiator of Gadco states: "Africa is littered with failed rice projects. These have mostly been piloted by the state, aided by foreign experts and investors, and abetted by development agencies. If past projects have failed, or struggled, it has often been because managers underestimated capital costs. Typically credit starts slowing, drying up or disappearing through mismanagement, before farms can reach the scale necessary to become profitable. The Gadco model is profit-driven but designed to deliver development gains to local communities, through a share in the core farm profits and a small holder outreach program. With proper capital structuring proper partnerships and robust entrepreneurs ready to bust a gut for a few years, you can get this rice on the road".<sup>15</sup>

### 9.2.15 Aquifer Limited: groundnut

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<sup>15</sup> Financial Times: <http://www.ft.com/home/europe>



Aquifer Limited, also financing MozFoods, has shown a serious interest in getting involved in peanut production in the Zambezi Valley region.

The commercial production and processing of groundnut in Mozambique has been elaborated with Dutch support (Jellema, 2014). The most challenging issue is the occurrence of aflatoxine, caused by a fungus during field period and storage. What should and can be done is: cleaning, grading, sorting and remove aflatoxine infested peanuts. Usually there is no aflatoxine in oil but there is in cake (through cake it gets in feed, and subsequently in meat and milk).

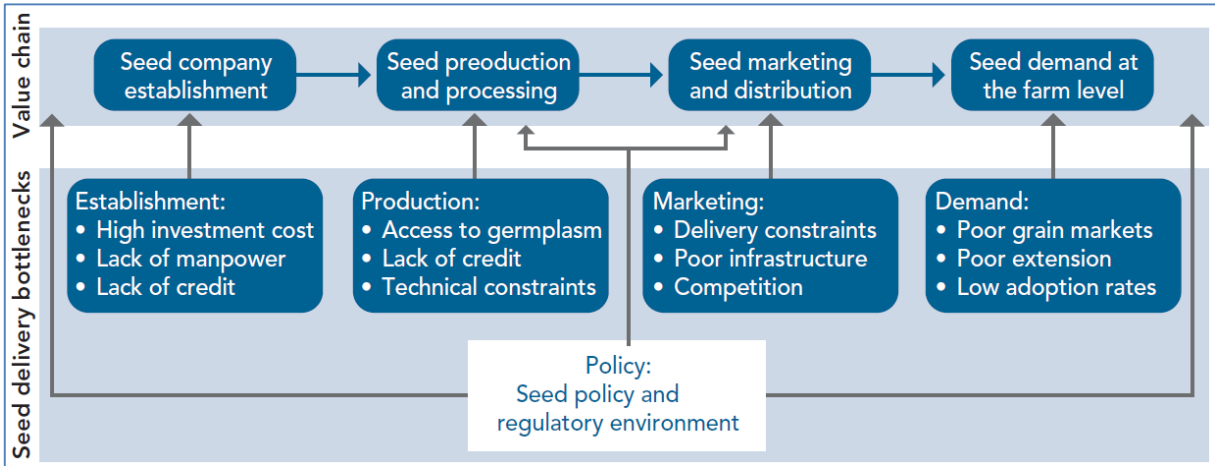
Price of peanuts is stable and attractive, peanuts originating from the US are the larger and more expensive ones and yield USD 800 /t; Argentine peanuts are smaller, these would sell at USD 600 /t (mainly for processing). Also is also possible to produce a “borrelnoot” by using concrete mixer, quite simple, additives are flour based, mixed with spices. RSA peanut processor SA Groundnut (jv Nadal Sarl) started but went broke in Mozambique. Intersnack, also working with Annona, might be an interesting partner for groundnut export.

**10 Seed sector<sup>16</sup>**

The seed sector in Mozambique is characterized by a variety of seed systems (W.Heemskerk, G.Borman, I.Muocha, A.Manjate, & W.Kleijn, 2014). Farmers presently make use of a range of different sources for seed, each with its own characteristics.

Farmers may source seed of traditional and locally important food crops, like sorghum or millet, from their own harvest or from a neighbour, whereas quality maize seed may be more readily available from the nearest agrodealer. Even the source of maize hybrid varieties may differ from that of open pollinated, each produced under different conditions and through different value chains. Farmers may also opt to purchase certified seed once in a few years and recycle this seed in the meantime as the costs involved are not insignificant.

Farmer strategies for accessing seed are also variable from one purpose to another, such as multiplication for more seed or grain, and whether that is for local consumption or for the market.



Major bottlenecks along the seed value chain (source: Growing Afrika / WB)

Access to seed in the formal sector can be improved through a trusted relation between quality and price, which can be further enhanced by quality inspection services and enhanced competition without disruptive subsidies. Access to seed in the informal sector through local trade (accounting for

<sup>16</sup> Partly elaborated by mr. Willem Heemskerk / KIT

up to 27% in the Central Region) displays the unrealized opportunity for enhanced local seed business, based on existing local initiatives.

Seed systems does not only differ per crop but also per region, nationally only 10% of the farmers use improved maize seed, while this is much higher in Manica (29 %). Yet the figures in the central region are much lower for other crops such as groundnuts (4%), and rice (2%).

The challenge for the seed sector is twofold:

- How to improve the access to quality seed, notably for those farmers who are already trading seed (which accounts for as much as 32% of total seed available), which provides in fact a major market opportunity for quality affordable seed;
- How to increase the number of farmers having access to seed of improved varieties through whatever system possible. The amount of seed used of improved varieties (farm/saved, traded or bought) is currently very low at 2-5%; except for maize (10 %).

Many farmers that trade seed (bartering, exchanging or buying) acquire seed of local varieties rather than seed of improved varieties (Heemskerk, 2014).

This is a major market opportunity, farmers are interested in acquiring seed. This effective farmer demand should be addressed through a diversity of seed systems. Over-all productivity, food security and household income can be improved this way.



Phoenix seed trials (Agrix)

### 10.1.1 Phoenix Seed

Phoenix Seed (PS) is an AgDevCo participation and operates an area of 500 ha. With 60 ha under tabaco it is the largest tabaco producer of Mozambique (Gifford, 2014). PS multiplies and produces seed for maize, soybean, sunflower, cowpea, sugarsnaps, lablab and legumes. PS works intensively with out-growers. The owner lost all of his property when he was expropriated in Zimbabwe in 2004, crossed border and was one of the few Zimbabweans to succeed.

All of his crops are open field and drip irrigation is being applied on all crops; erosion is a severe problem. Tobacco is the main crop, it yields USD 100,000 /yr net. PS is very interested in cooperation with Dutch seed exporters to act as importer and distributor. PS operates on a Duat from a Mozambican national which is not transferrable. The DUAT procedures need to start all over again when transferring land rights to someone else; a typical annual Duat fee would be USD 2 /ha. PS sees opportunities for small vegetable processing and catering, including potatoes and onions. PS's labor

costs are USD 3.50 /day. Total production was initially 100 – 140 t of seed /yr but currently PS is producing 750 t seed /yr.

The relatively strong labor unions have sometimes prevented workers to harvest on a bank holiday. Laborers themselves wanted to work, to earn a living, but were actively stopped by labor unionists.

### 10.1.2 Lozane Farms

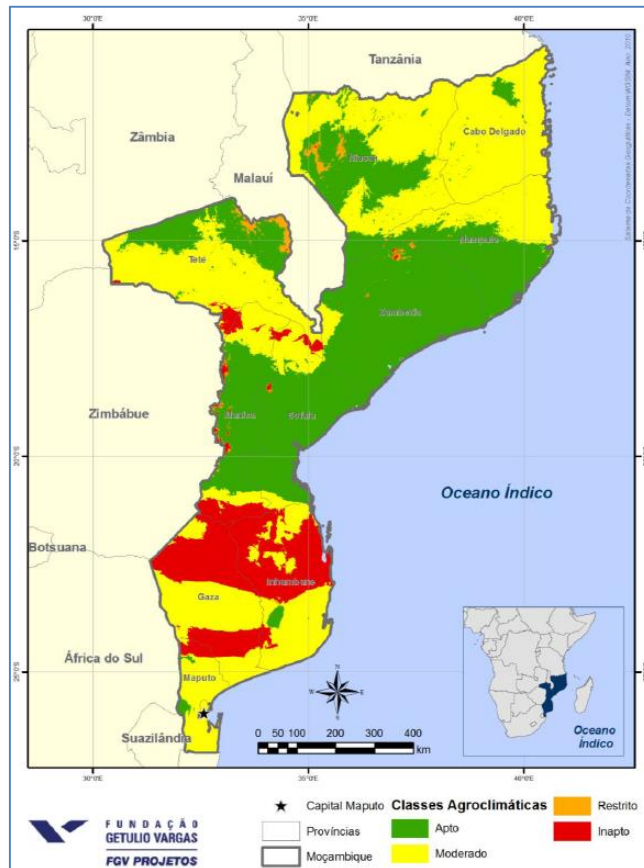
The Lozane project (LF) consists of three farms<sup>17</sup>, one in the Boane area, Maputo Province 30 ha under irrigation (out of the Umbulezi river), the other two farms are in the Alto Molocue District of the Zambézia Province with 100 ha arable land and the aim to clear another 100 ha per year upto 1,250 ha. The aim of the project is to produce two and a half seasons of seed and horticultural crops per year, cowpeas, sorghum, maize, soya beans, garlic, tomatoes, mushrooms, sweet-potato orange flesh variety, sugar beans, fruits and vegetables for the seed and vegetable market in Mozambique. LF is quite diversified, the company is also in pork, cattle and goats. LF is funded by USAID / AgriFuturo, Agra and TechnoServe.

## 11 Biofuel

The Mozambican government has developed a liquid biofuel strategy in which four biofuel crops were selected: sugar cane and sweet sorghum for bioethanol production and coconut and jatropha for biodiesel. In addition, a land zoning assessment was undertaken to indicate which land is available for agricultural projects including cultivation of biofuel crops. This land zoning assessment was very detailed and executed by FGV Projetos and co-financed by Brazilian mining company Vale S/A (FGV, 2011). The study included climate, soil characteristics, longitude and latitude and connected these to the requirements of a selected group of crops (see example below).

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<sup>17</sup> <http://lozane farms.wozaonline.co.za/>



Agronomic conditions suitable for sugarcane production (Source: FGV)

From 2008-2010, 25 large biofuel projects submitted investment proposals to the Centre for the Promotion of Agriculture (CEPAGRI) representing some 300,000 ha. The bulk of the requests was submitted in 2008. At present, less than a quarter of the projects has formally been approved for biofuel projects (approximately 30,000ha for both sugar cane ethanol and jatropha biodiesel). Estimates are however that less than 10,000 ha has actually been planted (Bos & others, 2011). The Jatropha hype seems to be over and yielded little result.

Current producers of biofuel in Mozambique are (Vissers & others, 2014):

1. CleanStar Mozambique (cassava for food and ethanol production) Dondo, Sofala Province;
2. NiQel (jatropha production) Grudja, Sofala Province;
3. Grown Energy Zambeze (sugar cane for ethanol production) Chemba, Sofala Province
4. Companhia de Sena (sugar cane for sugar production) Marromeu, Sofala Province
5. Moçamgalp (jatropha production) Macuba, Zambezia Province
6. Olimax (coconut for food, cosmetics and biodiesel production) Maxixe, Inhambane Province
7. SAB Moçambique (jatropha production) Panda, Inhambane
8. Tongaat Hulett (sugar cane for sugar production) Xinavane (Maputo province) and Mafambisse (Sofala Province)
9. Agronegocios (jatropha outgrower production) Cabo Delgado Province
10. AVIAM (jatropha)-Nacala (Nampula Province)
11. Buzi (ethanol distillery) Buzi, Sofala Province
12. ECOMOZ/Petromoc (blending facility)-Maputo Province
13. Luambala Jatropa (jatropha production) Majune, Niassa Province
14. Maragra (sugar cane for sugar production) Manhiça, Maputo Province
15. Mozambique Biofuel Industry (Beet root production), Zambezia province

Most of these companies are experiencing startup problems and production is still at a low level.

## 12 Large scale agricultural investments

On the issue of large scale versus small scale investments in agriculture in Africa a lot of literature is available. The Worldbank recently published a report titled: “The practice of responsible investment principles in larger-scale agricultural investments, Implications for corporate performance and impact on local communities” (Worldbank, 2014).

The key lessons for investors as presented by this report are listed below. It is quite intriguing that there happens to be a positive correlation between the financial outcome of an investment project and local community involvement.

### *Consultations and ongoing dialogue with local communities*

- Consultations were a key step in developing a strong relationship with local communities. This generated more positive socioeconomic outcomes and was in the interests of investor because it
- contributed to financial and operational success, in particular by minimizing the risk of land disputes;
- Initial consultations were time consuming and expensive, particularly for new investments;
- Consultations were most effective when investors took primary responsibility for their conduct, “outsourcing” of the process to host governments or land agents led to poor outcomes;
- Formally established procedures through which stakeholders could raise grievances and seek redress contributed to better relations with local communities.

### *Land rights and resettlement*

- Many investors were expending significant resources dealing with disputes over access to land. The risk of this can be minimized through full and early assessment and consultation of existing rights
- to and usage of the land, formal and informal;
- It can be perilous for the investor to assume that the land acquired is being provided by the government without any existing land disputes;
- Some investors found that the best solution with regard to resettlement was to leave communities in situ and work with or around them, rather than undertaking difficult resettlement procedures;
- When resettlement did occur, it was conducted through a formal, transparent, inclusive, consultative process;
- Failure to develop the land in accordance with expectations was a significant source of tension between investors, local communities, and host governments. It is important to set expectations through the consultation process.

### *Due diligence and business planning*

- Business plans provided by host government were often based on unrealistic assumptions and substandard assessments of crop suitability and other environmental factors;
- Findings from impact assessments and community consultations were not incorporated into business plans, leading to problems developing the project which could have been foreseen;
- Some investors had success in phasing their investment. That is, obtaining a small land area initially and only seeking more land once the first allocation is running successfully. This is particularly
- suitable for new business models, crops, or techniques.

### *Environmental impact*

- When environmental impact assessments were conducted on the investor's behalf by host governments or land agents, this led to poor outcomes. The conduct of impact assessments should be primarily the responsibility of investors;
- Impact assessments were too often "box-ticking" exercises, not translated into environmental management plans which are actively incorporated into the conduct of the business;
- More assessment and monitoring is needed of the impact of the investment on water resources.

### *Employment*

- There is pressure to employ local people and doing so contributes to better working relationships. But it can be challenging due to a skills gap. Training programs which help integrate local communities into the workforce should be considered;
- Some investors were paying inadequate wages and offering unacceptable working conditions, leading to tension between staff and the investor. There was a gender imbalance at most investments which should be addressed.

### *Social development programs and financially inclusive business models*

- Social or rural development initiatives produced better outcomes if they were agreed through an inclusive, consultative approach to gain an understanding of local development visions;
- Financially inclusive business models have been successful in forging partnerships with local communities.

### *Out-grower schemes*

- Out-grower schemes were most successful when the business model was resolved before out-growers were introduced;
- A lack of transparency and inclusivity of out-growers in the pricing mechanisms for their crops hindered the successful operation of out-grower schemes;
- Marginalized groups, including women, were less likely to participate in out-grower schemes. Consideration should be given to how to improve access for these groups.

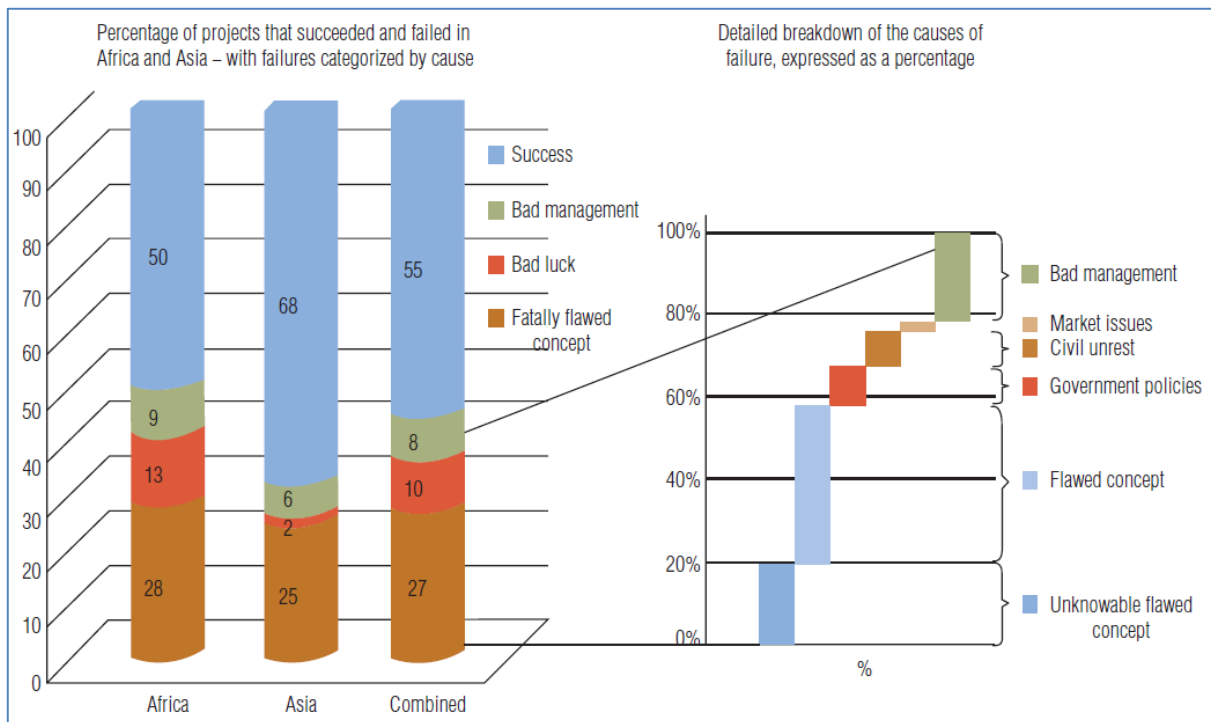
### *Food security*

- The main positive contribution most investors made to food security was through direct employment and out-grower schemes. But wages for employees and prices for out-growers must be sufficient
- to support an adequate standard of living;
- The main negative contribution was through reduced access to land. The investor should ensure that its operations are not detrimental to existing sources of food security.

### *Transparency*

- A lack of transparency can generate fear and uncertainty about investor intentions and also open the door for unfounded criticism. Investors should consider making more information publicly available.

A report published by FAO in 2013 (FAO, 2013) reached to the same conclusions as the above mentioned Worldbank publication.



The Commonwealth Development Corporation (CDC) recently published an analyses of its investments in agriculture in both Asia and Africa (Tyler & Dixie, 2013). Although African projects were overall less successful than Asian ones, the most significant difference was between generating sensible equity returns. Only 26% were classified as “success” or “moderate success” in Africa compared with 44% in Asia. Yet 48% of African investments ultimately achieved long-term financial viability and 70% delivered long term economic benefits.

Many of these long term benefits reflect enterprises which CDC developed and which achieved positive cash flows. They nevertheless went on to be sold to new owners at a discount to CDC’s capital cost either because earnings were low or the price/earnings ratio was low owing to perceived high country and/or sector risks. Examples include eucalyptus plantations in Swaziland (Shiselweni), tea estates in Tanzania (Euteco and Tanwat), rubber estates in Nigeria (Illushin), and mixed tobacco/arable/coffee estates in Malawi (Sable/Kawalazi farming group). There were also examples of private sector projects in which CDC’s loans were repaid by parent companies to avoid insolvency of a subsidiary. Although these projects had achieved positive cash flows, the cash flows were not sufficient to service the debt, for example, Sugar Corporation of Uganda Limited (SCOUL) and rubber in Malawi (Vizara).

To have a chance of success, CDC’s experience in both regions demonstrated the advantages of a diversified portfolio (by country, product, and market) and a long-term perspective (holding on during the bad-times) only quitting in extremis.

## 12.1 FGV Projetos and ProSavana

FGV is on behalf of the Brazilian government involved in the development of the ProSavana project, a tripartite venture between Brazil, Japan and Mozambique to develop large scale agriculture in the Northern provinces of Niassa (bordering lake Malawi) and Nampula. Especially Niassa is interesting because of a relative low population density and very good soils and abundant water. The Mozambican FDA or Agrarian Development Fund acts as a local partner. FGV is the reputed Brazilian equivalent of Dutch LEI / CPB. In Niassa corridor there is some 12 mln ha of good land available,



ProSavanna focusses on 250, 000 ha in Niassa and Nampula; in Nampula it will be difficult to allocate 10,000 ha connected.

Within ProSavanna all three partners fund their own activities. FGV was responsible for 1) improvement of research capacity of Mozambican institutions, 2) development of a masterplan and 3) improve technical assistance and rural extension. The Nacala Corridor Fund (NCF) was set up by FGV, and is registered in Luxemburg, to facilitate private and public investment in the ProSavanna project. The NCF will participate in an operating company called Mozil. Mozil has three areas of operation: 1) inputs (seeds/agrochemicals/fertilizers), 2) primary agriculture and 3) logistics and trade. NCF will consist of a Mozambican Investment Fund and a Global Investment Fund (GIF). To ensure transfer of technology each selected Brazilian farmer will cooperate with 5 selected Mozambican farmers, there will be 10 of such partnerships so 50 Mozambican farmers will join the program. Annual production is estimated at 540,000 t of soy bean and 400,000 t of corn. Rice and cotton will also be included. Banco do Brasil and Japanese Mitsui Banking will guarantee loans. Brazilian Exim Bank would also be involved.

ProSavanna will make use of the railway as constructed by the Brazilian Vale mining company to connect their Tete facilities to Nacala port and that runs through Malawi and Niassa. Production costs in Mozambique supposedly are 25% of that of Brazil, expected return is 17%, conservative because returns on Brazilian large scale agriculture are well above 20%.

### 13 EKN intervention in agrifood Mozambique<sup>18</sup>

The Embassy of the Kingdom of The Netherlands (EKN) is heavily involved in development aid to Mozambique (as stated, Mozambique depends for around 40% of its GDP on development aid). The total EKN budget for the period 2014 to 2017 is EUR 132 mln, of which EUR 36 mln destined for improved food security. Another EUR 33 mln is destined for water management but the larger part will be spent on stopping the spread of HIV/AIDS.

Several constraints on agricultural production prevail in Mozambique, according to EKN. Smallholder farmers have no secure land rights which affects long term investments. An initially strong political commitment to pro-poor land reform, expressed in the innovative land law, is being challenged by policy makers who want to make quick gains, neglecting community land rights. Limited access to improved seeds, extension services and fertilizer furthermore hinder production and market chain development. Lack of enabling infrastructure contributes to the stagnation of agricultural development.

Another complicating factor is the involvement of the political elite in food imports and the seed market, which is not conducive for private development. Risk-adverse finance providers are hindering access to capital and financial services. The Mozambican Government promotes large scale investments which contribute to the development of the macro-economy. But these are not focused on inclusive development that would support the small- and medium sized agricultural enterprise sector (EKN Maputo, 2014).

The government promotes investment in selected staple food crops (maize, rice, grain, beans, cassava, potatoes, sweet-potatoes and tomatoes) and a number of cash crops (cashew, cotton, soya, sesame and tobacco).

EKN Mozambique distinguishes four different agricultural production models in Mozambique:

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<sup>18</sup> Netherlands Embassy Maputo-Mozambique multi-annual strategic plan (MASP) 2014-2017

- Large scale farms, often foreign investments, with contract labor (e.g. rice production with Chinese investments in the Limpopo delta);
- Large scale farms with own production areas, combined with out-grower production (e.g. sugar cane production in the Incomati delta);
- Cooperative landownership and production through in-growers (e.g. rice production in the Licungo basin);
- SMEs with out-growers (Empresa de Commercializacao Agricola in the Beira Corridor).

According to EKN the cooperative and SME model offer best options for inclusive development. The implementation of the Mozambican agricultural strategy may offer entries for enhancing the trade and investment relations with the agrifood and horticulture Top sectors of the Netherlands.

At present only few Netherlands small and medium enterprises, knowledge and financial institutions operate in the Mozambican agrifood sector.

Several Dutch embassy programs and Dutch central instruments offer good links for trade opportunities. Support to the National Directorate for Land and Forest and the Foundation for Community Land presents an opportunity to further support secure land rights for women- and other smallholder farmers and their incorporation in investment plans. Dutch companies are well placed to become involved in sustainable agriculture/horticulture value chains. Knowledge of local multiplication of seed potatoes and horticulture seeds is absent; parallel with import from the Netherlands, pilots can be executed to gain experience with local production conditions.

The EKN agrifood strategy will continue to be directed to obtain results in:

- Increase of sustainable food production;
- Better access to nutritious food;
- Efficient, inclusive markets;
- Improved business climate.

The selected EKN strategic agrifood partners area;

- The Zambezi Valley Development Agency (ZVDA);
- The Beira Agricultural Growth Corridor (BAGC);
- Technoserve;
- The National Directorate for Land and Forest (DNTF);
- ORAM;
- The National Institute for Social Action (INAS).


The BAGC Partnership (government-donors-private sector) invests in essential infrastructure measures, improving the business climate. EKN co-financed the first phase of the BAGC with USD 8 mln. In 2014 a new 4 year cooperation phase with the BAGC will be signed to capitalize its Catalytic Fund (CF) that supports starting agribusinesses (managed by AgDevCo), which should also benefit Dutch investors. In the CF there are around 20 investments with a max participation by the fund of USD 1 mln per venture (see paragraph 13.2).

The ZVDA's main task is to attract investment (FDI, grants, soft loans, non-concessional borrowing) for development of the Zambezi Valley, involving Dutch organizations as stated in the MoU. By 2017 the ZVDA will have established itself and generate its own income. Dutch support will gradually phase out and be replaced with non-ODA and (Dutch) investment funding. EKN supports ZVDA with an extended capacity building program (see paragraph 13.1).

Technoserve is an NGO supporting value chain development in promising food and cash crops. It is brokering interesting local partnerships with banks and other service providers. In 2016 a new cooperation phase will be started with Technoserve. The focus thereof also depends on interest from Dutch partners (see paragraph 14.13)

The support to the National Land and Forest Directorate (DNFT) on land rights, essential for inclusive growth, has started in 2013. DNFT will receive support to develop and manage the land reform process. The, to be established, Foundation for Community Land will prepare communities and associations to enter into agreements with investors. The embassy will co-fund the Foundation starting in 2014.

In 2013 the AECF Renewable Energy and Adaptation to Climate Technologies (REACT) window was started in Mozambique. After the first tender 25 companies (including Dutch entrepreneurs) were invited to submit business plans for selection for the matching funding available from the AECF REACT program. This provides an interesting and valuable financing source, additional to the BAGC Catalytic Fund that works with small starting entrepreneurs. The embassy foresees a continuation of this program as from 2016 for a period of 4 years (see paragraph 14.22).

<b>Provinces Covered by Corridors</b>  <p>Note: Color coding represents approximate positioning of corridors</p>	<b>Nacala</b>	<b>Zambezi Valley</b>	<b>Beira</b>
	<ul style="list-style-type: none"> <li>• Nacala Special Economic Zone provides <b>500 ha industrial free zone</b></li> <li>• Development of the <b>deepest port</b> on East African coast at Nacala</li> <li>• Significant <b>mining investments</b> including <b>USD 4.4B</b> upgrade to rail by Vale</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Largest water reserves</b> in country</li> <li>• <b>Rail infrastructure linking area to Port of Beira</b></li> <li>• Estimated <b>USD 1B</b> port investments by Rio Tinto</li> <li>• Chinese government <b>USD 50M</b> investment for <b>cotton, maize and rice processing facilities</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Well-developed infrastructure with road and rail network linking Zambia, Malawi, Zimbabwe and Mozambique to the port of Beira</b></li> <li>• Ongoing foreign aid infrastructure investment for upgrades, such as <b>USD 70M World Bank irrigation project</b></li> </ul>

The three main agricultural promotion corridors (source: CPI Mozambique)

### 13.1 Zambezi Valley Development Agency

The Zambezi Valley Development Agency (ZVDA) plans to invest over USD 200 mln on several projects to promote economic and social development.

The projects will have a preferential focus on agriculture, fishing, agricultural mechanization, processing, land planning and infrastructure. ZVDA operates in over 35 districts in the provinces of Manica, Sofala, Zambézia and Tete. It has the support of the Indian and Chinese Export and Import Banks, the World Bank and the governments of the Netherlands and Norway.

The agency carries out studies and puts forward strategies for the economic and social development of the region, to provide technical assistance to economic and social development initiatives, including 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.

The ZVDA chairman (Albino, 2014) is in favor of developing tailor made financing proposals to offer potential entrepreneurs, combining FMO (currently developing a new instrument) and ORIO.

“ZVDA considers facilitating investors as one of its main objectives, just like pre-financing out-growers. Although illiteracy is high, farmers know what business is like, they could perform in a new type of cooperative, the old type has a very bad reputation.

Mozambican agricultural produce is lower priced compared to RSA produce because it is basically a different product: irregular availability, grade variation (or not graded at all), variety variation, not washed and not packed; this all is not the case for RSA produce. Market is often not there, purchasing power lacks so export or import substitution seems the way to go. Brazilian companies now understand that working with out-growers and local participation is a necessity to succeed. Modern goat dairy production might be interesting. African Swine Fever is endemic, so large scale swine production might prove risky. Lot of cassava growing near Tete, no problem to get 4,000 ha for cassava starch processing plant. Chimoio expands because of farmers from Zimbabwe; although many failed because of lack of funding. Flower production (roses) might be an option as a new airport is being developed near Nacala. As for export production: Beira port is congested. In the North there are basically only ports for gas shipment; no container handling is facilitated.

Of all the large scale agricultural projects initiated in Mozambique less than 20 have proven to be successful to a certain extend. American Tobacco is successfully operating an out-growers scheme; the company is also doing well because of production limitations elsewhere in the world”.

### 13.2 Beira Agricultural Growth Corridor

The Beira Agricultural Growth Corridor<sup>19</sup> (BAGC) initiative is a partnership between the Government of Mozambique, private investors, farmer organizations and international agencies. It was launched in 2010 and aims at promoting increased investments in commercial agriculture and agribusiness within the Beira Corridor (Tete, Sofala and Manica Provinces). EKN funded the BAGC with USD 10 mln through the Catalytic Fund and BAGC Partnership.

The Beira Corridor is one of Southern Africa’s main transport routes. It is a road and rail network linking large parts of Zambia, Malawi, Zimbabwe and Mozambique to the port of Beira on the Indian Ocean. Farmland along the corridor has proven agricultural potential with microclimates suitable for a variety of crops for domestic consumption and export. There are good water resources along the corridor, although a lack of infrastructure means that most agricultural production is rain-fed. Of the over 10 mln ha of arable land available in the Beira Corridor less than 3% is presently commercially exploited.

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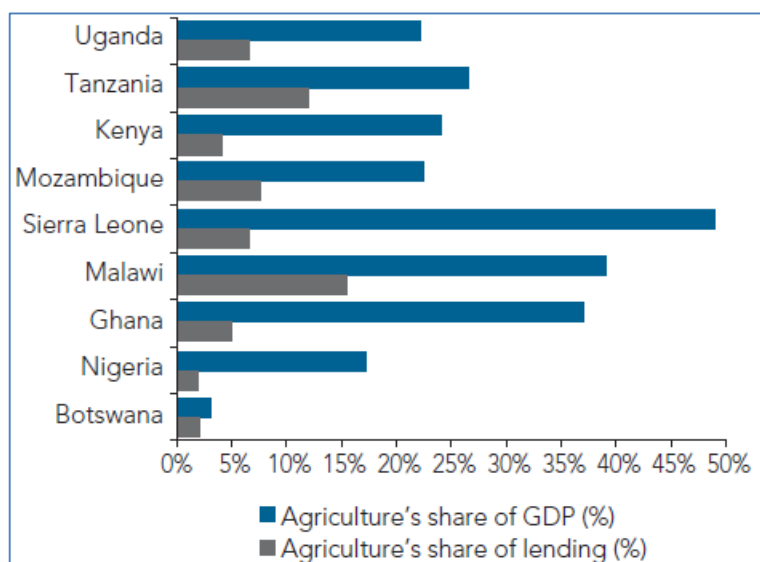
<sup>19</sup> <http://www.beiracorridor.com/>

## 14 Sources of debt and equity finance

Mozambique can be considered a post-conflict state. Such states have certain conditions in common and development support systems have been developed. Some include direct state budget support, others work through NGO's and public/private partnerships. Limited evidence exists to demonstrate what kind of support works best in states like Mozambique (International Development Advisory Services, 2013). Traditional methods such as budget support generally do not work well, because central institutions are weak, corrupt or non-existent. The risks of doing nothing however, are fast outpacing the risks of engagement.

The chance of a country relapsing into war within five to 10 years of negotiating a peace agreement is estimated at around 40-45%. A growing body of research recognizes the importance of the private sector in addressing the challenges posed by fragile states. Growing businesses can create jobs, bridge social divides, lobby for better economic policies and, in doing so, facilitate economic growth and lasting peace. Data has shown that a 10% economic growth rate can reduce a country's chance of relapsing into war to 27%. Conflict is more often fueled by lack of economic opportunity than political grievances, and thus job creation is one key to stabilization.

Investment capital availability for Mozambique seems not really an issue. This chapter presents an overview of financial institutions and donors active in Mozambique, the list is by no means exhaustive. Many representatives interviewed indicated that it is the lack of good initiatives that limit investment. Mozambique is a typical example of finance flows desperately seeking for sound investment opportunities. Agrifood investment opportunities that qualify for finance are inclusive (out-growers), sustainable, have a development component and cost-effective (profitable on short or medium term).



Share of agrifood in commercial lending in some African countries (Source: WB)

Commercial lending is of limited importance to agrifood in Mozambique. The share of agrifood in Mozambican commercial lending is less than 10% while its share of GDP is 25%. Access to commercial finance is by many considered to be a constraining factor for private sector development in the country. Both access to commercial equity finance and debt finance are limited. In Mozambique however a range of financial institutions is active. These are mainly financial vehicles that are funded by charity and patient capital from all over the world. Private companies can in many

cases directly apply for finance, be it equity participation, soft loans or grants. This chapter provides an overview of institutions active in Mozambique at different levels of private business development. Some personal comments of leading officials interviewed have been added in text boxes.

Mozambique has set up the “Centro de Promocao da Agricultura” or CEPAGRI to promote investments in agriculture<sup>20</sup>. Also the Investment Promotion Centre (CPI) in Maputo is involved in attracting investment in agrifood<sup>21</sup>. CPI has identified a number of investment opportunities, capital expenditures involved range from USD 800,000 (biodiesel) to USD 615 mln (rice rehabilitation).

## 14.1 AgDevCo

AgDevCo<sup>22</sup> (ADC) is a social impact investor and agribusiness project developer, incorporated as a non-for-profit distribution, limited company in the UK. It invests patient capital in the form of debt and equity into early stage agribusinesses and act as promoter or co-promoter of greenfield agriculture opportunities. ADC currently operates with locally managed subsidiaries in five countries in sub-Saharan Africa (Mozambique, Ghana, Zambia, Malawi and Tanzania).

AgDevCo's investment objectives are:

- To create commercially sustainable agriculture and agribusiness ventures;
- Through these support emergent commercial and small scale farmers to increase productivity and incomes.

ADC does this through a focus on hub and out-grower farm production and processing; investment in businesses across value chains and in geographical clusters. ADC supports businesses to the point where they can attract private investment from domestic and overseas investors. ADC provides patient capital, which is long-term capital made available by the international community on concessional terms. It is used to part-fund the capital costs of irrigation and related agriculture supporting infrastructure.

ADC is funded by private individuals, the Department for International Development (DFID), and Directorate General for International Cooperation (DGIS). It has also previously received generous support from the Small Foundation, the William and Flora Hewlett Foundation and the Rockefeller Foundation.

ADC Mozambique does equity and debt finance in agrifood ventures in Mozambique. ADC has around USD 12 mln outstanding in Mozambique in 21 operations. The largest participation being the RSA avocado processor Westfalia. ADC gets soft loans primarily funded by “patient” money suppliers. ADC also manages the Beira Agricultural Growth Corridor Catalytic Fund.

ADC Mozambique participates in the following companies:

- ECA smallholder commercialization;
- EcoFarm Organic Sugar;
- Eussuf Valy Bananas and Litchi;
- FrutiManica Bananas;
- Guita Chicken;
- Lucite Mango and Sesame;
- Moz-Agri Goats;
- Mozambique Honey Company;

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<sup>20</sup> <http://www.cepagri.gov.mz/>

<sup>21</sup> <http://www.cpi.co.mz/index.php/en/>

<sup>22</sup> <http://www.agdevco.com/>

- Panda Farm;
- Phoenix Seeds;
- RDI Avocados;
- Tsetsera Pork;
- SoSoja;
- Montesco;
- ISPM.

## 14.2 Annona Fund

The Annona Sustainable Investment Fund<sup>23</sup> (AF) is a commercial Venture Capital fund that invests in small and medium sized enterprises (SME's) in Africa and Latin America (Hetterschijt, 2014). Profitability is a first precondition for long term sustainability, but there are many other drivers. The objective is to obtain reasonable VC returns within strictly defined parameters of a measurable and lasting socio-economic impact.

The ultimate purpose of AF remains alleviating poverty through the creation of employment opportunities and optimization of market linkages, a goal pursued by endorsing, supporting and strengthening private sector investment. Although not exclusively confined to agrifood, many of Annona's investments tend to bias towards primary agrifood.

Founded in January 2009, Annona counts the Royal Tropical Institute (KIT) and a number of institutional parties amongst its investors. Strategic cooperation agreements with banks, other funds, TA providers and local partners are actively pursued.

In Mozambique Annona participates in:

- AgriSul Lda;
- Piri Piri Elefante Mocambique Lda.

Annona is very successful in Latin America: coffee, but also groundnuts (sold through Intersnack, that takes 90% of Dutch snack nut market) in a joint venture with an Argentine company; also cotton production has proven to do well.

## 14.3 Banco Terra

Banco Terra was officially founded in December 2007, opened its headquarters in Maputo in early 2008, and disposed of eight provincial branches by the end of 2009. Shareholders of Banco Terra<sup>24</sup> are Rabobank (+/- 30%), the Mozambican financial institution GAPI (+/- 30%) and the German and Norwegian development banks KfW and Norad (each +/- 20%). Banco Terra started with about USD 7 mln; at the end of 2009 deposits amounted to USD 27 mln. The bank received a three-year subsidy of EUR 3 mln from a Public-Private Partnership in which the Netherlands Ministry of Foreign Affairs, the Mozambican company GAPI and Rabobank participate. Norway and KfW each contributed an additional EUR 1 mln for technical assistance.

Banco Terra envisages in 2014 a loan portfolio of USD 67 mln, comprised mainly of customer deposits of which outstanding in agri ventures around USD 23 mln. The bank intends to deliver the following financial products:

- standardized credit products for agriculture and small- and medium-sized enterprises;
- short- and medium-term investment loans;

<sup>23</sup> <http://www.annona.nl/en/our-fund.html>

<sup>24</sup> Shareholding will change in 2014



- salary loans;
- deposit products;
- foreign exchange operations;
- payment services.

The Portuguese Montepio bank early 2014 became a majority shareholder in Banco Terra and paid USD 20 mln to obtain the shares that belonged to Norad and KfW. Montepio is said to have a 45% share now which is equal to that of Rabobank.

The majority of Mozambicans. 70% of 26 mln, is settled in rural areas of which another 70% lives below the poverty line. Over 95% of agriculture consists of small scale subsistence farming by 4 mln households; a maximum of 20% of produce is being commercialized. Only 5% of agricultural produce is from commercial farms that involve around 400 farmers (Vondeling, 2014). Main products are rice, cotton, cashew, sugarcane, tea, cassava, corn, coconut, potato, sunflower, fruit, cattle and poultry. Mr. Vondeling develops an agricultural enterprise fattening cattle and producing organic sugarcane for export called EcoFarm Mozambique. The Real Good Food Group is investing in a sugarcane processing plant (Zambezi Sugar). Obtaining the DUAT was a problem: long difficult procedure involving local communities. Resettlement laws were recently introduced; this involves high costs for building new houses. Broiler production in Mozambique is a challenge, MZN 140 /kg slaughtered weight is cost price (950 g), MZN 160 /kg retail. Tongaat Hulett operates two sugar mills in Mozambique, one in Mafambisse (100,000 t sugar/yr, 50 km West of Beira) and one in Xinavane (200,000 t sugar/yr, 140 km North of Maputo). The Resilience Foundation (based in Wageningen, NL) with local office in Chimoio is involved with the Munda Munda irrigation system and management of Licungo River basin.

RIAS and Rabo Development were both involved in setting up Banco Terra. RIAS was also involved in setting up production cooperatives in a one and two tier structure. This happened to be very difficult to realise, one of the reasons was lacking commitment of associated farmers to their cooperative (Verzijlberg, 2014). Pre financed crops were easily sold to competing parties.

#### 14.4 Amatheon Agri

Amatheon Agri<sup>25</sup> (AA) intends to enter large scale In Mozambique. AA is an European agribusiness and farming company developing and operating sustainable agrifood projects in Sub-Saharan Africa, it was launched in 1011. AA is based in Berlin and has local management structures throughout Europe and Sub-Saharan Africa. The company develops new, large scale irrigated agriculture operations, applies modern farming techniques and vertical integration across the agricultural value chain. AA is involved in farming but also in trading and milling, and processing.

AA's first investment was in a 30,000 ha farm in Zambia, producing soy bean, corn and wheat. The second venture was in Uganda. AA invested EUR 30 mln in Zambia and Uganda and intends to spend an additional EUR 350 mln, part of this in Mozambique (Maritz, 2014).

<sup>25</sup> <http://www.amatheon-agri.com/home.html>

## 14.5 Alden Impact Capital

Alden Impact Capital<sup>26</sup> (AIC) is a private equity firm based in Zürich, it manages the private funds of the Koch brothers. AIC is a UNPRI signatory with a focus on impact investing and serves as a dedicated unit for direct, active investments.

Investments are based on social entrepreneurial initiatives and are aimed at delivering financial, social and environmental returns by employing well-defined ESG-drivers. A for-profit objective is regarded as a prerequisite for sustainable investments, scaling the impact delivered through growth, development and change.

The focus of AIC is on two different areas of investments, broadly defined as healthcare and Sub-Saharan Africa (with a focus on agribusiness activities of food production, processing and cold-chain distribution), respectively. As a seed-investor with a hands-on entrepreneurial approach, Alden Impact Capital invests in startup ventures and other private companies with a high growth potential. Interested co-investors are offered access to a range of proprietary investments and further pipeline opportunities. Alden Impact Capital is also interested in partnering with investors and companies seeking capital and looking for a strong partner in new or existing business ventures.

In Mozambique AIC invested in the African Food Company (organic banana production in Gaza province).

## 14.6 Aslan Global Management

In 2009, US based Aslan Global Management entered Sub Sahara Africa and has made investments in commercial farming enterprises currently developing over 10,000 ha (intended) in Mozambique (Rei do Agro) and 25,000 ha in Tanzania (Kipunguni Estates). Aslan through Aslan Group Africa set up Rei do Agro in Nampala with Duat for around 2,500 ha but only cleared some 250 ha; intends to acquire another 10,000 ha for mainly soybean growing.

## 14.7 BXR Group / Quifel

BXR Group, owned by the Czech American Zdenek Bakala and headquartered in Amsterdam, invested in 1,000 ha of land through Quifel and wants to expand to 2,500 ha. The group also invested in through CF Agro in 10,000 land in Argentine, in Malawi Mangoes. Quifel Natural Resources through its subsidiary Hoyo-Hoyo Agribusiness set up farming sunflower, sesame and soybeans (but also potatoes) near the village of Ruasse, they took the best land around. The company has a bad reputation compared to Rei do Agro that is doing well in this respect.

## 14.8 Aquifer Limited

Aquifer Limited, based in the UK, is an investment company sponsored by Lord Sainsbury of Turville and was set up with the sole purpose to directly invest in Mozambique. The Gatsby Charitable Foundation is the sole shareholder of Aquifer Limited.

In Mozambique, Aquifer financed the MozFoods group of companies:

- Mozfoods;
- Compania Vanduzi;

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<sup>26</sup> <http://aldenimpact.com/>

- MIA (rice milling);
- TIA ROSA

## 14.9 Gatsby

In 1967 David Sainsbury set up the Gatsby Charitable Foundation. David Sainsbury (now Lord Sainsbury of Turville) has since given Gatsby more than EUR 1 bln to distribute to charitable causes.

Gatsby works in areas that David Sainsbury and the Trustees are particularly passionate about and where they believe charitable funding can make a real difference. Gatsby is currently active in six areas:

- Plant science research;
- Neuroscience research;
- Science and engineering education;
- Economic development in Africa;
- Public policy research and advice;
- The Arts.

In Mozambique Gatsby is the sole owner of Aquifer Limited that financed MozFoods.

## 14.10 Tana Africa Capital

Tana Africa Capital<sup>27</sup> is a joint venture of South Africa based E. Oppenheimer & Son International Ltd. and Temasek (Singapore). The 50/50 joint-venture was established in 2010; the fund targets Africa's agribusiness value chains and fast-moving consumer goods sector, where it sees high business and developmental potential, given the continent's population and urban and economic growth.

Along with the resources to help companies optimize commercial performance and returns, both partners bring a long-term perspective to the initial USD 300 mln "evergreen investment fund", so in other words, not a fixed-term private equity fund. The fund managers however seem to have some concern on "too much money chasing too few bankable deals in Africa" raising the spectre that investments may not be properly vetted or structured, miss their operational and financial targets, and in the end discourage willing investors.

So far, Tana Africa has invested in the Promasidor Group (Congo) and Regina Pasta and Food Industries (Egypt).

## 14.11 New Alliance for Food Security & Nutrition Mozambique

The New Alliance<sup>28</sup> is an initiative by the G8 and several large corporations (African Cashew Initiative, AGCO, Cargill, Competitive African Cotton Initiative, Corvus Investment International, Itochu, Jain Irrigation, Nippon Biodiesel Fuel, SABMiller, Sumitomo Corporation, Toyo Engineering Corporation, United Phosphorous Limited and Vodafone) that support a group of Mozambican agrifood companies:

- ENICA;
- JFS Holding;
- Khulima Púnguè Agricultura e Serviços;
- Lozane Farms;
- Rei do Agro;

<sup>27</sup> <http://www.tana-africa.com/pages/default.aspx>

<sup>28</sup> <http://feedthefuture.gov/article/new-alliance-food-security-and-nutrition-0>

- Sunshine Nut Company.

The impact of the Feed The Future initiative is doubted by some.

#### 14.12 USAID

The United States Agency for International Development<sup>29</sup> (USAID) has concentrated its contribution to Mozambique development on 7 projects:

- [AgriFUTURO](#) (see description below);
- The Support Program for Economic and Enterprise Development (SPEED);
- The Multi-year Assistance Program (MYAP);
- Michigan State University (MSU) support to the Ministry of Agriculture and Mozambique's Research Institute;
- Development Credit Authority (DCA) loan portfolio guarantees with Banco Oportunidade de Mozambique (BOM);
- DCA loan portfolio guarantees with [Banco Terra](#) (see description below);
- The Platform for Agricultural Research and Technology Innovation (PARTI).

#### 14.13 TechnoServe

TechnoServe<sup>30</sup> (TS, short for "technology in the service of mankind) was founded by a US business man (Ed Bullard) in 1968. Today TS works with enterprising people in the developing world to build competitive farms, businesses and industries. The modus operandi is to provide business solutions to poverty by linking people to information, capital and markets. TS believes in the power of private enterprise to transform lives. TS goals for Mozambique are quite ambitious: "TechnoServe has been providing technical assistance to agribusinesses in Mozambique with high growth potential since 1998. We have helped create a competitive and sustainable commercial agricultural sector that has generated opportunities for small-scale rural producers and suppliers, and new jobs for the rural poor. Our goal for the next 10 years is to mobilize investment of approximately USD 500 mln in the fruit industry and approximately USD 9 bln in the forestry industry. These investments, combined with the growth of other industries including livestock, feed grains, tourism, confectionery nuts and horticulture, have the potential to increase the scale of TechnoServe-supported industries from 7% of Mozambique's GDP to approximately 24% of GDP by 2025".

TS needs to allocate its own resources for every country it is active in. In Mozambique TS is heavily involved in development of commercial banana production in Nampula province (J.Grob & T.Kirkbride, 2014). An example is the company Matanuska (3,000 ha phase 1 objective) in Nampula. The company has two foreign shareholders: Nordfund 1/3 and Rift Valley Holding 1/3 (Hogh family) remaining 1/3 is financed from Mauritius. Matanuska intends to expand to other fruits like mango, took a long time to get prepared for export, and has currently 1,200 to 1,500 ha under cultivation. TS was involved in cashew and poultry production. Today there is 4,000 to 5,000 ha of soy bean in Nampula, up from nothing 5 years ago. Mozambique was a communist country and as a result only a few entrepreneurs are currently present. In Beira region there little land available, as is the case for the Zambesi valley as a whole, there is people presence everywhere. It seems the region is developing a water insufficiency, caused by dams and irrigation but most of all climate change. Farmers in Chimoio are forced to invest in irrigation. Most irrigation is inefficient furrow irrigation. In the North there is more land available, but land disputes also hamper the

<sup>29</sup> <http://www.usaid.gov/who-we-are>

<sup>30</sup> <http://www.technoserve.org/>

ProSavana project. Angonia province has good soils, there is some broiler production because of soy bean and corn availability. A new feed mill in Tete with Chinese equipment was built last year; 5 or 6 new mills were built throughout the country. The government is currently looking for companies to run the feed plants. AgDevCo was requested to intervene. CleanStar cassava processing has trouble sourcing, not enough roots, selling the gel and lamps seem to work fine, but ethanol not working. The company considers moving the factory South; which is somewhat weird. AgDevCo and Technoserve were requested to assist CleanStar planning the sourcing process.

The Mozambique government learned from the Jathropa boom, many things went wrong, as companies got large areas of land but nothing really materialized. Procurement of any area larger than 1,000 ha now should be discussed at state level, below that acreage it is a provincial responsibility.

Technoserve was granted USD 5 mln by the Netherlands Embassy to support development of 50 small scale commercial soya seed multipliers.

#### 14.14 Agriterra

Agriterra<sup>31</sup> is an investment vehicle registered in Guernsey, linked to an oil company, with a business address in Maputo. The company had total revenues of USD 21 mln in 2013 and net asset value of USD 60 mln, the company lost USD 7 mln in 2013 and is listed on the London stock exchange.

Agriterra's strategy is to become one of the largest agri-operators and leading food providers in Africa. The Company currently has three operational agricultural divisions:

- Beef, which conducts cattle ranching, feedlot, abattoir operations and retail units through Mozbife Limitada;
- Cocoa, which manages the Group's cocoa trading and farming activities through the Tropical Farms group of companies;
- Grain, which operates maize purchasing and processing businesses through Desenvolvimento E Comercializacao Agricola Limitada ('DECA') and Compagri Limitada..

In Mozambique Agriterra invested in Mozbife (Chimoio) which includes de Mavonde farm (2,300 ha) the Inazonia farm (2,500 ha, also Macadamia and Banana), the Dombe farm (15,000 ha), the Vanduzi feedlot (cap 3,000 animals /90 days, currently 600 /90 days, also 1,500 ha), Chimoio abattoir (cap 4,000 animals /month) 4 retail outlets (Chimoio, Tete, Manica and Beira), DECA (Chimoio, corn processing and handling), Compagri (Tete, corn flour mill, 15,000 storage cap, 80 trucks).

#### 14.15 CleanStar Ventures

Cleanstar Ventures is based in the US and initiated Cleanstar Mozambique (with Novozymes as a partner, see above), a project to process cassava into a cooking gel and sell it together with an adapted cooking system. The size of Cleanstar funds is not clear, the company seems to bring ideas and funding together and creatively uses carbon credits for co-financing.

#### 14.16 The Soros Economic Development Fund

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<sup>31</sup> <http://www.agriterra-ltd.com/index.aspx>

The Soros Economic Development Fund<sup>32</sup> (SEDF) is a nonprofit private foundation that is part of the Open Society Foundations, a network of charitable foundations created by investor and philanthropist George Soros. SEDF supports economic development in post-conflict countries and in nations transitioning to democracy. SEDF invests in sustainable businesses or initiatives that strive to alleviate poverty by creating jobs and revitalizing deteriorating communities. Established in 1997, SEDF has over USD 200 mln in investment capital and employs 15 people in New York, Budapest, Freetown, Johannesburg and Nairobi. The fund also has investments in Liberia, Sierra Leone, Kenya, Zimbabwe and South Africa. Profits derived from its investments are redeployed to new projects. SEDF participates for USD 6 mln in Cleanstar Mozambique.

#### 14.17 Industrialization Fund for Developing Countries

The Industrialization Fund for Developing Countries<sup>33</sup> (IFU) is an independent self-governing fund established in 1967 and financed by the Danish Government with the purpose of promoting economic activity in developing countries by investing on commercial terms in these countries in partnership with Danish companies. Since 1967, IFU has made more than 750 investments in 85 countries with a total investment of more than USD 1.5 bln. IFU invested USD 3 mln in Cleanstar Mozambique.

#### 14.18 African Century<sup>34</sup>

African Century (AC) is an investment company registered in Mauritius that has developed a portfolio of investments in sub-Saharan Africa, principally in East and Southern Africa. Head offices are in Zimbabwe and Mozambique. AC invests in sectors benefiting from GDP growth and increasing consumer demand, with the objective of creating lasting employment and by supporting the development of local skills and infrastructure. AC firmly believes in the role of capitalism in addressing the long term improvements in living standards across the African continent.

In the first full year of operation in Mozambique (2013) AC produced over 1,000 t of soy beans on 450 ha as a phase 1 on a 3,800 ha former state farm in Lichinga, North Mozambique. AC is consolidating a contract soy scheme in Lioma which should produce 1,500 t from 1,300 ha contracted through 830 small scale farmers. AC intends to buy and store another 1,000 t of soy from non-contracted growers in the vicinity of AC's 4,000 t silo complex in Lioma. AC owns a transport fleet to collect the produce from farmers and deliver it to market. AC owns and operates Frango King, one of the largest producers of broilers in Mozambique. AC also invested in three fresh water fish farms (Lake Kariba in Zambia and in Zimbabwe and in Lake Victoria in Uganda).

Similar platforms are planned for Zimbabwe, Zambia and Uganda. These represent all the countries where African Century Foods operates and there is currently a supply deficit of raw materials, in particular soya.

#### 14.19 AGRA

The Alliance for a Green Revolution in Africa<sup>35</sup> (AGRA) was founded in 2006 through a partnership between the Rockefeller Foundation and the Bill & Melinda Gates Foundation. AGRA also receives funding from other governments, agencies and international institutions. By 2020 AGRA strives to have reached the following objectives:

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<sup>32</sup> <http://sedfny.org/>

<sup>33</sup> [www.ifu.dk](http://www.ifu.dk)

<sup>34</sup> <http://www.africancentury.com/about-us/>

<sup>35</sup> <http://www.agra.org/>

- Reduce food insecurity by 50% in at least 20 countries;
- Double the incomes of 20 mln smallholder families;
- Put 15 countries on track to attain and sustain a Green Revolution;
- AGRA was singularly recognized as an effective public-private partnership for improving smallholder farming in the G8 in the years 2008 and 2009.

AGRA focusses on seed production and increased access for farmers to quality seed, some programs are:

- Education for African Crop Improvement (EACI);
- Fund For The Improvement and Adoption of African Crops (FIACC);
- Seed Production for Africa (SEPA);
- Agro Dealer Development Program (ADP).

Other initiatives are the Soil Health Program, the Market Access Program and the Gender and Agriculture Program. AGRA recently funded Dutch SNV with USD 800,000 for a project on the production of maize and pigeon pea in Moatize, Tsangano and Angonio districts in Tete. AGRA also supports the Investment Plan for Food Production in the Beira Corridor with USD 32 mln covering the provinces of Sofala, Manica and Tete. The project focuses on production of maize, wheat, vegetables, fruit, soy beans, rice and livestock and aims to improve food security in the region as well as the income of farmers and to boost the investment capacity of the private sector; also involved in this program are CEPAGRI and AgDevCo. AGRA initiated the The Africa Enterprise Challenge Fund (below), managed by KPMG.

#### 14.20 KPMG Mozambique

KPMG Mozambique<sup>36</sup> manages the AECF (Africa Enterprise Challenge Fund) and REACT (Renewable Energy and Adaptation to Climate Technology Fund). AECF has invested USD 130 mln of which 25% through the REACT window. AECF was an initiative of DFID (Department for International Development; UK) and DGIS (Directorate-General for International Cooperation; NL) and build on the PSOM/PSI experiences in financing the private sector. It was founded in 2008 and the main funders are DFID, DGIS, Sida (Sweden), Australian Aid (Australia), Denmark and IFAD. AECF is funding DADTCO (cassava pre-processing). Also involved is AGRA (Growing Africa's Agriculture) that was founded in 2006 through a partnership between the Rockefeller Foundation and the Bill & Melinda Gates Foundation and works throughout Africa. AGRA funds many institutions in Mozambique (like CIP and IIAM) but also Lozane Farms (seed production).

KPMG has a special department focused on Africa and the developing world: KPMG International Development Assistance Services<sup>37</sup> (IDAS).

#### 14.21 Africa Enterprise Challenge Fund

The Africa Enterprise Challenge Fund<sup>38</sup> (AECF) was initiated by AGRA. The current project portfolio size is USD 129 mln. So far, 179 grantee businesses around Africa have been selected for funding through various competitions. At present, the largest window in terms of donor contributions is the REACT window (below) which has received over 23% of the overall donor contribution. The matching funds contributed by the grantees are about three times that of donor contributions. The amounts provided by the major donors are: DFID USD 99 mln (47%), Sida USD 39 mln (19%), Australian

<sup>36</sup> <http://www.kpmg.com/mz/en/pages/default.aspx>

<sup>37</sup> <http://www.kpmg.com/global/en/industry/government-public-sector/international-development-services/pages/default.aspx>

<sup>38</sup> <http://www.aecfafrica.org/>



Department of Foreign Affairs and Trade USD 32 mln (15%), Royal Netherlands Embassy (EKN) USD 25 mln (12%) and Danida USD 12 mln (6%).

The AECF provides grants to businesses that undertake projects which have an impact on a market system and reduce rural poverty. It is the businesses being funded and undertaking the ventures that are the actors in achieving market change which should contribute to poverty alleviation.

In Mozambique AECF participates in New Horizons Mozambique Ltd, Phoenix Ltd and the Center Fresh Egg Farm.

#### 14.22 Renewable Energy and Adaptation to Climate Technology

The AECF uses different “windows” to facilitate the private sector. One of these is the Renewable Energy and Adaptation to Climate Technology<sup>39</sup> (REACT) program. The REACT window is a special fund of the AECF that is open to business ideas based on low cost clean energy and solutions that help rural people adapt to climate change. The overall driving forces for REACT are that the business idea must show an environmental benefit and that it must demonstrate a positive impact on the rural poor through either increased incomes, employment and productivity or reduced costs.

REACT supports private sector investment in the following areas:

- Increased access to low cost clean energy for rural businesses and households. This includes cost effective renewable power, commercially viable renewable fuels and other clean energy alternatives;
- Products and services that help smallholder farmers adapt to climate change. Examples are drought resistant seeds, water harvesting, conservation and irrigation technologies, or early warning weather systems that increase resilience and reduce vulnerability;
- Financial services that increase access to finance for low cost clean energy and climate resilient technologies or catalyze financial solutions, such as weather insurance for small holder farmers.

In Mozambique 116 applications for REACT support were made in 2013, 25 were selected for the business plan stage, projects yet to be selected for funding.

#### 14.23 AgriFuturo

In 2009 USAID/Mozambique and ABT Associates set up USAID AgriFUTURO<sup>40</sup>; the project’s core principles are to create a modern, competitive, and expanding Mozambican agriculture sector that will continue to thrive and grow long after project funding comes to an end.

The Mozambique Competitiveness and Agribusiness Program (AgriFUTURO) works to increase Mozambique's private sector competitiveness by strengthening targeted agricultural value chains. The project will build linkages between agribusinesses and financial services providers, and increase and strengthen public/private partnerships through:

- Increased use of services provided by the local private sector while decreasing reliance on donor-sponsored business development services;
- The use of value chain development activities as a vehicle to drive policy reform and meet market demand through expanded trade;
- Expand access to financial services for AgriFUTURO-assisted agribusinesses, enhancing the flow of private investment to competitive value chains to promote growth in the agricultural sector;

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<sup>39</sup> <http://www.aecfafrica.org/windows/react-window>

<sup>40</sup> <http://agrifuturoproject.com/>

- Targeting high-potential agricultural value chains. The selected nine initial value chains are bananas, pineapples, mangos, maize, soybeans, sesame, groundnuts, cashews and forestry.

#### 14.24 Rift Valley

Rift Valley<sup>41</sup> is a Zimbabwe based company owned by family groups: the Austrian von Pezold family, Hoegh Capital Partners<sup>42</sup> of the Norwegian shipping family Hoegh and Matanuska Zimbabwe of the Hildebrand family.

In Mozambique Rift Valley owns Grupo Madal, Matanuska Mozambique, Corridor Agro, and has timber interests in Niassa. Grupo Madal is based on a 18th century Portuguese colonial land concession Prazo Madal, which in 1903 was converted into a French company Société du Madal, taken over by the Norwegians in 1913 to become Grupo Madal, then in 2001 abandoned and nationalized, and finally reprivatized in 2004.

#### 14.25 Beira Agricultural Growth Corridor Catalytic Fund

The Beira Agricultural Growth Corridor<sup>43</sup> (BAGC) is a partnership initiative supported by Grow Africa. The BAGC Catalytic Fund supports Mozambican agrifood entrepreneurs located in Sofala, Manica and Tete provinces. The fund, managed by AgDevCo, makes debt and equity investments in commercially-viable agribusinesses in the Beira Corridor which are expected to have a positive social impact on local farmers and communities. Amounts invested by the Catalytic Fund are typically in the range USD 50,000 to USD 500,000 per business.

#### 14.26 IFAD

The International Fund for Agricultural Development<sup>44</sup> (IFAD) is a specialized agency of the United Nations that was established as an international financial institution in 1977 as one of the major outcomes of the 1974 World Food Conference. The conference was organized in response to the food crises of the early 1970's that primarily affected the Sahelian countries of Africa.

IFAD is currently involved in the following programs in Mozambique:

[Pro-Poor Value Chain Development in the Maputo and Limpopo Corridors](#)

Total project cost: USD 44 mln

[Artisanal Fisheries Promotion Project](#)

Total project cost: USD 55 mln

[Rural Markets Promotion Program](#)

Total project cost: USD 46 mln

[PRONEA Support Project](#)

Total project cost: USD 52 mln

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<sup>41</sup> <http://rvinvest.com/>

<sup>42</sup> <http://www.hoegh.co.uk>

<sup>43</sup> <http://growafrica.com/>

<sup>44</sup> <http://www.ifad.org/index.htm>

#### 14.27 Socremo

Socremo (Banco de Micorfinancas de Mozambique) is a Mozambican finance institution owned for 39% by Afircap, 35% by Norfund, 13% by the Mozambican treasury and for 13% by Nordic Microcap. Socrema supplies microcredit ranging from USD 200 to USD 10,000. The active portfolio value is USD 20 mln in outstanding loans and USD 21 mln in savings.

#### 14.28 Aureos Capital

Aureos Capital Limited (Aureos) was established in July 2001 as a joint venture between CDC Group plc, a UK government-owned fund of funds, and Norfund, the Norwegian Investment Fund for Developing Countries. Once established, Aureos assumed the management responsibility for 139 portfolio companies with a book value of USD 72 mln originally invested and managed by CDC between 1989 and 2001. Aureos has effected 130 exits and the realized and unrealized cash multiple is expected to be around 1.98 times book value. Since 2001, Aureos has increased its funds under management to over USD 1 bln and extended its geographical footprint to over 50 emerging markets covering Asia, Africa and Latin America, by establishing 15 regional private equity funds.

Aureos Southern Africa Fund invests in small- and medium-sized enterprises in Southern Africa, with a particular focus on Mozambique, Zambia and South Africa. The fund has a total capital of NOK 290 mln. The main co-investors are CDC and EIB. The fund contributes management skills, strategy and business development, and acts to improve financial management and reporting in the enterprises.

Aureos Capital was recently acquired by the ABRAAJ group. The majority of their investors is from the Middle East region, 20% from Europe, 10% from North America, 6% from Africa, 6% from Asia and 1 % from Central and Latin America.

#### 14.29 Lonrho Pic

Lonrho<sup>45</sup> is focused on the fact that Africa is developing as one of the strongest global emerging markets. African growth is primarily driven by the expanding mineral, oil and agriculture sectors, and a significant internal economy being generated by a population that is approaching one billion people.

Lonrho only invests and builds businesses in Africa in four industry sectors: Infrastructure, agribusiness, hotels and support services. The company delivers fresh produce both in Africa and internationally. Oceanfresh is a Lonrho company, a vertically integrated seafood production company, based in South Africa, Mozambique and Namibia. Primary fishing operations are in Mozambique, South Africa and Namibia where the factories and trawlers are based, as well as having offices in Brazil and the USA. Oceanfresh produces both in its own brand as well as for the house brands of major retail chains. Export markets include USA, Canada, UK, Switzerland, Italy and France. The affiliation with other Lonrho Agribusiness companies adds extensive value in the logistics chain as well offering Oceanfresh clients specially packed products.

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<sup>45</sup> <http://www.lonrho.com>

### 14.30 MARIS Capital

Maris Capital<sup>46</sup> is a venture capital group (Maris Africa Fund) specialized in investments in frontier African markets. MC has offices in Juba (South Sudan), Maputo (Mozambique), Nairobi (Kenya) and London (UK). Maris invests in responsibly managed companies. MC closely cooperates with the French development fund Proparco and with Dutch FMO (Entrepreneurial Development Bank).

### 14.31 Whatana Investments

Whatana Investment Group<sup>47</sup> is a Mozambican based investment holding company, established in 2005. Whatana Investments has recently signed an agreement to set up a micro-finance bank in Mozambique with Bayport Group to serve targeted clients with un-secured loans.

### 14.32 PROMER

The Rural Markets Promotion Program<sup>48</sup> (PROMER) is a joined initiative by AGRA (USD 2.5 mln) and IFAD (USD. The program's objective is to expand market opportunities by strengthening associations of farmers and traders that buy farmer's surplus, and broaden their business scope to include basic activities that add value to farmer's produce, such as grading and storage of goods. In addition, PROMER's objective is to strengthen networks of agro-dealers, the small-scale village vendors who sell farmers critical farm inputs, such as quality seed and appropriate fertilizer. Increased access to such inputs is seen as key to raising farm productivity in Mozambique.

### 14.33 Summit Capital

Summit Capital<sup>49</sup> (SC) is a US based investment vehicle that manages USD 600 mln through a multi-strategy, globally-oriented investment program. It invests in asset classes, investment vehicles and underlying securities deemed most attractive from a fundamental value perspective at various points throughout a full market cycle. As such SC targets total return allocated across a full spectrum of asset classes through both direct and indirect active investment management. For agrifood ventures in Mozambique SC is relevant because it participated in GADCO, a rice (paddy) producing company in Ghana that gets two harvests on 1,600 ha of land and which seems to be one of the few profit making large scale agri ventures in Africa.

### 14.34 Lombard Odier

Switzerland base Lombard Odier<sup>50</sup> (LO) is an independent family bank and has been so for seven generations.

Lombard Odier is also a member of The Henokiens Association. This prestigious group, which brings together some 40 European and Japanese family businesses noted for their longevity (at least 200 years in existence) and robust financial health, was created in 1981 in Paris as a vehicle for exchanging ideas and promoting the business model that shaped their strength and reputation: the family firm.

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<sup>46</sup> <http://www.mariscapital.com>

<sup>47</sup> <http://www.whatana.com>

<sup>48</sup> [http://operations.ifad.org/web/ifad/operations/country/project/tags/mozambique/1423/project\\_overview](http://operations.ifad.org/web/ifad/operations/country/project/tags/mozambique/1423/project_overview)

<sup>49</sup> <http://summitcapital.com/main.html>

<sup>50</sup> <http://www.lombardodier.com/en/>

Being a family business oriented bank LO also has a strong interest in family owned businesses in less developed countries. Through the Fondation Lombard Odier the bank acts as an philanthropic institution that promotes investment in developing countries. LO has expressed a strong interest in participation in agrifood ventures that are sustainable and serve the community in Africa.

### 14.35 Financial Access

Financial Access Capital Partners<sup>51</sup> (FA) is a financial services advisory firm active in emerging markets and developing economies. The main focus of their activities is to enhance the operational, commercial and financial performance of SME's.

FA's Head Office is in Amsterdam. With field offices in Bangkok and Nairobi, FA is most active in Southeast Asia, Sub-Saharan Africa and Europe.

FA has executed more than 250 assignments in over 40 countries worldwide since the early 1990's, originally as a part of the ING Group, since 2007 as an independent firm. Clients include banks, non-bank financial institutions and companies.

FA is specialized in 3 lines of business:

- Advisory services (due diligence, diagnostics, implementation, procurement, training);
- Management support (Interim management, project management, turnaround teams);
- Financing (debt, equity, financial modelling, transactional support).

### 14.36 RaboFarm

RaboFarm<sup>52</sup> is a Rabobank affiliate that manages two investment funds: RaboFarm Europe Fund I & II. These are closed end, non-listed funds for institutional investors. The Funds invest in agricultural land, mainly in central Europe, through procuring farms, farmland and farming infrastructure, including buildings, storage, drainage, irrigation and soil improvement. Agricultural production on these farms is predominantly arable crops like grains and oilseeds. RaboFarm's mission is to increase agricultural production by improving productivity and the efficiency of existing farms. Based on the principles of adding real value, creating alignment and facilitating sustainable growth, the aim is to invest in closing the agricultural production gap between inefficient and efficient farms. Sustainability will improve by using less farm inputs per hectare of agricultural land, while producing more.

Rabo Farm funds have a long investment horizon of between 10 and 15 years, the strategic focus is on:

- Increasing yields and farm income;
- Local social and economic development;
- Return driven by macroeconomic and farming results.

### 14.37 Coparan Investments

Coparan Investments (CI) was recently initiated by the former RaboFarm CEO<sup>53</sup>. CI has chosen a different approach by not only providing equity funding but also a network of supportive institutions. CI is organized in two complimentary divisions:

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<sup>51</sup> <http://www.financialxs.com/>

<sup>52</sup> <http://rabofarm.com/home.html>

<sup>53</sup> <http://coparan.com/>

- The investment team is responsible for sourcing, investing and managing financial commitments in companies with local teams on the ground making sure that CI knows what is happening in the markets and understand the local opportunities and challenges;
- A shared service platform is the key differentiator. On this platform different skillsets are combined with the purpose to service the companies CI invests in or works with. This platform is not only dedicated to companies CI invests money in, but offers services to other stakeholders as well. Services may include logistical planning to marketing all with a focus on growing local rural enterprises. To get access to the platform, companies will need to fit within CI's quality and compliance standards or committing to adapt towards achieving those guidelines within a reasonable time span.

#### 14.38 FMO

FMO is the Dutch development bank<sup>54</sup> that finances companies, projects and financial institutions in developing and emerging markets. FMO is specialized in the sectors: financial institutions, energy and agribusiness and food & water.

FMO provides a range of services and products that include:

- Equity, loans and guarantees;
- Capital market transactions;
- Mezzanine and other tailor-made solutions;
- Long-term and short-term project financing.

#### 14.39 ORIO

The Facility for Infrastructure Development<sup>55</sup> (ORIO). ORIO (former ORET facility) co-financed 4 projects in Mozambique amongst which in 2010 the Mozambique Envalor Emerging Farmers Project with EUR 6.2 mln requested by CEPAGRI

The main objectives of the project are to enhance commercial farming in order to reduce crop loss as a result of unproductive subsistence farming; to eliminate the need for food aid in the region and to train and empower local farmers in the project area.

The project covers part of the Zambezi valley that has a high agricultural potential (as discussed above). During the past ten years the area has been severely affected by flooding of the Zambezi river (2001 and 2007) as well as drought (2009 and 2010). Food security is a major issue in this region of Mozambique.

This project entails the development, construction and operation of a 3,000 ha local farmer cooperative. Of the 3,000 ha, 750 ha will be irrigated year-round with water drawn from the Zambezi river and 2,250 ha will be rain-fed. Adjacent to the irrigated part, additional market garden plots will be situated for 300 local farmers involved in the project for their subsistence farming. The project also includes the supply of potable water to the local community and the connection of public buildings to the electricity grid. The main elements of the irrigation infrastructure and ancillary components and equipment needed for the project to operate effectively include:

- 4 km of canals;
- Water mains and purification;
- 3 clustered pump stations;
- 7.5 km electrical line feeding the pump stations;

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<sup>54</sup> <http://www.fmo.nl>

<sup>55</sup> <http://english.rvo.nl/subsidies-programmes/facility-infrastructure-development-orio>

- Buildings;
- Infield irrigation pivots;
- Roads, fencing and drainage;
- Market garden irrigation equipment;
- Farming equipment and vehicles.

#### 14.40 FDOV

The Facility for Sustainable Entrepreneurship and Food Security<sup>56</sup> (FDOV, part of the Public-Private Partnership facility) stimulates public/private partnerships within the scope of food security and private sector development in developing countries. Governmental parties, industry and any NGO's and knowledge institutions can collectively enter into a cooperative partnership with the Dutch Ministry of Foreign Affairs and become eligible for grants for a program that focuses on the relevant sub-themes.

For food security these sub-themes are:

- Increasing sustainable food production;
- Improving access to healthy food;
- Increasing market efficiency;
- Improving the entrepreneurial climate.

Participation by an NGO is mandatory. Involvement of a knowledge institution is not a condition but will be assessed on the basis of the proposal. Of the participating parties, at least one (other than the Ministry of Foreign Affairs) must come from The Netherlands and at least one must come from the country in which the activity is being set up. One party will function as secretary for the partnership. This secretarial role can be taken on by either the Dutch or the foreign party.

The FDOV grant will contribute at the most 50% of project expenditures that is supplementary to the financial contribution made by the partnership.

The call for the Facility for Sustainable Entrepreneurship and Food Security (FDOV) is expected to open on June 1<sup>st</sup> 2014. The call will close on November 24<sup>th</sup> 2014. The available budget for FDOV will be EUR 40 mln.

## 15 Outcome of WUR agrifood quickscan's

As stated in the chapter above The Netherlands is co-financing the Zambezi Valley Development Agency initiative (ZVDA). Within the framework of this initiative WUR through the Centre for Development Innovation (CDI) performed in November 2013 three quick scans focused on relevant agrifood sub-sectors: i) potato production, ii) aquaculture and iii) cold chains.

These three value chains have in common that they focus on perishable products, where postharvest losses are high (Brouwer, Haverkort, Montsma, & Rothuis, 2013).

### 15.1 Potato quickscan<sup>57</sup>

Potato in Mozambique is an important commodity adding substantially to food security and economics of the Zambezi Valley region. Of the 10,000 ha of national potato area yielding about 120,000 to of potato about 90 % is produced in this region in Tsangano and Angonia. Another

<sup>56</sup> <http://english.rvo.nl/subsidies-programmes/facility-sustainable-entrepreneurship-and-food-security-fdov>

<sup>57</sup> Prepared by Anton Haverkort / WUR



130,000 t are imported annually from South Africa, especially to Maputo but that country also supplies supermarkets and catering companies of the mines with the favoured white skin variety Mondeal. Tete exports probably some 20,000 tonnes of potato to Malawi. In Tete Mondeal is hardly grown, BP1 a white skinned variety is promoted by the national seed service SEMOC but the dark red skinned variety Violet and light red skinned variety Rosita are most widely grown in the Zambezi valley region. During a 1 week rapid appraisal mission at the end of October 2013 the region – and Maputo- was visited and stakeholders of the industry were consulted through interviews and visual observation of potato and their products. The objectives were to generate leads for business opportunities and increased competitiveness of the potato in the Zambezi Valley area. The executive summaries of the three quickscans are presented below. For details the full report can be obtained through WUR / CDI.

### Value chain opportunities

In total eight fields of opportunities were identified where entrepreneurs could generate business:

1. Seed potato production: introduction of elite seed from imports and national minituber production and multiplied by specialized seed growers that act as agents of the mother company. It requires variety testing for the proper market destination, training of the agents for multiplication, certification and trade;
2. Fresh potatoes at open markets: the bulk of the potatoes in the region are transported from farm to retail markets by traders or by (cooperatives of) growers in 100-200 kg bags. The tubers are sorted and graded by hand and displayed unwashed in small piles or buckets of varying sizes. Improvements may come from a wider range of varieties, packages and qualities serving better final destinations;
3. Fresh supermarkets: here only the white skinned variety Mondeal is sold at a price that is 50 % higher than the same variety in Maputo and the local varieties at the open markets. It offers opportunities for local producers to meet the demand of the supermarket and supply them;
4. Quick service restaurants: the Zambezi Valley region so far does not present any international food chains such as Kentucky fried chicken. Yet there are many quick service Chicken and Chips restaurants that might benefit from adapted quality potato for this type of outlet or even processed (peeled, cut, blanched (pre-fried?), chilled and distributed);
5. Catering companies for the mines: daily well over 20,000 meals are served of which some 4,000 containing potato, responsible for a few hundred t of potato per week. Currently these are mainly sourced from South Africa. As is the case with supplying super markets if local entrepreneurs can assure the supply of this market with the required amounts and specifications daily and year round, in future local sourcing offers real opportunities;
6. Processing potatoes into various products: no local potatoes are processed into local products and the only cottage industry observed was road side Chicken and Chips for international truckers heading for Lilongwe. Entrepreneurs could make an inventory of processed products that could also be produced locally, possibly initially as cottage industry such as potato crisps. Possibly quick service restaurants and catering companies are interested in peeled, cut, blanched and chilled potatoes. This has to be discussed and negotiated with them and possibly developed jointly;
7. Export to (inter)national markets: probably around 20,000 t of potato pass the frontier to be transported to Lilongwe in Malawi and through Malawi to Nampula in North Eastern Mozambique. Some attention may be given to an assessment of the size of the market, its influence on prices of potato for Mozambican consumers, the specifications of the Malawi consumers and how these could be met to a greater extent by assuring quality and standardization of sizes of tubers and packages;
8. Optimizing inputs: one of the reasons of the lack of competitiveness of the Mozambican potato is its less than optimal use of resources such as land, labor, water and chemical

fertilizers and biocides. Entrepreneurs could investigate making profit from the introduction of self-propelled small farm machinery, soil tests based decision support for the application of fertilizer and weather based decision support for the application of biocides. Irrigation efficiency (and thereby fertilizer use) can be improved substantially by selling sprinkler installations rather than furrow irrigation that currently is standard practice.

## 15.2 Aquaculture quickscan<sup>58</sup>

Aquaculture is a relatively new activity in Mozambique and in the Zambezi Valley and consists of a few commercial farms producing marine shrimp, and a large number of small-scale often subsistence farms, producing tilapia. Mozambique exports its high value species from capture fisheries and aquaculture (shrimp and certain marine fish) to South Africa, the EU and Asia. Mozambique imports consist mainly of whole frozen fish (horse mackerel) from South Africa and Namibia. Both exports and imports are declining since 2008. In order to maintain current levels of fish consumption (approximately 7-10 kg/capita/yr.), Mozambique's population will need 23% more fish in 2020. Since it is unlikely that the current trend (increase in capture fisheries) will continue, the development of aquaculture is essential in order to provide the future demand for fish.

An overall assessment of the requirements for aquaculture development in Mozambique and the lower Zambezi Valley indicates that land and water resources are available, that aquaculture fish can be competitive in the market and that the market demand is substantial. Infrastructure, stocking material, policy and regulation and the business environment are suitable but can be improved. Feed, capital, and technology/research & institutional support are the most critical issues. Given this situation, two business cases for the Zambezi Valley region have been identified: 1). A cluster of semi-intensive farms integrated in Munda Munda irrigation scheme, 2). Intensive farms Tete/Cahora Bassa.

The potential for enhanced fisheries and aquaculture development has not been considered in the current design and operation of the 3,000 ha Munda Munda irrigation scheme. However, aquaculture integrated within the irrigation scheme offers great opportunities, mainly because of the multiple use of the water infrastructure. If only 1% of the area is designated for fish culture, approximately 150.000 kg Tilapia can be produced through family-operated semi-commercial fish farmers, contributing to animal protein availability and food security. Additional advantages of such an integration are the (partial) mitigation of the loss of fish biomass and fish diversity as a result of alterations in the natural hydro-ecological system, and the use of other infrastructure and provisions such as the by-products from the milling process (rice bran) which is an excellent ingredient for tilapia feed.

The mining companies around Tete and the urban markets need a constant supply of fish of a constant quality and size. This is only possible through aquaculture. Given the market and the prevailing natural conditions in Tete province, this is best done through rather intensive production systems situated in the vicinity of the urban markets, such as cages in lake Cahora Bassa and land-based flow-through tanks using water from the Zambezi river near Tete. This type of aquaculture requires high quality inputs (feeds, fingerlings). The resulting demand for these inputs will trigger the manufacturing of feeds and the establishment of hatcheries that provide high quality fingerlings. The availability of these inputs (and technology) also opens up the possibility for small-scale farmers to engage into aquaculture. By this way commercial aquaculture development acts as a catalyst for small-scale aquaculture development. It is estimated that a potential production of 1,000,000 kg Tilapia is feasible.

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<sup>58</sup> Prepared by Arjo Rothuis / IMARES

In order to realize the above indicated production potential, the two business cases need to be further developed in the form of a follow-up project for which the following activities are being proposed:

1. Design of the integration of fish culture in the Munda Munda irrigation scheme. Given the expected start of the construction works at Munda Munda mid-2014, this study should be initiated as soon as possible;
2. Assessment of potential feed mills that could produce fish feeds, available raw materials in the country and the region (prices, volumes, quality, seasonal effects), sustainability issues for certain raw materials (fish meal, meat and bone meal), cost-benefit analysis, and potential (Dutch) investors;
3. Development of a detailed business plan for commercial aquaculture in the Tete/Cahora Bassa using the Mozambezi farm as a starting point;
4. Capacity building for research and education in aquaculture using a Training-of-Trainers approach, through the Faculty of Marine Sciences (UEM, Quelimane), with the University of Zambeze (Mocuba) as main beneficiary;
5. Training on aquaculture business plans in order to obtain investment capital for aquaculture farms.

### 15.3 Horticulture cold chain quickscan<sup>59</sup>

Horticulture in Mozambique is increasing rapidly. The production of vegetables has almost doubled the last 5 years. On the other hand up to 20% of the consumed horticultural products is imported and in the dry season up to 70%. The main horticultural products produced in Mozambique are tomato, onion, cabbage, carrot, bell pepper, green beans, garlic and lettuce. For fruit the same production growth is reported for bananas, citrus and pineapple. The main fruits produced are bananas, citrus, mango, papaya and pineapple.

Postharvest losses are high in non-refrigerated the fruit and vegetable chain. Training and the use of cooling technology will reduce postharvest losses. Temperature control in a closed cold chain is the most important factor to prolong shelf life of fresh produce. The actual maximum shelf life is 4-6 days, where under optimal conditions shelf life can be extended with 10 – 20 days for tomato, lettuce and bell pepper.

The existing cold chains for fresh produce in the Zambezi Valley can be described as incomplete or suboptimal cold chains. Where in optimal cold chains cooling starts directly after harvest with pre-cooling and the chains are 'closed' until the end market, in Zambezi the cold chain starts most early during transport or at the distribution link of the chain. Sub-optimal refrigerated chains are retail market, catering of the mines and restaurants. Non-refrigerated refrigerated chains are restaurants, open air markets.

Fast growing horticultural production implies a higher risk of postharvest losses in the chain. With a growing population a year-round, high quality and safe food supply is demanded. Due to mining the Zambezi Valley will get a growing middle class. This growing middle class with changing diet patterns will influence domestic markets. The growth of 'metropolitan' Tete province will ask for a fundamental approach to sustainable production and distribution of food. For a safe food supply expertise on postharvest operations and supply chain efficiency is needed. Elongation of storage and transport time creates new opportunities for local and internationally traded fresh produce.

Potential markets for cold chain development in the Zambezi Valley are retail, catering services, restaurants and export. Before focusing on export markets international quality standard should be

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<sup>59</sup> Prepared by Mathijs Montsma / WUR

implemented. Reduce postharvest losses by introducing of postharvest training and protocols, prolong shelf life of fresh produce by cooling and improve the organization of the chain by contracting are the main factors for a successful development of cold chains in the Zambezi Valley. Commercial companies like CB Farm Fresh or Frutos de Ouro, should play a central role in the development of the cold chain and inclusiveness of small holders. Through an intervention model an integrated agro logistic strategy should be developed. Integration of capacities related to hardware, software and orgware leads to the development of optimal value chains. The intervention model and integration of capacities enables to carry out a feasibility study and set up training modules. As follow-up of this quick scan the following is proposed:

1. The feasibility study results in optimal chain configuration, value chain optimization and determine investment space for the (Dutch) private sector, pilots of sustainable cooling technology with solar energy;
2. The training modules results in postharvest courses at research institutes and universities and mobile/floating laboratories used for research and development training and exchange of experimental design through experimental research.

## 16 Comparative (dis-)advantages for Mozambican agrifood

The constraints and opportunities related to agrifood investments in Mozambique as identified in a World Bank Africa Agribusiness report (AFTFP/AFTAI, 2013) mentions a broad range of issues. Some of the most important can be summarized as:

- Weak market performance (distribution, purchasing power);
- Low access to inputs and technology;
- Troubled access to land and tenure security;
- Limited access to finance;
- Weak physical infrastructure with little public-private partnerships involved;
- Labor force with low skills and little entrepreneurship;
- Inadequate maximization of social benefits from investments.

A major constraint on competitive commercial agriculture and agribusiness in Mozambique is the lack of skills at all levels, from vocational to postgraduate education, including management and entrepreneurial capacity. With few exceptions, vocational and university programs need a major overhaul to focus on unmet demand from the private sector for operational, technical and managerial skills. At the same time, experiences with developing entrepreneurship through training in business models and practical hands-on training show promise in helping to create a new generation of entrepreneurial farmers and businesspeople (AFTFP/AFTAI, 2013). Tackling these issues involves long term interference outside the scope of this report that intends to focus on short cuts to create new businesses and expand existing ones with involvement of Dutch agrifood businesses.

### 16.1 Advantages

Mozambique has some clear advantages which could ensure its competitiveness for certain agrifood product groups.

- Almost 85% of Mozambique's 36 mln ha of arable land unutilized;
- Ten distinct agro-climatic zones allow for a broad and diverse range of agricultural production;
- Extensive water resources available for irrigation;
- Rich soils combined with tropical and sub-tropical climates provide year-round production potential;

- Land can be leased for 50 years or more for only USD 1 /ha;
- GDP growth of 8% per year;
- Expanding middle class;
- Opportunities for import substitution;
- Tropical climate and good growing conditions with summer rainfall in much of the country
- Low labor costs;
- Coastal position with port facilities, Maputo and Beira can handle reefers for fresh produce, Nacala being developed;
- Natural gateway to Southern African countries;
- Proximity to large regional markets such as RSA;
- Shipping to the Middle East in 8 to 10 days, 20 days to the Philippines and Latin America;
- Investments of up to USD 4 bln in infrastructure investments in Beira, Nacala and Zambezi Valley (enhancement of Beira and Nacala ports, paving major roads, airport improvements;
- Because of mining expansion increasing demand for food, currently imported at high costs;
- Besides abundant mineral resources also large gas reserves and tourism potential;
- Funding of equity or loans at soft conditions (“patient money”) is available for qualifying projects through a wide range of international financial institutions.

## 16.2 Disadvantages

- Underdeveloped banking system with little working capital finance available: high interest rates, limited risk appetite by banks, weak credit information systems, a weak collateral registration and enforcement system, and limited business and financial management skills in SME’s;
- Weak infrastructure and high transportation costs (World Bank);
- Due to war and political adventures very small entrepreneurial class present, wasted generations;
- Very few wealthy Mozambican individuals intend to invest in agriculture and food processing;
- High costs for farming inputs like fertilizers and agro chemicals;
- Domestic regulations and procedures time consuming;
- Skills and capacity of local population is low, high level of illiteracy;
- Irregular power supply;
- Informal competition (Centre for Development Innovations, 2012).
- Widespread poverty and extremely low development and as a consequence a high risk of social unrest;
- Weak institutions constrain economic and business development (relevant to agrifood: phytosanitary services, national seed inspection service, extension service, international certification schemes like GlobalGAP etc);
- Sever effect of weather calamities that affect output in agriculture;
- Exports are mainly accounted for by commodities and are therefore susceptible to high volatility in the international markets;
- Problematic and erratic policies in agricultural output and input markets;
- Weak investment climate for agribusinesses investing in downstream processing and related activities;
- Difficulties for investors to access secured and tradable land rights and for the government to protect the rights of smallholders at the same time;
- Difficulties for smallholders and small firms to access technology and skills;
- Widespread corruption; although decreasing.

## 17 Mozambican agrifood value chains relevant to Dutch companies

The total of the Netherlands import value is around EUR 370 bln, the total export value is EUR 400 bln, of which EUR 44 bln can be described as agrifood. This makes The Netherlands the second largest exporter of agricultural products in the world. The main part of export value is generated by flowers (EUR 6.3 bln), meat (EUR 5.3 bln), dairy (EUR 4.2 bln), vegetables (EUR 2.7 bln), processed potatoes & vegetables (EUR 2.5 bln) and animal feed (EUR 2.2 bln). Other important sub sectors are egg products, tobacco, nuts & spices, vegetable seeds & seed potatoes and fish.

Product	EUR x bln export value
Flowers	6.3
Meat and eggs	5.3
Dairy	4.2
Vegetables	2.7
Potato and vegetable products	2.5
Animal feed	2.2

Source: LEI 2012 agricultural figures The Netherlands

These agricultural products as listed above present the stronghold of Dutch agriculture in an international context. When discussing which agrifood value chains in Mozambique are most relevant to Dutch agrifood companies it makes sense to focus on these. The Dutch greenhouse complex for production of flowers and vegetables is no doubt the technologically most advanced in the world. It is not only the technology incorporated in production but it is also the infrastructure around it. It is the level growers are organized in cooperatives and central auctions. It is efficient logistics (sea, air, rail, road) and marketing and public/private partnership in research, the educational level of growers, extension services, trial farms, institutional frame work, etc. This complex cannot be copied to a developing country like Mozambique. The same can be argued for the other agricultural sub-sectors as listed above.

### 17.1 Mozambican primary sector classification

As stated earlier in this report the Mozambican agricultural primary sector can be divided into three segments:

- A) Self-subsistence farmers;
- B) Commercial farmers;
- C) Corporate farmers.

A wide range of literature is available on the detailed characterization of the three farmer groups. The characteristics are however relevant to Dutch agrifood companies that might be interested in setting up a business in Mozambique.

Ad A) Self-subsistence farmers primarily produce for an (extended) family; very small scale; staple crops; some excess production might be sold locally or bartered; illiteracy is high; knowledge on the theory of economics is non existing; low or no technological level; use a low level of farming inputs; don't use external finance; cannot be considered entrepreneur in the formal sense. This group of farmers is important for food security and employment, but less important for the economic expansion of the agricultural sector.

Ad B) Commercial farmers produce for a local and national market; small to medium scale; cash crops; farmers often received formal or extended education; understand the economics; technology involved; use farming inputs; use external finance; have clearly emerged from their peers and



distinguish themselves as entrepreneurs. This group is important for the expansion and development of an agricultural sector.

Ad C) Corporate farms generally produce for an export market; commodities; foreign capital involved; large scale; foreign management involved; management on the payroll; high technology; little or no interaction with local farming systems. This group is probably not that important for the development of the national agricultural sector because of its isolated operations. Some schemes have been developed in which out-growers work with corporate farms, for instance when processing is involved and local farmers can submit their products to be processed and sold.

Although the description of the three farming groups as presented above is by no means exhaustive it helps to define the production chains in which Dutch agrifood companies might participate in Mozambique. It is most likely that the focus by a potential Dutch investor will be on a value chain that includes commercial farmers. Subsistence farmers might be considered to participate in an out-grower system and corporate farms are usually fully integrated.

Another distinction should be made between investments somewhere upstream in the value chain, typically selling inputs to farmers (one-day-chicks, feed, seed and seed potatoes), or downstream, usually business to wholesaler, retailer of final consumer.

## 17.2 Local purchasing power

When analyzing agrifood value chains in Mozambique one might take a full chain under consideration and reach to the conclusion that some or many links are missing or inadequate. However, this does not automatically imply that these missing links pose investment opportunities. The first question should be why these links are missing. In many cases the probable cause would be very little purchasing power amongst the population. When people are living on USD 2 /day there is little room in the household budget to spent money on products with value added. Purchasing power in Mozambique is one of the lowest in the world. Each processing step adds value, makes a product more expensive and therefore limits its local marketability. Many have stated clearly that markets for processed food products are very limited in Mozambique. Maputo, where most of the purchasing power is concentrated, is served for a great part through South Africa (potatoes, vegetables, processed food) there is sufficient production capacity (land) available in the South of Mozambique but this has to compete with South African produce. Central Mozambique includes most of the productive land but due to the distance and road quality it is very expensive to transport produce to the South. The central part of the country also hosts most of the population but this is where purchasing power is limited. Food chains are mostly informal, with some large cities like Tete and Beira present. The mining companies currently employ some 30,000 people that need to be feed and much of the food for catering the mining companies is currently imported (Brouwer, Haverkort, Montsma, & Rothuis, 2013). So the catering sector certainly offers a perspective, the number of mining companies employees might even expand to 120,000.

Production for a local or national market would include the sub-sectors vegetables, potatoes, eggs, dairy and poultry meat. Egg and dairy consumption in Mozambique are very low compared to consumption levels in other developing countries.

As the use of quality inputs like good feed, seed or seed potatoes have a tendency to lower production costs (per unit produced), this type of business is less affected by low purchasing power of final consumers. This would make one-day-chicks, feed, seed and seed potatoes also options for investment. But seed and seed potatoes at this stage will not attract much investment, this type of business is mainly export from the Netherlands or elsewhere to Mozambique to have the seed multiplied or distributed and sold directly to farmers. RijkZwaan and Enza for instance, are active in



Tanzania to develop improved seed for sub-Saharan Africa, which can be easily exported to Mozambique. Another complication with regards to seed production is that Dutch vegetable seed companies produce solely hybrid seeds, while the Mozambican market is used to open pollinated varieties.

It is not likely that Dutch companies will invest in washing, grading and packing of potatoes. Even in Western Europe this is a business with marginal returns and it does not involve any sophisticated technology. This type of business should be done by locals that know the market and have the sales contacts. Of course a Dutch packer could be involved on a level of technical assistance, to be paid for from other resources. The same applies to completing cold distribution chains in Mozambique, Lonhro from South Africa specializes in this but did not enter the vegetable market in Mozambique. Lonhro however works with corporate fruit producers in Mozambique.

Local production of chips (French fries) or crisps for national distribution does not make much sense. Cost price of potatoes should be below EUR 15 /100 kg to be able to compete with imports, at the same time the fresh market offers nice returns at a much higher price. Potato yields per ha are too low and purchase price of inputs too high to make processing competitive in Mozambique. Local production of pre-fried French fries for catering and for the service sector might be an option for a local company but is of no interest to Dutch businesses.

17.3 Import substitution

Some of the most important products imported into Mozambique are listed below. Wheat and corn lead the list. These statistics can only be regarded as estimates because there is a lot of cross-border informal trade like for vegetables and potatoes. Most of Mozambique’s rice consumption is also being imported, mainly low grade from Asia (Olam). Much of the UHT milk on the Mozambican market was imported as milk powder and subsequently mixed and processed into UHT milk. Getting involved into dairy processing would also require involvement in primary production. Land O’lakes is involved in primary milk production in Chimoio, the company supplies heifers and technical assistance, this operation is financed by USAID.

Imported product	Volume (t)
Wheat	380,000
Rice	360,000
Corn	140,000
Soybean cake	110,000
Potatoes	20,000 (WUR: 120,000 t)
Corn flour	17,000
Broiler meat	13,000
Source: FAOSTAT 2014	

Producing for import substitution would include products like potatoes, dairy and broiler meat. Large projects like ProSavana are being elaborated by the Brazilians in the North to produce soybean, sunflower and corn.

17.4 Export

Production for export is currently practiced by both corporate farms and international companies that run an out-grower scheme, or a combination of the two. Sesame seed, tobacco, peanuts and cashew nuts are examples of products that are mainly produced in an out-grower scheme.

Commodities like corn, rice, sunflower and soybean would most likely be produced by large scale corporate farms.

Traditionally a Dutch family owned company (Global Trading / Klijn) has been heavily involved in cashew collection, processing and export (Klijn, 2014). Peanut production for export has been investigated in cooperation with Dutch Calvé, aflatoxine infestation posed some problems but using the right production and storage techniques might avoid infestation.

A Dutch flower company, Vilmar Roses, started growing roses in the Chimoio area in 2004, technically this went fine. Logistics is an important issue when considering flower production, new technology has recently been developed to transport flowers by sea container, which is cheaper and makes a nearby international airport with frequent connections to the world's main distribution center's less of a necessity. Therefore flower production for export has become a serious option. Dutch flower companies have a tradition of investing abroad and exploring new frontiers.

Vegetable production for export is quite complicated because of transport costs. Vanduzi exports during some months of the year to the UK, but the produce needs to be transported from Chimoio to Johannesburg (some 1,300 km) to be flown to the UK. HAK is involved in canned Haricots Verts production in Madagascar. This might offer an opportunity, the process requires quite some labor and the product is being canned (in glass or tin) which solves the storage and transport issue. The same applies to the production of (green) Asparagus for canning, a process that also requires a lot of labor.

The South African seed potato market is closed for Dutch seed potato exports (some Dutch exporters got varieties in through mini-tubers). The South African potato sector is suffering from a declining area as a consequence of decreased consumption. This might be due to a lack of suitable varieties with specific characteristics for processing into French Fries, crisps or salad potatoes. Production of these potatoes in Mozambique, Maputo region, for export to RSA might be an opportunity.

## 17.5 Selected value chains

Combining the strongholds of Dutch agriculture with the opportunities and comparative advantages that Mozambique offers, leads to a short lists of initiatives that might be attractive to Dutch private investment. These initiatives all require a certain level of knowledge that The Netherlands has specialized in. The projects would introduce technology, through the equipment involved, and generate knowledge transfer.

Broilers	Parent stock	Hatchery	1 day chicks	Broilers	Slaughtering	Processing	Wholesale / retail
Layers			1 day chicks import	Layers	Grading	Packing	Wholesale / retail
Feed	Raw material input	Premixes and concentrates import	Feed mill		(Integrated egg or broiler production)		Local B2B sales
Flowers (roses)	Cuttings import	Greenhouse	Packing	Transport			Export
Vegetables	Haricots Verts	Open field (shading)	Canning				Export
Vegetables	(Green) Asparagus	Open field (shading)	Canning				Export
Cashew	Out-grower	Collection	Processing				Export
Groundnut		Open field	Drying	Shelling			Export
Starch	Cassava Out-grower	Starch processing plant		Transport			Export

For each of the initiatives as listed above, several partners have been identified. This includes local companies already active in Mozambique, potential investors, suppliers of key-technology and potential companies for off-take agreements.

## 18 Conclusions and recommendations



By far the highest concentration of (semi-) commercial agrifood related activities is concentrated in the Chimoio area, as depicted by the red dots on the map above. Each dot represents a company as described in chapters 6 to 10 of this report. The Chimoio cluster includes vegetable (potato) production, poultry, dairy and cassava. There is another cluster around Nampula, that mainly includes commodity and poultry production. The third cluster is around Maputo and includes poultry and vegetables (potatoes).

It is an explicitly defined objective of Dutch development cooperation to include the private sector in supporting development in certain low-income countries, of which Mozambique is one. Mozambique is not an easy country to make an investment in agrifood profitable on the medium term (not to mention the short term) as is extensively documented in this report; nevertheless, this is the case in most African countries. The objective of a strategic investor should therefore focus on a long term perspective. Most of the initiatives described in this report generate marginal profits with the exception of ventures involved in the tobacco and sugarcane chains. Also the poultry cluster seems to

generate higher returns. Companies are generally very young, for instance none of the companies funded by Banco Terra was founded before 2007.

The term “patient money” is widely used by investors in Mozambique and refers to equity and debt finance. Although the commercial finance sector in Mozambique, with the exception of Banco Terra, is hardly financing agrifood ventures, there is capital available. This report describes over 40 investment funds and financial institutions that are willing to participate in sound and sustainable agrifood ventures. In Mozambique finance seems to be desperately seeking for qualifying projects.

All of the agrifood ventures that were scrutinized within the context of this report were financed through some kind of “patient money”; no exceptions. Be it through NGO’s, investment funds, private equity funds, hedge funds, family funds, development banks, philanthropic and charitable institutions, all equity or debt finance is on relatively soft terms. Most ventures also received grants.

Public-private partnerships need to pave the road, in which public stands for institutional development, creating the conditions that enable companies to be initiated and ultimately successful. Public also stands for support to Dutch agrifood companies that participate in Mozambican entities. Many tools already exist for business support in developing countries and many of the investment vehicles as mentioned offer soft finance. Most of the executives interviewed for this report exemplified that it is important not to initiate an agrifood venture in Mozambique on a too large scale. Many mega-projects failed. But on the other hand, a common venture abroad will take management time and money and needs a certain scale of economics to succeed.

Setting up a greenfield agrifood related project in Mozambique would be too risky, a reliable local counterpart is a prerequisite. Several potential partnerships are mentioned in this report and there are more. Investment (and trade) by Dutch agrifood companies in Mozambican agrifood will most likely be in:

- Poultry (broilers and layers);
- Feed (related to the above, maybe integrated, premixes & concentrates);
- Selected vegetables (local and export);
- Flowers (introducing a new transport mode);
- Cashew and groundnut.

This report must help realistically inform Dutch agrifood companies on the business opportunities that Mozambique has to offer and the hurdles that can be anticipated. A business meeting will be organized early July of 2014 in The Netherlands to further discuss the matter with invited Dutch agrifood companies . Depending on the outcome, this meeting may lead to an agrifood trade mission to Mozambique to be organized in the autumn of 2014.

## 19 Annexes

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## 19.2 Annex II Selected Dutch agrifood companies

The pages below list a number of Dutch agrifood companies for which Mozambique might offer some real potential. This could be either an export potential or setting up local production. For each company there is an indication of relevance: (\*\*\*) indicates relatively high short term relevance and subsequently (\*) indicates low relevance. The highly relevant companies for export are in seed (potatoes), pre-mixes, equipment, pre-fab building and one-day layer chicks. Highly relevant companies for local production or processing are in vegetable, flower, feed, nut and poultry production.

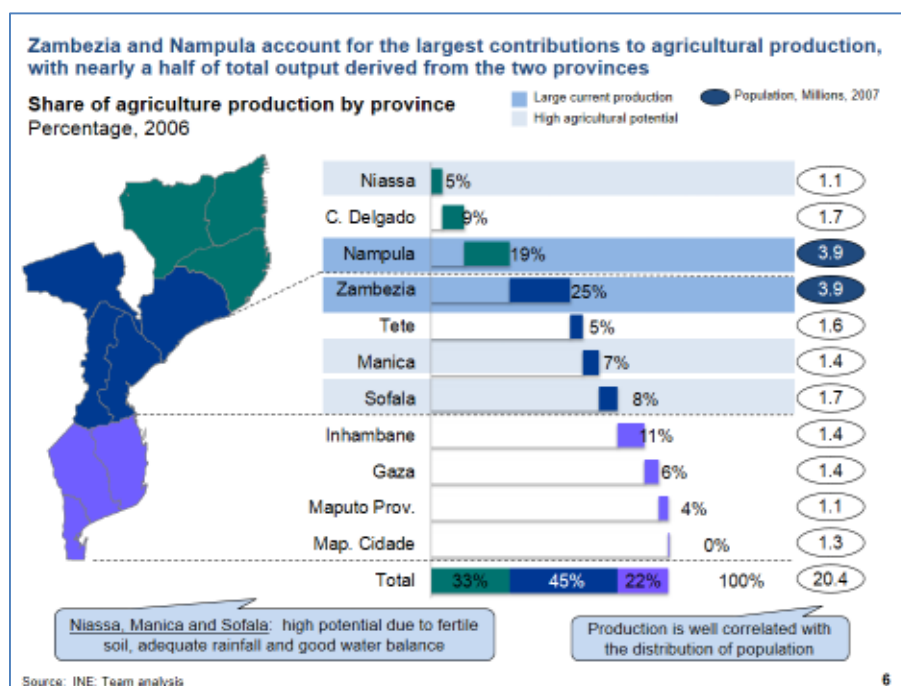
Agrico	Seed potatoes	***
Agrifac Machinery BV	Farming equipment	*
Agroplant	Seed potatoes	***
Aviko BV	Potato products	*
Bijlsma Hercules	Potato handling	*
Brabant Van Opstal	Feed mill equipment	**
C. Meijer BV	Seed potatoes	***
Daalimpex	Potato trade	**
Dacom Plant Service	Agri management support systems	***
Dadtco	Cassava processing	***
Dalsem	Greenhouse systems	**
Den Hartigh	Seed potatoes	***
Dijkstra Techniek	Potato handling	*
Enza	Vegetable seed	***
Fancom	Stable climate control	*
Farmfrites	Potato products	**
Fermoveed	Bio fertilizers	***
Flevostar Dronten BV	Potato packer	*
FloraHolland	Flower auction and trade	**
Florius BV	Flower production	***
Foodmate	Poultry processing	***
Gea Grasso International BV	Poultry processing	***
GEA Hovex	Starch processing	**
GMF Gouda Andritz	Starch processing	**
HAK Food Group	Vegetable canning	**
Hatchtech	Egg incubators	***
Heemskerk Livestock	Livestock export	**
Heering	One-day layer chicks	***
Hotraco Group / Mooij	Potato storage climate control	*

Hy-Line Benelux	One-day layer chicks	***
HZPC Holland BV	Seed potatoes	***
Impex	Animal feeding and water systems	*
Intersnack / The Nut Company	Ground nut	***
Kiremko	Potato processing	*
Klijn	Cashew	***
Kneppers Rozen	Flower production	***
Kok Staalbouw	Prefab stable construction	**
Koppert Biological Systems	Pest management	**
Koudijs / De Heus	Animal feed	***
KWS Potato BV / Van Rijn	Seed potatoes	***
Machinefabriek Grisnich BV	Potato handling	*
Manter	Potato handling	*
Marel Stork Poultry	Poultry processing	**
Maurice Greenhouses	Greenhouse systems	**
Mavitec	Poultry processing	**
Meijer / Lamb Weston	Potato products	*
Meyn	Poultry processing	**
Microfan BV	Stable climate control	*
Miedema	Farming equipment	*
Moba	Egg handling	**
Nak Agro	Inspection service	***
Nedato	Potato packer	*
Nivap	Seed potatoes	***
Nivoba	Starch processing	**
Nuscience	Feed pre-mixes and concentrates	**
Oldenhuis en Prinsen	Potato handling	*
Omnivent Techniek BV	Potato storage	***
Ottevanger	Feed mill equipment	***
Pasreform	Hatcheries	***
Ploeger Machines BV	Vegetable harvesters	*
Plumex	Hatching eggs production and export	***
Pluriton	Hatching eggs production and export	***
Priva	Climate control for greenhouses	*
Provimi	Feed pre-mixes and concentrates	***
Rijk Zwaan	Vegetable seed	***
Rovero	Greenhouse poly tunnels	***
Samon	Farming equipment	*
Schaap Holland	Potato packer	*
Schouten Kampen	Potato handling	**
Semagri Holland BV	Seed potatoes	***
Stet Holland	Seed potatoes	***

The Flowerhub	Flower production	***
The Greenery	Vegetable auction and trade	*
The Potato Company	Seed potatoes	***
Thinking Steel	Prefab stable construction	**
Tolsma	Potato storage equipment	**
TopKip	Poultry processing	***
Tummers Methodic	Potato / cassava processing	**
Van Aarsen	Feed mill equipment	***
Van den Berg Roses	Flower production	***
Van Drie	Veal	**
VDL Agrotech	Poultry and pig stable equipment	**
Vencomatic Group	Poultry equipment	**
Verbeek	One-day chicks export	***
Viscon	Hatchery	***
Wifo	Potato handling	*
Wopereis Staalbouw	Prefab stable construction	**
Würth Stallenbouw	Prefab stable construction	**
Wynveen	Feed mill equipment	***

### 19.3 Annex III A proposed program for a Dutch agrifood trade mission

Most of agriculture related activities in Mozambique take place in the provinces of Nampula and Zambezia. The Chimoio region (Manica province) offers good conditions for vegetable and flower production. The Maputo region is of interest because of its agricultural potential in the vicinity of the capital Maputo where most of the purchasing power is concentrated. The local companies as described in this report happened to be concentrated in the Chimoio area, with a second concentration around Nampula and a third around Maputo (see Chapter 18).



The objective of the visit would be to have Dutch entrepreneurs to meet as many local business as possible to exchange thoughts and opinions and not to have long, general, official meetings to promote the country as a whole.

A proposed schedule for a Dutch agrifood mission to Mozambique would be:

Sunday	Arrival at Maputo, late afternoon
Monday	Morning: briefing (EKN, Bancoterra, Technoserve, etc) Late morning/afternoon: fieldtrip Chokwe/Maputo area
Tuesday	Chimoio area (visit companies as listed in ch 6 to 10) Evening: informal business meetings
Wednesday	Trip to Nampula Nampula area (visit companies as listed in ch 6 to 10) Evening: informal business meetings
Thursday	Trip to Maputo Morning / lunch: return to Maputo, wrap up and informal business meetings Night: departure/return to The Netherlands

## 19.4 Annex IV Acronyms

ACIS	Associação de Comércio e Indústria
ADIPSA	Agriculture Private Sector Support Program
AFD	Agence Française de Développement
AfDB	African Development Bank
AgriFuturo	USAID-funded agribusiness development project
AGRA	Alliance for a Green Revolution in Africa
AMODER	Associação Moçambicana para o Desenvolvimento Rural
AMOMIF	Mozambican Micro-finance Operators' Association
AMPIA	Agro-input dealer association
BCI	Commercial and Investment Bank
BIM	International Bank of Mozambique
BT	Banco Terra
CAADP	Comprehensive Africa Agriculture Development Program
CAP	Censo Agro-Pecuário 2009–2010 (recent agricultural census)
CCOM	Caixa Comunitária de Microfinanças
CEPAGRI	Agriculture Promotion Center
CGIAR	Consultative Group on International Agricultural Research
CIM	Companhia Industrial de Matola (grain milling complex in Maputo and Beira)
CPI	Investment Promotion Center (Centro de Promoção de Investimentos)
CTA	Confederation of Business Associations of Mozambique
DAF	Directorate of Administration and Finance
MINAG	Ministry of Agriculture
DANIDA	Danish International Development Agency
DCA	Development Credit Authority
DDF	District Development Fund
DE	Directorate of Economy
DFID	Department for International Development (of the UK)
DNSA	National Directorate of Agrarian Services
DNTF	National Directorate of Land and Forestry
DPA	Provincial Directorate for Agriculture (Direcção Provincial de Agricultura)
DPPF	Provincial Directorate for Planning and Finance
DUAT	Direito de Uso e Aproveitamento de Terra (land use certificate)
EC	European Commission
EU	European Union
FAAP	Framework for African Agricultural Productivity
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	FAO statistical database
FARA	Forum for Agricultural Research in Africa
FARE	Economic Rehabilitation Fund
FDA	Agricultural Development Fund

GAPI	Small Industry Support Agency
IAM	National Cotton Institute
ICM	Cereal Institute
IFAD	International Fund for Agricultural Development
IFDC	International Fertilizer Development Center
IFPRI	International Food Policy Research Institute
IIAM	Institute of Agricultural Research of Mozambique
INCAJU	Cashew Promotion Institute
INIA	National Institute of Agronomic Research
INIVE	Institute of Veterinary Research
IPA	Institute of Animal Production
ISFM	Integrated Soil Fertility Management
JICA	Japanese International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau
MDG	Millennium Development Goal
MIC	Ministry of Industry and Commerce
MINAG	Ministry of Agriculture
MZN	New Metical
NEPAD	New Partnership for Africa's Development
ODA	Official Development Assistance (grants plus concessionary loans)
OE	State Budget
PAMA	Agricultural Markets Support Program
PEDSA	Strategy and Plan for Agro-Development
PGQ	Government Five-year Plan
SADC	Southern Africa Development Community
SDC	Swiss Development Corporation
SEMOC	Mozambique Seed Company
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WBG	World Bank Group
ZVDA	Zambezi Valley Development Agency
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