



Koninkrijk der Nederlanden



DUTCH AGRIFOOD PRIVATE SECTOR INVOLVEMENT IN ANGOLA

Developing Angolan-Dutch private sector cooperation



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1 Executive summary

Experts on agriculture worldwide acknowledge the fact that Angola has the potential to become an agricultural world power. This point of view is supported by the fact of the 58 mln ha agricultural land available in Angola, some 35 mln ha can be considered as good arable land and only 5 mln ha is actually being used. Rain fed production is possible on most of the land and water supplies for irrigation are abundant.

The Angolan Government (GoA), in its “Plano Nacional de Desenvolvimento” underlines the importance of the agricultural sector to become the second pillar supporting the national economy. According to the GoA, agriculture has three main functions:

- Guarantee food security;
- Limit food imports;
- Contribute substantially to Angolan GDP.

The Netherlands is a leading country in agriculture being the second exporter of agricultural produce in the world. It would be in the interest of both Angola and The Netherlands to get the Dutch private agrifood sector involved in the development of the agrifood sector in Angola.

Dutch agrifood private sector involvement was discussed by Minister Mrs. Lilianne Ploumen with Angolan Vice President Mr. Manuel Vicente during her visit to Angola in July 2014. At this occasion Mr. Vicente clearly expressed that Dutch private sector agrifood involvement would be very much appreciated. It was decided by mutual consent that the matter needed a detailed assessment. At a meeting in January 2015 between the Netherlands Ambassador in Angola, Mrs. Suzanna Terstal, and the Angolan Minister of Agriculture, Mr. Afonso Canga, this view was again confirmed.

The Netherlands Embassy in Luanda requested Agrix to further elaborate on the issue, the report in hand is the result of this Agrix intervention. The Agrix mission statement in the context of this assignment is: “Promote agricultural production and processing in Angola by linking selected local initiatives to investors and Dutch agrifood technology”.

Angola has some 12 mln inhabitants and nominal GDP is around USD 120 bln or USD 6,000 per capita; the 5 year average GDP growth is 9%. Total export value is USD 90 bln, oil production accounts for 98% of the export value; as a result Angolan GDP is extremely sensitive to oil price. The main import partner of Angola is the European Union (Portugal) and the main export partner is China (mostly oil). China’s total funding of Angola so far is around USD 14 bln. Angola currently imports almost USD 5 bln worth of food and drinks.

Yields, production per hectare, are on average extremely low in Angola, the country has the largest “yield gap” (the difference between potential and actual yield) of African countries. Although commercial farms are performing much better and realize yields far above the national average. The main crop in Angola is Maize, with 1.7 mln ha, followed by Cassava with 1 mln ha; potato is also an important crop with around 100,000 ha. Farm gate prices are very high in Angola, on average double that of farm gate prices in the USA or Europe.

Angola imports large quantities of Maize (500,000 t/yr), Rice (225,000 t/yr), Wheat (228,000 t/yr) and potatoes (200,000 t/yr); FAO indicates that Angola imported 800,000 t of wheat in 2012.

Protein intake of Angolans is low, compared to the EU the largest difference is in the per capita consumption of eggs (2 kg versus 13 kg /yr) and dairy (11 kg versus 260 kg /yr).

The retail sector is getting more and more important in Angola, with a total turnover of around USD 28 bln, about 21% of the country's GDP. Retail also plays an important role in the development of agricultural primary production as a new law obliges retailers to source locally 30% of products sold. Some retailers decided to integrate upstream by setting up their own farms. Kero and South African Shoprite are the largest retail chains, each with over 10 super and hyper markets. Still 80% of retail sales are through the informal circuit. This report describes 15 retail chains present in Angola.

For the last 5 years a large number of agricultural projects has been set up in Angola, this report describes close to 40 recently established agrifood ventures. Projects involve investments from Brazil and Portugal, but also from China and Israel. Most projects are integrated and large scale, as investment levels are often far above USD 10 mln. Many are inclusive in the sense that out-growers and small holders benefit. Projects generally focus on the big arable crops (corn, soybean), vegetables, dairy and poultry. But also cotton and rice projects are being set up.

A large number of the initiatives as described in chapter 15 of this report is focussed on small holder farming, these schemes often focus on resettlement of former UNITA fighters but also on supporting local community farming and small holders. Examples of such projects are the development plan for Camabatelo in the north (par. 15.22), the Sediad project (par. 15.16), the Fazenda Maxi scheme (par. 15.14), the Matala project (par. 15.20), KS46 (par. 15.15) and the People In Need project (par. 15.4). The Terra do Futuro scheme is focussed on mid-size commercial farming. For Dutch suppliers of inputs and agricultural and processing equipment these initiatives are relevant because the projects as mentioned usually include a central service centre for supplying inputs and for handling and processing of the products that the associated farms produce. So although farming may be relatively small scale, input volumes and handling and processing capacity might be large.

The recently established agricultural ventures are concentrated around Malanje and Quibala; in the provinces of Malanje and Kwanza-Sul respectively. Also the Lubango region in the province of Huila attracted much investment in primary agriculture. By far the largest project is Bioenergia de Angola, a joint venture with Brazilian Odebrecht, developing 42,000 ha near Malanje. The first objective is to produce bio ethanol from sugar cane but other agricultural projects will follow suit.

After an analyses of the current developments in Angolan agrifood, the opportunities that the market offers and the characteristics of the Dutch agrifood sector, the report focusses on a limited number of selected clusters:

- Cluster 1 Intensive animal production (broilers, layers, pork);
- Cluster 2 Feed production (local crushing, feed milling);
- Cluster 3 Vegetables (open field, including potatoes: chain optimization);
- Cluster 4 Covered crops (flowers, greenhouse vegetables);
- Cluster 5 Dairy (primary production and processing);
- Cluster 6 Arable production (grain and protein crops);
- Cluster 7 Perennials (nuts and other tree crops);
- Cluster 8 General processing (starch, sugar).

These clusters are most relevant to Dutch agrifood companies. Some agrifood ventures, representative for the selected clusters, have been analysed economically, these ventures are listed in the table below.

Agrifood ventures analysed		
19.1	Venture 1	Potato handling
19.2	Venture 2	Full fat soymeal
19.3	Venture 3	Dairy production
19.4	Venture 4	Egg production
19.5	Venture 5	Cassava starch production
19.6	Venture 6	Arable farming
19.7	Venture 7	Potato storage
19.8	Venture 8	Seed potato multiplication
19.9	Venture 9	Pork production
19.10	Venture 10	Beef production
19.11	Venture 11	Other potential ventures

The detailed analyses in chapter 19 of agrifood business models that would work in Angola and in which Dutch technology could play an important role, demonstrates that expected IRR is between 20% and 30%. This indicates that if the entrepreneurs are able to finance their projects with capital that costs less than the IRR, the return on equity (ROE) will be even higher. The analyses are based on models calculating with real quotations and assumptions that are quite conservative.

Foreign companies that are active in oil and gas exploitation in Angola are large multinational corporations, contracts often involve billions of USD's. These companies do have a Social Corporate Responsibility (SCR) scheme in place and are willing to finance, through grants or subordinate loans, inclusive projects in Angola. Good examples are Maersk Oil and the USAID-Chevron projects.

The next move, as suggested by Agrix, would be to connect Netherlands agrifood companies to local entrepreneurs, a process that already started. This must lead to actual transactions of agrifood equipment and technology from The Netherlands to Angola. The analysed ventures prove that agrifood business in Angola, based on Dutch technology, are profitable.

Follow-up actions:

- Setup a workshop with selected agrifood companies in The Netherlands;
- Organize a joint presentation of Dutch agrifood related companies on the Feira Internacional de Luanda (FILDA) every year in July;
- Setup an outgoing mission of Dutch agrifood companies to Angola;
- Receive an ingoing mission of Angolan stakeholders to The Netherlands.

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3 Introduction

Before independence in 1975 Angola was a major exporter of agricultural produce, mainly coffee and rubber. At that time Angola was self-sufficient in all crops except for wheat. Angola's agricultural area is estimated by FAO to be around 58 mln ha of which only 5.2 mln ha is actually being used. In 2013 Angola imported almost USD 5 bln worth of food and drinks. Experts consider the agricultural potential of Angola as very high.

Being the second largest exporter of agricultural produce in the world, The Netherlands has a strong interest in further developing agrifood related business with Angola. An opportunity to boost bi-lateral agricultural relations presented itself with the visit of Dutch Minister for Foreign Trade and Development Cooperation, Mrs. Lilianne Ploumen, to Angola from July 9 to 11, 2014. At this occasion Mrs. Ploumen discussed the matter with Mr. Manuel Domingos Vicente, vice president of Angola (the VP). It was agreed that a common initiative would be launched to explore the possibility of intensive Angolan and Dutch private sector involvement in boosting Angolan agrifood output. Three main objectives should be pursued: 1) improving food security in Angola, 2) replace imports of agrifood commodities and 3) contribute to the balance of trade by increasing export of agrifood commodities. EKN Luanda requested Agrix in July 2014 to further elaborate on the theme.

Cooperation on agrifood ventures in Angola is relevant to all Dutch companies that have a strategic interest in either producing in Angola or supply technology "that makes the difference". Within the context of this report emphasis is on Angolan-Dutch private sector cooperation and thus the role that Dutch agrifood companies can play in Angola. The Agrix mission statement in the context of this assignment is: *"Promote agricultural production and processing in Angola by linking selected local initiatives to investors and Dutch agrifood technology"*.

The main (short-track) objectives of this Agrix intervention are:

- Define preferred agricultural sub-sectors that should be developed to improve food security, that replace imports, that generate exports (and contribute to the balance of payments both current and capital account) and that have a fit with Angolan production conditions (climate, soil, experience/people);
- Prospect emerging promising private initiatives in Angolan agrifood;
- Link local agrifood opportunities and comparative advantages to Dutch expertise (private companies that can deliver technology/markets and/or might be willing to co-invest);
- Source (additional) funding, this might be through wealthy Angolan individuals, institutional investors, commercial finance, soft loans, grants, CSR funding, etc.;
- Elaborate in detail the economic feasibility of some agrifood ventures as defined.

This initiative perfectly coincides with the intentions of the Government of Angola (GoA) as stated in its "Plano Nacional de Desenvolvimento" (MPDT, 2012). In this document the GoA states that the Angolan agrifood sector has three main functions:

- Guarantee food security;
- Limit food imports;
- Contribute substantially to Angolan GDP.

For the period 2013 to 2017 some 57 projects have been identified by the GoA for financial support at a level of AOA 270 bln (equivalent to USD 2.6 bln or around USD 0.5 mln per project). The provinces Bengo, Malange, Moxico, Uigo and Zaire can anticipate the highest level of support. The

national total of capital expenditures on projects for the same period is estimated at USD 31 bln, of which USD 4 bln in agriculture (excluding aquaculture).

In the same report the GoA identifies the main constraints for agricultural development as:

- Subsistence farmers with very low knowledge level and analphabetic;
- The very bad condition of rural roads and the mining activities in some regions;
- Low production level in agriculture as a result of the low development level of commercial agriculture;
- The almost non-existence of rural trade, cold chains and local storage facilities

3.1 Method used

To produce the deliverables as described, Agrix used several sources:

- Preparatory desk research, taking into consideration already performed studies by institutions like WUR and LEI as provided by the agricultural council in Pretoria and EKN Angola;
- Relevant input from EKN Luanda and Pretoria;
- Local expertise by interviewing local experts;
- Visits to Angola for a series of meetings and site visits, emphasis was on meeting local agrifood entrepreneurs and already developed agrifood related initiatives (so called “champions”);
- Meetings with local potential investors;
- The Agrix network of Dutch agrifood companies to match with selected initiatives;
- Visits to Dutch selected companies and discuss options;
- Detailed financial analysis of some selected potential ventures.

4 Angola: background information

The Republic of Angola is a former Portuguese colony. Since its independence in 1975, Angola had suffered from a 27-year civil war in which two liberation movements, Popular Movement for the Liberation of Angola (MPLA) and the National Union for the Total Independence of Angola (UNITA), were the main actors. The death of UNITA leader Savimbi in 2002 marked the end of the civil war; the MPLA won and MPLA leader José Eduardo Dos Santos subsequently took office as President. As a result of his own constitutional change in 2010, Dos Santos was re-elected again in 2012.

In the years following the civil war, Angola became one of the fastest growing economies in the world. Angola's oil industry contributed to a large share of economic growth and the country became the second largest oil exporter of Africa, right behind Nigeria. With oil production accounting for 98% of Angola's total exports, 70% of total government revenues and more than 50% of GDP, the country is highly dependent on the commodity. This dependence was clearly visible during the global economic downturn, starting in 2007; world oil demand stagnated and Angola's exports diminished sharply in the consecutive years, leading to a substantial reduction of economic growth. Dependence on oil is just one of the country's significant problems, as Angola is among the countries with the lowest standards of living in the world.

Angola					
National facts			Social and governance indicators		
Type of government	Republic		Human Development Index (rank)		148 / 187
Capital	Luanda		Ease of doing business (rank)		172 / 185
Surface area (thousand sq km)	1.247		WEF Global Competitiveness Index (rank)		n.a. / 144
Population (millions)	19.6		Corruption perceptions index (rank)		157 / 176
Main languages	Portugese		Press freedom index (rank)		130 / 179
Main religions	Bantu		Gini index (income distribution)		42.7
	Indigenous beliefs (47%)		Population below \$1.25 per day (PPP)		n.a.
	Roman Catholic (38%)				
	Protestant (15%)				
Head of State (president)	Jose Eduardo Dos Santos		Foreign trade		2011
Head of Government	Jose Eduardo Dos Santos		Main export partners (%)		Main import partners (%)
Monetary unit	Kwanza (AOA)		China	38	Portugal
			US	21	China
			India	9	US
			Canada	4	Brazil
Economy			2012		
Economic size	bn USD	% world total	Main export products (%)		
Nominal GDP	122	0.17	Crude oil		
Nominal GDP at PPP	142	0.17	Diamonds		
Export value of goods and services	70	0.32	Refined petroleum		
IMF quotum (in m SDR)	286	0.13	Liquefied natural gas		
Economic structure			Main import products (%)		
Real GDP growth	2012	5-year av.	Consumer goods		
Agriculture (% of GDP)	n.a.	n.a.	Chemicals, minerals, papers and plastics		
Industry (% of GDP)	n.a.	n.a.	Intermediate goods		
Services (% of GDP)	n.a.	n.a.			
Standards of living			Openness of the economy		
Nominal GDP per head	USD	% world av.	Export value of G&S (% of GDP)		
Nominal GDP per head at PPP	6075	55	Import value of G&S (% of GDP)		
Real GDP per head	7046	55	Inward FDI (% of GDP)		
	2695	33			

(Source: Rabobank)

4.1 The Angolan economy¹

With oil production accounting for 98% of total exports, 70% of total government revenues and more than 50% of GDP, Angola's economy is highly dependent on oil. Over the next years, average oil production is forecasted to rise from 1.75 mln barrels a day in 2012 to 2.12 mln barrels a day in 2017. The commissioning of new oil fields will contribute to this forecasted rise in oil production, which will reach its peak no later than 2017. However, if the current oil price decline, as seen in the third quarter of 2014, is to persist, it would pose a downside risk to Angola's growth forecasts as Brent oil currently (January 2015) is at USD 50 / barrel while production costs of oil in Angola are around USD 70 /barrel. A severe oil price drop would, furthermore, affect the economy in several other ways including a worsening of fiscal and external balances and a reduced capacity to implement social development programs.

City	Province	Inhabitants
Luanda	Luanda	2,776,125
Huambo	Huambo	226,177
Lobito	Benguela	207,957
Benguela	Benguela	151,235
Lucapa	Lunda Norte	125,751
Kuito	Bie	113,624
Lubango	Huila	102,541
Malanje	Malanje	87,047
Namibe	Namibe	80,150
Soyo	Zaire	67,553

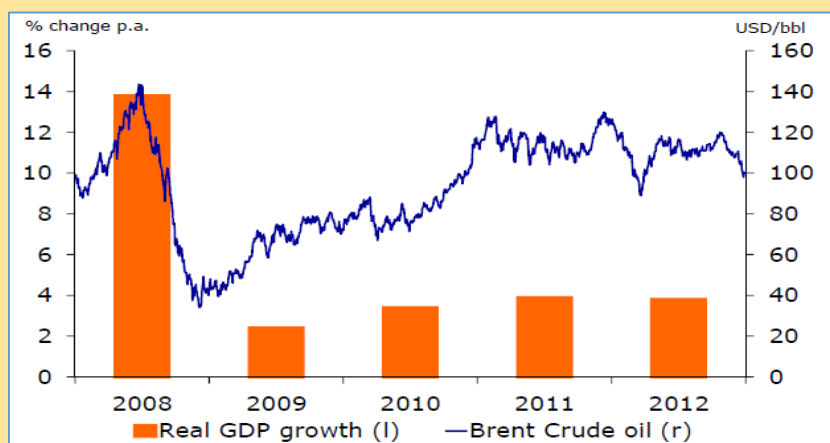
The state-owned oil company, Sonangol, plays an important role as a vital source of revenues for the government. Delays of oil revenue transfers from Sonangol to the authorities undermine the government budget. The development of a strong fiscal framework will help to clear the risks that surround Angola's fiscal performance, as the impact of volatilities caused by the oil-sector dependency could thereby be reduced.

An important step in reducing Angola's dependence on oil is the government's support of non-oil sectors, such as the agricultural sector, the diamond industry (currently profiting from improved regulation), and the energy, transportation and construction sectors (benefiting from a surge in public investment). Despite an increasing number of companies active in non-oil sectors, the authorities keep on controlling the economy by only providing financial aid to companies that fit into their development plans. Hence, these sectors are expected to underperform (Wiel, 2013).

Due to dependency on one single economic activity and an under developed service industry, Luanda is considered to be one of the most expensive cities to live in. The standard of living that € 3,800 would provide in Amsterdam would cost € 8,600 in Luanda (based on rented housing in both cities)². A McDonalds combo meal would cost € 7 in Amsterdam and € 19 in Luanda (a sort of "Big Mac" index).

¹ Rabobank country report Angola

² www.numbeo.com



The investment climate in Angola is currently worse compared to a few months ago, as oil prices are low, Angola runs into trouble now the price has dropped below USD 70, which is the cost price (compared to a USD 18 cost price for the emirates).

4.2 Trade balance

Angola trade 2013 (EUR x mln)		Import	Export
European Union	6.528	China	22.271
China	3.344	European Union	8.483
South Africa	1.233	USA	6.149
USA	1.223	India	4.726
Brazil	1.072	South Africa	2.520
South Korea	1.047	Canada	1.157
India	422	Brazil	557
Malaysia	392	Japan	272
Norway	323	Peru	248
Japan	240	Indonesia	148
Total	15.824		46.531

(Source: Eurostat)

Angola's main import partner in 2013 was the European Union (Portugal), main export partner was and is China. China maintains very strong relations with Angola. As Angola will be going through a period of budgetary restraint due to the drop in oil prices, 2015 is expected to be a difficult year. The China Development Bank is expected to reduce those difficulties by providing a loan of USD 2 bln to Sonangol, which may be followed by other "long-term debt" in view of the oil company's future plans, including construction of the Lobito refinery. Since 2002, the total funding provided by China to Angola has been around USD 14.5 bln (Reuters).

A highlight of Chinese-Angolan cooperation in 2014 was the completion after 10 years of the 1,344 km Benguela railway. This, according to the Economist Intelligence Unit, will drive the economy by stimulating sectors such as diamond mining and agriculture in the central region of the country. Chinese state company CITIC Construction Co. is due to invest USD 5 bln in a corn, soybean and wheat farm in Angola. Also in 2014, the Fund for Cooperation and Development for China and the Portuguese Speaking Countries approved two projects of which one in Angola related to public lighting through solar energy.

5 The Dutch agrifood sector

As world food production needs to increase to feed 9 bln mouths by 2050 it is illustrative to shed some light on the position of The Netherlands in world agrifood. In the coming 40 years' time the world will need to produce as much food as it did in the past 8,000 years together. That is the challenge posed on agriculturists worldwide. Agrifood in The Netherlands represents around 10% of Dutch GDP and generates 10% of employment, this includes processing. 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 attributed to agrifood; some sources define the share of agrifood in Dutch export at 25%. Still the "top sector" agrifood is expanding more rapidly compared to other sectors of the Dutch economy. This made 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), potatoes & 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

Netherlands exports (EUR x bln)	2012
Flowers	6,3
Meat and eggs	5,3
Dairy products	4,2
Vegetables and potatoes	2,7
Processed vegetables	2,5
Animal feed	2,2
(Source: LEI 201 NL AG figures)	

These agricultural products present the stronghold of Dutch agriculture in an international context. When considering which agrifood value chains in Angola are most relevant to Dutch agrifood companies it makes sense to focus on these.

The Dutch greenhouse complex for production of flowers and vegetables makes a nice example. It is no doubt the technologically most advanced in the world

but it cannot be copied for it is not only the technology incorporated in primary production but it is also the surrounding infrastructure, the complex as a whole. This includes the level to which growers are organized in cooperatives, like central flower and vegetable auctions, but also efficient logistics (sea, air, rail, road) and marketing. Very important are the 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 Angola. The same can be argued for any of the other agricultural sub-sectors as listed above. Nevertheless some aspects of the Dutch agrifood complex can serve as a model to develop similar sub-sectors in Angola.

Although The Netherlands can be considered a sophisticated country, as far as agrifood is concerned, there is still room for expansion, if all farms would be as productive as the top 20%, total agricultural production in The Netherlands would increase by 50%.

6 Climate and soils of Angola

Most of Angola is part of the Guinea Savannah which is an enormous expanse of arable land stretching across Africa south of the Sahara, reaching down from Uganda to Mozambique, and westward into Angola via the Democratic Republic of the Congo and Zambia. Of the zone's 600 mln ha, some 400 mln could potentially be used for crop agriculture. Less than 10% of this area is currently being cultivated.

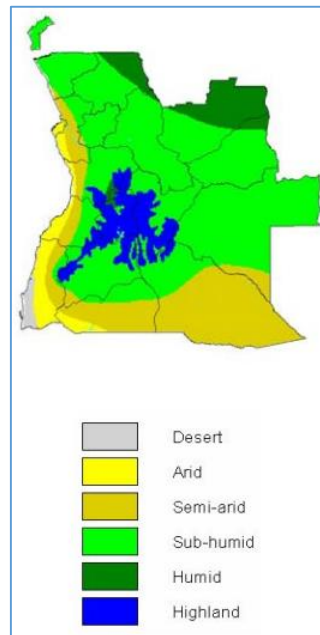


The Guinea Savannah (in yellow)

Most of Angola is part of the Guinea Savannah and consists a highland massif bounded by a tiny strip of lowlands with an altitude between 0 and 200 m (NEDAP, 2005). The highland mountains and plateaux are above 200 m and it occupies the largest part of the country. Moco Mountain in Huambo is the highest at approximately 2,620 m.

The 1,700 km maritime border and higher altitude *hinterland* result in two major climatic zones:

- The coastal zone, with tropical dry climate in the north, and desert in the south, covering a coastal strip influenced by the Benguela Cold Seawater Stream, with annual rainfall ranging from 50 mm in Namibe to 800 mm in Cabinda, a relative humidity of over 30% and an annual average temperature higher than 23°C;
- The *hinterland* that is subdivided into three zones:
 - A humid tropical climate covering the inner zone and the north-east, with abundant rainfall and high temperatures;
 - A tropical climate modified by the latitude and comprising the higher altitudes of the Central Highlands with average annual temperatures below 19°C;
 - The mid-arid climate zone in the south, with average rainfall ranging from 500 mm to 800 mm per year and low temperatures in the evenings of the dry season.

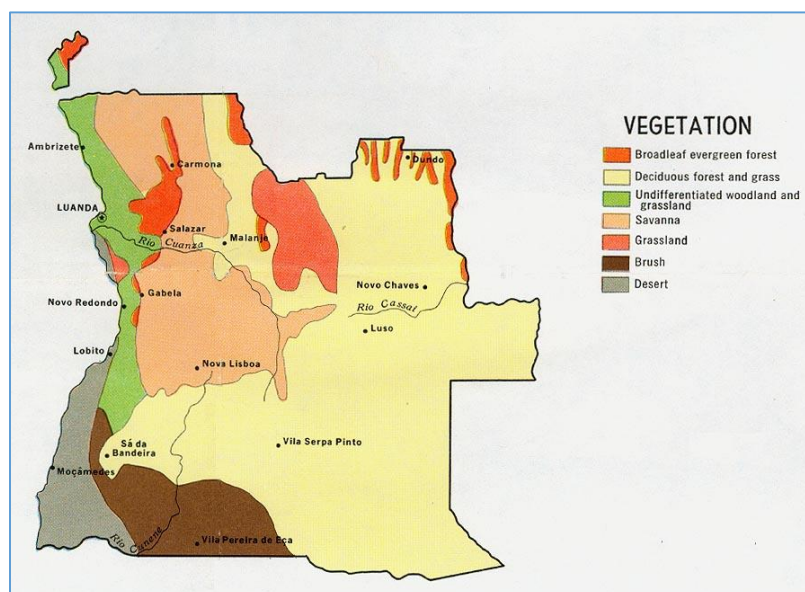


(Angola climate; Source: FAO)

Angola's hydrography is closely related to its topography, the majority of the rivers originate in the highland and mountain zones, flowing down into the lowland regions.

There are basically four estuaries:

- The Atlantic estuary, with rivers Chilungo, Zaire, Bengo, Kwanza, Queve, Catumbela and Kunene;
- The Zaire estuary, in northern Angola, with the rivers Cuango and Cassai, and tributaries Cuilo, Cambo, Lui, Tchicapa and Luachimo;
- The Zambezi estuary, in eastern Angola, with tributaries of Zambezi, and rivers Luena, Lunge-Bungo and Cuando;
- The Kalahari estuary with many semi-dry rivers such as the Cubango and two of its tributaries, the Cuchi and Cuito, among others.

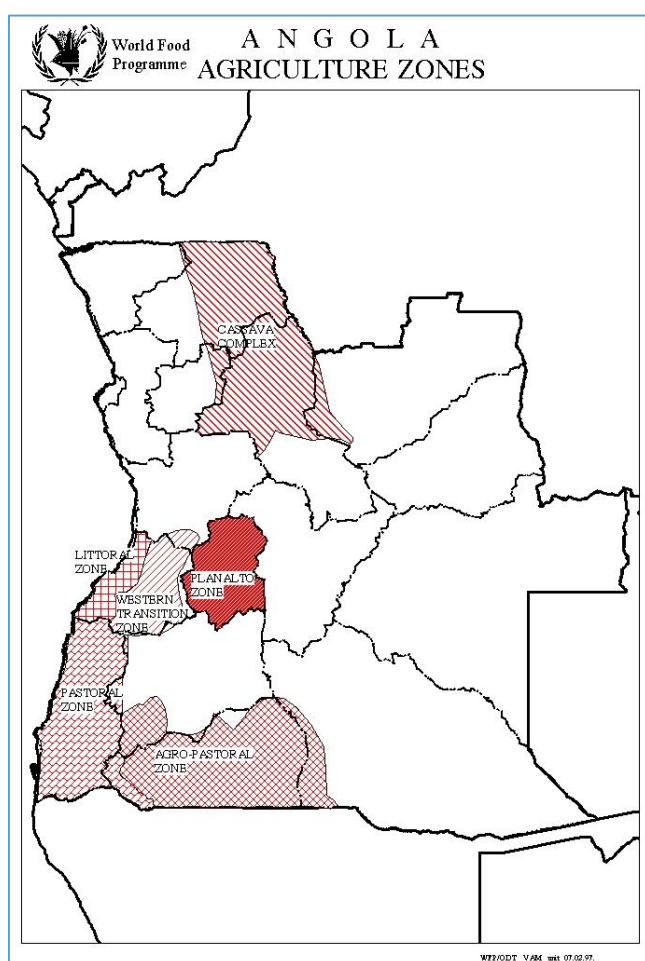


(Source: NEDAP)

The most productive land is located in three major areas:

- A strip of 80 to 300 km from coastline inland along the mountain chain from Maquela do Zombo (Uíge) to Ndalatando (Kwanza Norte), and from Gabela (Kwanza Sul) to Ganda (Benguela) although this land is almost permanently covered by clouds;
- Along the shores of rivers' estuaries where alluvia mostly rich in mineral elements and organic compounds are deposited. For instance along the rivers north of Luanda, south of the Kwanza river to Benguela, and the Namibe's oasis. The proximity of rivers makes irrigation viable and less costly;
- The Central Highlands divided in the Malange Plateau (Cassange Lowlands), the Central Plateau from Quibala to south of Huambo, and the Huila Plateau.

The soils in the southern region with more desert climates that suffer from the combined effect of erosion by rains and sun shining are generally less fertile.



Traditionally there were three main agro-ecological zones in Angola:

- Cassava predominating the north;
- Maize the main food staple in the central highlands;
- Millet and sorghum as the most important cereals in the drier southern regions.

These crops were grown by self-subsistence farmers to meet their own food requirements with only limited surpluses traded on rural markets in exchange for clothes and other manufactured items. The small holders use shifting cultivation based on manual labour. It is estimated that this traditional food production produces 80% of total food while mid-size farmers accounted for 18% and the remaining 2% was covered by larger commercial farmers.

Figura 2
Grandes regiões agrícolas de Angola



REGIÃO I – Corresponde à zona litoral norte com economia de sequeiro baseada na mandioca e no milho e com o aproveitamento das faixas aluvionares dos principais rios, aparecendo a pesca continental e de costa com relativa importância.



REGIÃO II - Predomínio da cultura da mandioca como base alimentar da população e com excedentes comercializáveis, complementada por culturas anuais para consumo e mercado e por plantações de café e palmar.



REGIÃO III – Predomínio da cultura do milho como base alimentar e como produto com forte participação mercantil, complementada por outras culturas anuais para o mercado.



REGIÃO IV – Produção agrícola com base na mandioca a norte e em cereais no sul, incluindo tendo zonas orizícolas de sequeiro, tendo como componente muito importante da economia doméstica a recollecção, a caça e a pesca.



REGIÃO V – Zonas de características agro-pastoril, com base na criação de bovinos e sendo a agricultura dominada por cereais principalmente para o auto consumo, havendo em algumas zonas planálticas excedentes de produção de cereais para o mercado.

7 Agriculture

Prior to gaining independence from Portugal in 1975, Angola was self-sufficient in all major food crops except wheat. It was the world's fourth largest coffee exporter, employing nearly a quarter of a million people (Jover & Pinto, 2012). The country also exported over 400,000 t of maize annually, making it one of the largest staple food producers in Sub-Saharan Africa. Other export crops included cotton, sugar cane, sisal, bananas, cassava and wood. Although farming was important in Angola during the colonial period, the sector collapsed as a result of the civil war, which resulted in a huge displacement of the rural population, many of whom still live in towns and cities. Ten years into peace, and despite its immense natural wealth, Angola does not yet produce enough food to meet the needs of its population. The country depends heavily on expensive food imports, mainly from South Africa and Portugal, while about 90% of farming is done at family and subsistence level. According to FAO, 44% of the Angolan population suffers malnutrition, the result both of insufficient investment in domestic agricultural production and distribution, and of the continued reliance on imported goods, which drives up prices and leaves many basic products out of the reach of ordinary Angolans.

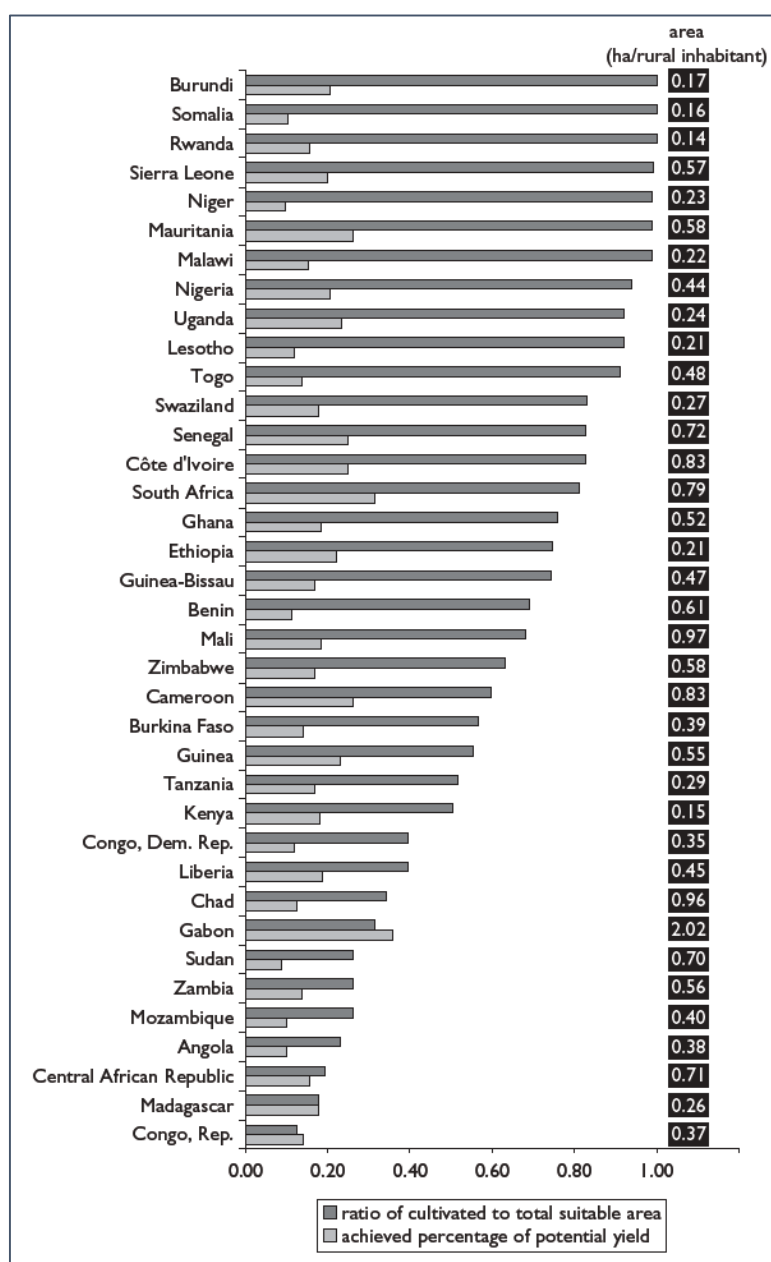
Angola's agricultural area is estimated by FAO to be around 58 mln ha of which only 5.2 mln ha is actually being used; 35 mln ha is considered fair to very good arable land of which 30 mln ha is considered virgin land, more than 50% of the soils in Angola is subject to moderate/severe erosion.

Agriculture had returned as a priority on the African development agenda even before the food price spike of 2008, and the second spike in 2011 further intensified interest. The African Union, in conjunction with the New Partnership for Africa's Development (NEPAD), is continuing to develop the Comprehensive Africa Agricultural Development Programme (CAADP) and is encouraging countries to allocate more fiscal resources to agricultural development. The sharp rise in international food prices in recent years increased poverty rates and food import bills in the short term, but, when combined with economic growth, higher prices also create opportunities in domestic, regional, and international markets, especially for farmers in regions with significant agricultural potential, such as the Guinea Savannah zone.

In 2013 Angola imported almost USD 5 bln worth of food and drinks. Experts consider the agricultural potential of Angola as very high. The country wants to reduce its dependence on food imports, tackle food insecurity and boost employment. To achieve this, the GoA has launched several programs aimed at increasing agricultural output, promoting locally produced products and developing the smallholder sector. The agriculture sector is also gradually recovering thanks to the rehabilitation of rural infrastructure, the removal of land mines and the return of populations displaced by war.

Angola has decided to stay GMO free, this seriously limits possibilities for expansion of agrifood. GMO soy is for instance more adapted to acid soils which prevail in Angola.

7.1 Crop yield



Land availability and yield gap in Africa (Source: WB)

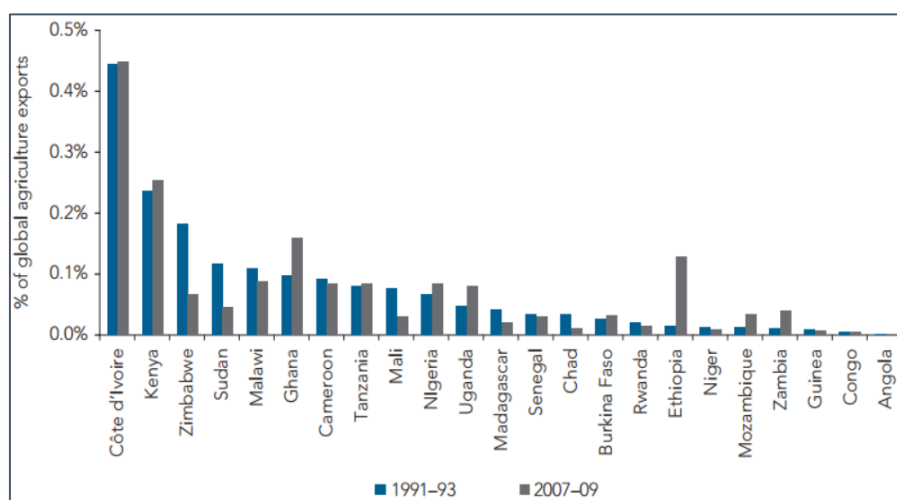
The current situation of Angola as related to agrifood is quite astonishing. Both the ratio of cultivated land to total suitable land and the achieved percentage of potential yield (the “yield gap”) are extremely low for Angola.

<i>Yield (kg/ha) 2013</i>	<i>Subsistence</i>	<i>Commercial</i>	<i>Δ</i>
Maize	869	1.941	123%
Millet	194	319	64%
Sorghum	240	402	68%
Rice	994	1.741	75%
Cassava	13.906	16.558	19%
Potato	4.534	10.033	121%
Sweet Potato	7.125	10.587	49%
Beans	382	570	49%
Groundnut	569	787	38%
Soybean	364	667	83%
Onion	11.743	15.239	30%
Tomato	12.717	18.778	48%
Cabbage	10.653	14.416	35%
Sweet pepper	3.026	6.323	109%

(Source: Campanha Agrícola MoA 2012 - 2013 adapted by Agrix)

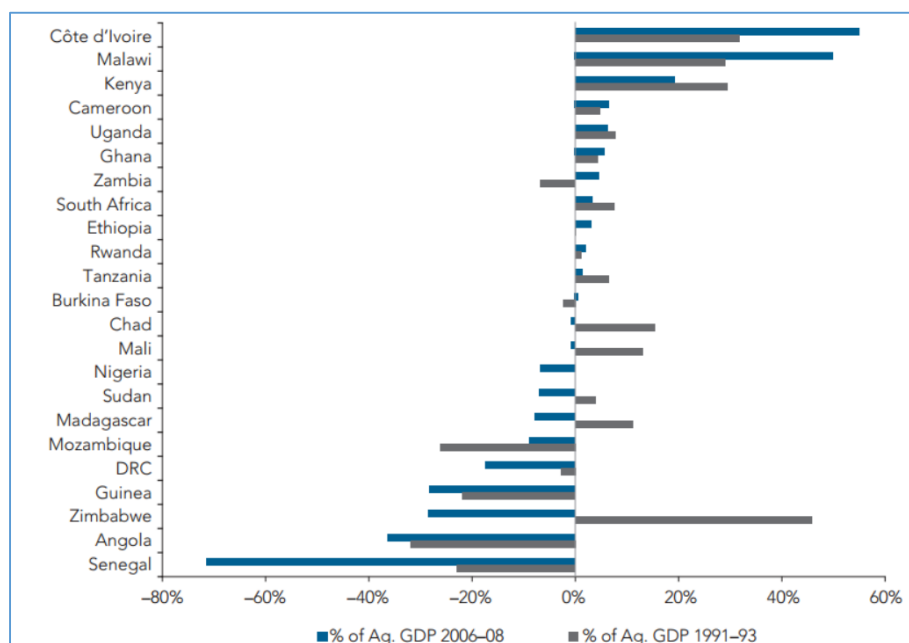
The yield gap between Angola and the rest of the world is substantial, but there is also a huge gap between self-subsistence and commercial growers, as much as 123% for Maize and 121% for potatoes (table above).

As a result Angola's global share in agricultural exports is extremely low too, it ranks last on a Worldbank compiled list. This fact, combined with the country's agronomic potential, indicates that investment in Angola's agriculture has for decades been far below investments in agriculture elsewhere in Africa or in the developing world (graph below).



Contribution of African countries to world agrifood trade (Source: WB)

Export of agrifood as a percentage of total agrifood GDP is negative for Angola because of the deficit on the agrifood trade balance and it even gets worse when one compares the 1991-93 figures (-35%) to the 2006-08 figures (-38%).



Angola agrifood export as percentage of total ag GDP (Source: WB)

The main arable crop of Angola is Maize with 1,9 mln ha in 2013 (MoA), Cassava with over 1 mln ha is second, followed by Beans and Groundnuts. Potato has also become a relatively important crop (see FAO table below).

Angola crops area (ha)	2008	2009	2010	2011	2012
Maize	883.943	1.466.891	1.489.815	1.711.142	584.732
Cassava	679.167	845.259	889.619	1.072.478	1.062.865
Beans, dry	375.007	687.446	691.602	786.906	550.738
Groundnuts, with shell	259.081	277.772	285.287	314.232	231.619
Millet	114.470	192.206	194.381	204.887	191.875
Sweet potatoes	125.276	147.813	156.594	159.528	121.776
Bananas	95.793	106.376	108.740	104.750	
Potatoes	47.271	95.165	96.229	103.391	94.285
Vegetables, fresh nes	45.000	53.045	60.004	56.657	
Coffee, green	20.000	45.189	29.052	30.000	
Pineapples	9.594	25.840	25.881	27.504	
Rice, paddy	16.551	23.707	23.905	26.038	27.902
Oil, palm fruit	23.000	23.000	23.000	23.000	23.000
Fruit, citrus nes	8.967	19.490	21.027	21.196	
Sunflower seed	16.353	15.021	16.000	16.500	17.000
Castor oil seed	14.721	23.033	15.000	16.000	16.000
Sugar cane	13.500	13.000	13.000	13.000	13.500
Onions, shallots, green	13.203	26.034	13.400	12.653	
Sesame seed	6.864	10.693	10.982	12.100	12.000
Fruit, fresh nes	8.090	8.208	8.200	8.084	
Tomatoes	3.965	5.536	6.262	6.087	
Tobacco	3.687	4.517	4.200	4.165	
Wheat	4.000	4.000	3.800	3.650	3.400
Seed cotton	2.000	2.000	2.000	3.000	3.000
Cashew nuts, with shell	2.800	2.800	2.800	2.800	
Cocoa, beans	2.125	2.109	2.094	2.430	
Bastfibres, other	1.000	1.286	1.200	1.196	
Sisal	450	578	578	578	

(Source: FAO stat 2013)

Historically five main farming systems dominate in Angola:

- Cassava based;
- Coffee based;
- Maize based;
- Sorghum /millet based;
- Intensive systems of legumes, vegetables and fruits based on irrigated and lowland water conservation systems.

7.2 Farm gate prices

<i>Farm gate prices 2012 (USD/t)</i>	<i>Angola</i>	<i>USA</i>	<i>Δ</i>
Rice, paddy	708	328	116%
Maize	693	283	145%
Millet	373	543	-31%
Sorghum	406	282	44%
Potatoes	688	185	272%
Sweet Potatoes	470	417	13%
Cassava	417		
Beans	2.293	581	295%
Soybeans	1.246	525	137%
Groundnuts	1.256	761	65%
<i>(Source: FAO stat 2013)</i>			

Farm gate prices in Angola are very high to international standards. Rice, maize, potatoes, beans and soybeans were double the price compared to the United States, only millet was more expensive in the US. This analyses is based on FAO 2012 figures.

<i>Farmgate prices 2012-13</i>	<i>2012</i>	<i>2013</i>	<i>2013</i>	
	<i>(AOA/kg)</i>		<i>(USD/Kg)</i>	<i>Δ</i>
Maize	66	37	0,36	-44%
Millet	36	27	0,26	-25%
Sorghum	39	30	0,29	-23%
Rice	68	42	0,41	-38%
Cassava	40	29	0,28	-28%
Potato	66	43	0,42	-35%
Sweet Potato	45	26	0,25	-42%
Beans	220	147	1,43	-33%
Groundnut	120	82	0,80	-32%
Soybean	119	100	0,97	-16%
Beef	651	670	6,50	3%
Pork	525	525	5,10	0%
Goat meat	907	750	7,28	-17%
Poultry (?)	1.200	1.250	12,14	4%
<i>(Source: Campanha Agrícola MoA 2012 - 2013 adapted by Agrix)</i>				

As it seems, according to MoA figures, farm gate crop prices have gone down substantially as from 2012 to 2013. This could not be verified by FAO figures because these were not available to date. Farm gate potato price in Angola was USD 430/t in 2013 (down from USD 660/t in 2012) compared to the Netherlands at USD 180/t is still 140% higher (Agrix).

7.3 Crop rotations

A subsistence or smallholder farmer would usually grow rotations like:

- cassava/maize;
- cassava/maize/rice;
- maize/beans/cassava;
- groundnuts/beans/cassava.

Crop yield potential Angola		High yield	Medium yield	Low yield
Cereals	Maize	Kwanza Sul, Benguela, Huambo, Bie, Huila	Uige, Malange, Moxico, Kuando Kubango	Cabinda, Zaire, Bengo, Luanda, Kwanza Norte, Lunda Norte, Lunda Sul, Namibe, Kunene
	Sorghum, millet	Benguela, Huambo, Huila, Kunene	Bie, Kuando Kubango	Kwanza Sul, Moxico, Namibe
	Rice	Lunda Norte, Lunda Sul, Moxico	Bie	Uige, Malange, Benguela
Roots, tubers	Cassava	Uige, Malange	Zaire, Bengo, Kwanza Norte, Lunda Norte, Lunda Sul, Kwanza Sul, Benguela, Huambo, Bie, Moxico Huila	Cabinda, Luanda, Kuando, Kubango
	Sweet potatoes	Uige, Malange, Benguela, Huambo, Huila	Zaire, Bengo, Kwanza Norte, Lunda Norte, Lunda Sul, Kwanza Sul, Bie, Moxico, Kuando Kubango	Cabinda, Luanda, Namibe, Kunene
	Potatoes	Huambo, Bie, Huila	Uige, Malange, Kwanza Sul	Bengo, Kwanza Norte, Namibe
Legumes	Beans	Uige, Malange, Kwanza Sul, Benguela, Huambo, Bie, Huila	Zaire, Kwanza Norte, Lunda Norte	Cabinda, Bengo, Luanda, Lunda Sul, Moxico, Namibe, Kunene, Kuando Kubango
	Groundnuts	Uige, Kwanza Norte, Malange, Kwanza Sul, Benguela, Bie	Cabinda, Zaire, Bengo, Lunda Norte, Lunda Sul, Bie, Moxico, Huila	Luanda, Kuando Kubango

NEDAP made a crop assessment for the different provinces of Angola (table above) (NEDAP, 2005).

Liming is often a necessity as soils tend to be quite acid, lime is locally available at USD 30 /t at the mine location, so transport should be added. General Electric is building a new phosphate plant (USD 1 bln) and also a new plant is being constructed that makes nitrogen out of natural gas.



7.4 Agrifood import and export

Crop balance 2012-13 (T)	Maize	Rice	Wheat	Beans	Casava	Potato	Sweet Po
Initial stock	94.000	45.355	50.000	39.000	20.000	42.000	15.500
National production	1.548.750	37.608	-	311.988	16.411.674	670.136	1.199.749
Total available	1.642.750	82.963	50.000	350.988	16.431.674	712.136	1.215.249
Human consumption	1.079.833	247.318	228.074	327.793	1.394.722	667.470	492.521
Seed	57.761	9.588	-	39.191	-	105.862	-
Feed	696.938	2.067	-	31.199	5.744.086	33.507	359.925
Losses est	232.313	3.716	-	31.199	1.641.167	67.018	119.975
Final stock	94.000	45.355	50.000	39.000	20.000	42.000	15.500
Total needs	2.160.845	308.044	278.074	468.382	8.799.975	915.857	987.921
Total import	518.095	225.081	228.074	117.394	-7.631.699	203.721	-227.328
Import / total needs	25%	86%	100%	27%	-87%	23%	-23%

(Source: Campanha Agrícola MoA 2012 - 2013 adapted by Agrix)

The crop balance as shown above, based on the official Ministry of Agriculture (MoA) statistics, demonstrates that 25% of corn consumption is imported, as is 86% of rice 100% of wheat, 27% of beans and 23% of potato consumption.

Angola import (x 1,000 t)	2012
Wheat and products	813
Sugar (Raw Equivalent)	294
Poultry Meat	287
Maize and products	232
Rice (Milled Equivalent)	217
Beer	188
Palm Oil	147
Soyabean Oil	107
Wine	95
Barley and products	94
Pigmeat	83
Tomatoes and products	72
Pelagic Fish	62
Milk - Excluding Butter	53
Beans	50
Bovine Meat	43
Eggs	36
Beverages, Alcoholic	35
Vegetables, Other	24
Potatoes and products	18
Apples and products	18

(Source: FAO stat 2013)

It is common knowledge that statistical information is subject to variations depending in the source. In Angola specifically reliable data is hard to get. All statistics as mentioned in this report should be used with precaution.

When comparing the import statistics as provided by the MoA and FAO some items differ quite substantially (compare table up to the left one).

According to MoA 518,000 t of maize was imported (2012/13) compared to FAO's 232,000 t (2012), rice is equal, but for wheat it is MoA 228,000 t against FAO 813,000 t as for potatoes MoA is at 203,000 t while FAO states 18,000 t. Part of the difference may be explained by the fact that calendar year 2012 (FAO) is compared to crop year 2012/2013 (MoA).

A first glance at the Angolan national food balance (see the extended annex for details) indicates that the major food stuffs imported are wheat, maize, sugar, poultry meat and rice. Wheat is used only for human consumption but 60% of the maize import is for animal production (poultry and pork feed).

The intake of proteins by the Angolan population is on average low compared to Western European level. The differences are mainly in eggs and dairy intake (see table below); an important source of protein for Angolan consumers would be legumes (beans).

Per capita available	Kg / cap / yr	
	Angola	W. Europe
Poultry	15	19
Eggs	2	13
Pork	8	44
Milk	11	261
Wheat	38	93
Maize	40	9
Rice	7	4

(Source: FAO stat 2013)

The relatively high poultry meat intake is mainly from import (over 90% of poultry meat is imported). Almost all of the rice consumed in Angola is imported; the Dutch have extended knowledge on rice production as a result of the Surinam large scale rice production scheme setup in the 60's and might be able to offer technical assistance. Commercial beef production is of less relevance to alleviate food shortage (extensive) and to Dutch private sector, it

incorporates relatively little technology.

The main short term objective of Angola should be protein self-sufficiency (through crops, meat, eggs and dairy) and import replacement of commodities that serve for the larger part as input for the animal protein sector.

7.5 Trade: the Big 4

The "Big 4" trading companies: ADM (Archer Daniels Midland), Bunge, Cargill and Louis Dreyfus, are not present yet in Angola and if they are it is very low profile. This makes sense as there is little to trade, just import. But this might change in the near future. It is to be seen however, if these big corporations are willing to comply with the sometimes weird "trading rules" in Angola.

7.6 Importers

In Angola there are two types of importers (Beeckmans & As, 2012): those who also play a role as formal distributors and retailers or catering companies who want to secure stocks and guarantee high quality levels. This last type therefore takes care of its own imports.

The category of importer-distributors was initially, as from 1992. controlled by Lebanese business people. During the civil war and in the first years of the reconstruction, the Angolan market was a demand driven market. Opening a warehouse (a simple type of cash and carry) was enough to attract clients (individuals and companies) that buy goods by carton. Mainly dry goods were sold, such as edible oil, rice, tinned products, wheat flower, cornflower, pasta, beans.

In recent years, there has been a tendency in the market towards more competition. Players from various origins currently have a share in the import market: Lebanese, Indians, Angolans, Eritreans and Europeans. The competition causes more pressure on the prices of mainly basic foodstuff. For these goods, it is crucial to make the difference at the moment of purchasing, in order to differentiate of the competition. For popular brands there is more room for a higher price setting due to the brand sensitivity of Angolans. The change towards a more mature market is difficult for the importers-distributors as it forces them to adapt their working methods, strategy and human resources.

<i>Food importing companies</i>	<i>Origen</i>	<i>Dry</i>	<i>Fresh</i>	<i>Frozen</i>
Angolisar, Atlas Group, Dimasaba, Ryan Invest, Mazarati	Lebanon	X	X	X
Sanzi Group, Sicie, Emaxicom	India	X		X
Inalca, Nestlé, Distralangola, Mateba, Oxbow	Europe	X	X	X
Calita, Fescangol, Cabire	Angola	X	X	X
Eriango, Zara, Zênite	Eritrea	X	X	X
<i>(Source: Retail and food in Angola)</i>				

8 Investment incentives

8.1 ANIP

The Angolan National Private Investment Agency³ (ANIP), created in 2003, is the government entity responsible for the implementation of private investment policy, as well as the promotion, co-ordination, guidance and supervision of private investments (Jover & Pinto, 2012). The newly approved Private Investment Law (Law No. 20/11 of 20 May 2011) defines and governs private investment in Angola, as well as the principles for eligibility for the incentives and benefits granted by the Angolan state. ANIP executes national investment policy in accordance with the Private Investment Law.

The Private Investment Law sets the minimum authorized investment at USD 1 mln. That is, only investments (domestic or foreign) at or above this threshold can be processed through ANIP under the Private Investment Law. Though there are alternative channels to get an investment approved, only ANIP authorized investments allow for the repatriation of profits.

The investment is subject to a contract between the Angolan state, represented by ANIP, and the investor. The incentives and benefits, which include repatriation of funds for foreign investments (e.g. dividends and profits, liquidation proceeds, indebtedness, and royalties), tax deductions, and exemption from certain taxes and duties, are negotiated with ANIP and other ministries of the Angolan government on a case-by-case basis.

In determining whether to grant incentives, consideration will be given to the economic and social impact of the investment according to the economic development strategy set by the Angolan executive. The law defines the following priority areas for private investment:

- Agriculture and livestock;
- Industry, notably the production of construction materials, manufacture of package equipment, tools
- and accessories, recycling of iron and non-iron materials, production of textiles, clothing and footwear, manufacture of wood and its by-products, production of foodstuff, information technologies and communications;
- Transport infrastructure;
- Telecommunications;
- Fishing industry and by-products, including the construction of boats and fishing nets;
- Energy and water;

³ <http://www.anip.co.ao/index.php?pag=conteudos&id=10>

- Social housing;
- Health and education;
- Hospitality and tourism.

The law specifies that the repatriation of dividends needs to be effected gradually and proportionally, taking into account the size of the investment. The repatriation of profits is restricted in time. Depending on the value of the investment and the regional zone in which the investment is made, profits may not be repatriated earlier than two or three years after completion of the project. The procedure for approval of an investment project takes on average between 220-250 days.

The Private Investment Law does not apply to investments in the petroleum, diamond mining, and financial sectors which are subject to sector-specific legislation.

The new Private Investment Law guarantees the repatriation of profits and investors can remit funds through local commercial banks. However under a separate law (Central Bank Order 4/2003), the BNA must authorize foreign payments exceeding USD 300,000. The BNA also reserves the right to temporarily suspend repatriation of dividends or require that repatriation take place in instalments if immediate repatriation would have an adverse effect on the country's balance of payments.

8.2 BDA

Banco de Desenvolvimento de Angola⁴ (BDA) was initiated in 2006 with the objective to support sustainable economic development in Angola. BDA is the single instrument for financing the economic development as described in the Programa de Desenvolvimento Economico e Social do Governo and of the Estrategia Nacional de Desenvolvimento de Long Prazo.

BDA reputation was not very strong but a new director was recently appointed. It is a Ph.D. that studied in the US, the appointment was maybe forced by IMF because BDA has squandered a lot of money on silly projects.

The Terra do Futuro project, described in detail in this report, holds strong ties with BDA.

8.3 AIA

The Associacao Industrial de Angola (AIA) is a politically strong association that provides services to companies, with emphasis on Portuguese and European firms that want to establish in Angola. AIA organizes the Feira Internacional de Luanda⁵ that will be from 21 to 26th of July in 2015.

9 Infrastructure

9.1 Air

⁴ <http://www.bda.ao/agricultura-pecuaria-e-agro-industria/>

⁵ <http://www.fil-angola.co.ao/pt/filda-2015-expositores>

Capacity does not appear to be a major issue in the Angolan air transport system (PWC, 2014). There are 31 airports in Angola with paved runways. The Quatro de Fevereiro International Airport just outside Luanda is the country's busiest airport and serves international and domestic airlines. TAAG Angola Airlines is the national flag-carrying airline of Angola and one of the most successful airlines in Africa.

The major challenge facing the aviation sector is safety, which is a Government priority. All Angolan airlines are on the EU blacklist, with the exception of specified Boeing 777's and Boeing 737's operated by TAAG.

Notwithstanding capacity issues, the construction of Luanda's new international airport, which is to be completed in 2015, will create the largest airport in Africa. It will offer capacity for over 13 mln passengers per year and will have a cargo terminal with an annual capacity of 35,000 t.

9.2 Sea

Angola's 1,600-km long coastline and its four major ports make it a potential transshipment point for the SADC (South African Development Community). The four major ports in Angola are Lobito, Luanda, Cabinda, and Namibe. Port management is by Sogester, a joint venture between Maersk and an Angolan pension fund.

In spite of rapid growth the Port of Luanda has become notorious for lengthy delays and has tremendous capacity constraints. The port has an excessive general cargo vessel pre-berth waiting time of 144 hours, the sub-Saharan African average is about 18 hours. To save costs, Angolan traffic is frequently being diverted to the Port of Walvis Bay in Namibia, some 2,000 km south of Luanda.

To reduce traffic at the Port of Luanda, the Government of Angola gave the go-ahead for the construction of a new commercial port at Barra do Dande (north of Luanda) in 2011. Additionally, the Port of Lobito, about 500 km south of Luanda, is to be extended. The Government also plans to spend USD 1.25 bln on the rehabilitation of the Port of Lobito. This programme will extend the berthing area to a total of 7.8 km and increase capacity to a total 11 mln tons of general merchandise and 700,000 TEU's/year.

9.3 Road

Most of the freight in Angola is transported by road on trucks, since inland water navigation is not an option and the few railway lines have just started operations. According to the World Bank's AICD, transportation causes a significant bottleneck in Angola's economy.

Poor road infrastructure and transport logistics inhibit Angola's overall economic development. With World Bank and AICD estimates of paved roads ranging between 10% and 15%, four-wheel drive is generally necessary for travel outside of major towns.

The poor condition of the road network is in no small part due to the civil war, when much of the network was destroyed and the impact of periodic torrential flooding. Still, the main transport routes are traversable. Specifically, the main links in the western half of the country appear to be in reasonable condition, while roads on the eastern side are sparser and more dilapidated.

Angola is part of two major trans African corridors. The first runs from North to South, linking Tripoli

in Libya with Cape Town in South Africa. The second one, running from East to West, links Beira in Mozambique with Lobito in Angola. Despite noble aspirations, the quality of both these trans African corridors and Angola's regional roads is inferior. This situation makes it more difficult for Angola to develop regional trade with surrounding countries and discourages surrounding countries from making greater use of Angola's ports.

9.4 Rail

The rail system in Angola consists of three main railways that were built eastwards from the coast during colonial times, linking Angola's key Atlantic ports to the interior. Many of these lines were destroyed during the war, but a programme of rehabilitation has been ongoing since 2005.

The rehabilitation or rebuilding of Angola's current rail infrastructure is a huge task, since in many cases it requires expensive works to remove mines and complete the replacement of obsolete or deteriorated rails. In just a few years, 2,700 km of railroads were rebuilt and more than USD 3.3 bln was spent on the three main lines:

- Caminhos de Ferro de Luanda (Luanda Railways), this links Luanda to Malanje. Freight rail from the port of Luanda began in March 2013. It is hoped that the construction of a railway at the port will motivate companies to use the railways as a means of transport instead of trucks;
- Caminhos de Ferro de Benguela (Benguela Railways) links the Port of Lobito and Luau on the eastern border, close to the Democratic Republic of Congo (DRC). Plans to connect this line with the railway networks of the DRC and Zambia will facilitate greater intra-African trade;
- Caminhos de Ferro Namibe (Moçãmedes Railways) links the port of Namibe to the southern provinces of Kuando Kubango and Huila through Menongue and on to the border of Namibia.

A feasibility study for a fourth railway line linking Luanda with Cabinda is being undertaken.

Regional cooperation is essential to the joint plan to repair, maintain and operate the Lobito Corridor railroad linking Angola, the DRC and Zambia. Utilising this rail line, Angola now has the opportunity to play an important role in the outflow of the minerals coming from the copper belts in Zambia and Katanga (DRC), which would further increase the country's profile within SADC.

9.5 Water

Inland water transport is hardly possible in Angola. The Cuanza River, south of Luanda, is navigable by ship 200 km inland, but most of Angola's rivers are not suitable for transportation.

9.6 Power

Angola's power sector is among the least efficient in Africa. A 2010 World Bank survey found that Angolan firms endured six power outages a month lasting on average 14 hours, and that overall, 36 days were spent without electricity. In the same year businesses reported waiting an average of seven days for a new electricity connection.

To a large extent businesses have to rely on private diesel generators. These problems have been recognised by the government and it has committed to investing approximately USD16 bln in the energy sector in 2014 and 2015.

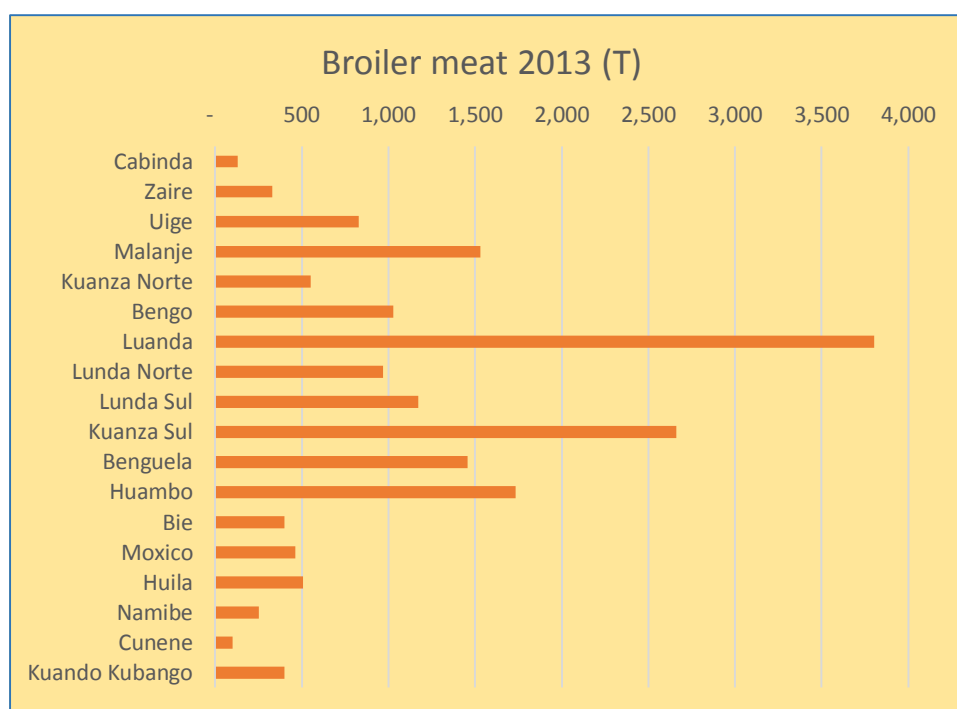
10 Livestock

Live animal stock (x 1,000)	2.005	2.012
Cattle	4.015	4.687
Dairy cattle	404	336
Sheep	857	1.037
Goats	3.353	4.055
Pigs	1.117	2.358
Chickens	6.866	23.314
Layers	970	850
<i>(Source: FAO stat 2013)</i>		

Slaughtered animals (# x 1,000)	2.005	2.012
Beef cattle	598	600
Pigs	614	1.200
Poultry	8.500	26.000
Sheep	215	255
Goat	916	1.190
<i>(Source: FAO stat 2013)</i>		

10.1 Poultry

There are basically three types of poultry producers in Angola: subsistence (backyard) farming, smallholders supported by new government/NGO's projects and the big private companies (Pretoria, 2011). Over the years Angola has been exposed to a flood of imported poultry meat each year (287,000 t in 2012) mostly from the USA, Brazil and the EU (mainly The Netherlands) compared to a local production of around 22,000 t of which 18,000 t by commercial farms. The imports have not been pushing out broiler farmers because due the long civil war there was hardly any broiler production left, but it had its effects on local beef farmers. Cheap poultry imports impeded the reestablishment of small-scale, subsistence poultry production. Production in subsistence and smallholder farming has generally been very low due a lack of technology. It is estimated by FAO that the number of broilers slaughtered per year has increased from 8 mln in 2005 to 26 mln in 2012. Poultry meat consumption is estimated at 15 kg /yr/ capita.



<i>Poultry meat 2013</i>	<i># (x 1,000)</i>	<i>T</i>
<i>North</i>	<i>7.700</i>	<i>10.300</i>
<i>Centre</i>	<i>4.900</i>	<i>6.700</i>
<i>South</i>	<i>900</i>	<i>1.200</i>
<i>National total</i>	<i>13.600</i>	<i>18.300</i>

(Source: Campanha Agrícola MoA 2012 - 2013 adapted by Agrix)

Large scale poultry production in Angola is concentrated around the major cities like Luanda. Given the current logistics challenges, private producers have opted to position their production sites closer to the markets.

One of the larger broiler farms is Aviário da Munenga (360,000) in Kuanza Sul.

The current costs of broiler production in Angola are estimated to be USD 2.50 /kg live weight (lw) (EKN, 2013). This is extremely high compared to USD 0.90 /kg lw in the EU, USD 0.81 /kg in the USA or USD 0.78 /kg in Brazil. Inefficiencies throughout the production chain due to low technology levels are the main cause. New technology is currently being introduced. Input costs are also very high compared to Europe and the USA.

<i>Poultry costs compared (USD cents)</i>	<i>EU</i>	<i>USA</i>	<i>THA</i>	<i>BRA</i>	<i>ARG</i>	<i>RUS</i>	<i>UKR</i>
<i>Live weight base (lw)</i>							
Feed price (/kg)	41,4	30,8	39,5	31,8	27,7	40,7	33,6
Day old chick	38,6	23,5	33,6	32,4	28,8	38,8	31,2
Total costs incl labour (/kg)	113,5	84,4	99,4	81,5	80,2	109,9	88,7
Total costs excl labour (/kg lw)	109,3	81,1	98,0	78,2	77,4	109,1	88,1
<i>Live weight base (lw)</i>							
Live weight (g)	2.276	2.500	2.300	2.625	2.600	2.100	2.480
Feed conversion	1,76	1,93	1,75	1,79	1,95	1,80	1,81

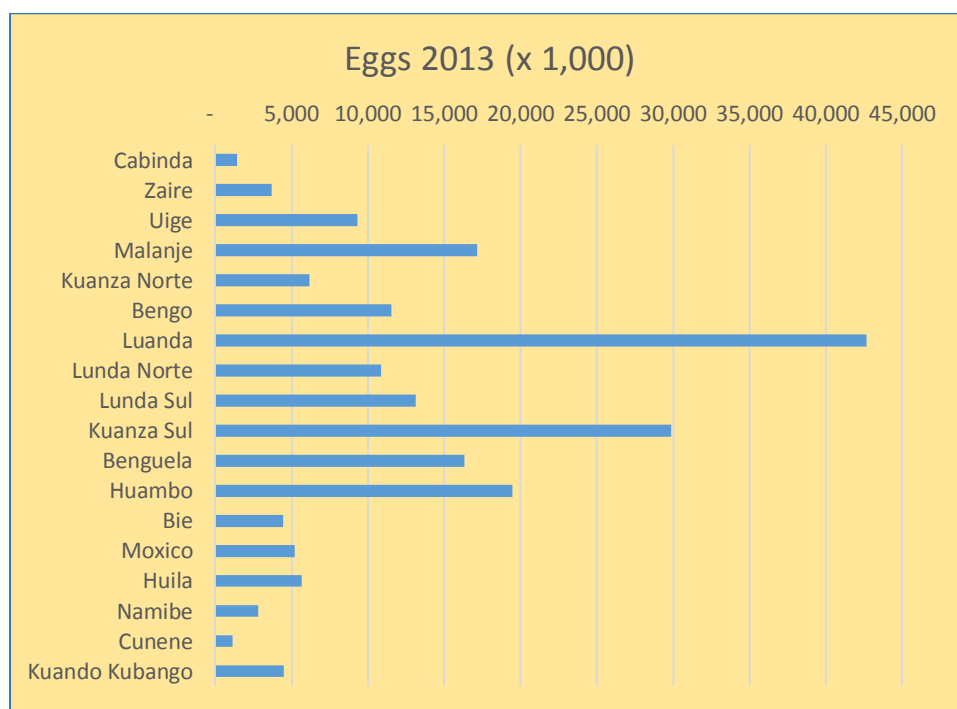
(Source: LEI poultry production costs compared 2013)

Poultry costs compared (USD cents)	EU	USA	THA	BRA	ARG	RUS	UKR
Carcass weight base (cw)							
Costs at farm level (/kg cw)	162	120	142	116	114	157	127
Costs slaughter (/kg cw)	37	38	26	26	28	26	26
Total costs (/kg cw)	199	158	168	143	142	184	154
<i>(Source: LEI poultry production costs compared 2013)</i>							

If one compares the broiler carcass production costs as realised in the EU, relatively high compared to other producers, with the retail price of poultry in Angola, it becomes clear that there is ample room for efficiency improvements.

Frozen chicken price retail sep 2013	AOA /kg	USD/kg
Intermarket	501	4,86
Kero	399	3,87
Casa dos Frescos	539	5,23
Jumbo	349	3,39
Shoprite	399	3,87
<i>(Source: Angola livestock sector)</i>		

The total number of layers decreased from 970,000 in 2005 to 850,000 in 2012, but is on the way up due to some large scale investments. The total number of eggs produced is around 200 mln /yr.



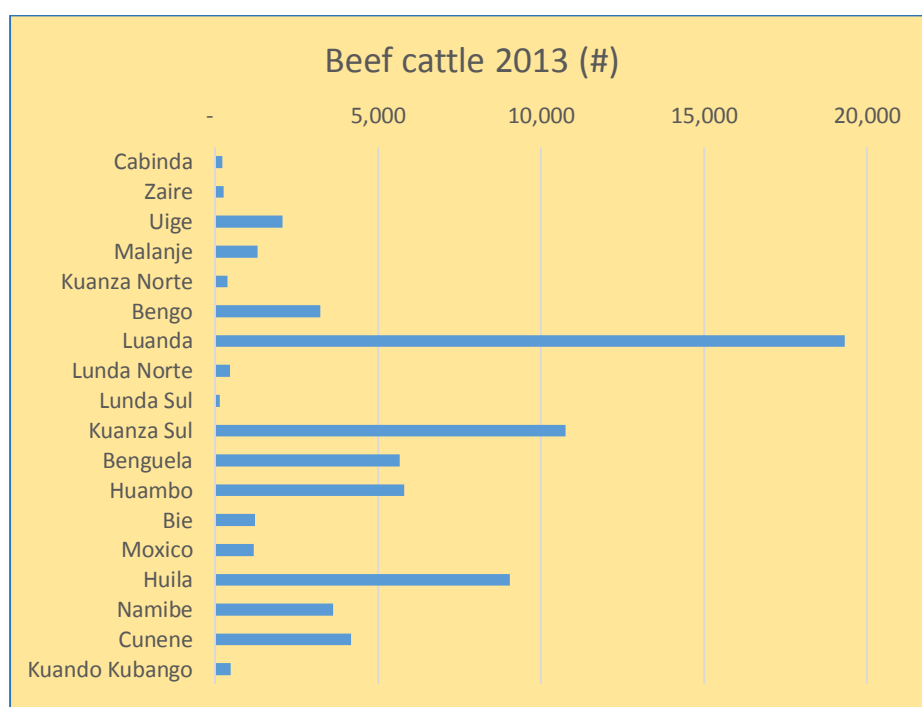
Eggs 2013	# (x 1,000)
<i>North</i>	<i>116.000</i>
<i>Centre</i>	<i>75.300</i>
<i>South</i>	<i>14.100</i>
<i>National total</i>	<i>205.400</i>
<i>(Source: Campanha Agricola 2013)</i>	

Like broiler production, layers are located mostly near Luanda. The provinces of Malanje, Kuanza Sul and Huambo also shows a strong presence of layers.

The major commercial layer companies are Avinova (125,000), Angolaves (380,000) and Aldeia Nova (240,000) (EKN, 2013). There is also a range of 30 smaller companies that have between 5,000 and 30,000 layers.

10.2 Beef

National beef production is estimated to be around 100,000 t/yr (MoA) of which 11,000 t/yr by commercial companies, total import of beef was 43,000 t in 2012 (FAO). Consumption is about 7 kg per yr per capita, which is quite low.



Beef 2013	#	T
<i>North</i>	<i>27.300</i>	<i>4.700</i>
<i>Centre</i>	<i>24.600</i>	<i>4.000</i>
<i>South</i>	<i>17.300</i>	<i>3.000</i>
<i>National total</i>	<i>69.200</i>	<i>11.800</i>
<i>(Source: Campanha Agricola MoA 2012 - 2013 adapted by Agrix)</i>		

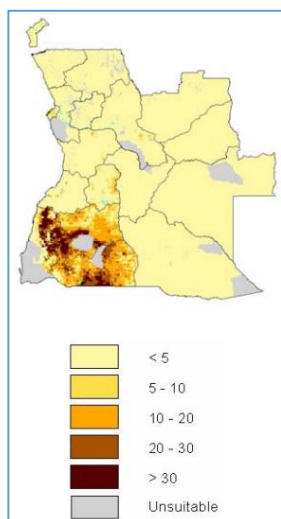
Most of the beef cattle herd is concentrated around Kuanza Sul- Benguela-Huambo and the area around Huila-Namibe-Cunene. Several ventures on combined cow/calf – feedlot systems are currently being prepared (see chapter on new ventures).

Insiders consider the Bonsmara breed to be the best suitable for Angolan conditions, it consists of 5/8 Afrikaner, 3/16 Hereford and 3/16 Shorthorn. Other suitable breeds include Brahma Vermelho,

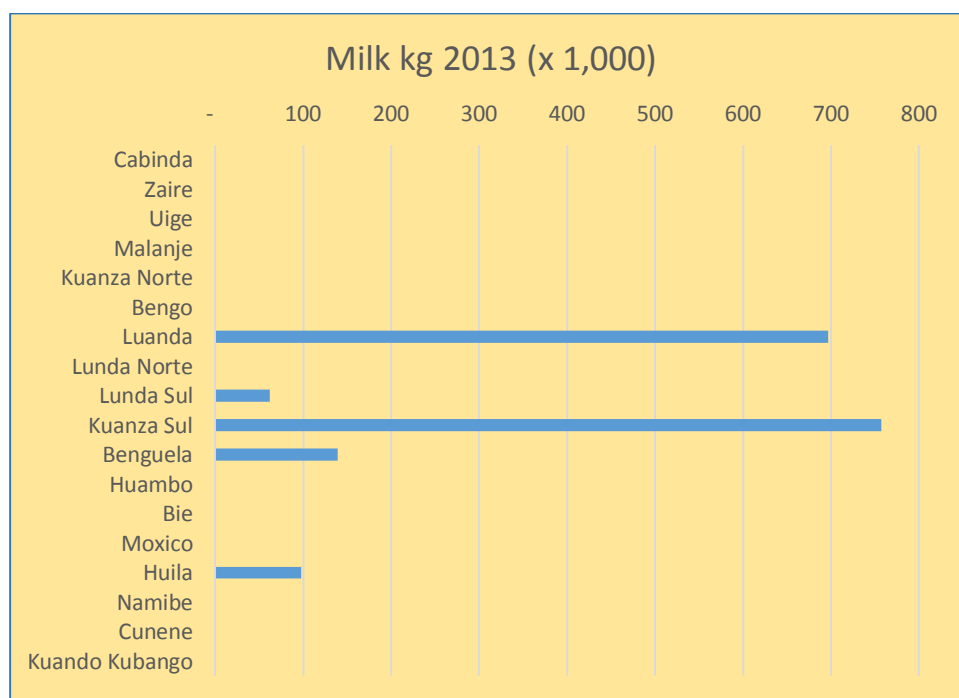
Simmental/Brahman (double purpose) and Sanga crossings. The biggest challenge is blood diseases transmitted by ticks and mites.

10.3 Dairy

Local commercial dairy production in Angola hardly exists but many large scale dairy projects are being developed (see chapter .. on new investments).



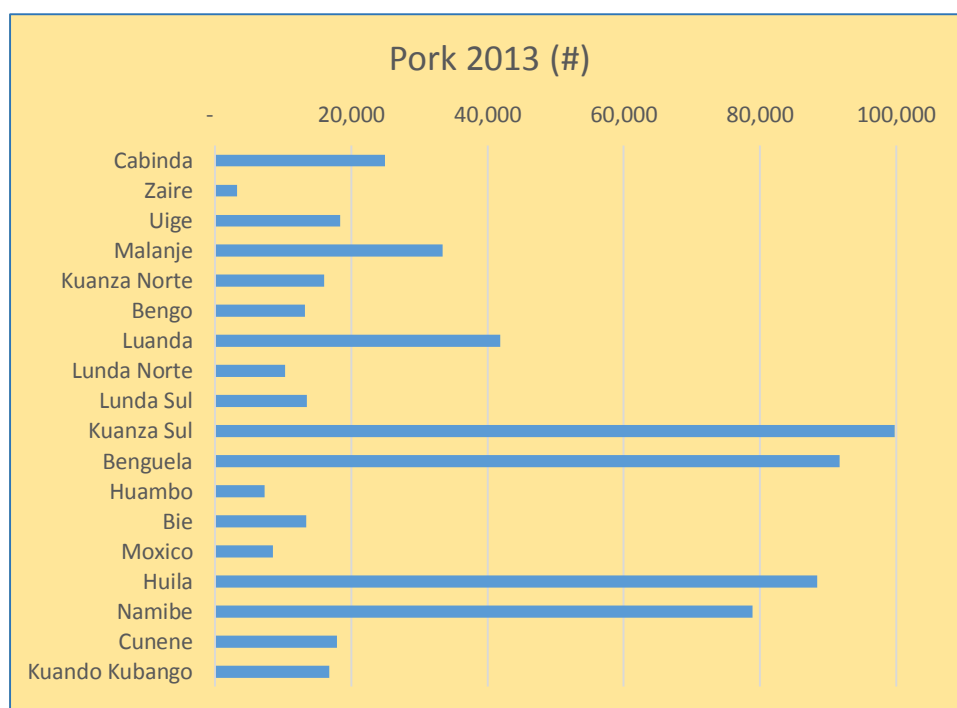
Angola self-subsistence cattle /km2 (Source: FAO)



Milk 2013	kg (x 1,000)
North	700
Centre	800
South	-
National total	1.700
<i>(Source: Campanha Agrícola 2013)</i>	

Commercial milk production is concentrated in the provinces of Luanda and Kuanza Sul, with some in Benguela and Huila. Total of commercial production is estimated at 1,700 t, total production (including self-subsistence) is 184,000 t and 53,000 t of milk being imported (FAO, 2012).

10.4 Pork



Pork 2013	#	T
North	174.600	5.300
Centre	220.600	7.400
South	202.000	5.300
National total	597.400	18.100
<i>(Source: Campanha Agrícola MoA 2012 - 2013 adapted by Agrix)</i>		

Local production of pork is estimated by FAO at 80,000 t/yr, import is also around 80,000 t (FAO, 2012), commercial production is estimated at 18,000 t/yr (MoA, 2013); per capita consumption is 8 kg/ yr/capita. Commercial production is concentrated mainly in Kuanza Sul, Benguela, Huila and Namibe provinces.

10.5 Goats and sheep



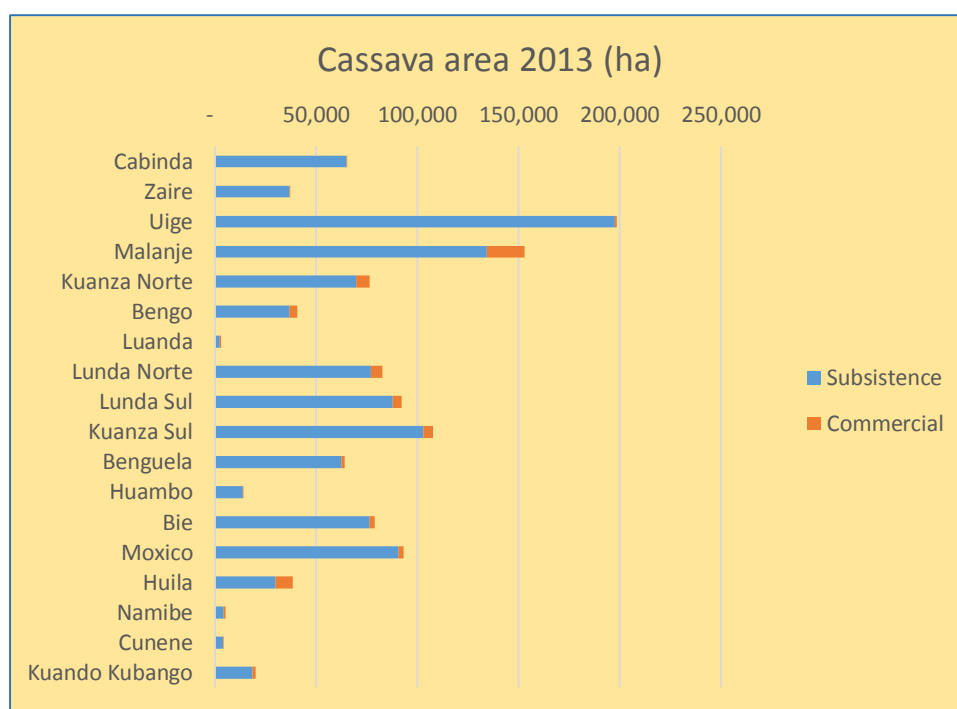
There is no commercial goat or sheep production in Angola. Goat and sheep meat is very popular. It is estimated that some 160,000 t of goats is being consumed annually compared to 18,000 t of pork and 12,000 t of cattle.

Goats 2013	#	T
<i>North</i>	<i>4.133.600</i>	<i>65.700</i>
<i>Centre</i>	<i>2.182.700</i>	<i>38.700</i>
<i>South</i>	<i>3.545.800</i>	<i>56.100</i>
<i>National total</i>	<i>9.862.200</i>	<i>160.500</i>
<i>(Source: Campanha Agrícola MoA 2012 - 2013 adapted by Agrix)</i>		

11 Arable crops

11.1 Cassava

Cassava (could also be considered a perennial crop) is the second most important crop of Angola and mainly a self-subsistence crop. It is a typical tropical crop historically produced mostly in the northern provinces of Angola; though it is currently cultivated in all provinces (less in Namibe and Kunene in the South), and covers a total estimated area of 1.2 mln ha.



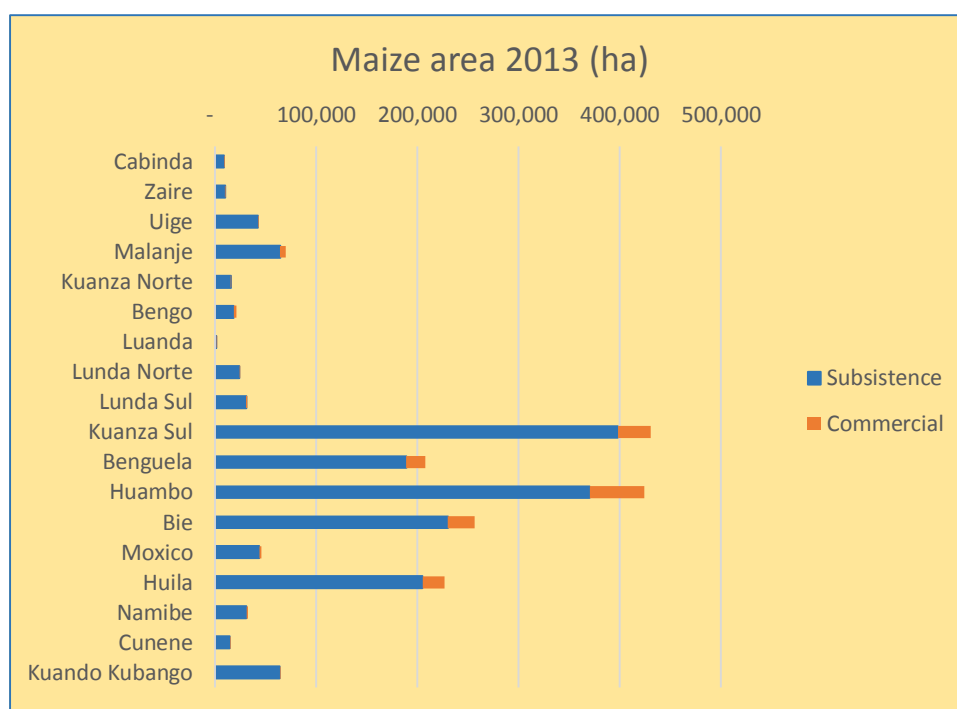
The northern provinces account for 80% of the total cassava area (Uíge, Malanje, Kwanza Norte, Zaire, Lunda Norte, Lunda Sul, Bengo, Cabinda and Luanda). Central provinces of Huambo, Bié, Benguela, Kwanza Sul and Moxico account for 16% and the southern provinces 5% cent only. The local varieties of cassava need a very long period of 15 to 18 months to mature, although harvesting can be put off until 24 months. Self-subsistence yields of cassava are low at an average of 8 to 10 t/ha. The main reasons for this low productivity are the poor quality of seedlings, low soil fertility, diseases, pests and inadequate measures against alien plants.

<i>Cassava area 2012-13 (ha)</i>	<i>Subsistence</i>	<i>Commercial</i>	<i>Total</i>
<i>North</i>	<i>707.100</i>	<i>41.400</i>	<i>748.500</i>
<i>Centre</i>	<i>346.100</i>	<i>11.400</i>	<i>357.600</i>
<i>South</i>	<i>56.200</i>	<i>11.300</i>	<i>67.600</i>
<i>National total</i>	<i>1.109.500</i>	<i>64.200</i>	<i>1.173.700</i>
<i>(Source: Campanha Agrícola MoA 2012 - 2013 adapted by Agrix)</i>			

11.2 Maize

Maize is cultivated throughout the country, on a total estimated area of 1.9 mln ha of which 1.7 mln in a self-subsistence scheme and only 170,000 ha on a commercial level.

The average crop grain yield varies between 800 kg/ha on subsistence farms and 1,500–2,500 kg/ha on commercial farms. Maize is predominantly farmed in the central provinces Kwanza Sul, Benguela, Huambo, Bié and Huíla with remaining areas evenly distributed in the northern and southern provinces. Average yields for maize are very low, due to crop multi-cultivation practices, poor seed quality, low soil fertility, inefficient fertilization, soil acidity, inappropriate sowing seasons and cultural practices.



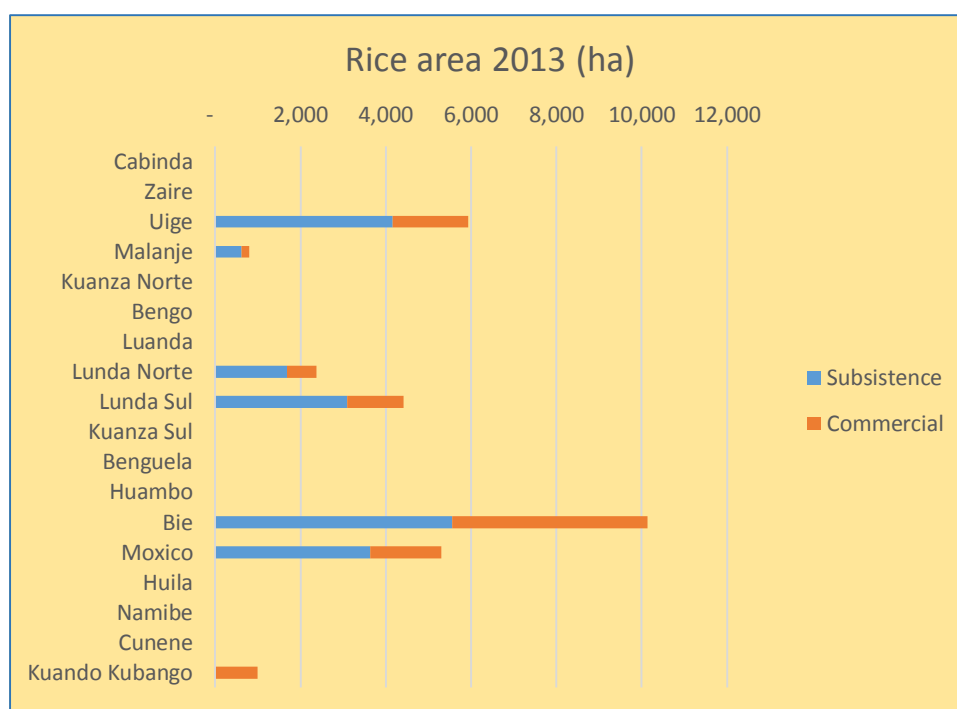
The traditional growing areas of maize are:

- Lowland maize in the low tropics encompass the agro-ecological zones characterized by altitudes between 0 to 1,000 meters above sea-level, annual average rainfalls in the region of 0 to 500 mm, and average temperatures between 27° to 30°C; this corresponds to the coastal and southern regions;
- Highland maize in the high tropics encompass agro-ecological zones characterized by altitudes between 1,000 to 1,500 meters above sea-level, annual average rainfalls in the region of 600 to 1,500 mm, and average temperatures between 17° to 24°C; this corresponds to the Central Plateau, and northern and eastern regions.

Maize area 2012-13 (ha)	Subsistence	Commercial	Total
<i>North</i>	214.400	10.700	225.200
<i>Centre</i>	1.230.800	133.900	1.364.800
<i>South</i>	314.500	23.400	337.900
National total	1.759.800	168.200	1.928.000
<i>(Source: Campanha Agricola MoA 2012 - 2013 adapted by Agrix)</i>			

According to FAO the local production of Maize is 1.3 mln t/yr, imports are around 230,000 t/yr.

11.3 Rice

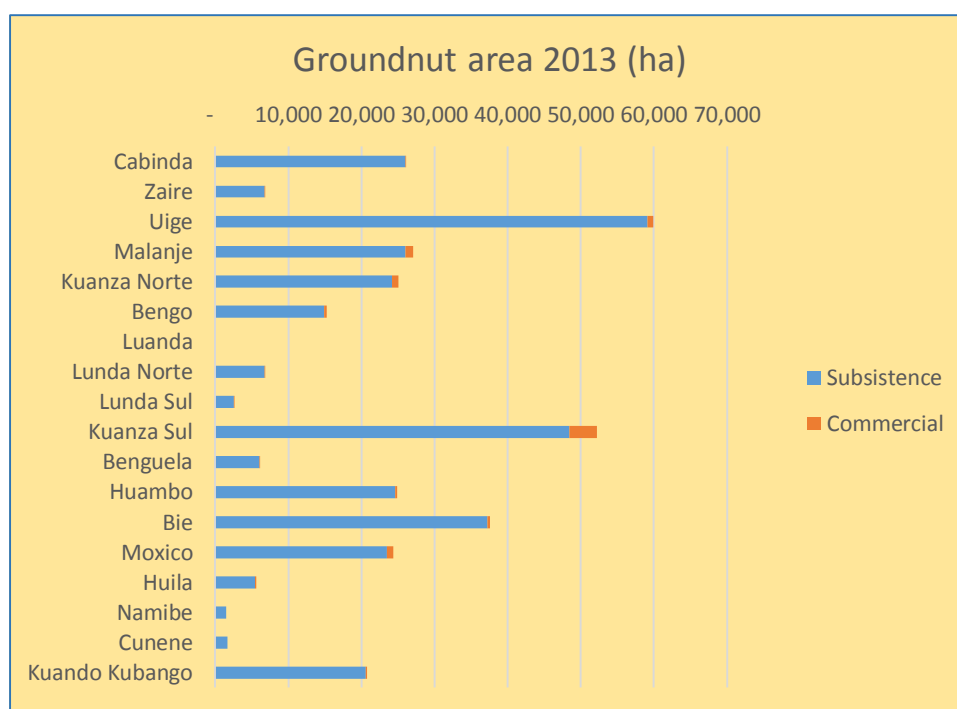


The total cultivated area of rice is estimated at 19,900 ha covering the provinces of Bié, Moxico, Uíge, Lunda Norte and Lunda Sul. Average yields are of 3,500 kg/ha on commercial farms and around 1,000 kg/ha on self-subsistence farms. The Central Plateau as well as the southern and eastern regions of Angola are supposed to have favourable conditions to grow wheat and rice; however, the provinces of Uíge, Malange and Benguela should also have favourable conditions (NEDAP, 2005).

<i>Rice area 2012-13 (ha)</i>	<i>Subsistence</i>	<i>Commercial</i>	<i>Total</i>
<i>North</i>	<i>9.500</i>	<i>3.900</i>	<i>13.500</i>
<i>Centre</i>	<i>9.200</i>	<i>6.200</i>	<i>15.400</i>
<i>South</i>	<i>-</i>	<i>1.000</i>	<i>1.000</i>
<i>National total</i>	<i>18.700</i>	<i>11.100</i>	<i>29.900</i>
<i>(Source: Campanha Agrícola MoA 2012 - 2013 adapted by Agrix)</i>			

Total rice production is estimated by FAO at 15,000 t and imports at 217,000 t.

11.4 Groundnut



Groundnuts are grown on an area of 344,000 ha of which 170,000 ha is in the northern provinces, and 145,000 ha in the central provinces. Uíge, Malanje, Kwanza Norte, Kwanza Sul, Bié and Moxico account for 70% of the cropped area. The average yield of groundnuts is between 570 kg/ha (self-subsistence) to 800 kg /ha (commercial), this is low in an international context.

<i>Groundnut area 2012-13 (ha)</i>	<i>Subsistence</i>	<i>Commercial</i>	<i>Total</i>
<i>North</i>	166.200	3.400	169.600
<i>Centre</i>	139.900	5.200	145.200
<i>South</i>	29.200	300	29.600
<i>National total</i>	335.300	9.100	344.400
<i>(Source: Campanha Agrícola MoA 2012 - 2013 adapted by Agrix)</i>			

FAO (2011) estimates total groundnut production at 113,000 t, the MoA estimate would be around 200,000 t which indicates a substantial difference between FAO and MoA estimates.

11.5 Smaller crops

Sorghum is grown mainly in the south on an area of 192,000 ha (MoA), of which 190,000 ha on a self-subsistence level. The area of Millet is comparable at 195,000 ha (MoA) of which 190,000 ha on a self-subsistence level (MoA), FAO sets Millet production at 61,000 t/yr. Most important production provinces are Huíla and Cunene with rapid expansion in Namibe, Moxico and Kwanza Sul. Sorghum and Millet are considered less valuable compared to Maize but can play an important role in food security and animal feed production.

Large scale soybean is a relative new crop to Angola with high expectations. Large Argentine and Brazilian soy producers and processors already landed in Angola to initiate commercial production. The current area, mainly in the central highlands, is 24,000 ha of which 18,000 ha on a self-subsistence scale and the remaining 6,000 on new commercial farms.

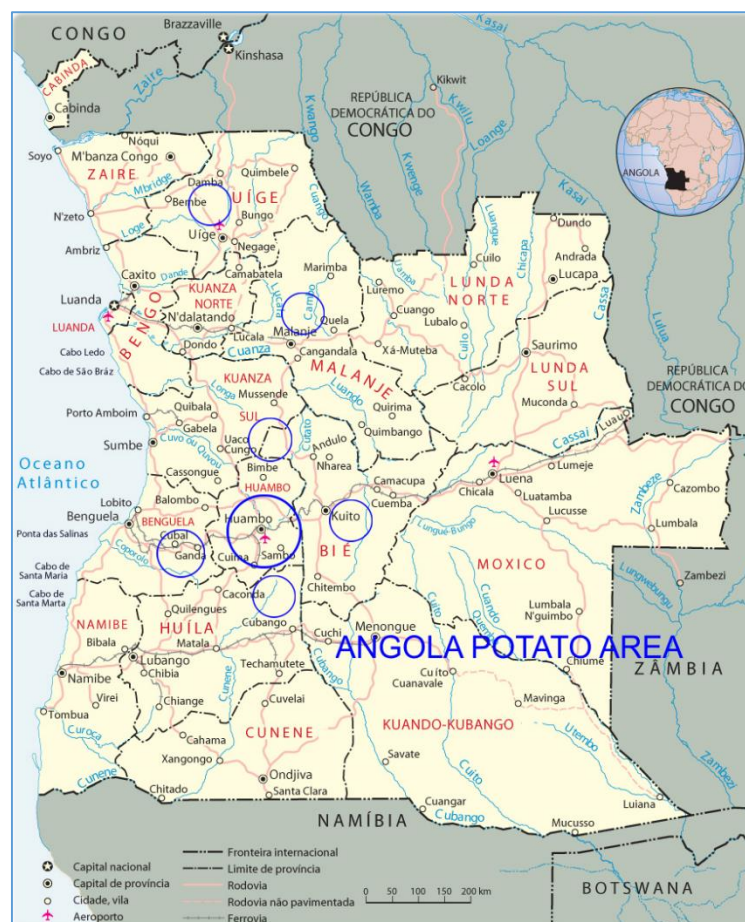
Sweet potatoes are grown on some 165,000 ha mainly in the north. It is foremost a self-subsistence crop. Total production is estimated by FAO at 1 mln t, which makes it a very important food crop.

Tropical fruits grow throughout the country of which Banana with 2.6 mln t/yr by far the most important fruit crop. Moderate climate fruits are farmed in the highlands of Huíla, Huambo and Bié and grapes in the coastal provinces of Namibe and Benguela characterized by a climate tempered by the Benguela Cold Seawater Stream. Hard fruits like apples and pears are imported, around 18,000 t/yr, mainly from South Africa.

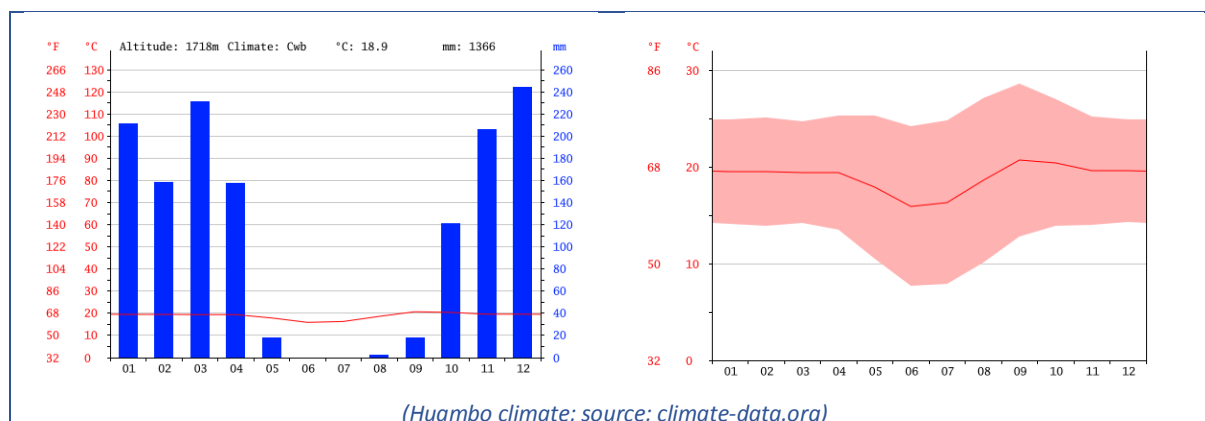
12 Potatoes and vegetables

12.1 Potatoes

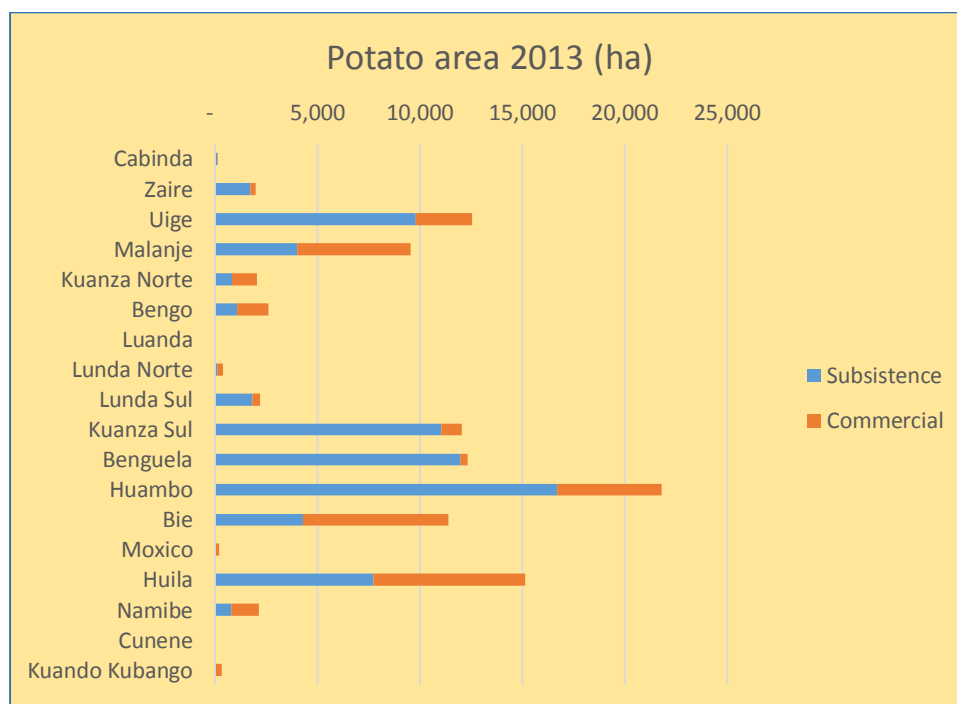
The horticultural sector in Angola is small, and is mainly located in the regions around Huambo (potatoes), Benguela (potatoes and vegetables) and Lubango (vegetables) (Wijnands, 2012). Horticulture is dominated by small scale farmers. The recorded productivity levels are low as a result of poor competences of the farmers. There is almost no supporting knowledge and extension infrastructure and insufficient use of yield-improving inputs. The legacy of the civil war is a constraint on a sustainable development of the sector since many farmers have been displaced and knowledge has been lost. Also poor infrastructure maintenance is a major issue for further development.



The total potato area is estimated by FAO and the MoA at around 100,000 ha, other sources however (Monteiro, Henriques, & Moreira, 2011) mention 500,000 ha. The traditional production regions of potatoes in Angola are the plateau in and around Huambo Province at 1,800 to 2,000 metres. Other areas are Huila, Malange and some areas along the coast in the provinces Benguela and Namibe. The latter is not the most favourite area for growing potatoes. Vegetables are mainly grown in the Huila, Huambo and Benguela provinces. Also near Luanda and Malanga is a significant amount of vegetable production. The production comes from open fields, as the area of protected horticulture is small.



Benguela comprises a hot, dry and humid coastal area. This is the dry land area where only drought resistant crops in very specific (soil) conditions can be produced. Irrigation is essential in this area. The main products that are being produced in this area are tomatoes and some production of potatoes is reported along the coast line. The Huambo and Huila province are located high in the fertile highlands of Angola with an average altitude between 1,200 to 1,800 meters. Currently the growing cycle in this area corresponds with the rainy season between September and May. The Huambo province is originally the potato growing area of Angola, with some of the major producers of potato's located in this area.



Total potato production is estimated by FAO at some 840,000 t/yr; 18,000 t of, mainly packed, potatoes are imported from South Africa and Portugal.

<i>Potato area 2012-13 (ha)</i>	<i>Subsistence</i>	<i>Commercial</i>	<i>Total</i>
<i>North</i>	<i>19.400</i>	<i>11.900</i>	<i>31.400</i>
<i>Centre</i>	<i>44.000</i>	<i>13.700</i>	<i>57.700</i>
<i>South</i>	<i>8.500</i>	<i>9.000</i>	<i>17.500</i>
<i>National total</i>	<i>71.900</i>	<i>34.700</i>	<i>106.700</i>
<i>(Source: Campanha Agrícola MoA 2012 - 2013 adapted by Agrix)</i>			

Potatoes can be grown three times in a year: twice in the rainy season (from October to January and February to May) and once in the dry season with irrigation (from June to September).

For several reasons crop yield is low in Angola.

- Crop rotation is weakly practiced: sometimes potatoes are grown year after year, or in case of irrigation potatoes are grown in the rain season in one year and in next year in the dry season;
- Good agriculture practice is rare, small tubers (might be caused by pest infections) are taken from the previous crop as seeds;
- It is uncommon to use fertiliser according to the requirements of the crop, if fertiliser is used at all;
- Weed control has a strong influence on potato production: no control yields 1.9 to 3.3 t/ha, good weed control yields 18.7 to 20.9 t/ha (Monteiro, Henriques, & Moreira, 2011).

The average potato crop yield for Angola was in 2010/2011 about 8.1 tonnes/ha, which is extremely low. Commercial growers on average reach higher yields: 9.4 t/ha while family growers are at 7.6 t/ha (MoA). However, some large traditional commercial farmers achieve yields of 12 to 13 t/ha, in this case half of the area was grown with potatoes, after which the farmer used the land during the dry and next rainy season for other crops and then again potatoes. Agrolider harvests 60 t/ha, it belongs to the Portuguese investor Grupolider and employs a well-trained non-Angolan management from Portugal and Spain. The company uses pivot irrigation on the potato crop, high quality seed potatoes (Dutch NAK certified), fertilisers dosed according the requirements, and practices crop rotation. Some of the varieties used are Picasso and Romano (both Agrico varieties). Ware potatoes are sold farm gate at AOA 86 /kg which would yield a net return of AOA 294,500 /ha⁶.

Angola imported 1,200 t of Dutch seed potatoes in 2012 and 1,565 t in 2013 (PCC, 2014).

In the period 2006 to 2010 Angola imported on average 2.750 tonnes of seed potatoes, so most of that from the Netherlands and the remaining part from South Africa. The average price was in that period almost USD 1/kg for Dutch and USD 0.60/kg for South African seed potatoes: the Dutch potatoes are thus 65% more expensive but this is compensated by a higher health status and one more multiplication. The volume of imported seed potatoes is sufficient for 690 ha, assuming the use of 4 t/ha for a first multiplication, this would yield 17,000 t of seed potatoes, enough to plant 8,500 ha of commercial crop. But if the Dutch seed, suppose 1,500 t imported to grow 375 ha, can be multiplied once again it would be enough to plant some 23,000 ha of commercial potatoes, which is about 25% of Angola's potato area. Dutch seed potatoes can be multiplied twice if elite grade seed is imported (class E), which becomes certified class A after one multiplication and certified class B after a second multiplication.

⁶ EUR 1.00 = AOA (Angolan Kwanza) 121,90 (January 2015/Oanda)

<i>Seed potato multiplication</i>	<i>t/ha plant</i>	<i>imported t</i>	<i>area ha</i>	<i>yield t/ha *)</i>	<i>yield t</i>
Imported seed	4.0	1,500	375	25	9,375
Commercial production	2.5		3,750	35	131,250
Multiplication 2	4.0		2,344	25	58,594
Commercial production	2.5		23,438	35	820,313

**) seed yield 28-55 mm size*

Potato seed multiplication scheme (Source: Agrix)

Exporting seed potatoes to Angola is straightforward. A potential shipment has to comply with Dutch NAK regulations and in Angola an inspection certificate must be issued by a Bureau Veritas. The inspection certificate is necessary for customs clearance in Angola (Wijnands, 2012).

There is no potato handling (grading/washing/packing) facility in Angola so far. Red skinned potatoes are at a higher price and for the larger part imported.

12.2 Vegetables

Vegetable production is largely outdoors with some small plots of protected cultivation in plastic tunnels using mainly low and some medium level technology. As a result, large retailers in Angola are not able to source locally since local producers are not available to supply the quantity and quality as required year-round (Wijnands, 2012). Vegetable production is increasingly becoming a commercial farming activity. The higher altitude areas in Malanje, Kwanza Sul, Benguela, Bie, Huila and Namibe are considered to be appropriate for vegetable production, but by far the most important vegetable production region is around Huambo (MoA).



Agrolider lettuce crop (Source: Retail & Food AN)

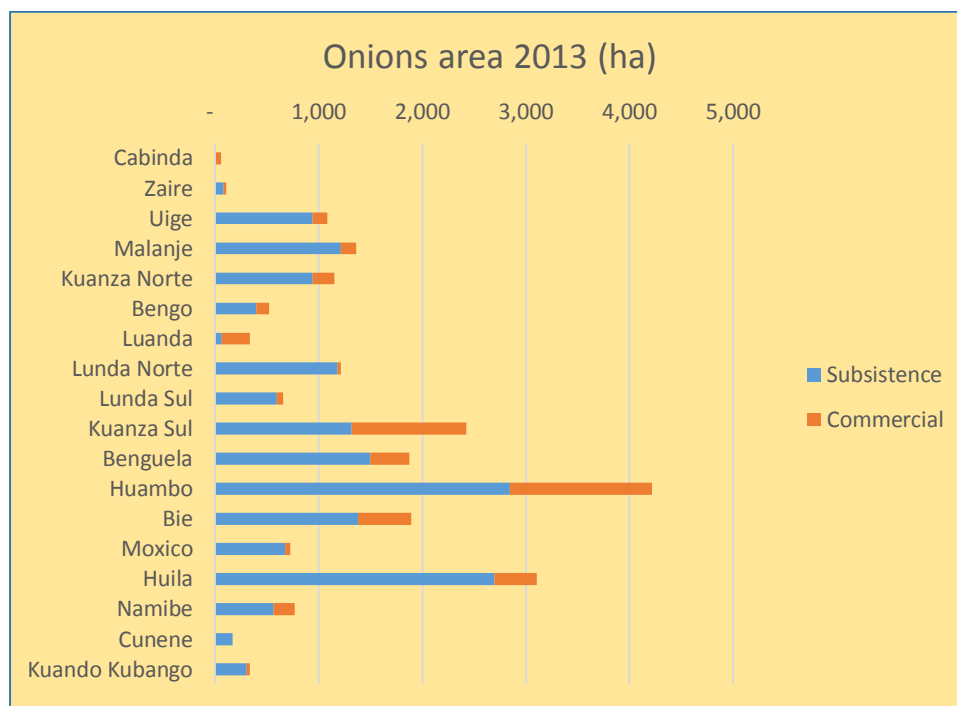


Agrolider cauliflower at Shoprite (source: Agrix)

Greenhouses are not common in Angola and the area of protected cultivation is therefore limited. However there are some projects that involve greenhouses, mainly around Luanda. Many of them are locally designed and assembled, but there is also a strong presence of Israeli companies and they dominate the supply of modern greenhouse materials. Furthermore Vegtech from South Africa is involved in a number of greenhouse projects (supplying greenhouses originating from Israel). One is the Terra Verde project, located outside Luanda. The farm, a joint Angolan-Israeli business, was set up at the end of the war in 2002 to provide income to former UNITA fighters and has been harvesting various crops, including tomatoes and cucumbers.

There is a strong increase in demand for shallots, red sweet pepper (paprika) and American type lettuce (probably crisp head type iceberg).

12.2.1 Onions

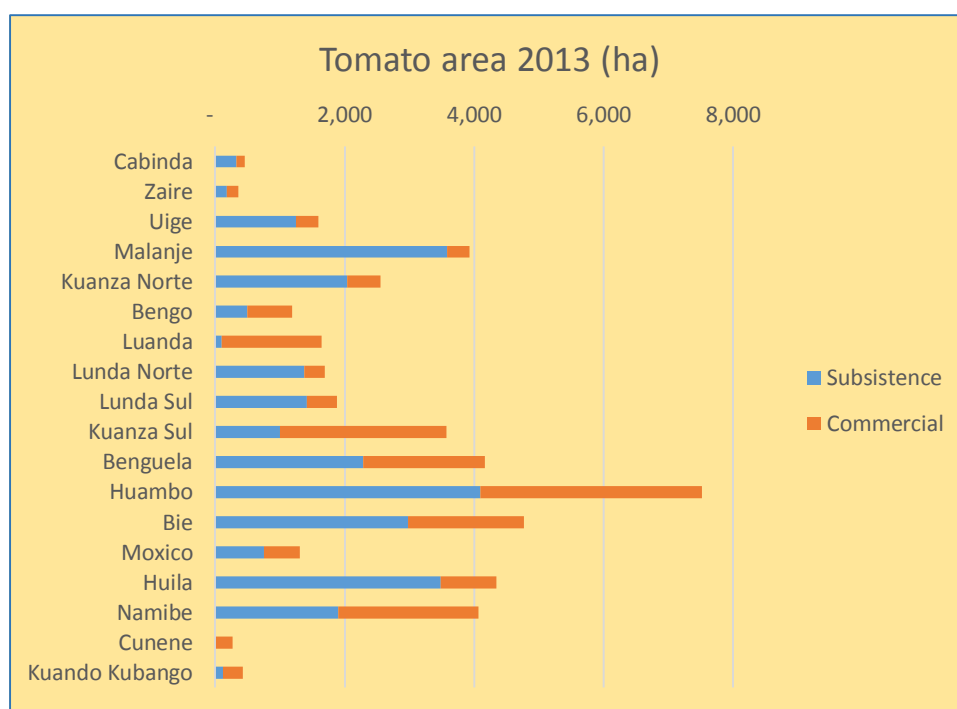


<i>Onions area 2012-13 (ha)</i>	<i>Subsistence</i>	<i>Commercial</i>	<i>Total</i>
<i>North</i>	<i>5.400</i>	<i>1.000</i>	<i>6.400</i>
<i>Centre</i>	<i>7.700</i>	<i>3.400</i>	<i>11.100</i>
<i>South</i>	<i>3.700</i>	<i>600</i>	<i>4.300</i>
<i>National total</i>	<i>16.800</i>	<i>5.100</i>	<i>21.900</i>
<i>(Source: Campanha Agricola MoA 2012 - 2013 adapted by Agrix)</i>			

There is little data available on the current production levels of horticulture products. FAO data on tomato production in Angola indicates around 3,800 kg per hectare and this is regarded as very low.

Farmers are not able to produce year round and especially during the rainy season farmers face major problems and as a result the majority of farmers are not able to maintain a constant quality level and quantity supply throughout the year. However some farmers report a high yield per square meter using improved seeds and medium technology such as plastic tunnels, hydroponics and substrate cultivation. This results in a far higher productivity and these highly capital intensive farms are able to supply retailers year-round with a constant quality.

12.2.2 Tomato

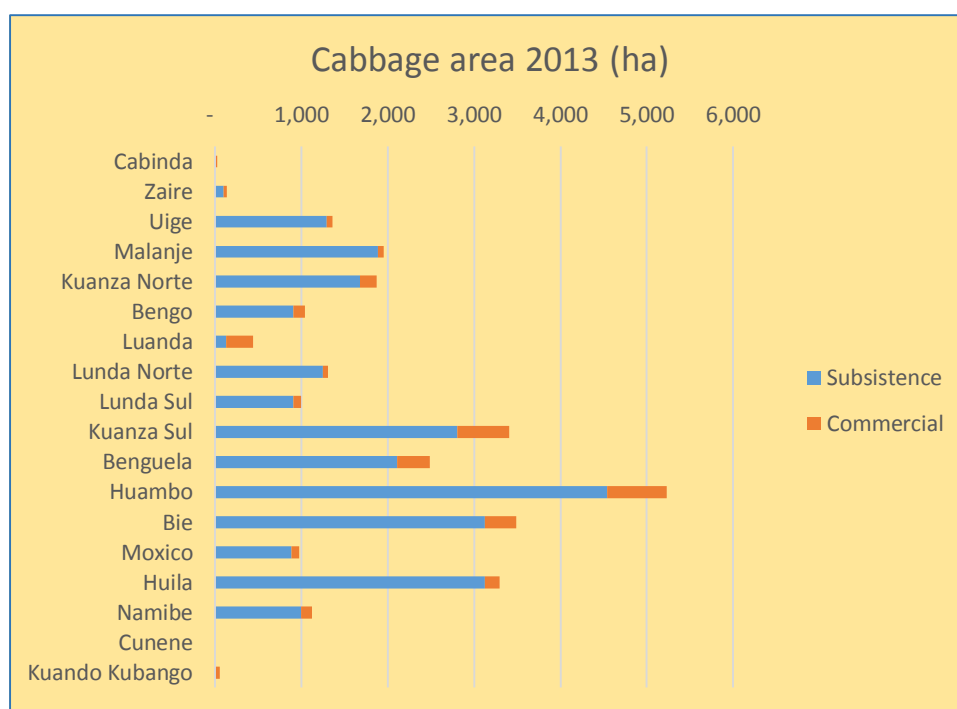


<i>Tomato area 2012-13 (ha)</i>	<i>Subsistence</i>	<i>Commercial</i>	<i>Total</i>
<i>North</i>	<i>10.700</i>	<i>4.500</i>	<i>15.200</i>
<i>Centre</i>	<i>11.100</i>	<i>10.200</i>	<i>21.300</i>
<i>South</i>	<i>5.400</i>	<i>3.600</i>	<i>9.100</i>
<i>National total</i>	<i>27.300</i>	<i>18.300</i>	<i>45.700</i>
<i>(Source: Campanha Agrícola MoA 2012 - 2013 adapted by Agrix)</i>			

Vegetables commonly grown include tomato, cucumber, pepper, onions, cabbage, garlic and melon.. Farmers in Benguela can produce vegetables year-round since this area has sufficient water supply. The area of Huambo, where currently a lot of vegetable production is located, is less favourable since the area lacks sufficient irrigation structures and the area is affected heavily by the summer rains.

As the majority of farmers does not work with greenhouses or irrigation, they harvest only once a year at the end of the dry season in July, August, and September. Also other issues such as soil fertility, diseases, insects, saline/sodic soil problems, irrigation water quality, and soil/plant nematodes provide major obstacles to sustainable yields. There are a few professional agro-businesses of considerable size in the market that have a competitive advantage because they do work with irrigation and greenhouses.

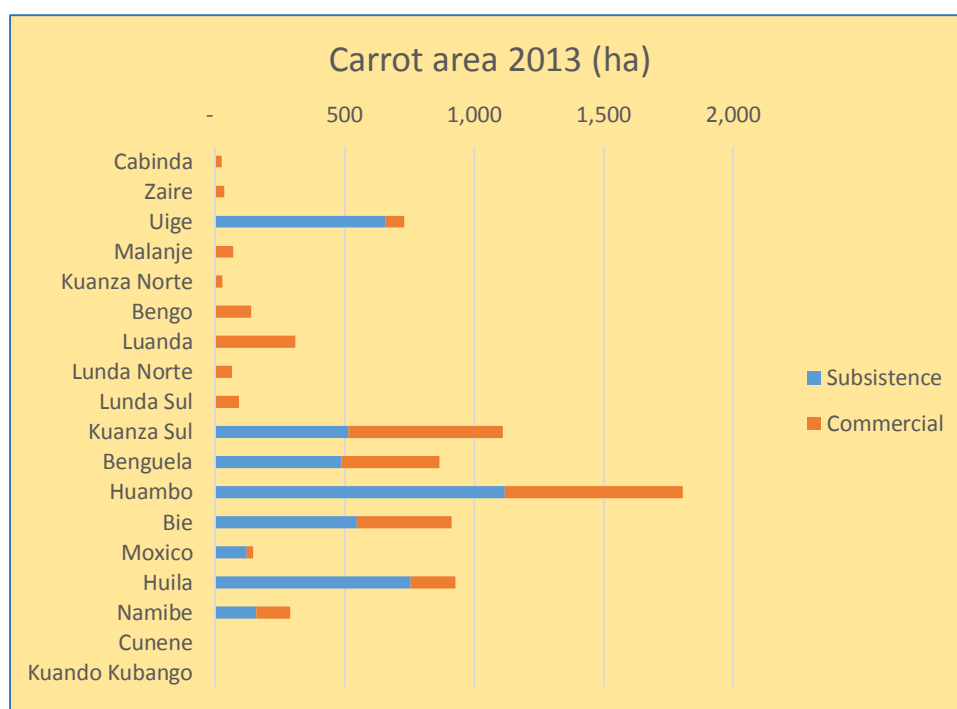
12.2.3 Cabbage



<i>Cabbage area 2012-13 (ha)</i>	<i>Subsistence</i>	<i>Commercial</i>	<i>Total</i>
<i>North</i>	<i>8.100</i>	<i>900</i>	<i>9.100</i>
<i>Centre</i>	<i>13.400</i>	<i>2.100</i>	<i>15.500</i>
<i>South</i>	<i>4.100</i>	<i>300</i>	<i>4.400</i>
<i>National total</i>	<i>25.700</i>	<i>3.400</i>	<i>29.100</i>
<i>(Source: Campanha Agrícola MoA 2012 - 2013 adapted by Agrix)</i>			

The best period for vegetable production is from May to October although, in the country as a whole, vegetables are produced year around. Summer rains create disease, insect, and weed problems and result in a low productivity. Limited post-harvest treatment, grading, or storage was observed. Transportation of vegetables is extremely difficult due to poor road conditions (dirt roads, pot holes) and no refrigerated trucks. Especially during the rainy season roads are from time to time inaccessible. Trucks with open beds may take 8-12 hours to transfer vegetables to a market 300 km away. Once at the market, no refrigeration or preservation is available. The cold chain can be considered inadequate.

12.2.4 Carrots

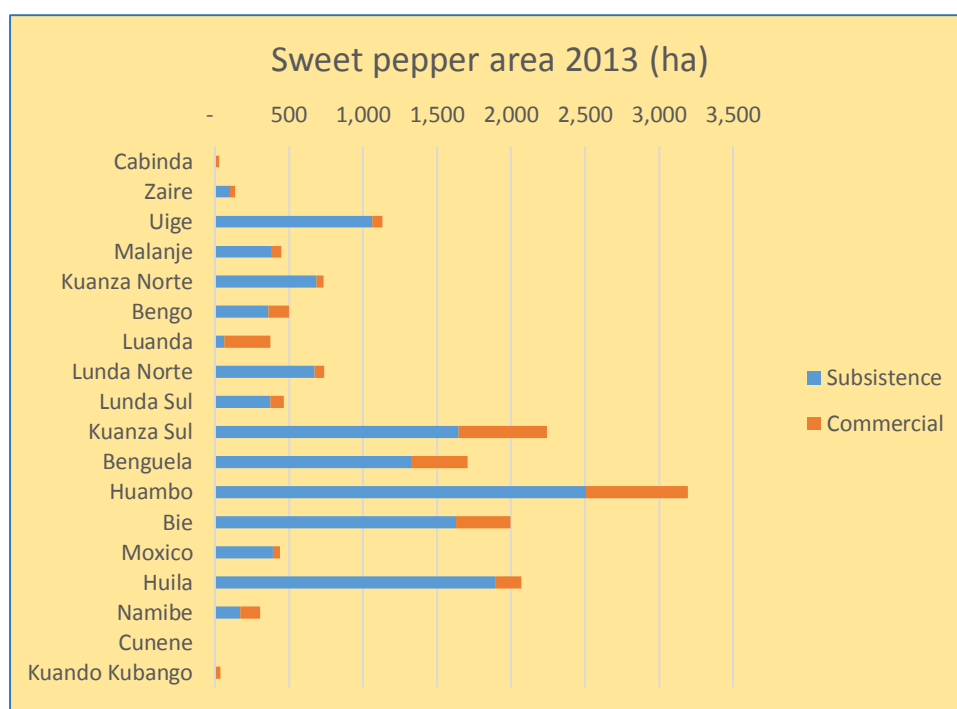


<i>Carrot area 2012-13 (ha)</i>	<i>Subsistence</i>	<i>Commercial</i>	<i>Total</i>
<i>North</i>	600	800	1.400
<i>Centre</i>	2.700	2.000	4.800
<i>South</i>	900	300	1.200
<i>National total</i>	4.300	3.100	7.500
<i>(Source: Campanha Agricola MoA 2012 - 2013 adapted by Agrix)</i>			

The market leaders in covered crop production are Agrolider, Agricultiva, and Fazenda Girassol (Beeckmans & As, 2012). These companies harvest three times a year and continue producing during the rainy season, which gives them a very strong position in the market since they can supply a constant quality and quantity throughout the year.

Vegetables seeds in Angola are in general of poor quality. The germination of the seeds is sometimes unreliable. Dutch seed has a good reputation but is not easily available for farmers. Some large commercial farmers buy the seeds in Portugal from Rijk Zwaan, Enza, Sakata or Monsanto and use this for their farms in Angola. Currently GM seed is not allowed in Angola.

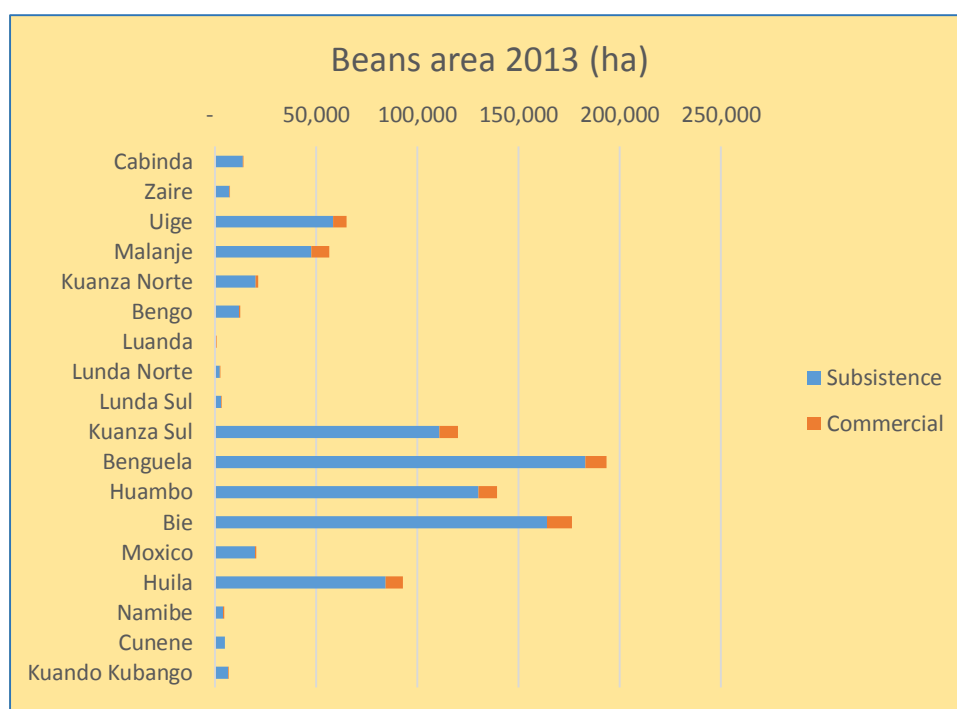
12.2.5 Sweet pepper



<i>Sw pepper area 2012-13 (ha)</i>	<i>Subsistence</i>	<i>Commercial</i>	<i>Total</i>
<i>North</i>	<i>3.600</i>	<i>800</i>	<i>4.500</i>
<i>Centre</i>	<i>7.500</i>	<i>2.000</i>	<i>9.500</i>
<i>South</i>	<i>2.000</i>	<i>300</i>	<i>2.400</i>
<i>National total</i>	<i>13.200</i>	<i>3.200</i>	<i>16.500</i>
<i>(Source: Campanha Agricola MoA 2012 - 2013 adapted by Agrix)</i>			

12.2.6 Beans

Total local beans (excluding soybean) is estimated by FAO at 304,000 t and some 50,000 t being imported. Local production area is estimated by FAO at almost 940,000 ha.



Beans are mainly produced in central Angola covering around 65% of the total production area.

<i>Beans area 2012-13 (ha)</i>	<i>Subsistence</i>	<i>Commercial</i>	<i>Total</i>
<i>North</i>	<i>163.800</i>	<i>18.000</i>	<i>181.900</i>
<i>Centre</i>	<i>607.500</i>	<i>41.800</i>	<i>649.400</i>
<i>South</i>	<i>99.000</i>	<i>9.600</i>	<i>108.600</i>
<i>National total</i>	<i>870.300</i>	<i>69.500</i>	<i>939.900</i>
<i>(Source: Campanha Agrícola MoA 2012 - 2013 adapted by Agrix)</i>			

The most common bean varieties are butter beans, red beans and macunde beans. Beans are predominantly farmed in the central provinces of Huambo, Bié, Benguela and Kwanza Sul, accounting for 55% of total production. Crop yields of beans are low at some 220 kg/ha (MoA). Beans are an important source of protein in the diet of rural Angolans.

12.3 Flower production

Although not a vegetable it seems good to mention that demand for flowers is growing and flower production is increasing. Some of the flowers produced are roses, gerbera and asters. Most of the flowers are grown on small plots and in the open field. There is a newly initiated project that is starting to produce tropical flowers in greenhouses (e.g. anthurium) in the hot and dry climate near Luanda. More and more farmers are considering flower production as there is a high demand for flowers in the main market Luanda. Currently the majority of the flowers is being imported from South Africa and prices can go as high as USD 10 per stem (NEDAP, 2005).

13 Perennial crops

<i>Perennial crops (ha)</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>
Bananas	95.793	106.376	108.740	104.750
Coffee, green	20.000	45.189	29.052	30.000
Pineapples	9.594	25.840	25.881	27.504
Oil, palm fruit	23.000	23.000	23.000	23.000
Fruit, citrus nes	8.967	19.490	21.027	21.196
Castor oil seed	14.721	23.033	15.000	16.000
Sugar cane	13.500	13.000	13.000	13.000
Fruit, fresh nes	8.090	8.208	8.200	8.084
Tobacco	3.687	4.517	4.200	4.165
Seed cotton	2.000	2.000	2.000	3.000
Cashew nuts, with shell	2.800	2.800	2.800	2.800
Cocoa, beans	2.125	2.109	2.094	2.430
<i>Total</i>	<i>204.277</i>	<i>275.562</i>	<i>254.994</i>	<i>255.929</i>
<i>(Source: FAO stat 2013)</i>				

The total acreage of perennial crops in Angola is fairly stable at 255,000 ha. The sugar cane area is expected to expand rapidly with the Malanje sugarcane project of Odebrecht that started planting in 2013 and will reach its full volume of 42,000 ha in 2018 (Bloomberg).

Angola also seems to offer good potential for perennial tree crops. Cashew is already grown on an area of 2,800 ha but other nuts like pistachio, hazelnut and macadamia might be of interest too. Especially pistachio, currently only produced for the world market in the US and Iran, is poised to expand consumption (Crowder, 2014). Two companies, based in The Netherlands, have shown a great interest in procuring nut crops produced in Angola: Intersnack and TD Holding.

14 Retail, wholesale and food service

Retail is the final link before consumption in any agrifood value chain. Probably more than in any other country the Angolan retail sector has a prominent position in the agrifood value chain. Establishment of retail stores started before the ongoing development of the agrifood sector. Retailers would import almost 100% of the products sold in their stores. But as the import of perishable food stuffs is complicated and expensive and as a result of the introduction of a law that forces retailers to buy 30% local, retailers addressed local sourcing. As cold chains do not exist and the products offered locally were below the desired quality and quantity, retailers started integrating upstream.

Retailers like Pomobel, Maxi and Kero set up their own vegetable farms or work on an exclusive contract with large producers. That makes retailers important players, apart from the outlet roll, also in primary production. It is plausible to assume that on the long term, say in 10 years' time, retailers will decide to focus again on their prime business and sell the agricultural activities. But before this happens agrifood will have to further develop including the establishment of a functioning infrastructure with a reliable cold chain in place.

The Angolan retail sector is forecasted to grow by 8% next year, increasing to USD 30 bln up from a forecasted USD 28 bln in 2014, making up 21% of the country's GDP up from 15% in 2002, thanks to the rapid expansion of the Angolan middle class, according to Eaglestone, an investment bank that focusses on sub-Saharan Africa (Santos, 2014).

Euromonitor International identifies Angola as one of the twenty Markets of the Future that will offer the most opportunities for consumer goods companies globally (Euromonitor, 2014). The country is one of the fastest growing and most promising economies in Sub-Saharan Africa; however, market intelligence is extremely limited in this part of the world and the business environment is complicated.

Personal consumption expenditure is projected to grow by 11% over 2013-2020. Angola has one of the biggest and fastest growing populations in Sub-Saharan Africa. Of the 20 mln people living in the country the majority is below 20 years old and living in urban areas. The population is expected to reach 26 mln by 2020 due to the high birth rate, improving healthcare and living conditions.

Besides a growing population, expansion of modern retailing is one of the main drivers of demand for consumer goods. Unofficial trade in open markets remains significant in Angola, but a growing share of the urban population is switching to modern retail. In the future, high growth in specialised retail is anticipated.

Over 2009-2013, all consumer categories recorded significant growth in Angola. Packaged food, valued at USD 1.8 bln in 2013, grew by a 23%, with an exceptionally good performance in oils and fats (51%), pasta and noodles (36%) and soup (39%). Beverages stood at 19%, with beer remaining the largest category, valued at USD 2 bln in 2013. Beverages were driven by bottled water (23%), juice and carbonates (22% each). Packaged food and beverages are projected to grow by 19% and 15% respectively over 2013-2018, mainly driven by growing income and urbanisation.

The Angolan retail sector has benefitted from a decade long boom in the oil sector, leading to the rapid development of other sectors, reinforced by the process of urbanisation and the growing aspirations of the middle class. The Angolan retail market is divided into the formal and the informal sectors. The informal retail market, which refers to the traditional formats of low-cost retailing, such as local owner-managed shops and pavement vendors, remains sizeable. Informal retail sector still accounts for up to 80% of market so significant scope for growth. Eaglestone explains that the retail market has historically been difficult to penetrate for formal retailers in Angola, with the informal sector accounting for around 90-95% of the retail sector at the end of the civil war. However, this has started to shift in recent years with 20-30% of retail activity now accounted for by the formal retail sector. KPMG however states (Thunstrom, 2013) that despite Angola's relative high urbanisation rate of 60%, expected to be 70% by 2025, formal retail only represents around 5% of total retail sales. According to KPMG prime retail rents are at USD 100 /m2 per month, compared to USD 45 in Lagos or Cape Town.



Tomatoes at USD 7 /kg (Shoprite)



Potatoes at USD 2 /kg (Shoprite)



Potatoes at USD 2 /kg (Kero)

Imported Carrots at USD 2 / kg (Kero)

The informal market was hugely fragmented and composed of a diversity of foreign ethnic groups: Indians, Portuguese, Lebanese, Eritrean, Senegalese, Mauritanian and Malian trading and distribution networks are well-known for their ability to control imports of goods, particularly from Asia, supplying the country's informal traders and street vendors with food and non-food items.

Following the closing down of the informal market of Roque Santeiro in 2010 and its reallocation to Panguila (18 km north of Luanda); the GoA indicated three entry points to Luanda as suitable locations for informal market activity, namely: Panguila in the north, Viana in the east and Benfica in the south. The buzzing Rocha Pinto market is reportedly also to be closed down and its vendors moved to Benfica (Jover & Pinto, 2012).

The past decade has witnessed the appearance of organized retailers with the development of several hypermarkets. Historically the Portuguese, Lebanese and Indians have been the dominant players in the Angolan retail market but new players are increasingly entering the market driven by: changes in consumer profile and demographics, increasing urbanization, improvements in infrastructure, and an increase in the number of international brands available on the Angolan market. In order to keep pace with increasing demand, there has been frantic activity in terms of entry of international brands, expansion plans, and focus on technology, operations and processes (Beeckmans & As, 2012).

The first big scale shopping center of Angola was Belas Shopping which opened in 2007 in Luanda Sul. It's area is 120,000 m². Belas Shopping has over 100 shops, an eight-screen cinema, and a large supermarket (Shoprite). It has an average footfall of 25,000 people per week. 4,500 people are employed in the shopping complex. Seven new shopping centres are being developed in various areas of Luanda. Many are conceived as multi-purpose spaces to include retail, residential and office space. The largest projects include:

- Kinaxixi towers;
- Shopping Fortaleza;
- Muxima Plaza;
- Luanda Shopping;
- Ginga Shopping;
- Viana Park;
- Luana Park;
- Maxi park;
- Belas Shopping.

The majority of the supermarkets buy part of their fresh food needs from local, mainly large scale producers. Contract farming as such does not exist in Angola but retailers have exclusive contracts with some producers. The quantity and variety of local production is not sufficient to satisfy demand. Prices are high and differ enormously, depending on the season tomatoes can cost USD 0.20 /kg in the dry season and USD 3.70 /kg in the wet season.

Retailers supplement local sourcing by import or through upstream integration by setting up their own primary production. Some caterers do the same, like Express Catering, a major catering company to the oil industry, that installed greenhouses in Soyo. As stated, the investment in integrated farms is also a way to comply with the law that obliges retailers to source 30% local produce. But there are ways around this law as many retailers sell “Angolan” cheese that has obviously only been re-packed in Angola as there is hardly any commercial cheese production.

<i>Super / hyper market</i>	<i>Owner</i>	<i>Remarks</i>
Shoprite / Usave	South African	7 hypers and 6 USave
Kero / Continente	Sonae group Portugal/Cochan	10 hypers, 6 Kero Express
Pomarbelo	Pomobel	6 supers
Maxi / Bom Preco	Teixeira Duarte Portugal	15 supers around the country
MEGA	Angolan Refriango	3 C&C
Nosso Super / Poupa La	State owned	Closed
Papagro / Paparoca	State / Odebrecht	1 super to expand to +/- 30
Casa dos Frescos	Portuguese	8 supers in Luanda
Jumbo / Grupo Auchan	French / Angolan	3 supers
Alimenta Angola	Sanzi group from India (poultry)	C&C in Viana, 15 dual purpose
Continente / Sonae	Portuguese / Angolan	4 hypermarkets
Deskontão C&C / Mel	Score Distribucao	1 super, 18 planned, also Mel
Martal		3 supermarkets
Mega / Ben Me Quer	Angola / Portuguese	2 C&C / 200 mini-markets
Agalimentos	(former AfriBelg) Kassim Tajideen	US banned business
<i>Source: Agrix adapted from “Retail and Food in Angola”</i>		

Agalimentos, Golfrate Holdings and Grupo Arosfran are owned by mr Kassim Tajideen and according to the Americans linked to Hizballah and therefore its prohibited for US companies to do business with these (<http://angola.usembassy.gov/consmess10252011.html>).

South Africa’s Shoprite opened its first store in Angola in 2003. It has been hugely successful and is rapidly expanding. Similarly, Teixeira Duarte’s distribution brand, MAXI, has already established a strong market presence with a widely recognized network of stores in Luanda, Benguela and Cuanza Sul. There are many other entrants looking for a piece of the retail pie. Group Sonae from Portugal has signed a contract with the GoA to introduce the Continente brand in an initial investment of over USD 103 mln. Grupo Score (Portugal), El Corte Ingles (Spanish retail giant), Massmart (Wal-Mart subsidiary) and Woolworths (South African) also intend to open stores in Angola in one form or another.

14.1 Shoprite

Shoprite (Santana & Stock, 2014) currently has 7 super/hyper markets in Angola (four in Luanda, one in Lobito and one in Lubango, one in Huambo), 6 USave stores (furniture, brown and white goods)

and 4 Hungry Lion fastfood restaurants, it intends to double its presence during the next year. The 7,000 m² Lubango store cost USD 20 mln to build. Most products sold are imported, both perishables and non-perishables (at least 80% of volume). Vegetables (including potatoes, onions, carrots and such) are imported from RSA, the outspoken intention is to increase local procurement. Imports from the Netherlands can be considered if product price and specifications are good. Quality of imported potatoes good (mostly sold in 10 kg net and 5 kg poly bags). No fresh, pasteurized milk on offer; only UHT, condense and powdered milk, also from Friesland Campina. Most retail prices are some 100% higher compared to The Netherlands' price level.



Shoprite supermarket Luanda



14.2 Kero

Kero (Godinho & Leite, 2014) is owned by Kero is the largest super/hyper market chain in Angola with 7 Kero hypermarkets, 6 Kero Express Stores and 3 more hypermarkets to be opened in 2014. Kero is the brainchild of Group Zahara, a locally owned Angolan group (with VP Vicente involved). The group strategically employed Brazilian consultants and expertise to study the market and carve their own niche. The investment for the initial store was valued at USD 35 mln. Kero is now the largest hypermarket in the country. The flagship Kero Hypermarket in Nova Vida, Talatona, opened its doors to the public in December 2010. At 11,000 m², including 7,500 m² of retail space and 600 car parking spots. Since then other branches have opened in the suburbs of Cajueiro, Kilamba Kiaxi, Martires and Combatentes. The most recent launch was a new Kero hypermarket in the centre of Luanda in September (the largest in Angolan with 12,000 m²). The Kero formula seems to fit better compared to Shoprite (that needed to adapt its formula). With the "Club de Nossa Terra" label, Kero introduced special attention to locally produced products, like the Girasoll brand. Kero is also open to import of perishables from The Netherlands.

Group revenues were USD 100 mln in 2011 but must be much higher now. Kero boasted 3 mln customers at that time and over 40,000 different products on offer. Most recently the group has added a range of non-food items, furnishing and white goods, which are specifically targeted to meet the needs of the burgeoning new urban centres.



Kero supermarket Luanda

14.3 Pomarbelo

Pomarbelo (Teuns, 2014) operates 4 supermarkets in Luanda and 2 in Huambo, its brand name is “Bom Gosto”. Pomarbelo is part of the Pomobel group. The intention, as expressed by the other supermarkets, is to source and sell as much local produce as possible. Pomobel is the prime supplying supermarket to government related institutions and is involved in the “Christmas Package” business which is very important in Angolan retail. Pomobel is integrating up stream, it intends to produce vegetable products (including potatoes and onions) that are sold in the supermarkets on its own farms (see chapter on Pomobel farming)

14.4 Maxi

MAXI is the distribution arm of Teixeira Duarte group. Maxi counts with 8 stores in Angola, including its latest addition in Porto Amboím (around 200 km south of Luanda). The group is vertically integrating its operations and has entered the retail segment under the “Bom Preço” brand. The first branch opened in the new Ginga Shopping mall in Viana, a thriving suburb of Luanda, in December 2011. A further three stores opened in Cazenga, Zango and Cacuaco. The group is also present in the non-food retail business through its “Casa de Coração” brand.

14.5 MEGA – Cash and Carry

Mega’s Cash and Carry hypermarket was inaugurated in November 2010 with an investment valued at USD 35 mln; it also marked the vertical integration of the Refriango beverage giant. The flagship store comprises of 4,600 m² of retail space and sells over 3,000 products, including the group’s own range of market leading beverages. The store also has an onsite bakery, restaurant and coffee shop. The group has revealed its intentions to open two other stores in Benguela and Luanda and to have a national distribution network by 2020.

14.6 Nosso Super and Poupa Lá

Nosso Super, a nationwide chain of 31 supermarkets came into existence in 2007 as part of the government’s PRESILD (Programa de Reestruturação do Sistema de Logística e de Distribuição de Produtos Essenciais à População) program whose main objective was to improve market access for small and large scale farmers and to organize and modernize commercial activity in Angola.

A host of smaller neighbourhood supermarkets under the “Poupa Lá brand were also opened to increase penetration density in heavily populated areas.

The Nosso Super supermarkets were symbolically located on or near locations of informal markets. Together, they were supposed to source as much locally and serve as a window between urban consumer and small farmer and contribute to the formalization of the market (Beeckmans & As, 2012).

However, while the retail infrastructure was built the initial project failed and was eventually shut down. The exact reasons why the concept failed will never be known (there is a lot of speculation about corruption), but the concept never functioned properly, and in 2011 the stores closed their doors. The assets remained with the state and were given in a concession to Brazilian construction giant Odebrecht, who was expected to lease it to a private investor.

In May 2011 the Ministry of Commerce announced the re-launch of the retail chain following a new 10-year management agreement with the Nova Rede de Supermercados de Angola (NRSA). The deal was supposed to include investments of over USD 50 mln to recapitalize and recover the supermarket chain.

14.7 Paparoca

As a follow up on the May 2011 announced cooperation with NRSA in 2013 the government again started an initiative rather similar to Nosso Super called “Papagro” (Programa de Aquisição de Produtos Agropecuarias). The products as collected by Papagro should be sold in a new retail chain called “Paparoca”. It is again a venture that buys agricultural produce from small holders in the province at relatively high fixed prices, ship the products to Luanda, grade, sort, pack and then supply supermarkets. The huge capacity of Papagro warehouses, located near Viana, is currently used for less than 5% of capacity. Some simple stainless steel grading equipment is present in the warehouse, the products are of extremely low quality: most of it not suitable for consumption (when the site was visited by Agrix in November 2014).

Current sales appear to take place mainly as container sales in local communities as supermarkets don’t usually accept the product sold by Papagro. Potatoes are sold out of a container for USD 1 /kg in 20 kg net bags, bananas cost USD 0,75 per kg. The project is also known as “a feira da batata” (potato feast), because most people wait until the day is almost over when Papagro needs to get rid of the container contents and give the potatoes away for almost nothing.

The first and so far only Paparoca store is at the Viana site. At the time of visit there very little offer and no clientele; this system obviously costs a lot of money. The basic idea is to set up 60 local Paparoca stores throughout the country.



Papagro truck and container sales

In the Luanda suburb of Viana an industrial site is being developed. Companies that settle receive benefits like tax exemption for 3 years, free land and other benefits. A new brewery, a joint venture between the Chinese Investment fund (CIF) and a local company owned by vice president Vicente, is also located in the Viana tax free zone.

14.8 Casa dos Frescos

Casa dos Frescos' origins date back to 1999 with its first branch in Luanda. Since then the group has grown organically to five stores located in Luanda, Viana and Talatona. The group targets the high-end consumer, with only the best and freshest food, fruit and vegetables. The high levels of quality come at a price, and in line with their market focus, the group has concentrated their presence with relatively small shops (mostly in the 600 m² range), close to their high-net-worth client base.

14.9 Jumbo and Grupo Auchan

The Auchan group is a French family owned business that was founded in. Auchan group bought the Portuguese retail group Pão de Açúcar in 1996, which at that time had 31 stores under the Jumbo brand (including the Jumbo hypermarket in Angola). Until the Kero hypermarket opened its doors in 2010, Jumbo was the country's largest hypermarket. The Auchan group holds a 30% stake in the local hypermarket and the balance is held by local shareholders.

14.10 Alimenta Angola Cash and Carry

The Alimenta Angola project began in 2001 and has stores which service both the wholesale and retail markets. Alimenta Angola forms part of the Brazilian Tenda Atacado group, which is the fifth largest retailer in Brazil. The group has 15 dual purpose stores in São Paulo, a north eastern suburb of Luanda, with a product mix composed of more than 6,000 items and generating revenues of some USD 60 mln annually. In 2009 the group opened its first hypermarket-type store along the Catete road. This was the first of a planned 10 stores to be opened in Angola. With more than 4,500 m², a modern structure and differentiated product range, 10 checkouts and 150 employees, Alimenta Angola expanded its captive market to cover 150,000 customers per month.

14.11 Grupo Sonae - Continente

In December 2011, the GoA approved the entry of Portuguese Modelo Continente, a subsidiary of Sonae Distribuição (the largest retailer in Portugal) and Angolan Cochan group (with the VP involved) with an initial investment of USD 103 mln. Operations started in 2013 with the opening of 4 hypermarkets in Luanda as well as a logistics centre. The investment project foresees the creation of 2,000 jobs.

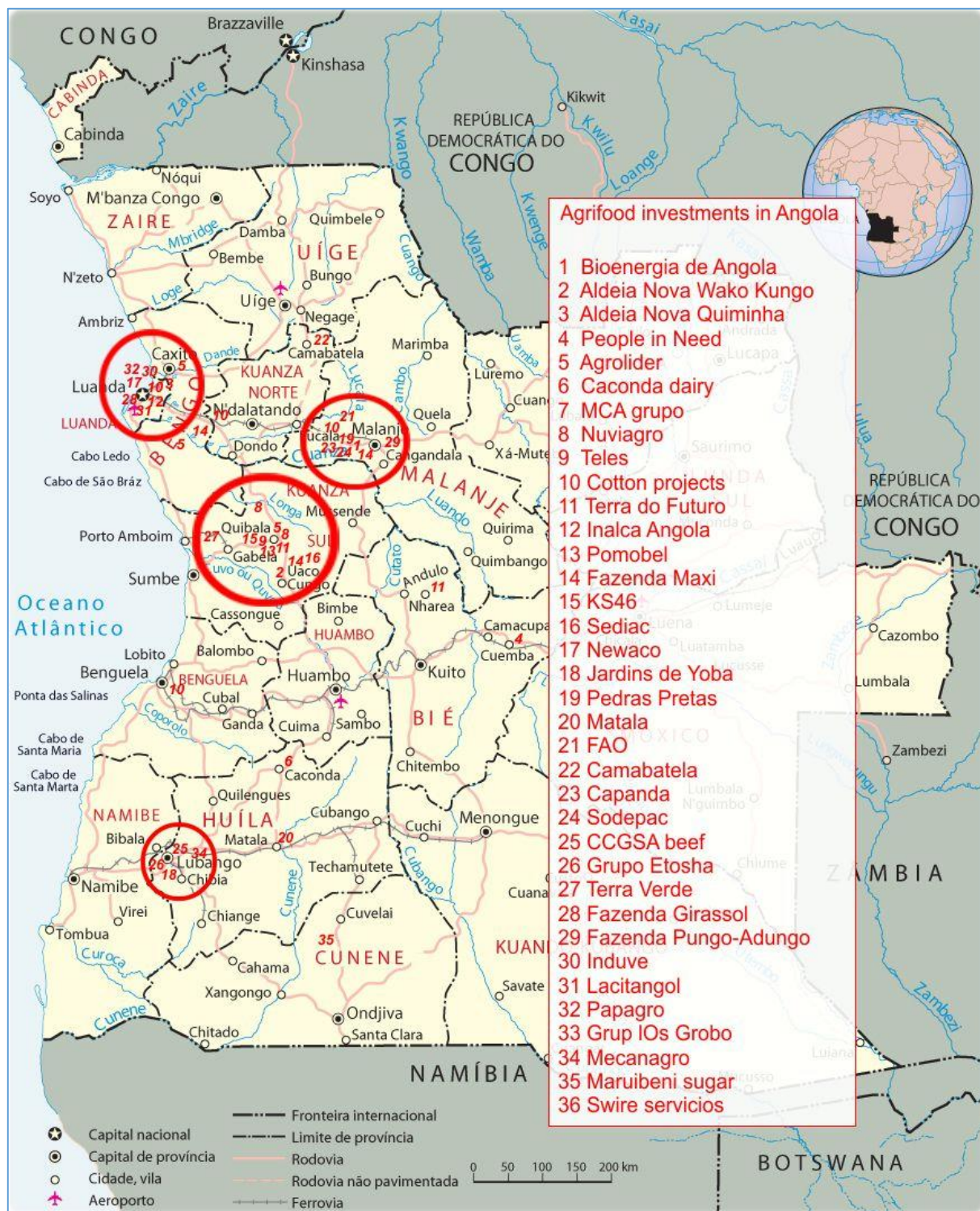
15 Agrifood related investments

The expansion of commercial agriculture in Angola is concentrated in a few production areas (see map below). Of course there is lot of agro economic activity near Luanda. Mostly vegetable production and further processing of products that were imported or shipped from the interior. The expansion of primary production occurs in two regions: in Kwanza Sul around Quibala and in Kwanza Norte/Malanje. These two regions attract most of the investment capital intended for primary production. No doubt in other provinces there is also agrifood investment going on but not at a level as in these two regions.

The Quibala region, known as the “bread basket” of Kwanza Sul, was for decades home to farmers (including many Germans) that produced coffee, cotton, sisal, fruit (bananas and pineapple), corn and rice. In 2004 the Angolan government initiated re-development of the area with Israeli support, this first project was called Aldeia Nova (The New Village Project), it was intended for former UNITA fighters. Soils in the Quibala area are very good, both loamy and black soils with high organic matter are available. Liming is often a necessity; soil profiles are very deep, at least 4 to 5 m. Two cropping cycles are possible in this region, the dry period is from Apr/May to Sep/Oct. Soil analyses can be done in Luanda these days.

Since then many other large scale projects have been initiated in the region. As much land as required can be obtained through state owned Gesterra, that clears the land and prepares it for production. Gesterra exactly knows which are the good soils. Many soils are acid and need large quantities of lime (see comment on Gesterra elsewhere in this report).

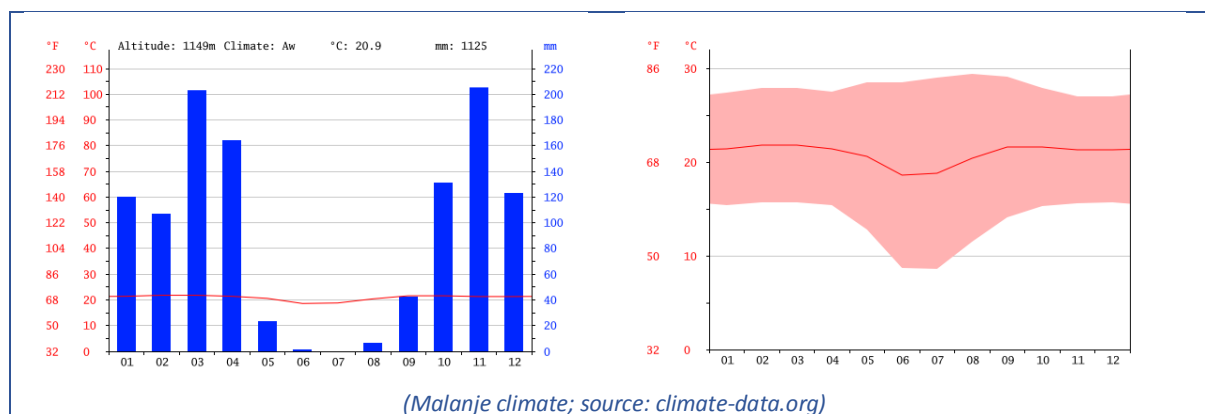
The paragraphs below describe each of the initiatives as shown on the map and some more. This overview is not exhaustive but presents a good impression of the type and distribution of agrifood related investments. All of the initiatives are young and still in an expanding phase of their lifecycle. Therefore each of these initiatives is a potential client for Dutch exporters of inputs, equipment or technology.



15.1 Bioenergia de Angola

Bioenergia de Angola Ltd (BdA) is owned for 40% by Brazilian Odebrecht, 40% Angolan Damer Industria and 20% by Sonangol (president also supposed to be involved). Damer is jointly owned by the VP, a top state security official, and “Dino”, a government adviser. BdA is developing 42,000 ha of agricultural land around Cacuso in the Malanje region, some 320 km east of Luanda. One of the main

crops will be sugarcane, by 2018 the company intends to produce 260,000 t sugar/yr, this should be doubled at some time in the near future to allow sugar export. Angola imports 225,000 t of sugar annually. Construction began in 2011 on a site near the Black Rocks of Pungo Andongo, a spine of tall sedimentary stone north of the Kwanza River. The sugar company is also supposed to generate 45 mW of electricity through the production of ethanol using around 15% of its sugar production. Total investment is estimated at USD 220 million. Odebrecht built the Capanda dam in the Kwanza river and is involved in oil exploration in Angola in cooperation with Maersk.



Rumour goes that the same consortium that invested in Bioenergia de Angola also intends to invest in large scale, integrated pork and dairy production.

15.2 Aldeia Nova Wako Kungo

Aldeia Nova (AN) is a large community focussed agricultural project, a public-private partnership between Vital Capital Fund from the LR Group (an Israeli based company) and a consortium of state owned companies such as Gesterra (responsible for the management of agriculture projects), Instituto de Desenvolvimento Agrário and Instituto do Sector Empresarial Público. AN employs 290 workers and 800 farming families are associated, the project started in 2006. It includes a hospital, school and churches. The concept is based on the Moshav model, an Israeli type of cooperative. The integration is based on contract farming. Farmers earn some USD 700 to 1,000 USD per month.

Each farm consists of three ha, irrigation is provided, five cows to start dairy farming, broilers and layers; a milk processing and feed plant are also present. AN guarantees to buy all eggs, milk and meat produced, supply technical and veterinary support, and provide land, equipment and other inputs, such as feed. AN is currently producing 120,000 eggs /day, but has capacity to produce 250,000 eggs /day. Milk production is at 3,500 kg of milk /day, on an area of 6,000 ha arable crops and vegetables are grown. Amongst the arable crops are maize (5,000 t/yr), sun flower and soybean (2,000 t/yr). Most crops are processed in the company owned feed plant. There is also pork production.

AN is located in Wako Kungo near Quibala in Kwanza Sul. The land in this area is considered some of the best in Angola, it is flat land with deep loamy soils and plenty of rain. Some 100,000 ha of this type of land is still available in the region.

15.3 Aldeia Nova Quiminha

The Tahal group of Israel has signed an agreement with the Angolan government to replicate the Aldeia Nova concept in Quiminha, 50 km north of Luanda. The Quiminha Aldeia Nova project is partly financed by Dutch ING bank, Dutch construction company Kok Staalbouw is supplying pre-fab houses. Tahal Group has its headquarters in Amsterdam and is part of the Kardan Group, quoted on the Amsterdam Exchange.

Development of the Quiminha project took off in 2011 and covers 5,000 ha, 310 farms and some 60 agro industrial companies. Tahal needed to arrange finance for the project up to a total of EUR 143 mln, ING was contacted to structure the loan. This resulted in a 7 yr loan, of which the first one covers 20% of the contract value being the down payment. The remaining 80% was guaranteed by Atradius in cooperation with Ashra from Israel and SACE from Italy. Atradius holds an unconditional security against the Angolan Ministry of Finance, the Angolan central bank, the Angolan treasury and Sonangol (Atradius, 2011).

ING is also involved in financing a contract for Damen on the delivery of inspection ships for the Angolan Ministry of Fishery and as partner of a bank syndicate to finance Sonangol with a USD 2.5 bln loan in 2013 and a USD 1 bln loan in 2014.

15.4 People in Need

The People in Need (PIN) project started in 2006 developing agriculture with a focus on poultry in remote and underdeveloped Cuemba region in Bié province, hit most by the troubles. PIN built a model poultry farm with parent stock, hatchery and rearing house. Other fowl introduced include ducks, guinea fowl and geese. The model farm consists of simple constructions that can easily be replicated by local farmers. The project is financed by the Czech Development Agency, Real Gift, AECID Spain, UNICEF and the Japanese embassy in Luanda.

15.5 Grupolider and Agrolider

Grupolider was set up in 1999 as a company with activities in distribution centres, custom services, transport, construction and agriculture. Agrolider, set up as a sub venture in 2004, holds the agricultural activities and is located near Quibala and also in Caxito (province of Bengo, close to Luanda) and Bom Jesus. The company produces mainly fruits and vegetables and runs a large area of covered crops (polytunnel), it was set up by a Portuguese consortium. The company also imports and sells greenhouses and related equipment like drip irrigation and performs feasibility studies.

In Caxito Agrolider produces on 350 ha banana, melon, mango, table grapes, oranges and such. In Bom Jesus on 145 ha it is mainly banana, mango and grapes. In Quibala there are two farms, one of 1,000 ha and one of 700 ha. These farms grow mainly vegetables.

Agrolider production	t
Banana	7,000
Potato	1,500
Papaya	500
Mango	200
Melon	1,000
Tomato	1,000
Cabage	700
Sweet pepper	100
Cauliflor	120
Red beet	100
Broccoli	110
Squash	100
Courgette	100
Turnips	200
Beans	20
Lettuce	200
Citrus f)	5,000
Cenoura f)	1,000
Onion f)	1,000

Agrolider invested USD 8 mln in a processing unit located between Viana and Catete, about 49 km from Luanda and bought an area of 200 to 300 ha near Lubango for vegetable production. The processing unit handles fruits and some vegetables. A French fries line will be included in the near future as will be a line for pickles and equipment for dehydrating vegetables.

Agrolider is considered one of the best producers of vegetables in Angola and supplies retailers like Shoprite, Jumbo, Alimenta Angola, Nova Geste, Casa dos Frescos and recently Kero has been added to the client list. Amongst the clientele is also wholesalers like Maxi, Intermarket and Martal. Traditional markets like Mercado do 30, Katinton, Kikolo and Panguila (former Roque Santeiro).

Rumour goes that Agrolider intends to set up a 1,000 cow dairy near Quibala.

15.6 Caconda dairy project

In Caconda, located in Huila province, a 4,000 dairy cow farm is projected, it is said that the President is also participating. A milk processing plant was apparently donated by the German government. A slaughterhouse will also be included, a pre fab steel construction has been ordered in Portugal already. Huambo is said to be the richest agricultural province in Angola with corn as a main crop. Kassoma, the former Governor of Huambo, offered in 2002 white farmers, who lost their farms in Zimbabwe, to resettle on some 10,000 ha in Huambo. Kassoma is also involved in the Lubango beef project.

15.7 MCA Grupo

MCA Grupo intends to develop a 1 mln ha agricultural area. Grupo MCA is a large contractor and has been active in Angola for several years. It is not clear yet what land has been allocated to this project.

15.8 Grupo Refriango and Nuviagro

The producer of Refriango (an Angolan soda brand) Grupo Refriango is getting involved in potato and vegetable production in Quibala and Cela (Cuanza Sul) through company Nuviagro. The investment will amount to USD 5 mln covering all types of equipment, including pivot irrigation, and the project intends to produce 72,000 t of agricultural products. Many of these products will serve as ingredients for the Refriango juices. The Refriango processing plant is on a 45 ha premises close to Luanda; this involved a USD 150 mln investment.

15.9 Fernando Teles

Fernando Teles, the Chairman of Banco BIC SA, which is the largest Angolan private bank intends to invest in a pork integration and large arable farm. Some 25 pivots are currently being installed near Quibala (each pivot covers around 50 ha).

Banco BIC is majority owned by Angolans: Teles owns 20%, Portuguese billionaire Amorim 25% and the President 25%. The bank was launched in 2005 it holds USD 4 bln in deposits and has USD 2.2 bln credits outstanding. BIC recently bought Banco Portuguese de Negocios SA for EUR 40 mln.

15.10 Cotton projects

15.10.1 Benguela cotton

A large cotton project is developed near the road from Quibala to Zumba (Kapango and Kipela); the ginning plant Africa Textil 1º De Mayo (started operations in 1977, stopped in 1998, bankrupt in 2000) is at Benguela, near the coast. Ginning plant equipment is supposedly from The Netherlands although construction is done by Japanese, Koreans and Angolans. The restoration of the plant was financed by the Japanese Bank for International Cooperation (JBIC). Capacity is around 11,000 t of cotton /yr. Total investment is said to be USD 480 mln. Cotton would first need to be imported as there is not sufficient raw cotton available to feed the plant. Minader is involved setting up irrigation systems and extension services.

In the Angolan National Development Plan provisions have been made to develop 70,000 ha of cotton production. The plan is to harvest 100,000 t of cotton /yr through an out-grower program that involves 500,000 farmers (according to Adelino Rodriguez, the National Director of Agriculture and Livestock).

15.10.2 Satec

The Satec ginning plant has been inoperative for 20 years, the plant is located in Cambambe in Kwanza Norte. The refurbishment of the plant is financed by the Japanese, it is to open soon.

15.10.3 Textang II

There is a third ginning plant, Textang II, in Cazenga. Cazenga is one of the seven municipalities that make up the province of Luanda. The factory is currently being refurbished and will initially spin, weave, dye and print cotton and at a later date start producing clothes (Macauhub).

15.10.4 Kinguila cotton

A new ginning plant will be constructed in Kinguila (province Malanje). Cotton production in Malanje province was introduced by the Belgium-Portuguese company General Company for Cotton Angola, the production area was located East and West of Malanje city on some 8,000 ha. Hamil Angola Engineering (a subsidiary of South Korean Hamil Engineering & Construction group) has signed a contract to implement an irrigation system near Malanje, commissioned by the Angolan National Private Investment Agency (ANIP). A loan of USD 31 mln by Korean Exim Bank was extended, pay off was agreed on 30 years including a 10 years grace period.

15.11 Terra do Futuro

Terra do Futuro (TdF) was founded in 2009 and is the initiative of a Portuguese/Angolese national Joao Fonseca (Daamen & Fonseca, 2014). TdF 1 is located East of Quibala in Cariango and part of “Projecto Aldeia Nova” (see elsewhere in this report). TdF develops agricultural land by getting a land lease from the government, clears the land and divides it into 250 ha lots. Subsequently farmers are selected and trained. The selected farmers get a 10 year loan on the farm, this period might be extended to 30 years. A house and farm shed are built on each lot that is ultimately rented or sold to the farmers (has not been decided yet). The capital involved is on a national loan. Each lot will have around 90 ha that will be irrigated by two pivot’s that are included. Farming equipment is also provided.

The farms will grow crops like: corn, rice, soybean, beans, Sudan grass; 10% of the area, so around 25 ha, will be left untouched as a conservation/sustainability measure. Farmers are obliged to grow 100 ha of beans, corn and soybean; the remaining 150 is free to plant whatever crop. This might be crops like potatoes, onions, flowers or whatever. To process the products as produced by the farmers TdF will set up: a feed plant, a flour mill and a soy milk production plant; a crushing plant would probably lack size.

TdF intends to enter into seed potato multiplication as TdF 1 is at 1,600 m altitude which is perfect for seed potato multiplication. TdF intends to import elite seed potatoes and multiply once or twice.

BDA financed the first stage of the project with USD 15 mln. TdF1 is almost finished and comprises around 50 farms so a total area of 12,000 ha, 4,000 ha has been cleared now. Some 200,000 ha is said to be available for similar projects. Clearing is generally done by two Caterpillars with a chain in between to take down existing vegetation,

A 40,000 ha PTF2 project in Bié province (similar to TdF 1) is ongoing; TdF 2 has started selecting farmers and has a total area of 12,000 ha located south of TdF 1 in Nharea in the province of Bie. TdF 3 will be 10,000 ha.

JF hired a Dutch man to set up a 1,000 cow dairy farm in Angola, the basic idea is to process the milk into yoghurt, being currently sold in the supermarket for USD 8 to 13 per L milk equivalent. The milk will to be sold in Danone type small cups. It makes no sense to produce other products; UHT milk is imported and would be too expensive to produce locally. The dairy farm is located near Quibala, this dairy project is no part of TdF farmer scheme but a separate venture

TdF 1 might enter into organic production as there seems to be a huge demand for organic products in Luanda, the elite does not trust agro chemicals application practices in conventional agriculture (with reason); organic products are sold at double the price in Luanda. The venture also intends to enter flower production for the local market as flowers are currently imported from The Netherlands and RSA. The TdF initiator is also preparing projects on aquaculture like Tilapia, a 53,000 ha cotton project and a 10,000 ha oil palm project.

The initiator of TdF is also involved in real estate development, private schools and universities and has a land concession along 2.5 km of coastline to develop a holiday resort. He privately invested USD 20 mln in preparing the plans and getting licences for the holiday resort.

15.12 Inalca Angola

Inalca is a daughter company of Italian beef processor Cremonini. Cremonini has annual sales of around € 3.5 billion which makes it one of the larger players on the European beef market.

Inalca Spa has been active in Angola since the 1980's and set up a distribution centre near Luanda of 7,000 m² with freezing capacity of 15,000 t and capacity for dried goods of 25,000 t. The company recently bought land to construct a 5,000 m² warehouse in Lobito with capacity of 8,000 t of frozen products and 4,000 t of dry goods.

In December 2014 Cremonini CEO Luigi Cremonini met with the President and announced that the group intended to get further involved and upstream integration in Angolan agrifood. Cremonini Europe is strong in slaughtering and further processing of beef in specialty products and snacks. The meeting was a follow up of the visit of the Angolan president to Italy in July 2014. Italy considers Angola as a first priority country for development cooperation (source: Jornal de Angola Dezembro 2104).

15.13 Pomobel

Pomobel is owned by dr. Raúl Mateus and was initiated in 1997. The company is active in retail, hotels and farming. Its brand name is "Bom Gosto". The supermarkets operate under the name of Pomarbelo. The intention, as also expressed by the other supermarkets visited, is to source and sell as much local produce as possible. Pomobel is the prime supplying supermarket to government related institutions. Pomobel is integrating up stream, it intends to produce vegetable products (including potatoes and onions) and dairy that are sold in the supermarkets on its own farms. Another incentive for Pomobel to set up its own production is that supermarkets are obliged by law to buy 30% local.

Pomobel Farm (PF) is located some 350 km South of Luanda in Quibala. The total area of the main farm is 7,000 ha and there is an additional 3,000 ha on another location. The farm is located next to the Agrolider farm. Only 100 ha of PF is currently used for production, quite rudimentary, of a wide range of products including potatoes, onions, carrots, etc.

PF intends to extend its potato production to an area of 600 ha and enter into potato processing.

A Pomobel representative explained that apart from the 10,000 ha "owned" by Pomobel now, as much land as required can be obtained through state owned Gesterra that clears the land and prepares it for production. Gesterra exactly knows which are the good soils since many soils are acid and need large quantities of lime.

Pomobel is to enter into a joint venture with a large French dairy cooperative to set up a 3,000 cow dairy farm with integrated dairy processing. With the same cooperative it will start production of soybean on an area of 15,000 ha, both vegetable oil and soybean meal will be for the local market and export.

Pomobel is also very much interested in tapioca starch production and adapted sugar beet varieties for local production, as everyone still focusses on sugar cane, beet sugar might be more efficiently produced.

15.14 Fazenda Maxi

Also present in the Quibala region is Fazenda Maxi that belongs to the Maxi Supermarket group that runs the BomPreco brand. The concept includes local farmers that receive technical assistance and support on growing, harvesting and storing their crops; some 44 crops are being produced (including

potatoes, onions, tomatoes, carrots and cabbage). The concept has also been activated in the provinces Bengo, Kwanza Sul and Malanje. Many farmers apparently use hybrid vegetable seeds, which is surprising as most seed used is “open pollinated”, this could be of interest to Dutch seed exporters.

15.15 KS46

The Angolan development bank BDA has since 2012 been investing USD 20 mln in an agricultural project called KS46 located in Quibala, Cassongue and Cela (province of Kwanza Sul). The project produces legumes, cereals and vegetables. AGROPROMOTORA is the company responsible for technical assistance. The program’s initial phase was designed to support 46 medium sized farms, 18 farms are in Cela, 25 in Quibala and 3 in Cassongue. ANGOP (August 2014) states that each farmer will get USD 500,000 loan, and should be able to generate a turnover of USD 5 mln. Typical farms are around 200 to 500 ha, like “Quissama Kioco” of 360 ha and fazenda “Lucas Andre” that employs 13 people. The total project area is 25,000 ha. In 2014 2,700 ha was taken into production.

15.16 Sediac

Also active in the same region is Sediac (Sociedade de Estudo e Desenvolvimento Industrial, Agrícola e Comercial). Sediac is supporting 40 mid-size farms in Kwanza Sul that employ 250 people amongst which 10 foreigners for technical assistance. The projects focusses on corn and corn flour production, soybeans and beans. In 2011 Sediac processed around 15,000 t of corn. Sediac is also involved in plant breeding programs, especially on maize and wheat, with CIMMYT. One of the seed farms involved is the Cooperative “Faca Tudú Pelo Tempo”. Also involved in breeding is the IIA on its Chiango experimental station in Huambo. The objective is to promote a shift from open-pollinated to adapted hybrid seeds in corn production.

15.17 Grupo Newaco

Grupo Newaco has headquarters in Mumbai, India, and is part of Sanzi Comercio Geral (Sanzi group (Prayesh, 2014) that dominates the Angolan market for frozen foods with over 30% market share. Products include: imported fish (China, Peru), poultry and pork (Brazil, procurement agency in Brazil, 500 to 600 ctn/yr), buffalo meat import (@ USD 3,500 /t) and beef @ USD 2,500 /t). Veal would probably be too expensive although CEO Prayesh has visited Ekro/Van Drie in Apeldoorn.

GN uses its own outlets like Alimenta do Angola and Agromart but also informal shops and container sales. Other activities the group is in are cosmetics, 20 t /day corn flour milling (Piho Angola Lazenda), whiskey (Indian, bottled in Angola). The group is building a 450 ctn coldstore in Viana (Luanda) and already owns a 100 ctn coldstore for distribution the company owns 120 trucks in Angola. GN has access to a USD 300 mln credit line.

GN intends to set up an integrated poultry farm, to start with 100,000 layers and expand to 1 mln in five years’ time. Initially importing 1-day chicks and feed, after a period of time setting up a hatchery (importing hatching eggs) and ultimately set up parent stock and a feed mill. Sexing of one-day chicks would be a problem as no one in Angola would know how to do it. GN intends to grow the rooster chicks for sale which is common in Angola.

There is apparently only one very small broiler slaughterhouse present in Angola, the culled layers probably would be sold alive. GN intends to import fish meal as a protein component, as soy is not

yet available. There is no commercial feed mill present in the country so far (Angolaves has one within its integration). Intended location for the poultry project is Kwanza North. Beef production would also be of interest to GN.

15.18 Jardins da Yoba

Jardins da Yoba (YdA) belongs to Paulo Amaral and is located near Chibia, Huila province. YdA recently started PSI subsidized potato project in cooperation with the Netherlands based Potato Company. The project is managed by a hired Dutchman. YdA also intends to start a poultry integration and recently bought an Ottevanger feedmill.

The potato project is on two farms, one of 150 ha and one of 60 ha. Potato varieties that were imported through the Potato Company have a range of resistances against nematodes. Harvest will initially be done with a windrow harvester (pick up potatoes by hand) but included in the projects is a Dutch type harvester. Storage in wooden m³ boxes, that were bought in Holland. YdA intends to buy a box storage in South Africa but has been suggested to first get informed on Dutch storage technology. YdA intends to multiply the imported seed potatoes twice and has permission from the MoA to do so, all seed will be sold to MoA. The seed inspection service had visited three times since start in May in production year 2014. Seed samples are Eliza tested in Luanda for viruses as stated by a YdA representative (?).

The Ottevanger feed plant for the poultry project has 20 t/hr capacity. The integration will start with 100,000 layers and then expand to 1 mln (just like Newaco), at the beginning one day chicks will be imported, than a hatchery and subsequently parent stock will be phased. PYdA intends to build closed chicken houses like those of a contact in Spain (Cordoba?).

YdA is open to a wide range of projects, like carrot production, that are more expensive than potatoes. The round type of carrot is favourite over long type. Onion production is also considered. Crisps production would be of interest too as is packing/washing/grading of potatoes.

15.19 Fazenda Pedras Pretas

Close to Cacuso in the province of Malange, Fazenda Pedras Pretas is located which is a joint venture between Gesterra and Chinese CITIC Construction of 20,000 ha with pivots and storage facilities. The Vice President is also involved. Currently on some 2,300 ha maize is being grown and an additional 500 ha is irrigated, also for maize production. The company owns a corn meal plant with capacity of 2.5 t/hr and storage silo's with combined capacity of 25,000 t. The Chinese Development Bank financed the project for USD 117 mln.

15.20 Matala project

UNACA is an association of 8,600 organizations and over 2,000 agri coop's that have some 1 mln associated farmers. UNACA is involved in the development of the Matala project (Huila province) that includes 12,000 ha located 200 km from Lubango. Sodemat (Sociedade de Desenvolvimento da Matala), a local government initiative, is the owner and developer of this project. Sodemat also intends to commercialize potatoes and tomatoes as produced by farmers in Huila province. Total investment is estimated at USD 10 mln, the project includes a tomato processing plant that should process 12,500 t of tomatoes per year (status not clear).

15.21 FAO

FAO was involved in financing the Capanda phase 2 (Malanje province) for USD 344 mln, irrigation scheme rehabilitation projects in Matala for USD 27 mln (10,000 ha) and USD 18 mln (1,300 ha) in 2004. FAO also financed the Gove dam (to provide water for the Matala projects) for a total of USD 180 mln ending 2010. The 27,000 ha rainfed and irrigation projects Bom Jesus (Bengo province) and Calenga (Huambo province) were financed for a total of USD 28 mln, ending 2012.

The Market Oriented Smallholder Agriculture project has three main components:

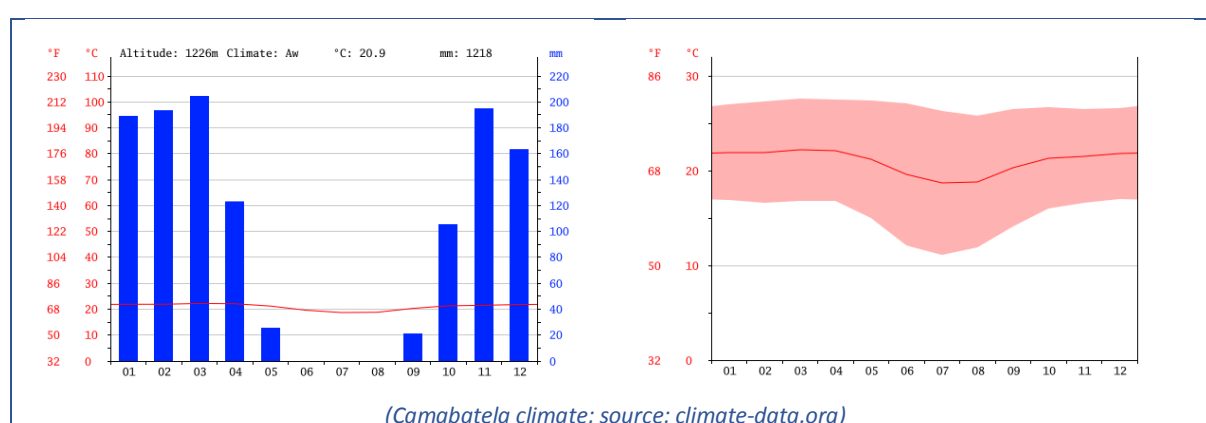
- Capacity building;
- Agricultural investment support, providing demand-based support, in the form of matching grants, to rural communities and smallholder groups and associations, for village productive infrastructure (irrigation and drainage) and agricultural production, processing and marketing sub-projects;
- Project management.

The Worldbank and the International Fund for Agriculture and Development (IFAD) and other donors have jointly financed the project that aims to increase agricultural production by providing better services and investment support to small farmers in Huambo, Bié and Malanje provinces. The project started in 2008 and runned until 2014 and is valued at nearly USD 50 mln

The Cambambe II hydro power and irrigation project will be funded with USD 770 mln.

15.22 Camabatela project

The Camabatela Plateau is a vast rolling plain in the north west of Angola, marking an abrupt transition between the coastal strip and the Cassange area, in the Congo basin (MoA, 2009). The central city Camabatela is located some 260 km east of Luanda in the province of Kwanza Norte, the total area is 1,247,854 ha. The land is characterised by its smoothness and its typical vegetation, dominated by stands of savannah. The plains lie between 1,200 m and 1,300 m in altitude, with a hydrographical network that is not dense, but has a permanent flow. The plateau has low population figures, the land is fertile, there is rain and the geographic location is relative close to the main consumption centre: Luanda.



The main traditional agricultural activity is growing of cassava and, to a lesser extent, groundnuts, sweet potato and beans. Given the predominance of pasture, the region has the right conditions for extensive and semi-extensive cattle rearing. Camabatela was an important region for beef production in the 1960's and 70's. There was an active association of beef producers and a well-

equipped slaughterhouse. The beef herd peaked at 50,000 heads and meat was exported to Europe. Commercial agriculture has completely vanished.

The Angolan MoA has prepared a plan to develop agriculture in the area, total investment was estimated at USD 1,200 mln with an estimated IRR of 5%. Financing should be from the private (30%) and the public sector (70%). The project is promoted by the Camabatela Development Company (EDC) and managed by a Programme Office called GADAPC.

The areas considered the best for arable agriculture are located around Bange (30,000 ha), Cateco/Calandula (25,000 ha) and Quinje (115,000 ha).

Further development of the region might be supported by satellite information and thus fit in the Dutch G4AW programma (see chapter on service companies).

15.23 Capanda

The Pólo Agro-Industrial de Capanda (PAC) is an agro development project located just above the Kwanza river west of Malanje that is coordinated by the Sociedade de Desenvolvimento de Pólo Agro-Industrial de Capanda (Sodepac, note next paragraph).

PAC is located relatively close to the hydro electrical power plant Capanda, construction of the dam and the artificial lake made some 300,000 ha available for irrigated agriculture. PAC extends over the three communities Cacuso (70%), Malanje (20%) and Cangalanda (10%). A railway runs from the city of Malanje to the port of Luanda. The soils of the area are loamy clay and quite fertile.

Soil scientists classify soil types by texture, which encompasses the physical properties of the three major soil particles: sand, silt and clay. The dominating soil type in the PAC area seems to be loam. Loamy soils are preferred by farmers because of the right mixture of clay, sand and silt. These soils are relatively easy to handle, keep moisture and fertilizer and are the highest yielding among soil types.

Several crops can be grown in the PAC area, like millet, soybean, sorghum, sugar cane, cassava, beans, rice, horticulture, fruits and the land can be used for cattle rearing.

The total area of land available for mechanized arable production within the PAC area is around 230,000 ha.

15.24 Sodepac

Sodepac was established as an S.A. in which participate the State Participation Fund (IAPE: 70%), the Agricultural Development Institute (IDA: 15%) and the Institute for Management of Arable Land (Gesterra, 15%). Sodepac will coordinate investments in PAC.

Socepac requires investors to develop sustainable forms of agriculture:

- Soil and water conservation;
- Minimal or zero tillage practices;
- The use of green manure;
- The use of legumes;
- Limited use of pesticides by implementation of Integrated Pest Management (IPM);
- Promote mixed farming systems like combined arable and cattle production;

- The use of perennial crops (like for energy purposes or fruits).

Sodepac works through a 9 stage project trajectory:

1. Presentation of investment intention and formal request for land;
2. Preliminary business plan (PNP);
3. Evaluation of the PNP by Sodepac (authorization, additional info);
4. Presentation of the definite business plan;
5. Evaluation of the PNP by Sodepac (feedback, final remarks, questions);
6. Presentation of the business plan to ANIP (Agencia Nacional par o Investimento Privado);
7. Presentation of final financing plan to Sodepac;
8. Signing of the land lease contract for using the land in the proposed manner;
9. Implementation of the project.

Sodepac serves as an investment promotion agency, for the agency three aspects are crucial for a project to succeed:

- A sound business plan;
- The ability of the investing consortium to financially implement the project;
- The ability of the investing consortium to technically execute the project.

The environmental impact of PAC is apparently of great importance to Sodepac, therefore of the 411,000 ha available some 113,000 ha will be allocated as nature reserve. The communities of Cacuso, Malanje and Cangandala have a total population of around 70,000 persons. Eligible projects must generate local employment at all professional levels. Local agriculture must be lifted from a subsistence level to a more market oriented approach in which local farmers can sell their produce, after some handling or processing, to the large retailers. Local farmers should be allowed to be out-growers and produce and deliver part of the input that the established processing plants need.

15.25 CCGSA beef project

CCGSA (Cooperativa dos Criadores de Gado do Sul de Angola), based in Lubango, was set up in 2005 by a group of cattle-breeders in South Angola, it was an initiative by local cattle breeder Luis Nunes and has 63 members that have some 20,000 cattle on 200,000 ha of natural pasture. Recently CCGSA decided to change its name into CCGA to underline its nationwide involvement, considered a step forward. Luis Nunes is 51% shareholder of Grupo Omatapolo, a construction and real estate company; his Grupo Socolil is active in agriculture and beef.

CCSGA was involved in import of 5,000 Brazilian cattle (exported by Portuguese Muguidjana Agropecuaria), in 2008. The intention was to import 50,000 cattle from Brazil, some USD 25 mln was allocated by BDA to finance the deal. It was a failure, all animals died within a few years. Defining the right breed is an important and complicated matter.

The parastatal Botswana Meat Commission (BMC) was considered a good example for development, as was Zambeef (Zambia) and Mozbeef (Mozambique), the latter a single purpose integrated meat company with combined cow/calf and feedlot system.

15.26 Grupo Etosha

Grupo Etosha (GE) is owned by Paulo Kassoma, the former Prime Minister of Angola, former President of National Assembly of Angola and former Governor of Huambo Province. He is considered the most powerful figure participating. GE owns at least 10,000 ha of land in the Lubango

region (Huila province) and is involved in potato production and cattle breeding and rearing. The group intends to further invest in potato handling and processing. GE participated in the CCGSA workshop on beef production.

15.27 Terra Verde

Terra Verde was set up as joint venture in Sequele (south of Luanda, east of Porto Amboim) between Israeli Green-2000 and Angolan Copinol Sarl in 2002 as a farm with 5 ha covered crops and 30 ha open field vegetables. The farm is under a joint Israeli/Angolan management. The farm produces around 35 to 50 t of vegetables per week to be sold to the upmarket retailers. Products include: eggplant, tomato, cucumber, pepper, melon, watermelon, squash, lettuce and sweet corn. The farm also operates as a training centre.



Green-2000 projects in Angola

Green-2000 was also involved in establishing the following projects in Angola:

- **N'Zogy** multidisciplinary center with 16 ha of vegetable crops, 8 ha of fruit trees and 1 ha for seedling production;
- **Avinova**, also a Copinol j.v., an integrated poultry farm with hatchery, feed mill, rearing, layers, broilers and a slaughter house (2,000 t meat per year, 20,000 eggs per day);
- **Catinda** vegetable farm of 50 ha open field vegetables, 50 ha fruit trees and 10 ha covered vegetable production;
- **AgroWako Ltda** with 200 ha open field vegetable production irrigated by pivots, 5 ha of fruit and 5 ha of grapes including a winery.



Avinova poultry



Catinda Ltda 110 ha vegetables and fruits

15.28 Fazenda Girassol

Fazenda Girassol (FG) was set up in 2004 in Viana, near Luanda. The total investment involved was USD 1.5 mln, FG is the main supplier to Kero retail and produces up to European standards. Currently the company is setting up a covered crop farm near Kifangondo, 30 km from Luanda. FG employs 200 people and produces a wide range of vegetable crops. Apart from its own production FG also sells crops produced in the interior. Girassol was developed with Portuguese assistance.

15.29 Fazenda Pungo-Adongo

Fazenda Pungo Adongo located near Macuso in Malanje province (120 km east of Malanje) was initiated in 2006 through an investment of USD 30 mln, it covers an area of 33,000 ha. Around 4,500 ha is currently under cultivation of which 600 ha of beans, 2,800 ha of yellow maize and 530 ha white maize. Annual corn production is at 18,000 t. Fazenda PD is managed by Gesterra.



Pungo Andongo farm in Malanje province

15.30 Induve Industrias Angolanas

Induve is a joint venture with the Lebanese Phoenician Eagle Group. The company produces corn flour and gritz and animal feed. The milling capacity is 420 t/day and feed production capacity is 100 t/ day. As the company already bottles imported vegetable oil, it will in the future start crushing local crops for vegetable oil production. Induve also intends to start wheat milling and the production of wheat flour.

15.31 Lactiangol

Lactiangol was founded in 1994 and is the prime supplier of dairy products to the Angolan armed forces. The milk processing plant is located at Viana, a suburb of Luanda. In 2013 Lactiangol realized revenues of USD 30 mln, 20% more compared to 2012. Butter sales increased by 16% and cheese sales by 20%. The company employs 300 workers. The product range consists of UHT milk, yoghurt, cheese, ice-cream and (school)milk. The company intended to invest USD 14 mln in 2014 in new equipment to expand production that currently is at around 50,000 kg /day. All dairy products are based on imported powdered milk.

15.32 Papagro

Papagro (Programa de Aquisição de Produtos Agropecuários) was initiated by the end of 2013 through the Ministério de Comércio, 9 provinces are so far involved, additional 9 provinces will follow this year; some 10,000 smallholders are said to participate according to the Ministry. The project was financed through the Banco de Poupança e Crédito (BPC) with USD 50 mln. Each of the logistical centres will have a capacity of 80,000 t of produce.

Papagro pays a fixed minimum price to farmers for products delivered to their provincial collection centres and finally at the location at Viana. Capacity of warehouses at Viana is used for less than 5%, some simple stainless steel grading equipment is present. The product as available in Viana is of extremely low quality (most of it not suitable for consumption). Current sales appear to take place as container sales in local communities (as supermarkets don't usually accept the product). This system apparently costs a lot of money; Papagro losses are over 50% as potatoes and other products are stored together in badly ventilated and cooled premises.

Potatoes are often sold out of a container for USD 1 /kg in 20 kg net bags, bananas cost USD 0,75 per kg. The project is also known as "a feira da batata", because most people wait until the day is almost over when Papagro needs to get rid of the container contents and give the potatoes away for almost nothing. The idea is to set up 60 local Paparoca stores throughout the country that would sell the Papagro products.

15.33 Grupo Los Grobo

The large Argentine corporate farms are already present in Angola, like Grupo Los Grobo, one of the largest soy producers in the world with some 250,000 ha soybean in Argentina and Brazil. Argentine El Tejar, that manages 700,000 ha of soybean in Argentina, Brazil, Paraguay, Uruguay and Bolivia is the largest soy producer in the world. Los Grobo does not yet produce soy in Angola because of soil condition. The acidity of the soils is sometime high, pH's of 4.5 are no exception, many soils are depleted and huge amounts of lime and phosphate are needed to revive soils. Erosion is also huge problem, but especially the Brazilian and Argentine companies know how to work with a zero-tillage system that prevents erosion. It is only a matter of little time until the world's largest soybean growers will take off in Angola.

15.34 Mekanagro

Mecanagro-EP is a state run company specialized to prepare land for farming, construction of water wells, land clearing and ground levelling. The Chinese EXIM Bank has agreed to provide the Angolan government a USD 40 mln loan for Mecanagro.

Mecanagro, that was established in January 2011, has been charged with spearheading an agricultural modernization program in a bid to increase training, engineering skills and the provision of equipment in agriculture. Mecanagro is tilling an area of 30,000 ha near Lubango (Huila province). The operation is carried out in cooperation with IDA and allows small-holders and cooperatives to implement projects without worrying on how to prepare the land.

Mecanagro is also developing the Polo Industrial de Capanda. This project will include rice processing, production of vegetable oil, production of concentrated feed and ginning cotton. Total investment involved estimated at USD 1 bln.

15.35 Marubeni sugarcane

Marubeni, the Japanese trading company with annual turnover of around USD 66 bln, announced in 2014 it will invest USD 652 mln in a sugarcane-to-ethanol project in Cunene (Angola's most southern province). The facility will produce both sugar and ethanol. The mill will process 20,000 t of cane per day, and produce 4 bln l of ethanol annually in addition to 400,000 t of sugar. The project will encompass 66,000 hectares of sugarcane plantation and is expected to come on stream within five years.

15.36 Swire Servicos Maritimos

Swire Servicos Maritimos, the Angolan daughter company of Swire Pacific Offshore, is a large service provider and caterer to the oil and gas offshore business. Swire is headquartered in Hong Kong, total sales are around USD 6.5 bln. In Angola the company intends to integrate upstream by investing in vegetable production, preferably in the Quibala region.

15.37 Fazenda Agro-Industrial Longa

Fazenda Agro-Industrial Longa is located in Cuando Cubango province (the most south east province), some 100 km of the capital Menonque. Gesterra is managing the farm. One of the main objectives is growing rice but also crops like potatoes and beans. The project intends to work with out-growers as well. The central processing unit can handle 100 t of rice per day and there is drying capacity for 250 t of rice per day. The farm took an investment of USD76 mln to set up and should be finished by 2017. The project is apparently financed by the Chinese as *China Camp Engineering Co* is developing it.



Fazenda agro-industrial Longa

In the 2013-14 season some 1,000 ha rice was planted in the Longa project, total harvest was 3,200 t. The farm has 200 employees of which 160 Chinese.

15.38 International banana ventures

Both Chiquita (in a j.v. with Escom and Hipergesta) and Dole were supposed to get involved in banana production for export in Angola, as announced in 2008. The Chiquita project of 3,000 ha was planned near Benguela and would export through the port of Lobito, total investment involved were USD 40 mln. The Dole banana project would be similar in size. Both projects were suspended for unclear reasons.

Chiquita (USD 2 bln in banana sales) merged with Fyffes in 2014 and together they control 30% of the world banana market, Dole has a 25% world market share.

16 Agri service providers

Parallel to the intensification of primary agricultural activities in Angola the group of agri service companies is expanding. These companies supply inputs to small scale and commercial farms, like seed, fertilizers, agro chemicals and equipment. For Dutch companies that produce farming inputs and that intend to export to Angola, these are of potential interest. Some of the most prominent input suppliers are listed below.

16.1 Nutricampo

Nutricampo is a company set up by a group of Angolan agricultural engineers. The company is specialized in irrigation and irrigation systems like pivots. Nutricampo is the local representative of Zimmatic Irrigation but also supplies Fertiflora fertilizers and Camp Verde seeds.

16.2 MITC Invest / Agromundo

Agromundo (Ilheu & Soares, 2014) is a service provider in agriculture and a participation of MITC Invest, a venture that belongs to mr. Jorge Jover. MITC is more of a holding name than an investment vehicle, participations are financed independently. An example is a 49% participation in Lonagro Pic, the local John Deere importer, however grey import by large clients, like Biocom (the Odebrecht sugar cane project) might make MITC decide to sell its Lonagro participation. Agromundo is importer and distributor of agricultural inputs based on exclusivity: vegetable seeds (EastWest hybrid seeds),

arable seeds (Syngenta, Seed&Co from Zambia), agrochemicals (BASF), fertilizers, veterinary products, irrigation equipment (Bauer), pumps (Rovatti), silo's (Kepler Weber), drip irrigation and pivot's. The company supplies inputs to Biocom and Agrolider.

Agromundo works closely with the UNACA, an association of 8,600 organizations and over 2,000 agri coop's that have some 1 mln associated farmers. This close collaboration assures a solid sales base. Through UNACA Agromundo is also involved in the development of the Matala project and sells to Fazenda Girassol.

Agromundo also intends to serve as a local consultant and mediator to foreigners that intend to invest in Angolan agrifood (through MITC). MITC partnered with Botswana registered IMARA Holdings Ltd. to set up Angola SCVM Ltd (Imara Securites Angola), the company offers corporate advisory services and asset management.

Agromundo is interested in the cassava starch project. The company intends to enter seed production (open pollinated) and seed potato production/multiplication and is also interested in potato processing into French fries.

16.3 Banco de Investimento Rural (BIR)

Banco de Investimento Rural is a recent initiative closely related to the Terra do Futuro project (Fonseca, 2014) with some high ranked Angolan individuals involved. The bank will be funded by wealthy Angolan individuals and the Angolan Development Bank BIR will be established in Malanje and its activities will be closely linked to the land development projects, providing the farmers with loans. As stated by the initiator: "it will be a challenge to finance farmers and secure payment of interest and instalments". Both Ernst & Young and Deloitte were involved in planning BIR.

16.4 Minader

The Ministry of Agriculture, Rural Development and Fisheries (Minader) is the central authority responsible for policy development regulation and support of agriculture, livestock production, forestry and fresh water fisheries. Minader supervises several state agencies with specific mandates, including Gesterra and IDA.

Minader is also partner in a project funded by the Bill & Melinda Gates foundation called World Vission Prorenda. Also involved are ACIDI/VOCA (Agricultural Cooperative Development International/Volunteers in Overseas Cooperative Assistance), Angolan NGO: Horizonte and Michigan State University. Apparently the project focusses on the supply of inputs, market access and chain optimization. The project should benefit some 27,000 small holders that will double their income. Another 73,000 smallholders will receive extended farmer training; 60% of the beneficiaries are women.

Other projects that Minader is involved with (either directly or through Gesterra or IDA) are:

- Cotton project Kapango and Kipela Kwanza Sul province: infrastructure and irrigation, investment of USD 30 mln;
- Aldeia Nova in Malanje province: cassava processing, beef, broilers and layers, investment of USD 50 mln;
- Irrigation projects (phase II) near Caxito, Gandgelas, Kuenta and Waco-Kungo in provinces of Bengo, Moxito, Huila and Kwanza Sul, estimated investment USD 54 mln;
- Pilot project integrated sugar processing Aldeia Nova Kwanza Sul, investment of USD 70 mln;

16.4.1 Gesterra

Gesterra (Gestao de Terras Araveis) is a state owned enterprise created in 2006 with a mandate to manage large-scale agriculture projects, particularly in the area of cereals. The agency focuses on four main crops: maize, soy, rice and beans. Gesterra's main role is to identify land for agricultural production which it then assigns the title of 'strategic state reserve'. Gesterra manages many of the largest farms in Angola. Partnerships and financing are then sought to develop the productive capacity of these strategic state reserves. Gesterra's projects are mostly financed through bilateral credit lines.

An important project managed by Gesterra is the 33,000 ha Fazenda Pungo Andongo (par. 15.29) that produces cereals, corn flour and feed. Some 5,000 ha is currently under cultivation. The farm is located in Cacuso, province of Malange. Other Gesterra farms include Fazenda Longa (par. 15.37), Fazenda Pedras Petras (par. 15.19), Fazenda Rio Loge (9,000 ha in Bengo province, arable and cattle) and Quimbumbé farm (Ambriz district, 8,000 ha of corn, beans and bananas).

Gesterra spends around USD 60 mln a year on purchasing agricultural equipment.



Gesterra farming equipment

16.4.2 IDA

IDA is the Angolan Agrarian Development Institute. It provides technical and material assistance to subsistence farmers growing food crops (beans, maize, cassava, sorghum). It also provides agricultural inputs (seeds, tools, fertilizer and pesticides) and services on credit to small scale farmers.

16.4.3 Public companies

Minader is also responsible for a range of public companies like Mekanagro (mechanization), Secafe (coffee commercialization), Frescangol (distribution of perishables), Angosementes (import and distribution of seeds), Dinama (import agro chemicals and fertilizers), Cafangol (processing and export of coffee), Procafe (input supply to coffee farmers)

16.5 CSS-FAA

The Caixa de Seguranca Social das Forcas Armadas Angolanas is involved in "Nossa Terra" projects like tomato and fruit processing in Huila and Namibe, total investment was around USD 35 mln. The

Huila tomato paste plant has been completed for a few years now, but idle because of a lack of tomatoes in the region.

16.6 Other service companies

Fertiangola

Established in 2005, Fertiangola has an extensive product range that includes fertilizers, seeds, agrochemicals, veterinary products, garden, tools and irrigation equipment. The company is quite well organized especially in Benguela.

Agroway

Agroway represents a group of Brazilian companies and sells various inputs and equipment. The company represents New Holland.

BrasAfrica

BrasAfrica sells the Brazilian made Massey Ferguson tractor as well as seeds and veterinary products.

Novagro

Novagro was founded in 2001 and sells seeds, fertilizers and tractors. Novagro has worked closely with the Instituto de Desenvolvimento Agrário (IDA) to provide inputs and technical assistance to smallholder farmers that benefit from government credits. Novagro has outlets in the provinces of Huambo, Kwanza Sul and Benguela.

Other companies identified that provide agricultural equipment and inputs are: Cegonha, Promodes, Sediús (with shops in Luanda, Catumbela and Lubango), Agrovét (which specialized in animal health products and has a shop in Lubango that has been running for 40 years) and AngoVet which also specializes in veterinary products.

16.7 G4AW

The Dutch Geodata for Agriculture and Water (G4AW) program was launched a few years ago. G4AW enables partnerships of private and government organisations, NGOs and research institutes to set up service chains that improve food security with satellite data. The G4AW program is open to Angola

16.8 Rabobank

Rabobank, through Rabo Development, has demonstrated an interest in getting involved in Angolan agriculture and food processing and trade.

17 Agrifood value chains

Agrifood value chains hardly exist in Angola, as does a cold chain or local conditioned storage facilities. Retailers are increasingly getting involved in primary production through up-stream integration to by-pass a non-existing private (or public) intermediate trading or handling segment.

A company that is very experienced on setting up value chains for agrifood products in Africa is South African Shoprite Group and their subsidiary the Freshmark Group, the text block below cites its Managing Director Johan van Deventer (Deventer, 2006).

Our operations are based on the establishment of real chain partnerships. Can suppliers become loyal supporters? Our answer is fully affirmative. And I am willing to share with you our recipe free of charge. Chain partnership is definitely feasible, if based on common goals, loyalty, truth and trust that comes from both sides.

First, it is important to know how we see each other. We sometimes consider the suppliers or farmers as coming from a different planet, since it is difficult to understand each other's motives. The typical saying "A boer is a bok", and Dutch people will understand this, indicates certain stubbornness. Another expression is "a bok is a bliksem", which implies that they don't really understand retail; they know nothing about marketing, market share, category management, continuous supply, etc.

Farmers are usually pursuing the best prices for themselves and can tell you everything about increased input costs of labour, seed, fertilizer, transport and packaging. In this view, the trader and retailer are dictators and the suppliers can never become loyal supporters. But can we challenge this idea that the retail is the devil, that they abuse the system and always survive, that they pay the suppliers as little as possible and ask the customer as much as possible? Is there also an alternative viewpoint possible, which looks for a partnership between growers and retailers who maintain a joint interest in promoting better product specifications through EurepGAP and HACCP norms?

We started to reconsider and break down these perceptions. Because, if these images are correct, both the farmer/grower and the wholesaler/retailer face very serious problems. We cannot be successful in today's competitive environment 'where dogs eat dogs'. Our distribution chains will not flow smoothly and will become very expensive if such distrust is maintained. Similarly, we will not be able to satisfy our customers' demands, and this is probably the most important benchmark. We should always keep in mind that Madame Customer has a choice between different retailers. In South Africa, there is fierce competition and customers have a real choice in an over-saturated retail market. Therefore, reliable supplies and constant quality are key elements in the competition.

18 Agrifood subsectors relevant to Netherlands private sector

During the visits to Angola several local investors were contacted and the Dutch agrifood proposition was discussed. It became quite obvious that The Netherlands can play an important role in developing Angolan agrifood and the first visits to Angola already generated several leads for export of agrifood related equipment and technology:

- Seed potatoes (trade exists at a low level, demand is big, different varieties);
- Potato handling and packing (no potato packing facilities present at all);
- Dairy (live animals and processing equipment);
- Poultry (both broilers and layers, poultry equipment, egg handling, meat processing);
- Feed (premises and concentrates, feed milling equipment);
- Vegetable seeds (there is an emerging demand for hybrid seeds);
- Flowers (several parties are seeking partners, not even for co-investment but for the exchange of technical knowledge and equipment);
- Cassava starch;
- Aquaculture.

As a result of these missions, Agrix realized that Dutch agrifood intervention in Angola should be focussed on eight clusters as defined below. These clusters may be overlapping and may include components of more than one agrifood sub-sector.

- Cluster 1 Intensive animal production (broilers, layers, pork);
- Cluster 2 Feed production (local crushing, feed milling);
- Cluster 3 Vegetables (open field, including potatoes: chain optimization);
- Cluster 4 Covered crops (flowers, greenhouse vegetables);
- Cluster 5 Dairy (primary production and processing);
- Cluster 6 Arable production (grain and protein crops);
- Cluster 7 Perennials (nuts and other tree crops);
- Cluster 8 General processing (starch, sugar).

These are the clusters in which The Netherlands offers technology (combined knowledge and equipment) that can make a difference. It was the objective of Agrix to have at least one venture fully elaborated and analysed for each of the clusters mentioned. The basic idea is that each project as realized within a cluster will have a snowball effect and serve to further expand activities with Dutch involvement in each cluster.

Although the ventures as described and analysed in the next chapter do not fully coincide with the preferred cluster list, economic analyses presents a good picture of what is possible for Dutch companies in agrifood Angola. The ventures analysed are listed below:

Agrifood ventures analysed		
19.1	Venture 1	Potato handling
19.2	Venture 2	Full fat soymeal
19.3	Venture 3	Dairy production
19.4	Venture 4	Egg production
19.5	Venture 5	Cassava starch production
19.6	Venture 6	Arable farming
19.7	Venture 7	Potato storage
19.8	Venture 8	Seed potato multiplication
19.9	Venture 9	Pork production
19.10	Venture 10	Beef production
19.11	Venture 11	Other potential ventures

19 Selected agrifood ventures: economic analyses

19.1 Venture 1: Potato handling

19.1.1 Description potato handling

Potato handling, i.e. collecting, grading brushing and packing of potatoes, is an activity that might be very profitable against a relatively low investment level. At present all packed potatoes are imported, be it in 2.5 and 5 kg poly bags (Portugal), 10 kg net or 10 kg paper (RSA). A first step towards potato processing would be packing and not further processing in crisps or chips (French fries). If one decides to enter further processing, all equipment needed for handling would also be needed for

pre-processing. Crisps might be a business option in due time, as crisps cannot be transported inter continentally for being too bulky. Crisp would also offer the opportunity to establish and develop a brand name as crisps are sold through retailers directly to end consumers. Chips on the contrary are sold mainly to the food service sector and therefore branding makes less sense. Chips is also considered a worldwide traded commodity, produced mainly in NW Europe and the US and distributed all over the world against very competitive prices which makes local competition only feasible if high import duties are in place.

The potato handling line as elaborated in this paragraph consists of a receiving hopper, brushing machine, grader, multi-head computer weigher, a 2.5 – 25 kg packing machine (poly, net, paper), a palletizer and pallet wrapping machine. The handling capacity is limited by the capacity of the grader which is at 7 t/hr. A 100 t buffer capacity is also included. Such a simple setup could easily handle 28,000 t of potatoes /yr and is very flexible in its setup as the machines are single modules that can easily be moved or replaced. The total of capital expenditures in equipment and building would be around USD 900,000 with an IRR of 80%.

Large potato handling facilities, that handle 100,000 t of potatoes per year would require investment up to three times that of the smaller line, but as output would quadruple, the payback period would be less than 1.5 year.



Packing is not only about putting products in a bag but also distinguishing different sizes and varieties destined for separate market segments. Controlling this mechanism makes a packing company more profitable and results in a higher average price.



19.1.2 Potato handling financial abstract

Potato handling Angola small 2015	
<i>The total of capital expenditures of the project is (USD)</i>	
Of which working capital (USD)	1,552,735
<i>Project characteristics:</i>	
Max capacity (t/hr)	7
Potatoes in (t/yr)	28,000
Potatoes out (t/yr)	25,200
<i>In the fifth year after initiating operations the financial figures are:</i>	
Total revenues	15,750,000
Gross income	1,064,168
EBITDA	1,064,168
EBIT	991,426
EBT	1,011,137
Net Profit	808,910
Net Cash Flow	477,197
Dividend paid out	404,455
<i>Some important ratio's are:</i>	
Pay Back Period (yr)	2
IRR (10yr)	83%
At a discount rate of	14%
the (10yr) Net Present Value of the project is	2,630,900

19.2 Venture 2: Full fat soy meal

19.2.1 Description full fat soybean meal processing

Local soybean production in Angola is limited but, as many soybean production projects are prepared, this will rapidly increase in the near future. Large crushing plants, that separate meal from oil, need a large supply of soybeans, as much as 1,000 to 2,000 ton per day (400 ha per day at a yield of 2.5 ton /ha). It will take some time before Angola will have its own large scale crushing plant. A smaller scale alternative would be the production of full fat soy bean meal for animal feed. The production of full fat soybean meal has become very popular in recent years. The same excellent protein profile found in soybean meal is found in full fat soybean meal albeit somehow diluted by the 18% oil content that. The oil, that is not separated from the meal, adds to the energy content of the feed. Beans are heat treated ("roasted") to make protein more efficiently available to the animal ("by-pass" proteins), 10% of moisture is lost during the roasting process (86% d.m. to 96% d.m.).

Swine can be fed 15% to 20% of full fat soybean meal in their diet, dairy cows 3.5 kg per day and beef cattle 2 kg of full fat soybean meal per day.

The processing plant as elaborated in this chapter is a containerized crushing and toasting plant. The plant includes a 20 t buffer bin, cleaner, roller mill, toaster and expander. Capacity is 2 ton per hour.



Containerized full fat soybean meal mill

The processing plant could handle 4,000 t of soybean in one shift or 10,000 t in 2.5 shifts of each 8 hours; the projected IRR is around 40%.

19.2.2 Full fat soy financial abstract

Full fat oil seed Angola 2015	
<i>The total of capital expenditures of the project is (USD)</i>	
Of which working capital (USD)	2,074,039
<i>Project characteristics:</i>	
Max capacity (t/hr)	2
Soybean in (t/yr)	10,500
Full fat soybean meal out (t/yr)	9,975
<i>In the fifth year after initiating operations the financial figures are:</i>	
The total of net revenues	1,071,000
Gross income	821,863
EBITDA	821,863
EBIT	705,969
EBT	716,217
Net Profit	572,974
Net Cash Flow	402,380
Dividend paid out	286,487
<i>Some important ratio's are:</i>	
Pay Back Period (yr)	3
IRR (10yr)	43%
At a discount rate of	14.2%
the (10yr) Net Present Value of the project is	1,628,877

19.3 Venture 3: Dairy production

19.3.1 Description dairy production

Commercial primary production of cow dairy is hardly present in Angola. Over 95% of the milk and dairy products currently commercially sold are being imported. Most of it is UHT milk, condensed milk, butter, cheese and deserts. Powdered milk is recombined into full and skimmed milk and sold as UHT. Several projects are underway to set up dairy farms, both large scale and as out-grower programmes. The dairy venture as detailed below is a 1,500 cow dairy farm with milk/cheese plant.

It needs to be further assessed which dairy cow breed would perform best, Holstein Frisian seems to be too susceptible for all kinds of blood diseases that are frequently encountered in Angola. Heifers would most likely need to be imported. The farm as elaborated would buy concentrated feed and forage. In reality this farm would most likely produce its own feed and not buy concentrated feed but grains and other feed inputs to be mixed on the farm.

The project as described would produce 10 mln kg of milk per year, based on a max production of 7,000 kg per lactation. The processing plant would have a max capacity of 30,000 kg per day, at max production the farm produces 29,000 kg milk per day. The venture would produce 4,200 t of fresh milk, 2,600 t of skimmed milk, 62 t of butter, 158 t of matured cheese and 420 t of fresh cheese per year.

The total of capital expenditures is USD 16 mln of which EUR 1 mln in working capital.

Producing UHT milk instead of pasteurized milk would make sense in Angola since the cool-chain is suboptimal, to put it mildly. But this involves sophisticated technology that requires a dairy plant with higher capacity of at least 100,000 kg milk per day. Value added products, like Danone type of deserts, sold in Luanda at an equivalent of USD 10 /l, would generate high returns but require advanced technology on packing.





Dairy farm for 1,500 cows

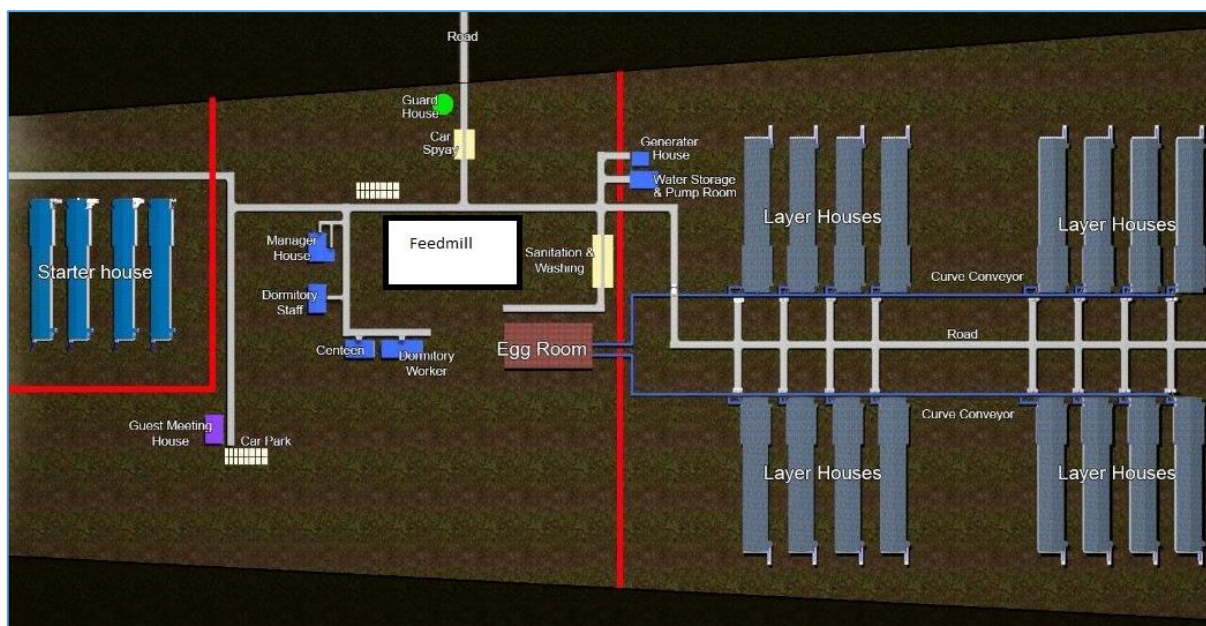
19.3.2 Dairy financial abstract

Dairy farm and cheese plant Angola		
<i>(all figures in USD)</i>		
<i>The total of capital expenditures of the project is:</i>		16,094,276
<i>Of which working capital:</i>		1,026,660
<i>Project characteristics:</i>		
Number of dairy cows present:		1,500
Total milkproduction (t /yr)		10,500
Max processing (kg/day)		28,767
Fresh milk production (t/yr)		4,200
Skimmed milk production (t/yr)		2,563
Butter production (t/yr)		62
Matured cheese production (t/yr)		158
Young cheese production (t/yr)		420
<i>In the fifth year after initiating operations the financial figures are:</i>		
The total of net revenues		12,037,876
Gross income		6,935,400
EBITDA		6,935,400
EBIT		6,071,542
EBT		6,221,542
Net Profit		5,910,465
Net Cash Flow		3,766,426
Dividend payed out		2,955,233
<i>Some important ratio's are:</i>		
Pay Back Period (yr)		3
IRR (10 yr) est		34%
At a discount rate of		15%
the (10yr) Net Present Value of the project is		11,802,979

19.4 Venture 4: Egg production

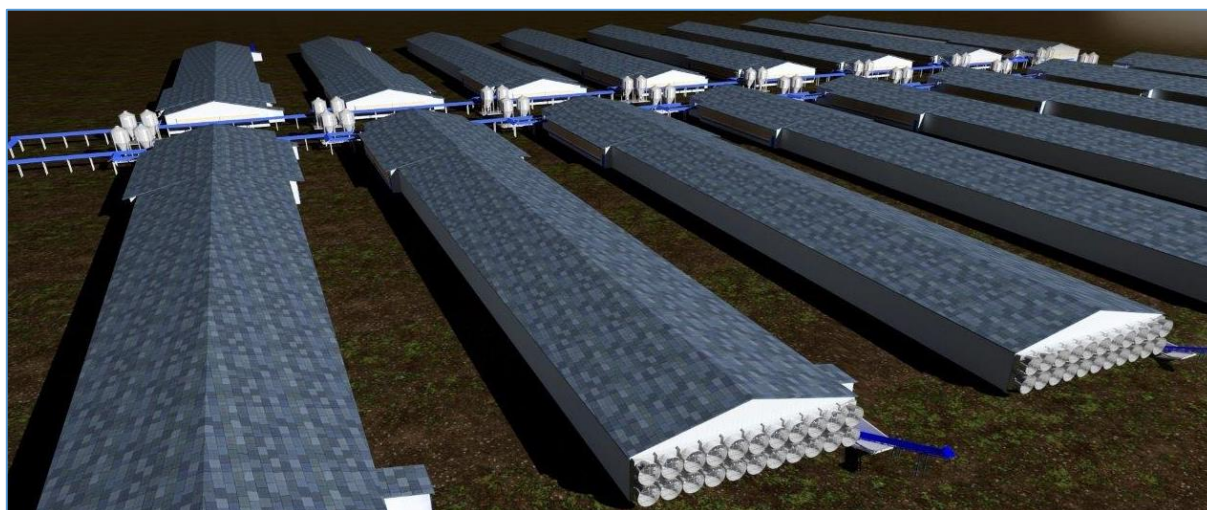
19.4.1 Description egg production

Egg, milk and fish are the most efficient produced animal protein sources for humans. Aquaculture, not addressed in this report, offers great opportunities for Angola. Artificial lakes can be used. Egg production is taking off as the government has imposed high duties on the import of eggs.



Layer farm lay out (including rearing, 1 mln layers)

Several parties are considering the implementation of integrated large scale layer projects of 1 mln layers. The basic idea generally is to start with a 200,000 layer farm, based on imported chicks that are reared and put in production. The next step would be to import eggs and implement hatching. The last step would involve setting up parent stock based on the well-known breeds like Hy-Line, Lohmann and H&N. Parent stock needs to be imported as the big brands have no breeding facilities in Angola.



Layer farm artist impression (1 mln layers)

The layer project as elaborated for this report boosts 1 mln layers, that produce 350 mln eggs per year, it includes a feed plant and an egg grading/packing system. The feed plant has a capacity of 10 t/hr and should run at two 8 hour shifts to produce enough feed. The egg grader has a capacity of 120,000 eggs per hour. The project includes rearing of layer chicks but does not include parent stock

and hatchery. Including parent stock would require experienced employees to do the sexing of day-old chicks. Male chicks can be reared and sold alive, there seems to be a market for this in Angola.

The project needs 45,000 t of feed annually; feed raw material needs to be procured locally.

19.4.2 Layer financial abstract

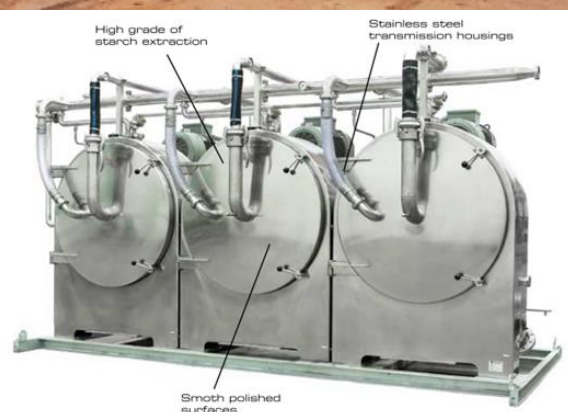
Layer project	
<i>(all figures in USD)</i>	
<i>The total of capital expenditures of the project is</i>	21,936,567
<i>Of which working capital</i>	1,268,767
<i>Project characteristics:</i>	
Layers present	1,012,073
Eggs produced per year (x mln)	353
Eggs produced per day	967,708
Feed input (t/yr)	44,418
<i>In the fifth year after initiating operations the financial figures are:</i>	
The total of net revenues	39,060,456
Gross income	8,610,058
EBITDA	8,610,058
EBIT	6,865,478
EBT	10,715,478
Net Profit	10,715,478
Net Cash Flow	12,460,058
Dividend paid out	-
<i>Some important ratio's are:</i>	
Pay Back Period (yr)	3
IRR (10yr), est	46%
At a discount rate of	10%
the (10yr) Net Present Value of the project is	28,594,562

19.5 Venture 5: Cassava starch production

Cassava is a main crop for the northern part of Angola with over a mln ha under cultivation. Cassava processing into starch happens in a few African countries, like Nigeria and Tanzania. The largest cassava producers in the world are Nigeria, Congo, Brazil and Thailand. Brazil is a large producer of cassava (or tapioca) starch but uses most of its production internally. Thailand is the largest exporter of tapioca starch (1.9 mln t). Nigeria is the largest tapioca starch producer in Africa. Of the estimated 90 mln t of starch used worldwide, around 9 mln is cassava starch.

Angola is allowed to export tapioca starch into the European Union duty free as it is part of ACP (African, Caribbean and Pacific countries). Economic Partnership Agreements (EPA's) between African countries and the EU are currently being negotiated.

19.5.1 Description cassava starch production



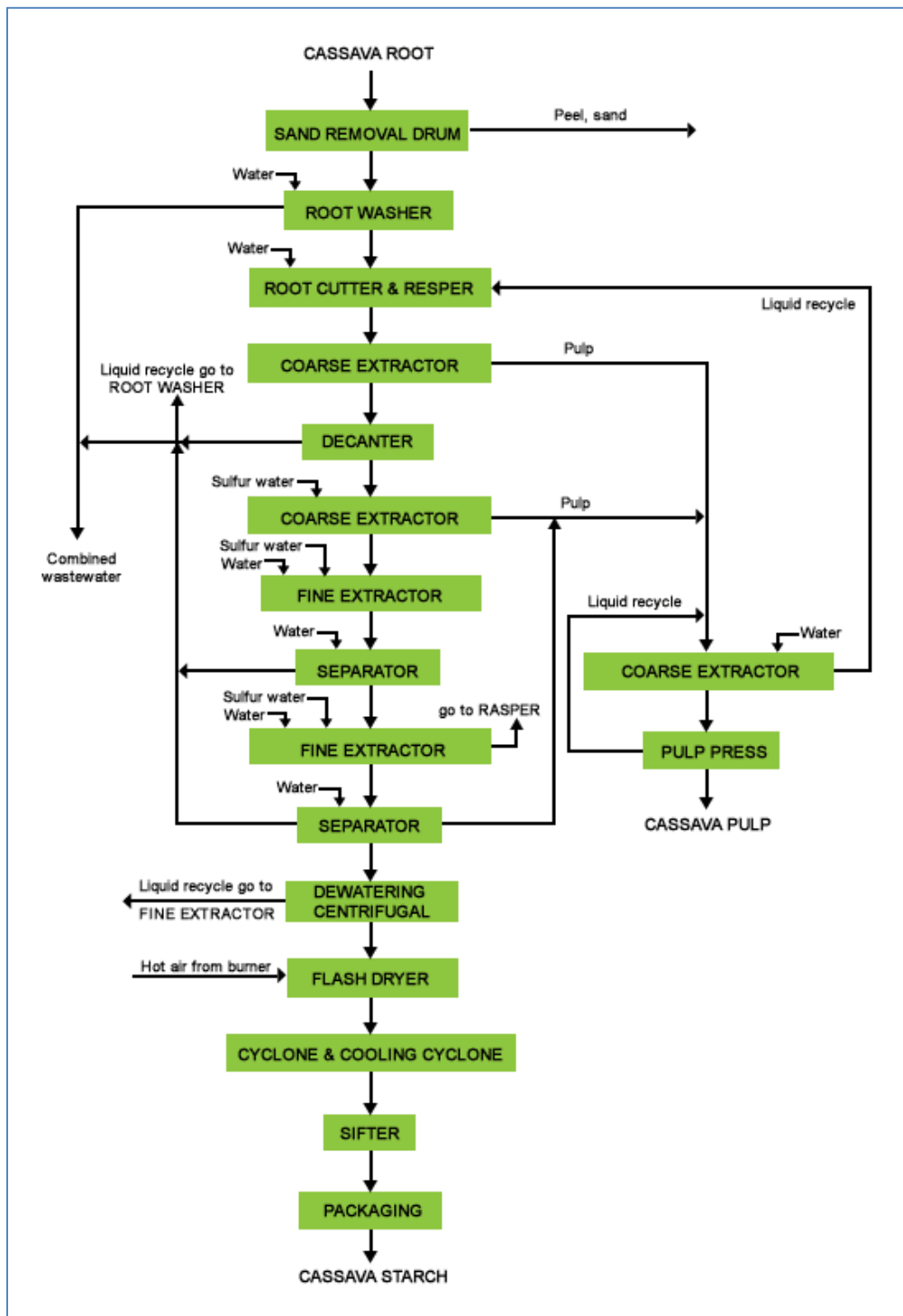
Cassava starch processing plant (source: Agrix)

The basic characteristics of an integrated cassava starch project are:

- Cassava production area: 1,400 ha;
- Input from out growers:
- Total farming area: 3,000 ha;
- Cassava roots input processing plant of 17 t/hr;
- Cassava starch output of 100 t/24hr.

At full capacity after three years the plant will process around 130,000 t of cassava roots per year. To produce this amount of cassava around 3,300 ha of cassava area will be required of which 1,400 grown by the company and the remainder to be sourced from out growers. The starch plant will produce 30,000 t of tapioca starch per year.

Cassava can be considered both a perennial or annual crop. It can be included though in a crop rotation which would have a positive impact on cassava yield.



Flow schedule Cassava starch production

Total revenues are USD 22 mln /yr after three years of operation. The total of capital expenditures during the first year is USD 25 mln including USD 3,6 mln of working capital.

The project shows a good internal rate of return (IRR) of 20% , a payback period of 5 yrs and a positive net present value (NPV) at a discount rate of 11%. The processing technology as included is proven technology and therefore there is no operational risk in the processing. The project shows a

strong sensitivity to the length of the period that cassava is available which determines the number of operating days that is currently set at 300 days.

19.5.2 Cassava financial abstract

Cassava starch project		
<i>(all figures in USD)</i>		
	<i>The total of capital expenditures of the project is</i>	24,571,709
	<i>Of which working capital</i>	3,609,600
<i>Project characteristics:</i>		
Total cassava input (t/yr)		120,000
Total area for cassava production (ha)		1,400
Total of cassava produced by company (t/yr)		54,880
Total of cassava sourced with outgrowers (t/yr)		65,120
Total of tapioca starch produced (t/yr)		28,200
<i>In the fifth year after initiating operations the financial figures are:</i>		
The total of net revenues		21,657,600
Gross income		8,279,409
EBITDA		8,219,409
EBIT		6,751,538
EBT		5,955,926
Net Profit		4,764,740
Net Cash Flow		3,654,360
Dividend paid out		2,382,370
<i>Some important ratio's are:</i>		
Pay Back Period (yr)		5
IRR (10yr)		20%
At a discount rate of		11%
the (10yr) Net Present Value of the project is		8,305,331

19.6 Venture 6: Arable farming

Several projects have been initiated on arable farming in Angola, but many of these projects focus either on extensive annual crops (grains, sunflower, soybean) or on intensive crops (onions, potatoes, carrots). The combination of the two might offer a new perspective. Rotations of grains, intensive crops and green manure are common in western Europe and to a lesser extend in north America.

19.6.1 Description arable farming

The arable farming model that was elaborated for this report includes five crops: sunflower (25%), maize (25%), potatoes (15%), onions (15%) and green manure (20%). The latter can also be a legume that can be harvested and sold as forage to dairy or beef farmers. The farm would start with 500 ha and gradually expand to 3,000 ha. Including in the capital expenditures are land clearing costs and pivot irrigation systems. A pre-condition of course is that sufficient water is available to make two cropping cycles in a year possible.

Sunflower is known as a deep-rooting crop that does very well after corn. A maize-potato-sunflower rotation is practiced in many places of the world and works well. Potato should be kept at least at a 1:4 rotation and onion preferably at 1:6. The combination of extensive and intensive crops generally results in an even distribution of labour needs.

Arable production can yield an appealing IRR of well above 25%.



Potato harvest



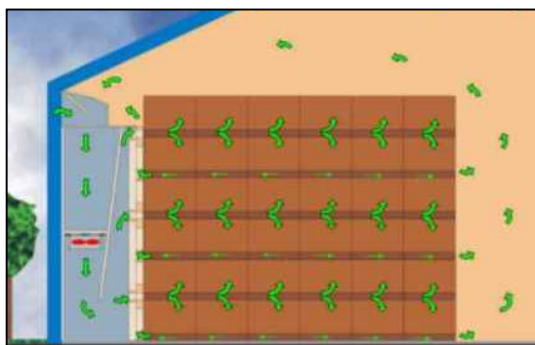
Onion harvest

19.6.2 Arable farming financial abstract

Four crop model Angola		
<i>(All figures in USD)</i>		
The total of capital expenditures of the project is (USD)		12,481,260
Of which working capital (USD)		1,221,250
<i>Project characteristics:</i>		
Total area after 5 yr	3,000	ha
Crops per year	2	
Potatoes	900	ha
Corn grain	1,500	ha
Sun flower	1,500	ha
Onions	900	ha
Green manure	1,200	ha
<i>In the fifth year after initiating operations the financial figures are:</i>		
Total revenues	17,586,000	
Gross income	10,216,148	
EBITDA	10,216,148	
EBIT	9,499,172	
EBT	9,762,248	
Net Profit	7,809,798	
Net Cash Flow	4,377,625	
Dividend paid out	3,904,899	
<i>Some important ratio's are:</i>		
Pay Back Period (yr)	3	
IRR (10yr)	46%	
At a discount rate of	15%	
the (10yr) Net Present Value of the project is	15,868,826	

19.7 Venture 7: Potato storage project

Dedicated potato storage is hardly available in Angola as potatoes are mostly sold directly from the field. This causes huge fluctuations in potato price. At times farm gate potato price gets as low as USD 0.20 /kg and as high as USD 0.90 /kg; compared to Western Europe this is still very high as the farm gate potato price in The Netherlands is on average around USD 0,12 (PPO, 2012).



The Central vegetable market of Luanda receives large volumes of potatoes and onions and has a huge area to handle and store potatoes but lacks storage technology and handling facilities. As a consequence losses are up to 40%.

If storing potatoes and investing in storage facilities is feasible activity depends of course on the price difference between potatoes-in and potatoes-out, the costs of climate control, quality loss and storage time.

Many modern potato storages are box-based but the storage mode has to fit in the existing potato handling practices. Storage could be in bulk, in boxes or in bags.



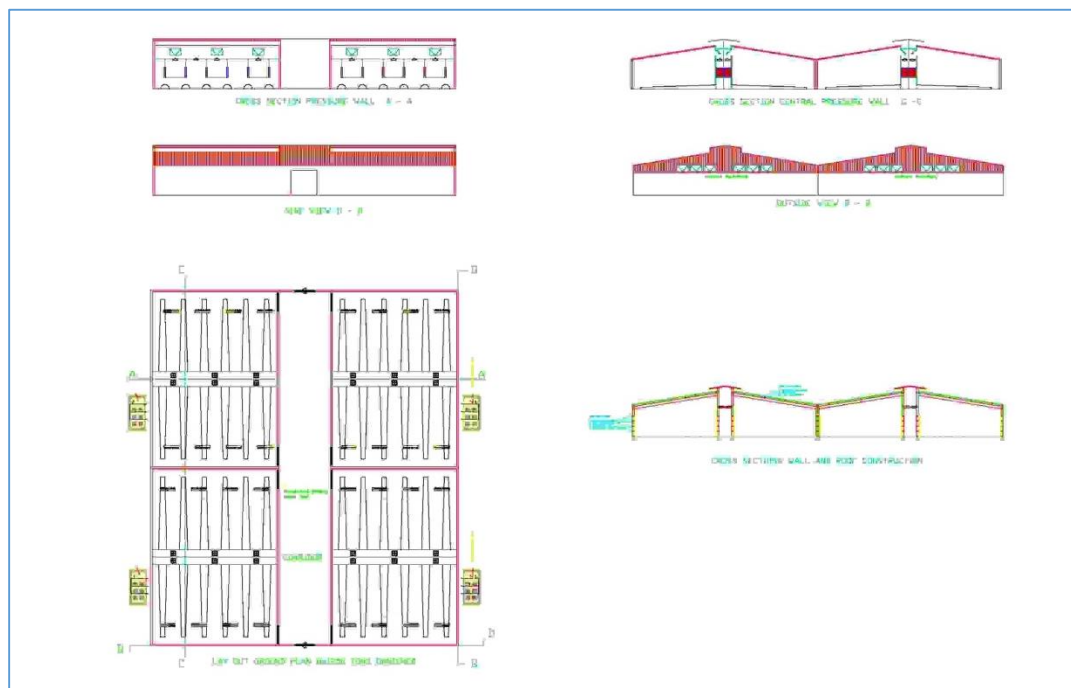
Angola's dominating potato region offers three production cycles for potatoes:

- October to January (rainfed);
- February to March (rainfed);
- June to September (irrigated).

The June-September crop will be most expensive, both to produce and on the market, as production will probably be lower during the irrigated season (?); quality of the dry season potatoes is probably better. The production schedule suggests it might make sense to store potatoes max 2 months from

the January harvest to the end of March (as new crop arrives) and max 5 months from the March harvest to September. Seed potatoes always need to be cold-stored to reach dormancy and to be used for the next growing season.

19.7.1 Description potato storage project



Layout of a 10,000 t bulk-based potato store

For the sake of this report a financial analyses has been elaborated for a 10,000 potato bulk store. It is assumed that potatoes enter the store in March and are being distributed up to the end of September. Weight loss is estimated at 1.2% per month, quality loss at 5% and damaged potatoes at 2%. The timeliness gain of storage is estimated at USD 18.75 /t/month. Capital expenditures are around USD 3.5 mln, including some USD 750,000 of working capital to pre-pay the suppliers of the potatoes.

The potato storing activity can be combined with the potato handling unit as described in a previous paragraph.

19.7.2 Potato storage financial abstract

Angola potato storage		
<i>(All figures in USD)</i>		
The total of capital expenditures of the project is	3,525,000	
Of which working capital	750,000	
<i>Project characteristics:</i>		
Storage capacity	10,000	t
Potatoes in	March	
Potatoes out	September	
<i>Financial figures (at 5 yr operating time):</i>		
Total net revenues	1,170,960	
Gross income	1,053,845	
EBITDA	1049844.762	
EBIT	853,845	
Net profit	489,318	
Net Cash Flow	685,318	
<i>Some important ratio's are:</i>		
Pay Back Period (yr)	4	
IRR (10 yr)	24%	
Discount rate	15%	
10 yr NPV (net Present Value)	826,198	

19.8 Venture 8: Seed potato multiplication

Huambo is the main potato area in Angola where potato area almost doubled in 5 years' time to around 100,000 ha currently. Certified seed is not available although some import of basic seed takes place from The Netherlands to be multiplied in the Huambo region. Potatoes in Angola are harvested mainly semi-mechanized by using windrowers: machines that lift the potatoes out of the soil and leave them behind to be picked up manually. After the potatoes are lifted they are picked up and put in bags by hand.



Traditional potato harvest with windrower

Many people are needed to pick up the potatoes and put them in large 40 kg bags. After this work is done, trucks arrive to take the crop to the market.

The harvest of fresh potatoes contrasts with the harvest of potatoes in The Netherlands. As stated earlier, these are two completely different production systems: the Angolan system is "bag-based" and the Dutch is "bulk-based". This does not automatically imply that the "bulk-based" system would perform better under current Angolan conditions. Nevertheless some aspects could be introduced in the existing Angolan production system. Several

parties in Angola have shown interest in potato technology and equipment and one project has already started.



The Dutch potato harvest and storage model

The seed potato multiplication project will be further elaborated in a next version of this report but definitely offers huge potential.

19.9 Venture 9: Very large scale pork production

Commercial pork production in Angola is non existing so far but several parties have indicated to be very interested in setting up a pork integration. This paragraph elaborates a very large pork integration of a size that only exists in the US and Brazil. But one day Angola will also be an agricultural powerhouse and projects of this size will be implemented.

A big use is African Swine Fever (ASF) that is endemic to Angola. ASF is very similar to Classic Swine Fever (CSF) but with the big distinction that pigs cannot be inoculated against ASF. ASF cannot spread through the air, like foot-and-mouth disease can, but it can be distributed by rodents, pets or human visitors. Therefore it is essential to regard the highest hygienic standards.

19.9.1 Description pork production

The integration will house 67,000 sows and will take 7 years to be fully developed. The company will buy gilts (sows for reproduction) from reputed breeders like Topigs Norsvin or Hypor Hendrix that need to be established in Angola before the venture takes off. Topigs has a breeding nucleus in South Africa and Hypor is also internationally active. The project will be established on three different sites that need to be on a certain distance of each other to avoid veterinarian issues:

- Site 1: farrowing (3 wks to 6kg);
- Site 2: nursery (7wks to 30 kg);
- Site 3: grower/finisher (20 wks to 115 kg).

Each finisher location will hold 5,200 sows. A feed mill with capacity of 120 t/hr is included in the project, at full operation the pork farm will need 570,000 t of feed per year.

Also included is a slaughter and deboning plant with capacity of 600 pigs per hour. The farm will produce 1.6 mln pigs per year, equivalent to 195,000 t of live weight pork or 137,000 of slaughtered weight pork.

19.9.2 Financial abstract pork production

Angola pork integration	
<i>(all figures in USD)</i>	
The total of capital expenditures of the project is	231,316,661
Of which working capital	48,977,784
<i>Project characteristics:</i>	
Farm type: farrow to finishc, # sows:	67,600
Production system:	Three site
Number of locations:	13
Feed in /yr:	588,176 t
Finished pigs per sow /yr	24.57
Total investment (incl working capital) /sow	4,146
Feed conversion	2.40
Mortality rate nursery	1.00%
Mortality rate grower finisher	1.50%
Weight out	115.00
Total meat production (/yr)	149,601 t
Meat production (/sow /yr)	2.89 t
<i>Some important ratio's are:</i>	
Pay Back Period	6 yr
IRR (10yr)	33%
Discount rate	15%
10 yr NPV	65,701,162

19.10 Venture 10: Beef production in Lubango area

An idea has been launched for improvement of beef production in the Lubango region (see paragraph 15.25). On a September 2014 workshop a document was presented to outline this idea (Prins, 2014). Present at the workshop were stakeholders in the beef production sector of the Lubango region. The elaborated idea was based on a semi-sector approach for combined cow-calf and feedlot production. Several fundamental themes were discussed, like: the animal breed to be used (Hereford was suggested by some), the production system and the role of distinguished value chain partners. It was estimated that total of capital expenditures throughout the chain would be around USD 55 mln, excluding working capital requirements. Operating expenditures were estimated at USD 30 mln, which gives an indication of working capital requirements.

Defining the right breed is an important and complicated matter. Alvaro Fernandes (CCGA Director General) considers the Bonsmara breed to be the best (5/8 Afrikaner, 3/16 Hereford and 3/16 Shorthorn), Brahma Vermelho, Simmental/Brahman (double purpose) and Sanga crossings can also be considered (Fernandes, 2014). The biggest challenge is blood diseases transmitted by ticks and mites. The parastatal Botswana Meat Commission (BMC) is considered a good example for

development, as is Zambeef (AG: Mozbeef from Mozambique, a single purpose integrated meat company combined cow/calf and feedlot system).

During the Lubango workshop a project size was suggested of 10,000 animals per year at an average weight of 600 kg. An integrated (new) slaughterhouse with capacity of 100 animals per day should be included. Calves should be at 150 kg when entering the feedlot. Also discussed was the production of forage and silage to feed the cattle in feedlot.

The proposed brand name (work title) of the initiative is “Tundabife”. The objective would be to sell 2,700 t of beef as from 2015 increasing by 30% annually to 10,000 t in 2020. The number of cows would have to increase from 15,000 to 30,000; each farmer should have at least 1,000 cows; three feedlots are planned and 5 farms for forage and feed production. Currently only 1 cow per 10 ha is kept in the region, which is extremely extensive. Pasture improvement is a necessity to increase the number of cows per ha.

To prepare a business plan for the Lubango beef project some issues need to be addressed:

- The project needs an “owner”, a legal entity that carries the responsibility and risks involved in realizing the project. This could be an existing local company or cooperative or a newly established legal entity.
- Clearly distinguish between capital expenditures and operating costs that should be carried by the project and which belong to the public domain;
- Make optimum use of experience gathered in the region during previous attempts to initiate beef production on a larger scale;
- Make the project expand organically: so no import huge numbers of cattle or even calves. Just carrying heifers and bull’s for breeding (AI doesn’t make much sense as in the cow/calve system cows just wander around);
- Select an agro economist, expert on agrifood related projects and beef production or consulting firm to draw a “bankable” business plan.

Beef production is not a typical “Dutch” thing as The Netherlands is not a main producer of beef. Most beef processed in The Netherlands is of culled dairy cows; veal is an important beef segment, The Netherlands is world leading in veal production. Quality beef as offered in The Netherlands is imported from Ireland, Argentine or Uruguay. Small scale quality beef production exists but is mainly “local-for-local” in which hobby type beef farmers cooperate with local butchers to produce high quality meat for a niche market. Popular beef breeds in The Netherlands are: Blonde d’Aquitaine, Hereford, Limousin, Charolais and Belgium WhiteBlue. Beef production does not require high tech solutions, it is mainly about using the right breed and the right feed. Profitable beef production in southern Angola is feasible as regions with comparable agro climatological conditions, like the “Chaco” in Paraguay, have become extremely successful.

The Beef project is closely linked to the ADAA initiative that will be further addressed in this report.

19.11 Venture X: Other potential ventures

The list of agrifood ventures that could be set up in Angola with close collaboration of Dutch companies is almost endless. In this chapter some concrete examples have been elaborated. This paragraph lists some potentials that might be as relevant as the ones listed above.

19.11.1 Flower production

Several parties in Angola have demonstrated an interest for cut flower production. The domestic market appears to be quite extended as Angolans use flowers for many occasions. Most flowers are currently imported and sold for very high prices. There are no detailed statistics available on flower production and trade in Angola. An initial project should therefore be limited in size to further test the market.

Roses could be produced in Angola and also Lillies (Lillium hybrids) might offer a good perspective. Some Dutch companies have indicated to be willing to join Angolan companies in joint production.



Logistics has always been a restraining factor in worldwide (cut) flower production. The leading distribution centre for cut flowers is Aalsmeer, close to Amsterdam Airport Schiphol. The proximity of an international airport with direct connection to Schiphol was a necessity. New technology was developed that makes intercontinental transport of flowers by sea container possible. This would make flower production for export in Angola possible in due time.

19.11.1.1 Greenchainge

Plant breeders, growers and wholesalers, import and export, are working together in the Dutch GreenCHAINge project⁷ to further increase the sustainability of transport flows. GreenCHAINge intends to stimulate sustainable logistical combinations in the international floricultural sector to reduce CO₂ 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 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 inaugurated the first flower shipment by sea container from Kenia to The Netherlands last year 2014.

19.11.2 Nut and groundnut production

⁷ <http://www.greenchainge.com/>

The Netherlands plays an important role in the international trade and processing of nuts and groundnuts (the latter not a nut but a legume). Large Dutch processors have indicated to be interested in nuts produced in Angola. Relevant products are Pistachio, Almonds, Walnuts and Hazelnut but also Macadamia and Cashew.

Pistachio nuts, for instance, are mainly produced in California (San Joaquin Valley) and Iran. An increasing lack of water seems to limit production in California while Iran is politically instable. Almonds are grown in Italy, Spain, Syria and California, but would grow excellent in some Angolan zones.

All nuts are experiencing increased demand. Pistachio might be the most appealing crop as it can be harvested mechanically and irrigated by drip-irrigation. Most nuts grow on trees and are perennials.

19.11.3 The vegetable complex

The Netherlands is the main exporter of vegetables worldwide. The vegetable complex is probably the most advanced of agrifood clusters. This includes the production of hybrid seed, greenhouse technology, fertigation systems, climate control, energy use optimization, automation, organic production, biological pest control, substrate culture (hydroponic production systems) and processing.

Some of the main Dutch vegetable seed producers have indicated an interest in Angola.

Angola also offers good conditions for the production of Asparagus (green and white) and haricots verts that could be exported fresh or processed and canned. Champignons can also easily be produced in Angola; The Netherlands is leading in champignon production technology.

Many of the Angolan retailers import pre-packed (mixed) fresh vegetables, mostly from Portugal and South Africa. With vegetable production on the rise, these products will soon originate from Angola. The Netherlands is leading on vegetable processing technology.

19.11.4 Broiler production

This chapter should have elaborated an integrated broiler project, but a selection needed to be made. Broiler production is important in The Netherlands, of all technology used worldwide in broiler processing, some 85% originates from The Netherlands.



Broiler production

19.11.5 Sugar beet production

Twenty years ago, it would have been considered impossible growing sugar beet in tropical regions. The climate and the lack of know-how of local farmers were all limiting factors for the sugar beet crop. But times have changed, thanks to sugar beet seed breeders.

Significant efforts have been recently done to introduce sugar beet in regions where it has now a limited presence as a commercial crop. In field trials in India during 2007-2009 beet yields of between 68 t and 106 t/ha were achieved with sucrose content of 20% on average. The key obstacle to the rapid introduction of beet production and beet sugar processing in cane factories in the tropics is the rather heavy capital investment to upgrade factories to allow them to process sugar beet. But the need to increase sugar and ethanol production level for many developing countries, the need to diversify the crop portfolio to reduce production costs and to secure the supply in factories, as well as the yield potential of sugar beet has increased the interest for the use of sugar beet in new markets.

For example Egypt that strongly promotes growing sugar beet instead of sugarcane because of lower water use. Also the sugar content of beet, 13%-18%, is higher compared to that of cane which is at 10%. Sugarcane costs EGP 200 /t (USD 1= EGP6.68) to produce and the GoE buys at EGP 335 /t. Beet farming is more profitable as the cane crop is sold by weight rather than sugar content. Beet farmers sell based on sugar content and receive additional payment of EGP 27 /t and EGP 54 /t for high sugar content. Sugar processors encourage beet farmers to sell their crop early, yielding an added payment of EGP 100/t which decreases by EGP 10/t each 10 days thereafter. Egypt already plants 174,000 ha sugar beet versus 100,000 ha of sugar cane.

Sugar beet is the main cash crop for arable farmers in The Netherlands, after potatoes and onions. For this reason The Netherlands has a long term experience in sugar beet growing and processing, this includes hybrid seed breeding, harvest, processing and marketing. Angola no doubt offers excellent opportunities for sugar beet growing.



Sugar beet harvesters

19.11.6 Vocational schooling

The development of the Dutch agrifood was above all based on the famess triangle of: education-applied research and extension. All of these were public interventions. The Netherlands can play an important role assisting Angola in setting up these important institutions. Curricula for vocational schooling, at all levels, can be developed in close collaboration with Netherlands based institutions like Nuffic, WUR and the Agricultural Universities of Applied Sciences.

19.11.7 The polder model

In the early 20th century the Dutch decided to reclaim land from the sea by building dikes, pumping out the water and preparing some 150,000 ha of prime agricultural land called the “IJsselmeerpolders”. This too was a public enterprise that later on developed into a public-private-partnership. Reclaiming land from the Angolan savannahs could take place in a similar manner. A state-owned entity clears and prepares the agricultural land, farms it for a few years (2 to 3), creates infra-structure (ditches, roads, villages, community centres, etc), selects farmers and then rents the land out to these farmers. The PPP aspect is in developing the commercial activities around the farms, the entities that supply inputs and services and that process the agricultural produce from the farms. The public entity that is developing the land continuously manages a farm of say 10.000 ha and moves forward into the savannah leaving developed land behind. Such a venture might be further developed with Gesterra.



The “IJsselmeerpolders”

20 ADAA initiative

The “Angola Desenvolvimento Acelerado em Agricultura” or ADAA was initiated by some individuals, with the Vice President acting as a sponsor. The ADAA intent was originally framed as “Ending hunger and Poverty in Angola through the accelerated development of Agriculture in ways that are inclusive, scalable and sustainable from a social, economic and ecological point of view”.

ADAA’s value proposition is to provide an Open Space for promising agricultural projects in which, through quality conversations between stakeholders, new possibilities open up and obstacles are removed for accelerated and successful implementation of these projects.

Together with the presidential advisors and the governor of the Central Bank of Angola it was decided to focus on beef production as an initial candidate for acceleration.

The prime stakeholders identified were:

- Entrepreneurs in the beef sector;
- The Ministers of Commerce, Family and Female promotion, and Agriculture;
- The Financial sector.

It was decided on an approach in which ADAA would run separate Open Space sessions with each of the above mentioned stakeholders, in order to understand the issues, the mind-sets and the ways of working of these stakeholders, as well as raise their interest for collaboration in an “Open Space” that brings together all stakeholders. In that collective Open Space the intention is to follow a Proto-Typing approach, through which the stakeholders co-create a plan, rather than producing their own versions of plans and subsequently throw them over the fence to another party, an approach that has proved to be unproductive.

In September 2014 EAD 1 was organized (Espaço Aberto e Discussão 1) in Lubango (Weerd, 2014). Key players were gathered in what could become a value chain for beef production in the Lubango area. The delegates comprised farmers, Angola’s largest beef cooperative, abattoir directors, veterinarians and retailers. The outcome of this two day workshop was a strong aligned view on, and enthusiasm for the potential of what was called “TundaBeef” : a value chain driven beef project, producing 30.000 tons of quality beef by 2020.

21 Relevance of inclusive agrifood projects

21.1 Classification of Angolan primary production

The Angolan 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 the development of primary agricultural production in Angola.

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. As a matter of fact, this segment is under-presented in Angola but probably emerge in the coming years.

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. In general this group is not that important for the development of the national agricultural sector because of its isolated operations (corporate, export oriented). In the Angolan case however, these companies certainly are of interest. Many of the large scale agricultural ventures are initiated and financed through joint ventures of foreign companies with local wealthy entrepreneurs, often with the BDA involved. 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 Angolan production chains in which Dutch agrifood technology might be relevant. It is most likely that the focus for applying Dutch technology will be on a value chain that includes commercial and corporative farms. Subsistence farmers might be considered to participate in an out-grower system and corporate farms are usually fully integrated. Current development in primary agrifood in Angola is by commercial farmers that emerged from an elite that made its money in other sectors of the economy.

21.2 Inclusive initiatives

Many of the initiatives as described in chapter 15 of this report are focussed on small holder farming, these schemes often focus on resettlement of former UNITA fighters but also on supporting local community farming and small holders. Examples of such projects are the development plan for Camabatelo in the north (par. 15.22), the Sediad project (par. 15.16), the Fazenda Maxi scheme (par. 15.14), the Matala project (par. 15.20), KS46 (par. 15.15) and the People In Need project (par. 15.4). The Terra do Futuro scheme is focussed on mid-size commercial farming. For Dutch suppliers of inputs and agricultural and processing equipment these initiatives are relevant because the projects as mentioned usually include a central service centre for supplying inputs and for handling and processing of the products that the associated farms produce. So although farming may be relatively small scale, input volumes and handling and processing capacity might be large.

21.3 SCR related initiatives

21.3.1 Maersk Oil

A good example of CSR involvement is Maersk Oil (revenues USD 9 bln) (Damgaard, 2014) that started in Angola in 2005 and currently operates three Blocks (8, 16 and 23) employing 100 people. As Anders Damgaard, Managing Director of Maersk Oil Angola puts it: “At Maersk Oil Angola, we believe that our operations have the potential to deliver shared value to the people of Angola while also satisfying the expectations of our commercial stakeholders”.

In 2011 Maersk launched its “Action for Angola” social investment program. The program focusses on:

- Basic health and education;
- Technical capacity building;
- Economic diversification.

In 2012 and 2013 Maersk Oil Angola and its two partners in Angola, Odebrecht and Sonangol, spent USD 2.1 million on five social investment projects. One of these projects is the Kukula Ku Moxi project, located near Capanda in the province of Malanje. The program was initiated by Sodepac (par. 15.24). Currently 321 farmers from 20 communities participate in the project. They receive training on farm husbandry and assistance on transport and distribution.

21.3.2 USAID/Chevron

A second example of CSR involvement is the ProAgro Program that was launched in 2006 and is financed by Chevron and USAID. ProAgro Angola comprises four main components:

- Improving marketing strategies;
- Expand access to financial services offered by commercial banks to farmers and other agribusiness enterprises, with the help of a USAID guarantee facility (covering 25% of a USD 15 mln loan portfolio for agribusiness lending at Banco de Fomento Angola);
- Enhance the production and productivity of selected crops through the provision of technical assistance to improve yields and quality, with particular emphasis on pest management, modern crop husbandry techniques, crop scheduling, soil protection, and irrigation and water management;
- ProAgro Angola looks at improving processing practices, including technical assistance in sorting and grading, packaging, transport and storage of fruits and vegetables.

21.4 Investments in large scale agriculture

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 in agriculture and local community involvement.

21.4.1 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.

21.4.2 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.

21.4.3 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.

21.4.4 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.

21.4.5 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.

21.4.6 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.

21.4.7 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.

21.4.8 Food security

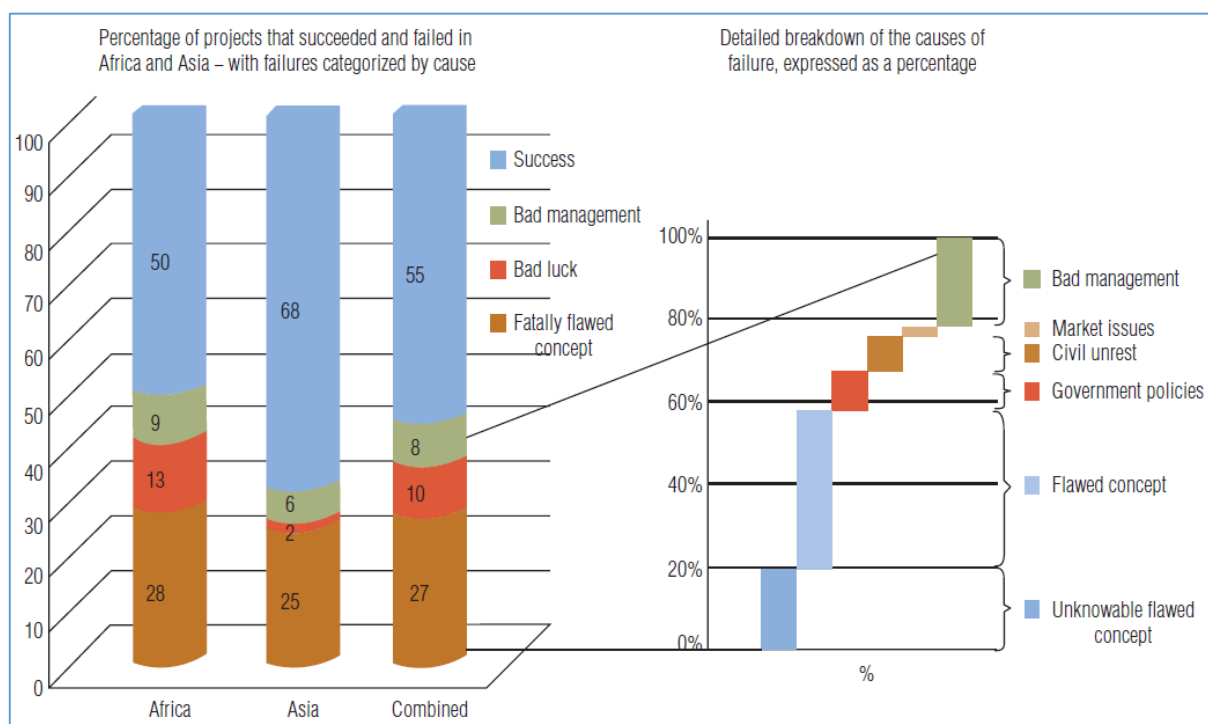
- The main positive contribution most investors made to food security was through direct employment and out-grower schemes. But wages for employees and prices for out-growers must be sufficient to support an adequate standard of living;
- The main negative contribution was through reduced access to land.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

21.4.9 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 reached to the same conclusions as the above mentioned Worldbank publication.

21.5 Investments in agriculture in Asia and Africa compared



The Commonwealth Development Corporation (CDC, 2013) recently published an analyses of its investments in agriculture in both Asia and Africa. 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.

22 Conclusions and recommendations

This report illustrates that the Government of Angola is serious on developing the agrifood sector to become a second pillar supporting the national economy and contributing to GDP, food security and the balance of trade. Angola's potential for becoming a potent player in securing food security in sub-Saharan Africa is obvious. The report in chapter 15 describes some 40 existing agrifood ventures that have been developed during recent years. Some of these ventures are large scale but in many ventures out-growers and small-scale farmers involved. Compared to Mozambique it is clear that much more is going on in agrifood Angola, the ventures are more in number and much larger in scale and related capital expenditures. A majority of the existing ventures described is still in the initial stage of establishment, setup less than 10 years ago. This offers ample opportunities for Dutch agrifood companies to participate and supply equipment and technology. Chapter 16 lists a group of Angolan agrifood service providers that can also offer opportunities to Dutch companies that intend to enter the Angolan market with farming inputs like seeds, fertilizers, agrochemicals or equipment.

The selection of relevant agrifood clusters presented in chapter 18 seems to be adequate. The emphasis for follow up should therefore be on:

- Intensive animal production (broilers, layers, pork);
- Feed production (local crushing, feed milling);
- Dairy (primary production and processing);
- Potato related activities;
- Vegetables (open field, including potatoes: chain optimization);
- Covered crops (flowers, greenhouse vegetables);

And to a lesser extend:

- Perennials (nuts and other tree crops);
- Arable production (grain and protein crops);
- General processing (starch, sugar).

The detailed analyses in chapter 19 of agrifood business models that would work in Angola and in which Dutch technology could play an important role demonstrates that expected IRR is between 20% and 30%. This indicates that if the entrepreneur is able to finance his project with capital that costs less than the IRR, the return on equity (ROE) will be even higher. The analyses are based on models calculating with real quotations and assumptions that are quite conservative.

22.1 Suggested additional actions

The next move would be to connect Netherlands agrifood companies to local entrepreneurs, a process that already started. This must lead to actual transactions of agrifood equipment and technology from The Netherlands to Angola. The analysed ventures prove that agrifood business in Angola, based on Dutch technology, are profitable.

Therefore Agrix would suggest the following actions:

- Setup a workshop with selected agrifood companies in The Netherlands;

- Organize a joint presentation of Dutch agrifood related companies on the Feira Internacional de Luanda (FILDA) every year in July;
- Setup an outgoing mission of Dutch agrifood companies to Angola;
- Receive an ingoing mission of Angolan stakeholders to The Netherlands.

This report may help to convince Dutch agrifood companies to participate in activities that promote Dutch business with Angola.

22.2 Long track action required

Some long-track objectives, outside the scope of Agrix or AADA intervention, that should be developed simultaneously through assistance by large institutions like FAO, IFC and World Bank are:

- Elaboration of an inclusive National agrifood development plan;
- Setup or further improve supporting institutions like a Phytosanitary Service, Inspection Service, Veterinarian Service;
- Improve cold chain and rural controlled storage facilities;
- Promote vocational schooling including farmer field schools (FFS/FAO);
- Introduction of extension services and experimental farms that can serve as model farms;
- Introduce a preferential fiscal regime, legislation on international trade (import/export: temporarily market protection) and preferential VAT;
- Further improve infrastructure: roads, railways, ports, ship handling facilities and grain storage facilities.

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24 Annexes

24.1 Annex Seed potato export to Angola



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POOTGOEDEXPORT IN TONNEN OOGST 2013

	Totaal oogst '13	Totaal oogst '12	Totaal oogst '11		Totaal oogst '13	Totaal oogst '12	Totaal oogst '11
E U				A Z I E			
België	76.263	65.519	62.290	Armenië	1.626	859	2.731
Bulgarije	3.264	2.136	1.615	Azerbaidzjan	0	0	0
Cyprus	7.336	6.149	6.183	Bangladesh	1.131	4.802	5.123
Denemarken	3.367	3.241	2.315	Georgië	950	127	891
Duitsland	89.649	80.072	72.679	Irak	15.328	7.743	13.556
Eeland	111	55	319	Iran	360	0	200
Finland	437	862	1.269	Israël	19.019	13.091	11.088
Frankrijk	28.863	29.973	26.943	Jemen	3.101	5.199	2.094
Griekenland	16.639	15.286	14.721	Jordanië	4.652	2.355	2.327
Hongarije	4.912	3.442	2.744	Kazachstan	1.157	691	1.043
Ierland	61	390	230	Koeweit	563	283	314
Italië	64.228	59.630	57.299	Libanon	20.665	13.956	14.381
Kroatië	5.965	5.488	5.494	Oezbekistan	13.917	12.552	5.355
Letland	357	246	342	Oman	587	180	34
Litouwen	555	196	248	Pakistan	6.821	4.242	4.835
Luxemburg	144	166	142	Palestina	638	361	370
Malta	1.454	1.032	1.238	Saudi Arabië	13.241	22.770	15.708
Oostenrijk	2.780	2.784	4.030	Sri Lanka	1.222	1.708	1.091
Polen	9.407	6.930	4.509	Syrië	16.074	9.757	17.004
Portugal	22.410	23.758	20.237	Tadzikistan	0	0	18
Roemenië	5.225	3.399	3.012	Thailand	676	646	590
Slovenië	2.632	2.556	2.165	V.A.E.	405	1	390
Slowakije	3.894	2.688	2.057	Vietnam	50	60	75
Spanje	49.786	46.846	39.303	Diversen	596	206	92
Tsjechië	4.790	3.737	2.299	Totaal Azië	122.779	101.589	99.310
VK	25.387	39.088	23.089	AFRIKA			
Zweden	1.741	1.516	2.288	Algerije	75.311	115.601	90.450
Totaal EU	431.657	407.185	359.060	Angola	1.565	1.199	802
Rest EUROPA				Burkina Faso	0	156	196
Albanië	2.538	1.626	1.343	Egypte	45.977	39.158	50.783
Bosnië	7.424	6.532	6.779	Entrea	188	0	115
Macedonië	1.229	904	970	Kaapverdië	528	461	428
Moldavië	956	656	461	Libië	12.621	11.416	5.173
Montenegro	1243	1241	1.168	Mali	1.508	158	195
Oekraïne	3.272	807	2.481	Marokko	27.383	28.012	17.721
Rusland	10.167	14.928	13.778	Mauritius	417	486	801
Servië	4.058	3.575	2.833	Mozambique	285	203	151
Turkije	11.816	4.252	7.452	Niger	24	0	48
IJsland	89	81	48	Somalië	0	0	0
Wit-Rusland	2.239	1.675	930	Sudan	5.921	7.070	5.977
Zwitserland	2.907	670	1.168	Tunesië	8.854	10.720	8.106
Diversen	2.250	1.726	1.370	Zambia	251	275	125
Totaal	50.188	38.673	40.781	Diversen	404	512	438
Totaal Europa	481.845	445.858	399.841	Totaal Afrika	181.237	215.427	181.509
A M E R I K A				TOT. GENERAAL	797.755	778.912	694.375
Argentinië	0	75	55				
Brazilië	2.787	2.614	1.468				
Cuba	4.679	9.063	8.618				
Dominic.Rep.	400	750	322				
Honduras	1.297	1.090	981				
Jamaica	993	514	656				
Nicaragua	1.497	1.818	1.347				
Panama	0	0	0				
Uruguay	193	113	120				
Venezuela	0	0	0				
Diversen	48	1	148				
Totaal Amerika	11.894	16.038	13.715				

stand op	tonnen	oogst	totale
		oogst '13	797.755
		oogst '12	778.912
		oogst '11	694.375
		oogst '10	787.849
		oogst '09	715.751

24.2 Annex Selected Dutch agrifood companies

The pages below list a number of Dutch agrifood companies for which Angola might offer some real potential. This could be either an export potential or setting up local production. 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	Farming equipment
Agromax	Poultry projects
Agroplant	Seed potatoes
Agrovision	Management support
Avico	Potato products
Bijlsma Hercules	Potato handling
Brabant Van Opstal	Milling equipment
C.Meijer BV	Seed potatoes
Clima	Climate controll
Daalimpex	Potato trade
Dacom Plant Service	Management support
Dadtco	Cassava processing
Dalsem	Greenhouse systems
Den Hartigh	Seed potatoes
Dijkstra Techniek	Potato handling
Enza	Vegetable seed
Fancom	Stable climate control
Farmfrites	Potato products
Fermofeed	Bio fertilizers
Flevostar	Potato packer
Flora Holland	Flower trade
Florius BV	Flower production
Food Technology NON	Vegetable equipment
Foodmate	Poultry processing
Gea Grasso International BV	Poultry processing
Gea Hovesx	Starch processing
Gicom Composting Systems	Champignon equipment
GMF Gouda Andritz	Starch processing
HAK Food Group	Vegetable canning
Hatchtech	Egg incubators
Heemsker Livestock	Livestock export
Heering	One-day layer chicks
Hotraco Group / Mooij	Storage equipment
Hy-Line Benelux	One-day layer chicks

Hypor	Pork genetics
HZPC Holland BV	Seed potatoes
Impex	Feeding equipment
Intersnack	Nut trade
Kiremco	Potato processing
Klijn	Nut trade
Kneppers Rozen	Flower production
Kok Staalbouw	Prefab constructions
Koppert Biological systems	Pest management
Koudijs / De Heus	Animal feed
KWS Potato BV	Seed potatoes
Machinefabriek Grisnich BV	Potato storage
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
NIVOPA	Starch processing
Nuscience	Animal feed
Oldenhuis	Potato handling
Omivent Techniek BV	Potato storage
Ottevanger	Milling equipment
Pasreform	Hatchery equipment
Ploeger Machines	Vegetable harvesters
Plumex	Hatching eggs
Pluriton	Hatching eggs
Prinsen	Potato handling

Provimi	Animal feed
Rijk Zwaan	Vegetable seed
Rovero	Greenhouse systems
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 trade
The Potato Company	Seed potatoes
Thinking Steel	Prefab constructions
Tolsma	Storage equipment
Topigs Norsvin	Pork genetics
TopKip	Poultry processing
Transnational Agri Projects	Poultry processing
Tummers Equipment	Potato processing
Van Aarsen	Milling equipment
Van Den Berg Roses	Flower production
VDZ Trading	Slaughter equipment
Van Den Bos Flowerbulbs	Bloembollen
VanderHave	Beet seed
Van Drie	Veal
VDL Agrotech	Stable equipment
Vencomatic Group	Poultry equipment
Verbeek	One-day layer chicks
Viscon	Hatchery equipment
Wifo	Potato handling
Wopereis Staalbouw	Prefab constructions
Wurth Stallenbouw	Prefab constructions
Wijnveen	Milling equipment

24.3 Annex Detailed Food Balance Angola

Single Items	Domestic Supply					Domestic Utilization						Per Capita Supply			
	1000 Metric tons											Total		Prot.	Fat
	Prod.	Impo.	Stock Var.	Exp.	Total	Food	Food Pro	Feed	Seed	Waste	Oth. Uses	Kg / Yr	KCal / Day	Gr / Day	Gr / Day
Wheat and products	4	813	-21	0	796	776	0		0	19		38.5	270	8.2	1
Barley and products		94	0		94	0	94					0	0	0	
Maize and products	1262	232	-240	0	1254	797	90	154	40	174		39.5	344	9.1	3.7
Millet and products	61	0	0	0	61	48	5		3	5		2.4	20	0.3	0.1
Potatoes and products	841	18	0	0	860	560			214	86		27.7	54	1.1	0.1
Cassava and products	14334	0	-2000	0	12334	3903		6280		2150		193.4	550	4.6	0.6
Sweet potatoes	1045				1045	930				115		46.1	121	1.6	0.3
Sugar cane	510				510		477	5	3	26					
Sugar (Raw Equivalent)	51	294	0	0	345	272	0				73	13.5	121		
Beans	304	50	-130	0	223	182			17	25		9	81	5.3	0.4
Nuts and products	2	0		0	2	2						0.1	0	0	0
Soyabeans		0			0	0						0	0	0	0
Groundnuts (Shelled Eq)	113	2		0	114	45	55		5	9		2.2	34	1.4	2.8
Sunflower seed	12	0		0	12		11		0	0					
Cottonseed	3	0		0	3		3		0	0					
Sesame seed	3			0	3	3			0	0		0.2	2	0.1	0.2
Palm kernels	23	0		0	23		21				2				
Oilcrops, Other	4	0	0	0	4		4		0	0	0				
Soyabean Oil		107	-20		87	72					15	3.6	87		9.8
Groundnut Oil	25	0	-9	0	16	16						0.8	19		2.2
Sunflowerseed Oil	4	1	0	0	4	4						0.2	5		0.6
Palmkernel Oil	9		0	0	9	7					2	0.3	8		0.9
Palm Oil	50	147	0	14	183	60					123	3	72		8.2
Oilcrops Oil, Other	2	15	0	0	17	15					2	0.8	18	0	2
Tomatoes and products	16	72		0	88	86				2		4.3	3	0.1	0
Onions		7			7	7						0.4	0	0	0
Vegetables, Other	1532	24		0	1556	1356				200		67.2	36	2	0.2
Oranges, Mandarines		3			3	3						0.2	0	0	0
Citrus, Other	267			0	267	240				27		11.9	10	0.1	0.1
Bananas	2646	0		0	2646	987	1125			535		48.9	80	1.2	0.2
Apples and products		18		0	18	18						0.9	1	0	0
Pineapples and products	326			0	326	294				33		14.6	18	0.1	0.1
Grapes and products (excl wine)		1		0	1	1						0.1	0	0	0
Fruits, Other	40	12		0	52	48				4		2.4	3	0	0
Coffee and products	49	1	0	0	49	49					0	2.4	3	0.4	
Cocoa Beans and products	0	3	0	0	4	3					0	0.2	3	0	0.3
Tea (including mate)		1		0	1	1						0	0	0	
Wine		95	0	0	95	95						4.7	9		
Beer	820	188		0	1008	1008						50	59	0.7	
Beverages, Fermented	472	13	-100		384	335				49		16.6	20	0.1	
Beverages, Alcoholic	8	35	0	0	43	43						2.1	17		
Infant food		4			4	4						0.2	2	0.1	0
Bovine Meat	100	43		0	143	143						7.1	33	3	2.2
Mutton & Goat Meat	22	1		0	23	23						1.1	5	0.5	0.3
Pigmeat	77	83		0	160	160						7.9	80	2.2	7.8
Poultry Meat	22	287		0	309	309						15.3	51	5.2	3.2
Meat, Other	9				9	9						0.4	1	0.2	0
Offals, Edible	22	0		0	22	22						1.1	3	0.5	0.1
Fats, Animals, Raw	7	9	0	0	16	16					0	0.8	16	0	1.8
Eggs	5	36		0	41	36			2	3		1.8	7	0.5	0.5
Honey	23	0		0	23	23						1.1	10	0	
Freshwater Fish	19	0		0	19	19					0	1	2	0.3	0.1
Demersal Fish	107	18		0	125	125					0	6.2	7	1.5	0.1
Pelagic Fish	96	62	0	32	126	118		8			0	5.9	11	1.6	0.4
Marine Fish, Other	36	0		0	37	23		14			0	1.1	2	0.3	0.1
Rice (Milled Equivalent)	15	217	0	0	233	146			2	5	80	7.3	73	1.4	0.1
Milk - Excluding Butter	184	53		0	237	225	0	2		10		11.2	18	1	1
Grand Total													2400	55	52.3

