



Ministry of Economic Affairs,
Agriculture and Innovation

Business opportunities for horticulture and potatoes in Angola





Foreword

In recognition of the Dutch horticulture sector as one of the top sectors identified by the government of the Kingdom of The Netherlands, and appreciating that Angola offers challenges and opportunities that the Dutch horticulture sector can respond to; the Dutch Ministry of Economic Affairs, Agriculture and Innovation, through the Netherlands Embassy in Angola and the office of the Agricultural Counselor at the Netherlands Embassy in South Africa, commissioned this sector report.

LEI Wageningen UR was tasked with compiling the report, and given their knowledge of the Dutch horticulture sector, it is hoped that the report will identify challenges and opportunities in Angola that match the expertise and technology of the Dutch. The report, written by Youri Dijkxhoorn and Jo Wijnands, aims to give an overview of the Angolan horticulture and potato industry as a general resource.

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Table of Contents

Foreword	1
Summary	3
S.1 Important outcomes	3
S.2 Complementary outcomes	3
S.3 Methodology	4
Samenvatting	5
S.1 Belangrijkste uitkomsten	5
S.2 Overige resultaten	5
S.3 Methode	6
Key figures Angola	7
1 Introduction	8
1.1 Background	8
1.2 Objective	8
1.3 Method	8
2 General information on Angola	9
2.1 Introduction	9
2.2 Demography and human development	9
2.3 Economy	10
2.4 Agriculture	13
2.5 Technology and infrastructure	14
2.6 Political situation	17
3 Horticulture and seed potatoes	19
3.1 Main characteristics	19
3.2 The value chain	23
3.3 Productivity	24
3.4 Availability of inputs	29
3.5 The supplying industry	30
3.6 Enabling environment	32
3.7 Market	34
4 Forecast and developments	38
4.1 Potential	38
4.2 Swot	38
4.3 Opportunities for Dutch agriculture sector	41
5 Conclusions and recommendations	42
5.1 Conclusions	42
5.2 Recommendations	43
Literature and websites	45
Appendix 1: Interviews and activities	46
Appendix 2: Varieties of seed potatoes	47
Appendix 3: Population by province	47
Appendix 4: Climate data	48
Appendix 5: Current and favourable regions	49

Summary

S.1 Important outcomes

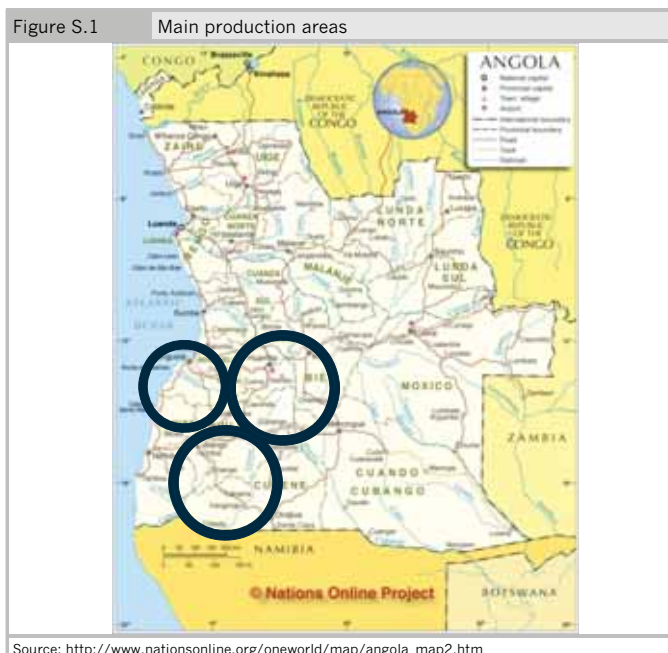
Angola has the potential to produce more food than the domestic consumption and to meet the increasing demand for quality and differentiated products. The Dutch Agribusiness is able to support this development of the Angolan agriculture. The main findings are:

- Huge potential for agriculture
 - o Untapped potential related to land, water and climate.
 - o Angola can produce far more than required for domestic consumption.
- Increase in income due to exports of oil.
 - o Increase of local demand for fresh food products related to variety and quality.
 - o Modern supermarket chains are gaining market share.
- Angola made significant economic progress the last decade
 - o The government is focusing on diversifying the economy.
 - o The government is supportive towards agricultural activities in order to reduce the food imports.

As a result Angola offers opportunities for the Dutch agribusiness. Suppliers of inputs (starting material, crop protection, technology) and experts from industry and knowledge organisations can offer tailor-made innovations that increase profit and sustainability. With new technologies adapted to the local conditions a huge increase in productivity and sustainability can be expected.

S.2 Complementary outcomes

The horticultural sector in Angola is small, and is mainly located in the regions around Huambo (potatoes), Benguela (potatoes and vegetables) and Lubango (vegetables) (see Figure S.1). 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. 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, big retailers in Angola are not able to source locally since local producers are not available to supply the same quantity and quality year-round.



S.3 Methodology

This report describes the current status of the horticultural and potato sector in Angola and its options for further development and expansion. The study focuses on the possibilities of the Dutch agribusiness to facilitate these horticultural developments. Existing information has been collected, but information on agriculture was not easily available. In addition, during a mission to Angola industry stakeholders have been interviewed. During these in-depth interviews primary information was gathered and previously collected data were validated.

Samenvatting

S.1 Belangrijkste uitkomsten

Angola heeft de potentie om meer voedsel te produceren dan ze nodig heeft. Ook kan Angola voorzien in de toenemende vraag naar kwaliteits- en gedifferentieerde producten. Het Nederlandse agrarische bedrijfsleven is in staat om de ontwikkelingen te ondersteunen. De belangrijkste uitkomsten van het onderzoek zijn:

- Onbenutte mogelijkheden voor landbouw.
 - o Immense potentie ten aanzien van land, water en klimaat.
 - o Angola is in staat om veel meer te produceren dan de nationale markt nodig heeft
- Angola heeft een sterke toename van het inkomen door de export van olie.
 - o Toename van de lokale vraag naar verse voedselproducten zowel in kwaliteit als diversiteit.
 - o Het marktaandeel van moderne supermarkten neemt toe.
- Angola heeft significante economische vooruitgang geboekt het afgelopen decennium.
 - o De overheid legt de nadruk op het diversifiëren van de economie.
 - o De overheid ondersteunt landbouwactiviteiten zodat Angola minder afhankelijk is van voedselimport.

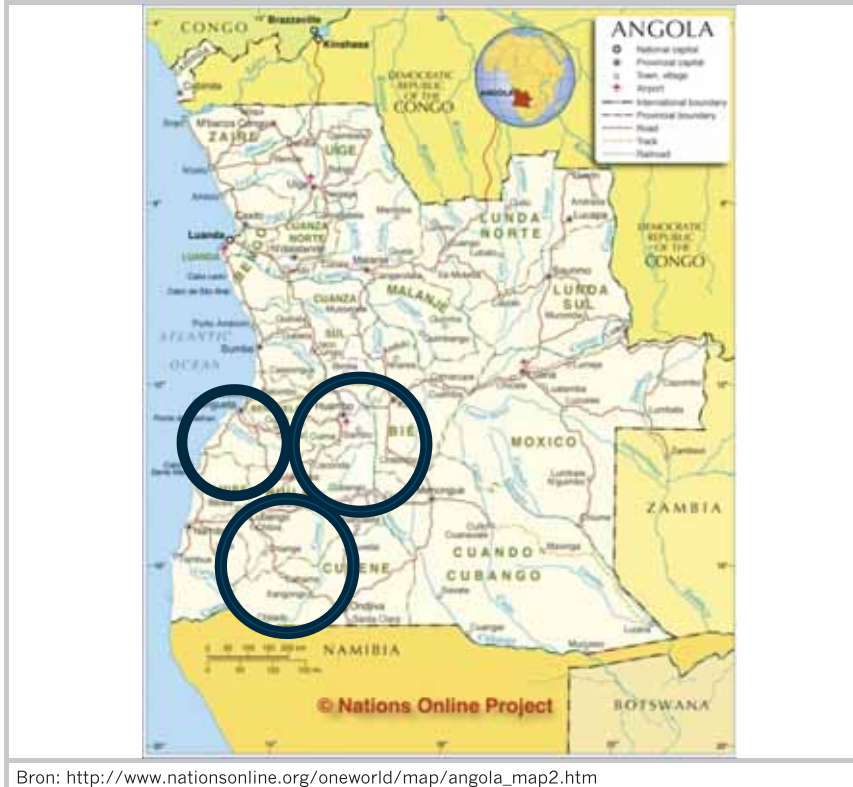
Angola biedt kansen voor het Nederlandse agrarische bedrijfsleven. Toeleveranciers (uitgangsmateriaal, gewasbeschermingsmiddelen, techniek) en kennisleveranciers uit de industrie en van kennisinstituten kunnen innovaties bieden die de winstgevendheid en duurzaamheid van de sector verhogen. Met het gebruik van kennis en technologieën, aangepast aan de lokale omstandigheden, kan er een gigantische toename van de productiviteit en duurzaamheid worden verwacht.

S.2 Overige resultaten

De tuinbouwsector in Angola is klein en is voornamelijk gesitueerd in de regio rond Huambo (aardappelen), Benguela (aardappelen en groenten) en Lubango (groenten) (zie Figuur S.1). De tuinbouwsector wordt gedomineerd door kleine boeren. De productiviteit is laag als gevolg van slechte kennis van de boeren. Er is geen ondersteunde voorlichtingsinfrastructuur en het gebruik van opbrengst-verhogende inputs is laag. De erfenis van de burgeroorlog beperkt de verdere ontwikkelingen van de sector omdat veel boeren van hun land verdreven zijn en hierdoor kennis verloren is gegaan.

Ook de infrastructuur heeft te maken gehad met een gebrek aan onderhoud en is een beperking voor verdere ontwikkeling. De groenteproduktie is voornamelijk open teelt met enkele kleine voorbeelden van plastic tunnelkassen met lage en af en toe medium technologie. Dit heeft tot gevolg dat grote retailers in Angola niet in staat zijn om voldoende groente van goede kwaliteit lokaal in te kopen gedurende elk seizoen.

Figuur S.1 Belangrijkste productiegebieden



S.3 Methode

Bestaande informatie is verzameld, maar gegevens over landbouw in Angola zijn niet eenvoudig voorhanden. Als aanvullingen op de verzamelde gegevens zijn tijdens een missie naar Angola belanghebbende uit de sector geïnterviewd. Tijdens deze gesprekken is primaire informatie verzameld en zijn de reeds verzamelde gegevens gevalideerd.

Key figures Angola

Key figures Angola in 2010	
Population	19m. Annual growth rate 3.2%
Capital*	Luanda (4.5m inhabitants, 2009)
Land Area	125m ha, 37 times the size of the Netherlands, twice the size of France
Agricultural land (2009)	58m ha, annual growth 0.2%. 46% of land area can be used as agricultural land. Only 8-10m ha is actual cultivated
Freshwater resources	The annual freshwater withdrawal is 0.4% of the renewable resources. Agriculture consumes 33%, domestic use is 38%.
GDP (current USD)	USD85bn
GDP-growth	6% in 2010, 1% in 2009, 14% in 2008 and 23% in 2007
Origin value added	Agriculture 10%, industry 62% and services 28%
Labour force (2009)*	Agriculture 85%, industry and services 15% (2003 estimate)
GDP / capita	USD 4,451 (current USD); USD 5,549 PPP (Constant 2005 USD)
Currency (1/05/2012)**	Angola Kwanza (AOA) AOA 100= EUR 0.79= USD 1.05; EUR1= AOA 126= USD 1.33
Literacy (above age 15)	70%
Life expectancy at birth	45 years
Inflation	Consumer price 14%, average 2007-2010 13% annually
Interest rate***	Commercial bank prime lending rate 17% (December 2011)
Main exports (2011)***	Crude oil: 99%, precious stones: 1%.
Export destinations (2011)***	China: 42%, USA: 23%, Taiwan: 10%, Canada: 4%, The Netherlands: 2%.
Main imports (2011)***	Machinery and electrical equipment: 16%, electronics: 9%, articles of iron or steel: 7%, vehicles and spare parts: 6%, mineral fuels: 5%.
Main imports (2011) from***	Portugal: 21 %, China: 18%, USA: 10%, Brazil: 7%, The Netherlands: 2%.
Sources: World Development Indicators, *CIA World fact book, ** http://www.oanda.com/currency/converter/ ***INE, 2012, UNComtrade	

1. Introduction

1.1 Background

Agriculture in Angola has huge potentials and can contribute to food security and might decrease the country's dependency on food imports. Currently there is limited knowledge on the sector. Therefore there is a need for an inventory of the actual situation of horticulture and the potato sector in Angola, a description of the actual situation, and an assessment of possible developments. Specific needs related to technology and knowhow of local growers are identified. Dutch suppliers can fulfil those needs and can contribute to a future development of horticulture and the potato sector in Angola.

1.2 Objective

The objective of this study is to:

1. Give an overview on horticulture and the potato sector, related to areas of production, crops produced and productions volumes.
2. Identify business opportunities for the Dutch horticulture and potato industry.

1.3 Method

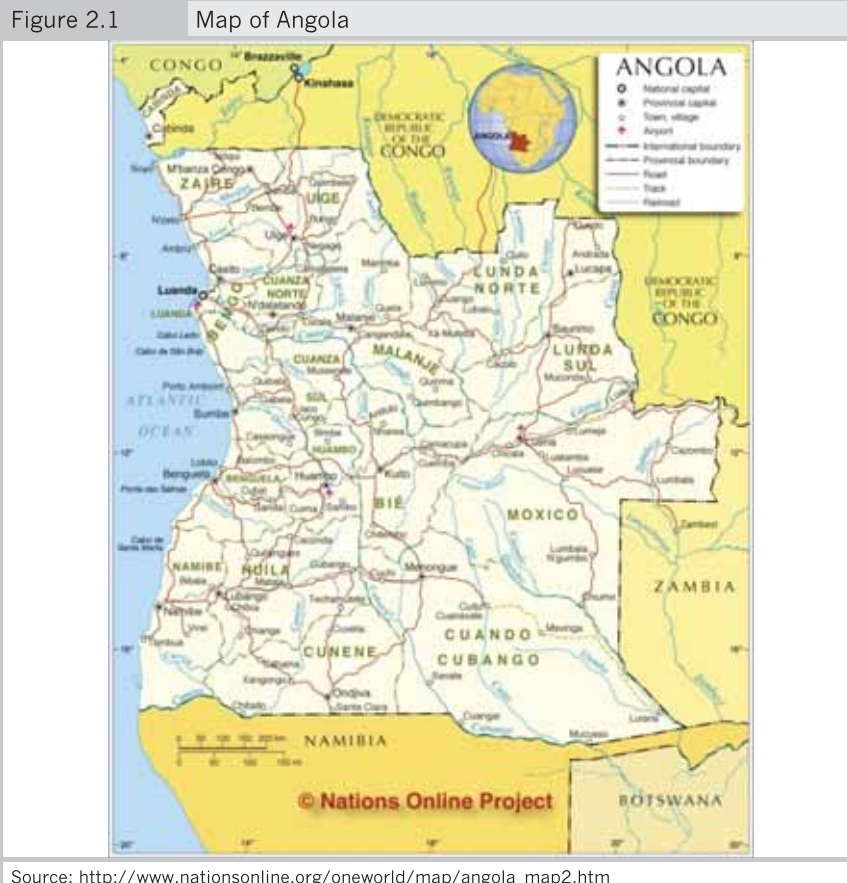
Information on agriculture in Angola is not easily available; however, by means of a literature review information has been collected. In addition various public available data sources have been consulted in order to get a broad overview of the country related to the general economic indicators and external position (e.g. general macro-economic indicators from the World Bank, trade information from the UNcomtrade database and crop production statistics from FAO). In addition a mission to Angola was organised to interview stakeholders from the sector. During these in-depth interviews primary information was gathered and secondary data were validated. Appendix 1 gives an overview of the interviewed stakeholders.

For a better understanding of the Angolan position some key figures are compared with Ethiopia (as a developing country and as key country for Dutch development cooperation), South Africa (as a main exporter of agriculture products to Angola) and the Netherlands (as reference).

2. General information on Angola

2.1 Introduction

The Republic of Angola is situated in the south of Africa, bordering the Atlantic Ocean along a coastline of 1,650 km. With a total land area of 1,246,700 square kilometres, 37 times the size of the Netherlands or twice of France (INE, 2012). The country shares its borders with the Democratic Republic of the Congo, Republic of the Congo, Namibia and Zambia. Angola has 18 provinces.



2.2 Demography and human development

The population consists out of various ethnic groups. People of mixed European and African origin dominate the economy, and a large part of the population carries Portuguese family names. The official language is Portuguese, but also many other local languages are spoken. The total population is estimated at 19 million inhabitants. Angola is highly urbanised and the majority of the population lives in the major cities in a few provinces:

- Luanda: 30%;
- Benguela: 10%;
- Huíla: 10%;
- Huambo: 7.5%.

One quarter of the population lives in the 10 provinces with the lowest population. Angola has one of the highest fertility rates in the world with an average of 6.0 children per female; the population is growing rapidly by 3.2% annually. As a result of restricted movement because of the war, Angola currently has a relatively low HIV prevalence rate.

	Population (million)	Population growth* (%)	Population in urban agglomerations over 1 million (%)
Angola	19	3.2	25
Ethiopia	83	2.4	4
Netherlands	17	0.4	12
South Africa	50	1.3	34
World	6,895	1.2	20

* Annual growth from 2000 to 2010
Source: World Development Indicators (World Bank)

Angola ranks low on the human development index: rank 148 out of 187 (Table 2.2). The income inequality is very high and the life expectancy is 45 years: below Ethiopia and in the same range as in South Africa. Despite the oil industry and the high level of urbanisation, the carbon dioxide emission per capita is low.

	Rank HDI	HDI*	Quintile income ratio**	Life expectancy	Carbon emission	Literacy rate > 15 year
		2011	2000-2010	2007	2008	2005-2010
		Index		Years	Tonnes/capita	%
Angola	148	0.486	31.0	45	1.4	70.0
Ethiopia	174	0.363	4.2	50	0.1	29.8
Netherlands	3	0.910	5.1	73	10.5	...
South Africa	123	0.619	20.2	48	8.8	88.7

* HDI: The Human Development Index is a composite index by combining indicators of life expectancy, educational attainment (mean years of schooling and expected years of schooling) and income (GNI/capita) into one index. Range: highest 0.943 to lowest 0.286.
** Quintile income ratio: Ratio of the average income of the richest 20% of the population to the average income of the poorest 20% of the population.
Source: Human Development indicators

2.3 Economy

2.3.1 Macro-economic developments

Still Angola bears all the marks of a 27 year old civil war that ended in 2002. The last decade the country has embarked on a massive reconstruction programme, fuelled by oil revenues. Angola is Africa's second-largest oil producer after Nigeria and crude oil output represents 45% of the country's GDP and over 95% of export revenues. The oil production in Angola was circa 1.9million barrels per day in 2011 (CIA, 2012).

From 2000 until 2010, Angola's average annual GDP Growth was 25% (current USD). The dependency on oil revenues created serious problems for the Angolan economy with the collapse of the oil price in 2009. As a result economic growth was negative in 2009 (-10%), but recovered in 2010 (+13% growth). Estimates indicate that the Angolan economy is to grow 9.7% in 2012, being the fastest growing economy among the 18 sub-Saharan African countries covered by the annual IMF forecasts.

As a result the Angolan GDP per capita increased 7 fold from USD 656 in 2000 to USD 4,451 in 2010 at current prices. However a better indication of the GDP is the Purchasing Power Parity (PPP). This is related to the amount of money needed to purchase the same goods and services in different countries, and this is used to calculate an implicit foreign exchange rate and to compare the standard of living in poor countries. In 2000 this still was USD 2,634 and in 2010 this doubled to USD 5,549. In comparison to other countries, the PPP for Ethiopia is USD 934, for South Africa this is circa USD 9.477 (Table 2.3). For Angola, the actual GDP in PPP is relatively low compared to the GDP per capita in current prices. This is a clear indication that Angola is far from developed and that Angola should be classified as a developing economy, despite the high prices and enormous wealth centred for a lucky few of the population. The income inequality is huge: the 20% highest incomes receive 30 times as much as the 20% lowest. As comparison: in South Africa 20 times and in The Netherlands 5 times.

	2000	2005	2010	Annual growth* 2000-2010
	USD 2005	USD 2005	USD 2005	%
Angola	2,634	3,640	5,549	7.7
Ethiopia	527	636	934	5.9
Netherlands	33,691	35,104	36,996	0.9
South Africa	7,641	8,597	9,477	2.2

* Annual growth from 2000 to 2010
Source: World Development Indicators (World Bank)

2.3.2 Economic dependency

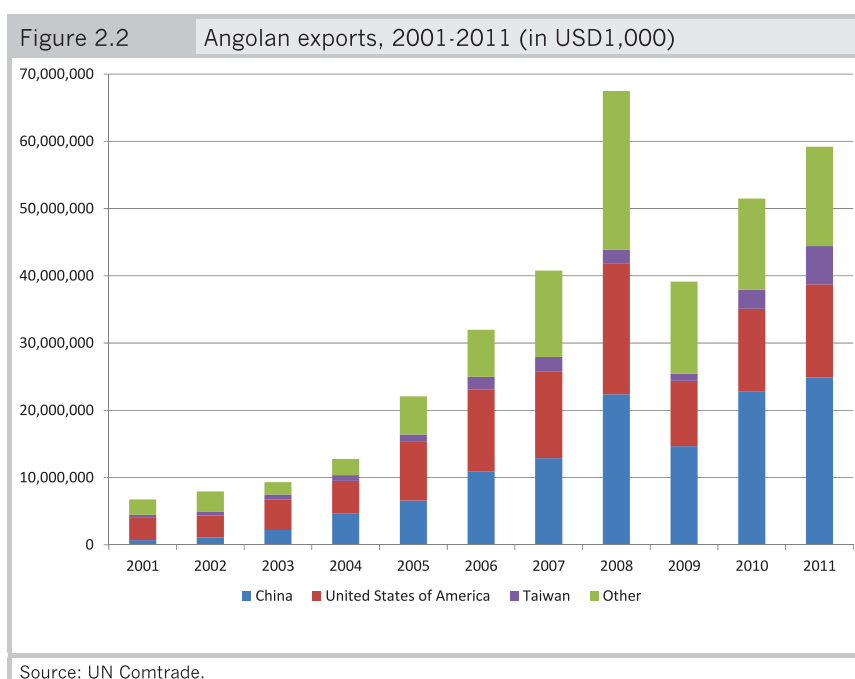
The government is trying to reduce the dependency on oil by developing other industries. As a result every sector of the economy, from fishing to banking, has seen growth and investments, both foreign and domestic. This is also driven by the need for reconstruction after the war.

Due to the economic bankruptcy during the war Angola has a highly dollarised economy. The government is making important steps to keep more money in the country and have it flow through the national banking system. As a first step, all oil companies were obliged to make all Angola related financial transfers through Angolan bank accounts.

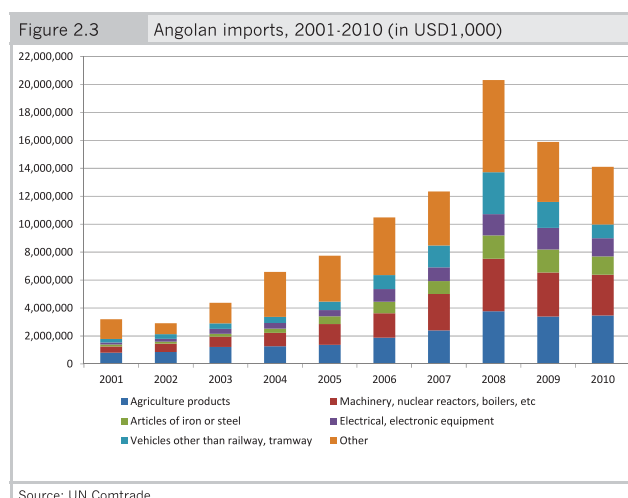
Angola's economic development faces many challenges, ranging from bureaucracy to a lack of skilled labour, leaving the country dependent on import and expatriate workers for many key sectors of the economy.

2.3.3 External position

Petroleum products dominate Angola export trade figures. Diamond is yet another significant contributor. These two products constitute more than 95% of the total export value. Angola exports products mainly to China, France, the USA and EU (Figure 2.2). Almost all crude oil export from Angola goes to China and the USA. The increase in international oil prices is a primary driver for Angola's export growth. Angola's export value has increased sevenfold in the period 2002-2010.



Since the colonial period, Portugal has been the leading trade import partner of Angola. The country imports food, textile products and consumer goods. Other key import partners are South Africa, the USA, Brazil, the UK, France, China and South Korea. As the Angolan economy is evolving, there is a gradual increase in imports. However, with exports much higher than the import value, the country has a favourable balance of payment. Being a part of the least developed countries, Angola benefits from duty-free preferential agreements by the EU (known as EBA, 'Everything But Arms') and the US (known as African Growth and Opportunity Act, 'AGOA').



2.3.4 The Netherlands

There are no agreements between the Netherlands and Angola for bilateral development aid. However the Dutch Government has several facilities to promote economic development and to enhance the trade between Angola and The Netherlands. The main instruments are the Programma Collectieve Promotie Activiteiten (CPA), the facility Ontwikkelingsrelevante Infrastructuurontwikkeling (ORIO), Prepare2start and 2g@there. In addition there are newly established tax treaties that enhances the local taxation and also the export credit insurance applies for Angola.

The Dutch interest in Angolan oil and Liquefied Natural Gas (LNG) and the Angolan interest in Dutch 'know-how' and the technological expertise to cultivate and transport these are key factors for an advantageous mutual cooperation. Also, the Dutch tradition in maritime transports and in the management of ports is of great interest for Angola.

The main priority of the Dutch embassy in Luanda is to promote trade between the Netherlands and Angola. In the meantime Angola has moved up in the ranks of Dutch export. Many agricultural products are being traded such as seed potatoes, concentrated milk and eggs (Table 2.4). The total Dutch export value to Angola has almost tripled in the past decade. The Netherlands imports circa 1% of the total exported oil value from Angola.

Table 2.4 Export from The Netherlands to Angola (in USD1,000)

	2002	2005	2009	2010	2011
Milk and cream, concentrated or sweetened	11,827	14,918	46,877	47,571	57,212
Birds' eggs in shell	3,900	4,173	5,334	10,788	20,066
Meat of swine, fresh, chilled or frozen	1,036	2,423	10,014	13,855	18,861
Articles of iron or steels	184	658	855	33,983	17,550
Parts & access of computers & office machinery	1,930	7,566	9,983	9,731	17,465
Machinery part	961	8,987	7,935	22,509	16,504
Margarine	4,827	6,422	10,539	7,057	8,616
Cut flowers and flower buds for bouquets, fresh or dried	0	0	0	0	34
Potatoes	106	1,047	1,289	716	1,119
Vegetable juices & extracts	0	103	548	700	1,076
Other	90,575	136,351	266,390	176,639	182,131
All products	115,346	182,648	359,764	323,549	340,634

Source: UNcomtrade

2.4 Agriculture

2.4.1 Agricultural land

Angola has an area of agricultural land almost 30 times the Dutch area and over 150% of the Ethiopian area. The country has almost 58 million ha of arable land, of which only around 5-8 million ha (about 8%-14%) are currently being used; this is an increase from 2.2 million ha in 2001/02, mostly because displaced people returned home and started to farm again. These households currently produce at subsistence level. This shows huge potential to develop the agricultural production and to become self-sufficient. In the end Angola even can become an exporter of agricultural products.

	Agriculture, value added (% of GDP)	Agricultural land (million ha)	Agricultural land (% of land area)
Angola	10	58	47
Ethiopia	48	35	35
Netherlands	2	2	57
South Africa	2	99	82
World	3	4,883	38

Source: World Development Indicators (World Bank)

2.4.2 Agriculture during colonial and independence period

During the colonial period, a variety of crops and animal products were produced in Angola. In the north, cassava, coffee and cotton were grown. In the central highlands, maize was cultivated. In the south, where rainfall is lowest, cattle herding was prevalent (www.embangola-can.org/agri-fisheries.html). Large plantations were run by Portuguese that produced palm oil, sugarcane, bananas, and sisal. The commercial farmers were dominant in marketing these crops, however, and enjoyed substantial support from the colonial government in the form of technical assistance, irrigation facilities, and financial credit. They produced the vast majority of the crops that were marketed in the cities or exported (www.embangola-can.org/agri-fisheries.html).

After independence, the departure of Portuguese farmers and traders in the rural areas undermined agricultural productivity (www.embangola-can.org/agri-fisheries.html). In response, the government set up state farms on land formerly owned by the Portuguese and established the National Company for the Marketing and Distribution of Agricultural Products (Empresa Nacional de Comercialização e Distribuição de Produtos Agrícolas-- Encodipa). Neither the farms nor the trading system was successful, and by 1984 the government started phasing out the state farms and turned production over to private farmers. To help private farmers, the government established agricultural development stations and provided credits for small-scale agricultural projects. Several hundred state farms were to be turned over to associations of tenant farmers as a form of cooperative. By the end of 1985, the Directorate of Farm Marketing controlled 4,638 farm cooperatives and 6,534 farmers' associations; but of these, only 93 cooperatives and 71 associations were operational (www.embangola-can.org/agri-fisheries.html).

In the late 1980s, Angola faced difficulties in maintaining agricultural production. Production was stagnating due to problems with marketing and transport, shortages of seed and fertiliser. Also the impact of the war was significant. Land mines and fear of attacks had forced peasants to decrease the production areas, particularly fields distant from villages. The migration of farmers to safer areas in particular had resulted in over-cultivation of land and, as a result, reduced yields. Only the relatively secure Huíla province sustained a reasonable level of production throughout the war.

2.4.3 Agriculture transformation

At the moment the country's agricultural economy is transforming from a subsistence-oriented farming system toward a more market oriented production system in order to reduce the import dependency and to become self-sufficient. Angola's main crops are cereals, grain, roots and tubers, pulses, oil crops and fruit and vegetables (Table 2.6).

Table 2.6		Main crops produced in Angola 2010		
Crop	Area (ha)	Yield (kg/ha)	Production (tonnes)	
Cereals	1,764,493	6448	1,135,981	
Coarse Grain	1,736,830	641	1,113,308	
Roots and Tubers	1,321,418	11,871	15,686,553	
Pulses	723,923	346	250,115	
Oil crops Primary	385,174	303	116,515	
Fruit excl Melons	59,300	10,255	608,098	
Vegetables	49,600	5,550	275,300	
Citrus Fruit	13,300	7,496	99,699	
Fibre Crops Primary	3,750	619	2,320	
Tree nuts	2,800	625	1,750	
Jute & Jute-like Fibres	1,200	650	780	

Source: FAOstat.

Before the civil war the importance of agriculture production used to be far larger than nowadays but the potential remained. Now the production picks up again since it becomes safer to return to remote agricultural lands, heavily sieged areas have been demined and rehabilitation programmes kicked in. The population working in agriculture is circa 85%; however, the contribution is a mere 10%.

2.5 Technology and infrastructure

Angola is rebuilding its infrastructure after the civil war. Angola's badly damaged and neglected infrastructure increases the cost of doing business for investors. In particular, the huge numbers of mines from the civil war had been a major obstacle to agriculture development in the past. In the main agriculture regions, the majority of the mines have been cleared. Rebuilding infrastructure is a major policy objective of the Angolan government and Angola has massively developed its infrastructure after the civil war. However, particularly in the agricultural sector, it is often up to entrepreneurs themselves to invest in infrastructure improvements such as irrigation, because waiting for the government to do that may delay projects indefinitely.

2.5.1 Electricity

The destruction to the power transmission network during the civil war and decades of underinvestment have resulted in Angola suffering from an under-supply of electricity and frequent blackouts. Empresa Nacional de Electricidade (ENE) is the state-owned and only electricity provider in the country. Little is known on the state of the Angolan electricity industry, which is essential for supporting the country's economic growth (SADC, 2009).

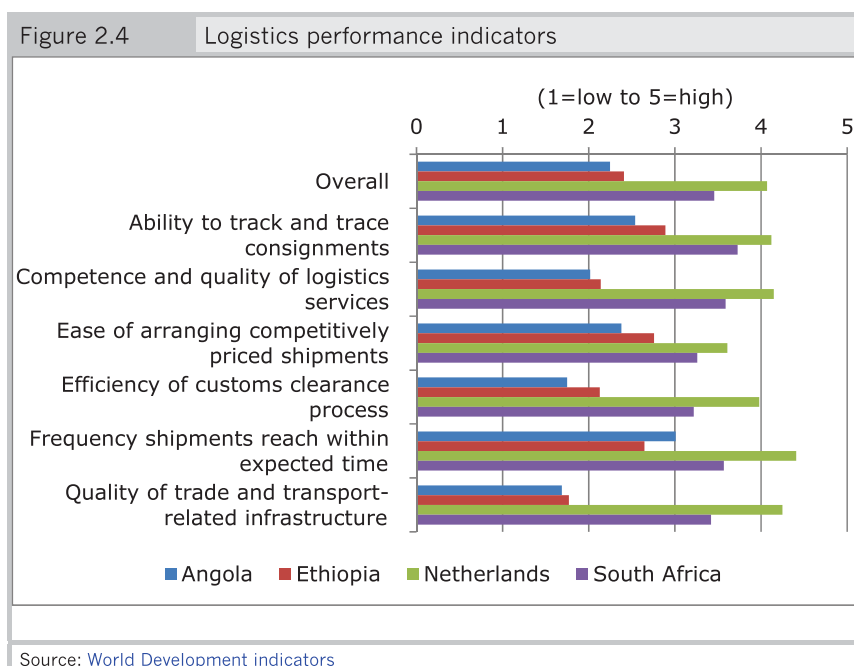
According to the World Banks 'Doing Business Indicators' (2011) it takes 68 days for a newly constructed establishment to obtain an electricity connection. The population growth in cities has increased the number of illegal connections to the national grid, worsening power shortages.

2.5.2 Road and railway

Angola has a strong transportation network with railways and roadways covering more than 51,000 kilometres. However, many roads are in poor condition and bridges have been destroyed. As a result transportation costs are high and especially a timely transport of fresh produces is challenging. In 2007, 1,200 kilometres of roads and 94 bridges were rehabilitated. In 2008 the government rebuilt a further 1,500 kilometres of roads. In addition, commuting problems in Luanda harm the business environment, where 90 per cent of economic activity is concentrated.



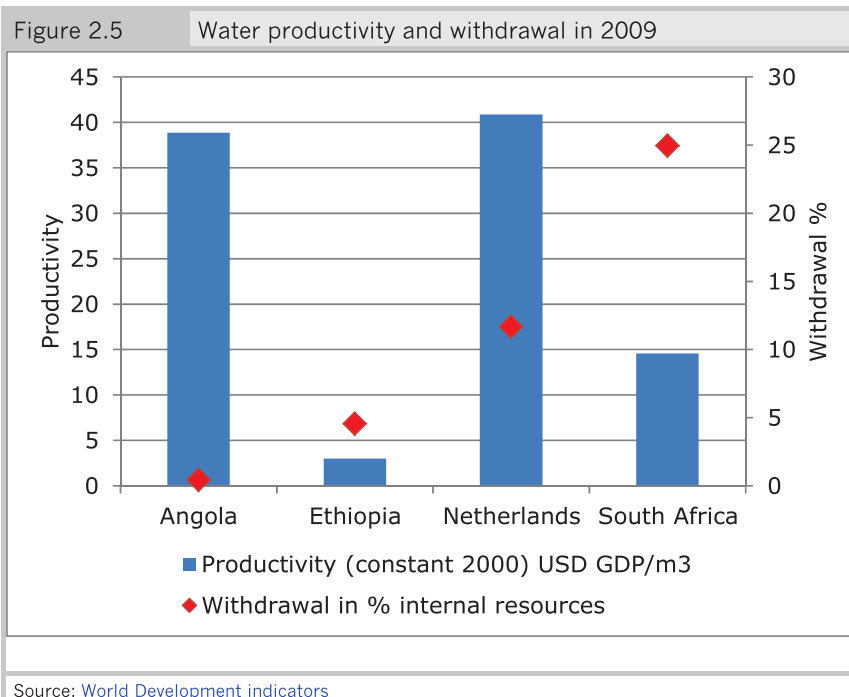
The overall logistics performance in Angola is poor and insufficient, even below the level of Ethiopia (Figure 2.4). During the fact-finding mission the poor transport infrastructure is often mentioned. This applies to the condition of the roads, but also the availability of means of transport in general and a cool chain in particular.



2.5.3 Water productivity and availability

Angola has an abundant quantity of internal water resources: 8m³ per capita whereas the Netherlands has on average 0.7m³ per capita. The withdrawal is 0.4% of the internal resources: a negligible amount that offers opportunities for large scale irrigation of agricultural production.

The water productivity in Angola approaches the Dutch level and can be seen as high compared with Ethiopia and South-Africa. In Angola, agriculture uses 33% of the total internal water withdrawal, compared with 93% in Ethiopia, 63% in South Africa and 0.7% in the Netherlands (Figure 2.5). Only 3.5% of the 3.7 million hectares of the potential irrigable land have been developed (Espírito Santo, 2008) and the irrigation infrastructure has largely been neglected throughout the civil war and is now being restored.



2.5.4 Air and seaports

Angola has 2 international airports. The first one is Luanda International Airport Quatro de Fevereiro. It has frequent international flights within Africa and also to other continents. Since March 2012, KLM flies directly from Amsterdam to Luanda 3 times a week. Lubango, in the South of Angola, has the second international airport, called Mukanka Airport. From here on international connections are with Windhoek (Namibia).

Angola's 1,600-km long coastline and its four major ports make it a natural transshipment point for the SADC. The four major ports in Angola are Lobito, Luanda, Cabinda, and Namibe. Some problems persist in the port of Luanda. Ships wait offshore for up to several weeks, raising the cost of transport. During 2007, a long-delayed 20-year concession for management of the port was finally awarded to Sogester, a joint venture between Maersk and an Angolan pension fund. The port is currently being modernised and a deep-water harbour is being realised. Other projects planned by the government include a new container terminal, grain silos and the Viana dry-dock. Also the Dutch tradition in maritime transports and in the management of ports is currently being used to further develop efficiency of the ports and is of great value for Angola.

2.5.5 ICT

Domestic and international communications are improving, but communication networks are oversubscribed in the provinces and sometimes in Luanda, and the network does not cover all areas of the country. By 2010, Angola has 8.9 million mobile phone subscriptions and almost 0.74 million web users.

2.6 Political situation

2.6.1 Political context

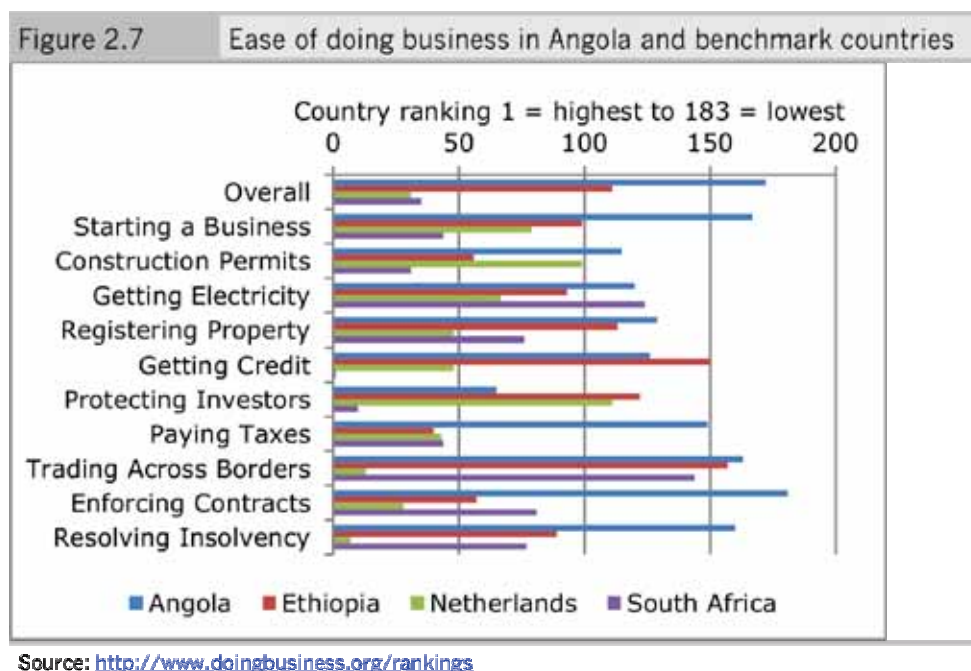
The Constitutional Law of 1992 establishes the broad outlines of the current government structure and outlines the rights and duties of citizens. The legal system is based on Portuguese and custom law but is regarded as weak and fragmented (The Bridge UK-Angola.org). A Supreme Court serves as the appellate tribunal; a Constitutional Court with powers of judicial review has not been constituted until 2010, despite statutory authorisation. The governors of the 18 provinces are appointed by the president.

After the end of the Civil War the regime came under pressure from within as well as from the international environment, to become more democratic and less authoritarian. Its reaction was to operate a number of changes without substantially changing its character. Parliamentary elections held on 5 September 2008, announced MPLA as the winning party with 81% of votes. The closest opposition party was UNITA with 10%. These elections were the first since 1992 and were described as only partly free but certainly not as fair. A 'White Book' on the elections in 2008 lists all irregularities surrounding the Parliamentary elections of 2008 (KAS, 2009).

The new constitution, adopted in 2010, further sharpened the authoritarian character of the regime. In the future, there will be no presidential elections: the president and the vice-president of the political party which comes out strongest in the parliamentary elections become automatically president and vice-president of Angola. Through a variety of mechanisms, the state president controls all the other administrative bodies, so that the principle of the division of power is not maintained. As a consequence, Angola has no longer a presidential system and its regime falls now in the same category as several other authoritarian regimes in contemporary Africa.

2.6.2 Doing business and the investment climate

According to the World Bank's Doing Business indicator (2011), the overall ranking for Angola is 172 out of 183. This means that Angola is in the very low end as far as ease in doing business is concerned. 'Starting a business' and 'Enforcing contracts' are particularly troublesome for foreign investors. Ethiopia (overall rank 111) performs better on all criteria except on getting credit and protecting investors. The differences of both countries with the Netherlands (overall rank 35) and also with South Africa (overall rank 31) are huge. However, on the criteria 'Getting electricity' and 'Trading across borders', Angola ranks high (Figure 2.7).



Angola does not perform well on the Corruption Perception Index (CPI) of Transparency International, which ranked it 168 out of 178 countries. Connections are important and have a big influence on the success of a company. However, too often foreigners hear about business development practices that may have been valid in the pre-2002 Angola but which, 10 years later in 2012, are no longer accepted. The practice of using influence-peddlers and agents to bribe one's way into business have been used in the past in Angola but they are now considered corrupt practices.

The Angolan market is a very challenging one. The largest risk is: stepping into the Angolan market uninformed (or misinformed). The Angolan culture is different from most Western countries and certainly the Netherlands. One needs to be accustomed to it in order to be successful. English is not commonly spoken. Use Angolan locals whenever you can and do not run the business remotely, and remain in the country whenever possible. Another essential element is to build good relations with the Angolan Government. The higher you go, the better when it comes to setting up meetings with public authorities. Brazil, Portugal and China have entered into agreements with the Angolan government and this seems to have paved the way for major business deals in Angola for investors from these countries.

3. Horticulture and seed potatoes

3.1 Main characteristics

3.1.1 Main production areas

The main production areas for horticulture (including potato production) can be found in the provinces Huila, Huambo and Benguela (Table 3.1).

	Area (ha)		Production (tonnes)	
	2009/2010	2010/2011	2009/2010	2010/2011
Huila	70,788	72,071	870,095	984,909
Huambo	70,684	72,416	896,381	980,262
Benguela	55,104	55,999	747,194	823,370
Kuanza Sul	49,404	51,112	650,444	777,035
Bie	39,159	40,836	399,228	465,295
Namibe	23,934	24,416	244,194	248,708
Malanje	26,859	27,718	289,517	303,470
Other	64,434	62,289	632,213	606,957
National	400,366	406,857	4,729,266	5,190,006

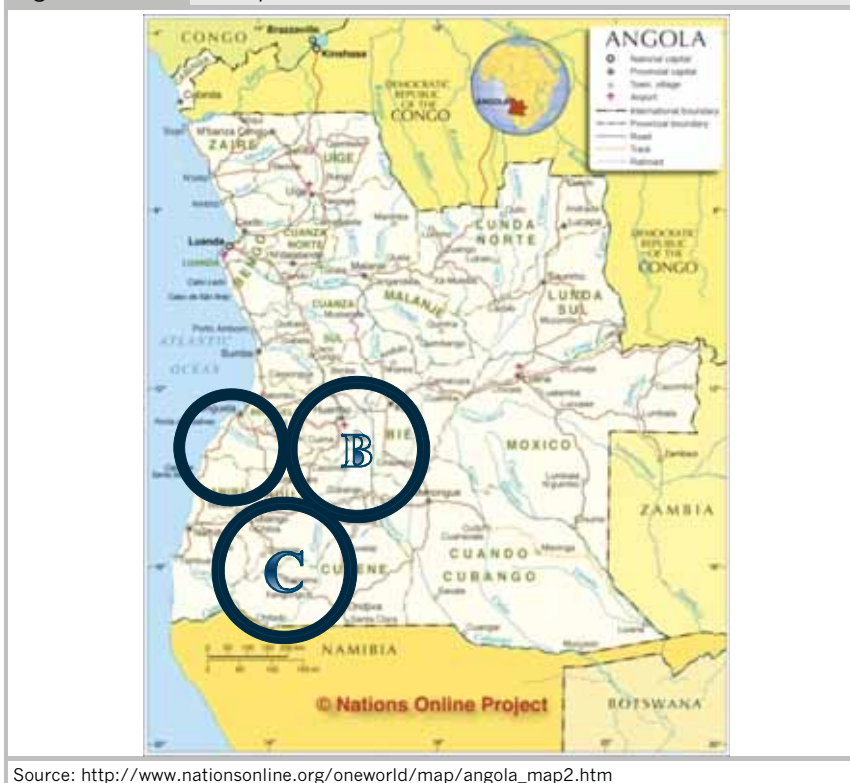
Source: Ministry of Agriculture, 2012

Castanheira Diniz (1991) made an overview of agriculture in Angola. He identified the production areas in Angola of a wide range of products. Including horticulture products such as vegetables and potatoes. Based on this study it is possible to give a good overview of the current production locations since they have not changed much in recent years.

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, Malanje 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 (Castanheira Diniz, 1991). The production comes from open fields, as the area of protected horticulture is small. Annex 5 gives an indication of the most important growing locations.

Benguela (A) 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 (B) and Huila (C) 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 correspond 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. Figure 3.1 gives an overview of the main horticulture production location in Angola.

Figure 3.1 Main production areas



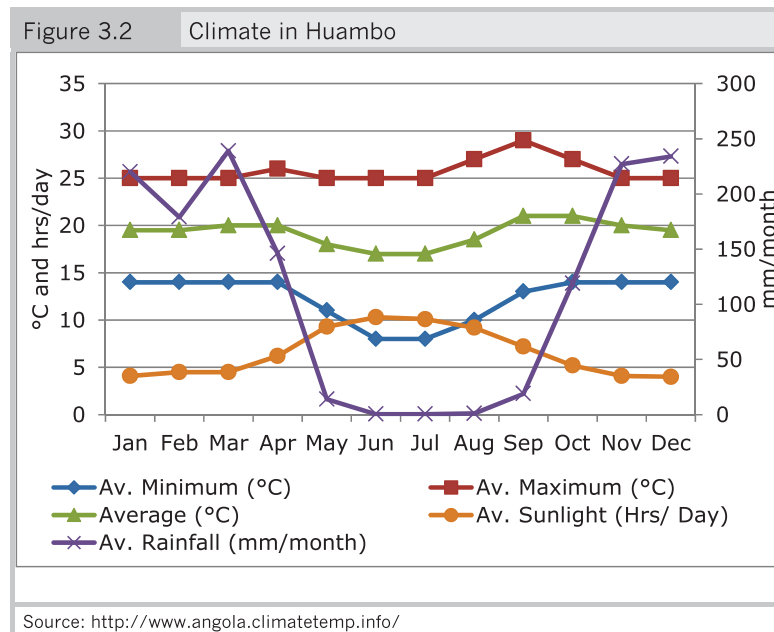
3.1.2 Climate

Angola is located in the equatorial tropical region and its climate being tempered by sea and altitude. Its geography consists of coastal plains in the western region along the Atlantic coast. Towards the east, the terrain rises to mid-size plateaus. In the northern half of the central plateau there are humid tropical conditions and in the high regions of the south, a dry tropical climate prevails. On the northern part of the coastal plain it is humid and temperate, while the centre and the southern part are affected by the relatively cool Benguela current.

Table 3.2 presents the climate for 4 cities in these 3 different climate zones. Monthly information is presented in Appendix 4. The differences are huge: Huambo and Luena have the highest precipitation and during the May to September the longest days up from 7 to 10 hours. However this is also the period with almost no rainfall. Luanda and Namibe are along the coast with little rain. Unfortunately, no climate data are available for Lubango and Benguela.

	Luanda/ Luanda	Huambo/ Huambo	Luena/ Moxico	Mocamedes/ Namibe
Average Minimum Temperatures (°C)	18-24	8-14	9-17	13-21
Average Maximum Temperature (°C)	24-31	25-29	26-31	20-29
Average Temperature (°C)	21-28	17-21	18-23	17-25
Average Rainfall/ Precipitation (mm/month)	0-124	0.5-230	0.5-226	0.5-16
Rainfall total (mm/year)	367	1,399	1,220	51
Average Sunlight Hours/ Day	4.8-7.5	4.0-10.3	3.7-10.4	4.2-8.3

The weather conditions (figure 3.1) in the Huambo region are very favourable for growing potatoes, enabling three crops a year. Figure 3.2 shows the weather variation during the year. It has 5 dry months and during the winter 7 months with plenty rain which has a serious impact on open field crops such as tomatoes



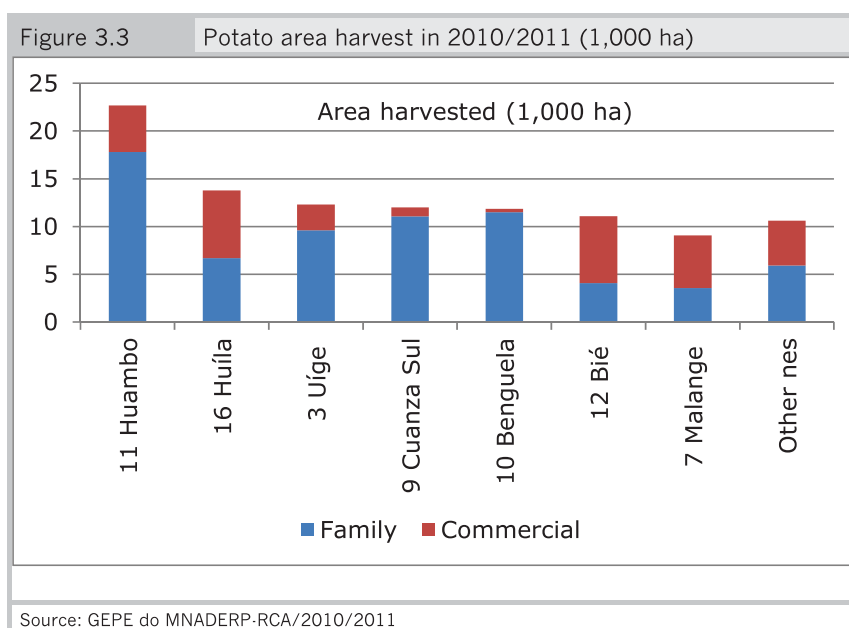
3.1.3 Type of farmers

A MINADER/FAO survey (2004) estimates that about 80% of Angolan farmers are subsistence smallholders generally producing little or no surplus. There are basically four types of farmers that have their own characteristics (Table 3.3). The commercial farmers that include a few large scale modern farms produce for the market. Small to medium farmers produce a small surplus for the market, but also for home consumption. In general they have limited scale of operation and they are too small to be able buying chemicals, improved seeds and service they need to increase their productivity. These small and medium-sized farmers are run by families or village associations. Finally the subsistence farmers that focus on growing enough food to feed themselves and their families. The small scale farmers represent the majority of farmers. However the commercial farmers produce the majority of the production.

Subsistence farmer	Small farmer	Medium farmer	Commercial farmers
Subsistence production	Production with small surplus	Production with surplus	Commercial production
No access to technology	Poor technology	Has access to low technology	Medium to advanced technology
No standardised seeds	Uses standardised and non-standardised seeds	Mostly uses improved seeds	Uses improved seeds
Low plantation density	Variable plantation density	Adequate plantation density	Adequate plantation density
Family labour	Family and temporary labour	Family, temporary and paid labour	Paid labour
No use of other production factors	May use other production factors	Frequently uses other production factors	Regular uses other production factors
None	Traditional market	Traditional market/ Urban market	Urban market
0.1-1ha	1-5ha	5-20 ha	20+ha

Source: Espirito Santo 2008

Commercial growers cultivate 32% of the 103,400 ha potato area and produce 37% of the 842,000 tonnes production (Figure 3.7). Family mainly subsistence farmers thus grow about two third of all potatoes. Little information on the structure of the farm sector could be retrieved.



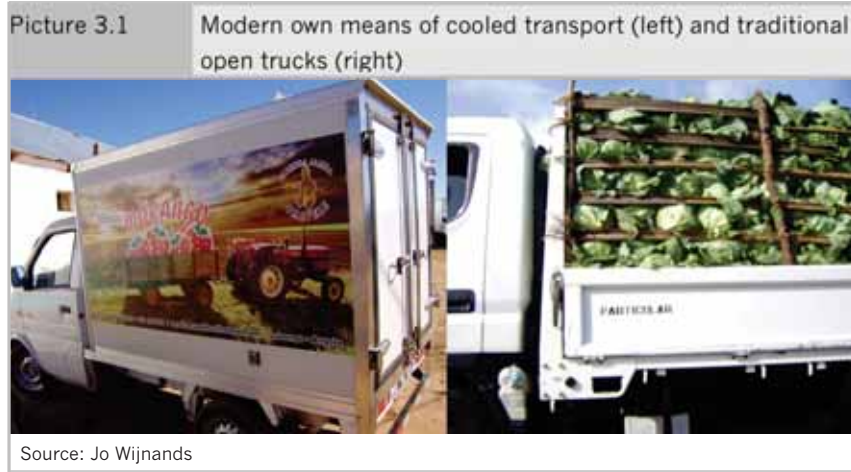
3.1.4 Technology

Greenhouses are not common in Angola and as a result most farmers produce horticulture products (e.g. tomato) in the open field without the use of any technology. However we found some examples low-tech technologies, such as self-made plastic tunnels used for the production of tomatoes, cucumbers, lettuce and peppers. Especially in the area of Huambo and Huíla plastic covers are used to prevent rain damage during rainy season. In addition some innovative farmers had adopted medium technology greenhouses with hydroponics and improved ventilation. The greenhouses are normally sourced from Israel, France or bought in Portugal. Especially the Israeli greenhouse suppliers have a strong position in this market and work often with their local South African agent (VegTech from Cape Town). On basis of our expert judgement, roughly 2 available levels have been noted and their classifications are shown in Table 3.4. Greenhouse technology is of interest for Angola. Production in greenhouse can meet the demand of the supermarket chains in the (large) cities. The produce quality will be higher than from open fields, the supply can be year around and the production is less dependent on the climate conditions. Areas near cities, which are less favourable for open field production, might suit greenhouse production.

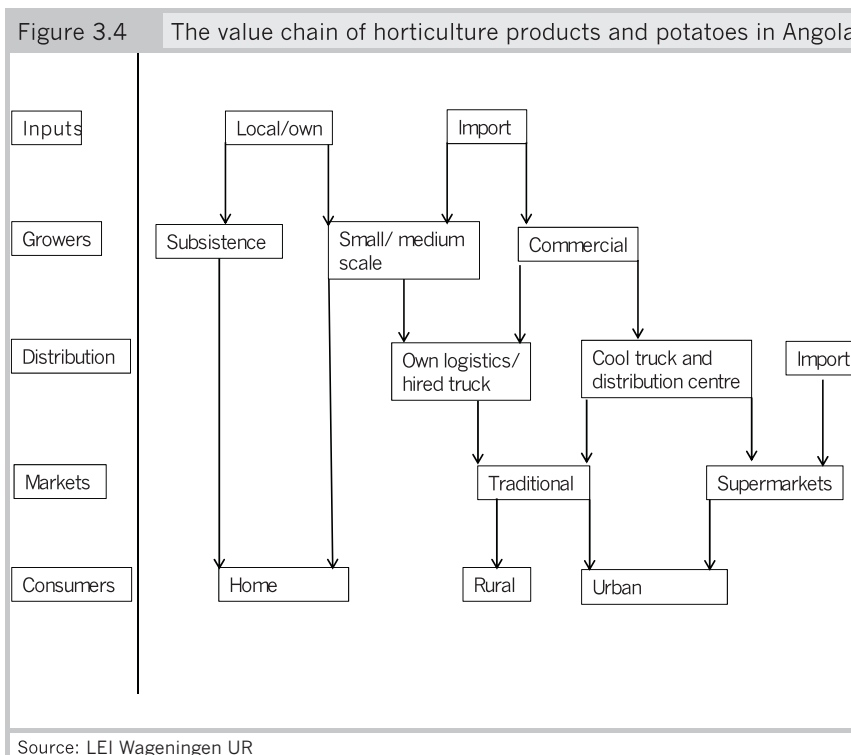
	Low	Medium	High
Cover type	Shadow net	Plastic roof, net walls	Plastic, glass
Production process	Soil	Hydroponics	Hydroponics, climate control
Cooling system	Natural ventilation	Natural ventilation	Pad & fan
Farmer	Medium scale	Commercial	N.a.

3.2 The value chain

Figure 3.4 presents a simplified value chain of fresh horticulture products and potatoes. Overall 3 different markets can be distinguished: at home consumption by subsistence and small or medium-sized farmers or both. The latter group supplies also the traditional markets not only at village level. If a sufficient surplus is produced also the urban traditional markets will be delivered. Their logistics is simple, open trucks or own means of transports. The third group is more focused on the urban market. The few 'state-of- art' farms have their own cool chain, including trucks and distribution centre to supply supermarkets, since cooled storage and logistics remains precarious (Beeckmans and Van As, 2012).



A lack of sustainable cold storage is one of the major obstacles for local sourcing of product meeting quality standards. As a result, most supermarkets rely heavily on imports, to safeguard quality and availability of the product each day of the year.



3.3 Productivity

3.3.1 Horticulture

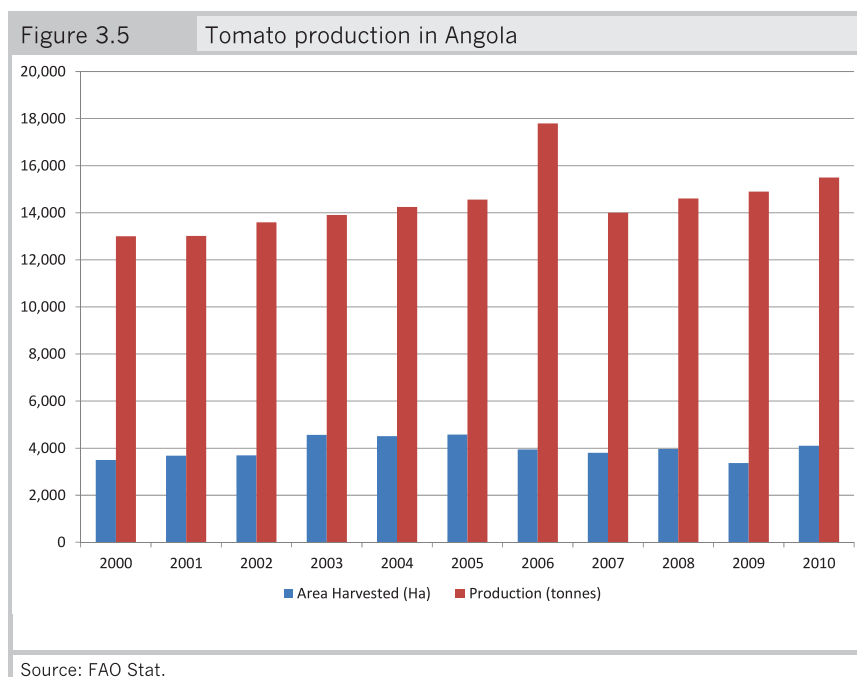
There is almost no data available on the current production levels of horticulture products. FAO data on tomato production in Angola is around 3,781 kg per hectare (circa 0.37kg per square meter) and this is regarded as very low: also in comparison to other African countries (Table 3.5). Farmers are 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 there are some farmers that report high yield per square meter using high 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.

Vegetables commonly grown include tomato, cucumber, pepper, onions, cabbage, garlic, melon, maize and cassava. There are no data available per crop on the production area per province. 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.

	Tomato			Onions		
	Area (ha)	Yield (kg per ha)	Production (tonnes)	Area (ha)	Yield (kg per ha)	Production (tonnes)
Angola	4,100	3,781	15,500	13,400	1,284	17,200
Ethiopia	4,593	8,970	41,200	2,950	8,746	25,800
South Africa	7,900	68,919	544,457	n.a.	n.a.	n.a.
Netherlands	1,700	479,412	815,000	1,400	24,286	34,000

Source: FAO stat

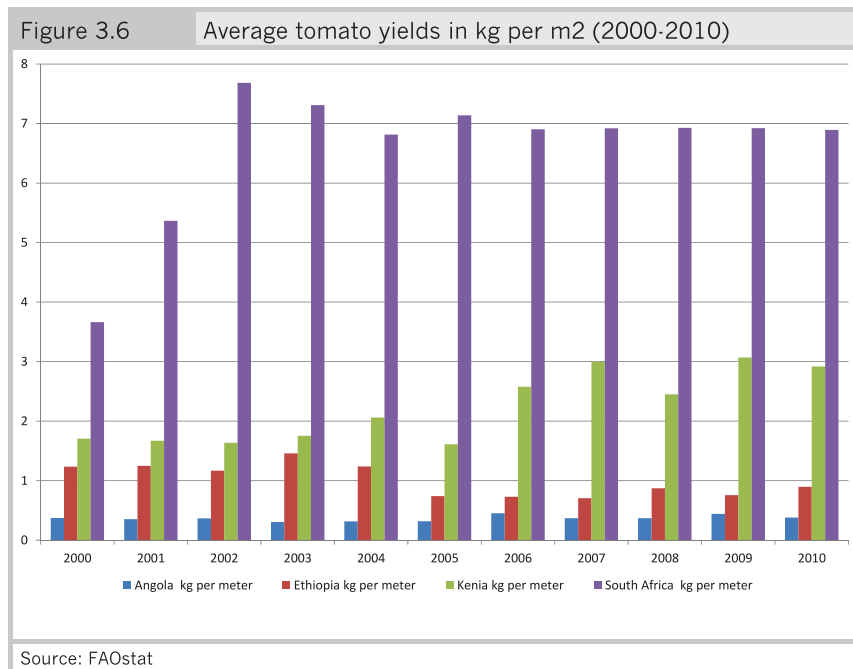
The last decade the area of tomato production has remained stable but on average the productivity has increased, but the annual production quantity is very volatile and depends heavily on the weather since most is open field cultivation.



Yields

The majority of farmers do not work with greenhouses or irrigation, and therefore have only one harvest per 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. The market leaders in protected cultivation are Agrolider, Agricultiva, and Fazenda Girassol (Beeckmans and Van As, 2012).

These companies can 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. On the other hand, medium-sized farmers do not consider the installation of greenhouses because the profit they currently make is satisfactory.



Weed and pest control

The best periods for vegetable production are from May to October although 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 300km away. Once at the market, no refrigeration or preservation was available. Produce is sold in bad condition.

3.3.2 Seed and table potatoes

Production

The potato production in Angola shows a steep increase after 2000 and reached in 2007 the level of 615,000 tonnes (Figure 3.7). The country surpassed the level of Ethiopia. Compared to the Netherlands the amount is just a mere 10%. Data of the FAO shows furthermore that the Angolan self-sufficiency from 2001 onwards was between 92 and 96%. This shows that only a small percentage of the potatoes is imported. The Netherlands has a self-sufficiency of around 140%, Ethiopia and South Africa around 100%.

¹ Self-sufficiency is $100 * (\text{production} - \text{import} + \text{export}) / \text{production}$

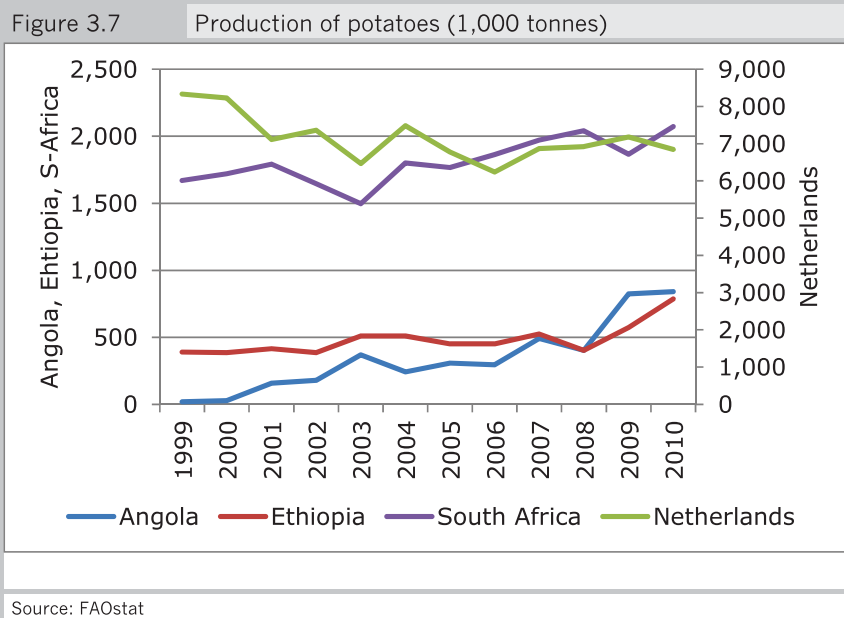
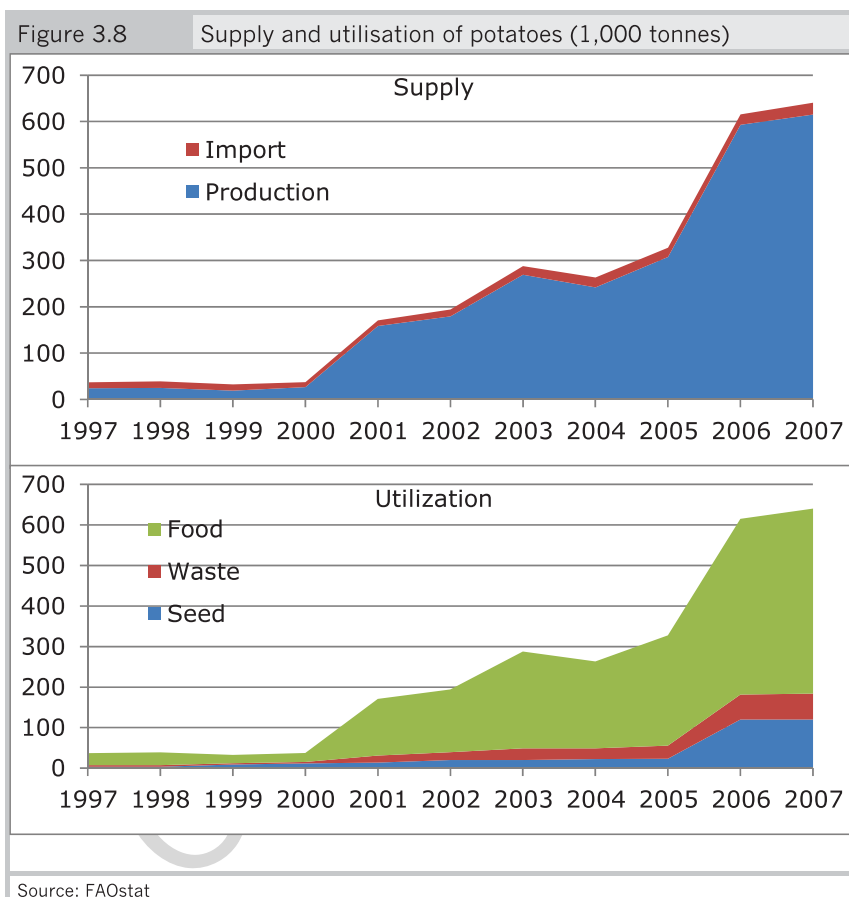


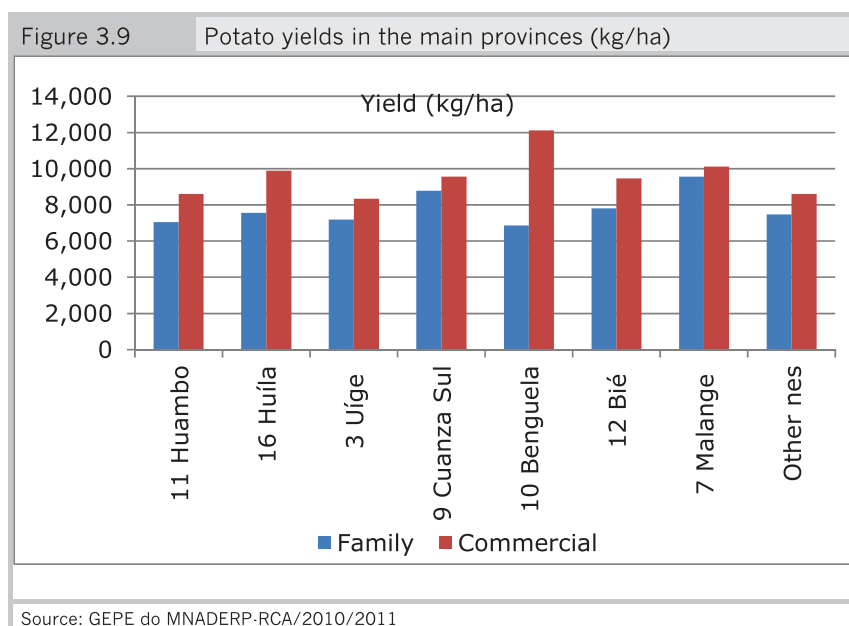
Figure 3.8 presents the supply and utilisation of potatoes. It shows clearly the small share of imports in the total Angolan supply. The steep utilisation of potatoes as seeds is linked to the steep increase of the production. Furthermore, the share doubled of seed potatoes in the total utilisation: an increase from 7.5% in the years 2003 to 2005 to 19% in the years 2006 and 2007.



Yields

The commercial growers (9.4 tonnes/ha) have higher yield per ha than the family growers (7.6 tonnes/ha). The average yield for Angola was in 2010/2011 about 8.1 tonnes/ha (figure 3.9). The productivity of the potato growers is low compared to South Africa and the Netherlands. Angola and Ethiopia produce approximately 8 tonnes of potatoes per ha, whereas South Africa has yields of 35 tonnes/ha and the Netherlands 45.

During our mission we visited a large traditional commercial farmer who achieved a yield of 12-13 tonnes per ha, he grows potatoes on half of his field. After growing potatoes, he used the land during the dry and next rainy season for other crops and then again potatoes. The visited modern-market-oriented farm achieved 60 tonnes per ha. This latter farm, Agrolider from the Portuguese investor Grupolider, has a well-trained non-Angolan management originated among others from Portugal and Spain. They used pivot irrigation on the potatoes, high quality seed potatoes (NAK certified), fertilisers dosed according the requirements, and practiced crop rotation.



Agronomics

Potatoes can be grown three times in a year: two times in the rainy season (from October to January and February to May) and once in the dry season with irrigation (from June to September). Unless otherwise stated, we provide data for one harvest. Several reasons can explain the low Angolan yields. 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. Crop rotation could rather well be practiced: potatoes take less than 1% of the cultivated area in the province Huíla. Maize takes 50%, sorghum 20% and beans almost 10% of the agricultural area. Good agriculture practice is rare, small tubers (might be caused by pest infections) are taken from the previous crop as seeds and it is uncommon to use fertiliser according to the requirements of the crop, if fertiliser is used.

Henriques et al. (2010) reported on experiments with two varieties Romano (imported) and Tchingembo (regional) and 5 phosphate levels (0, 50, 100, 200, 400 and 800kg/ha) on 3 locations on the plateau of Huambo. The costs of Romano seeds (USD 0.65/kg) are 65% higher than of Tchingembo (USD 0.44/kg). The soils have a pH level between 5.2 and 5.5 and with 3.4 and 21 mg/litre phosphor. They showed that in almost all cases the highest yield level is achieved with a phosphate level of 200kg/ha. In the trials they used fungicide (Ridomil®, Syngenta) in the rainy season and insecticide (Karate+®, Syngenta) in the dry season.

The total yields for the imported variety Romano were between 20.7 and 23.2 tonnes/ha and the commercial yields between 16.3 and 18.7 tonnes/ha. For the regional variety Tchingembo the total yields were between 6.9 and 12.3 and for the commercial yields between 2.9 and 6.9 tonnes/ha. The yields did not differ much between the two harvests in the rainy seasons and the harvest in the dry season. The results show that:

- Yields can be much higher than the actual levels, if fertilisation and pest management is practiced at a professional level.
- The total yields of the imported variety Romano are almost twice the levels of the regional variety Tchingembo.
- The commercial yields from the Romano variety are about 75% of the total yields. For the regional variety the commercial yields are a mere 50% of the total yields. In both cases the losses are considerably.
- The economic benefit of Romano is around USD 1,000/ha higher than the local variety Tchingembo.
- Levels of 400 and 800 kg phosphate/ha are not efficient.

Weed and Pest control

Weed control is of major importance: the yields will be reduced by 80 to 90% if no weed control is practiced compared to full weed control (Monteiro et al., 2011). The yields with full weed control are on the same level as of the previous mentioned study of Henriques et al. (2010).

During our fact-finding mission several pests are mentioned as important in the Huambo region. The interviewed stakeholders mentioned that almost all pests can be observed, due to the long tradition of growing potatoes in this region. Mentioned are e.g. Bacterial Wilt, Mosaic virus and Nematodes. The 'Instituto de Investigação Agronómica' and 'Centro Internacional de la Papa (CIP)' made an instruction guide for extension workers and others to recognise pests in potatoes.

Economics

Growing potatoes in a traditional way is very labour intensive. Chaves et al. (2009) estimate a labour input of 334 person days/ha. 40% is needed for irrigation, 33% for weeding and cultivation, 11% for planting and harvesting each. This amount is rather high, taking into account that this is needed for one harvest in a growing period of 4 months. It means that one ha potatoes is a fulltime job for 3 persons.

Table 3.3 provides an overview of costs and returns. The seed varieties used are Picasso and Romana, as crop protection agents Ridomil, Tiodan and Malation and as fertilisers 12-24-12 and 17-17-17 percentage N-P-K. The total costs are about half of the sales potatoes. The net margin per man-day is AOA 883. The latter is 4.5 times the calculated costs of a man-day. During the mission a minimum wage of USD 100 per month or approximately USD 5 or AOA 500 per day for unskilled labour is mentioned. Thus the return per man day of AOA 883 + AOA 200 per day is more than twice that amount: a rent for being an entrepreneur. A second remarkable observation is that the price of seed potatoes is on the same level as that of table potatoes.

Indicator	Quantity	Price	Total	
Sales potatoes (kg)	6,900	86	591,936	591,936
Manual labour (person days)	334	200	66,706	
Rent animal traction (person days)	11.4	140	1,600	
Rent mechanical traction (hours)	4.5	667	3,000	
Seed potatoes	900	87	78,493	
Manure			1,071	
Fertilisers simple (kg)	800	14	11,429	
Fertilisers compound (kg)	2685	41	110,303	
Total variable costs			272,601	272,601
Equipment			443	
Transport			1,394	
Animals			8,633	
Reparations			11,352	
Handling			3,000	
Total fixed costs			24,821	24,821
Total costs				297,422
Net margin (ha)				294,513
Net margin (person day)				883

Source: Chaves et al. (2009).

3.3.3 Flowers in Angola

The demand for flowers is growing and the 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 cultivating flowers since there is a high demand for flowers in the main market Luanda. Currently the majority of the flowers are being imported from South Africa and prices can go as high as USD 10 per stem

3.4 Availability of inputs

3.4.1 Electricity

The destructed grid during the civil war and decades of underinvestment has resulted in an under-supply of electricity. As a result the supply of electricity is unreliable and Angola faces daily power breaks. Many companies (including farms) have installed generators. The power break-downs also make it difficult to store products since cooling requires energy.

3.4.2 Credit

Formal commercial enterprises in agriculture do have some access to credit but small and medium farmers have few options and almost none at all in the countryside itself. Several NGOs have microcredit projects, such as the one run by World Vision, in which the NGO serves as a guarantor for small farm borrowing. Direct microcredit financing from formal banks (e.g. Novobanco) is limited to short term trade purposes and is mostly of 30 days duration or less though it is now possible to get loans of up to two years. Interest rates are 2-4% per month: annually between 25 and 60%.

3.4.3 Labour

From the Angolan population above 18 years, 76% went to school. Those who went to school, the majority (56%) visited only the primary school. This means that over half of the population did not follow secondary or higher education. In the rural areas, where agricultural production takes place, just 60% visited schools, of which 82% only the primary school. This means that about 12% of the rural population followed secondary or higher education (INE, 2011). Recruiting local skilled labour is therefore almost impossible. This lack of skills and competence hampers the development of the agriculture and higher production. On the commercial farms we visited during our mission, the management were non-locals (expats). Training on the job is the prevalent education system on these farms. The social legislation determined the minimum wages: USD 100 per month for unskilled labour.

3.4.4 Water

Sufficient water is available during the rainy season, as is shown in chapter 2.6. However in dry seasons problems arise due to lack of water. Irrigation infrastructure installed by the Portuguese during colonial times is in poor condition and is, in general, not working properly. Recently some irrigation near Waka Kungo has been reconstructed by Brazilians, but is not yet in use. Near Lubango various drilled wells are installed by the bigger farmers. Also cases are reported where farmers have created artificial lakes to store water.

3.4.5 Land

All non-urban and some urban land is ultimately under state ownership, but can be leased for 45 years to private entities. Acquiring land, might take years and will cost a lot of money depending on the area. Below 1000 ha the provincial governor can decide, between 1000 and 5000 ha the Minister of Agriculture and above 5000 ha the council of ministers has to decide. Good contacts with officials contribute to a smooth acquisition of land. A new law is accepted to simplify this, but not yet into force. Land ownership has already been problematic since the first Portuguese settlement in Angola. After independence in 1975 and a new

Constitution, the Angolan government transferred all land ownership to the state. All land use decisions were to be defined by the government and no private land ownership was recognised. In the early 1990s, a new land law was put in place to grant surface rights to large commercial farmers to promote agricultural investment. This reinforced public perception that the government believed only large commercial farms to be viable players in the Angolan agriculture sector's economic growth. This disenfranchised most households in Angola and drove them to participate in informal or unrecognised land markets (USAID, 2008). In 2004, the government passed a new land law that redefined land use and rights. It became mandatory for all land occupants to initiate regularisation of their land rights before July 2010. If land was not regularised at this time, it would revert to state control. This law did not provide guidance on how to initiate this process or any direction to government ministries on how to assist households.

It is estimated that over 50% of the Angolan population moved to urban centers during the civil war. In rural areas, subsistence farming households compete for land with concessions granted by the central government for large commercial farms that may overlap with community boundaries, or even completely encompass a community (USAID, 2008). Nonetheless, land pressure in the country is low, with a population density of 15 persons per square kilometre, compared to South Africa (41), Ethiopia (83) and the Netherlands (493). This is one of the key advantages Angola has over other African countries.

3.5 The supplying industry

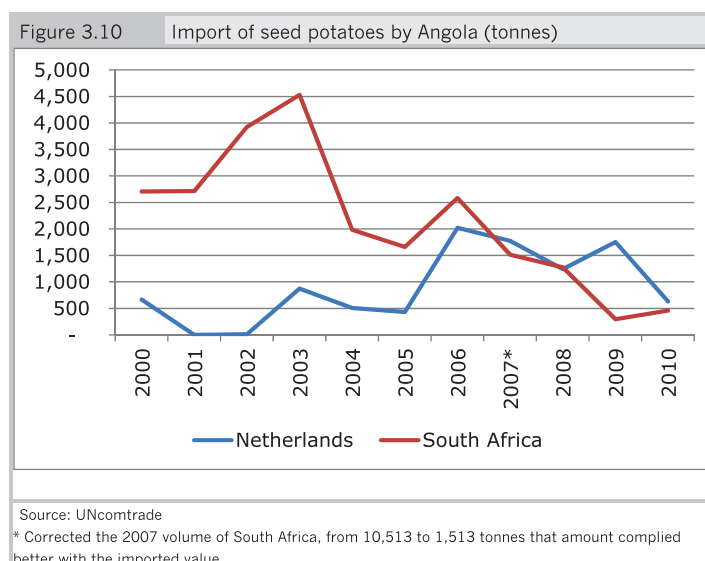
3.5.1 Seeds

Vegetable seeds

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 big commercial farmers buy the seeds in Portugal from Rijk Zwaan, Sakata or Monsanto and use this for their farms in Angola. Currently GM seed is not allowed in Angola.

Seed potatoes

In the period 2006 to 2010 Angola imported on average 2.750 tonnes of seed potatoes, almost all from the Netherlands and South Africa (Figure 3.10). 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. The amount of imported seed potatoes is sufficient for 1,400 ha, assuming the use of 2 tonnes of seed potatoes per ha. This means that for over 100,000 ha domestic seeds are used. During the fact-finding mission we got the impression that mainly tubers from the previous harvest are used. So high quality seeds are only used on 1.5% of the acreage. We also registered some varieties of seed potatoes, some were NAK-certified. Appendix 2 shows the list. Most mentioned potatoes are supplied by Dutch trade houses (e.g. Agrico, HZPC or Meijer). 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.



3.5.2 Greenhouses and machinery

Greenhouses ('estufas' in Portuguese) 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 utilizing international expertise, 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.

During the mission, we observed in several regions dealers of tractors, soil cultivation equipment (plough, disc-harrows, sowing machines), fertiliser distributors and combine harvesters. Agromundo e.g. is the official dealer for John Deere. Also other brands such as Massey Ferguson, Deutz, New Holland and Claas have been observed.



3.6 Enabling environment

3.6.1 Government

According to a recent review on public expenditures in Angola only 1.33% of the total budget of the government is spent on agriculture. This is far below New Partnership for Africa's Development (NEPAD, a technical body of the African Union), recommendations of 10% and well below the average for sub-Saharan Africa. Within this total the investment budget is overwhelmingly directed toward irrigation projects (70%) and mechanisation (21%) largely due to the priorities of external donors. The spatial concentration of these investments is quite concentrated and does not reflect overall agricultural potential.

In terms of investment, agriculture fares a bit better, with 5.12% of the total public investment budget as of the writing of the Public Expenditure Review: substantially up from its 0.30% share of three years before. Much of this investment is quite concentrated in a few budget units but a large portion of agricultural investment is off budget entirely, being funded from various external sources. Also very important to note is the fact that a huge amount of public expenditure, both on and off budget, is devoted to improving roads, bridges and railroads. While not directly aimed at the agricultural sector, these expenditures directly benefit both producers and consumers in that they bring down the cost of transporting both inputs and outputs.

At the moment there is a lack of a phytosanitary service. The government has suggested that these issues should be handled by 'Veterinary agency'. Commercial soil laboratories are not present in the country. The research stations are thinking of it. Currently big farms use foreign laboratories, but this is complex since the export of soil can only happen under strict conditions related to possible diamond smuggling.

3.6.2 Knowledge organisations

National Instituto de investigação Agronómica has 11 research stations in the country. The country is now going to follow Brazil's Embrapa model, by focusing (linking) the work of the different stations on the main crops being produced in the particular area. This will effectively make the research stations more specialised and able to respond to the needs of 'local' farmers. Universities do not provide appropriate education in the field of agriculture.

3.6.3 Financial institutions

The government run development bank, Banco de Desenvolvimento de Angola (BDA) has a mandate to fund projects in the agricultural sector but as of this time are limited to borrowers which have a formal legal existence, typically meaning incorporation. This limits borrowing to formal sector commercial enterprises, since most medium and virtually no small producers can meet the legal requirements to access these credits. According to Kyle (2010) BDA currently has USD 120 million in funds directed toward agriculture and rural areas, with another USD 200million to be provided from oil receipts and to be used for seasonal lending and other purposes in the agricultural sector. It is intended that some of these funds will be directed toward small farmers but again, various legal requirements make access difficult.

3.6.4 Professional organisations and cooperatives

During the fact-finding mission we could identify professional organisations, besides cooperatives. NGOs such as CIP, Word Vision and USAID establish cooperation to improve the performance (productivity, revenues) of small scale farmers, see below. Cooperatives are active on several issues, such as agronomics and marketing. For the women they can have special activities, such as cooking, sewing or other home economics activities. The impact became not clear to us and we have some doubts on the long term effects.

Furthermore the government supports small scale farmers by providing them inputs delivered by suppliers based on a list of the farmers. Farmers can buy these inputs at a lower price; the difference is in fact subsidy. In this way the subsidy is spent according to its goal and not on other things (consumption, motorbike).

3.6.5 NGOs

USAID Farmer to Farmer programme

Through the USAID-funded Farmer-to-Farmer Program (FTF) in Southern Africa, CNFA will use targeted volunteer technical assistance to strengthen agricultural markets and improve productivity in Angola, Malawi and Mozambique. Over the life of the five-year USD 7.5 million programme, CNFA will field over 310 volunteers to assist 100 host institutions and enterprises. We visited in Angola the HQ, located in Huambo. CNFA, since 2008 active in Angola, is concentrating on horticulture (including potatoes) and legume (peas and beans) value chains. They support farmers and cooperatives by helping to run farms as a business by providing them new and improved technology. They learn how to produce compost, as fertiliser is too expensive, and the advantage of crop rotation. The knowledge of farming is low since many people left the country side, died, or fled the country. Therefore a lot of relevant farming knowledge has been lost during the civil war. Basically there is an inexperienced (new) generation involved in agriculture. If necessary, experts (volunteers) work 2-3 weeks in the area. Longer periods are not possible due to the rules of the government. Various volunteers have visited Angola to assist farmers. CNFA works together with CIP, the agriculture research institute and the local university.

World Vision

World Vision administers the Bill & Melinda Gates Foundation-funded PRORENDA, aiming at raising the incomes of smallholder in the Central Highlands of Angola: A Model Project for Improving Agricultural Value Chains in Post-Conflict Nations. The four-year sub-grant from World Vision will last from September 2008 to August 2012. PRORENDA works with smallholder families—60% of whom will be women—to help them double their household incomes through competitive value chains for potatoes, onions and beans in the central highlands of Angola. An additional 73,000 smallholder families will benefit from an innovative and scalable methodology of extended farmer training that will increase their incomes and farming capacity. In various value chains World Vision work together to increase their access to markets by improving information flows and knowledge of effective processing practices and marketing strategies (www.acdivoca.org/site/ID/angolaPRORENDA/).

CIP International Potato Centre

The main focus of the CIP Angolan project, financed by Chevron, is on sweet potatoes. A German expat has the lead over 20 team members. She teaches also at Huambo University and professional colleges. The team works closely with the extension service and the provincial agricultural research station in Huambo. CIP has already 3 years trials in Huambo and 2 years in Huila. They use varieties bred by CIP (free germ plasm, no royalties) that need less crop protection agents.

The small scale farmers can show interest to participate after they got information by leaflets. They will then be informed on the requirements. Her expectation is that due to food security and diet quality sweet potato will have the largest impact. It has better processing quality and is a women's crop. In Huila sweet potato will be dominant, in Huambo ware potatoes.

FAO

FAO is supporting the Angolan government through a Technical Cooperation Programme project worth USD 500,000 (www.fao.org). This project is aimed at bolstering an on-going national food security programme in the provinces of Bié and Huambo, which were severely affected during the war due to their heavy presence of anti-government fighters. FAO is helping in the local purchase and distribution of maize and bean seeds to approximately 3,000 impoverished farming families. Each family will also receive fertilisers, which with the seed is equivalent to USD 165 in support per family.

These funds are essentially a start-up loan, however, to be paid back in kind to the community system of Farmer Field Schools. These schools are set up throughout these provinces, again with support and technical assistance from FAO. After two seasons, farmers will donate funds to the community pool to purchase agricultural inputs for the next seasons and to contribute to the marketing and sale of the community's produce. The projects include training in organic farming methods to improve soil fertility, as well as training of community groups in financial management for their community-based agri-business. Inputs are being supplied for the September-October planting season, as well as for the dry season planting beginning in March in areas with sufficient water control to have an additional harvest.

3.7 Market

3.7.1 The market for vegetables and potatoes

The main distribution channel is the informal market. Small farmers also sell surplus fruit and vegetables in the various market places spread over the country. Re-distribution in smaller quantities is done by market-women, known as 'donnas', and 'zungeiras' (hawkers), as well as through small shops and table-tops (Beeckmans and Van As, 2012).

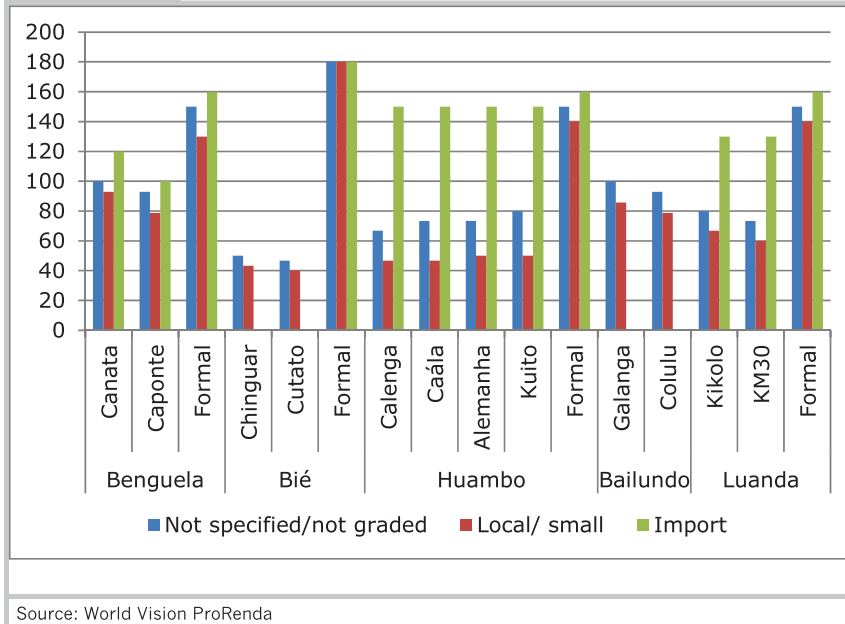


Recently formal retail sector has shown ferocious growth with the opening of supermarkets, hypermarkets, and Cash & Carries. These are often foreign owned or managed, such as South Africa's ShopRite, some Portuguese chains and other European chains. The majority of the supermarkets buy from local, mainly big scale producers for supply of fresh food. However the quantities and varieties are not sufficient to satisfy demand, and prices can differ enormously, depending on the season. There is always the need to complement the local supply. This is done by importing from abroad or even through the investments in one's own farm.



In the ProRenda project of World Vision potato prices are two weekly published for the participants. Figure 3.11 shows the different prices. In all cases the imported potatoes are the most expensive. In the formal markets (mini and supermarkets) the price is significantly higher than on the informal markets and the price difference between the three categories is small. Huambo and Bie are production areas, whereas Luanda and Benguela are mainly consumption areas. Especially Luanda is considered as the major market of Angola with its 6-7 million inhabitants. Bailunda is part of the Huambo region, North-East of the capital. In Bie in Huambo, major production regions the prices of local potatoes are on average AOA 18-20 lower than in Luanda and Benguela. For imported potatoes the prices in Luanda and Benguela are AOA 24. The costs of logistics contribute to these differences.

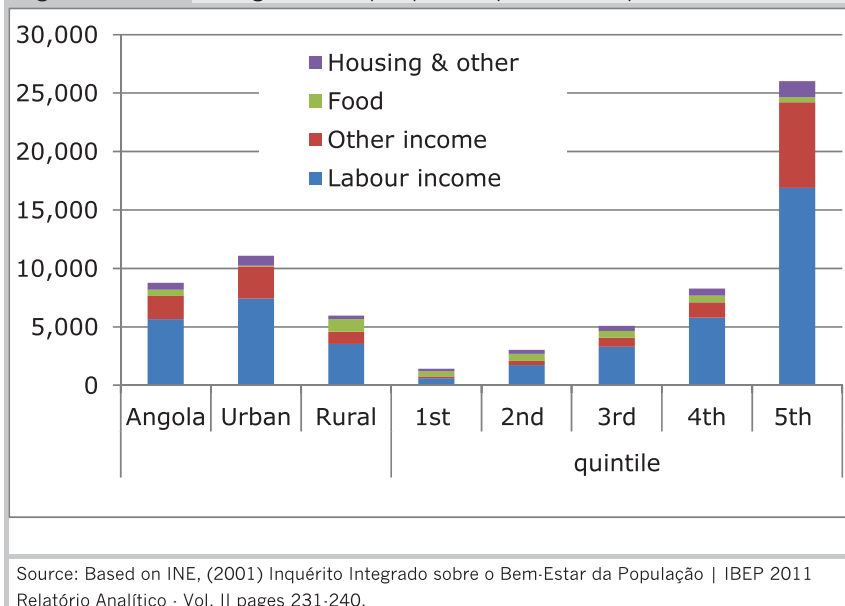
Figure 3.11 Price of table potatoes (AOA/kg) in the period April 16th to 30th 2012



3.7.2 Consumer income

The growth of formal sales is expected to continue with increasing wealth. The average Angolan citizen has a monthly income of almost AOA 8,800. 64% is labour income, either as employee or from own activities, 23% are income transfers or income from property and the remaining part is 'income in kind' equally shared by either food or housing. The income in urban areas is about AOA 11,000 and in the rural areas AOA 6,000. Income in kind from food applies mainly in the rural area and from housing in the urban area. Income in kind is more of importance for the lower income as the labour income is low. In the first quintile food income has a share of 29% and housing 16%, in the second quintile 20 viz. 11%. The difference in income is huge: the 5th quintile has an income (AOA 26,000/month) which is 18 times the level of the 1st quintile (AOA 1,400/month)

Figure 3.12 Average income per person (AOA/month)



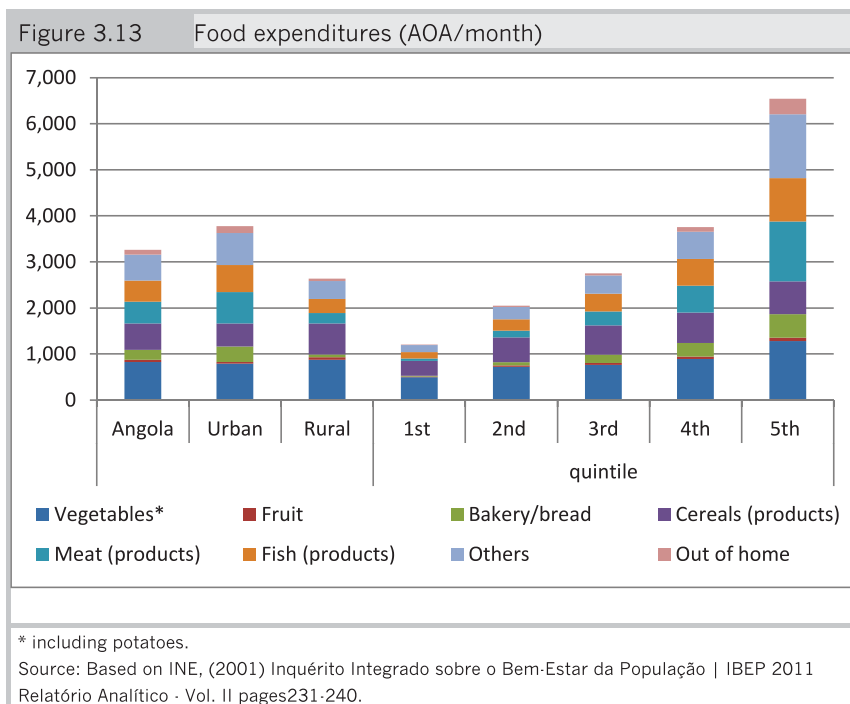
3.7.3 Consumer trends

Upper and middle class as well as expatriates are consumers of fresh fruit and vegetables. High prices limit access for the urban poor to these products. The low penetration level of fridges, only 25.2% of the households possess a fridge, hampers furthermore the consumption of fresh produce (IBEP, 2010).

The consumption patterns differ with urbanisation and income level:

- About 50% of the consumer expenditures is spent on food and food products. Compared to the Netherlands (10 to 12%), this share of food in the expenditures is considerable.
- Urban people spent 43%, rural people 63%. This difference is most probably linked to the difference in income. The quintile with the lowest income spend 68% on food and the 20% wealthiest (5th quintile) only 40%.
- Food takes the largest share of the average Angolan expenditures; housing is the second (11%) and water & energy third (7%).

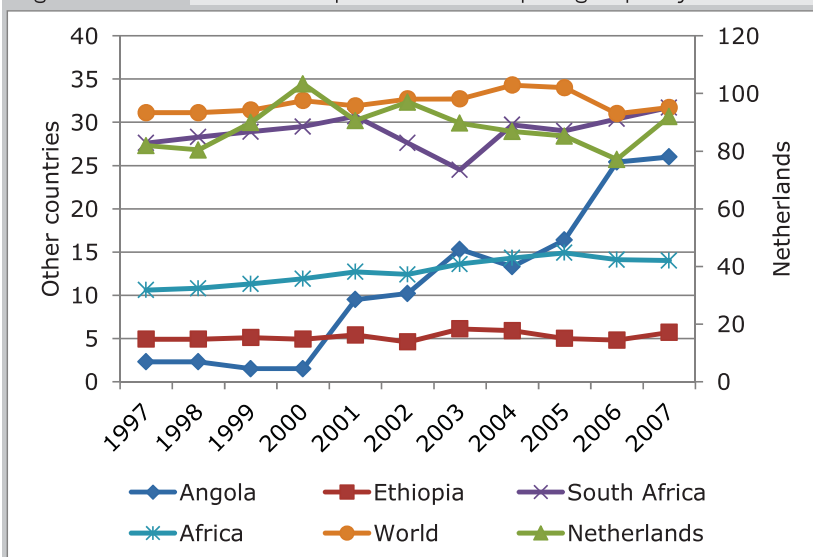
Figure 3.12 shows the distribution of the food expenditure to the different categories. Vegetables, including potatoes take about 25% of the food expenditures, followed by cereal products (18%), meat (products) and fish (products) have each 14 to 15%. With higher income vegetables and cereal products have a decreasing share in the food expenditures, however the amount of money spend on this items increases. The 5th quintile spends 5 times as much money on food as the 1st quintile. The group with the highest expenditures on food (5th quintile) spend 5% 'out of home', the 4th quintile still 2.6%.



3.7.4 Consumption of horticulture products

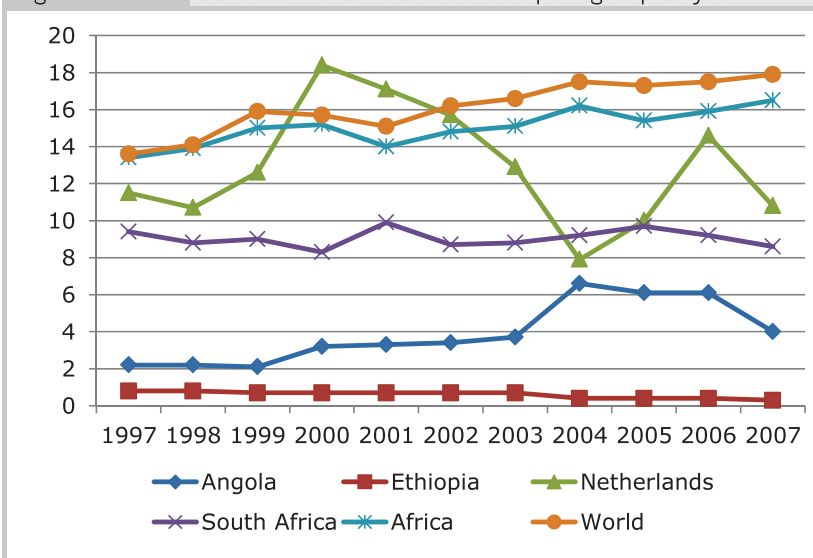
The Angolan consumption of potatoes increased rapidly from a few kg/capita/ year to 26kg in 2007 (Figure 3.14). Angola surpassed the African and Ethiopian level and reached the world and South African level of 32kg/capita. Compared to the Dutch consumption, the Angolan consumption can increase still considerably. Nevertheless, potatoes supply less than 3% to the total calorie consumption, less than 50% of the quantity supplied by sweet potatoes. Also the consumption of tomatoes has increased between 1997 and 2007 (Figure 3.14). Wheat, maize, cassava and vegetal oil are the main contributors to the calorie consumption. Furthermore animal products have still a share below 10% in 2007, according to the FAO statistics.

Figure 3.14 Utilisation of potatoes as food per kg/capita/year



Source: FAOstat

Figure 3.4 Utilisation of tomatoes as food per kg/capita/year



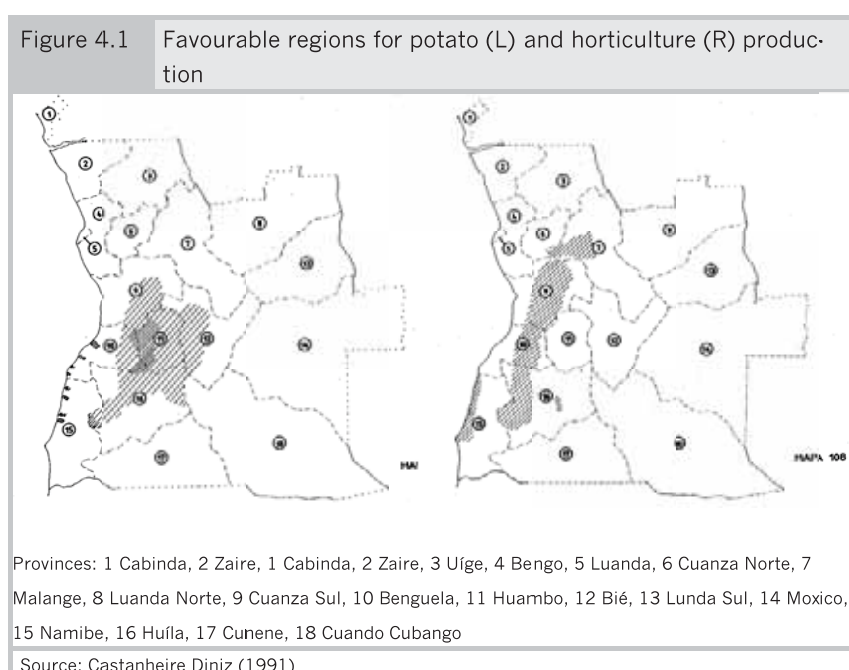
Source: FAOstat

4. Forecast and developments

4.1 Potential

Castanheira Diniz (1991) made an overview of the most favourable locations for growing horticulture products and potatoes. This study shows that the full potential of horticulture production in Angola has far from been reached. Currently the horticulture production is only located in small parts of Malange, Huila and Benguela, but the possibilities are far bigger according to this study. For horticulture products the most favourable area starts in Malange, at around 1,000-1,200 meter altitude and continues south to the highlands of the Huila provinces. Furthermore he gives the indication that also along the coast (Namibe) and south from Lubango favourable possibilities for horticulture production exists (Figure 4.1).

Figure 4.1 shows these most favourable areas for growing potatoes, which are more or less the same as the traditional production areas, except the provinces Uíge and Malange. Annex 5 gives a full overview of the potentials.



4.2 Swot

The business opportunities are framed in a SWOT analysis. The focus of the strengths and weaknesses is on the enterprises in the supply chain, thus from input suppliers to retailers. These enterprises can influence the action they take, e.g. farmers can buy improved seeds or take seeds from previous crops. The supporting and enabling organisations are discussed in the opportunities and threats part of the SWOT. The entrepreneurs have to take this environment and cannot easily change that environment. As example if the agriculture research is absent, each actor individually cannot establish an adequate research centre. He has to retrieve the information himself by experiments or from foreign research organisations.

In this section we discuss the horticulture products and potatoes as a whole. Most issues apply to both products, because potatoes have similar post harvest features as many horticulture products such as cabbage, carrots and onion. If properly handled the shelf life can be several months. As we identified already many weaknesses in the supply chain for these low perishable products, the weaknesses will be even more important for products with a shelf life of a few days for instance strawberries, tomatoes or lettuce.

4.2.1 Strengths and weakness

Overall the supply chain of the fresh horticulture products and potatoes is weak: it has a low level of competence and a poor infrastructure. This weakness is comparable with other less developed countries such as Ethiopia. The successes we have seen are firms that organised largely the supply chain themselves. They import themselves the inputs and they have cool trucks, cool storage and a distribution centre for grading and packing their product. These firms rely heavily on foreign management and skilled labour.

Table 4.1 Strengths and weakness of the actors in the Angolan value chain		
Actor	Strengths	Weaknesses
Suppliers of inputs	<ul style="list-style-type: none"> Supply of imported improved seeds Supply of fertilisers and crop protection agents Dealers of basic equipment (tractor, ploughs, harrows) of international brands 	<ul style="list-style-type: none"> Range of inputs limited due to imports and low domestic production No quality control Mainly traditional equipment for manual labour Machinery spare parts have to be imported Poor skills for maintenance of operating modern machines
Growers	<ul style="list-style-type: none"> A few well-managed farms with state of art knowledge on agronomics and cultivation methods A limited share of 'commercial' farmers High margins 	<ul style="list-style-type: none"> Mostly very small subsistence farms Mainly traditional farming methods Low productivity Seeds mainly taken from previous crops Poor management: e.g. inadequate crop rotation, insufficient fertilisation and weeding, poor disease management, insufficient knowledge on product quality activities Low level or even absence level of agriculture education and/or experience No cool storages on farm or in their neighbourhood Insufficient supply, especially in the dry season Inconsistent supply of fresh produce especially in the rainy season due to bad road conditions
Wholesalers	<ul style="list-style-type: none"> Some NGOs organised or trained farmers how to organise the distribution of fresh produce 	<ul style="list-style-type: none"> Many farmers sell their own products Insufficient and expensive truck capacity No quality standards Imports by large supermarket chains Functioning of wholesalers unclear
Post-harvest	<ul style="list-style-type: none"> The few well-managed farms organised their own 'cool-post-harvest' chain Processors for bottled juices and canned fruits/tomatoes 	<ul style="list-style-type: none"> High losses of fresh produce The scarcely available cool storages are not functioning Cool trucks are sparsely available
Retailers	<ul style="list-style-type: none"> Some international supermarkets chains 	<ul style="list-style-type: none"> Poor quality of fresh produce also in supermarkets
	<ul style="list-style-type: none"> Some covered and hygienic markets High margins 	<ul style="list-style-type: none"> Products on traditional markets are ungraded, sometimes mixed varieties and in small quantities Many traditional markets in open air, without any protection for the fresh produce
Source: LEI Wageningen UR		

4.2.2 Opportunities and threats

The potentials in agriculture are huge: favourable climate, plenty unexploited fertile soil and internal water resources in abundance. In the colonial times, Angola was a large exporter of agricultural products: this in contrast to the actual imports. However, it is hard doing business in the agriculture sector for investors. The Angolan institutions are performing weakly and informal contacts are essential. The culture and the way of interaction between people either social or business are hard to understand for foreigners. A non-Angolan stakeholder expressed doing business in 3 rules: 'It takes times, it costs a lot of money and it doesn't need to make sense'.

Table 4.2 Opportunities and threats for the Angolan value chain		
	Opportunities	Threats
Climate	<ul style="list-style-type: none"> Temperature and sunshine enable 2 to 3 crops a year. 	<ul style="list-style-type: none"> Dry season prevents more crops without irrigation During rain-season in production areas up to 226mm/month rainfall
Soil	<ul style="list-style-type: none"> Plenty fertile soil (landmines issue is largely solved) 	
Water	<ul style="list-style-type: none"> Large quantities of internal water resources, of which less than 1% is used Irrigation infrastructure available from colonial period. 	<ul style="list-style-type: none"> Irrigation infrastructure is not maintained and is not in operation Water needs to be stored (e.g. dams in rivers)
Infrastructure	<ul style="list-style-type: none"> Two international airports Four seaports from the south to the North 	<ul style="list-style-type: none"> Frequent electricity power failures Poor main roads, potholes in paved roads Poor secondary and tertiary roads Little railway infrastructure
Education		<ul style="list-style-type: none"> Poor education, certainly for agriculture
Research	<ul style="list-style-type: none"> Regional research stations perform suitability research of new varieties 	<ul style="list-style-type: none"> Agriculture research is a neglected area
Credit		<ul style="list-style-type: none"> Credit is poorly available
Culture		<ul style="list-style-type: none"> Informal local contacts are essential to understand the way of working
Economy	<ul style="list-style-type: none"> Oil and mineral exports boosts the economy Concentrated consumer markets in a few large cities 	<ul style="list-style-type: none"> Low level of private investments Oil and offshore industry are more competitive in attracting skilled labour and capital
Government	<ul style="list-style-type: none"> Aiming at higher self sufficiency Improving the infrastructure Diversifying the economy: i.c. agricultural and food processing 	<ul style="list-style-type: none"> Poor performance of institutions (doing business indicators) Informal contacts with highly placed officials are of major importance for doing businesses. Import regulations Tariff and Non-Tariff Barriers Visa procedures

Source: Own research, Espirito Santo (2008), Beeckmans and van As (2012), EKN (2011)

4.3 Opportunities for Dutch agriculture sector

The opportunities for Dutch need to enhance the Angolan opportunities. We expect a strongly growing fresh produce and potato sector in Angola. The government aims at higher domestic production at the costs of imports and improves the infrastructure; the wealth increases rapidly due to the oil income and the margins are fair in all levels of the chain. The opportunities are:

- Supplying the sector with quality seeds. Approximately 1.5% of the potatoes seeds are quality seeds, the remaining part are taken from own stock. For vegetables seeds, the Dutch share is also low.
- Supplying other inputs such as fertilisers and crops protection agents.
- Supplying equipment and knowledge, especially in the post-harvest cool chain.
- Supporting how to use sophisticated equipment. As identified before the knowledge and competencies are low. Successfully supplying equipment has to be accompanied by supplying training how to use this equipment. In addition services (delivering spare parts and maintenance) should be delivered over a long period.
- Capacity building in all areas of the supply chain. It deals with agricultural education at all levels for the production but also in the processing and logistic areas. But also at governmental level to establish a state-of-the-art phytosanitary service, food safety and environmental issues.
- Providing management and consultancy. Dutch growers can support commercial farmers by their competencies and their ability to organise dedicated supply chains.

4.3.1 Key success factors

The key success factors for doing in business in Angola are (see also EKN, 2011):

- Local partners. The culture and doing business in Angola deviates strongly from the Dutch. Without locals it will be almost impossible for foreigners to do business in Angola. However, doing business means to be present at the location. Doing business remotely (from the Headquarter in the Netherlands) will not be successful, due to the culture difference. A representative, fully complying with the Dutch way of doing business should be in control on the Angolan site.
- Select a market with prospects. These are many, but focus is essential.
- Organise the supply chain. The infrastructure is too weak to deliver quality products and service (Just in Time, each day of the year). It means that an integrated chain upstream and downstream has to be established. Economies of scale might be the critical issue to be successful. E.g. using efficient a cool chain, truck, storage and distribution centre, needs sufficient scale.
- Invest and maintain excellent relations with the Angolan government. This demand pre-investments and agreements between Angola and the Netherlands (or EU) will enhance these relations. Without consent of the Angolan government, doing business is an uncertain adventure and probably resulting in a failure.
- Take the time, patience will be rewarded. Authority's capacity and motivation is generally low.

5. Conclusions and recommendations

5.1 Conclusions

Angola has the potential to produce more food than the domestic consumption and to meet the increasing demand for quality and differentiated products. The Dutch Agribusiness is able to support this development of the Angolan agriculture.

The potentials are based on the following main findings.

- Angola has huge potential for agriculture production, it can even produce much more than required for the domestic consumption, because
 - o Only 8 to 10 million ha of the total available 58 million is cultivated.
 - o A mere 0.4% of the renewable water resources is used. This enables large scale irrigation. Together with the favourable climate Angolan agriculture can produce 3 crops a year.
 - o The yields/ha per ha can easily be doubled, with improved inputs and by enhancing the capabilities of the farmers.
- Angola made progress the last decade in restructuring the economy.
 - o The government focuses on diversifying the economy aiming at decreasing the dependency on oil and mineral exports.
 - o The government is supportive towards agricultural activities in order to reduce the food imports.
 - o The Angolan National Private Investment Agency (ANIP) facilitates and promotes domestic and foreign investments.
- Relatively high income and growth due to exports of oil and minerals affected the retail sector in the cities.
 - o The local demand in quantity, variety and quality grew, especially in the large cities. Luanda as capital and as base for the offshore activities shows strongly this development. Modern super and hypermarket chains are gaining market share. They demand a continuous flow and constant quality of products. Only a few Angolan producers can meet these requirements of the supermarket chain, resulting in imports. This offers opportunities for profitable investments in horticulture production and distribution.

However Angolan has several challenges to exploit these potentials.

- Competencies of farmers need improvement.
 - o Farmers lack skills, most farmers have little experience in agriculture. This hampers exploiting the possibilities the land and climate offer. The low productivity can be increased by better farming practice. E.g. by using inputs (fertiliser and crop protection agents), improved seeds and cultivation methods (crop rotation, weed and pest management).
 - o Applying irrigation enables to produce year around and to achieve higher yields.
 - o Scale of most farmers is too small: the majority of farmers are subsistence farming. The number of commercial farmers should increase to serve the supermarket chains. Unexploited agriculture land is sufficiently available.
- Angola lacks essential infrastructure.
 - o The road infrastructure is in poor condition: potholes, unpaved roads, provisional bridges.
 - o Cold chain is absent: cool stores are not functioning due to poor management and power supply; cool trucks are not sufficiently available as well as professional distribution centre. The successes showed by some large farmers managed their all cool chain.
 - o Access for farmers to market is problematic as they have to organise themselves the marketing. As a result logistic costs are high.
- Supportive enabling environment is weak.

- o Getting credit is troublesome.
- o Agriculture education is weak. The oil and mining industry is more competitive in offering jobs for educated people.
- o Professional organisations are mainly initiative by NGOs and thus temporary.
- o No supportive government, no phytosanitary services are present at the moment.
- As a result Angola offers opportunities for the Dutch agribusiness.
 - o Suppliers of inputs such as seeds, crop protection agents, crop cultivation and harvest technology (e.g. for potatoes, onions, carrots or cabbage).
 - o Experts from industry and knowledge organisations in The Netherlands can supply inputs and knowledge and may help in creating tailor-made innovations that increase profit and sustainability. With new technologies adapted to the local conditions a huge increase in productivity and sustainability can be expected.
 - o Supporting the distribution infrastructure and knowledge.
- Some Key Success Factors has to be met for doing successfully business in Angola.
 - o Doing business demands understanding the Angolan culture and habits. Working with a local partner is a 'must'.
 - o Be present at the market and do not do business remotely.
 - o Invest and maintain excellent connections with governmental bodies getting things done timely.

5.2 Recommendations

To strengthen the economic relationship between Angola and the Netherlands in the agribusiness sector we recommend initiative on three levels.

1. Private initiatives can be directed to:
 - o Direct sales by Angolan agents of Dutch commodities, already used in the Angolan agribusiness and that require little after sale efforts. These commodities are e.g. seeds, seed potatoes, plants (e.g. strawberries), crop protection agents, fertilisers and other non-sophisticated inputs (equipment such as ploughs, harrows, or irrigation tubes). Inclusion of Angolan agents of middlemen is strongly recommended as understanding the Angolan way of doing business is hard to grasp.
 - o Investments in Angola for more sophisticated means of production or capacity building, where after sales services or instruction for an efficient use of the production means is required. These are investments for the long run and should Angolan partners should be involved. Examples of these investments can be found in the development of the logistic infrastructure: such as cold stores, distribution centre, equipment for processing (incl. grading) products) or cool trucks. This applies also for investments in protected horticulture such greenhouse technology or fertigation and covering (by simple plastic covers) of soft fruit.
 - o Providing final consumer goods. Exporting these goods might be an opportunity for specific qualities and occasionally. Continuous supply of the Angolan supermarket chains is not yet strongly developed. Furthermore, the very wealthy families demand high quality and differentiated products. The Dutch agribusiness can fill some gaps in the supply of high quality products or in insufficient supply from regular suppliers during short periods. As the distance between Angola and the Netherlands is large, the opportunities are especially for high value/ low volume products. This opportunity is not theoretical: after all the Netherlands exports fresh produce e.g. to New York, which is only 900 km nearer to Amsterdam than Luanda (crow flight distance 6800km). The recently established non-stop KLM flight three times a week to Luanda supports this opportunity. Angola is furthermore located in the southern hemisphere. Some challenges are establishing relationships with the retail sector especially in Luanda and secondly properly handling of the fresh produce at the air or seaport and during the distribution to the retailers.

2. Public initiatives from the Dutch government can be directed to:
 - o G2G issues are capacity building in policies related to e.g. phytosanitary, food safety, vocational training or international trade and tariffs.
 - o A Business Support Office for Dutch trade relations and investments. At this moment Angola is far from being in the top of the mind of the Dutch private sector, while the opportunities are there.
 - o Related to the previous item, sector studies for not yet addressed sectors such as dairy, meat, fish or oilseeds will increase the awareness of opportunities for the Dutch private sector. Furthermore the government can stimulate Public Private Partnership between Angolan and Dutch sectors: see below
 - o Angola is on the ORIO list and the Dutch government facilitate investments. However Angola is not on the list of 'speerpunten landen' of policy focus of the Ministry of Foreign Affairs, Development Cooperation and even not on the list of 'partner countries' (www.minbuza.nl).

3. Public Private Partnerships (PPPs) can integrate the initiatives of several single companies. In this way the efforts can be minimised and the success rate maximised. We recommend to explore the possibilities in:
 - o The Dutch 'Topsectoren Beleid'. Based on this study, PPPs for potatoes (full range from seed potatoes to processing) or greenhouse production seems to have good prospects. The PPPs are focused on specific sectors or products.
 - o An integrated 'Metropolitan Food Security' approach, that serve the ambitions of several sectors by strengthen the approach by tackling challenges that are of importance for more sectors. In this study it is shown that potatoes and horticulture products need a similar post-harvest chain and logistics. A Metropolitan food security can exploit Dutch experience and link development in the primary production with the distribution to the super market chains in highly populated cities, such a Luanda.

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Appendix 1: Interviews and activities

Day	Visit	Contact person
Friday, April 27 th	Flight (night) Amsterdam-Luanda	
Saturday, April 28 th	Briefing ToR and programme	Wilson Mngwambe
	ShopRite in Belas shopping mall Luanda Sul	-
Sunday, April 29 th	Flight to Lubango, afternoon	
	Meeting with Henk van Zyl, wholesaler in agricultural inputs, represents Syngenta and John Deere http://www.mtc-invest.com/index.php?g=2	Henk van Zyl Agromundo H.vanzyl@agromundo.biz www.agromundo.biz M: +244 938 377 935 T: +244 222 372 029
Monday, April 30 th	Strawberry and soft fruit producer	Jamba Fazenda Gary Davids (manager) Humpata
	Provincial Department of Agriculture Huila	Rita Soma Miranda and several other people ritasuma1967@yahoo.com.br
	Municipality Humpata, cool stores	Naedim Campenda Adj. Administator dpadrhla@hotmail.com
	Nosa Terra Processing of fruit and bottling of juices and water	
	Vegetable and Potato grower	Mr. Costa Fazenda Tchicanda
Tuesday, May 1 st	Travel by car from Lubango to Huambo	
	Visit modern consumer market under a roof near to Lubango	
	Visit traditional open air consumer market about 50km north of Lubango	
Wednesday, May 2 nd	CNFA Farmer to Farmer programme	CNFA-USAID, Chipilica Barbosa Country director T+244 933 803 438/ + 244 241 220 282 cbarbarosa@cnfaangola.chipy@gmail.com
	Instituto de investigação Agronómica	Dr. Gomes +244 222 004 910 iiaminagri@gmail.com
	Cooperative 'Vale do Calai'	--
	Worldvision ProRenda	Moisés Lima moisesprorenda@hotmail.com
	CIP Angola	Britta Kowalski Potato agronomist b.kowalski@cqiar.org britta.kowalski@daad-alumni.de
Thursday, May 3 rd	Aldeia Nova	Waka-kungo
	Traditional Market North of Wako-Kungo	
	Agrolider, part of Grupolider, large modern commercial farm with greenhouses	Kebale
Friday, May 4 th	Meeting and presentation of first findings with the Dutch Ambassador and staff	Luanda
	Discussion with Job Beeckmans, consultant	Heerema Job Beeckmans jobbeeckmans@hotmail.com +244 936 195 620
Saturday, May 5 th	Meeting with Pieter-Jan van As, consultant	Peter-Jan van As pjvanas@gmail.com +244938376553
	Lunch with Tom Mandemakers, staff embassy	
	Flight (night) Amsterdam-Luanda	

Persons interviewed in the Netherlands:

Hans Peeten, NIVAP
Arjan Blonk, HZPC
Ingrid Korving, EI&I
Kees van 't Klooster, Wageningen UR

Appendix 2: Varieties of seed potatoes

During the fact-finding mission the following seed potatoes are identified:

- Alfa
- Cupido
- Diamant
- Lady Amarila
- Lady Rosetta
- Melody
- Mondial
- Musica
- Picasso
- Romano
- Soprano

Appendix 3: Population by province

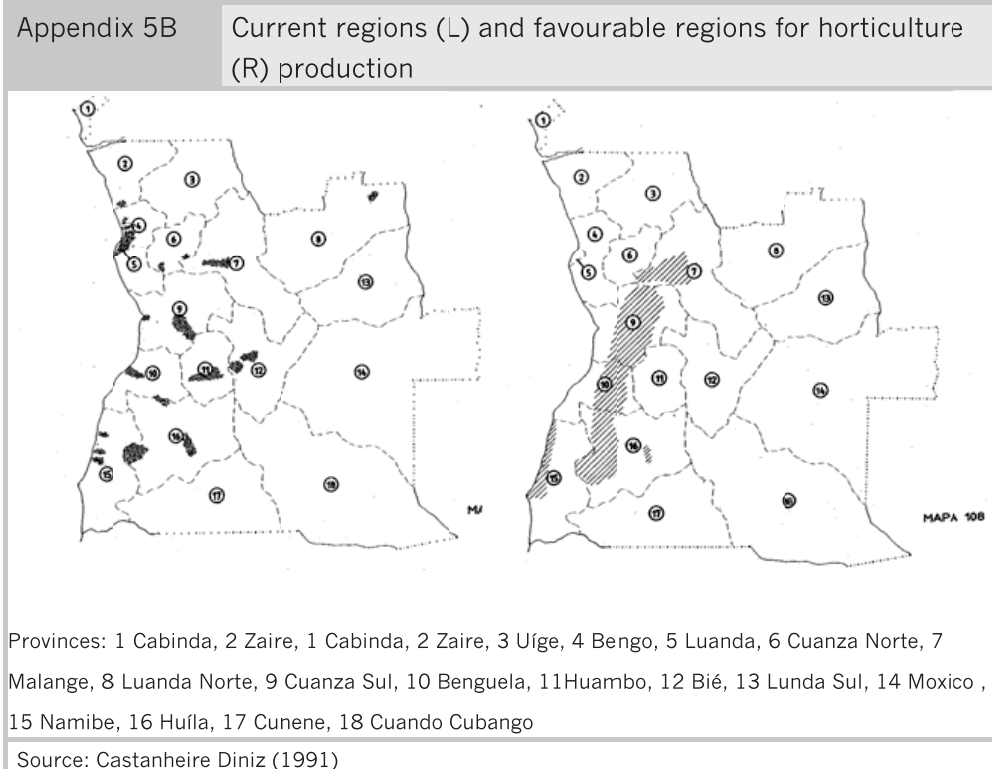
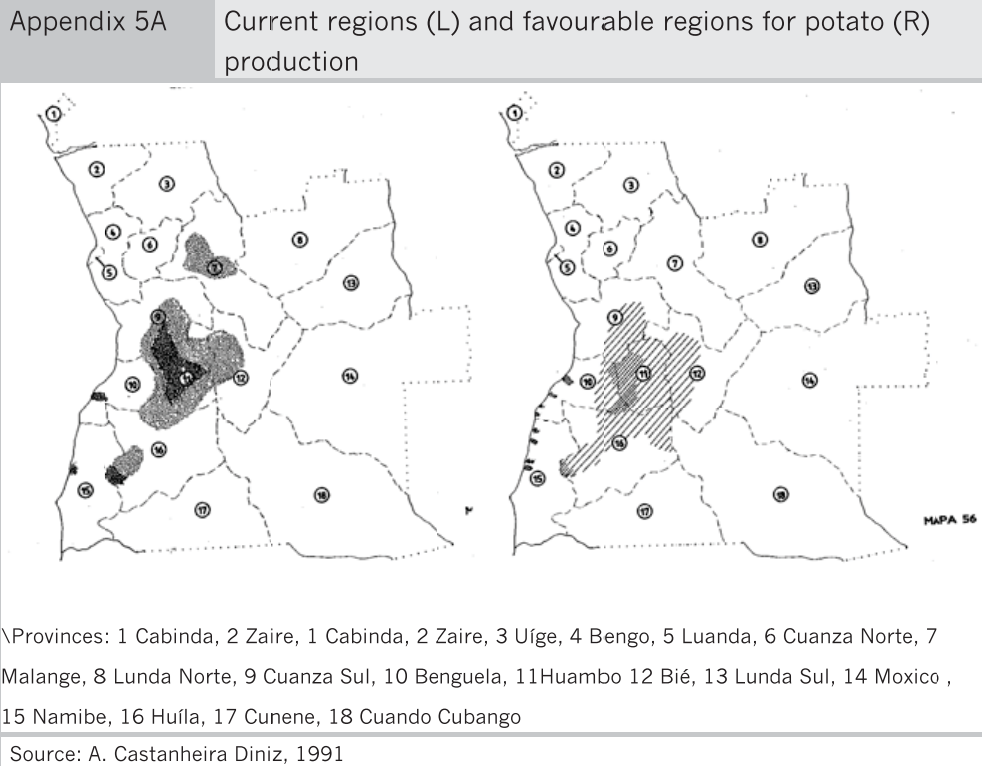
Province	Population	%
Luanda	4,749,423	29.0
Huíla	1,683,568	10.3
Benguela	1,597,295	9.8
Huambo	1,239,777	7.6
Kuanza Sul	1,036,518	6.3
Bié	901,120	5.5
Uíge	890,821	5.4
Malange	598,098	3.7
Lunda Norte	604,977	3.7
Cunene	507,558	3.1
Moxico	444,233	2.7
Cabinda	349,501	2.1
Zaire	306,123	1.9
Kuando Kubango	306,215	1.9
Kuanza Norte	291,250	1.8
Namibe	289,144	1.8
Lunda Sul	300,317	1.8
Bengo	271,942	1.7
Angola	16,367,880	100.0

Source: INE (2012), *Projeção da população 2009-2015*, Instituto Nacional de Estatística, Luanda, p10.

Appendix 4: Climate data

Appendix 4		Climate data for 4 cities in Angola					
	Average Minimum Temperatures (°C)	Average Maximum Temperature (°C)	Average Temperature (°C)	Average Rainfall/Precipitation (mm)	Wet Days (>0.1 mm)	Average Sunlight Hours/ Day	Relative Humidity (%)
Luanda							
Jan	24	30	27	26	2	7.1	78
Feb	24	31	27.5	35	3	7.4	76
Mar	24	31	28	97	7	6.9	77
Apr	24	31	28	124	9	6.6	79
May	23	29	26	19	2	7.5	80
Jun	20	27	24	0	0	7.4	80
Jul	18	24	21	0	0	5.6	80
Aug	18	24	21	1	<1	4.8	80
Sep	20	26	23	2	1	4.8	80
Oct	22	28	25	6	2	5.3	80
Nov	23	29	26	34	3	6.6	80
Dec	23	30	26.5	23	3	6.8	79
Huambo							
Jan	14	25	19.5	220	20	4.1	62
Feb	14	25	19.5	179	17	4.5	53
Mar	14	25	20	239	22	4.5	62
Apr	14	26	20	146	14	6.2	54
May	11	25	18	14	3	9.3	36
Jun	8	25	17	0.5	<1	10.3	25
Jul	8	25	17	0.5	<1	10.1	22
Aug	10	27	18.5	1	<1	9.2	19
Sep	13	29	21	19	4	7.2	25
Oct	14	27	21	119	16	5.2	44
Nov	14	25	20	227	21	4.1	59
Dec	14	25	19.5	234	21	4	61
Leuna (Moxico)							
Jan	17	27	22	226	22	3.8	65
Feb	16	27	21.5	192	20	4.2	59
Mar	16	27	22	198	23	4.6	64
Apr	15	27	21	99	12	6.8	55
May	12	27	20	6	2	9.8	37
Jun	9	26	18	0.5	<1	10.2	27
Jul	9	26	18	0.5	<1	10.4	25
Aug	12	29	20.5	2	<1	9.6	21
Sep	15	31	23	20	3	7.5	25
Oct	16	30	23	90	13	5.8	42
Nov	16	27	22	169	20	4.3	62
Dec	16	27	21.5	217	23	3.7	65
Mocamedes/ Namibe							
Jan	19	27	23	8	3	6.2	66
Feb	20	28	24	11	3	6.8	66
Mar	21	29	25	16	5	7.5	66
Apr	19	28	24	7	2	8.2	67
May	15	25	20	0.5	1	8.3	67

Appendix 5: Current and favourable regions





This report is compiled by LEI Wageningen UR

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