



**Agricultural opportunities in Africa**

Crop farming in Ethiopia, Nigeria and Tanzania

Our point of view

August 2017

# Introduction

## Africa remains the only region yet to experience a “Green Revolution”

Through the apparently good years of the commodity supercycle, most African economies grew rapidly, providing fuel for the popular “Africa Rising” narrative. However, since the mid-2014 oil price shock, GDP growth for Africa as a whole has dropped dramatically, just as been the case across global emerging markets. The slump in oil prices had very negative implications for many African economies, as well as for many companies that had invested in them. But some regions have coped much better than others. The continent’s new normal is now a multi-speed Africa where some regions and economies are thriving while others are struggling.

Thanks to the relative success of some regions in Africa the continent has managed to outperform other commodity-dependent emerging markets recording average real GDP growth of 3.1% per annum. The economies that have actively promoted export diversification are now leading the way, with East Africa projected to continue showing strong growth in coming years.

Seeing strong growth potential in the continent’s food sector, Deloitte Africa conducted a detailed agricultural sector analysis to help highlight and inform our clients on which countries currently provide considerable agricultural investment opportunities. The specific focus is on the continent’s main food crops.

Our report explores crop production opportunities and finds that three crops in three countries – namely, wheat in Ethiopia, cassava in Nigeria and maize in Tanzania – have considerable investment potential. The risks and challenges involved in production of the identified crops in the respective territories are assessed. Gaps that can be filled through private investment in each crop value chain, as well as issues that need to be addressed to enable greater foreign investment, are also identified.

Given the continent’s rising income levels and its large and rapidly growing population, food demand is expected to soar in the medium term, creating new growth opportunities for producers in the sector. By 2030, 20% of the world’s population is expected to be in Africa. As the continent’s population rises, the pressure on Africa’s food supply will require substantial investment, in order to guarantee food security. Most of this will have to be private.

The question for investors is which markets to target. Though most of its markets will remain complex in the medium to long term, Africa remains the only region yet to experience a “Green Revolution” and thereby presenting vast opportunities across its territory for players in the agricultural sector.

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Key sector trends and priority markets



# Agriculture as a growth driver in Africa



## Growing disposable income

Driven by strong GDP growth over the 2000-16 period, Sub-Saharan Africa's (SSA) per capita GDP doubled from US\$1,900 to US\$3,800. This increase suggests rising disposable incomes for the continent's growing population, with positive implications for food consumption. Growth dipped in 2016, largely due to low oil and commodity prices, but is expected to recover in 2017.



## Rapid population growth

Africa has the second largest share of the world's population after Asia and the youngest population on average, with over 40% of its working age population aged between 15 and 24. It is estimated that Africa's population will increase by about 200 million people between 2015 and 2020. By 2030, 20% of the world's population is expected to reside in Africa. Africa also has the world's fastest urbanisation rate, a trend that is expected to continue. Africa's growing population and urbanisation points towards rising demand for food crops in the continent.



## Rising agricultural FDI inflows and value added

Between 2006 and 2015 foreign direct investment (FDI) inflows surged while agricultural value added doubled from US\$135bn to US\$287bn. FDI inflows were concentrated in primary agricultural activities and the sector has been contributing more strongly to GDP growth in parts of the continent as a result. For example, in East Africa, particularly Kenya and Tanzania, investment in agriculture has raised productivity and has supported growth whenever weather conditions have remained favourable.



## Global food consumption growth

China currently feeds a fifth of the world's population on a tenth of the world's arable land and, given expected rising food consumption levels, is likely soon to rely heavily on agricultural imports to meet its national food security needs. Future agricultural growth in Africa is therefore not only expected to be driven by favourable domestic demographics but also by external factors. Though the sector remains prone to price and climate volatility, African countries with sound agricultural policies and, in particular, those able to export to Asia, are set to benefit.

Source: Agriculture price index\*, Jan 2007–Jan 2017

# Agriculture's role in poverty eradication

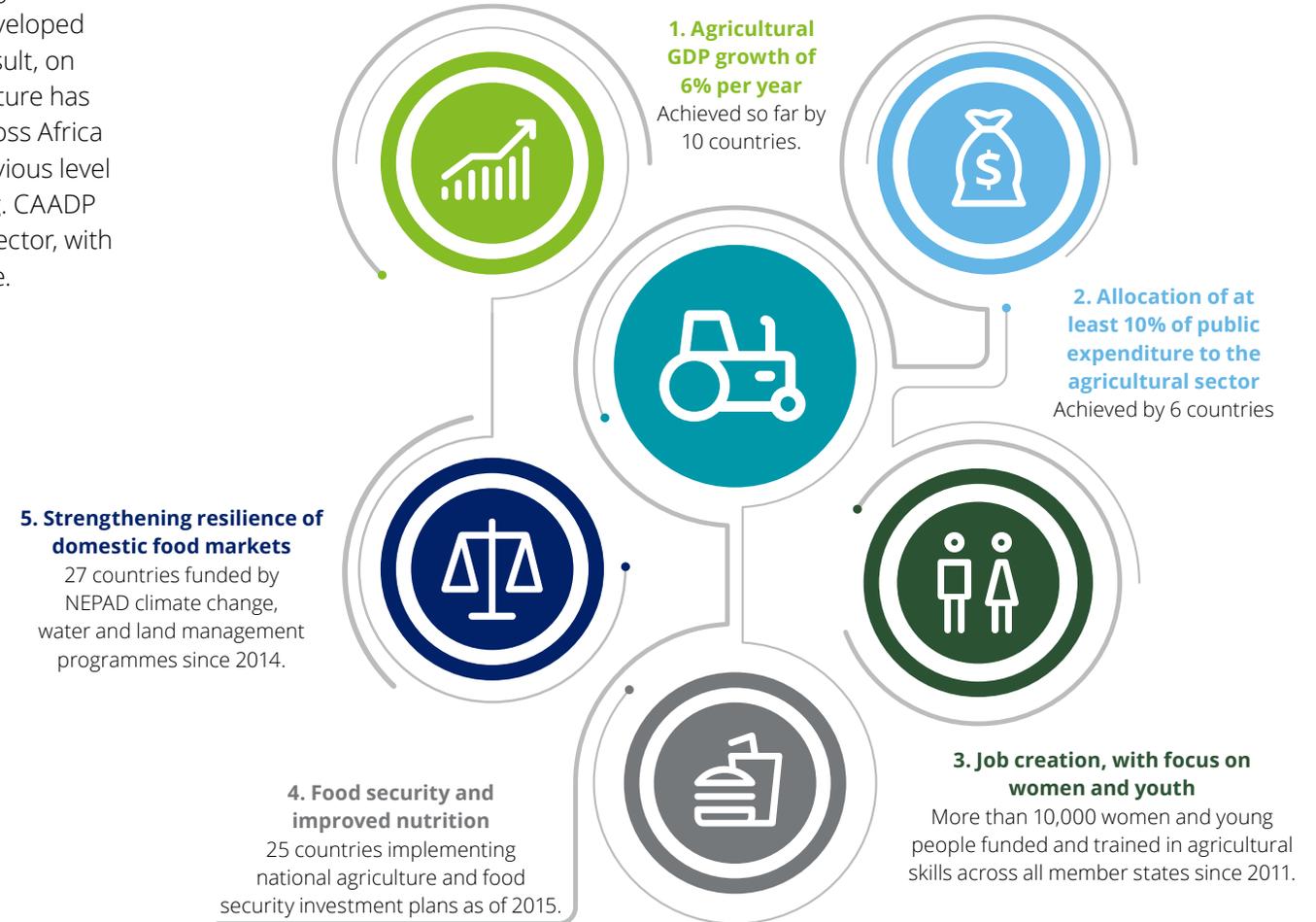
Since 2003 agriculture has been on the New Partnership for Africa's Development (NEPAD) agenda as a pivotal sector for resolving social ills in the continent. NEPAD, which was set up by the African Union (AU), views agriculture as the sector offering Africa the greatest potential for poverty and inequality alleviation.

Africa's main agricultural policy, the Comprehensive Africa Agriculture Development Programme (CAADP), provides a set of principles and broadly-defined strategies to help countries review their agricultural sector and identify investment opportunities which have the best impact on returns.

As of 2015, 44 AU member states have signed CAADP compacts, 33 of which have developed formal national agriculture and food security investment plans. These plans have become their medium-term expenditure frameworks for agriculture, with positive results for some member states that have started implementing them.

Four out of eight Regional Economic Communities (RECs) have signed regional treaties, and three of them have developed complete investment plans. As a result, on average, public agricultural expenditure has risen by more than 7% per year across Africa since 2003, nearly doubling the previous level of government agriculture spending. CAADP aims for reform in the agricultural sector, with the five broad goals shown opposite.

## CAADP broad goals



# Contextualising the African agricultural opportunity

Three broad trends – improving demographics, rising income levels, and rising global demand and Africa's underutilised arable land – are the main factors underlying the continent's agricultural opportunities. Africa's main agricultural sector risks include climate change, land degradation, low mechanisation, weak policy and inadequate infrastructure.

## Drivers & opportunities



### Improving demographic dividend

Whereas there were three African farmers for every urban dweller in 1990, in 2020 one African farmer will be expected to feed two urban dwellers. Both the urban and rural populations are rising and as a result demand for food is rising fast, putting major pressure on African food systems. Consequently, **producers of major African food crops such as cassava, maize, sugar and wheat are expected to benefit from strong medium-term growth in food demand.**



### Rising income levels

With recent improving consumer income levels and rapid urbanisation, Africa's middle class population is growing. Consequently opportunities are increasing in the agro-processing sector as food demand shift towards value added, processed foods. **Derived demand from improving disposable incomes is not only expected to create growth opportunities in agro-processing but also at every level of the agricultural value chain, including industry support.**



### Higher global food demand and Africa's unexploited arable land

As China shifts towards a consumption-based economic model and global growth recovers, food consumption and derived demand for agricultural products is expected to increase, creating export opportunities for both African agricultural commodities and value added goods. UN Food and Agriculture Organization (FAO) projections show that global food production would have to increase by 70% between 2007 and 2050 to feed 9.1 billion people. Production in developing countries needs to almost double.

Global annual cereal output would have to grow by about 1 billion tonnes and meat production by over 200 million tonnes to a total of 470 million tonnes in 2050, with 75% of output coming from developing nations compared to the current 60%.

With about 60% of the world's uncultivated arable land, Africa has the capacity to meet the world's long-term food demand. In addition, land already under cultivation could produce much more but crop yields remain at half the global average. With the right know-how and inputs, Africa's average cropland productivity can more than double.

**Coupled with positive global food demand, Africa's underutilisation of its land resources for farming implies significant growth opportunities for agricultural producers and exporters in Africa.**

## Risks & challenges



**Climate change:** It is estimated that, given current global warming trends in Africa, the production of major crops could decline by as much as 20% by 2050. The poor who depend on agriculture for their livelihoods and are less able to adapt will be disproportionately affected.



**Land degradation and persistent biotic and abiotic stresses:** Diseases, insect-pests, parasitic plants, and sub-optimal soil nitrogen present a continuous challenge to crop productivity in sub-Saharan Africa.



**Poor mechanisation:** Low mechanisation levels in African agriculture continue to serve as a huge impediment to production, especially in wheat and rice, making the cost of producing these crops high.



**Inadequate or weak policy environment:** Most government policies are inappropriate and inconsistent, and do not provide an enabling environment for the development of the crops sector in Africa. This includes low funding of national agricultural research and extension institutions, leading to ineffective technology development and diffusion mechanisms.



**Poor infrastructure:** Slow investment in infrastructure such as roads, storage and market facilities handicaps the private sector. Investors are faced with low levels of irrigation, poor and costly transport & logistics networks, power supply and fuel shortages, and underdeveloped financial markets – all making initial capital costs high for new ventures.

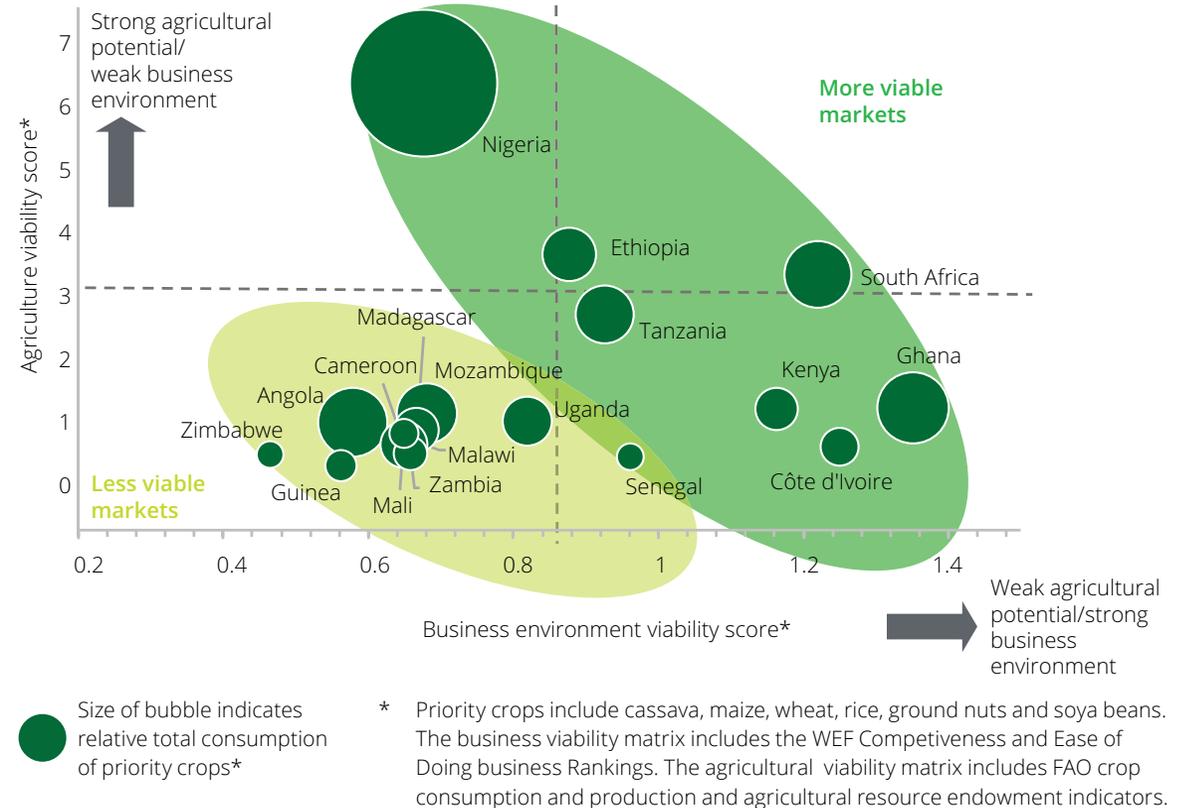
# Africa's key crop farming destinations

When selecting agricultural investment destinations on the continent due diligence is critical in the current multi-speed growth environment.

Comparing competitiveness, ease of doing business and agricultural resource availability across the continent, this report identifies three key crop farming destinations using an agricultural and business viability matrix. **Ethiopia, Nigeria, and Tanzania** were found to have the greatest nascent investment potential. Though its business environment is not as conducive, Nigeria was preferred over Ghana due to much stronger aggregate crop consumption levels. **Ethiopia, Nigeria and Tanzania** stood out due to their strong agriculture viability score.

Six crops – cassava, maize, wheat, rice, ground nuts and soya beans – were prioritised as key crops to invest in on the continent based on the interests and market sentiment of major players in the sector and generally high domestic and international demand for these crops. Then, looking at comparative advantages and domestic output and consumption levels of each of the six crops in each of the three key countries, **wheat, cassava and maize** presented considerable investment cases in Ethiopia, Nigeria and Tanzania respectively and were accordingly selected as the focal crops in this report.

## Potential crop farming markets in Africa



Source: Deloitte Africa analysis, 2016

# Wheat in Ethiopia



# Wheat in Ethiopia

## OVERVIEW

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Ethiopia has recorded some of the highest economic growth globally in the last decade.



Ethiopia is the largest producer of wheat in SSA today, and yet wheat remains the biggest crop import. Local supply is insufficient, creating an opportunity for investors.



Although infrastructure is still relatively poor, the government is investing significantly.



Disposable income in the country is expected to rise gradually, increasing domestic demand for preferred crops.

# The importance of agriculture in Ethiopia

Ethiopia is largely dependent on agriculture. Average agricultural value added over the last 15 years amounted to 45% of GDP – double that of the SSA average, and 10 times the global average. About 11.7 million smallholder farms provide the Ethiopian population with up to 85% of employment and produce 95% of agricultural GDP.

**1** With a population of 103 million people, Ethiopia is the most populous landlocked country in the world, and the second most populous country in Africa. Just over 80% of the population live in rural areas and the median age is 18.9 years. The population is expected to double by 2050 with the majority (62%) residing in rural farming communities.

**2** The average growth rate of agricultural value added in Ethiopia over the past 15 years outstripped other regions. It amounted to 6.4%, compared with the global average of 4.4%, and the SSA average of 4.7%. Ethiopia's agricultural value added accounts for around 45% of total GDP, far higher than the global and SSA averages.

**3** Maize and teff are the two largest crops produced in Ethiopia, followed by wheat and sorghum. The country produces just over 70 crops but the Ethiopian climate is suitable for growing 140 different crop varieties.

**4** Agricultural exports were equivalent to 4.4% of GDP in 2015, and the government is aiming to increase this to 6.5% by 2020. The government aims to boost manufacturing exports most in order to diversify export markets and sources of foreign exchange earnings.

**5** For the last decade, Ethiopia has been a net agricultural exporter despite a ban on cereal exports in 2006 to prevent domestic price rises. This implies that Ethiopia has established export channels and infrastructure, and shows promise for expansion and diversification of its agricultural exports.

**6** Ethiopia's largest crop exports are coffee, sesame seeds, beans, pulses and vegetables. These top five crop exports account for 78% of total crop exports, indicating some degree of comparative advantage in their production.

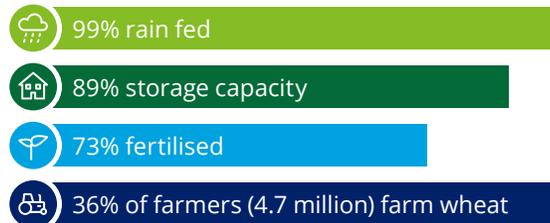
Source: GTPII, 2015, FAO, 2017, World Bank, 2017

# An overview of wheat production in Ethiopia

While maize and teff are the two dominant crops, Ethiopia remains the largest producer of wheat in sub-Saharan Africa. These three crops are considered staples and are widely produced and consumed across the country. Wheat production is rising in response to growing demand in the country. Output growth reflects improved agronomic practices and government investment in the crop sub-sector.

## Wheat in Ethiopia

About 60% of wheat farmed in Ethiopia is consumed as food and grown mainly on smallholder farms no larger than 5 hectares. As 99% of wheat is rain fed, crop yields are highly weather-dependent. Of around 13 million smallholder farmers, 4.7 million farm wheat. They are spread across the major wheat-farming areas of Oromia, Amhara, Tigray and the Southern Nations, Nationalities and Peoples' (SNNP) region.



## Wheat yield & productivity

Growth in wheat production has far outstripped increases in the area harvested over the last decade. This implies increased productivity and reflects the emphasis placed on agriculture in the Growth and Transformation Plan (GTP). The government plans to boost cereal productivity (yield per hectare) from 20% in 2015 to 31% in 2020. This comes as a result of increased adoption of fertilisers, pesticides and access to improved variety seed.

## Wheat prices

China, India and Russia are the largest producers of wheat globally, accounting for 38% of total production. The price of wheat in Ethiopia is among the highest in the world – twice the price level in Russia in 2015 in US dollar terms. Additionally, Ethiopia prohibits the exportation of wheat and imports up to 35% of its total wheat during drought, placing further pressure on the country's external current account deficit.

# Expanding wheat production to attain self-sufficiency

Despite its position as the largest producer of wheat in SSA, drought, food insecurity and market imperfections have led to a dependence on wheat imports to satisfy local demand. Investors face various obstacles when trying to enter the wheat market but these can be overcome by working with the government. The need to meet local demand and eliminate wheat import dependence creates an opportunity.

Though Ethiopia is the largest wheat producer in SSA, wheat makes up 52% of its total agricultural imports and contributes to Ethiopia's US\$14bn merchandise trade deficit. Both production and consumption of wheat in Ethiopia have been on an upward trajectory over the last decade. However, consumption has outstripped production every year, forcing Ethiopia to import wheat to meet local demand. The Ethiopian government subsidises wheat imports and distributes it to large mills, provided they sell wheat flour to bakeries at set prices. Bakeries

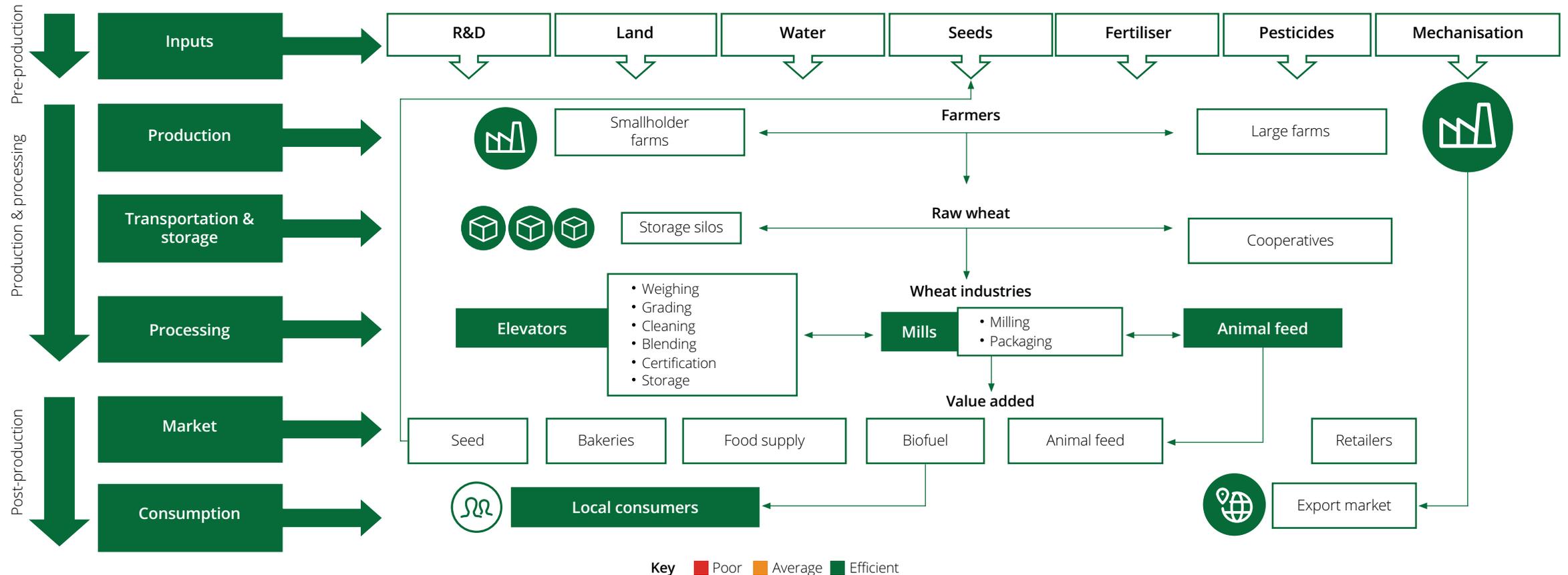
in turn sell bread at subsidised prices. This is an effort to provide bread at affordable prices for consumers at the base of the pyramid.

Ethiopia experienced droughts in 2003 and 2009, leading to supply deficits and also to surpluses as a result of government over-compensation through imports. Due to its worst drought in a decade, Ethiopia was forced to import a record 2.5 million tonnes of wheat in 2015/16 (Oct-Sept). On average, imports

account for between 25% and 35% of total consumption, depending on local harvest volumes. While importing wheat is not banned, it is nearly impossible to source foreign exchange to import privately. Cereal exports have, however, been banned since 2006, with exceptions having been made during times of major surplus yields and low domestic price levels. These controls on foreign trade are a measure taken to manage local prices, and to provide food security in times of drought. Local production has, however, been growing faster than imports for the last 15 years – thanks largely to increased productivity.

# Best practice wheat value chain: global strategic framework

By productivity, the US stands out as having a global best practice value chain in wheat production, at 7.6 tonnes/ha. The wheat best practice value chain includes the use of improved variety seed, a result of ongoing research and development (R&D). It also makes use of modern agrochemicals and machinery, advanced irrigation systems, cutting edge agronomic practices and the latest farming technologies.



Source: Deloitte Africa analysis, 2017

# Gaps in the Ethiopian wheat value chain



## Inputs

The majority of inputs are imported, including machinery, seeds and agro-chemicals. These inputs are distributed to cooperatives and unions, wholesalers, retailers and small shops, who sell inputs to farmers.

- **Seeds:** the greatest challenge to wheat production is limited access to improved seed varieties. Seed distribution is handled outside the private sector and is typically inefficient with poor quality, incorrect varieties and mixed batches of seeds being sold.
- **Agro-chemicals:** the use of fertiliser in production has increased from 54% of the

land cultivated for wheat in 2003-04 to 73% in 2013-14. Additionally, the use of pesticides has increased from 30% of the land cultivated to almost 47% in the last decade, making wheat the cereal crop with the highest rate of pesticide treatment and improving crop yields.

- **Water:** irrigation is extremely rudimentary, with less than 1% of wheat land under irrigation.
- **Mechanisation:** about 99% of wheat farmland is cultivated using animal traction, with only 1% being cultivated by tractor.



## Production

The latest statistics available put national production at 4.2 million tonnes, and national yield at 2.5 tonnes/ha.

- **Large farms:** while there are very few large-scale wheat farms, recent efforts by the government to improve domestic production are starting to see larger players entering the market. Large farms currently account for only 5% of production with a productivity of 2.57 tonnes/ha.

- **Small farms** account for 95% of production with a productivity level similar to large farms at 2.44 tonnes/ha. There is very little difference between productivity at the large and small farm levels, indicating poor farming techniques and limited use of improved inputs in general.



## Traders & transport

Transportation and storage in Ethiopia is managed by the government.

- **Transportation** is vastly important in the wheat value chain due to the concentration of wheat farms in Oromia, Bale, Arsi and West Arsi – and the seasonality of the crop. The recent road development initiatives in Ethiopia will contribute largely to transportation improvement, linking farmers to processors and markets around the country.

- **Storage** is also a vastly important component due to food shortages during drought. Around 89% of storage takes place on farms, where a variety of different techniques are adopted, most of them semi-modern. Besides this, primary cooperatives account for 6% of storage, the Ethiopia grain trading enterprise (EGTE) for 3%, the Ethiopian emergency food security reserve administration (EFSRA), and private traders and cooperative unions for 1% each. Total storage amounts to about 29 million tonnes. A significant portion of the EGTE storage space is leased to organisations tasked with providing food security and drought relief.

# Gaps in the Ethiopian wheat value chain (cont.)



## Processing

Wheat processing involves milling and production of bread, pasta, biscuits, etc. The wheat is purchased from local producers, as well as imported and redistributed by the government at subsidised prices.

- **Small mills** are typically hammer mills and employ no more than five people, yet process almost twice as much wheat as the large mills at 15 million tones annually. Small-scale farmers take wheat to small mills to be processed. The mills often take around 10% of the flour as payment. Around 75% of wheat processed is consumed by farmers with the remainder going to market.

- **Large mills** process around 7.9 million tonnes per annum. It is estimated that these large mills only utilise 25%-35% of their potential capacity. They source their wheat from local producers as well as from the EGTE at subsidised prices. Large mills prefer to buy wheat from local producers as the subsidised wheat from the EGTE implies that the flour milled must be sold to bakeries at subsidised prices, reducing the mills' profits.



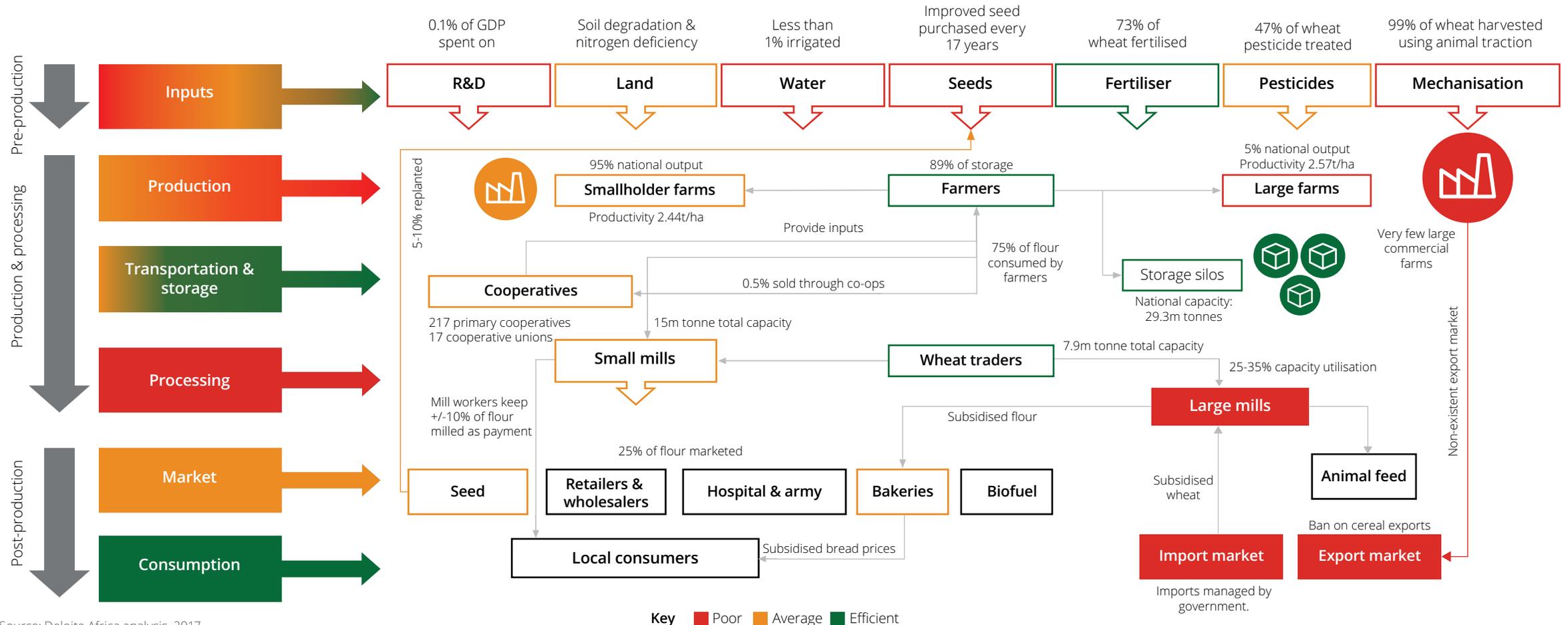
## Market

Two markets for grains exist in Ethiopia: a private high quality market providing for the higher income population at a premium, and a controlled subsidised market for the poor. The prices are set by the government, and FDI is prohibited at the retail level. Recently, however, the government has allowed foreign influence, but only at a managerial level as they wish to keep control of the market until production and supply chains can be further developed. Additionally, the price of bread is set and subsidised by the government through the control of wheat imports. Being the sole

importer of wheat, the EGTE sells subsidised wheat to mills provided they sell flour to bakeries at fixed prices, and the bakeries sell bread at fixed prices to consumers. The market for wheat is not historically large, as around 75% of wheat is largely consumed by subsistence farmers without ever entering the market place. This, however, is beginning to change as rising incomes have led to an increase in the demand for crops such as wheat, as well as value added wheat products.

# The Ethiopian wheat value chain: detailed domestic framework

Ethiopian productivity is far below global standards at around 2.5 tonnes/ha. This is largely due to the fact that the majority of farming is done at the small scale and subsistence levels. Use of modern inputs and agronomic practices is very limited, and most large-scale processors lack consistent supply, reducing their capacity significantly, and forcing some to scale down operations. Government control in the wheat market has also reduced the country's ability to expand commercial farming.



Source: Deloitte Africa analysis, 2017

# Wheat production opportunities & challenges in Ethiopia

## Opportunities

- 1. Reducing dependence on wheat imports:** Wheat accounts for over half of Ethiopia's crop imports, and it is estimated that between 25% and 35% of wheat consumed domestically is imported. As the largest producer of wheat in SSA, Ethiopia has the natural resource capacity to boost production to the level of self-sufficiency. This, however, would require investment on a large scale.
- 2. Rising income levels:** Urbanisation and economic growth have resulted in changing tastes amongst consumers. Wheat has become a preferred crop in many developing countries. Additionally, rising incomes have led to an increase in the demand for high quality processed wheat products. Ethiopia is the second most populous country in Africa and the population is growing rapidly and expected almost to double by 2050. This suggests a growing market for both wheat itself and high quality wheat products.
- 3. Ethiopia as a regional supplier of fertiliser:** Ethiopia has managed to increase its use of fertiliser drastically across the country, thereby improving productivity. Additionally, technological innovations such as the Ethiopian Soil Information System (EthioSIS) give the country the edge in soil mapping techniques. There are opportunities to supply better quality wheat-specific agrochemicals and produce agrochemicals locally. Given the limited availability and use of fertiliser across SSA, domestic agrochemical producers in Ethiopia are also well placed to supply wheat producers in the rest of East Africa.
- 4. Special Economic Zones (SEZs) and special agro-economic zones:** As part of the government's efforts to attract investment in the agricultural sector, various SEZs and special agro-economic zones are being created. Many of the SEZs are devoted solely to agro-processing operations and offer a variety of attractive investment incentives. These include tax holidays, preferential access to export markets (in some cases) and tax free imports of capital goods.

## Challenges

- 1. Maintaining affordable wheat and bread prices:** If domestic wheat production can be expanded to a point where wheat imports are crowded out, one challenge remains. Government control over wheat imports is essentially a tool to provide affordable bread by subsidising wheat imports and flour to bakeries. The challenge is not only to increase wheat production but to keep wheat and bread prices low enough to meet the government's aim of providing affordable bread nationwide.
- 2. Overcoming barriers to market access:** The wheat market in Ethiopia is currently characterised by government intervention at the import, export and provision level. This may present challenges to investors due to limited market access both locally and internationally. If wheat production can be expanded enough, there is no reason why the government should not remove some of the regulations governing the trade in wheat. Moreover, investment in the retail market is reserved for Ethiopian nationals exclusively, limiting foreign investors' ability to penetrate retail and wholesale markets.
- 3. National and agricultural infrastructure:** The state of national and agricultural infrastructure presents major challenges to agricultural expansion. Poor transport and electricity infrastructure, undeveloped irrigation systems and limited access to mechanised farming equipment hamper optimal agronomic practices. Additionally, limited access to financial services and credit make new investments difficult to coordinate.
- 4. Restructuring of the agricultural sector:** The sector is dominated by subsistence farming and is not currently geared towards commercial production. As such, investment in the sector would require a paradigm shift from both government and the local farming community. Regulation needs to be changed and labour shifted from small-scale and subsistence to more commercial farming.
- 5. Mitigating the risk of drought:** Ethiopia is one of the most drought prone countries in Africa and less than 1% of arable land is irrigated. Drought therefore harms output and food security. More than 40% of farmers needed emergency seeds due to crop failure during the 2016 drought induced by El Nino.

# Cassava in Nigeria



## OVERVIEW

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Nigeria is the largest producer of cassava in the world, yet its cassava industry and value chain remain largely underdeveloped. With recent research and innovation, Nigeria is in a position to expand its production to become a major global player in the cassava market.



Nigeria's demographics, favourable climate and vast natural agricultural resources make it an attractive investment destination. Despite this, the business environment remains largely informal, with poor infrastructure and difficult physical terrain to deal with.



Nigeria remains a high risk, high reward market and agriculture is one of the better performing sectors in the current recessionary environment.

# The importance of agriculture in Nigeria

The agricultural sector has gained in importance since the global commodity price fall in 2014. Efforts to diversify the economy and a growing need to feed one of the fastest growing populations in the world has led to rapid increases in agricultural activity. A large portion of new investments in agriculture have been directed towards the agro-processing industry.

- 1** Nigeria boasts the largest population in Africa, at around 190 million people, with a median age of just 18. Nigeria also has the largest labour force in Africa, with just under 59 million people. The majority of Nigeria's population growth is expected to occur in urban areas, with a current urbanisation rate of approximately 4.6%.
- 2** Given the size and rapid growth of Nigeria's population, its agricultural production and processing sectors are expected to become some of the fastest-growing in the economy. Over the last 15 years, average agricultural value added has amounted to a third of GDP, far higher than the global average of 4% and the SSA average of 20%.
- 3** Agriculture is Nigeria's second-largest sector, contributing just over a fifth of total GDP. Within the agricultural sector, crop production and livestock are the dominant sub-sectors, both contributing around 10% of total GDP.
- 4** Total agricultural GDP growth was 13.2% in 2016. The smallest sub-sector, fishing, sustained the highest growth between 2010 and 2015. Crop production grew by 4.1% per year over the same period. This more moderate growth could be a result of viral disease killing off large quantities of crops.
- 5** In mid-2014, the commodity price crash caused the Nigerian balance of payments surplus to fall into deficit. In the agricultural sector, Nigeria has been a net importer for the last 15 years, and has become increasingly dependent on food imports to meet local demand, with agricultural imports growing much faster than agricultural exports.
- 6** Cassava and yams account for over half of Nigerian agricultural production, and just under half of food consumption. This indicates a relatively low level of diversification in the crop farming sector. It also indicates that these three crops are preferred among Nigerian consumers, most likely as a result of the high dependency on subsistence farming.

Source: FAO, 2017

# An overview of cassava production in Nigeria

Nigeria currently produces over 50 million tonnes of cassava and production is expected to double by 2020. It is estimated that Nigeria's average cassava farming productivity of 13.6 tonnes/ha could improve vastly, to 40 tonnes/ha.

Cassava yields were on an upward trajectory until 2010, peaking at 12.2 tonnes/ha, just below the global average yield of 12.8 tonnes/ha. After 2010, the yield dropped dramatically by almost 50%, even though production was increasing over the same period. The drop was largely due to an outbreak of a viral disease affecting the cassava crop but new data is expected to show a recovery in yields as new disease resistant cassava

varieties have been introduced since the outbreak. Accordingly, the increase in the amount of cassava produced came from increased planting, as opposed to better productivity. Nigeria has much scope to improve its output. While traditional cassava food products are not a popular export good, there is potential to expand the market for High Quality Cassava Flour (HQCF). This is also true for import substitution of starch products.

HQCF can be used as a substitute for wheat flour in bread, and cassava starch can be used as an input by various industrial sectors. In fact cassava starch is currently the second largest source of starch globally, after maize. Between 2008 and 2013, Nigeria began importing cassava products, peaking at 15,000 tonnes in 2013. By expanding cassava growing, Nigeria could crowd out cassava imports and become a major exporter of the crop worldwide.

Source: FAO, EGRP, World Bank, 2017

# Leveraging the potential for industrial cassava products in Nigeria

Since the 2014 commodity price crash, the Nigerian economy has begun to change in an attempt to move away from oil dependency and diversify foreign exchange sources. Agriculture has gained considerable momentum. As the largest global producer of cassava, Nigeria has the capacity to become a global leader in the production and export of industrial cassava products.

## National focus on cassava as a priority crop



The government's realisation of the potential of the cassava market in Nigeria has led to a "cassava revolution". With the government behind it and increased investment from both local and foreign players, not only has production grown, but many new cassava processing factories have emerged.



The recent investment in the cassava processing sector has seen a shift from traditional food products to more industrial uses for cassava. Of particular note is the emergence of cassava glucose syrup and cassava starch. On average, one cassava glucose factory in Nigeria can produce up to 26,000 tonnes of glucose syrup annually, for which it requires 132,000 tonnes of fresh cassava tubers.

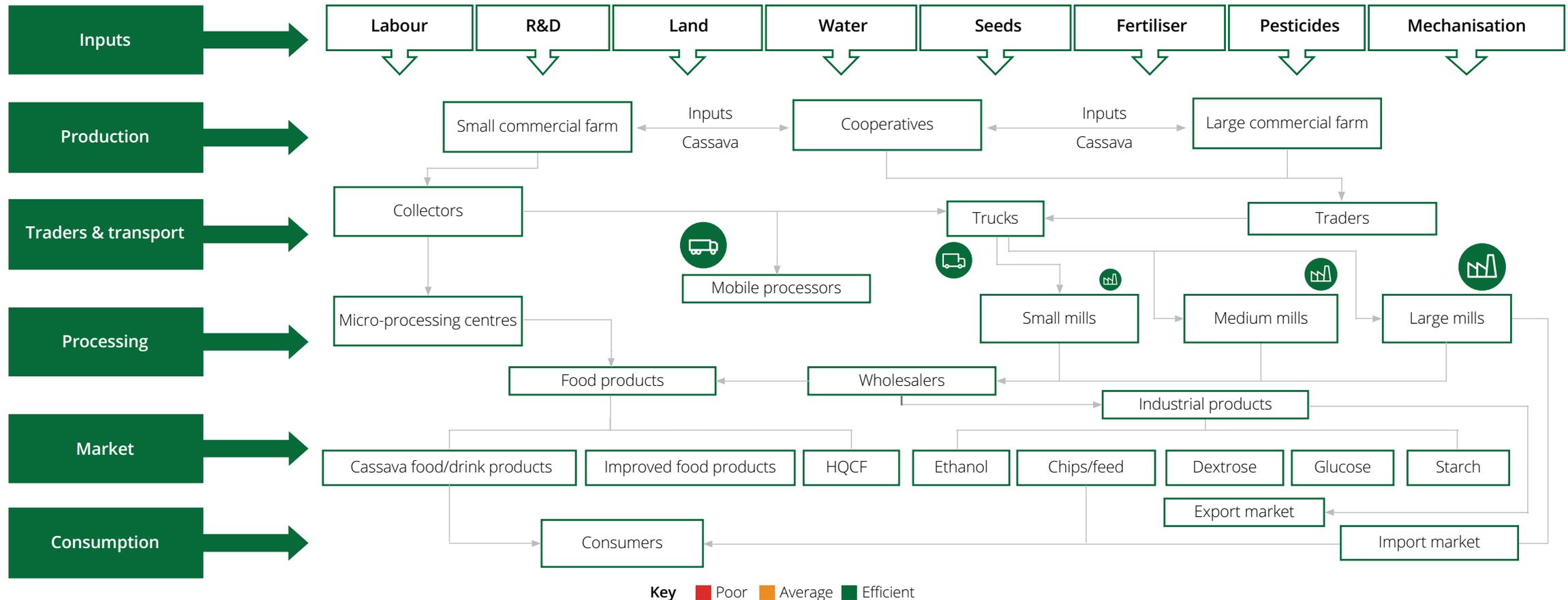


These sorts of processing facilities are providing increasing demand for the cassava tuber, and Nigerian farmers are more than willing to meet this demand. Major cassava starch producers in Nigeria include Matna Foods, and the newly developed Union Dicon Salt Plc venture which will become the country's largest processor yet.



# Best practice cassava value chain: global strategic framework

As cassava is among the least exploited crops in commercial farming, the best practice value chain remains underdeveloped. However, the recent surge in interest and demand for the crop is paving the way for the further improvement of agronomical cassava techniques. In 2013, the global average cassava yield was 12.8 tonnes/ha but research shows maximum yields could climb as high as 80 tonnes/ha.



Source: Deloitte Africa analysis, 2017

# Gaps in the Nigerian cassava value chain



## Inputs

**Subsistence farms:** neither small nor large subsistence farms make use of fertiliser, pesticides, improved variety seed and machinery, and hence productivity is low.

**Commercial farms:**

- **Small farms (0ha-5ha)** utilise hired labour and improved varieties, but do not use machinery.

- **Medium farms (6ha-10ha)** utilise improved variety stems, machinery and agro-chemicals to a small extent.
- **Large industrial farms (>10ha)** make use of modern inputs as well as modern farming techniques, giving superior yields.



## Production

**Subsistence farms:** due to a lack of modern inputs and old varieties of cassava stems, subsistence farms typically achieve the lowest yields in the country of 8-10 tonnes/ha.

**Commercial farms:**

- **Small farms (0ha-5ha)** generally achieve a yield of 11-15 tonnes/ha, far below their estimated potential of 25 tonnes/ha. This is largely due to insufficient use of agro-chemicals and poor farming techniques. Some regions which have received assistance with training and inputs have been able to yield 25-30 tonnes/ha. These farms predominantly produce cassava for medium-quality traditional food products.

- **Medium farms (6ha-10ha)** typically produce 27-30 tonnes/ha. Medium-scale farms supply a variety of industrial processors but most supply high quality cassava flour (HQCF) processors.
- **Large industrial farms (>10ha)** are rare in Nigeria due to the cost of operations, and the volatile nature of the cassava crop. The larger commercial farms produce around 27-35 tonnes/ha. These farms provide cassava for industrial processing for use in starch, glucose, dextrose, animal feed and other non-food products. Many of these farms are owned by major processing companies such as Nigerian starch mills in Abia state and Godilogo in Cross River State but high operating costs are forcing some of these farms to scale down production.



## Traders & transport

Transport remains one of the greatest challenges for cassava production due to the perishable nature of the crop. Road infrastructure is poor across the country, and hired transport is very costly, making it difficult to move raw cassava from farms to processing plants.

Traders facilitate the transfer of raw cassava from farms to processors and markets. There are three types of traders:

- **Collectors** hire transport and travel to cassava farming regions. They hire labour in order to harvest large amounts of cassava from various farms, and transport it to cottages or mills. The process is expensive, as the rapid perishability of the crop

means that large amounts must be harvested and transported in a short period of time. Collectors account for around 20% of cassava trade.

- **Cooperatives** play a much smaller role, accounting for 2-8% of cassava trade. These cooperatives sell their member farmers' cassava to larger processing companies. They also sell processed cassava products to retailers. Like collectors, cooperatives must also hire transport, a very high cost in the value chain.
- **Retailers** trade in processed cassava products such as garri and fufu and other traditional foods. They generally distribute these foods in rural and urban markets, as well as on the roadside.

# Gaps in the Nigerian cassava value chain (cont.)



## Processing

Processing of cassava occurs at cottages, micro-processing centres (MPC), small to medium-scale processors, and large-scale processors:

- **Cottages** account for the majority of processing, and are run largely by women and children at the household level, where cassava is grated and fried manually.
- **MPCs** usually consist of a shed, a grater, a press and a modern roaster. Cottages and MPCs produce traditional food products such as garri and fufu.
- **Small-medium processors** produce HQCF, starch and high grade fufu for export. They usually utilise mechanical driers and employ up to 10 people.

- **The large processors process** up to 100 tonnes of dry cassava per day. These plants focus on producing cassava starch and other products for industrial use. The limitation of large processing plants is the need for large amounts of raw cassava to keep production profitable. Many of these large processors own their own cassava fields to ensure enough cassava is available to make processing profitable. In addition to this, a new type of **mobile processing plant** has emerged, able to move between farms and process raw cassava into wet cake at a rate of 5 tonnes/hour. These machines are expensive (+/-US\$1m), but are an effective way of overcoming the complication of cassava spoiling two days after harvest.



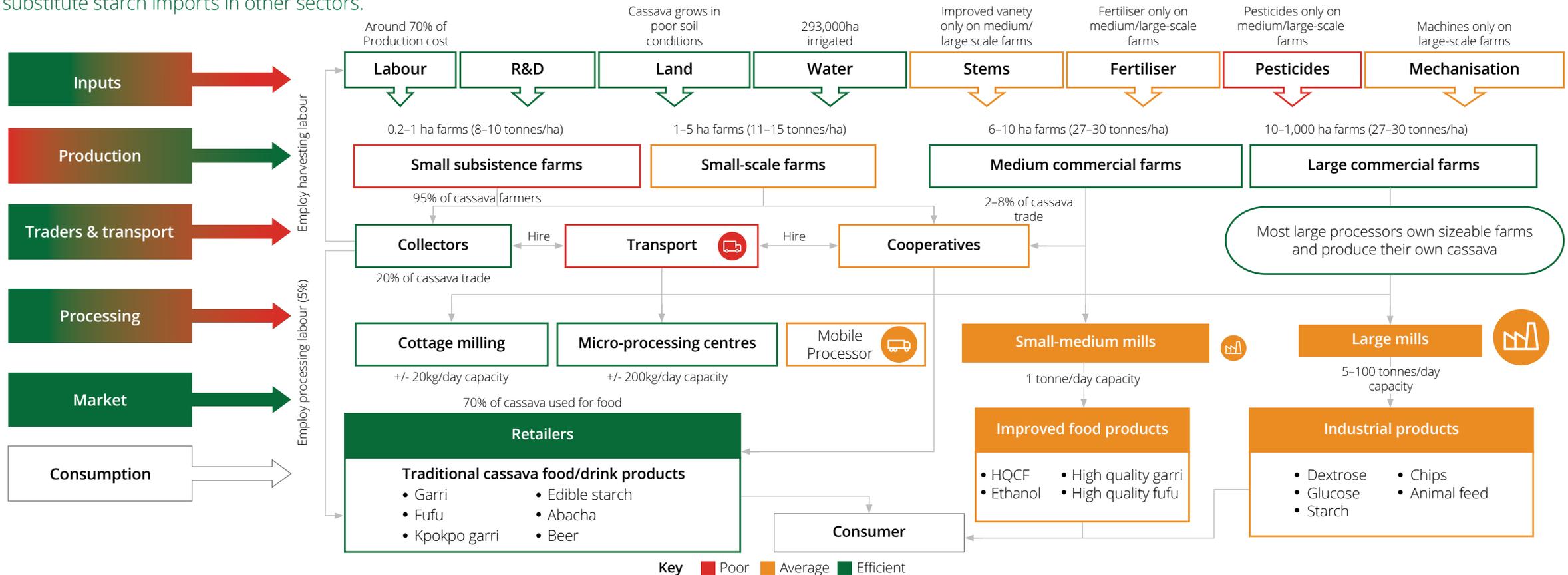
## Market

Cassava food products are generally sold in the open market by vendors and small shops. Although cassava grows and can be harvested at any time, the price of cassava differs during the wet and dry seasons. During the wet season, cassava is cheaper as it is easier to uproot the tubers, and hence requires less labour. During dry season, the soil is hard, and requires more labour to harvest, ultimately pushing prices up. On an industrial scale, commercial cassava products can be used to make dextrin, a common ingredient in adhesive products. Cassava starch glucose and dextrose can

be used in a number of industries, including the textile, pharmaceutical, infant foods, cardboard and paper manufacturing industries. Globally, cassava starch accounts for under 15% of starch produced for industrial use. Nestlé Nigeria is increasingly demanding cassava starch in its production, creating a significant domestic market for the value-added product.

# The Nigerian cassava value chain: detailed domestic framework

95% of cassava production takes place on small-scale and subsistence farms and production is far from ideal. A lack of sufficient agro-chemicals and minimal use of machinery and improved variety stems hampers productivity, with yields reaching a maximum of 15 tonnes/ha. The larger commercial farms are more efficient, achieving yields of up to 30 tonnes/ha. Another serious weakness in the value chain is poor road infrastructure and the high cost of transport. Transport is key to successful commercialisation of cassava as the tuber is highly perishable and must be processed within two days of harvest. The largest potential for investment lies in the processing of industrial cassava products, both for export and to substitute starch imports in other sectors.



Source: Deloitte Africa analysis, 2017

# Cassava production opportunities and challenges in Nigeria

## Opportunities

- 1. Cassava food products:** Cassava food products are a staple in Nigeria. The Nigerian economy has doubled in size in the last decade, and the population is expected to be among the three fastest growing in the world. A large proportion of this population growth will be in the urban consumer class, leading to rising incomes and growing demand for improved processed food products. Products such as high quality cassava flour (HQCF) are becoming increasingly important and can also be used as a substitute for wheat flour in baking. This is particularly attractive given the rising global price of wheat. By substituting HQCF for wheat flour, Nigeria can reduce its import dependence on wheat, and begin to develop a major HQCF market domestically.
- 2. Industrial cassava products:** Although there is opportunity for investment in the local food processing sector, there is far greater potential in the industrial cassava processing space. Products such as cassava starch, glucose, dextrose and animal feed are gaining popularity abroad, and consequently there is growing global demand for these products. In addition, cassava starch and glucose are inputs used in other Nigerian industries, and are often imported. By bolstering the domestic starch and glucose industry, Nigeria could not only substitute imports of these goods but also become a global export leader.
- 3. Innovation in the cassava space:** As cassava has only recently gained widespread recognition as a commercial crop, R&D is in its early stages. This means that innovative new uses for the crop are emerging, some of which could be highly profitable in the future. The use of cassava in biodegradable packaging is just one example. If resources in Nigeria are devoted to R&D in the cassava industry, a variety of marketable innovative products are likely to emerge within the sub-sector and in supporting industries.
- 4. Special Economic Zones and special agro-economic zones:** SEZs devoted to agro-processing are emerging across Nigeria, as are special agro-economic zones. These reflect efforts by the government to attract investment in the agricultural sector, with priority placed on the cassava sub-sector. They provide investors with necessary support and a variety of attractive investment terms.

## Challenges

- 1. Improving infrastructure:** The largest challenges to investors remain infrastructural. Electricity is often unavailable or unreliable, and it is not easy to source financing or credit. The national road system presents challenges for transporting cassava. This is especially problematic as cassava farmers are not concentrated in one area, and cassava is highly perishable.
- 2. High transportation costs:** Cassava must be transported before the tubers begin to perish. Additionally, the value of raw cassava by weight is not very high, meaning that in order to justify the high costs of transport, large truckloads of cassava must be transported in one trip. This can be difficult due to the wide dispersion of smallholder farmers. One solution to this problem is the use of mobile microprocessing units. This technology is, however, very expensive. Opportunity lies in the development of more cost-effective mobile processing units.
- 3. Improving access to modern inputs:** Although access to inputs has improved considerably, inputs are still limited in quality and quantity due to the lack of commercialisation in Nigeria's cassava industry. A failure to improve the supply of inputs to smallholder farmers might compromise the quality of cassava that is supplied to processors. The supply of seeds, agro-chemicals and mechanised farming equipment needs to improve.
- 4. Macroeconomic constraints:** Nigeria is still recovering from the 2014 commodity price crash, and therefore has limited fiscal capacity. This means there is less funding available for agricultural projects that the government intended to implement. On the other hand, Nigeria is working hard to diversify its economy, and has placed considerable focus on developing its agricultural sector.

# Maize in Tanzania



## OVERVIEW

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Tanzania has promising regional and national policies for agriculture but their implementation over the past decade has been slow.



Tanzania provides a low input cost environment with relatively low labour costs. The country's climate is more favourable for maize than that of many other markets.



Though Tanzania has the second largest land area for maize cultivation in Africa, it is only the fifth largest maize producer on the continent. If the country's average maize yield was as high as the global best practice yield, Tanzania would become the largest maize producer on the continent.



Tanzania has a stable political and economic environment. However, investors have to plan for costs resulting from poor infrastructure and fragmented domestic crop distribution channels.

# The importance of agriculture in Tanzania

Over the past decade, Tanzania's agricultural sector has contributed about 31% of national GDP, demonstrating the country's heavy reliance on the sector. With seven agro-ecological zones, and both heavy rainfall and very dry periods, the country boasts one of the most favourable climatic conditions for agriculture in the region. Staple foods include maize, rice, banana and cassava. Six key cash crops (tobacco, cashew nuts, coffee, tea, cloves and cotton) generate about 9% (US\$850m) of the country's annual foreign exchange earnings. The agricultural sector has, however, underperformed in terms of growth, expanding by less than 4% per annum in recent years, against the agreed Comprehensive Africa Agriculture Development Programme (CAADP) minimum target of 6%.

- 1** Tanzania is expected to urbanise aggressively over the next decade. By 2045 the population will be predominantly urban.
- 2** Tanzania's agricultural sector accounts for roughly 30% of GDP and around 67% of employment. Crops form about 70% of agricultural GDP and livestock upwards of 15%. The agricultural sector has, however, grown by less than 4% in recent years, held back low mechanisation and basic infrastructure constraints.
- 3** Maize and cassava are by far the most produced crops in Tanzania. Maize and cassava are both subsistence crops and also the most consumed agricultural product. While maize production takes up almost 75% of total land used for farming, cassava takes only 5%.
- 4** The key focus of Tanzania's second Five Year Development Plan 2016-2020 (FYDP-II) is high growth in the agricultural and agro-processing sectors. However the government is aiming to reduce agriculture's share of GDP as the economy shifts to a more industrial and manufacturing growth trajectory.
- 5** Between 2000 and 2013 both agricultural exports and imports tripled. Tanzania's agricultural trade peaked in 2012, helped by higher prices for its commodities on world markets, making it a net agricultural exporter.
- 6** According to the FAO's latest data cashew nuts are Tanzania's biggest export. In 2013 Tanzania's top five agricultural exports accounted for almost 50% of total exports in both value and volume terms.

Source: FAO, 2017, World Bank, 2017, FYDP-II, 2016, UNDESA, 2014

# An overview of maize production in Tanzania

With about 4 million hectares, Tanzania has the largest planted area of maize in Southern and Eastern Africa combined. Maize is a staple food in Tanzania. Around 80% of maize produced comes from smallholder farmers and is used either as a cash crop or a subsistence crop. Maize production in Tanzania is mostly rain-fed and with a low level of inputs.

Most maize is consumed within the producing households. Only about 35% enters commercial channels. Maize accounts for 60% of caloric intake and 50% of protein intake per person. As the country's population is expected to increase to 137 million people by 2050, maize consumption is predicted to triple. Greater demand is also expected to be driven by rising demand for maize as an animal feed as consumer incomes grow and demand shifts towards higher value meat products.

Source: World Bank, FAO, 2017

After China, Tanzania has one of the highest maize prices in the world. Generally high global grain production levels have caused maize prices to fall well below the peaks of 2013. More recently much of the decline in the maize price has stemmed from expectations of a surge in maize feed supply in China, following a recent policy change that put an end to China's state maize stockpiling programme in 2016/17. The move has already resulted in some declines in domestic maize prices in China and will place further downward pressure on global prices. Therefore, prices are expected to remain under pressure in 2017, before gradually recovering towards 2020, as crop area consolidates and animal feed demand expands steadily.

Tanzania's maize production increased considerably between 2000 and 2014 at a compound annual growth rate of 9%. The increase is largely through expansion of planted areas rather than increased yields. Maize production has kept pace with population increase over the past 50 years. Currently, about 4 million farmers produce over 5 million tonnes of maize. Most production is for home consumption rather than commercial use and for the past decade imports have accounted for less than 5% of total consumption. Although growing conditions are often good for maize, average yields have fallen since 2000 and remain lower than the world and Africa average, at about 1.6 tonnes/ha as opposed to 5.6 and 2.1 tonnes/ha globally and in Africa respectively.

# Capitalising on Tanzania's maize production capacity

Wheat, palm oil, sugar and rice are Tanzania's main imports, accounting, between them, for 84% and 72% of import volume and value respectively. As wheat is the preferred cereal for urban Tanzanians, demand for the crop is expected to increase more than for other cereals due to the forecast increase in population and urbanisation.

Though some wheat is grown in the country, the soil and climatic conditions are for the most part not well suited to it and there is therefore a large wheat import bill. Maize only makes up about 3% of import volume and value. Local supply largely meets demand, even though production is mainly by subsistence farmers.

Tanzania is therefore expected to focus on increasing maize production to boost exports. However, as maize is the country's main staple food crop and the cornerstone of food security in the country, the government has also made it a priority to guarantee domestic supply. As a result, the legal export of maize has become a complex process. It entails obtaining permits approved

by the district, regional and central authorities of the Ministry of Agriculture, Food Security and Cooperatives. This requires five letters from government officials, and represents a considerable additional cost to the exporter. In addition, the authorities ban maize exports whenever national reserves are considered low. In the past decade maize export bans were instituted in 2004, 2006, 2008, 2009, 2011 and 2016, during domestic and regional droughts, to ensure national food security.

The bans have deterred greater investment in the crop as producers have failed to take advantage of favourable maize export market conditions. Government has recognised the private sector challenges resulting from the bans and as a result put forward initiatives to boost crop production such as the Big Results Now (BRN) programme.

The goal of BRN is to increase maize production by 100,000 tonnes per year beginning in MY\* 2015/2016, and to achieve 350,000 ha of land in commercial production and 330,000 ha

in smallholder production by 2025, permitting an increase in maize exports. The country's maize exports policy remains unchanged and due to the past uncertainty of this policy, private sector maize producers should focus on producing for the domestic market in the medium term, rather than export market in order to remain profitable.

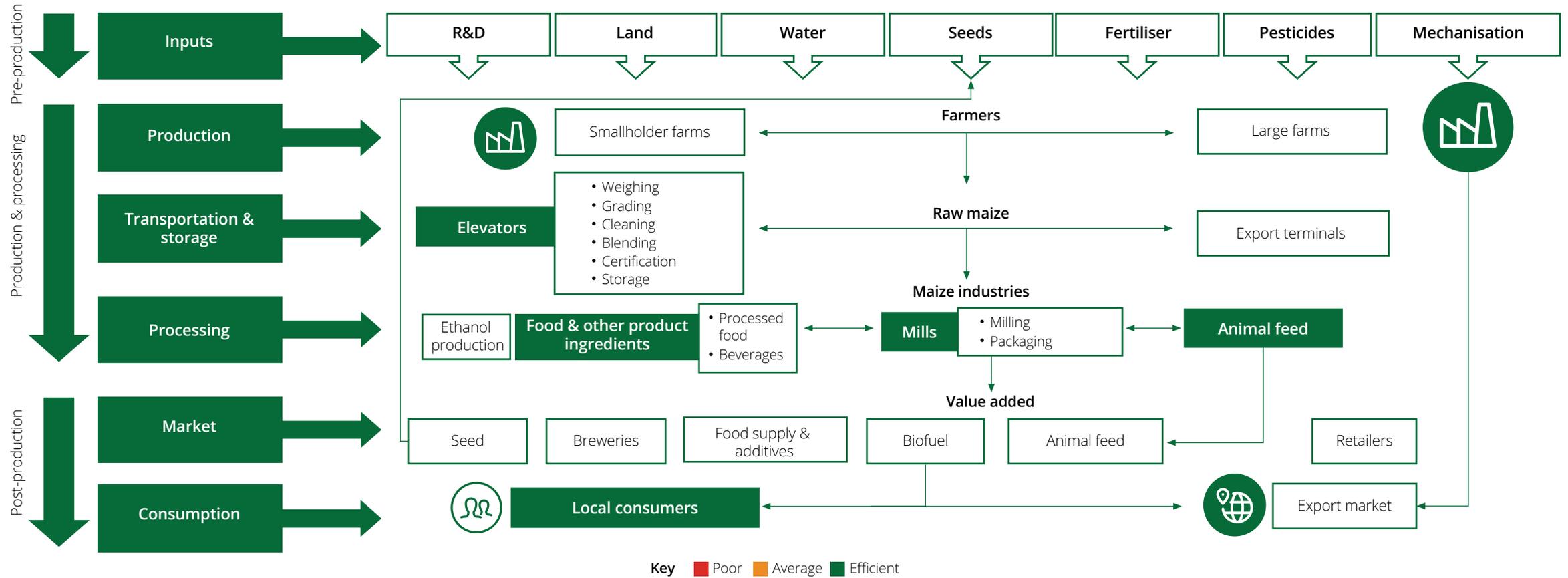
Maize export volumes ranged between 15,000 and 240,000 tonnes since 2000 despite the export bans. The countries importing Tanzania's maize are mainly regional neighbours, including Zambia, Malawi, Rwanda, Burundi, the Democratic Republic of Congo and Kenya. In 2016, Malawi approved 50,000 tonnes of maize imports from Tanzania following a severe drought which reduced availability in the country.

Though export levels remain low, Tanzania has the potential to feed itself and export maize to neighbouring countries. Estimates suggest that by 2020 regional demand for imported maize will rise to 8 million tonnes. With the right support, Tanzania could meet 2 million tonnes of this demand.

Source: FAO, 2017. \* MY = Marketing Year

# Best practice maize value chain: global strategic framework

The global best practice maize value chain makes use of improved seed variety, a result of ongoing research and development (R&D). It also makes use of modern agrochemicals and machinery, advanced irrigation systems, cutting edge agronomic practices and the latest farming technologies.



Source: Adopted HighQuest Partners, 2013 \* Based on the US value chain

# Gaps in the Tanzanian maize value chain



## Inputs

**Fertiliser:** Maize production makes limited use of modern inputs. At about 9kg/ha for maize, Tanzania has historically had a low level of fertiliser application, among the lowest in the world. About 87% of farmers in the Southern Highlands do not use any form of chemical fertiliser, and farmers in marginal areas are less likely to use fertiliser than those in higher potential areas. Lack of nitrogen is the principal limiting factor to maize production, but other nutrient deficiencies, especially phosphorus and potassium, are also important. Furthermore, many maize growing regions are faced with acidic soils which limit the uptake of chemical fertilisers by maize crops and so fertiliser use needs to be supplemented with application of lime to improve uptake by neutralising the soil.

**Seeds:** There are around 50 seed companies registered in Tanzania and most of them import seed rather than produce locally. No multinational seed company has

its own maize seed programme in Tanzania due to lack of plant breeders' rights (PBR), lack of protection from the International Union for the Protection of New Varieties of Plants (UPOV), and poor enforcement of patents. A range of restrictive regulations also do not encourage innovation or the rapid, widespread adoption of new and suitable maize seed varieties even when they are already commercially released in neighbouring countries.

**Pesticides:** Only about 5% of all purchased agrochemicals are used for maize in Tanzania, giving significant room for improvement in crop yields by increasing pesticide usage. Farmers are also deterred from pesticide use due to prevalence of counterfeit agrochemicals. Poor pesticide use poses a serious threat to maize production in Tanzania due to limited regional protection from contagious maize crop diseases.



## Production

**Skills & technology:** Irrigation and farming technology is not commonplace and rainfall dependence is high – leading to volatility in harvests. Farmers are not well organised nor educated and farming is still at a rudimentary, low mechanised level with more than 80% of maize produced using manual labour. Farmers fail to produce maize profitably enough to maintain a good cash flow throughout the year due to

poor access to market information. Though production levels to some extent meet domestic demand they remain far from optimal due to poor linkages between each stage of the value chain. Global yields over 2010-2014 are on average 4.7 tonnes/ha, whereas Tanzania's yields remain low at 1.4 tonnes/ha due to inefficient farming practices, and the largely subsistence nature of maize farming in Tanzania.

# Gaps in the Tanzanian maize value chain (cont.)



## Traders & transport

**Transport:** Consumption of maize within Tanzania is more evenly distributed than production due to poor transport infrastructure in rural areas where most of the country's maize is grown. Although the infrastructure backbone in the southern highlands where maize is mostly produced is relatively good, the feeder roads and last mile infrastructure is not. Transport is consequently a crucial bottleneck in the maize value chain and significant public and private sector investment will be required if farmers are to get their crops to market more efficiently and cost effectively.

**Storage:** Rural storage capacity needs considerable expansion. Insufficient and low quality grain storage is a constraint to efficient maize marketing. The availability of suitable local storage is a major factor in the potential expansion of maize farming. Farmers lose up to 30% of their crop in on-farm stores, which is an incentive for farmers to sell soon after harvest at unprofitable prices. Many of the old government stores that were built by cooperatives have been informally privatised. Others have fallen into disuse.



## Processing

**Millers:** Processing is limited as most maize is milled and then directly consumed or used for animal feeds. Minimal quantities are used further up the processing value chain in industries such as breweries, processed feed, biofuel and processed food, among others. Small-scale mills (in both rural and small town locations) produce over 90% of the country's milled maize as well as the majority bought by Tanzanian

consumers. Millers at this level complain about poor profitability due to insufficient throughput from farmers. Most small mills are informal and if these operators were formalised, many would go out of business as their meagre margins and small volumes cannot sustain the additional costs. Relative to best practice, Tanzania's maize processing capacity is still quite underdeveloped.



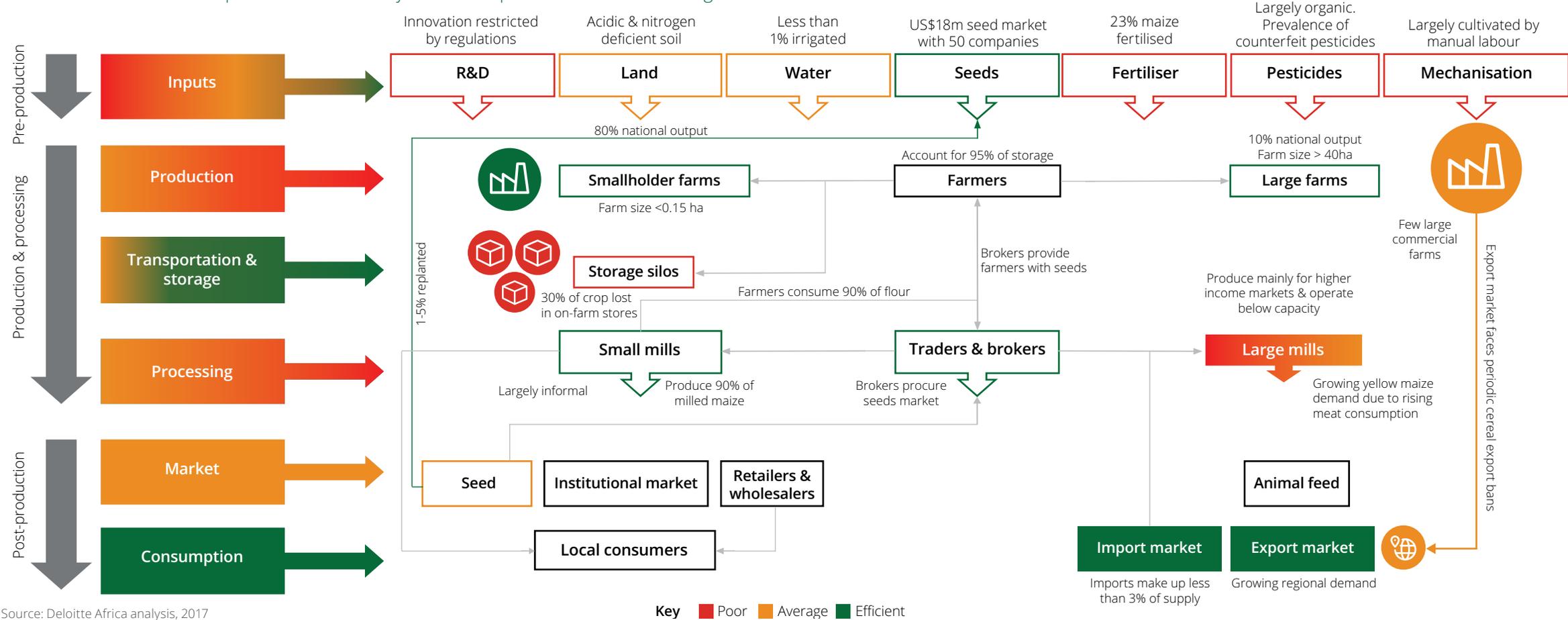
## Market

**Distribution & commercialisation:** The vast majority of trade in Tanzanian maize passes through informal, unregistered and unregulated channels. The trade has many different facets. At the village level, farmers take a part of their surplus to the local miller either to be milled and sold, or milled for home consumption. The sale of maize at this level is often triggered by a specific family cash requirement (school fees, a funeral, a wedding, or a land dispute) rather than being part of a longer-term commercial strategy. The links between the potential demand, processors and

producers is constrained by structural, political and administrative factors. As a result, there is minimal pull in the value chain to stimulate improvements in production. At the political level, the government is simultaneously trying to ensure adequate returns for maize producers while maintaining low prices for consumers. The focus on domestic self-sufficiency and affordable prices for urban consumers has blocked the space for a more productive and profitable commercial maize sub-sector that looks to develop and expand markets, and attract further growth in production.

# The Tanzanian maize value chain: detailed domestic framework

Though Tanzania produces sufficient maize for domestic consumption, its value chain remains relatively undeveloped compared to global best practice. The sub-sector is still largely subsistence-based with low yields due to poor farming techniques, including low fertiliser and pesticide usage and low mechanisation levels. Despite having significant land and water resources for agriculture, productivity remains low due to limited crop research and development and poorly developed supporting infrastructure across the value chain. On the other hand, despite slow adoption of new seed varieties, maize seed distribution and production is relatively robust compared to the rest of the region.



Source: Deloitte Africa analysis, 2017

# Maize production opportunities and challenges in Tanzania

## Opportunities

- 1. Rising regional demand:** It is expected that domestic and regional demand will grow significantly, with additional demand for yellow maize for feed stock. Tanzania is well endowed in terms of natural resources to meet this rising demand. As the country's maize production is largely carried out using manual labour, should production be mechanised and advanced technology implemented, maize yields and production volume can improve significantly and meet shortfalls in the region.
- 2. Establishing value chain linkages:** Tanzania's value chain linkages remain underdeveloped. However, with strong policy commitment from the authorities and support from established industry players, the chances of building a robust value chain in Tanzania are high. This would generate positive spin offs at every level of the value chain and for supporting industries. Creating a robust maize value chain would also result in medium-term benefits for fertiliser, seed and value added maize products producers.
- 3. Climate change:** Recent analysis by the World Bank indicates that some of Tanzania's trading partners will experience severe dry conditions that may reduce agricultural production in years when Tanzania is only mildly affected. Climate change may further improve Tanzania's maize export advantage.

## Challenges

- 1. Policy:** The uncontrolled supply of counterfeit seeds and chemicals and poor enforcement of patents hinders investment in the sector, especially in research and development. Furthermore, the maize value chain is still largely informal and government policy on organising and commercialising the sub-sector remains weak, with no clear national maize development strategy.
- 2. Political interference:** Maize is perceived as a politically important crop for food security, and so production and distribution is at times tightly regulated, especially in periods of drought.
- 3. Information asymmetry:** Poor market information means too many inefficient and costly steps between producers and consumers in the commercial market. The situation is worsened for players higher up the value chain who rely on domestic farmers, as most maize farmers operate at subsistence rather than commercial level and are often misinformed about market conditions.
- 4. Infrastructure:** Though the government is making renewed efforts to improve national infrastructure, inadequate rural infrastructure, especially access to roads and electricity, continues to hamper development of the maize value chain. Tanzania relies on its road network as the main mode of transport. Its national roads across the country are of good standard but last mile roads in rural and remote areas remain in poor condition, making to and from logistics inefficient and creating a bottleneck in most crop value chains, including maize.
- 5. Climate change:** Despite creating a possible export advantage, on the other hand maize production in Tanzania remains at risk of the devastating impact of climate change if the government and the private sector do not take the necessary mitigation measures such early warning systems for drought and flooding and upskilling of producers in climate change farming technologies.

# Key takeaways



# Key takeaways



## WHEAT IN ETHIOPIA

Ethiopia remains the largest producer of wheat in SSA, yet also a major importer.

The policy structure of the sector is somewhat restrictive currently, due to government control on international trade.

There could, however, be a change in policy brought about by an increase in local production which reduces the need for wheat imports.

Rising income levels in Ethiopia point toward increased demand for value added wheat products, with considerable future opportunities for processed wheat product manufacturers.

With rising wheat consumption, derived demand in the domestic market for inputs to grow wheat is also expected to rise, with significant opportunities for seed, fertiliser and pesticide producers, and for other inputs.



## CASSAVA IN NIGERIA

Cassava is gaining popularity in many countries due to its variety of uses and the ease with which it can be produced.

The opportunities to expand the Nigerian cassava industry are vast.

The most promising investment opportunities lie in the industrial production of cassava starch.

Not only can it be exported, but it can substitute for the importation of starch as an input in local manufacturing sectors.

A new mobile processor has emerged, making it possible to process cassava into wet fufu on site in remote areas.

Although expensive, these mobile processors could transform cassava production in Nigeria, and address transport challenges between farm and factory.



## MAIZE IN TANZANIA

The opportunities in Tanzania's maize value chain are both large and diverse. Irrespective of political interference, both the domestic and the export market are expected to grow for locally produced white and yellow maize.

Annual demand for maize in Africa is expected to reach 52 million tonnes by 2020, creating export opportunities for countries that are well positioned to produce maize.

The current lack of value-added activities provides ample opportunity as the country is expected to shift towards a more protein-based diet requiring livestock feed.

Current practices can be improved substantially to increase yields, making harvests more reliable and export possibilities more stable.

The investments necessary to achieve increased yields, let alone set up a structure of higher value-add activities, will be considerable.

For production alone, good farming practices, storage, irrigated lands, and access to finance for inputs are all required. None of these is likely to improve in the short term.

# References and contacts



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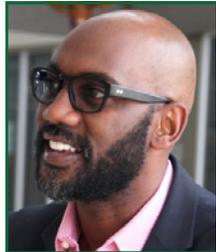
Besides professional services, we develop points of view on a wide range of subjects. An overview of relevant publications for Agribusiness in Africa is provided below:

# References

- AGRA. (2016). Africa Agriculture Status Report 2016.
- Agricultural Growth Program. (2017). Ethiopia Agricultural Growth Program. Ministry of Agriculture.
- Azouz, A. (2017). Ethiopia Population Density. Arcgi. <http://www.arcgis.com/home/item.html?id=ea6bb39cf4734ecf9e4fe01e58da41a0>
- Bergh, K., Chew, A., Gugerty, M., & Anderson, C. (2012). Wheat Value Chain: Ethiopia. Evans School Policy Analysis and Research.
- Buzanakova, A. (2014). Land Use And Agricultural Inputs. Ethiopia Data Portal.
- Central Intelligence Agency. (2017). The World Factbook. Washington D.C: CIA.
- Ethiopia Energy Situation. (2017). Energypedia. [https://energypedia.info/wiki/Ethiopia\\_Energy\\_Situation](https://energypedia.info/wiki/Ethiopia_Energy_Situation)
- Ethiopia Population (2017) – Worldometers. (2017). Worldometers.info. Retrieved 13 March 2017, from <http://www.worldometers.info/world-population/ethiopia-population/>
- FAOSTAT, 2014. FAOSTAT online database. <http://faostat3.fao.org/>
- Howeler, R., Litaladio, N., & Thomas, G. (2013). Save and grow: Cassava. FAO.
- Invest Ethiopia. (2017). Ethiopian Investment Commission. Retrieved from <http://www.investethiopia.gov.et/>
- Lotfi Senhadji, K. (2016). How Africa can turn a food deficit to surplus. Financial Times.
- Lyddon, C. (2010). Focus on Ethiopia. World Grain.
- Macauley, H. & Ramadjita, T. (2015). Cereal Crops: Rice, Maize, Millet, Sorghum, Wheat. AfdB.
- McMullan, S. (2014). Maize Bumper Crop Triggers Reassessment of Ethiopia's Cereal Export Ban. Research for Ethiopia's Agriculture Policy.
- Ministry of Finance and Economic Development. (2017). Growth and Transformation Plan (GTP) 2010/11-2014/15. The Federal Democratic Republic of Ethiopia.
- Ministry of Finance and Economic Development. (2003). Addis Ababa.
- Minot, N. (2010). Staple food prices in Tanzania.
- Minot, N., Warner, J., Lemma, S., Kasa, L., Gashaw, A., & Rashid, S. (2015). The Wheat Supply Chain in Ethiopia: Patterns, trends, and policy options. Washington: IFPRI.
- Molla, A. (2015). Why Ethiopia. AGRIBiz.et. Retrieved from <http://agribiz.et/why-ethiopia/agribusiness/>
- Mugabe, C. (2014). The challenges of land ownership in rural Tanzania: What needs to be done?. Tanzania Land Policy Action Node, 4.
- Mugila, J. (2016). Acquisition of Land by Foreigners in Tanzania. Hogan Lovells.
- National Planning Commission,. (2015). The Second Growth and Transformation Plan (GTP II) (2015/16-2019/20). Addis Ababa: The Federal Democratic Republic of Ethiopia.
- Tamiru, H., Quinlan, D., Gizaw, S., & Jones, C. (2014). Ethiopia: A Growth Miracle. Deloitte.
- Tanzania Production Potential. (2013). Fao.org.
- The Wall Street Journal,. (2016). Ethiopia Set to Gain Transport Lifeline to Sea with New \$4 Billion Railway.
- Trevor Wilson, R. & Lewis, J. (2017). The Maize Value Chain in Tanzania – A Report from the Southern Highlands Food Systems Programme. Food and Agriculture Organization of the United Nations (FAO).
- Woldu, T., Abebe, G., Lamoot, I., & Minten, B. (2013). Urban Food Retail in Africa: The case of Addis Ababa, Ethiopia. International Food Policy Research Institute.
- World Bank Group,. (2017). Doing Business 2017. Washington: The World Bank.
- World Bank Group,. (2017). World Bank Data Bank online database. Washington: The World Bank.

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Consulting  
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