

PIGA

Partnership for Investment and Growth in Africa

INVESTMENT OPPORTUNITY STUDY FOR ETHIOPIA, KENYA, MOZAMBIQUE AND ZAMBIA



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Acronyms and Abbreviations

Unless otherwise specified, all references to dollars (\$) are to United States dollars, and all references to tons are to metric tons.

The following abbreviations are used:

AGOA	African Growth and Opportunity Act
AISE	Agricultural Inputs Supply Enterprise
CAGR	compound annual growth rate
CET	customs external tariff
COMESA	Common Market for Eastern and Southern Africa
DfID	Department for International Development
EIU	Economist Intelligence Unit
FAO	Food and Agriculture Organization
FDI	foreign direct investment
FRA	Food Reserve Agency
FTA	free trade area
GDP	gross domestic product
GMP	Good Manufacturing Practices
GTP	Growth and Transformation Plan
ICT	information and communications technology
ITC	International Trade Centre
KPLC	Kenya Power and Lighting Company
NTB	non-tariff barrier
PIGA	Partnership for Investment and Growth in Africa
SGR	standard gauge railway
SMEs	small and medium-sized enterprises
SPS	sanitary and phytosanitary
WHO	World Health Organization

Chapter 1. Background and features of the study

1. Background of the study

International Trade Centre (ITC) of the United Nations (UN), in partnership with The China-Africa Development Fund (CADFund) of the People's Republic of China and the Department for International Development (DfID) of the United Kingdom of Great Britain and Northern Ireland, is implementing a project that aims to increase sustainable incomes in selected African partner countries through exports and investment promotion, as well as enhancing integration of African small and medium-sized enterprises (SMEs) into the global value chains. The project is called CADFund-DFID-ITC Partnership for Investment and Growth in Africa (PIGA).

The primary objective of the China-Africa Development Fund (CADFund) is to support Chinese companies interested in investing in Africa by building business linkages and economic and trade cooperation. The CADFund-DFID-ITC partnership will further strengthen such initiatives by enhancing trade and investment between China and Africa through addressing the bottleneck issues for bilateral trade, such as lack of market information, limited supply side capacities, impediments to trade and investment, and lack of access to finance and investment capital for African SMEs.

For each of the beneficiary countries, the project will seek to support in-ward investment (in particular, from China, but also the United Kingdom and other European Union countries) in selected sectors. Through increased investment and further capacity building initiatives undertaken under the project, it is envisaged that businesses (focussing on SMEs) within these sectors will become export ready – which will also contribute to positive effects on efforts to improve the socioeconomic conditions of these countries.

2. Understanding of the requirements

During the design phase of the project, ITC seeks to better understand which are the specific agriculture and light manufacturing sectors that offer the greatest opportunity for increased exporting if stimulated by increased investment. In order to assist in doing this, two key studies are deemed necessary:

- 1) Assessment of the sector market potential and supply capacities;
- 2) Assessment of sectors considered to have most investment opportunity potential.

However, the study will not overlook or disregard other sectors with investment potential of interest to potential investors.

The findings in both of these studies will be further presented to and deliberated with local stakeholders and experts so as to arrive at and agree upon sectors that the project will support during the implementation phase.

The study will be carried out in four selected African countries, namely the Federal Democratic Republic of Ethiopia, the Republic of Kenya, the Republic of Mozambique and the Republic of Zambia.

3. Design of the study

This study has been carried out in six steps:

The first is Internet-based. It involves researching and perusing all relevant documents, reports, publications, websites, news media and others for material suitable or useful to this study, as background, context, reference or adaptable content.

The second involves visits to the beneficiary or target countries to investigate and collect data and information that will be important to help verify, proof, corroborate, support, fortify or otherwise revise, review, edit and correct some or all of the information, assumptions, theses, deductions and conclusions

made in the research, especially with reference to the specific countries, their economies and assessed investment opportunities.

The third involves drafting of the report, relying substantially on material available, plotting, extrapolation, manipulation and interpretation of data, and the consultant's own perspectives, knowledge and informed assumptions.

The fourth is to share and discuss the first cut draft findings with the group of internal stakeholders and benefit from initial reviews and suggested edits.

The fifth is to present and discuss the report with the various groups of external stakeholders and bring on board crucial final views and reviews at this important stage.

The sixth and last is to conclude and formally release the final report to the client.

4. Study tools utilized

The following are the main tools and modes of information gathering employed in this study:

1. Internet searches and electronic research
2. Physical and hardcopy research
3. Interviews
4. Questionnaires

5. Major sources of information and data

Realistically, the principal sources of information and data for the proposed study were as follows:

1. Diverse and dynamic Internet searches
2. Recent relevant published books
3. Professional journals and research publications
4. National and regional policy and sessional papers
5. Think tanks and strategy consulting houses' papers and reports
6. Relevant government ministries, departments, regulators and oversight agencies
7. Trade and investment promotion agencies
8. National Chambers of Commerce and Industry
9. Trade associations
10. Commercial and SME lending divisions of commercial banks
11. Regional development banks
12. Logistics companies
13. ITC-provided reports and publications

6. Issues to consider and limitations of the study

The scope of work was limited by time, resources and cost considerations and did not extend to carrying out the level of due diligence and detailed study on the economies' and sectors' historical and prospective performance that would be needed to complete and issue a comprehensive opinion.

Hence, the conclusions presented in this report are indicative and more targeted in-depth investigations and analyses may need to be carried out at the investment execution on the areas highlighted and in the implementation of the recommendations in this report.

While the work involved an analysis of information, data and records in the public domain or accessed through third-party engagements, the study does not include an audit of the authenticity, accuracy and veracity of the information that was relied upon. Accordingly, no responsibility can be assumed or representations made with respect to the completeness of any information and conclusions or recommendations to be made on the basis of such.

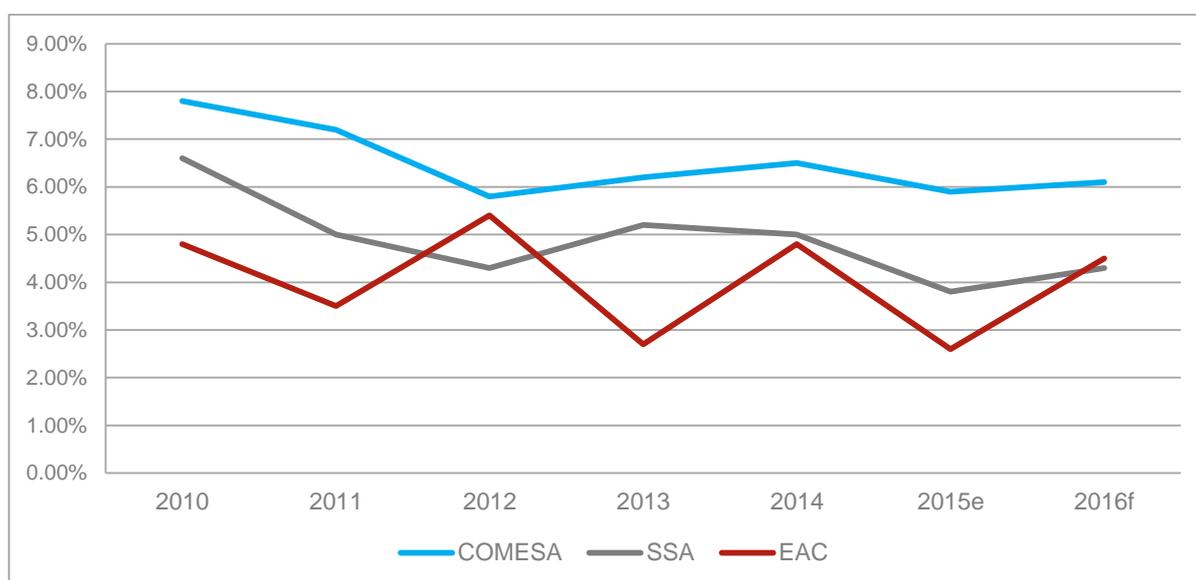
Chapter 2. Summary of COMESA Trade Facilitations achievements, 2010–2015

Economic growth

Progress in the Common Market for Eastern and Southern Africa (COMESA) region has been achieved via sound macroeconomic management, market-based reforms and continued structural progress in many countries. The region recorded a growth rate of 6.6% in 2013, up from 5.5% recorded in 2012. In 2013, the combined gross domestic product (GDP) for the COMESA region stood at US\$ 638.6 billion compared to US\$ 553.9 billion in 2012, a growth rate of 15.3%.

The region’s growth continued to thrive under the positive impact of increased trade and investment ties with emerging economies, greater domestic demand underpinned by the new, urbanizing consumers with rising incomes, and public spending on infrastructure, improved economic governance and management that supported macroeconomic stability and improved the investment environment in many countries in the region.

Figure 1. Real GDP – comparatively (2010–2016)



Source: International Monetary Fund (IMF)

According to the International Monetary Fund (IMF), the real GDP was expected to grow by 5.9% in 2015 (down from 6.5%) and 6.1% in 2016.

Removal of barriers to factor mobility

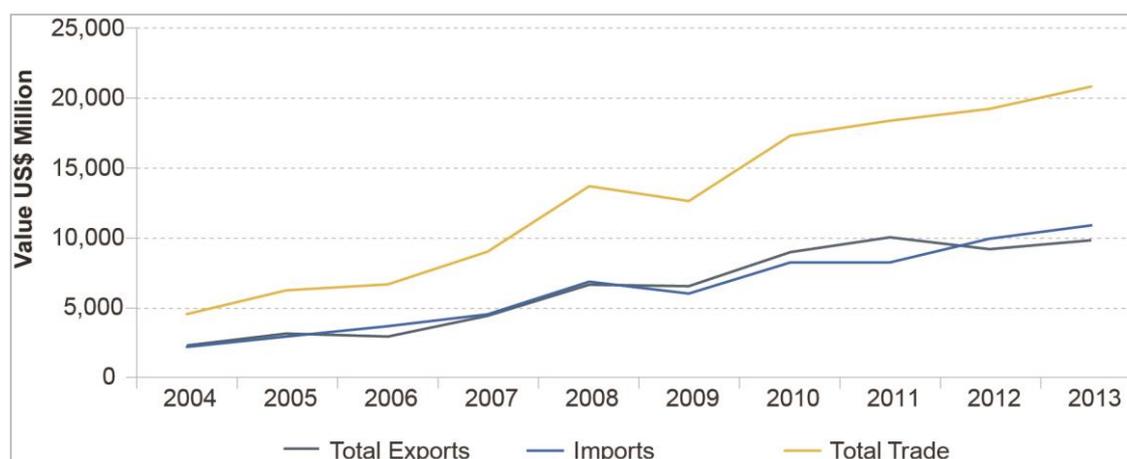
The objective of the priority area was to eliminate barriers to factor mobility by focussing on the improvement of market access and the creation of an open trade, investment and production space. Good progress under this priority area was noted as follows:

Total COMESA trade continued to grow. It was reported that, in 2013, total intra-COMESA trade grew by more than 64% from 2009. Egypt registered the biggest market share of 24% for intra-COMESA exports, followed by Kenya (19%), Zambia (18.6%) and the Democratic Republic of the Congo (17%). On the import side, Zambia maintained its position as the country with the biggest market share of 26%, followed by the DRC (18%) and Libya (12.8%). Copper ores and concentrates topped the table for the most-exported products in value terms within the region. Second to copper ores and concentrates were portland cement, followed by other black fermented tea and sulphuric acid.

To consolidate the internal market, non-FTA member states, namely Ethiopia and the State of Eritrea, were assisted in the process of joining the COMESA FTA between 2011 and 2015. The DRC and the Republic of Uganda raised the number of participating member states to 16. Significant capacity building has been undertaken in Ethiopia on the application of the FTA, stakeholder workshops have been held to create ownership and decisions made at the highest political level.

In Eritrea, capacity building continues to assist the member state to join the FTA, while the Kingdom of Swaziland remains under derogation until entry into force of the Tripartite.

Figure 2. Intra-COMESA trade performance (2004–2013)



Source: COMESA Medium Term Strategic Plan 2016–2030

The Customs Tariff Nomenclature (CTN) is currently based on the WCO 2012 version for coding and description of commodities. As at December 2013, 15 member states have adopted the HS 2012 as their national tariff nomenclature, five countries (the Republic of Mauritius, Zambia, the Republic of Zimbabwe, the Republic of Djibouti and Ethiopia) targeted to domesticate the CTN by end of 2014 and achievements will be determined in June 2015. Four countries (the Union of the Comoros, the DRC, the Republic of Malawi and the Republic of Madagascar) target to domesticate by end of 2015. The Republic of Burundi, the Comoros, the DRC, Eritrea, Kenya, Madagascar, Malawi, Mauritius, the Republic of Rwanda, the Republic of the Sudan, Swaziland and Uganda had submitted the final list of sensitive products by the end of 2013.

COMESA customs external tariff (CET): Four member states: Burundi, Kenya, Rwanda and Uganda have aligned their tariffs to the COMESA customs external tariff (CET) by 74%, while Zambia, Zimbabwe, the Comoros, the DRC, Malawi and Madagascar are targeting to domesticate the CET by the end of 2015.

COMESA Customs Management Regulations (CMR): Six member states: Burundi, the Comoros, Kenya, Rwanda, the Republic of Seychelles and Uganda have aligned their national regulations to the COMESA Customs Management Regulations (CMR) by 100%, while Ethiopia, Malawi and Zambia have aligned by 99%, with only one provision pending alignment. The Arab Republic of Egypt, Swaziland and Zimbabwe have not aligned two provisions; Madagascar, Eritrea, Sudan and Mauritius have not aligned 11 provisions. The DRC and Djibouti have 19 and 21 provisions not aligned respectively. Currently, there is no member state that has domesticated the CMR.

Non-tariff barriers (NTBs): An online mechanism for reporting non-tariff barriers (NTBs) within the COMESA-EAC-SADC Tripartite region was established in 2008. Since 2008 and 2014, 476 NTBs have been reported and 385 (81%) resolved. Among these, 171 were reported in the COMESA region and 92.4% have been resolved, leaving 13 outstanding.

COMESA-EAC-SADC Tripartite: Leadership was provided during the COMESA-EAC-SADC Tripartite negotiations for the market integration pillar. Key instruments were developed to guide the negotiations

from December 2011 to June 2015. The negotiations resulted in the launch of the Tripartite Free Trade Area (TFTA) in June 2015.

Trade in services: Member states agreed on priority service sectors for which each state has prepared schedules of specific commitments. The four priority sectors are transport, communication, financial and tourism services. Fifteen member states have since submitted their schedules of specific commitments. In order to meet the substantial sectoral coverage in services liberalization, member states agreed on three additional priority sectors, namely business, energy and construction services.

Trade facilitation programmes: COMESA continued to implement various trade facilitation programmes such as the Yellow Card Scheme, Regional Customs Transit Guarantee, one-stop border post, road standards, customs documentation, Regional Payment and Settlement System (REPSS), Automated System for Customs Data and Management (ASYCUDA), Simplified Trade Regime (STR) and regulations on minimum standards for treatment of small-scale border traders, the COMESA Virtual Trade Facilitation System (CVTFS) and the COMESA Electronic Market Exchange System (CEMES).

The COMESA Monetary Institute (CMI) was established, as well as a Convergence Council.

Further, programmes on macroeconomic convergence and fiscal surveillance were implemented in order to promote macroeconomic stability in the region.

Cooperation and Partnerships: Analytical work was undertaken to guide and identify areas of cooperation in trade matters. The studies assessed future engagement, particularly concerning the trade relationships with the Republic of India and the United States of America. In addition, an analytical study was undertaken regarding the East and Southern African countries' (ESA) position to guide the economic partnership agreements (EPA) negotiations with the European Union (EU).

Sanitary and phytosanitary (SPS) programme: Progress has been made in the domestication of SPS regulations. The domestication ensures that the application of SPS measures does not unnecessarily hinder trade in food and agricultural products in the region. Initiatives included enhanced surveillance programmes for priority risks such as fruit fly surveillance in Zambia and Zimbabwe and aflatoxin mitigation in Zambia, Kenya and Malawi.

There was also enhanced competence of regional reference laboratories for plant health, animal health and food safety through provision of equipment and training programmes and strengthening of satellite aflatoxin analysis laboratories participating in the proficiency testing scheme in the DRC, Rwanda, Kenya, Malawi, Zambia and Zimbabwe. Enhanced competence was for the mutual recognition of certificates of analysis and one-time testing in order to reduce trading costs and delays in placing goods on the market, among others.

In addition, COMESA adopted the Strategic Plan on Standardisation and Quality Assurance for the period 2016-2020.

Building competitive productive capacity

The objective of this priority area is to enhance competitiveness and build regional productive and technological capability in agriculture, industry and services.

Industrial policy: The COMESA industrial policy for the period 2015–2020 was developed and adopted by the policy organs. The authority urged member states to domesticate the policy aimed at establishing a diversified industrial base for economic transformation, supported by an institutional regulatory environment that is favourable to industrial enterprises.

SME policy and strategy: COMESA adopted the SME Policy and Strategy to create and maintain an enabling environment for long-term growth of SMEs through building competitive productive capacities as well as supply of value-added goods and services to regional and global markets.

Cluster initiatives: COMESA implemented SME clusters in the following key priority areas: leather, cotton to textile, and agro-processing. The Cassava Cluster Programme aims to promote value addition by supporting the formation of national and regional clusters in the cassava subsector, as a mechanism for

boosting job creation, intraregional trade and poverty alleviation. It has been implemented in the following member states: Burundi, Kenya, Malawi, Madagascar, Uganda and Zambia. In addition, the programme is facilitating the creation of agro-processing SME clusters in seven member states.

Intra-COMESA FDI: FDI inflows from specific survey years show that the average COMESA-originating FDI inflows into Egypt over the period 2007–2013 was US\$ 38 million, representing 94% of African-originating FDI into Egypt. FDI inflows into Madagascar from COMESA averaged US\$ 94 million for the period 2007–2012 and these were mainly from Mauritius. The Republic of South Africa continues to be the singular source of African-originating inward FDI into Mauritius, and this amounted to an average of US\$ 56 million over the period 2007–2013. In the case of Uganda, the average FDI inflows from Africa for 2007–2012 amounted to US\$ 47 million from COMESA and US\$ 27 million from South Africa. An average of US\$ 22 million worth of FDI between 2007 and 2012 into Zambia was from COMESA member states. Within the same period, the average South African inflows in Zambia were worth US\$ 92 million.

FDI trends by sector: Out of a total of 20 sectors, the top five account for the majority of projects. Financial services are the top sector, accounting for the majority of projects tracked. Project volume in this sector peaked during 2009, with 20 projects tracked.

By 2012, building and construction materials has both the highest total and highest average investment at US\$ 311.5 million overall and US\$ 155.8 million per project. Food and tobacco has generated the highest number of total jobs, while building and construction materials have the largest project size, with 450 jobs per project on average.

Table 1. FDI trends by sector

Sector	No. of projects	Jobs created		Capital investment	
		Total	Average	Total (US\$ m)	Average (US\$ m)
Financial services	54	125	17	0.50	0.50
Food and tobacco	11	500	250	20	10
Coal, oil and natural gas	7	0	0	0	0
Communications	6	0	0	0	0
Metals	5	204	204	7.50	3.80
Building and construction materials	4	450	450	311.50	155.80
Automotive components	3	0	0	0	0
Electronic components	3	235	235	61	30.50
Chemicals	3	48	48	37.60	18.80
Beverages	2	225	225	0	0
Other sectors	11	0	0	242.20	34.60
Total	109	1 787	1 429	680.30	254

Source: FDI intelligence from the Financial Times Ltd.

Business Environment: COMESA member states are making efforts at a different pace on improvement of their business environment through appropriate policy and regulatory reforms, with Mauritius leading the COMESA group in the worldwide rankings.

Chapter 3. Country economic background and policy environment analyses

This chapter looks at each of the four countries to interrogate the obtaining economic and business landscape as well as projections into the foreseeable future. It examines the key economic indicators, national business policy and regulatory environment, exposing key policy initiatives and objectives, investment and commercial incentives, key tariff or non-tariff protocols in force from membership in trading blocs, and main features of existing inward investment codes and guidelines.

It also explores the underlying national economic competitiveness by looking at and analysing the enablers of business and efforts being made to bring down the cost of doing business, e.g.:

- Availability, reliability and unit costs of electricity, and the stability or lack thereof of electricity prices,
- Availability, reliability and unit costs of oil, and the stability or lack of oil prices,
- Availability, reliability and unit costs of unskilled labour, and the stability or lack of labour prices,
- Summary aspects of relevant sections of the national labour laws, labour relations, rights and privileges and obligations of organized and non-organized labour,
- Summary aspects of the relevant sections of environmental law pertaining to agriculture, manufacturing and services sectors,
- Summary country performances in “Ease of Doing Business” measurements according to the latest annual World Bank surveys.

1. Kenya: Economic background and policy environment overview

The private sector in Kenya has been at the forefront of economic growth since the 2000s. As an enabler, the Government of Kenya set development benchmarks for a number of priority sectors through the Vision 2030 blueprint.

Kenya offers several advantages to businesses operating in the region, such as:

- Strategic location
- A diversified economy resulting in good economic performance across all sectors
- A strong demography with an emergence of a new middle class and a young workforce

However, the country faces some concerns and uncertainty with regards to political stability and implementation of key economic reforms following the promulgation of a new constitution in 2011. These risks are mitigated by a strong political and social will to implement changes as well as ongoing judicial reforms.

During the tenth World Trade Organization (WTO) Ministerial Conference, Kenya Investment Authority (KenInvest) in collaboration with the United Nations Conference on Trade and Development (UNCTAD), launched eRegulations, Kenya’s first e-platform for investment facilitation. The eRegulations system is an online database designed to make administrative procedures transparent, swift and efficient.

Additionally, the creation of Huduma Centres all across the country managed to improve Kenya’s position in the World Bank’s Ease of Doing Business Index. The Huduma Centres are government-provided e-government service centres that bring different government services delivery in one online platform.

Table 2 shows a summary of country performances in Ease of Doing Business measurements according to the latest annual World Bank surveys (www.doingbusiness.org).

Table 2. Ease of Doing Business Index (ranking out of 189)

Topics	Kenya	
	DB 2016 rank	DB 2015 rank
Starting a business	151	148
Dealing with construction permits	149	152
Getting electricity	127	141
Registering property	115	121
Getting credit	28	118
Protecting minority investors	115	114
Paying taxes	101	99
Trading across borders	131	131
Enforcing contracts	102	102
Resolving insolvency	144	145
Overall	108	129

Kenya has improved substantially in the area of getting credit, a consequence of the massive reforms in its financial sector and efforts towards greater financial access and deepening. It also recorded marked improvements in property registration on the account of automation of the processes, and in having power connected following initiatives by the government to lower the cost of connections and investments in generation to increase electricity supply.

Kenya is a member of COMESA, with 19 countries, 14 of which are in a free trade area (FTA).

Kenya is also a member of the two regional blocks East African Community (EAC) and COMESA.

Electricity

The electricity sector in Kenya is regulated by the Energy Regulatory Commission (ERC), which also sets the tariffs for retail and commercial consumption of electricity.

Table 3 shows the effective capacity in Kenya.

Table 3. Kenya's effective capacity in MW

	Hydro	Thermal oil	Geo thermal	Co- generation	Total
2010	728	469.2	189	26	1 412.2
2011	735	582.7	190.6	26	1 534.3
2012	769.9	610.6	199.6	26	1 606.1
2013	766.6	693.2	236.5	21.5	1 717.8
2014*	797	632	347.8	21.5	1 798.3

Source: Kenya National Bureau of Statistics (KNBS) Economic Survey 2015

Unit cost of industrial power: The country still has some of the highest costs of industrial power in the region at **US\$ 0.18–US\$ 0.22 per kWh**.

Under the Lead Cost Power Development Plan 2011–2030, government plans to accelerate power generation capacity installation as a deliberate policy of facilitating and enabling industrialization. The

following listing depicts the overall projected power generation and supply in the country for the next 15 years.

Year	Generation and supply in GWh
2016	17 957
2017	20 626
2018	23 502
2019	26 414
2020	29 794
2025	53 432
2030	93 850

Source: Least Cost Power Development Plan 2011–2030

Cost of labour

Working hours: There are up to 52 working hours per week, but the normal working hours usually consist of 45 hours of work per week.

Overtime: Under the statutory regulations, overtime shall be payable at the hourly rates of one and one and one half time (1.5:1) on weekdays and at the rate of twice (2:1) the basic hourly rate on Sundays and public holidays.

Minimum wage: The employment act does not make any provisions for wages in general. The minimum wage is dealt with by the Regulations of Wages and Conditions of Employment Act and in the regulations of wages order subsidiary to chapter 229. However, a tradition has been established, according to which the Minister of Labour, in exercise of his or her powers conferred to by section 11 of the Regulation of Wages and Conditions of Employment Act, would order the increment of minimum wages to come into effect on 1 May every year.

Average labour unit costs: Kenya still has some of the highest costs of unskilled labour in the region at an average of US\$ 150 per month.

Skilled and unskilled labour

Kenya has seen an increase in job creation over the years thanks to deliberate efforts by the government to accelerate economic growth, coupled with devolution.

Table 4. Kenya's total recorded employment between 2010 and 2014

'000	2010	2011	2012	2013	2014
Modern sector:					
Wage employees	2 016.2	2 084.1	2 155.8	2 283.1	2 370.2
Self-employed and unpaid family workers	69.8	73.8	76.9	83.8	103
Subtotal	2 086	2 157.9	2 232.7	2 366.9	2 473.2
Informal sector	9 371.1	9 958.3	10 548.4	11 150.1	11 843.5
TOTAL	11 457.1	12 116.2	12 781.1	13 517	14 316.7

Source: KNBS Economic Survey 2015

Urbanization – rate of, trends and factors driving

Kenya is one of the fastest urbanizing countries in Africa – at an annual rate of 7% vis-à-vis total population growth rate of only 2.7%. This is occurring for a number of reasons. Rising birth rates and natural growth of the urban population accounts for approximately 55% of urban growth. Rural-urban migration due to factors including drought, conflict and rural poverty accounts for an estimated 25% of

urban growth (www.oxfam.org/en/pressroom/pressreleases/2009-09-10/kenya-threatened-new-urban-disaster).

Table 5. Urbanization trends (1970–2050)

(%) (*projections)									
	1970	1980	1990	2000	2010*	2020*	2030*	2040*	2050*
Kenya	10.30	15.71	18.22	19.73	22.18	26.57	33.04	40.36	48.14
Ethiopia	8.59	10.41	12.62	14.90	16.66	19.27	23.85	30.24	37.48

Source: World Bank

GDP per capita in Kenya

Table 6 shows a steady growth in national output attributable to individuals. Quantum leaps observed in 2006/7 and 2012 were based on major policy reforms and infrastructural gains realized.

Table 6. Growth in national output (2005–2014)

YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
GDP per capita (current US\$)	530.08	711.72	857.93	938.57	942.74	991.85	1 012.88	1 184.92	1 257.20	1 358.26
Y-o-Y growth		34.3%	20.5%	9.4%	0.4%	5.2%	2.1%	17%	6.1%	8%

Source: World Bank

Key infrastructure achievements and challenges

Table 7. Achievements and challenges in Kenya's infrastructure sectors

	Achievements	Challenges and constraints
Air transport	<ul style="list-style-type: none"> Leading regional airline Major air hub for Africa 	<ul style="list-style-type: none"> Relieve capacity constraints at Jomo Kenyatta International Airport (JKIA) Achieve US category 1 security clearance
ICT	<ul style="list-style-type: none"> Major institutional reforms Very high GSM coverage 	<ul style="list-style-type: none"> Strengthen competition to bring down prices Ensure competitive international gateway
Ports	<ul style="list-style-type: none"> Major regional shipping hub 	<ul style="list-style-type: none"> Substantial investment to ease capacity issues Institutional reforms to increase efficiency
Power	<ul style="list-style-type: none"> Major institutional reforms Cost recovery pricing Large efficiency gains by KPLC 	<ul style="list-style-type: none"> Improve reliability through new investment Bring down cost of power supply
Railway	<ul style="list-style-type: none"> Strategic regional rail corridor 	<ul style="list-style-type: none"> Revisit design of road concession
Roads	<ul style="list-style-type: none"> Sound road fund 	<ul style="list-style-type: none"> Major rehabilitation backlog Improve quality of public investment
Urban infrastructure	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Very low levels of access to service High rates of tenancy and insecure tenancy

Water resources	<ul style="list-style-type: none"> Water resources management authority in place 	<ul style="list-style-type: none"> Increase water storage capacity Increase irrigated area by 50% Strengthen water resources management (WRM) and river basin institutions
Water and sanitation	<ul style="list-style-type: none"> Major institutional reforms 	<ul style="list-style-type: none"> Address underpricing of water Cut distribution losses

Source: www.infrastructureafrica.org/countries/kenya

Some of the major infrastructure projects in the country include:

10,000 km of road: In August 2014, the government created a special fund to finance 10,000 km of roads across the country. Private contractors will build the roads using their own funds and then be paid in instalments later (www.vision2030.go.ke/index.php/portfolio-item/10000-km-private-finance-initiative-2/).

Standard gauge railway: Kenya is developing a new standard gauge railway (SGR) line for passengers and cargo transport between Mombasa, the largest port in East Africa, and Nairobi, the capital city of Kenya. The first phase of the SGR project aims to connect Kenya, Uganda, Rwanda and the Republic of South Sudan. Construction of the 609 km line began in October 2013 and is scheduled to be completed by December 2017 (www.railway-technology.com/projects/mombasa-nairobi-standard-gauge-railway-project/).

LAPSSET (Lamu Port South Sudan Ethiopia Transport) Corridor: The LAPSSET Corridor Development Authority's (2013) function is to plan, coordinate and manage the implementation of the Lamu Port South Sudan Ethiopia Transport Corridor (www.lapsset.go.ke/profile).

Ongoing power development projects: Table 8 presents the major power development projects in the pipeline.

Table 8. Major power development projects in the pipeline

Name	Type	Capacity MW	Expected on stream
Menengai	Geothermal	400	2017
Lake Turkana	Wind	300	2018
Olkaria V	Geothermal	140	–
Meru	Wind	400	2017
Akiira I	Geothermal	70	–
Kajiado	Wind	100	–

Source: Kenya Electricity Generation Company (KenGen)

2. Ethiopia: Economic background and policy environment overview

Ethiopia is the only non-colonized country in Africa and the second-largest country in terms of population. The country has an area of approximately 1.1 million square kilometres and, in July 2000, the population was estimated at 95 million, with a growth rate of 2.9%.

Ethiopia's economy is based on agriculture, but the government is pushing to diversify into manufacturing textiles and energy generation. Agriculture accounts for 40% of GDP, 85% of exports and 85% of total employment.

However, although the agricultural sector suffers from poor cultivation practices and frequent drought, the Government of Ethiopia and donors have strengthened Ethiopia's agricultural resilience.

Notably, the banking, insurance, telecommunications and microcredit industries are restricted to domestic investors. The textiles, leather, commercial agriculture and manufacturing sectors have also attracted significant foreign investment.

GDP growth in the country is mainly driven by government-led infrastructure expansion and commercial agriculture development.

The new government development blueprint, Growth and Transformation Plan (GTP) II, 2016–2020, prioritizes infrastructural development like power plants, transport and urban housing, and poverty eradication. Government is targeting FDI of US\$ 8 billion over the next five years towards the GTP II flagship projects.

Table 9. GDP at current market prices and year-on-year growth (2009–2014)

US\$ millions	2009	2010	2011	2012	2013	2014
GDP at current market prices (US\$)	32.437	29.933	31.952	43.310	47.648	55.612
Y-o-Y GDP growth	–	-7.7%	6.7%	35.5%	10%	16.7%

Source: World Bank

Electric power

Ethiopia's per capita power consumption has been growing satisfactorily over the last 10 years. Power generation capacity has been the main constraint – but grand generation projects in the pipeline, when they mature, are set to make Ethiopia a power surplus nation in due course.

Table 10. Electric power per capita consumption year-on-year growth (2006–2012)

	2006	2007	2008	2009	2010	2011	2012
Power per capita consumption in kWh	37	39	41	42	51	56	57
Y-o-Y kWh growth		5.4%	5.1%	2.4%	21.4%	9.8%	1.8%

Source: World Bank

The annual consumption of electricity in Ethiopia is very low, but demand is growing at a rate of 14% per annum. By 2025, the government aims to expand Ethiopia's electricity coverage to 75%, doubling the number of households with electricity. Distribution lines of 132,000 kilometres will be needed to support expanded coverage. Ethiopia also plans to significantly increase exports of electricity to neighbouring countries. Renewable energy generation capacity is planned to increase to 37,000 megawatts by 2037. This will cost US\$ 100 billion.

Although only 23% of Ethiopians had access to grid electricity in 2010, power production has increased steadily over the last 10 years and is almost exclusively sourced from clean energy in the form of hydropower stations. Ethiopia has the second-largest hydropower potential in Africa.

Net potential exports could reach 26.3 TWh per year, bringing in US\$ 263 million, which is equivalent to about 2% of GDP.

Unit cost of industrial power: The country now enjoys some of the most competitive costs of power in the region, at an average unit cost of US\$ 0.03– US\$ 0.05 kWh
www2.deloitte.com/content/dam/Deloitte/za/Documents/strategy/za_ethiopia_growth_miracle_july2014.pdf

Labour

Ethiopian law does not prescribe minimum wages through statute. Usually, wages are fixed by the employer, by collective agreements or by the employee's contract of employment.

Average labour unit cost: Ethiopia has some of the lowest unit costs of unskilled labour, both in the region and on the continent, at US\$ 40 per month.

Ease of Doing Business Index

Table 11. Ethiopia's ranking on 10 topics, each given equal weighting (ranking out of 189)

Topics	Ethiopia	
	DB 2016 rank	DB 2015 rank
Starting a business	176	170
Dealing with Construction Permits	73	70
Getting electricity	129	127
Registering property	141	140
Getting credit	167	165
Protecting minority investors	166	165
Paying taxes	113	113
Trading across borders	166	165
Enforcing contracts	84	84
Resolving insolvency	114	118
Overall	146	148

Source: World Bank

Ethiopia still has to institute a lot of reforms in its business environment. The only areas where it is doing relatively well are contract enforcements and dealing with construction permits. Deliberate and government interventions are sorely needed, especially with paying taxes, trading across borders and protecting minority rights. It is to be expected that getting connected to electricity will improve substantially once Gibe III and Grand Ethiopian Renaissance Dams start producing power.

Table 12. Summary of underlying forces for growth and investment (population, population growth and demographics)

Thousand	2010	2011	2012	2013	2014
Total population	87 562	89 859	92 191	94 558	96 959
Population growth (%)	2.6	2.6	2.6	2.5	2.5
Male population % of total	49.9	49.9	49.9	49.9	49.9
Female population % of total	50.1	50.1	50.1	50.1	50.1
Rural population (%)	83	82	82	81	81
Urban population (%)	17	18	18	19	19
Urban population growth (%)	5	5	4.9	4.9	4.8

Source: The World Bank

Table 13 shows that the country is ripe for the demographic dividend.

Table 13. Age demographics, dependents and labour force

Age bracket	% of population	Total (millions)
0–14 years	43.94%	43.7
15–64 years	53.17%	52.9
Older than 65 years	2.88%	2.86

Source: www.cia.gov/library/publications/the-world-factbook/geos/et.html

Diversifying economic growth

The sources of growth in Ethiopia have gradually shifted over the last decade from agriculture to services and from private consumption to public investment.

Table 14. Structure of Ethiopia's economy

Sectors	2004/5	2012/13
Agriculture (%)	54.7	31
Industry (%)	7.8	23.4
Services (%)	37.5	45.6
Total (%)	100	100

Source: www.hdr.undp.org/sites/default/files/nhdr2015-ethiopia-en.pdf; compiled from Ministry of Finance and Economic Development (MoFED) and World Bank sources.

Growth in Ethiopia has reflected a mix of factors, including agricultural modernization, the development of new export sectors, strong global commodity demand and robust public investments.

Table 15. Urbanization – rate of, trends and forecasts

Urbanization trends (1970–2050) (%) (*projections)									
	1970	1980	1990	2000	2010*	2020*	2030*	2040*	2050*
Rate	8.59	10.41	12.62	14.90	16.66	19.27	23.85	30.24	37.48

Source: Compiled from Ministry of Finance and Economic Development (MoFED) and World Bank sources.

Labour force and productivity improvements – underlying factors

The absolute size of the national labour force was an estimated 52.9 million people in 2014, up from an estimated 32.2 million people in 2005. The total labour force is projected to double again in the next 25 years.

Labour productivity growth has been strong across most sectors as total output per worker doubled in the past decade. However, large productivity gaps remain, with output per worker in mining and quarrying, electricity and water, and transport and communications being more than 10 times than that in agriculture.

Labour productivity has been the main contributor to output per capita growth; it accounted for about 90% during the period 1996–2011, mainly as a result of within-sector improvements.

Table 16. Ethiopia's GDP per capital trends and the rise in incomes (2011–2020)

GDP per capita	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
US\$	511	547	626	676	760	830	898	987	1 097	1 206

Source: Compiled from Ministry of Finance and Economic Development (MoFED) and World Bank sources.

Despite the growing share of the services sector, agriculture remains the economy's key sector, on which the great majority of the population still depends for its livelihood.

The total agriculture value added (in constant price) increased by 82.9% between 2004/05 and 2012/13. This is the result of wide-ranging government programmes targeted at improving the sector's performance. If Ethiopia can repeat its recent growth performance of 10.7% per year, it would classify as a middle-income country by 2025.

Access to finance: Overall, data indicates the existence of a missing middle phenomenon in terms of financial services catering to small firms. Young and smaller firms are much more likely to be rejected for a loan or a line of credit than firms that are more established or larger. Moreover, despite confirming their

need for improved access to finance, SMEs are discouraged from applying for loans due to excessively high collateral requirements.

Microfinance institutions (MFIs) primarily cater to micro firms, leaving small and medium firms financially excluded. Large banks are discouraged from serving this segment, primarily due to perceptions of lower returns and higher risk.

Table 17. Overview of achievements and challenges in Ethiopia’s infrastructure sectors

	Achievements	Challenges
Air transport	<ul style="list-style-type: none"> • One of top three African carriers • Major regional air hub 	<ul style="list-style-type: none"> • Improving air traffic control at Addis Ababa Bole International Airport • Developing domestic air transportation
Information and communications technology (ICT)		<ul style="list-style-type: none"> • Modernize regulatory framework • Award a second mobile license • Rebalance ICT tariffs in line with costs
Power	<ul style="list-style-type: none"> * Grand Ethiopian Renaissance Dam on Blue Nile – 6 000 MW; to be commissioned July 2017 @ US\$ 4.8 bn * Gibe III Dam on River Omo – 1 870 MW; fully operational by 2016 @ US\$ 1.8 bn * Corbetti Caldera Geothermal Plant – 1 000 MW; over eight years @ US\$ 4 bn – private partnership 	<ul style="list-style-type: none"> * Undertake huge investment programme * Address underpricing of power
Surface transport	<ul style="list-style-type: none"> • Major investment in trunk network • Sound road fund in place 	<ul style="list-style-type: none"> • Huge challenge to improve rural accessibility • Need to concession railway
Water resources		<ul style="list-style-type: none"> • Develop additional water storage • Develop viable areas for irrigation
Water and sanitation	<ul style="list-style-type: none"> • Rapid expansion of coverage 	<ul style="list-style-type: none"> • Address utility inefficiencies

Source: www.infrastructureafrica.org/system/files/Ethiopia%20Country%20Report.docx_.pdf

In recent years, Ethiopia has dedicated 3% of GDP to road investments. This is one of the highest shares in Africa, although the absolute value of this spending (approximately US\$ 5 per capita annually) is actually comparable to what other East African countries are investing. The investment programme focuses mainly on rehabilitation, upgrading and widening of the trunk network.

The construction of a 5,000 km-long railway network is now being implemented by the Ethiopian Railways Corporation, although the immediate priority is to get the 950 km line between Addis Ababa and Djibouti Port up and running

(www2.deloitte.com/content/dam/Deloitte/za/Documents/strategy/za_ethiopia_growth_miracle_july2014.pdf).

The national road network increased from 36,550 km in 2000/01 to 56,190 km in 2012/13. Road density per 1000 persons increased to 0.8 km in 2011/12. Road density per 1000 km² also increased to 57.4 km in 2012/13 from 30 km per 1000 km² in 2000/01. The proportion of good-condition roads also increased from 28% in 2000/01 to 86% in 2012/13, indicating remarkable improvements in the quality of roads (www.r4d-employment.com/wp-content/uploads/2014/09/Ethiopia-Country-Paper.pdf).

3. Zambia: Economic background and policy environment overview

Zambia has had a decade of rapid economic growth. A combination of prudent macroeconomic management, market liberalization policies and steep increase in copper prices helped drive investments in the copper industry and related infrastructure to achieve an average annual growth of about 6.4% during the last decade. Though the economy is dependent on copper, the agriculture sector is the major employer (70% of the population).

Diversifying the economy away from dependence on copper and the creation of decent jobs remain the government's overarching policy goals. Improving accountability and strengthening the fight against corruption also remain firmly on the government's agenda.

However, Zambia's economic growth has not translated into significant poverty reduction, with 60% of the population living below the poverty line and 42% considered to be in extreme poverty.

The country has defined its own development agenda through its Vision 2030 and the Sixth National Development Plan (SNDP), which has recently been revised. Specific development goals include promoting inclusive growth, fostering a competitive and outward-oriented economy, significantly reducing hunger and poverty, and reaching middle-income status.

Regional cooperation

Zambia enjoys a huge market seating at the intersection of Common Market for Eastern and Southern Africa (COMESA) and the Southern African Development Community (SADC), with a combination of more than 500 million people.

Investor incentives

The Government of Zambia seeks foreign investment through the Zambia Development Agency (ZDA) through the consolidation of a number of trade and investment promotion entities as a one-stop resource for international investors interested in Zambia.

The Zambia Development Act provides for investment thresholds that have to be met to qualify for fiscal and non-fiscal incentives.

Projects that qualify may be new or existing ones undergoing expansion or modernization. These are the categories of investors who can be considered under the ZDA Act.

Availability, reliability and unit costs of electricity

Hydroelectric power accounts for about 94% of Zambia's electricity generation. This is because the country is well endowed with water resources, which account for about 40% of the water sources in Southern and Central Africa.

In 2013 and 2014, the total installed capacity was 2,038 MW and 2,396 MW respectively. In 2014, the generation mix was as follows: Hydro, 2,255 MW; thermal, 80 MW: diesel, 11 MW; heavy fuel oil (HFO), 50 MW; solar 0.06 MW. Total electricity generation in 2014 was 14,453 GWh compared to 13,299 GWh in 2013.

However, the dependency on "rain-fed" electricity supply puts the economy at the mercy of the weather.

Energy consumption by sector

As table 18 shows, the mining sector is the most energy intensive, accounting for about 55% of electricity consumption. With domestic consumption coming in at 31%, there is unfortunately little left to connect more manufacturing and processing capacity without new generation additions.

Table 18. Zambia's electricity consumption by sector (2013–2014)

Electricity consumption by sector	2014	2014(%)	2013	2013(%)
Mining	5 871	54.8%	5 929.1	54.7%
Domestic	3 251	30.3%	3 360.8	31%
Finance and property	487	4.5%	499.7	4.6%
Manufacturing	479	4.4%	397.1	3.6%
Agriculture	241	2.3%	270.3	2.5%
Others	99	0.9%	120.9	1.1%
Trade	107	1%	115.8	1.1%
Energy and water	73	0.7%	71	0.6%
Quarrying	62	0.6%	35	0.3%
Transport	31	0.3%	28.3	0.3%
Construction	17	0.2%	17.5	0.2%
Total	10 718	100%	10 845.5	100%

Source: Zambia Electricity Supply Company (ZESCO).

Table 19. Zambia's electricity tariff

	Fixed charge (US\$)	Tariff per KWh (US\$)
Domestic	2.75	0.08
Commercial	9.01	0.05
Industrial	43.21	0.03

Source: Zambia Energy Regulatory Board

Table 20. Zambia's power generation flagship development projects

Project	Type	Size, MW	Developer	Cost, US\$ m
Sinazongwe	Coal	600	Emco Energy	690
Kalungwishi River	Hydro	247	Lunzua Power Authority	700
Ndola	Thermal	60	Ndola Energy Company Limited	75
Kafue River	Hydro	750	Zesco	2 000
Lusaka and Kitwe	Solar	300	Industrial Development Corporation	500

Source: Zambia Energy Regulatory Board.

Oil

- Zambia imports the majority of its oil and gas requirements.
- However, in 2007, traces of oil were discovered in three of the country's provinces.
- In 2009, foreign companies with Zambian partners were invited to tender for licences to explore 23 blocks in Eastern, North-Western and Western Provinces. The first licenses under the 2008 Petroleum Act were issued in 2011.

Table 21. Population demographics

	1969	1980	1990	2000	2010	2014
Population	4 056 995	5 661 801	7 383 097	9 885 591	13 092 666	15 023 315
Rural	2 864 579	3 403 232	4 477 814	6 458 729	7 919 216	8 787 529
Urban	1 192 116	2 258 569	2 905 283	3 426 862	5 173 450	6 235 786
Rural %	70.6%	60.1%	60.6%	65.3%	60.5%	58.5%
Urban %	29.4%	39.9%	39.4%	34.7%	39.5%	41.5%

	1969–1980	1980–1990	1990–2000	2000–2010
Population growth rate %	3.10%	2.7%	2.4%	2.8%

Source: Zambia Central Statistics Office.

Labour force summary breakdown

Total labour force	5 966 199
Total employed	5 499 673
% Labour force employed	92.1%
% Women of labour force employed	50.9%
% Men of labour force employed	49.1%
% Rural of labour force employed	61.7%
% Urban of labour force employed	38.3%
% Self-employed	44.2%
% Unpaid family workers	34.8%
% Formal employed	20.4%
% Employed in agriculture	59.9%
% Employed in non-agriculture	40.1%
% Employed in informal sector	84.6%
% Employed in formal sector	15.4%

Source: Zambia Labour Force Survey Report 2012

Zambia's economic growth hasn't been matched by job creation or poverty reduction, largely because the growth in the economy has been driven by mining industries and higher copper prices. The bulk of the gainfully engaged labour force is found in the rural areas in the informal sector, mostly in agriculture or agricultural activities. Zambia's formal sector is very small, only engaging 15.4% of the total employed labour force. The saving grace is that the proportion of declared total unemployed is very low, at 7.8% only, more than 60% of them being women.

Average labour unit cost: The country has a fairly low unit cost for unskilled labour, at about US\$ 300 per month.

Table 22. Zambia's Ease of Doing Business (ranking out of 189)

Topics	Zambia	
	DB 2016 rank	DB 2015 rank
Starting a business	78	73
Dealing with construction permits	110	116
Getting electricity	123	120
Registering property	157	154

Getting credit	19	24
Protecting minority investors	88	87
Paying taxes	46	81
Trading across borders	152	110
Enforcing contracts	134	133
Resolving insolvency	107	103
Overall	97	91

Source: The World Bank.

Zambia has made remarkable progress in its reform of the business environment and making it easier for the private sector and individuals to conduct business in the country. It has strided ahead of many African countries in the crucial areas of obtaining credit or bank loans, ease and convenience of paying taxes, starting a new business and protection of minority rights. It still has a long way to go with property registration and title authentication, dispute resolution and trading across borders, where it seems to have slipped backwards from 2015. Likewise, getting connected to power remains an issue now, as there is virtually no excess power in the country. However, it deteriorated overall to 97 (91–2015) on the back of worsening conditions for trading across borders caused by overruns in documentary compliance.

4. Mozambique: Economic background and policy environment overview

Since 1992, Mozambique has achieved high levels of economic growth, sustaining an average annual rate of 8%. Economic recovery was made possible by sound economic management, policy reforms, post-war reconstruction, extensive debt relief, mega projects and strong support from development partners.

These have propelled the country's GDP to US\$ 17 billion in 2015 from US\$ 4 billion in 1993. Revenue collection by the government has been improved by fiscal reforms, including the introduction of a value-added tax and reform of the customs service.

More than 1,200 state-owned enterprises (SOEs) have been privatized, customs duties have been reduced, and customs management streamlined and reformed. Value-added tax (VAT) was introduced in 1999 as part of efforts to increase domestic revenues.

Notably, more than half of the population remains below the poverty line in spite of these gains. According to African Development Bank (ADB), Mozambique needs to spend US\$ 1.7 billion a year for a decade to catch up with the rest of the developing world.

As the government rolls out its plans to disarm Renamo (the militarized opposition), violent clashes in central and northern Mozambique are likely to increase both in frequency and intensity. Earlier attempts between 2012 and 2014 failed on account of proliferation of illegal arms trade and the remoteness of Renamo strongholds.

Mozambique and South Africa have established a binational commission to coordinate economic, trade and business affairs. Major milestones so far include:

- Making the main border post, Ressano Garcia, 24hrs,
- Entry visa exemption extended from 30 to 90 days,
- Trade between South Africa and Mozambique has grown from US\$ 2.4 billion (2010) to US\$ 4 billion (2015).

Aluminium, electricity, iron ore and gas represent 63% of the exports out of the country. Each of these is dominated by a single foreign company operating under long-term legacy exploration contracts that unduly favour the company or its parent over the country. Entry into these sectors is also, unfortunately, governed and predictably denied by the same contracts.

The remainder of the exports areas, where participation is relatively open, is led by tobacco, sugar, cashew nuts, flour and prawns. Together, these constitute 14.8% of exports.

Despite subdued global oil and gas prices, Eni (the Republic of Italy) and Anadarko (US) remain committed to their plans to develop liquefied natural gas (LNG) export facilities in Mozambique, which will be a key driver of economic growth. Eni's floating LNG facility is expected to be the first to come on stream in 2020, with relatively modest production of two to four metric tons a year.

Industry is still vulnerable to weak international prices. The exchange rate is expected to slide further down after the US\$ 24 depreciation in 2014. This is on the back of Mozambique's twin deficits:

- A drop in foreign direct investment inflows
- A prolonged price slump for Mozambique's main exports

Coal mining is another driver of growth following significant investments in mines and transport infrastructure by Vale (the Federative Republic of Brazil) since 2007. Coal is projected to overtake aluminium as the biggest export earner by 2017.

Mozambique's select demographics

Population	23 million
Population growth	2.44%
Age demographics: less than 15 years	46%
Urbanization	38%
Annual rate of urbanization	4%
Life expectancy	52 years

Source: Economic Intelligence Unit (EIU) – Mozambique 2015

Business reforms

The business environment has improved tremendously in the past decade. Government is strongly implanting policy reforms in order to simplify the process of opening and operating enterprises and to facilitate cross-border trade.

Business environment assessment

Challenges	Opportunities
Limited access to credit	Geographic location
Complex regulations	Natural resources
Over-valued currency	Agriculture and agro-processing
Poor infrastructure	Stable macroeconomic conditions
Shortage of skilled labour	Regional integration
Local market restrictions	Food processing

Ease of Doing Business

Mozambique improved in the World Bank's Ease of Doing Business rating from 139 in 2014 to 128 in 2015, but slid behind to 133 in 2016. Recent gains include progress in simplifying business incorporation regulations, streamlining procedures to obtain land and construction permits, and strengthening the mechanisms to resolve insolvency. Contract enforcement, connecting to electricity and credit access still remain the greatest challenges and impediments to doing business in the country. Starting and incorporating a new business has not been made that easy either.

Unfortunately, in the World Economic Forum's Global Competitiveness Report, the country remained unchanged between 2014 and 2015, reflecting a lack of progress in boosting productivity.

Table 23. Mozambique's Ease of Doing Business (ranking out of 189)

Topics	Mozambique	
	DB 2016 rank	DB 2015 rank
Starting a business	124	118
Dealing with construction permits	31	37
Getting electricity	164	166
Registering property	105	106
Getting credit	152	150
Protecting minority investors	99	98
Paying taxes	120	121
Trading across borders	129	129
Enforcing contracts	184	184
Resolving insolvency	66	65
Overall	133	128

Source: World Bank.

Labour market profile

- The formal sector is estimated to cover only 700,000 jobs, while labour force constitutes 11.6 million workers – formal employment constitutes only 6% of the labour force.
- Around 300,000 youths join the labour force every year, but the labour market does not create sufficient jobs in the formal sector.
- The informal sector is substantial – highlighting self-reliance. Eight out of 10 Mozambicans are self-employed or non-remunerated workers in family businesses.
- The agriculture sector is the largest employer, with 81% of the labour force. The unemployment rate is estimated at 25.3%.
- The 2014/15 highest monthly minimum wage is in financial services at US\$ 228 per month and the lowest is in agriculture at US\$ 84. Between 2004 and 2011, minimum wage increased by 32%.

Availability, reliability and unit cost of electricity

Energy potential

The bulk power potential represented by known hydropower resources is estimated at 12,000 MW, while resources of offshore gas and coal reserves are estimated at 277 trillion cubic feet and more than 20 trillion tons respectively. There are also proven onshore natural gas reserves of ± 3.5 trillion cubic feet (Pande, Temane and Buzi).

Unit costs of electricity

Mozambique has one of the highest costs of electricity on the continent, and that is when it is available. The country ranks 164/189 in the world in terms of getting connected to electricity. The obtainable average cost of power is US\$ 0.7 per kWh (www.edm.co.mz/).

Table 24. Mozambique’s new energy generation projects pipeline

Project(MW)	Fuel	Expected commissioning year				
		2015	2016	2017	2018	2019
CTRG	Gas	175	–	–	–	–
Kuvaniga	Gas	40	–	–	–	–
Electrotec	Gas	–	100	–	–	–
Gigawatt	Gas	–	100	–	–	–
Moatize	Coal	–	–	50	–	–
ENI	Gas	–	–	75	–	–
Benga	Coal	–	–	–	300	–
CTM	Gas	–	–	–	100	300
Nkonedzi	Coal	–	–	–	–	–
Total per year		215	200	125	400	300
Total cumulative		215	415	540	940	1 240

Source: www.edm.co.mz/

Urbanization

Urban population: 32.2% of total population (2015)

Rate of urbanization: 3.27% annual rate of change (2010–2015 est.)

Chapter 4. Summary of underlying forces and value drivers analysis

This section delves into the underlying structural framework and forces that are driving the change that is making possible the positive economic and investment case in Africa in general and for the selected countries in particular. Further analysis of how these interact will provide the basis for markets' viability and factors for investability in the economies.

It also summarizes and analyses the dominant value drivers within the various sectors. To achieve this, it has taken deliberate effort and endeavour to shape and develop the specific drivers operating and underpinning sectors selected and analysed for this purpose. These drivers were generally of two different types or natures: one type was macro fundamental, meaning they cut across economies and overlay a broader frontier of economic activity, i.e. urbanization or formalization. The other type was sector specific, meaning they operated or were dominant chiefly in and within specific sectors and formed the basis of the sectoral value chains. Doubly also, in many instances and in various circumstances, there was observed overlap of some of the drivers at two main levels – either across sectors within one country or encountered in different countries.

These drivers were then applied to the sectors with a view to determining how they affect, alter, add to or create value in the sectors reviewed. These outcomes were then synthesized or transcribed as the basis for the opportunities projected in those sectors.

The recommendations made within the body of the study and at the end of each sector need to be taken together with the macroeconomic summary overview of the economy where the opportunities exist as well as the constraints highlighted at or within the specific sectoral analyses. Often, the constraints themselves provide or become the basis for the opportunities when flipped or looked at as a solution to the problem presented.

1. Agriculture and allied

From the outset, three fundamental and overarching factors are emerging as the absolute key obstacles to meaningful, large-scale, viable commercial agriculture on the continent.

- i. Availability and cost of capital and credit
- ii. Transport and markets infrastructure
- iii. Technology – at all levels of the value chain

Anyone who wraps a business model around competitive and long-term solutions to these three will be a winner.

Primary production is principally smallholder, non-technology, subsistence agriculture, engaging between 70% and 90% of the populations, with the lowest recorded productivity of any sector anywhere in the world – thus contributing 20%–25% of GDP. Politically sensitive, being the mainstay of peasants – mass vote bases and target for electioneering narratives – is generally deemed not conducive for interventions of a disruptive or revolutionary streak. The missions and study found interesting, viable interventions for business and investments woven around these sensitive realities.

Commercial agriculture, where it has been undertaken on a large scale and to profitable outcomes on the continent, was executed in fully integrated business models, produced export crops targeted to vast, insatiable international markets, wrapped around arteries of development for quick and inexpensive domestic and regional distribution, or ultimately catered to sophisticated markets with diverse and deep-pocketed off-takers operating often or normally through commodity exchanges. With what is going on in the infrastructural development front, both hard and soft, and the deteriorating global food equation, coupled with existing incentives, the investability of commercial agriculture in some of the four countries is

a compelling opportunity. The missions and complementing research have proved these with varying degrees of diversification and approaches across the four countries.

Processing is an idea whose time has come across the length and breadth of the continent. Fresh produce wasting occurs all year round, while imported finished products appear on the shelves of organized retailers at prices bearing no comparison or relationship to primary producer prices. Where is the missing link? The mission identified certain strategies based on these drivers, which have been fully developed in the detailed study, with relevant variations on the theme across the four countries according to local realities.

Packaging and distribution, very glaring phenomena in African agriculture, which we were confronted with in the missions, has been that of the micro-localization of agriculture, evidenced by gluts in one part of a country or region and total starvation in another, and resulting in some of the widest price differentials of agricultural markets anywhere – bringing into focus a classic arbitrage situation. Therefore, perhaps the lowest hanging fruits in agriculture investment in Africa is in the area of packaging and distribution or redistribution. The study will bring out viable strategies in this area across the four countries.

Inputs supply chain – one of the biggest surprises in the missions was in the area of the vast, broad enterprise of agricultural inputs. Not only is it, if it can be looked at as one, far and away the most sophisticated, value-added, diversified and risk-adjusted link of the agricultural value chain, in the majority of cases it is also the most or only profitable. Yet it is largely the segment with the largest import component and least local investor content. The study will bring to bear interventions focussed on viable local inputs production and supply, recognizing differences and variations across the four countries.

From the study and validation exercises, agriculture in all four countries still features several gaps, challenges, inefficiencies and suboptimal realities that present enormous potential for transformational investment into the sector.

- Being purely rain-fed, the country is hopelessly exposed to the cyclicity of bumper gluts during harvest time and dry-outs during the growing periods. Crop maturities are asymmetric to market demand.
- Poor feeder road infrastructure in the countryside hampers the delivery of fresh produce to markets, especially during the wet seasons.
- Labour and capital productivity is at its lowest, as the labour is non-skilled and non-trained and the work ethic not developed. On the other hand, there is virtually no capital deployed beyond the ox-drawn plough.
- Yields are mediocre owing to recycled, incestuous seeds replanted since time immemorial.
- The front-loaded nature of agriculture – i.e. massive investment made all at once during the preparation and planting stages – coupled with the crippling lack of agricultural credit has ensured that farmers never go beyond their traditional planted acreage for years on end.
- A gaping lack of handling, storage and preservation infrastructure leads to a lot of food going bad or rotting
- The absence of a deep and structured market system results in harvests overlapping in granaries and discouraging effort to grow more or become more efficient.

Agricultural value drivers analysis

From the foregoing, the following investment themes and strategies or combinations thereof become clear and compelling for agriculture and agro-processing.

1. Deficit economics – creating and unlocking value by developing and improving local capacities and competencies to fill up and satisfy national deficits in the various sectors, especially those ripe and now capable of import substitution for primary food products.

2. Capital and credit deployment – extending value through efficient credit availability and deployment, especially where the absence of it has previously rendered stagnation and value chains underdevelopment. This will enable or make possible the following:
 - a. Scale farming – commercial plantation of larger tracks of land,
 - b. Inventory acquisition and accumulation for packers and processors.
3. Technology application – implanting value where new operational paradigms will enable the most substantial reduction in the unsustainably high producer unit costs. This comes in two fundamental ways:
 - a. Deployment of machinery to enhance operations; weed out wastages and functional losses,
 - b. Use of high-quality seeds adapted to the weather and agro-ecological conditions. This will enhance yields and better productivity per hectare or unit of labour deployed.
4. Storage and preservation infrastructure – value enhancement through the economics of wastage avoidance. This will inject into the value chain two critical, hitherto non-existent components:
 - a. More efficient collection and safe keeping of primary produce,
 - b. Lengthening and stretching the store life of primary produce, two factors of which the absence of anecdotally results in 25%–40% of post-harvest losses.
5. Processing and packaging – value addition through the conversion of primary agricultural produce into higher-value products. This has the triple effects of:
 - a. Engendering a quantum leap in the value of agricultural products. Extending and locking in a greater value chain far beyond primary agriculture,
 - b. Diversifying uses and utilization of agricultural product beyond agriculture into industrial and industrial conversions,
 - c. Enabling wider, further and longer deliveries and distributions in hygienic and acceptable conditions.

2. Light manufacturing

The four fundamental, game-changing drivers of high-performance transformation identified in the space of manufacturing in the four countries were the following:

- i. Power – reliable, consistent, quality power connection,
- ii. Transport links – transport, logistical, warehousing and transshipment systems,
- iii. Fiscal, regulatory, legal policy regimes and backdrops for business predictability and viability,
- iv. Supply chain – both vast and improving local, or incentives-oriented foreign.

Manufacturing value drivers analysis

Where all or most of the aforementioned factors are found to be present or systematically getting into place, the following value drivers provide templates for the investment themes for industrial and light manufacturing, which were deemed to play out in the four selected countries.

1. Local raw material oriented – unarguably, it is emerging that the lowest-hanging proposition for manufacturing in Africa is where there is all year round, high volume availability of local raw materials in areas where there are not many close substitutes either of organic or industrial articles and where

the finished product has a ready market locally as well as viable for export. The study missions and the desktop studies and research have identified opportunities under this theme and will be mentioned in detail in the subsequent chapter.

2. Emerging, growing, maturing local consumer markets – in the countries where a sizeable middle class has crossed through certain sustainability thresholds, a basis is developing and gaining momentum for local industrial expansion. The research, backed by the missions, has identified areas with scope for investment powered by the rising consumer dynamics of the bulging middle classes.
3. National import substitution potential – equally, where there is a proven local market for a select cross-section of simple, unsophisticated, functional products currently manufactured or fabricated overseas. The missions identified areas of manufacturing potential from an import substitution perspective. Onshoring jobs and locking down the value chain will have broad social and fiscal implications to the countries.
4. Agricultural supply chain – as part of the considered interventions in agriculture and the emerging locally feasible agricultural supply chain, it is increasingly becoming viable and urgent to underpin this with domestic capacity for manufactured implements, tools and machinery, and advanced inputs and consumables.
5. Installed, acquired or harnessed industrial competitiveness for export-oriented manufacturing – where there already exists capacity for export-led manufacturing, and where there is scope to scale it up or substantially improve its economics through technological transformation or new markets penetration, it was found that new investments would make a big difference. The report further explores and develops strategies under this dominant theme.
6. Cluster economics – as a result of more efficient transport, power and communication links, growing and diversified SME entrepreneurship and favourable local components and intermediate goods resourcing regimes, there is an emerging tendency for cluster-based manufacturing in African countries. Governments are supporting centres of excellences and specialization through industrial parks, special economic zones and farm bloc development and incentives. This report assesses some of the opportunities made possible by these kinds of arrangements.

Chapter 5. Summary of country reports, rationale and perspectives

In this section, the broad parameters in chapter 4, having been further developed, tested and tightened in the course of the study, have been applied to a cross-section of business sectors in the four countries. The objective is to create the most attractive, investable, scalable and profitable sectors. The other is to identify areas for potential accelerated value creation or realization through such interventions as technological transformation, supply chain modernization, economic integrations or combinations – vertical or horizontal, geographic or product, etc. For each of the four countries, the economy and industry competitiveness reviews have narrowed down the sectors for priority focus.

Other viable sectors and industries have also been considered, guided largely by the interviews and further research and analysis.

1. Kenya: Summary of investment report, perspectives and rationale

Kenya is going through a phase of massive infrastructural renewal, modernization and expansion in the areas of development corridors, logistics, power and energy, ICT and telecoms. However, policy reforms, incentive schemes and ease of doing business still leave a lot to be desired. In agriculture, emphasis of reforms and technological deployment are seen to be on land reclamation and productivity enhancements. The biggest constraint continues to be limited arable land, most of which has already been taken up by settlements and urbanization. The country is far from self-sufficiency in food security, with 10 million out of a population of 40 million under constant threat of famine and food scarcity. The underlying cost of agriculture continues to be very high.

1.1. The case for agriculture and agro-processing

- Agriculture contributes 26% of Kenya's GDP directly, and another 25% indirectly through agro-processing and inputs supply chain.
- It accounts for 65% of total exports, providing 18% of formal employment and more than 70% of informal employment in the countryside.
- However, Kenya has only 16% arable land – and this is where the economy and the people are virtually squeezed. Only 31% of this is under cropland, 30% is grazing land, 22% under forest and national parks and the rest is under cities, urban centres, settlements and infrastructure.
- Eighty-four per cent of the country is arid or semi-arid and is not suitable for rain-fed agriculture. It is mainly used as rangeland by ranchers, agro-pastoralists and game parks. The land tenure system in these arid lands is generally split between communal land and government trust land.
- Kenya is classified as one of the water deficit countries in the world and its water resources are unevenly distributed. Fifty-six per cent of all the country's water resources are in the Lake Victoria basin. With a national average rainfall of 400 mm per annum, the country should harvest and store adequate water for agriculture and other uses.

Constraints:

- Food insecurity. Up to 10 million Kenyans out of a population of 40 million are in constant threat of food insufficiency or unavailability. The country has an annual deficit of 20 million bags of maize a year.
- Too little arable land. Only 16% of the country, 70% of which is occupied by permanent settlements, structures and installations, cannot possibly provide a basis for agricultural transformation.

- Transport and distribution logistics. One part of the country could be having a bumper crop, with produce wasting on the farms and producer prices plummeting to the floor, while another part, only 250 km away, is suffering serious drought and food deficits, with consumer prices blowing up the roof. It is estimated that transport and handling costs make up all of 76% of the total food costs in the country.
- Wastage and functional losses. It is estimated that anywhere between 15% and 35% of the crop is lost on Kenyan farms due to various reasons associated with the inadequacies of the existing infrastructure and technical inefficiencies. The system of harvesting by farmhands leaves some 7%–15% of the crop uncollected in the fields, and the figure rises with the size of the farms. Lack of proper storage and post-harvest management leads to 10%–20% of the crop going bad in granaries as a result of aflatoxin contamination.
- Off-taking and storage. The National Produce and Cereals Board (NCPB), the national bulk grain purchaser, marketer and price stabilizer, can only buy up to 15% of grains in the country. The rest goes to middlemen who buy at a song from desperate small-scale farmers who cannot wait for delayed payments from the NCPB and have to monetize their crops to meet myriad family financial obligations.

It is from this backdrop that the following opportunities in Kenya's agriculture and agro-processing are seen to be both compelling and actionable.

Commercial irrigation opportunities

- There is 9.2 million hectares of land in the country with good potential for irrigated agriculture. Only 54,000 acres of land is currently under irrigation in the country, purely out of private sector efforts without governmental support. This is chiefly under flowers and horticulture.
- In its medium-term economic transformational blueprint, Vision 2030, the government has identified agriculture as one of the key sectors to deliver the 10% annual economic growth rate envisaged under the economic pillar, and irrigation forms the centrepiece of that initiative.
- More land can be reclaimed for crop production by developing irrigation infrastructure in the arid and semi-arid lands. It is estimated that intensified irrigation can increase agricultural productivity four times and multiply incomes 10 times in the country.
- I highlight here the two flagship opportunities in this space. There is scope and sufficient incentives to create more under public-private partnerships (PPP).

Galana/Kulalu irrigation scheme

- A US\$ 2.5 billion, one million-acre mega integrated irrigation project spearheaded by the Government of Kenya at Hola in the county of Tana River. The land use has been broken down as follows:
 - 500,000 acres under maize crop. Projected to add 40 million bags to the annual maize harvest, effectively doubling national maize production,
 - 200,000 acres under sugar cane. A 37% increase on the current 528,000 acres under rain-fed sugar cane in the country,
 - 150,000 acres under beef ranching,
 - 150,000 acres under dairy, fruits, vegetables and flower farming.
- The government is developing the area by putting down the necessary infrastructure, including dam infrastructure on both Tana River and Athi River, power supply connections of industrial grade, and roads infrastructure within and connecting to the two major development corridors – Mombasa Corridor and Lamu corridor.

- An Israeli firm, Green Arava Ltd, has developed a 10,000-acre model farm that is up and running. Granting of concessions of parcels of land under designated terms to private sector players for the rest is ongoing. The operations are expected to be as integrated as possible and only ship out processed food items; i.e. maize growers will be expected to install millers and storage on site.

Turkana water resource

- Radar Technologies International (RTI) has discovered one of the world's largest underground water aquifers in Lotikipi, the desert north of Turkana. The aquifer has 250 billion cubic metres of water, equivalent to Lake Turkana, one of the largest lakes in the Eastern African Great Rift Valley; this could meet Kenya's annual water needs for 70 years.
- More importantly, annual recharge rate, the amount of water that can be sustainably exploited per year, is estimated to be 3.4 billion cubic metres, nearly three times the water use in New York City annually.
- 15,000 acres of land in Lodwar have been earmarked for irrigation using water from the aquifer, which covers a surface area of 4,164 square kilometres.

Grains milling and marketing: Maize; wheat

- Maize is the staple food in Kenya. The average Kenyan consumes about 98 kg of maize meal per year. Maize averages close to 80% of all the cereals produced in the country.
- Yet the country is in a perennial maize deficit, producing about 30 million bags of maize and consuming 40 to 42 million bags. The shortfall of 10 million bags is normally imported from Uganda, the United Republic of Tanzania and Malawi.
- Maize prices are among the highest in Sub-Saharan Africa owing to high input costs and a vast small-scale production system lacking in economies of scale.
- The country is equally in a state of perpetual wheat deficit, even worse than maize; annual production is about 350,000 tons, while consumption is about 900,000 tons. Domestic production has generally plateaued, while consumption has been growing in leaps and bounds; only 671,000 tons in 2004, it has since jumped to 1,850,000 tons recorded in 2014. The deficit has been met by imports from the Russian Federation, Ukraine, the Argentine Republic and the US.

Constraints:

- Huge production deficits: 25% of maize and 60% of wheat consumed in the country is imported. Yet consumption continues to grow faster than the country's ability to put more land under cultivation.
- Maize and wheat farmers in the country are faced perennially by a vicious market cycle that disadvantages them irreparably. Eighty-five per cent of the crop is sold in unstructured markets to middlemen who take advantage of the fact that farmers are in serious cash flow need and must sell their produce out of necessity. Prices crash temporarily, only to pick up steeply as they force artificial scarcity. The swings can be as high as 400% in one season.
- A lot of crop also goes uncollected on the farms, either due to primitive collection methods or despair from non-economic market prices.
- At the same time, the lack of storage or primitive storage methods leads to a lot of crop rotting or going bad before it has reached the market. According to a report, "Establishing the Status of Post-Harvest Losses & Storage for Major Staple Crops in Eleven African Countries (Phase 1)" (February 2013) by Agra, post-harvest maize losses in Kenya amounts to 21.4% of the total crop, or an average of US\$ 23.5 million.

- Grain availability is never even within the country due to redistribution constraints, and intra-country price differentials can be a source of disenchanting arbitrage activities.

Opportunities:

- The greatest opportunity that exists here is import substitution by local production. Ten to 12 million bags of maize and six million bags of wheat currently imported into the country annually can be produced large scale and competitively via the Galana Kulalu irrigation scheme. The government has ensured incentives on inputs, machinery and concessions on enough land for profitable commercial cultivation of these grains.
- There also exists a huge bulk purchase and redistribution opportunity; an integrated secondary market player who plays bulk off-taker from partial unstructured markets during harvest seasons, and a stabilizer of producer prices by intelligent redistribution. It involves erecting or accessing huge storage capacity, and having the working capital means to build vast inventories and slowly releasing it to the market during the dry spell at much better, improved market prices.
- Further, there is an opportunity for milling and marketing of the same grain and value adding from a lower cost base.

Sugar

- About 173,000 ha are under sugar cane cultivation in the Western Kenya sugar zones. For the past 20 years, the region has witnessed land fragmentation and partitioning to uneconomic holdings that has reduced acreage under sugar cultivation to uneconomic holdings as low as 2 ha per farmer. This denies the farmers any advantages of economics of scale.
- All government-owned sugar factories are struggling under the weight of dilapidated technology, massive legacy debts loads and non-viable outgrower programmes. The situation has led to dwindling sugar cane supply, local sugar shortages and chronic price hikes. As a result, Kenyan consumers currently pay about 40% more than the COMESA average price of sugar.
- Kenya's rain-fed western sugar belt is highly inefficient, with average annual yields at 60 tons per hectare, which is half the productivity achieved in other COMESA countries, e.g. Zambia yielding 115 tons per ha and Malawi 105 tons per ha.
- On the other hand, Kenyans have a much higher sugar consumption rate per capita than most countries in Africa – the average Kenyan consumes about 400 grams of sugar per week, while in neighbouring Tanzania the average consumption rate is about 230 grams per week. Indeed, only Swaziland and South Africa rate higher.

Constraints:

- Twenty-five per cent long-term and structural national deficit. The country consumes 800,000 metric tons of sugar and only produces 600,000 tons internally. Two hundred thousand metric tons continue to be imported from the COMESA region.
- The country has totally exhausted its rain-fed sugar cane production potential. There is no more arable land to be brought under cane cultivation. Indeed, the land already under cultivation is vastly dwindling, being taken up by settlements, dwellings, infrastructure and alternative crops in outgrower catchments where the local factory is no longer operational.
- Very high consumer prices. The consumer retail prices of sugar on the shelves often have no relationship with producer prices. The traditional millers are also high-cost producers and, therefore, structurally hold up the price of sugar in the country. The cost of producing a ton of sugar in the rain-fed model in western Kenya is US\$ 570, while in Egypt, under irrigation, it costs between US\$ 240 and US\$ 290 per ton.

Opportunities:

- There is an import substitution opportunity to pump up to 200,000 metric tons into the economy instantly without altering any metrics. Further demand is coming fast on the back of a growing population.
- A new, fast-maturing variety of sugar has just been developed and commercialized in the country. Where the western Kenya highland variety takes 19 months to mature, this new variety, specially developed for hotter climates under irrigation, matures within nine months with vastly improved yields of 120–150 tons of cane per hectare (tch) compared to the 70–100 tons of cane per hectare from rain-fed farms. It will employ a regime of water control that can boost sucrose content in the irrigated sugar cane to 15% against an average of 13.5% from rain-fed sugar cane. This means that it will be able to increase sugar production by more than two and a half times over rain-fed cane.
- There is an opportunity to scale up production through price competition on the irrigated, fast-maturing cane variety and to control production costs through a fully integrated system of cultivation, milling, own brand marketing and distribution.
- There is also a vastly growing opportunity for white refined industrial sugar, which is a critical component in beverage (soda and beers) and pharmaceuticals.

Dairy

- Kenya's one million dairy farmers keep the largest dairy herd on the continent and the best-quality breeds – 3.5 million improved dairy cows – and the country still has another nine million dual-purpose zebu crossbreeds with high raw milk contribution potential.
- The sector is controlled by the co-operative movement, which is also the largest on the continent. In fact, the Kenya dairy sector owes its success and steady growth to this structure.
- The country is self-sufficient in milk with surplus for exports, normally into Asia and North Africa.
- Eighty-four per cent of milk is sold in raw form directly to consumers, both urban and rural dwellers.

Constraints:

- Wild fluctuations in consumer prices: milk production fluctuates sharply between the wet and dry season and takes consumer prices along with it.
- During the wet season, a lot of milk goes to waste in the countryside due to gluts and the lack of advanced conversion technology. According to a study by the Food and Agriculture Organization (FAO), in Kenya, around 95 million litres of milk are lost each year, at a value of around US\$ 22.4 million per year.
- Cattle productivity is also lower due to insufficient, inconsistent and unreliable supply or availability of dairy feeds.

Opportunities:

- Conversion opportunity: There is an opportunity to invest in state-of-the-art technology to convert milk to long-life and powder form in Kenya. There are already three major players who have indicated interest in this. Export opportunities both in North Africa and the Middle East for long-life and powder milk are currently inexhaustible compared to Kenya's dairy capacity.
- Milk productivity opportunity: There is also an opportunity to engage in advanced integrated dairy farming driven by in-house dairy feed production.

Fruits: Mangoes, pineapples and oranges

- The Kenya fruit subsector has been growing rapidly at a rate of more than 12% per annum for the years 2005 and 2016. Growth has been stimulated by the increasing demand for healthy drinks and fresh fruits consumption powered by rising incomes.
- Kenya has amazing weather and climatic conditions for the cultivation of tropical fruit crops on a large scale. Being hot and humid, fruit maturation is near ideal for tropical fruit tastes, citric acid and fibre content.
- Fruits are grown informally by small-scale farmers who sell to traders and some directly to processors by a system of blind faith.
- In Kenya, about 40% of a fruit crop goes to waste, either uncollected on farms or gone bad in transit or in the market places.
- However, only about 8% of the fruits produced in the country are processed. A whole 47% of fruits are still consumed fresh. That said, the growth in processing, which is a fairly new concept, has been growing in leaps and bounds – tripling in volumes in the last seven years.

Constraints

- Variability in both quality and quantity of produce due to the impact of climatic factors, which are difficult to predict.
- Lack of access to research and appropriate specifications of standards and product specifications.
- The EAC and COMESA market does not have well-developed and integrated fruit-processing capacity and imports from South Africa and beyond hit the shelves and compete neck to neck with local products.
- In fact, concentrate production capacity is non-existent (beyond limited capacity in pineapple and mango) and bottling companies are forced to source their concentrate from South Africa or the Middle East.

Opportunities

- Finished products opportunity: The soft drinks and fresh juice consumption in the country and within the region is growing in leaps and bounds as the middle class continues to bulge and consumerism continues to heighten. In Kenya alone, the sector is more than US\$ 1 billion a year in size. The juices, jams and sauces sections in retail stores in the country and in the region are bulging with local products and recorded growth is compelling.
- Intermediate products opportunity: An opportunity exists to build an integrated fruit pulps and concentrate industry from scratch by subcontracting farmers to grow the various fruit trees, and then process and sell the concentrate to local and regional soft drinks and fruit juice companies. The long presence of Coca-Cola and the return of Pepsi to the scene are expected to intensify the hunt for local raw materials and intermediates.

Poultry

- By 2014, the country had a poultry population of more than 32 million birds, of which 69% are estimated to be indigenous and 31% commercial layers and broilers. In the same year, the sector produced about 23,000 metric tons of poultry meat a year, and 1.3 billion eggs.
- A high demand for poultry products in the urban centres has greatly fuelled growth in the industry, with local hatcheries struggling to cope with demand for day-old chicks.

- As the rate of urbanization continues apace in the region and land for agricultural use continues to get scarcer, intensified forms of farming become more viable – models for urban farming are beginning to be seen in Kenya and in other big cities in the region.
- On the other hand, demand for proteins and protein content in food is increasing in direct proportion to rising incomes, more urbanization and ultra-mobile youthful populations.
- The growth in the services and hospitality sector – i.e. hotels, restaurants, fast-foods and airlines – also increases the demand for proteins.
- A rise in health consciousness is also driving many protein consumers more to white meats and less to red meats.
- Retailers are opening up avenues for wider distribution and consumer placements for processed, packaged, frozen foods.

Constraints

- A chronic shortage of breeding stock is constraining the production of day-old chicks, which makes them very expensive and sets a base for a high-cost production model for the sector.
- Shortage, lack of good-quality and quantities of chicken feed continue to constrain growth in the sector and render the products relatively expensive. The observed rapid increase in the price of eggs in the country is as a result of unsustainable increases in the costs of layers mash, which shot up 66% in three years.
- Other major issues that still need addressing are bio-security standard and measures, and quality standardizations.

Opportunities

- All the foregoing set the stage and context for the rapidly expanding poultry sector locally and within the region.
- Healthy protein opportunity: Its fully integrated structure, rapid response capability to market demand and intensive nature recommend the poultry sector as the first choice of protein for the bulging, urban, mobile and health-conscious East African middle class.
- Global fast foods supply chain opportunity: The arrival of major global chains into the market – i.e. America's KFC, Subway, Domino's Pizza and Japanese Teriyaki – has heightened these sensibilities.
- Health-conscious integrated production opportunity: There is an opportunity to inject scale, optimize standardization and eliminate biosecurity risks in this sector and lead from a data-driven and business analytics front.

Pigs

- The Kenya pig sector has a total holding of 335,300 pigs nationwide, with about 150,000 of these under commercial production. The quantity of pigs available for slaughter is not sufficient to meet local demand.
- Annual consumption of pork is projected to increase by 155% in Sub-Saharan Africa between 2010 and 2030, and by 167% across low-income countries globally, according to FAO, 2011.
- Farmers' Choice, the main pork dealer regionally, exports 2,000 tons a year to the COMESA region. To achieve this, it imports 660 tons of pig carcass from Brazil, Canada, the Federal Republic of Germany and Italy. This excludes imports from within the East African region.

- Smallholder production is practiced by 70% of pig producers, mainly under a free range system. Free range pigs are unattractive to the export market, as stringent quality requirements are hard to achieve. This presents significant opportunity for commercial pig production.
- Pig production has stagnated in the country due to unavailability of pig feed – 70% of the total cost of pig production is feed costs. Productivity in the sector is also low due to poor breeds, poor living conditions and lack of feeds.
- A pig can be processed in its entirety – sausages, bacon, pork, gammon, ham, pork scratching from the skin, trotter from feet, head cheese meat jelly from the head, and processing of liver, chitterlings and blood into pet food, animal feeds, cosmetics and pharmaceuticals. It is estimated that 7.5% of the gross income from pork can be realized from these by-products.
- Pig keeping requires minimal inputs and less labour, and pigs have high feed conversion efficiency and short intervals between generations.

Constraints

- The major constraint the sector faces is availability of feeds for commercial pig production.
- Good-quality breeds are also lacking, and the production conditions wanting. There is a major need for pedigree breeding stock to improve the quality of pigs in the country.
- Integrated producers of high-quality pig products for the insatiable domestic and regional market.

Opportunities

- Value chain opportunity: To invest in integrated commercial pig production with the scale and technology to fully take advantage of the entire pig value chain and to plug the gaping deficit of pork in the country.
- Feed production opportunity: To invest in pig feed production to help unlock the structural stagnation in growth occasioned by the lack of dependable feed supplies.

Oil crops: Sunflower, sesame, canola and groundnuts

- Kenya only locally produces 35,000 metric tons of vegetable oils, representing about 15% of annual demand. An estimated 536,000 metric tons is imported in crude oil form, making it the second-largest imported consumable product into the country after petroleum.
- Net domestic consumption is about 491,000 metric tons, while about 80,000 metric tons is re-exported refined into the COMESA region – Uganda, Tanzania, Zimbabwe, Zambia, the DRC, Rwanda and Burundi.
- There has been a marked consumer shift from solid cooking fats and animal fats to liquid vegetable oils, so demand is rising quite steeply.
- Most oilseeds are suited to Kenya's tropical climatic conditions, being drought resistant and less prone to plant diseases – especially sunflower, sesame, coconut, palm oil, groundnuts and rapeseed. The best conditions are found in the western counties through intercropping with sugar cane.
- The land area under oilseed now stands at 125,000 ha since 2010. It has not been possible to increase production despite calls and incentives by the local vegetable oil companies to do it. The main reason is that free arable land conducive for oilseeds cannot be found in the country on a dedicated basis.
- Increased domestic production of oilseeds has been constrained by inadequate supply of raw materials. FAO has been trying to initiate development of raw material centres in the key growing

areas of western Kenya and the Lake Victoria region. The leading edible oils manufacturer in the region, Bidco Africa, also has in place an outgrower programme with farmers in the region to try to increase the cultivation of palm oils trees in particular.

- Major vegetable oil producers have been looking to alternative locations within the region to grow or source their raw material needs. Bidco Oil, the market leader with more than 55% market share, is growing palm oil in a Lake Victoria island with similar agro-ecological conditions to Malaysia.

Constraints

- Retail prices for vegetable oils have risen sharply over the past decade, and have not even been responsive to substantial downward changes in world commodity prices or local exchange appreciations.
- Lack of arable land suitable for oilseed cultivation in the country. What is available has already been taken up by sugar cane, which grows in similar soil and climatic conditions.

Opportunities

- Import substitution and integrated production opportunity: There is scope to explore oilseed commercial cultivation under irrigated conditions within the country, especially on the same set of irrigation conditions established for sugar cane cultivation. There are 200,000 ha of land in the Galana Kulalu irrigation project set aside for sugar cane.
- Contract cultivation arrangements can be explored with the major vegetable oil manufacturers in the country, or a direct investment made into some of them with the strategic intention of using them as the vehicle to secure both backward and forward linkages in the edible oils value chain. This will help plug the huge import gap, while preserving badly needed foreign exchange and reducing consumer prices to the sensitivities and gyrations of world market dynamics.

1.2. The case for light manufacturing

The Government of Kenya has approved an ambitious industrialization roadmap that seeks to boost light manufacturing while reviving failed, but viable factories at an initial cost of US\$ 235 million.

The overall goal is to increase manufacturing contribution to GDP to 20% from the current 11%. The focus is harnessing locally available resources and endeavouring to keep the entire value chain within the economy as much as possible.

To attain international competitiveness for locally manufactured goods, the government is rolling out a suite of fiscal incentives to help reduce start-up and operating costs, and substantially reduce or bring down structural risks along the value chain.

The roadmap is hinged on the following drivers:

- Improved power supply
- Increased supply of agricultural products for agro-processing
- Vigorous export promotion campaigns and initiatives
- Liberal trade regimes
- An expanded market – including the African Growth and Opportunity Act (AGOA), COMESA and the EAC.

These are the major historical challenges to industrialization and how they are being mitigated.

- Low value addition: Either as a result of lack of the primary raw material locally or lack of a deep and dynamic market to absorb finished goods to justify installation of advanced technology locally.

Initiatives at various agricultural strategies are orienting Kenya's agriculture to diversify into industrial supply chain provisioning, advances in various mining fronts, including oil and gas, gold, titanium, rare earths and coal, are beginning to provide feedstock for various industrial concerns.

- High cost of utilities and support services leading to a lack of competitiveness: Low electric power supply and limited distribution network, and communication and transport infrastructure in a state of collapse or terminal disrepair.

The government has, in the last 10 years, invested heavily and deliberately in industrial grade power generation and distribution targeted towards an accelerated industrial transformation. Both telecommunication and ICT services are now among the best in the region and, in some respects, in the world. Transport infrastructure development themed around the two development corridors in the country are being laid out deliberately to proffer a high-class logistical solution to the region and beyond. These are in the form of dual carriage road networks and standard gauge railways.

- High cost of industrial land, and land tenure complexities.

The main reason the government is moving to establish industrial parks is to take care of this constraint once and for all. Industrial investors come into land identified, designated and approved and serviced by government as fit for purpose.

- Influx of counterfeit and substandard goods.

Institutional capacity has been enhanced at the port, surveillance, revenue agency and customs and standards board to reign in imports of substandard goods into the country. The security, judicial and penal systems have also improved their responsiveness to these concerns. Consumer organizations are also playing a leading role to blow the whistle and expose rackets and rings of underground operators in counterfeit and substandard goods. Though not fully eliminated, the menace has been substantially reduced.

The plan is to develop and service regional-specific industrial and manufacturing clusters. The locations and rationale for the proposed industrial parks are:

Nairobi – proximity to largest domestic market clusters; best infrastructure, including the largest international airport in the country.

Mombasa – ease of importing raw materials and export of finished goods through the port; ideal for export-oriented processing.

Eldoret – location in high-potential agricultural areas; an international airport popular with cargo traffic.

Kisumu – access to regional markets; availability of a wide range of raw materials and 56% of the country's water resources.

The following are the major opportunities identified in Kenya's light manufacturing space.

Construction materials

- Kenya's construction sector has been the fastest-growing sector over the last decade, fuelled by mega public infrastructure projects and a race to fill and satisfy an ever-growing chronic housing deficit in the country. It recorded 13.1% growth against a total economy GDP growth of 4.6% in 2014.
- Urbanization now stands at 7% per annum in the country against a total population growth of 2.7%. The housing deficit in Nairobi alone is estimated at 150,000 units a year and the cumulative deficit projected to hit 1.6 million units in the entire country by 2030.

- Cement consumption in 2014 recorded a 21.8% growth to 5.2 million tons, buoyed by an explosion in construction activity all over the country. Materials generally take up between 30% and 50% of the total construction cost, depending on the type of building and where the materials are sourced.
- Lending to construction and real estate acquisition has been the fastest-growing product in the local banking sector. The value of reported building plans in Nairobi alone rose 7.8% in 2014 from 2013.
- The boom is expected to continue into the foreseeable future on the back of further roll-out of big ticket infrastructural projects by the government, and catching up with the vigorous pace of urbanization and modernization of habitation in the countryside.
- Bank leverage will continue to multiply the efforts of home seekers and add off-take capacity to the market.

Constraints

- The chronic, perennial and worsening housing deficit situation in the country brought about by rising populations against a background of high housing cost base.
- The industry faces high capacity limitations – not enough equipment or locally available material to feed the fast pace of construction in the country.
- In many cases, the quality of the finished product has been wanting, mostly owing to use of substandard materials or unethical practices by the contractors.
- Only a small amount of construction materials in the country is manufactured locally – and this is in the area of cement and cement-based and some wood products. All metals and glass and the majority of wood-based products have been imported from Europe, the Republic of Turkey, China and India.
- The main reason for importation has been the lack of adequate energy supply to power fabricators and workshops. Another one is source and logistics of raw materials supply. Power has now been fixed, and intermediate construction goods can be finished in the country competitively.

Opportunities

- Low-cost housing supply chain opportunities: Opportunities exist in the areas of integrated and prefabricated construction materials for low-cost housing, upgrade of informal settlements, and a wide range of metals, glass and ceramics-based construction and finishing materials. Here, scale and technological superiority is a major factor that Chinese companies can bring to bear.
- Roofing materials, windows and doors, paints, kitchens, bathrooms, partitioning and a wide cross-section of finishing materials.

Agricultural machinery and equipment

- By 2012, Kenya only had about 18,000 functional tractors. With an estimated 3.5 million hectares of crop land, it works out to one tractor for every 195 ha. The rate of mechanization has been observed to be gaining pace in the recent past – in the four years between 2009 and 2012, the country imported a total of 7,036 new tractors.
- It has already been established that the country has a huge food deficit, with a quarter of its population under perennial threat of starvation.
- Up to one million hectares of land is quickly being brought under intensive agricultural activity by way of irrigation to respond to this and to help stabilize skyrocketing food prices as detailed in the agriculture section above.

- On the other hand, prevailing high pressure on land and stiff competition between exclusive alternative uses, underlined by the twin forces of scarcity of arable land and rapid urbanization, have tipped the economy into intensive or urban agriculture. Three subsectors are emerging as most viable within these constraints – highly integrated and fully mechanized poultry, pig and dairy.
- On the same theme, pressure for yield optimization and productivity improvement on the residual arable land under agriculture is heavily driving it into high mechanization.

Constraints

- So far, all the farm equipment used in the country has been imported either whole or as semi-knocked down.
- Agricultural finance, especially asset finance, has not grown in tandem with the growing requirement for mechanization in the country, and alternative financing models need to be looked into to help accelerate uptake in the sector.

Opportunities

- The Ministry of Agriculture's strategic plans show a requirement of up to 1,600 assorted farm machinery and equipment by the various ministerial agencies, including the national Agricultural Mechanization Services.
- The ministry also projects that the Galana Kulalu irrigation scheme may need up to 1,500 units of tractors and accompanying equipment for pre- and post-harvest farm operations when fully optimized.
- If the local commercial farming community keeps up with the pace of mechanization observed in the past decade, it is fair to expect that an annual organic need for new tractors and attendant farm machinery can be maintained at a minimum average of 1,760 new four-wheel traction tractors.
- Machinery manufacturers can look into sourcing local supplies and manufacture locally, taking advantage of reducing cost of industrial power. Still, most raw materials and intermediate components will have to be imported into the country to satiate its imminently steep demand in agricultural machinery.
- Opportunities in four-wheel-traction: There is a growing and imminent need to assemble tractors in the country to cater to its growing need for powered traction.
- Assorted equipment opportunity: There is also an opportunity for the assembly and marketing of irrigation systems, dairy feed systems, milking systems, poultry hatchery systems, chicken feed systems, greenhouse systems, posho mills (micro-millers), ploughs, water bowsers, tractors, tractor trailers, planters, harrows, brick-making machines, water pumps, shredders and scrapers.

Plastic and packaging industry

- Demand for consumer plastics products has been growing at an average rate of 15%–20% annually, spurred largely by the triple forces of economic growth, formalization of the economy and urbanization. These have led to soaring demand for packaged consumer goods.
- As a result, imports of plastic materials and resins have registered steady growth in the last decade. The country's manufacturing base has been broadening and deepening, leading to high registered growth in demand for packaging goods, raw materials and machinery.
- The United Nations Industrial Development Organization (UNIDO) has declared that post-harvest losses undermine Kenya's resources in the agricultural sector, with 20% of cereals and 40% of fruits going to waste annually. Kenya is estimated to lose billions of shillings annually in fruits, vegetables, milk and fish due to poor packaging.

- Delayed harvesting due to lack of equipment and poor packaging during transportation lead to post-harvest losses that significantly dent farmers' earnings. Ninety-three per cent of mangoes harvested in Kenya are sold as fresh fruit and this is where most of them are damaged.
- The value to be generated in processing and packaging agricultural produce has been estimated to be about 500% of the primary product. A mango worth US\$ 0.3 at a local farmers' market can be squeezed into half a litre of packaged mango juice retailing for US\$ 1.5 in the supermarket two streets away.
- It is this value unlocking principle that is driving the packaging proposition in the country. Demand for packaging material for fresh, processed, converted agricultural products is projected to explode as a result.
- Packaging has three functions, namely protecting the contents, improving convenience of handling and transport, and describing the contents and sales promotion – every manufactured article leaves the factory packed. As the country continues to move more and more to the formal economy and shop more in formal retail outlets, consumption of pre-packed goods and items will continue to increase.

Constraints

- Domestic production still trails imports by far. High cost of energy and taxation on raw materials and intermediate products has historically rendered local production inefficient.
- The sector is also lagging behind in terms of production methods and technologies, production quality, scale of production and product range.

Opportunities

- Industry experts predict that the use of plastics in East Africa is expected to treble in the next five years. Plastic products consumption per capita in Kenya was only about 10 kg in 2004; it is expected to increase to 30 kg by 2020.
- Various paper, aluminium, glass, plastic and rubber articles such as cartons, paper bags, cans, packaging bags, crates and bottles, as well as a diverse range of plastic containers, will be consumed in industrial quantities and someone has to produce them. The players are currently small, undiversified, low technology and low quality.
- Scale and technological opportunity: There is an opportunity to ride the steadily rising consumer demand and consumerism to infuse scale, advanced production technology and wider product range into the Kenya packaging sector.

Leather industry

- Kenya's leather and leather products sector is a US\$ 147 million sector, having grown at an 18% compound annual growth rate (CAGR) in the past decade. However, wet blue leather dominates the sector, having contributed 89% of its output. Finished leather and leather products only make up 6% of its output.
 - The sector's competitiveness is based on the country's natural comparative advantage.
- Third-largest livestock herd in Africa: 17.5 m beef cattle, 17.1 m sheep, 27.7 m goats and three million camels.
- Most value is captured in the tanneries, which represent the most capital-intensive and employment-light segment of the value chain.
- Kenya's competitive position has been eroded by imports of new low-cost footwear and second-hand footwear invading the domestic and regional markets. Today, Kenya is a low-cost producer of

undifferentiated, low-end shoes and boots, producing about 3.3 m pairs of leather footwear, mostly for the domestic market.

Constraints

- In tanning: Lack of quality effluent facilities, which increases the environmental and health costs of processing finished leather.
- In handbags and travel-wear: High cost and low availability of quality raw hides, difficulties in accessing and understanding export markets, and scarce design and process skills.
- In footwear: Competition from second-hand shoes, high cost of domestic leather and leather inputs, lack of proper machinery and low quality of finished products.
- In raw hides: Low-quality hides production methods, which results in 85% loss of raw hides due to damage and poor handling during slaughter; at the same time, 80% of hides were being exported raw and unprocessed.

Government initiatives

- The government is taking some initiatives to orient the sector to successfully position it as an opportunity for industrialization and diversification of exports. Some of these are:
- Establishment of a leather city on 500 acres of land in the Athi River, Machakos county. The objective is to bring together related companies in a cluster in order to cut the cost of production by providing infrastructure such as water, roads, sewerage, effluent treatment and energy collectively. The centre is expected to cut the export of wet blue (semi-processed) leather, currently at 90%, and increase the supply of finished goods like shoes, belts, handbags, leather garments and industrial gloves.
- The military and police order their boots from local manufacturers. Military orders are in the ballpark of 30,000 pairs of boots a year.
- Forty per cent export tax on raw hides. This has resulted in an increase in the number of tanneries, created 7,000 new jobs and increased leather product exports by 54%.
- Investment incentives with a 10-year corporation and withholding tax holiday and a 100% investment deduction over 20 years.
- Plans to establish eight new abattoirs to boost the supply of raw hides.

Opportunities

- Wide domestic deficit: Demand for footwear in the country is 38 million pairs a year; local producers can only meet four million of that.
- The country could earn US\$ 46–US\$ 68 million more from the export of semi-processed hides if better technology was used in the production of raw hides and skins.
- The most promising targets for Kenya's leather sector are the following:
 - Low value-added leather footwear for the domestic market,
 - Handbags and travel-wear targeting US and EU consumers,
 - Finished leather targeting China and the EU.

Pharmaceuticals

- Kenya's pharmaceutical sector is officially a US\$ 240 million a year (2010) industry. This excludes donor-funded purchases of pandemic medicine and the substantial counterfeit purchases in the market, which are estimated to range from US\$ 65 to US\$ 130 million per year.
- The local industry has less than 30% of market share, while 70% is imports of mainly generic drugs. The local industry cannot participate in donor-funded procurements due to low technical standards.
- On the demand side, the government has a central drugs procurement agency, Kenya Medical Supplies Authority (KEMSA), which purchases 30% of all prescription drugs in the country. It spends an annual budget of about US\$ 55 million. Another major procurer is Mission for Essential Drugs Supplies (MEDS), which procures for faith-based organizations and some donors. It spends an average of US\$ 5.4 million on drugs a year.
- Up to 9.5 million Kenyans are covered by the National Hospital Insurance Fund (NHIF) and many private sector employers have in-house medical insurance schemes.
- There are 42 local registered pharmaceutical manufacturers in the country and only one multinational, GlaxoSmithKline (GSK). They are mainly generic producers with low-capacity utilization and low production efficiencies. The greatest challenge the players face is that of the World Health Organization's (WHO's) prescribed Good Manufacturing Practices (GMP), which most have not attained and that continues to inhibit their chances in donor-funded procurements.
- Kenya is the largest producer of pharmaceutical products in the COMESA regions, supplying more than 50% of the markets requirements. Exports to the region have been growing at a CAGR of 18.3% over the past decade. Kenya still has further export growth potential within the landlocked COMESA countries according to a study by UNiDO, "Pharmaceutical Sector Profile: Kenya".

Constraints

- The most critical challenge is the control, or lack thereof, of entry of counterfeit and substandard drugs.
- Another challenge is the technological inability of local players to attain the Good Manufacturing Practices (GMP) certification by the WHO. This excludes them from the large donor-funded pharmaceutical procurements.
- The availability of raw materials. Only 5% is sourced locally and 95% is imported.

Opportunities

- Technological and scale opportunity: To improve and upgrade local capacity to full GMP accreditation and be able to locally process the vast donor-funded procurement requirements, which could be estimated to be about US\$ 97 million a year.
- Research and formulation opportunity: To invest in integrated research-driven raw materials development and formulation systems to help plug the gap in raw materials availability. Kenya Medical Research Institute (KEMRI) and University of Nairobi Pharmacy department are leading the research.
- Regional exports opportunity: To develop a platform for export excellence to further exploit the COMESA export potential from Kenya.

Animal feeds

- Kenya's dairy industry boasts a 3.3 million strong national herd, 600,000 small-scale farmers operating under a zero-grazing system and producing 70% of the country's marketed milk.
- The poultry sector turns over 21,000 tons of poultry meat per year and 1.22 billion eggs.

- The pig sector has a national total holding of 335,300 animals, 44.7% under commercial farming. Annual consumption of pork in Sub-Saharan Africa is currently increasing at 155% per year, and is projected to hold out until 2030. Commercial pig farming had stagnated in Kenya due to lack of feeds, which constitute 70% of the production costs.
- The evidence and rationale for intensive and urban farming practices has already been introduced in an earlier section of this report. The trend is accelerating – and the model is basically based on the availability of vast quantities of processed feeds.
- Commercial beef maturing and fattening is a practice that is gaining currency in the country and is equally based on an intensive feedlot system based on processed feeds supply chains.

Constraints

- The biggest challenge for animal feeds manufacturers has been the availability of raw materials. The local maize and wheat sectors cannot produce enough raw feedstock to sustain an industrial-scale animal feeds industry all year round. The main reason is more structural than capacity – being predominantly small-scale and subsistent farming, there is no potential for profitable collection, aggregation and delivery of the feedstock from scattered micro-farms.
- Equally, the local grains milling industry was not pushing enough by-products to the feed manufacturers. These are wheat pollard, maize germ and wheat bran, all by-products of wheat and maize.

Opportunities

- As more land in the country comes under large-scale irrigated agriculture, rich and massive quantities of feedstock for animal feeds production will be available all year round, enough to underpin an extensive feeds industry.
- It is expected that further investments in edible oils production in the country will also result in large supplies of seed cake – the chief raw material for poultry feed, and dairy supplements.
- Diversified, offtake and production opportunity: There is a massive, wide-open opportunity to invest in a diversified animals' feeds industry with scale to supply and satiate the explosive intensive and urban farming in the country and become a basis for closing or narrowing the structural growth deficits by bridging the feeds supply constraint.

2. Ethiopia: Summary of investment report, perspectives and rationale

Ethiopia is rapidly implementing multiple world-class infrastructural programmes at some of the lowest unit costs of installation seen on the continent. Capacity surpluses in the areas of transport links and energy are already drastically lowering the cost of doing business. Business and legal reforms, and the incentives for manufacturing are real and actionable. The viability of its industrial parks is assured, rendering export-led manufacturing feasible. Its agriculture, outside of coffee and cut flowers, is less developed, presenting tremendous opportunities for optimization and modernization. There exists immensely newly created scope for value adding and export in its textile and leather industries as well. The study conclusions and recommendations will proceed from this context.

2.1. The case for agriculture and agro-processing

Ethiopia is an agrarian economy:

- Eighty per cent of its people depend on agriculture,
- Eighty per cent of export earnings is agriculture and agriculture-oriented,
- Agriculture is the source of 80% of raw materials to major industry,

- Yet agriculture only contributes 40% of GDP.

Ethiopia is a vast country with generally good agronomic conditions for the cultivation of a wide variety of food crops, industrial crops, cash crops, beverage crops and oilseeds.

- The country has 111.5 million hectares of land area.
- Of that, 74.5 million hectares is suitable for agriculture, meaning 66.8% of the country is arable – a very high figure for Africa.
- Yet only 13.6 million hectares are currently under agriculture, leaving huge potential for investor-driven agricultural production.
- Within the GTP II, the government has a high-priority agenda for poverty eradication and food security through agricultural interventions.
- Expansion of rural roads and market infrastructure is expected to drive movement from subsistence to commercial agriculture.
- The government has identified three million hectares for investors to establish large-scale commercial agriculture.

Ethiopian agriculture value proposition is made up of strong fundamental attributes laying a base for long-term economic engagement.

- A deep and growing domestic consumer base. At 95 million people and growing at 2.9% per annum, Ethiopia's population is Africa's second largest, and one of the hungriest.
 - According to Population Reference Bureau statistics, Ethiopia will have a population estimate of 120 million people in 2025 and 174 million in 2050 – and officially of the world's top 10 most populous nations.
- Closest proximity of any high agricultural potential country to the Middle East, the world's driest region with some of the highest population centres and concentrations.
- Vast, open, welcoming, untilled, virgin agricultural land – 74.5 million hectares, the size of the Republic of Panama.
- Ethiopia is endowed with a substantial amount of surface water resources, but is scarcely developed. The country possesses 12 major river basins, which form four major drainage systems:
 - The Blue Nile basin (including Abbay or Blue Nile, Baro-Akobo, Setit-Tekeze-Atbara and Mereb) covers 33% of the country and drains the northern and central parts westwards.
 - The Rift Valley (including Awash, Denakil, Omo-Gibe and Central Lakes) covers 28% of the country.
 - The Shebelli-Juba basin (including Wabi-Shebelle and Genale-Dawa) covers 33% of the country and drains the south-eastern mountains towards the Federal Republic of Somalia and the Indian Ocean.
 - The North-East Coast (including the Ogaden and Gulf of Aden basins) covers 6% of the country.

However, there exist major environmental, structural and technological challenges and constraints to Ethiopian agriculture. Upon these constraints ride opportunities for optimization, scale deployment, productivity improvements and value augmentation:

- Preponderance of smallholder farmers,

- Continued low productivity due to primitive farming practises,
- Overdependence on weather.

Following from the preceding, therefore, the following areas of focus and cross-types have been identified as presenting the greatest opportunity for investment in Ethiopian agriculture.

Cereal crops: Wheat, barley, corn, rice and teff

- Up to 10.65 million hectares of land in Ethiopia is under cereals cultivation, producing an average annual crop yield of about 18.34 million tons. Cereals production accounts for 80% of total cultivated land and employs 60% of rural labour.
- They are grown by subsistence farmers across the country – with poor yields, frequent crop failures and non-existent mechanization.
- These crops form the core staple foods in the country and are, therefore, consumed in very high quantities. Households spend about 40% of their food budget on cereals. Consumption is principally in raw, unrefined, unprocessed form.
- Corn is Ethiopia's largest cereal crop, accounting for 22% of total land area covered by cereals and 30% of the total cereal crop. Eight million smallholder farmers produce 95% of the entire crop. It is a rural staple with rural per capita consumption of 45 kg per year versus only 16 kg per year in the urban areas.
- Wheat is the second most important cereal in the country. Average annual production is 3.2 million tons, but the country still imports 33% of its wheat requirement.
- Equally for barley, which is mainly malted for beer production. The country can only produce 35% of it, the rest being imported from the Kingdom of Belgium and the French Republic. Currently, state-owned Asella Malt Factory has been the only local malting facility, but, by 2014, a private factory started operating. In addition to the four existing breweries in the country, another two are being built.
- Food deficits are chronic, and distribution from areas of bumper harvest to areas of crop failure is a challenge. Increasing crop production is crucial to attaining food security and providing inputs for the industrial sector.
- Farmers are eager to monetize produce upon harvesting to purchase non-food items, and pay bills and other obligations.

Constraints

- Both GTP I and II aim to double grain production by 2015 and 2020 respectively, but, due to high population density and high soil degradation in the highlands, there is little chance of achieving that without technological and advanced inputs interventions.
- Insufficient or non-existent seed multiplication facilities; therefore, farmers still use low-quality, low-yielding, late-maturing seeds.

Opportunities

- Bulk purchases of primary produce during harvest time either for post-harvest redistribution and arbitrage on the marked prices differences or for stockpiles for milling and processing.
- Establishing outgrower schemes with farmers for milling purposes. This is to include extension assistance on seed varieties, soil preparation and weather data.

- Commercial farming on import substitution: Ethiopia imports 33% of its wheat consumption, mainly from Russia, Argentina and the US. Currently, wheat is grown on some 1.5 million hectares of land.
- Commercial farming of barley: To substitute the imports from France and Belgium, but also to supply the new private malting company and the new demand expected from the two new breweries under establishment.

Pulses: Soya beans, haricot beans, chickpeas, beans and lentils

- Pulses occupy about 13% of cultivated land and account for approximately 10% of agricultural value addition. The last recorded production figures in 2013 include: haricot beans – 102,394 metric tons; horse beans – 38,985 metric tons; chickpeas – 46,338 metric tons; white pea bean – 59,628 metric tons; soya beans – 35,606 metric tons.
- They contribute significantly to Ethiopia's export earnings, being the second after coffee and sesame.

Constraints

- Low productivity due to low input usage, especially chemical fertilizers capable of increasing yields up to 80% more.
- Lack of market aggregation system. Link between producers and exports is weak due to a large number of ineffective intermediaries who have failed to acquire scale and operate in limited geographies.

Opportunities

- Productivity optimizing commercial production: Productivity gains from better planting techniques and inputs utilization has been demonstrated in Ethiopia to more than double pulses production. For example, recorded smallholder chickpea yields are 1.2 tons per hectare, against 2.9 tons per hectare with appropriate inputs.
- Organizing export platform: There is an opportunity to develop and strengthen the value chain to be more responsive to export flow demands, by better networking the intermediaries and enabling a system of information sharing and flow.

Horticulture and floriculture

- Only a decade old, Ethiopia's cut flower business has grown to become the second largest in the continent after Kenya. There are about 120 high-tech flower growers on about 1,700 ha of land and generating US\$ 265 million in revenues (2014) from just US\$ 28.5 million in 2005.
- The climate is really by far Ethiopia's best source of competitive advantage. South of Addis, rising about 2,800 feet above sea level, it is ideal for floriculture. Plus, the country has 12 river basins, 18 natural lakes and a potential of 3.7 million hectares of irrigable land. All year round crop production under irrigation is a confirmed sustainable proposition.
- Coupled with other attractive investment features such as excellent export-oriented agricultural policies, comprehensive incentives, cheap electricity and cheap labour, Ethiopia has been pulling away investors from more established sources like Uganda, Kenya, Tanzania and the Republic of Ecuador. Some are major integrated flower producers like Karuturi Global Limited.
- Located in the Horn of Africa, the country is at the crossroads between Africa, the Middle East and Europe. With easy reach of the major export ports in the horn area, Ethiopia is perhaps closest to the traditional markets than other flower-producing countries on the continent.

- Another major advantage is excellent air links and air cargo capacity to the major markets in Europe and the Middle East that underpin quick and profitable delivery turnarounds.
- The concept is consistent with government's preference for labour-intensive, export-oriented commercial agriculture.

Constraints

- The main constraint is the lack of adequate specialized infrastructure; i.e. cold stores and cold transport.
- Factors pertaining to the international regulatory environment for export. Failure in their compliance may adversely affect trade relations and future market opportunities. There are different market requirements that are related to social and environmental aspects of production, or quality of products and processes.

Opportunities

- Production incentives opportunity: Area under production is expected to hit 3,000 ha by 2020, and revenue is projected to be US\$ 550m. There is an opportunity to engage in scale cultivation, packaging and export of horticulture and flowers.
- Market-oriented opportunity: Another is to secure long-term new markets supply contracts and use it as a basis for outgrower arrangements with smaller local growers, packaging and export, or through bulk off-taking at export terminals from aggregator middlemen, packaging, marketing and export.
- Supply chain opportunity: A further opportunity is to deal in irrigation infrastructure, green house equipment supply and distribution, chemicals and fertilizer.

There are three substantive factors that recommend agro-processing in Ethiopia over and above the obvious value addition rationale.

1. Extensive and broad agricultural raw material availability. More so with the onset of all year round irrigation-fed commercial agriculture.
2. The imminent on-streaming of the continent's most ambitious power generation capacity.
3. Establishment of agro parks by the government, exclusive and incentives-laden centres for optimization of the value of Ethiopia's agricultural sector through advanced processing, industrial and commercial linkages.

Oilseeds: Sesame, Niger seeds, canola, linseed, groundnuts and sunflower

- Oilseeds are the second most important export commodity in Ethiopia after coffee. It is currently cultivated on about 860,000 ha by about four million smallholder farmers who produce about 86% of the annual yield.
- The main crops are sesame seed, Niger seed and linseed. Thirty-three per cent of oilseed production is sesame, and linseed is 13%. Ethiopia is the third world exporter of sesame after India and Sudan.
- There is low use of agro-inputs, poor farm management and a lack of market-oriented production such as contract farming.
- All the seeds have two parts to them – the oil, which is extracted by pressing the seeds, and the seed cake, which is used for animal feeds.

- Most of Ethiopia's oilseeds are sold raw and unprocessed. About 850 small-scale and micro enterprises account for 95% of the manufacturing base. Capacity utilization is seriously constrained and the technology is obsolete and the equipment dilapidated.

Constraints

- Refining capacity is limited to some 26 medium and large industries operating on 30% capacity utilization. Only 30% of Ethiopia's edible oils requirement is satisfied by local production; the rest is served by imports of crude palm oil and soya bean oil, at a cost of 40%–50% of the export earnings of oilseeds.
- The seed marketing chain is long and non-value adding, with high transaction costs.
- Lack of access to packaging services, and poor vertical and horizontal collaboration within the value chain.

Opportunities

- The potential to increase oilseed production is huge. Only 20% of available agricultural land is in use, of which only 7% is used for oilseeds. Productivity per hectare can be doubled with higher input levels, e.g. fertilizer and improved seeds. Higher production is required, as Ethiopian food demand is projected to increase by one-third by 2020 due to population growth and increasing incomes.
- Import substitution production: To save the 40%–50% of export revenues utilized in importing crude palm oil. Ethiopia has a good opportunity to grow its local refining capacity by contract oilseed farming and save badly needed foreign exchange.
- Integrated processing opportunity: There is an emerging and growing opportunity to lock down the entire oilseed value in the country. The various uses within the country are enormous:
 - For cooking; as an ingredient in other foods or as a nutritional supplement.
 - As a raw material for the manufacture of soap, body and hair oils, detergents and paints. Some of these oils may also be used to replace certain petroleum-based lubricants and fuel. The growing personal care and cosmetic industry in Ethiopia is currently served by direct imports of finished goods or local processing of imported raw materials. The local oilseed processing sector has the potential to help reverse this and look inward for raw materials.
 - The seed cake forms a very nutritious and essential component of the dairy and poultry feeds industry. The growth and dynamics of the dairy and poultry sectors in the country now present compelling case for offtake of oilseed cake at industrial scale for the year-round processing and manufacture of dairy and poultry feeds.
- Further export potential: Ethiopian sesame seeds are very well known in the world market for their flavour and nutritional value. Ethiopia's white sesame seed is used as a reference for grading in international markets. The government has continued to promote its sesame and linseed export market experience to new destinations where there is growing interest for Ethiopian oilseeds. World sesame and olive oil import prices have been rising astronomically, currently three to four times the prices of all other oilseed crops. The Ethiopian oilseed sector has the potential to export more by identifying market windows and implementing supporting institutions.

Industrial conversions

Cotton and textile

- The total potential area agro-ecologically suitable for cotton production in Ethiopia is estimated at 2.57 million hectares, but only 125,000 ha is currently under cotton production. Annual production

had stagnated previously, but has been seen to rise gradually as the sector begins to respond to the ballooning demands of the expansive textile and apparel industry.

- Textile and apparel is one of the key manufacturing industries prioritized by the GTP II. It is uniquely seen as the country's first step towards industrialization and a creator of large employment and trade opportunities, and a platform for global integration for the economy. As a result, government is working to streamline, improve, support and expand the sector both in domestic and foreign markets to emerge competitive internationally.
- Annual production in 2005 was about 40,000 tons, and is estimated to be about 43,500 tons in 2016. Consumption has already begun to outstrip local production due to the demands of the rapidly expanding textile and apparel industry. In 2015, imports of about 8,000 tons plugged the gap and, in 2016, this is expected to further rise to 12,000 tons.
- Government policy and incentives regimes are focussed on attracting integrated foreign investors who grow, gin, spin and process cotton in local textile industries. They are seen as the lynchpin for driving growth in the sector.
- In this regard, government has been actively courting foreign investment into the sector, including opening up large tracts of land for growing cotton. This outreach has borne fruits with a number of vertically integrated Turkish firms establishing a local presence.

Factors for global competitiveness

- Ethiopia's textile industry has the privilege of being undergirded by a deep and profound local cotton production sector. Doubly, the country's textile industry is by far the most integrated on the continent on the back of local content.
- The global dynamics of the sector include observable easing out of Asia from most of the activities. It is labour intensive – with strong job creation benefits; therefore, falling within the priority areas for the government.
- The country has one of the lowest and most competitive costs of energy – at US\$ 0.06/kWh, it even beats China, which has US\$ 0.07/kWh. This is very important, because power costs are about 25% of a textile producer's operating cost.
- Has scope for innovation in the space of fashion and development of industrial textiles along with Mauritius, perhaps the most developed AGOA-inspired scale of competitiveness and international best practices.
- Also a very strong candidate for the incentive schemes of the newly established industrial parks. One industrial park, Hawassa, is chiefly designed and established for the textiles industry.

Constraints

- Limited supply or availability of quality inputs, e.g. seeds and fertilizer and modern pest control chemicals. Indeed, the seed being widely used is about 20 years old and its yields are mediocre at best, and vulnerability to pests and diseases is chaotic.
- Historical ban on exports created a long-term structural challenge where most farmers shifted completely to other crops. It is taking a bit of time and effort to convince farmers to start growing cotton again and build a critical mass of a local production base.
- Real demand is much higher than actual demand – a large chunk of it remains unsatisfied due to local production constraints and the logistical and procedural challenges of importing.

Opportunities

- Contract production for AGOA,

- AGOA-induced best practice production for Asian and European markets,
- Incentives-enabled import substitution production for the domestic market,
- Preferential government procurement-enabled diverse uniforms production,
- Chemicals, dyes and other textile production consumables,
- Specialized industrial textiles manufacture,
- Integrated branded apparel and fashion lines.

Livestock

- An industry underpinned by the largest national herd on the continent:
 - Cattle: 49.3 million heads
 - Sheep: 25 million heads
 - Goats: 21.9 million heads.
- Accounts for 49% of the country's agriculture.
- The local communities already have a high tradition-based appetite for beef products.
- A growing middle class, a high rate of urbanization and embrace of modern balanced diet culinary habits driving a rapid increase in the consumption of beef, dairy and proteins.

Constraints

- No well-coordinated livestock supply chain that links producers with buyers. Marketable livestock reach the consumer through a complex of channels along the supply chain – producers, middlemen, trading cooperatives, traders and live animals exporters.
- Lack of access to untapped areas – poor state of road infrastructure.
- Lack of efficient market information delivery mechanism; i.e. on market prices, demand and quality requirements.
- Lack of partnership or linkages between producers and processors.

Opportunities

- Integrated abattoirs for the slaughter, cutting, packing and distribution of meat products to local retail networks, restaurants, hotels, public and military institutions.
- Fattening and trading of live cattle, sheep and goats, taking advantage of long-term data of draught and rainfall cycles and the prevailing arbitrage in animal prices.
- Bulk purchases and transportation to markets – creating direct contact with the producers to cut out the middleman and preserve profit margins.
- Animal logistics solutions designed to reach the untapped areas and link them to the market system. Increase supply and stabilize producer prices.
- Meat processing – including canning, sausages, cured meat cuts and beef nuggets. These can be for export.

Dairy

- Ethiopia has a large livestock population, a relatively favourable climate for improved, high-yielding dairy cattle breeds and regions with less animal disease-stress that give the country a substantial potential for dairy development.
- Still, the country is a net importer of dairy products, with import values significantly exceeding export values. In reference years 2005–2009, import values increased from about US\$ 5.6 million to US\$ 10.3 million a year.
- The milk marketing system is not well developed, giving the majority of smallholder milk producers limited access to the market. In 2010, less than 7% of annual milk production was estimated to be marketed at national level. In 2009, there were 180 cooperatives involved in milk production and marketing in the entire nation.
- In most cases, existing dairy cooperatives are operating only in areas that are accessible to transportation and markets. This means that a substantial amount of milk does not reach the markets and the majority of producers do it at a subsistence level.
- On the macro-level, the country has one of the fastest rates of urbanization on the continent at 5% per annum. The urban population is now at 19 million people.
- A bulging middle class – Ethiopia is projected to reach middle-income status by 2025 on account of greater emphasis on domestic savings, private sector development and improving trade logistics.
- Demand for processed dairy products is rising fast and supply has not been keeping up.

Constraints

- Lack of market outlets for milk and milk products.
- Inefficient and untimely artificial insemination (AI) services and poor semen quality, and lack of crossbred heifers.
- Shortage of feeds, especially agro-industrial by-products.
- Inefficient and inadequate milk-processing technologies.
- The absence of or weak linkages among the different actors in the dairy value chain is considered to be another important factor that negatively affects the country's dairy development.
- Reports on the microbiological properties of marketed milk and milk products indicate that their quality is below standards.

Opportunities

- Highly intensive, fully mechanized dairy production.
- Quality breeds' development and adaptation.
- Integrated milk collection, processing and distribution.
- Dairy feeds production, and distribution.
- Dairy brands development, marketing, placement and promotion.

Poultry

- The total poultry population in Ethiopia is estimated at 38 million chickens, 97.8% of which are indigenous birds under subsistence production, while 2.2% are exotic breeds in commercial farming.
- Poultry consumption is more common in urban areas and is highest during the holidays and festive seasons.
- The existing distribution structure in the subsistence and small-scale sector is such that 42% is direct sales from the farmers to the consumers, and only 39% goes through a rudimentary trade system of retail traders.
- For the majority of sedentary populations in Sub-Saharan Africa and in the country, poultry has become an important part of integrated food production and a source of food security.
- In recent years, an emerging urban middle-class sector with higher income and more buying power has boosted demand for poultry products and this has led to the expansion of poultry production within urban and peri-urban areas.
- A few companies, based in the Debre-Zeit area (60 km from Addis) – e.g. Elfora, Alema and Genesis farms – supply the Addis market, which is by far the largest poultry market in the country.

Constraints

- There is limited capacity to produce day-old chicks locally – which is the livestock raw material for the broiler industry. Only 18 public poultry multiplication and distribution centres (PMDCs) are currently doing this.
- However, demand still exceeds supply and imports from the Kingdom of the Netherlands, the Kingdom of Saudi Arabia, Egypt, the UK, Germany and Kenya fill up the shortfall.
- Specialist slaughter facilities are not available other than those owned by Alema Farms Limited and ELFORA Agro-Industries Pvt. Ltd. Co. This means that most of the dressed carcasses from small-scale keepers are prepared and packaged without health inspection, raising issues of delivery of safe food to the food chain.

Opportunities

- Hatchery opportunity: There is a huge unmet demand for day-old chick production and master mother stock for eggs production.
- Integrated commercial poultry production (chicken and eggs) around and within urban areas.
- Specialized chicken abattoir to process and route small-scale chicken production into the mainstream food chain.
- Chicken feed production to supply the rising urban-based, intensive commercial chicken farming.

2.2. The case for light manufacturing

The Ethiopian Government declared official industrial policy is “to achieve industrialization through Agricultural growth and close linkage between Agricultural and Industrial sectors”. It is decidedly agro-processing oriented. The key objectives are:

- To increase agricultural output and productivity
- To increase industrial output and productivity
- To close input-output linkages between the two

To these pursuits, the generally desired character of investments into Ethiopian industry would be the following:

- Which contribute to economic diversification and value addition,
- Which is export-oriented with a focus on manufacturing,
- Which transfers technologies, management know-how and technical skills,
- Which create relatively large employment opportunities,
- Which exploit locally available resources,
- Which have strategic import substitution.

The market opportunity is unrivalled in the region:

- Own market: 95 million people and growing annually at 2.9%; GDP of US\$ 39.9 billion (at current market prices – 2015),
- Preferential access to US markets through AGOA and the Generalized System of Preferences (GSP) of the United States,
- Preferential access to the European markets through the Everything But Arms (EBA) agreement,
- Closest proximity to the Middle East and Southern Asia.

Major macro-structural factors underpinning Ethiopia's industrial base are:

- Massive power generation capacity: Sub-Saharan Africa's second-largest power generation and supply capability.
 - Installed capacity of 17,347 MW by 2020,
 - Transmission lines increase from 12, 825 km to 21,728 km by 2020,
 - Technical and transmission losses coming down from 22.3% to 11% through investment in smart grid.
- Transport and logistics: Laying down some of the finest world-class infrastructure on the continent.
 - 2,782 km of standard gauge railway (SGR) to be completed by 2017,
 - Expressways to link all major transport corridors,
 - Air transport hub of Africa at the Bole International Airport; 51 city connections in Africa, 16 in Europe and Americas, and 25 in the Middle East and Asia,
 - All-weather road linking urban to rural,
 - Transit time for import and export to reduce by 50%,
 - Containerization to reach 100% of cargo, from current 7%,
 - Port handling days to be reduced from 40 to three days,
 - Multimodal transport to cover 90% of cargo from the current 30%.
- ICT: Highly improved international linkage capacity and quality.
 - Move from 20 GBs to 1,485 GBs.

- World-class competitive factor costs:
 - Semi-skilled industrial labour: Daily rates of US\$ 4; monthly rates of US\$ 110–US\$ 250.
 - Long-term, industrial-quality, reliable electricity connection: US\$ 0.03/kWh.

Leather and leather products

- Ethiopia has the largest population of cattle in Africa and the tenth-largest in the world: 54 million cattle, 25.5 million sheep, 24 million goats, seven million donkeys, two million horses and one million camels. Livestock contributes 16.5% of GDP, and some 11 to 13 million households are engaged in it.
- Every year, the country produces about 2.7 million hides, 8.1 million sheepskins and 7.5 million goatskins. In addition, it has by far the largest flock of hair sheep in the world – at 26 million sheep.
- Industry earnings stood at US\$ 132 million in 2013, having grown from US\$ 76 million in 2008. US\$ 30 million of this came from shoe exports. Ethiopian leather products are exported to the UK, Italy, the US, Canada, China, Japan, the Far East and the Middle East.
- As one of the priority sectors, government plans to move it from primary goods exports to fully value addition within the country, creating more employment, boosting exports of finished goods and optimizing foreign exchange earnings.
- Still, 73% of revenue is earned from exports of finished leather, which has the potential to be converted into value-added products such as shoes, bags, gloves and garments. This is beginning to happen.
 - In 2012, Chinese footwear manufacturer Huajian Group opened a factory at the industrial park outside of Addis, where it currently manufactures 6,000 pairs of shoes and boots a day. It is now establishing its own industrial zone on 138 ha land at a cost of US\$ 2.2 billion.
 - UK's Pittards has installed a factory to produce high-quality leather items for export.
 - Similarly with Taiwan's George Shoes.
 - US shoe company Brown is now exporting shoes to China from the country under its own trademark.

Constraints

- Defects before and after slaughtering affect quality. Poor care in handling of animals such as scratches due to whipping, thorn cuts, brand marking and skin diseases such as ectoparasites downgrade the quality of hides and skins produced in the country.
- Quality standards enforcement in conversion. Some of these defective hides and skins sometimes get into the production system, seriously undermining the quality of the finished product.
- Many locally made products or those made from locally sourced raw materials are selling under foreign brands – reducing the country's share in world trade of leather and leather products.
- Local contract manufacturing arrangements with foreign buyers are mostly in pricing lower than the domestic market, on the back of bulk purchases and assured long-term market.
- Lack of adequate raw materials in terms of finished leather. Total demand is 40 million pieces per annum, while total production is only 21 million pieces.

Factors for international competitiveness and branding:

- Legacy of integrated upstream and downstream with quality Ethiopian-made footwear, leather jackets, belts and handbags listed in high-street retail stores in both Europe and North America.
- Incentives-powered high-efficiency processing environment in the industrial parks.
- Preferential delivery and distribution linkages to some of the world's massive, insatiable consumer markets.
- Scope for innovation in the downstream product and upstream quality improvements. Ethiopia has made tremendous productivity gains in recent years and now surpasses Kenya in terms of a cost competitiveness advantage. Indeed, it is approximately 30% more costly to produce a pair of low-cost men's leather shoes in Kenya than in Ethiopia.
- Ethiopia is emerging as a new world-class player in leather footwear due to its low-cost skilled labour, improvements in the quality of its raw material supply, the stable business climate and the establishment of new economic zones.
- Ethiopia is attracting an increasing number of foreign investors who are using the country as a production site, predominantly to enter the EU and US markets— the latter through the AGOA programme.

Opportunities

- **Finished leather opportunity:** There is an annual deficit of 19 million pieces of finished leather that needs to be plugged now, without considering organic growth in demand, which has been recorded at a CAGR of 23.7% for the last five years. There is, thus, a huge opportunity to invest in processing of wet blue and finished leather to international standards for premier world market destinations.
- **Import substitution opportunity:** Ethiopia is still importing large quantities of shoes, leather and synthetic leather products from across the world, spending millions of hard currency. As the leather industry is now become more competitive with world-class infrastructure bedrock to support it, there is an opportunity to develop competitive local production capacity to substitute these imports and claw back revenues currently going to foreign manufacturers.
- **Export potential opportunity:** As more hides and skins get processed into finished leather within the country, there is further opportunity to optimize export potential in the traditional markets and destination of finished Ethiopian leather products. There is also potential to explore export markets within the region, as Ethiopia is now speedily integrating into the COMESA economic and trading bloc.
- **Leather accessories opportunity:** As more scale and capacity is developed, evolved and gets built into the country's leather industry, a case could be made for the local manufacture of some or all of the leather accessories in the country, e.g. sewing threads, plastic linen, shoelaces, zippers, buckles and shoe eyes, etc.

Pharmaceuticals

- The annual pharmaceutical market in Ethiopia is estimated to be worth about US\$ 400–US\$ 500 million, and growing at an impressive 25% per annum. Steady economic growth, improvements in the delivery of healthcare and introduction of social health insurance coverage across the country have been the major drivers of this growth.
- The country is aggressively investing in and expanding its health sector. Coverage increased from 30% in 2010 to 89% in 2015. The number of health posts and centres has increased from 4,811 in 2005 to about 17,415 by 2012. The country achieved the health-related Millennium Development Goals (MDG) ahead of time: namely drastically cut child mortality rate and substantially reduce prevalence of AIDS, TB and Malaria.

- The public sector, through the Pharmaceuticals Fund and Supplies Agency (PFSA), procures almost 70% of all medicine consumed in Ethiopia. However, there is still significant out-of-pocket expenditure estimated at 46%. PFSA procurement increased from US\$ 27 million in 2007 to US\$ 310 million in 2014.
- The local industry comprises more than 200 importers of a wide range of pharmaceutical and medical consumables, 22 pharmaceutical and medical suppliers, with nine directly involved in the manufacture of pharmaceutical products and only two of these GMP certified, zero WHO prequalified products, zero active pharmaceutical ingredients manufacturers and zero research and development companies.
 - Only one Chinese-Ethiopian joint venture company is producing hard gelatin capsules for exports to a number of African countries and the Middle East.
- Accordingly, in 2014, local pharmaceutical manufacturing companies supplied products worth US\$ 44.2 million, which is still far below what is expected. About 35%–40% of their total output is sold to the private sector. They have limited product portfolios and are able to supply only 90 of the more than 380 products on the national essential medicines list. This indicates the urgent need to establish new pharmaceutical industries for fulfilling domestic pharmaceutical demand.
- The government, through the GTP I and GTP II initiatives, is providing support to the local pharmaceutical industry to promote import substitution, export growth, transfer of technology, job creation and, importantly, to increase the production of essential medicines. In this regard, local pharmaceutical companies are given incentives as follows:
 - Preferential government procurement with advance payment of 30% of sales,
 - Granted by Development Bank of Ethiopia, loans of up to 70% for new investments and up to 60% for upgrading projects, which are tax-free for the first five years,
 - 100% exemption from payments of custom duties and other taxes levied on imports is given to all, and granted capital goods deductions, such as plants, machinery equipment and construction material,
 - 25% price protection when competing with foreign suppliers.
- Other incentives tailored to move companies along the value chain include instituting time-sensitive import-product restrictive policies to create a "window of opportunity" within which local pharmaceutical companies can transform and improve themselves to replace these imported products from within local formulation and manufacture resources that adhere to accepted GMP standards and WHO practices.
- These are intended to facilitate investments, to set up new factories and to upgrade and enhance competitiveness of local companies and related industries such as packaging.
- In order to overcome the problem of high cost due to low-volume purchases of active pharmaceutical ingredients (API), excipients and packaging materials, and to address the problems of variable quality, foreign exchange challenges, long lead times, high shipping costs, port charges and administrative hurdles, the Food, Beverage, Pharmaceuticals Industry Development Institute (FBPIDI) will facilitate consolidated bulk purchases and consignment stocking of critical imported raw materials and deliver to the local sector at cost plus a minor handling fee.

Constraints

- Limited product diversification by local pharmaceutical manufacturers; so far, about 114 items manufactured locally; majority of players import finished formulations.
- Duplication of items produced by local manufacturers.

- Storage space constraint from PFSA side and also from local industry.
- Limited packaging products capacity by suppliers.
- Local pharmaceutical manufacturing companies have demonstrated that they fall short of reaching the standards required for WHO. Currently, four manufacturers qualified, while others are expected to make reasonable investments in plant modernization to be able to qualify.

Opportunities

- Government-pronounced strategic plans for development of the pharmaceutical value chain 2015–2025 are as follows:
 - Packaging and labelling companies – three new by 2020, and seven by 2025,
 - WHO prequalified products – four products by 2020, and 15 by 2025,
 - Active pharmaceutical ingredients manufacturing – four companies by 2020, and 20 by 2025,
 - Research and development capability – one company by 2020, and three by 2025.
- Value chain development opportunity: The development of the local pharmaceutical manufacturing industry is key in ensuring uninterrupted availability of essential medicine in all parts of the country, including rural areas, which is in line with the Ethiopian primary healthcare initiatives. Invest in leading players in the sector to inject capacity for scale expansion and movement or diversification along the value chain.
- Import substitution opportunity: Take advantage of the incentives and deliberate government moves to substitute local pharmaceuticals with imported and realize the potential to save 10%–15% foreign exchange.
- Local research and development opportunity: Encourage new drugs formulations derived from local natural resources and rich biodiversity. A marked rise in herbal, food supplements and cosmetic drugs consumption in the country.

Industrial and construction materials

- Construction has been the fastest-growing sector in the country, powered by GTP I flagship infrastructure and energy projects, but also a construction boom in the capital led by hotels, offices, malls and apartments developments.
- The government's strategy of state-led economic development has resulted in a construction boom, in and around Addis Ababa and to a lesser extent in other major cities. In 2015, there were about US\$ 20 billion worth of construction projects in the pipeline, with an output of US\$ 3.2 billion.
- By far the two flagship construction development projects currently ongoing in Addis are:
 - The Guangdong Chuanhui Group's proposed Chuanhui International Tower at the Addis Ababa Exhibition Centre, which will have 99 storeys. Once complete, it would easily be Africa's tallest building, ahead of the current record-holder, the 50-storey Carlton Centre in Johannesburg,
 - The Commercial Bank of Ethiopia's 52-storey building, which is approaching completion.
- The sector has been dominated by state-led public infrastructure projects, but a lot of private projects are being seen. The flagship private development last year was the US\$ 2.2 billion Huajian Group Industrial Park near Addis, numerous investments in textiles factories, and a sizeable number of real estate and apartments projects.

- Development of industrial zones offering foreign investors tax incentives in non-restricted sectors is expected to continue, e.g. China Civil Engineering Construction Corporation (CCECC) has embarked on the US\$ 240 million construction of Hawassa Industrial Park.
- In 2016, construction is expected to contribute 20% of GDP growth, which is projected at 11.2% (Economic Intelligence Unit) on the momentum of the ongoing capital goods formation.
- The momentum is bolstered by incentives; i.e. tax breaks and ready access to land.
- Four million construction jobs were created in the last three years.

Constraints

- Public infrastructure projects are government controlled, with heavy government-to-government contractor agreements leaving little room for private sector players.
- Major materials, especially petroleum based and hardware materials, are still being imported into the country at high costs due to high transport costs.
- Almost all machinery and equipment is imported mainly from China and Malaysia.
- Financing of private developments is a big challenge from local sources. Cost of local credit is prohibitively high and uneconomic for the property and real estate yields.

Opportunities

- The construction boom in the country is expected to last a long time given the backlog in public infrastructure needs and chronic deficits in commercial and residential space in the country's main cities.
- The boom has been centred around Addis mainly, but evidence of spillover to the other major cities is beginning to be seen: Dire Dawa, Nazret and Gonde.
- There are sufficient local raw materials in the country and cheap, reliable power supply for a feasible local construction materials manufacturing sector to develop.
- Externally funded construction options will continue to be more competitive against the backdrop of expensive local credit, which is mainly short-term.
- Hardware materials opportunity: There is good scope for the local manufacture and supply of a broad range of non-core intermediate building and construction materials into the widening supply chain of the expansive construction sector. These would be roofing sheets and tiles, reinforcement steel, slabs, cabro paving blocks, casement windows and doors, metallic gates and paints, etc.

Agro-chemicals and fertilizer industries

- Ethiopian agriculture is characterized by smallholder production with decreasing arable land and, therefore, the need to raise productivity. A key tenet to achieving the agricultural growth targets in the GTP is the adoption of improved technologies together with management practices that will augment yields and, therefore, increase household incomes for smallholder farmers above the current levels.
- The country has 16 million hectares of land under agricultural cultivation, of which 12 million hectares are under food grains, which require regular fertilization.
- In terms of soil nutrients and fertility, Ethiopia has one of the highest rates of nutrient depletion in Sub-Saharan Africa. The estimated annual nationwide loss of phosphorus and nitrogen resulting from the use of dung and crop residues for fuel is equivalent to the total amount of commercial fertilizer use (Policy and Investment Framework, 2010). However, the use of fertilizer and improved

seeds are limited despite government efforts to encourage the adoption of modern agricultural practices.

- Ethiopia's fertilizer market deals with high transaction costs in marketing and distribution to geographically dispersed small farmer populations who have limited financial resources and access to credit. In addition to relatively high fertilizer prices, rainfall variability results in increased production risk and variability in fertilizer consumption.
- Over the last 10 years, total fertilizer imports have increased by more than 50%, from less than 370,000 tons in 2002 to almost 570,000 tons in 2011, with a spike of 627,000 tons in 2009. Fertilizer carryover stocks averaged 33% of imports between 2002 and 2011, with a high of 61% in 2002 and a low of 12% in 2007. These stocks, resulting from the mismatch between actual fertilizer demand and imports, accentuate the year-to-year variability in fertilizer import levels.
- Ninety-nine per cent of fertilizer consumed in Ethiopia is used on cereals, 4.7% on pulses and 1.8% on oilseeds. Non-grain crops account for only 3% of fertilizer use. From total fertilizer use in cereals, teff receives the highest share, with almost 40% of fertilizer use, followed by wheat (26%), maize (17%), barley (9%) and sorghum (3%).
- Agricultural Inputs Supply Enterprise (AISE) is currently the sole importer of fertilizer in Ethiopia. An important decision that AISE must make every year is how much fertilizer to import in order to meet the anticipated demand from farmers. Currently, all the fertilizer used in the country is imported at considerable cost to the economy.
- Yet there are vast proven commercial quantities of fertilizer raw materials in the coal mines in Yayu region of Oromia. These have potential to produce 300,000 tons of urea a year, 250,000 tons of DAP a year, 20,000 tons of ethanol and 90 MW electric power.
- The government has been trying to develop its own fertilizer factories in this region, three in Yayu and two in Bale Melka Arba, without much success due to funding and bureaucracy related challenges.
- Government is encouraging private sector investment with good incentives to help save the situation.

Constraints

- Fertilizer prices in Ethiopia are set by the Ministry of Agriculture and Rural Development (MoARD) in consultation with stakeholders, a process that may not capture all the relevant elements that go into price formation. A consequence of this is that the margins set for players can constrain their actions in a way that is detrimental to beneficiaries.
- As a land-linked country, Ethiopia makes use of Djibouti Port, 950 km from Addis Ababa, as the main entry point for most of its imports, and inland transportation is a major operational consideration in the importation of fertilizer.
- The additional cost from Djibouti Port to a cooperative warehouse is US\$ 152.3 for DAP or 21% of Djibouti's reported import price. Inland transportation takes up to 74%, followed by insurance, bank commissions and administration costs at 19% and clearing cost, inspections, re-bagging and spillage losses at 7% of total inland cost up to the AISE warehouse.

Opportunities

- Assuming no significant change in cultivated area over the five-year planning period, crop production will increase by approximately 50% based on an annual growth rate of 8%. To meet the GTP targets by 2020 requires an increase of 9.6 million tons of grains above current production.

- The nutrients that correspond to the GTP targets are 612,000 tons, which translates to an equivalent fertilizer product weight of approximately 1.22 million tons. This is essentially double the current fertilizer consumption in Ethiopia.
- Import substitution production opportunity: There is already proven viability for a good scale, diversified fertilizer production in the country.
- Sufficient power supply to run the conversion process,
- Ready market: US\$ 150 million average annual spend,
- Comfortable projected organic growth in fertilizer consumption at annual rate of 8%,
- Vast confirmed local raw material inputs,
- Import substitution, employment creation and local resources utilization incentives.

Agricultural machinery

- The place of agriculture in Ethiopia's economy has already been established. Indeed, the official industrial policy has agricultural production and value-addition at its core.
- With 16 million hectares of land to till every season, Ethiopia really needs a great deal of agricultural machinery.
- Despite having agriculture as its principal economic mainstay, Ethiopia's agriculture still remains the least mechanized in the region. It has 2.1 tractors per 100 km² of arable land (Kenya: 26.9 tractors, and Tanzania: 23.9 tractors).
- The Ministry of Agriculture has recently established an agricultural investment authority to administer allocation of rural land for commercial farming. Three million hectares of land have been identified for this purpose. In the recent past, two big companies have established giant commercial farms:
 - Karuturi Global: 100,000 hectares of land. Plans to grow maize, rice, palm oil and sugar cane. Total project cost is US\$ 1.4 billion,
 - Saudi Star Agricultural Development: 129,000 hectares of land. Plans to grow grain, oilseeds, sugar cane and, eventually, rice. Project cost: US\$ 2.5 billion,
 - There are currently 73 new companies engaged in horticulture,
 - More than 30 new companies have recently sourced land for commercial farming under this scheme.
- In 2013, Ethiopia imported 12,500 tractors. Adama Agricultural Machinery Industry is a public company that imports and assembles semi-knocked down (SKD) tractor parts and distributes agricultural machinery across the country. Its scale and range of products is too low to make a dent in the market demand. There are numerous private companies importing and stocking agricultural machinery in the country.
- In 2008, the country spent a total of US\$ 175 million in imports of agricultural machinery alone. Tractors: US\$ 138.7 million; harvesters and threshers: US\$ 23.3 million; soil machinery: US\$ 7.1 million; and milk machinery: US\$ 0.3 million.

Constraints

- The country lacks the necessary scale to import big volumes of agricultural machinery due to constraints of foreign exchange availability.

- There are practically no parts and after-sales service for agricultural machinery in the country.

Opportunities

The sector is very ripe for technological adaptation.

- Government's investment in all-weather rural roads is quickly making commercial farming viable at a low scale in the countryside.
- The incentives under the Agricultural Investment Authority are proving feasible as the uptake of farming opportunities is competitively high.
- A very strong and steady growth in agriculture finance with lending products tailored to machinery and implements acquisition and maintenance. This means the ability to purchase machinery for farmers is being augmented by commercial credit extension.
- Assembly opportunity: Therefore, a very strong case exists for the manufacture, assembly and distribution of tractors, harvesters, mechanized ploughs, harrows, mowers, fertilizer spreads and straw bailers.
- Parts and components opportunity: An even stronger case for a wide range of agricultural machinery spare parts and components in the country.

Packaging

- A growing trend and tendency for formal shopping is gaining traction in the country. A great and direct beneficiary of the formalization of shopping is the packaging industry. Virtually everything that is retailed is packaged; even furniture and white goods are delivered in cartons and Styrofoam. Private label brands, ready to eat foods; you name it – must all come in a package.
- Health consciousness and creeping paranoia is making people skittish about the handling of their groceries and other food items, leading to an incipient, but growing trend where vegetables and meat products come prepacked in "punnets".
- Observed efforts, a deliberate push and initiatives to add value to primary agricultural commodities through agro-processing is going to see heightened demand for packing items.
- As the country continues to expand its industrial base and deepen and diversify manufacturing, the need for packaging materials of all kinds will increase astronomically. Either for domestic use or manufactured and processed items for export, all must come packed.
- The fast-growing agro-processing industry in Ethiopia is facing major packaging shortages. In the past two decades, thousands of investors have been attracted to agro-processing, mainly by the attractive incentives implemented, as well as access to partial initial investment loan from a government bank without collateral, among others.

Constraints

- Reports indicate that at least half these registered investments are not realized or fully operational due to many reasons, which includes absence of reliable supply of food packing materials in the country. As a result, most of the food processing companies in Ethiopia are importing ready-made packaging from abroad and fill it with their products such as biscuits, pasta, juices, cooking oil, milk and water, among others.
- When delivery in the import of these packaging delays often, the food processing companies are forced to stop production of their products, like the recently established Anchor Milk, which quit producing the small package milk powder because it ran out of its imported packaging material.

Opportunities

- Integrated paper packaging opportunity: Establishment of a fully integrated paper industry, beginning with establishment of an outgrower scheme for paper trees and manufacture of Tetra Pak, cartons, pouches and wrapping paper.
- Plastic packaging materials opportunity: Manufacture of plastic jars of all sizes, shapes and forms, plastic tubes, plastic cups and polythene bags. The main raw materials are aluminium, plastics and paper. Close proximity to the Middle East and a world-class transport link to the Port of Djibouti makes delivery of bulk plastic materials into the country relatively cheap and provides a quick turnaround.

Industrial parks

Four industrial parks in Ethiopia are currently under construction at a cost of US\$ 2 billion, to be completed in the next two years. The parks are located in the eastern towns of Dire Dawa, Kombolcha and Mekelle in the country's north, and Adama in the capital's south. A textile park has already opened in Hawassa in April 2016.

Ethiopia is targeting US\$ 1 billion of annual investment in industrial parks over the next decade to boost exports and make it Africa's top manufacturer.

The government may invest half of the US\$ 10 billion needed for zones across the country that will house textile, leather, agro-processing and other labour-intensive factories. The International Finance Corporation, the World Bank's private lending arm, along with Chinese and European lenders and private-equity funds, are interested in projects.

American clothing company Phillips-Van Heusen Corporation, which owns the Tommy Hilfiger and Calvin Klein brands, is considering using suppliers at an industrial park in Hawassa, south of Addis Ababa. Hennes & Mauritz (H&M) AB, Europe's second-largest clothing retailer, already sources from three factories in Ethiopia, where wages can be as little as a tenth of China's and access to the US market is duty-free under the African Growth and Opportunity Act. International retailers Wal-Mart Stores Inc. and France's Carrefour have also shown some interest in doing business in Ethiopia, as well as V.F. Corporation (VF) and Italian garment maker Calzedonia.

The government will use about half of the funds from the recent Eurobond to develop the parks. The government's Vision 2025 sees manufacturing expanding 25% a year and creating employment for 200,000 Ethiopians annually.

The World Bank is spending US\$ 250 million on a second industrial zone at Bole Lemi, on the edge of Addis Ababa. In October, Shin Textile Solutions of the Republic of Korea moved into the existing factory park at Bole Lemi, employing 3,000 people.

Electric railways costing US\$ 4 million per kilometre will serve the environmentally friendly hubs that private companies can develop "almost" rent-free from the parks company, which will have as much as 100,000 hectares of land.

Developers will get a tax holiday of as long as 15 years and duty-free privileges, with incentives increasing for building done outside the capital. Manufacturers can get tax exemptions of 10 years if they export all their products from a site not in Addis Ababa.

One rail project connecting Addis Ababa with the cities of Jimma, Bedele and Ambo has already begun. Chinese banks are "mainly" financing the 491-kilometre (305-mile) rail link. Another railway from a port in the Djiboutian town of Tadjourah to Bahir Dar city and from the capital south to the cities of Hawassa and Arba Minch will be completed by July 2020.

A Chinese-funded track from Addis Ababa to Djibouti will be completed this year. Work is also continuing on a US\$ 1.7 billion line that goes through Kombolcha, funded by the Export Credit Bank of Turkey and Credit Suisse Group AG.

Opportunities

1. Electricals and electronics:

With a rising, more enlightened and youthful middle class with more income and the availability of consumer finance, demand and consumption of consumer electronics and accessories is at an all-time high in the country.

Mobile phones, TV sets, radio sets, public address systems, car accessories, lighting systems, electric lamps and bulbs, switches, plugs and adaptors, etc. are imported in large quantities into the country, and their use time is short; hence, rapid replacements.

The main raw materials are plastic and copper, which can be sourced cheaply in international markets. China's drastic reduction in public investments has driven down the prices of global commodities like petroleum and copper, of which most electronics are made.

The industrial parks provide as competitive and as technologically advanced an environment to build or assemble these items locally for domestic use and for export within the region.

2. ICT:

The Ethiopian Government plans for a US\$ 250 million technology park called Ethio ICT. So far, more than 12 local and international companies have booked space, including China's ZTE and Techno Mobile and Security Innovation Network (SINET), both of which will establish their own ICT incubation centres.

3. Textile and clothing:

As tackled in the cotton and textile section of agro-processing.

3. Zambia: Summary of investment report, perspectives and rationale

Zambia has not embarked on any serious infrastructural programme, other than networking the provinces with trunk road links. The authorities' main focus is to bring under active economic use vast swathes of agricultural real estate and massive fresh water resources lying idle across the countryside. Bordering eight regional countries with which preferential trade protocols have been rolled out – three of which are hungry for food and simple, functional appliances and devices – Zambia has an opportunity to be a competitive regional player in agriculture and agro-processing.

That said, its durable mining sector presents opportunities to domesticate the supply chain for working and operating supplies substituting imports with local products. The wood and timber industry can also fittingly plug into these efforts for import substitution in local supply chains.

3.1. The case for agriculture and agro-processing

- Zambia possesses one of the most highly competitive agricultural sectors in Sub-Saharan Africa, a natural agricultural play with a lot of positives going for it.
- It has an agricultural land resource base of 42 million ha.
- Only 1.5 million hectares are now under cultivation.
- Forty per cent of fresh water resources in Central and Southern Africa.
- Favourable agro-ecological conditions for all-year round Agriculture
- Seventy per cent of the population is engaged in agriculture, providing vast labour resource to the sector.

- Deliberate government support through budgetary bias and incentives aimed at increasing productivity ensure food security, income generation, employment creation and poverty reduction.
- Recent infrastructural restoration and development effort was targeted at intra-country trunk roads to facilitate access to and delivery of agricultural produce to markets.
- Unique market privilege as the confluence of two overlapping regional economic and trade blocs: SADC and COMESA.
- Opportunities, therefore, can be confirmed for fully integrated commercial agricultural production in Zambia's agricultural sector.
- Another area of opportunities is in processing and packaging. It has already been established that a lot of produce goes to waste on the farms either because of harvest gluts and temporary market saturations or absence of collection arrangements feeding into an organized countrywide market infrastructure.
- In this regard, therefore, the following areas have been identified as presenting the greatest opportunity for investment in Zambian agriculture.

Cotton

- Cotton in Zambia is smallholder crop grown on an outgrower arrangement with major lint makers who extend inputs credit, agricultural extension, seeds and fertilizer distribution.
- Up to 800, 000 ha of land suitable for cotton production has been designated. Only 300,000 ha of this are currently under cotton production.
- Majorly by small-scale farmers under outgrower contracts with ginning companies.
- The government has earmarked 100,000 ha for potential cotton-growing investors in the Eastern province. The agro-ecological conditions of the Zambian cotton belt are among the best in Africa for cotton growing. Zambia was ranked 24th leading producer in the world.
- Average local lint production is about 72,000 metric tons; local consumption is about 14,500 metric tons.
- Annual crop production swings widely, driven by world market prices of lint, extension of inputs credit from the ginning companies. The best year was 2011/2012 when Zambia produced 275,000 tons of lint. In the last crop of 2013/2014, production had come down to 75,000 tons due to collapse of lint prices in the global cotton market. It is very easy for farmers to switch from cotton to maize, which grows under the same agronomic conditions as cotton.
- There is really no value adding to cotton in the country at all. The most that takes place is the separation of the fibre (lint) from the seeds – the lint is then compressed and exported as is to overseas markets.
- The major players in the sector are lint producers who are mainly foreign or foreign owned: Cargill Zambia, Dunavant, Great Lakes, Alliance Cotton, Chipata China Cotton (CCC), Birchand Oi Mills, Mulungushi Textiles and NWK Agro.
- Raw cotton and yarn exports to South Africa, Mauritius and East Asia are confirmed to have more export potential capacity.
- There are no recent statistics, but older records indicate that the Zambian cotton sector can produce up to 30,000 tons of cotton seed a year. Cotton seed can be crushed and made into meal for the dairy and poultry industry (see dairy opportunity below).

Constraints

- There has been no incentive for farmers to sort cotton into grades during collection. It becomes impossible to separate again, and recent studies have shown that the practice of sorting during picking results in better pricing for cotton and yields to farmers.
- There is huge scope for value addition by fabric and garments producers. The challenge has been the size of the local market and the cost of manufacturing locally, which are still very high.

Opportunities

- Commercial cotton farming under contract: To grow more cotton under an outgrower scheme for potential entrant on the lint ginning business – 100,000 ha are available under attractive incentives terms. There is more capacity for entry into ginning under contract cotton production for players with better world market access or alternative destinations for Zambia's cotton.
- There is also potential to invest in some of the existing ginning companies to put more capital and scale behind greater efficiencies in the outgrower programmes and better buying power.
- Import substitution potential in the space of uniforms and official attires for disciplined forces, police force, private guard companies, public primary and secondary schools, hotels and hospitality staff, and customer service crews in private companies.
- Seed cake opportunity: There is tremendous opportunity in off-taking cotton seed from the ginneries and processing the seed cake for animal feeds and the oil to edible vegetable oils.
- There is small, but growing scope to process Zambian cotton into yarn and fabric as more electric power becomes available in the country for the insatiable and vastly growing textiles industries of Ethiopia, Kenya and Mauritius.

Tobacco

- Zambia has about 36,000 ha of land under tobacco crop, employing 45,000 people and yielding about 41,000 tons of tobacco leaf a year, with an average value of US\$ 126 million.
- The sector is structured mainly in outgrower schemes of farmers mainly growing the Virginia, burley and fire tobacco variety.
- Exports mainly comprise unprocessed tobacco. Japan Tobacco International (JTI) is one of the main players contracting farmers and off-taking the crop using a system of rosewood sales floors established in the main tobacco-growing areas. China, however, remains the main destination for dried tobacco leaf from Zambia.
- Only 13% of farmers have direct access to credit – therefore, inputs credit is the only way the sector operates. Cost and terms of that credit would provide a competitive advantage to any player.
- Tobacco has been proved to be 7.5% more profitable than maize and 14 times more profitable than cotton. The country has suitable climatic conditions, arable land and water resource and available labour force and market that can make Zambia produce more tobacco and increase yields to 100 kg per hectare from the current 40 kg.
- The demand to grow tobacco is increasing and welcoming new tobacco production investment, especially in new areas such as Copperbelt, Muchinga, Northern, North-Western and Luapula provinces.
- The only company manufacturing cigarettes in the country, Roland Imperial Tobacco, is to spend US\$ 20 million in a primary tobacco-processing plant in the Lusaka Multi-Facility Economic Zone (LS-MFEZ).

Constraints

- The biggest constraint now is farmers side-selling tobacco instead of selling tobacco to their sponsors to ensure that they pay back the production loans to the companies that sponsored their production.

Opportunities

- The sector is suitable for backward linkages by Chinese tobacco manufacturers seeking long-term buying power and flexibility and integration with low-cost source markets.
- There is also a good opportunity to upset the economics of outgrower schemes through creating local and international linkages for the inputs supply and the cost of credit.
- Oilseeds: sunflower, soya beans and groundnuts.
- Demand for oilseeds has increased tremendously over the last 10 years in the country. Consumption far outstrips local production capacity.
- Total annual consumption of edible oils: 120,493 metric tons.
- Total domestic production: 40,096 metric tons.
- Total national deficit: 80,397 tons.
- Total exports of edible oils into the region: 24,039 tons.
- Total market deficit: 104,436 tons.
- The edible oil industry in Zambia utilizes mainly soya beans, sunflower seed and cotton seed as raw materials. Globally, the main source is palm, which produces more oil.
- Soya production in the country has increased five times since 2003. Stock feed demand has been the major off-taker of soy cake from commercial farmers. Currently, soy demand deficit purely from commercial agriculture stands at 24,924 metric tons.
- This is beginning to change, however, and the growing momentum is pleasing to note. Demand from the livestock sector is quickly injecting viability to the production of soya beans and cotton seed, as demonstrated by the shortfall already loaded into the sector.
- It is possible that a diversification strategy into dairy and poultry feeds would inject viability and dynamism to the oilseeds sector in the country and allow it to bring down the cost of processed and packaged local edible oils.

Constraints

- The main constraint is that it is still much cheaper to import edible oil than to produce it locally – 90% of the imports are crude palm oil from Malaysia. As an edible oil only proposition, the sector isn't viable, but, looked at as an edible oils-animal feeds bundle, it begins to look quite attractive.
- Another constraint remains the availability of improved seeds necessary for productivity improvements.
- There is still not enough electric power in the country to drive industrial production of edible oils from local raw materials. Perhaps the government should feel pressured to accelerate completion of new generation plants currently under development in the country (See 3.3 Zambia: Economic background and policy environment overview).

- Government is yet to exempt farmers from paying a road levy on on-farm equipment that are not used on roads and, therefore, cannot damage such infrastructure.

Opportunities

- The first opportunity is to mine and optimize the current sector raw materials availability towards animal feeds production until proof of linkage is ascertained.
- The second is to bring idle land previously under oilseeds into productive use until all the edible oils' idle capacity has been fully utilized.
- The third and last is to revisit the economics of edible oil production from local raw materials under a diversified raw material use dispensation. Importantly, it is the growth in demand from the livestock sector that will breathe life into the local oilseeds sector.

Dairy

- With 3,000–4,000 dedicated smallholder dairy farmers, and about 300,000 dual-cattle keepers who also produce milk, Zambia's dairy sector requires a lot of upstream development and enhancements.
- It is estimated that out of the 253 million litres of milk produced a year, only 44 million passes through the formal market channel; the rest is consumed raw or locally sold in unprocessed or fermented form, or wasted.
- Dairy processors are facing shortfalls in the raw supply of milk due to growing domestic demand for dairy products. Most of them are operating below 60% capacity utilization.
- Processors' demand for raw milk has increased in recent times and has resulted in a dependence on reconstitution of milk powder imports to compensate for the deficit.
- It is recorded as one of the most rewarding agro-ventures in the country.
- There is observed accelerating demand for dairy products in the country on the back of a growing middle class and urbanization.
- Huge potential for processing and preservation of yogurts, cheese, butter, UHT and powder. According to the Dairy Association of Zambia (DAZ), there is installed processing capacity of 215 million a year in the country, which could quickly be increased to 250 million with slight adjustments. However, today, processors only take one-fifth of the milk produced in the country.
- Parmalat, the Italian dairy group, is the leading in the country with an installed capacity of 120,000 litres per day, and only operates at less than 65% capacity. The second is Finta group, with similar capacity, but only utilizing a third of it.

Constraints

- One of the main limiting factors is the shortage of purebred cattle in the country. Standing at only about 15,000, many more are needed to accelerate production.
- The other biggest challenge is getting the milk to the processors. Many rural farmers are currently hindered by the distance between milk collection centres and the processing plants and the road conditions in between. Cooperative societies have been providing a framework for small dairy farmers to deliver their milk. The key services they provide are milk collection, testing and chilling – factors crucial for optimizing processing capacity.

Opportunities

- Deficit correction opportunity: With the support of upstream finance and efforts to manage production costs, there is a dairy deficit in Zambia and the region that could be turned into an opportunity to fill Zambia's yawning deficit and proceed to export to similar deficit markets in Zimbabwe, the DRC, the Republic of Botswana and Malawi.
- Collection efficiencies could be created around the milk supply challenge to get as much milk as possible to the processors. Working with the cooperatives to enhance and extend their capabilities to reach more farmers, establish more collection points and increase off-take capacity would be a low-hanging fruit for any new entrant into the sector.
- Pedigree breeding opportunity: Upstream support, especially with biological assets finance, would be the fastest, surest, tried and tested way to increase milk production capacity through getting many more purebred cattle into farmers' hands.
- Packaging opportunity: Packed milk, yogurt, cheese, flavoured milks, butter, long-life milk and powder milk. An above average rate of urbanization is driving demand and shift from raw milk to processed and packaged milk. Organized retail is also helping shift consumers' behaviour toward packaged goods. Reconstituted powder milk is even being sourced from as far afield as Europe. The opportunity to substitute that with local products is a low-hanging fruit.

Poultry

- The Zambian poultry industry has risen from a backyard activity to become a large-scale integrated business over the last 10 years. Zambia's annual chicken production has grown in leaps and bounds from 13 million annual production of broilers 10 years ago to 73 million in 2014. Indeed, the poultry sector now makes up 42% of the livestock sector – making it the largest livestock industry in the country.
- Chicken is currently the most widely consumed meat product in Zambia, totalling an estimated 50% of total meat consumption, and the steep rise in the price of beef and other protein products has helped boost demand for chicken.
- In 2014 alone, the sector produced 68 million day-old chicks and about one billion eggs laid by 3.6 million layers. In the past decade, it has recorded and sustained growth at an annual rate of 8% for broilers and 10% for layers.
- The growth is attributable to the growth in the middle-income segment of the population and the coming into being of organized retail and arrival of fast food chains.
- Commercial producers handle about 65% of the broilers and eggs produced in the country. This is dominated by a handful of integrated corporate players led by Zambeef, Zamchick, Eureka Chicken, Hybrid Poultry, Ross Breeders, Tiger Chicks, Copperbelt Chicks, and Golden Lay. These are mainly foreign-owned and source their equipment, inputs and feedstock from South Africa. Next to expanding their production capacities (e.g. fee production, broiler and egg production), they are interested in investing in other activities like production of day-old chicks, and slaughtering and further processing of broilers.
- Small- and medium-size poultry farmers occupy the secondary production segment. They produce the bulk of the poultry meat and eggs in Zambia. Poultry is kept in simple, open houses, and manual feeding is employed. Simple water bowls are used, while heating is undertaken through wood or charcoal. Some small farms produce maize and soy for stock feed. To reach the pace set by primary producers, small-scale farms must optimize their production in terms of feed efficiency to lower production costs.
- The government has imposed stringent sanitary measures riding on bio-security considerations to control importation of poultry product into the country.

- However, the rising cost of feed has left a lot of small and medium producers struggling. Prices of feeds have been on the rise due to a steep rise in demand and low local production capacity – forcing imports from South Africa and exposure to currency swings. This has prompted poultry farmers to increase the prices of chicken products.
- Industry players, by unanimous consensus, agree that there is need for a permanent local solution to the high cost of feeds in the country so that the prices of chicken products can stop increasing beyond the reach of most low-income earners.

Constraints

- High cost of fuel in the country. This especially affects integrated producers who make their feeds and process their broilers on location.
- Weak disease monitoring and control capacity.
- Low capitalization of the companies in the sector – constraints to growth or to diversification.
- Low upstream processing.
- Grossly inadequate, expensive and low-quality poultry feeds.

Opportunities

- The opportunities for the poultry feed industry are wide open. Feedstock availability has been the main challenge, but, as explained in the oilseed section, these two can be bundled by an investor to create both scale and boost feasibility for both opportunities.
- There is also opportunity for the development of parent stock. Zambia bans the import of parent stock and this has been left to the eight major players who cannot exhaust the demand from smallholder farmers. Besides, there is huge conflict of interest in terms of quality and speed of delivery when the same players first want to prioritize their own farms' needs.
- Exploit the poultry products shortfall in the Katanga region of the DRC. It has a population of 10.5 million and is mineral rich, but very minimal farming takes place due to a heritage of social and political instability, and it depends on Zambian agricultural production through both formal and informal channels. It has a recorded annual shortfall of poultry meat at 2,100 tons and 41.6 million eggs.

Incentives: National Farm Blocks Programme

To this end, the Government of Zambia has embarked on a land development programme that involves opening and servicing new farming blocks for commercial development.

A total of 10 sites have been identified and processed for this purpose:

Farm block	Location/province	Area/ha
Kalumwange	Kaoma – Western	100 000
Mikilenge/Luma	Solwezi – N/West	100 000
Musakoshi	Mfulira – Copperbelt	100 000
Luena	Kawamba – Luapula	100 000
Manshya	Mpika – Nothern	147 000
Mwase-Phangwe	Lundazi – Eastern	100 000
Nansanga	Serenye – Central	100 000
Mungu	Kafue – Lusaka	–
Senenga Citric Plant	Senenga – Western	1 200

Simango	Livingstone	100 000
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- Each block is designed to have one core largescale farm of 10,000 ha, several commercial farms of 1,000 ha to 5,000 ha, and small-scale holdings of 30 ha to 3,000 ha, preferably under outgrower arrangements.
- The government will provide investors with access to the land already surveyed for agro-production.
- Government will also provide key external infrastructure; i.e. trunk roads, bridges, electricity connections, dams, schools and health facilities.
- The core investor is to develop the local infrastructure within the block.
- Manage the appropriate agro-business entities and the other farmers through an outgrower scheme.
- The core investor will also establish processing plants for value addition – for local, regional and international markets.
- The crops identified for potential priority are the following: wheat, sugar cane, cotton, coffee, tobacco, cashew nuts, cassava, horticultural and floricultural crops.
- Three pilot blocks are ready for first roll-out: Nansanga, Kalumwange and Luena.

Fruits: Mango, pineapple, oranges and avocado

- The recent expansion of retailers into Zambia does not only spur changes in the local food market, but also offers outlets for locally manufactured food products. Fruits processing into local juices, jams and concentrate is one such area for tremendous value addition or extraction.
- Several tons of fruit have been going to waste every year ever since the collapse of the Mwinilunga Pineapple Factory in North-Western Province almost two decades ago. The problem has been exacerbated by the closure of certain markets and associated factories, which left growers stranded. Some of them managed to adapt and find new markets, such as in the DRC and the Republic of Angola, but these proved to be unsustainable due to distance and bad road infrastructure.
- Every year, fruits such as mangoes, guavas, oranges, bananas, lemons and tomatoes, which are locally produced in abundance, go to waste because of the lack of market to process and add value to them. Since liberalization of the economy, the government has attempted to attract foreign and local investment to revive the Mwinilunga Pineapple Factory and the fruit-processing industry in general.
- Since 2007, the government had plans to establish fruit-processing plants in all the provincial centres to enhance value addition to the mainly citrus fruits that go to waste every year. In 2009, the Western Province administration, with the assistance of the Zambia Development Agency (ZDA), planned to set up a citrus fruit-processing plant worth more than US\$ 70 million.
- A recently signed Memorandum of Understanding between Zambia’s Fresh Pikt and PLC, an American firm, breathes fresh hope into the situation. The joint venture, which has put great emphasis on value addition, will help to absorb much of the hundreds of tons of fruit that go to waste in Luapula, the Copperbelt, North-Western, Western and Central Provinces year in and year out. The US\$ 42 million joint venture plant will open soon in Lusaka and there are hopes to create more than 1,000 local jobs.
- Fallsway Timbers Group has commenced processing of mangoes and other fruits at its fruit and vegetable processing unit in Livingstone. The fruit and vegetable processing unit was constructed at a cost of US\$ 3 million. It is providing a market to more than 2,000 small-scale farmers in Livingstone, Kazungula, Zimba, Sesheke and Kalomo districts in Southern Province. The plant will

process mangoes, oranges, tomatoes, onions, garlic, lemon, chilli, dry beans and honey into various end products.

Constraints

- No established system of collection and delivery of fruits to markets.
- Wild varieties might not be optimal for consumer products.

Opportunities

- An opportunity, therefore, exists to fill this gap. It presents in two ways:
 - In fresh packaged juices for the domestic and near regional markets,
 - In the concentrate. This allows for exports within Africa and beyond.
- The best model would be an outgrower system.

3.2. The case for light manufacturing

It is now established that the Zambian economy, outside of copper and cobalt, is fully an agricultural economy with unrivalled potential for regional competitiveness and regional scale production. There is a strong case, therefore, for light manufacturing industries woven around agriculture and agro-based enterprises. The government has established multi-facility economic zones and industrial parks with the necessary support infrastructure installed, and enacted sector-type incentives around them to entice investments into these parks.

The two main constraints to the growth of this sector remain:

1. Electric power – the country doesn't have enough energy being generated in good enough quantities to power an industrial advancement. The mining industry uses up 55% of all power generated in the country, and homes use up another 31%; the remainder is shared up in micro-quantities among the rest of the economy. Manufacturing currently only receives 3.7% of the total power generated in the country.
2. Sea link – the country, being land-linked and lacking a high capacity and highly efficient transport corridor, shall continue to have landed industrial inputs at prohibitive costs and suffer uneconomic delivery turnaround times.

Proceeding from these two major structural constraints, Zambia's industry can only then look inwards for viability and sustainability, as follows:

- Utilize locally available raw materials,
- Cater to highly profitable segments of its agricultural sector value chain,
- Import substitution for items utilized in high quantities and in assured and predictable consumer patterns,
- Attach to and push further the frontiers of externalities around agriculture and food,
- Be less capital- and more labour-intensive,
- Be less electrical and more mechanical or hand tools intensive,

From the foregoing, therefore, the following areas can be confirmed to bear the greatest potential for manufacturing in the country.

Fertilizer and agro-chemicals

- Zambia has adapted the Comprehensive Africa Agriculture Development Programme (CAADP) framework and related approaches to increase agricultural productivity with the aim of raising incomes and reducing food insecurity.
- Under appropriate assumptions, Zambia's fertilizer consumption must increase by 248,000 metric tons to about 500,000 metric tons to meet the agricultural growth targets in the CAADP country investment plan.
- This increased fertilizer consumption has implications for the development of each node in the fertilizer value chain in order to deal with the pressure resulting from the higher volumes of fertilizer required.
- Currently, all fertilizers used in Zambia's agriculture are imported, with an average annual value of US\$ 200 million.
- All grain staples – maize, wheat and pulses – badly need fertilizer to replenish exhausted soils and for better productivity.
- Equally, as commercial agriculture takes root and grows in Zambia, the need for an indigenous agro-chemical industry becomes ever more compelling and urgent. Almost all agro-chemicals are now made from synthetic materials based on hydrocarbons – by-products of oil, gas and coal.

Constraints

- There are various constraints in the value chain that are being addressed to meet these demands. First are public policies impeding private investment in the fertilizer value chain.
 - The purchase of all grain, instead of excess grain, by the state-run Food Reserve Agency (FRA) has been distorting market prices and discouraging growing of grains by farmers and, hence, the consumption of fertilizer. The Government of Zambia has reviewed the mandate of the FRA to only play a role in stabilizing grain prices by buying excess and selling to the market when supply dries out.
 - Implementation of the Fertilizer Input Support Programme (FISP) fertilizer subsidy. The government is implementing a “smart” e-voucher system meant to make the programme more efficient and competitive by involving private players, especially at the retail level, by reducing delays in deliveries to the farms.
 - Macro policies such as banning domestic transactions in foreign currency, which raised exchange risks for private investors. This measure is deemed to encourage more local production of agricultural inputs using local raw materials by ensuring that transactions within the value chain are denominated in local currency as much as possible.
- The state of hard infrastructure: Poor port services, long and inefficient road and rail infrastructure, storage limitations for both inputs and outputs, and inadequate capacity at both farm and agro-dealers all favour the establishment of a local fertilizer industry. Given that fertilizer prices are very sensitive to transport costs, the more viable local production would be by cutting out the port, logistical and transport costs associated with importing fertilizer.
- The process is, however, high-energy intensive – the key is in how much concessions an operator would obtain from the government on power supply and the cost of it.

Opportunities

- There are proven huge deposits of peat and limestone and phosphate in the country. These key raw materials for fertilizer production have been confirmed to appear in commercial quantities by the

Geological Department of the University of Zambia. Equally, coal finds in the Maamba mines to the East of Zambia have high ash content.

- There are incentives in place to mine and process fertilizer in these mines:
 - Chilemba deposits: 1.6 million tons,
 - Mumbwa deposits: 500,000 tons,
 - Nkombwe deposits: 500,000 tons,
 - Kaluwe deposits/Luangwa: 207,000 tons.
- Recent coal finds in Eastern Zambia and natural gas in the bed of Lake Tanganyika could be further explored for agro-chemicals potential.

Agricultural machinery

- There is an obvious productivity deficit in Zambian agriculture that has everything to do with the fact that it's traditional, non-mechanized and non-intensive.
- The answer to this, and especially as more commercial agricultural practices continue to increase in the country, is, in one word – mechanization.
- Demand and use of agricultural machinery is already showing a steep curve and the volumes now more than justify local production.
- Most or all these are currently imported from India, China or South Africa.

Opportunities

- There is emerging scope for fabrication and assembly of some of the low- end machines and tools – especially of the type that are mechanically or hand operated.
- Government incentives and concessions are important here to protect and promote semi-knock-down kit models with a reasonable level of local labour input at the final stages.
- There is also potential to work with the local steel industry – two firms are already operating from scrap metal – to fabricate simple, low-end agricultural machinery and mechanical equipment.
- The machinery that could be made, assembled or fabricated in the country are ploughs, tractors, harrows, sprayers, irrigation systems and a wide range of hand tools.

Animal feeds

- The Zambian animal feeds industry produces about 420,000 metric tons of feeds a year – and is growing at an average annual rate of 8%.
- The poultry sector in Zambia is the largest consumer of animal feeds, accounting for 80% of the formal feed sector by production. Currently, the country produces about 73 million broilers a year, having risen from only 13 million in 2003. More than 88% of this production is by commercial farmers who consume 50% of all processed feeds in the country, with a strong preference to buy from independent feeds manufacturers.
- The sector also has approximately 3.6 million laying hens. Similarly, these farmers demonstrate a strong preference for processed feeds. Leading manufacturers produce 162,000 tons of layer feeds in a year.

- In the dairy and beef sectors, commercial farmers tend to produce their own silage, maize and hay. Formal feeds manufacturers supply 55,000 tons to the dairy sector, accounting for 13% of total output.
- The remaining 7% goes to pigs, dogs, horses and informal exports into the region, especially Katanga Province of the DRC.
- The main feedstock for feeds production are maize and soya beans. These are grown mainly by subsistence farmers and output generally fluctuates. Maize accounts for 60% of the feed composition – it is also the most common crop, grown widely by the largest number of farmers in the country. In 2014, Zambia had a 3.35 million metric tons bumper maize harvest.
- Soya oilcake is the second most important ingredient, produced predominantly by local commercial farmers who currently churn out 140,000 metric tons per annum.
- The other core components are maize bran, wheat bran, soya bean cake, cotton cake and oilseeds, e.g. cotton cake and sunflowers. These are grown or supplied under contract between farmers and feed manufacturers; thus, volumes and prices remain relatively stable.

Constraints

- Maize, the principal feedstock, is unfortunately quite fluctuating depending on the weather or the whims of the Food Reserve Agency (FRA). Feed manufacturers cope with fluctuations by stockpiling or using maize declared unfit for human consumption.
- Collection and aggregation of feedstock from smallholder farmers scattered across the country is a big logistical challenge.

Opportunities

- Poultry supply opportunity: The poultry sector in the country is growing quite tremendously and the feed industry needs to catch up with it. It is indicated that feeds supply constraints is currently the greatest challenge to the growth of the poultry sector. (See poultry sector in agriculture above.)
- Vast raw materials opportunity: The industry is anchored on maize and oilseeds. Zambia has a natural competitive advantage in maize production, its maize consistently priced lower than the world maize market. Harness and find profitable use for the vast raw materials wasting away uncollected on the farms across the country.
- Oilseeds diversification opportunity: The brisk growth in both poultry and dairy sectors in the country (see both dairy and poultry sections above) is hypothesized to supply and inject viability to the growth of a robust oilseeds sector in the country as a source of feedstock for an expanding feeds industry.

Wood products

- Zambia has a forest cover of 67% of the total land area – one of the largest forest covers in Africa and in the world. This excludes tree plantations under an agricultural production system like fruit trees and cash crop trees. It also excludes urban parks, street linings, groves and any other aesthetical tree plants.
- The climatic and agro-ecological conditions favour a fast-maturing replacement and quality enhancement system essential for commercial timber plantation.
- Consumption of wood products or materials with a big wood component is high and growing in the country.
 - Mining platforms have a very big wood content,

- Construction consumes a lot of wood, both in the scaffolding, supports and braces and in the finishing; i.e. partitions, panels, skirting, ceilings, doors and frames, etc.
- The entire furniture industry is also wood-based, be it for institutions (schools, hospitals, training institutions and military bases), offices and business premises (government offices, private offices, godowns and stores) or homes (private homes, government housing projects and rental residential estates).
- Wood products and furniture products are predominantly imported from China. These are bulky and low value, and use up foreign exchange unnecessarily.
- The process for wood and furniture making is non-sophisticated, labour intensive and almost entirely local products based. It is also energy light in terms of power consumption.

Constraints

- Potential for over-exploitation and difficulties of policing.
- The threat of synthetic wood products.

Opportunity

Import substitution and local raw material opportunity: There is good scope for local production of a wide cross-section of wood products; i.e. construction finishings and furniture currently being imported into the country.

Construction materials

- Zambia has one of the world's fastest-growing populations. Urban dwellers are projected to be the majority by 2040. Indeed, UN forecasts indicate that the population of Lusaka will double between 2015 and 2035.
- Rising investment in the economy has prompted a construction boom driven by infrastructure projects and complimented by private developments.
- The main drivers of the construction boom are the same as within the region: A high rate of urbanization, embrace of modernization by African societies, rising incomes, credit availability for construction as well as mortgage finance, and the emerging position of a house as the premier unit of ownership or entitlement for modern society.
- Government projects a housing deficit of more than three million units by 2030. Unfortunately, the cost of housing is still very high in the country – a function of various factors, including the availability or lack thereof of capital and utilization or lack thereof of local materials.

Opportunities

- The case for harnessing wood products in construction has been well developed above. There are other building and construction materials that could be competitively produced locally utilizing locally available materials and local labour.
- Roofing sheets and tiles, ballast, slabs, cabro paving blocks, casement windows and doors, metallic gates, aluminium doors and windows, paints and ceramic products, etc. A lot of these are currently imported from China, South Africa and Asia at a huge foreign exchange cost to the economy. Yet, the basic raw materials are readily available – quarry stones and cement – or easily imported in bulk – sheet metal.
- The processes or manufacturing are less sophisticated, most being cutting, shaping, welding and painting. These can be achieved with minimal electric power use and optimal labour utilization.

Leather products

- Zambia's leather industry is supplied by a local livestock and wild animal resource base as follows: 2.6 million heads of cattle, one million goats, one million sheep, 237,000 crocodiles and 44,000 wild animals on private game ranches.
- A demand and supply survey of the Zambian leather industry done by ITC in 2010 revealed that tannery capacity utilization has been growing steadily to stand at 63% in 2010 from a mere 23% in 2000.
- There are four major tanneries in Zambia, with a combined installed capacity of 1,700 hides per day. The two major ones are Kembe Estate with 750 hides per day capacity and operating at 60% capacity, Kabwe Tanneries, owned by India's Tata Group, with 500 hides per day capacity and utilizing only 40%. Zamleather, owned by stock exchange-listed Zambeef, has 250 hides per day capacity and is utilizing 100% of that.
- There is a fairly high level of integration in the Zambia leather value chain, with some of the tanneries owning feedlots, slaughter facilities, tanneries and finished leather processing.
- Zambia has the potential to develop its leather value chain to US\$ 500 million a year if all hides are transformed into finished footwear and leather products.
- The economic growth enjoyed in Zambia in the past decade has created opportunities in the leather sector owing to rising purchasing power among citizens that leads to increased supply of raw materials through the consumption of meat.
- The government has given attractive incentives to investors in the leather sector, particularly value-added companies based on processing local hides and skins. It has essentially zero-rated all imports of chemicals used in the leather processing and other shoe components, e.g. rubber soles, "metallic eyes" for shoe lace strapping, and shoelaces or braces.
- The greatest advantage in leather is that it is, by design, more labour than capital intensive. Zambia has some of the lowest labour costs in the leather industry in Sub-Saharan Africa – average wage for technical staff is US\$ 1,000 per month and for unskilled workers it is US\$ 150 per month.

Constraints

- The main issues in the leather products sector concern inputs quality, reliability and consistency.
- Others are trade logistics, worker skills and technology.

Opportunities

- **Export opportunity:** There is further export potential of Zambian wet blue and finished leather to the Asian, European and Middle Eastern markets. The key exports are raw crocodile skins, wet blue leather, crust and finished leather cargo.
- **Public institutions opportunity:** There is a wide and growing use for leather products in the country – military and police boots, school children's footwear, footwear for other uniformed groups (e.g. nurses and private security guards), cars upholstery, leather furniture for hotels, residential and offices, leather jackets, belts, wallets and other leather-based accessories.
- **COMESA region opportunity:** Zambia has the potential to increase the supply of leather products to domestic and regional markets, as well as to export wet blue and finished leather, and the sector benefits from some advantages that could support greater competitiveness over time, including a substantial labour cost advantage over China.

4. Mozambique: Summary of investment report, perspectives and rationale

Mozambique enjoys a unique long-term geostrategic value in East and Southern Africa. Its 2,700 km coastline provides its land-linked neighbours, Malawi, Zambia, Zimbabwe and Botswana, with access to the sea, making it an important transport provider and trade conduit for the region.

Efforts to unlock potential through infrastructural initiatives are still hugely hampered by the lack of links to the world capital markets. Efforts to extend the Indian Ocean-based development corridors into the interiors and further deeper into the neighbouring countries have been hindered, mostly by the absence of a regionally coordinated masterplan and realization efforts. Chronic power and energy deficits continue to undermine the creation of a platform for industrialization and manufacturing. Yet some of the best agro-ecological conditions in the world, plus vast untilled high-potential agricultural land, offer a compelling case for export-oriented commercial agriculture clustered near or within the current development corridors.

There is likely to be much greater scope for import substitution and some exports into the Southern African regions, and targeted development and growth of small-scale manufacturing and services activity to support market activity.

4.1. The case for agriculture and agro-processing

Mozambique has agricultural potential that many other African countries can only wish for:

- Vast unutilized land: Estimated to be 36 million hectares of arable land:
 - Utilized: 5.4 million hectares; about 15%,
 - Unutilized: 30.6 million hectares; about 85%.
- Extensive waterways, including a network of 60 major rivers with tremendous irrigation potential.
- Year-round production potential: Tropical climate suitable for year-round rain-fed agriculture.
- Fastest growth in the economy: 2005–2014 – average 7.4% per year, and economy: 7.1% per year.

Agriculture is the primary occupation for 72% of the population. It is small-holder based, subsistence oriented and low technology.

There is no doubt Mozambique's agriculture has great potential. Unfortunately, the gap between that potential and its realization is wide and has remained so for various reasons. The first and most fundamental is that the country simply lacks rural infrastructure. Agricultural produce cannot reach markets easily and, when they do, the transport costs are far too prohibitive, rendering Mozambican agriculture disproportionately less competitive at home, in the region and beyond. This means that it is cheaper for Mozambique to import food than to grow it and redistribute it within the country.

Another major constraint to commercial agriculture in the country is the sensitivities and perceptions of being seen as a threat to peasant farmers and their rights to land. Mega projects that have been established in the country have run into heavy social and political headwinds, sometimes threatening the viability or practical operational aspects of these investments.

The country also tends to be quite vulnerable to extreme climatic conditions of drought and floods, which tend to buffet rain-fed agriculture, often irreparably.

On the flipside, the government is trying to create favourable economic conditions for investments into agriculture and agro-processing; i.e. design of a national strategy around agro-ecological zones through mapping of the territory to identify areas better suited to different types of farming and crops.

There is significant scope for improvements in productivity, for shifts to more productive agriculture and to drive growth in agro-processing.

There is also good scope in strategic development of labour-intensive manufacturing to exploit potential supply linkages to mega-projects e.g. extractive industries. Linkages and spillovers from the extractive industries both upstream and downstream are diverse and numerous. The mining firms and the ecosystems they create present a large market for food, manufactures, light industry, construction and services. There is also scope for adjunct or derivative industries, e.g. gas-to-liquid, fertilizer and petrochemicals.

Further potential exists to support continued growth in the services sector; i.e. construction, finance, transport and communication.

Finally, to exploit Mozambique’s geographical comparative advantage and strategic development corridors, linking ports with emerging growth centres domestically and regionally – to become a regional trade and logistics hub and build a service industry around that. Maputo, Beira and Nacala corridors link land-linked countries in the southern African region with the Indian Ocean ports and the world beyond. These hinterlands also include the emerging centres of economic activity in Mozambique, e.g. the agricultural areas of Manica Province or the centre of coal construction in Tete Province.

Several models of commercial agriculture have been tried and tested in the recent past in Mozambique by various investors, including Chinese organizations. The outcomes have ranged between disastrous and passable. As has been implied already, there is still a huge infrastructural effort the government must mount in order to bring to bear the full potential of the country’s agriculture, both in the areas of transport and energy infrastructure.

These, notwithstanding commercial agriculture, are still possible in the country by cherry-picking methods of location, proximity to legacy or planned infrastructure, incentives, agronomic realities and local politics. The only feasible approaches are:

1. Outgrower schemes: Where the investor contracts, trains, equips and partially finances farmers to grow crops, which the investor will buy fully, deduct costs and pay for the balance.
2. Joint ventures: Where a local investor provides the land and natural resources, and the foreign partner provides the capital, technology, knowledge and materials.

In this regard, the Government of Mozambique, with the assistance of highly qualified and specialized international agricultural experts and institutions, has identified and mapped six growth corridors for development in specific agricultural value chains. The following assumptions guided this process:

- Soil and weather conditions
- Strategic location to the market
- Existing or projected infrastructure
- Optimal and complimentary diversification strategies

Growth corridor	Priority crops
Pemba/Lichinga	Potato, wheat, beans, maize, soya, forestry, cotton, sesame and poultry
Nacala	Cassava, maize, cotton, sesame, fruits, groundnuts, cashews and forestry
Zambezia	Rice, maize, potato, cattle, goats, sesame, cotton and poultry
Beira	Maize, wheat, horticulture, poultry, soya, rice, sesame, cattle, sugar and forestry
Limpopo	Rice, horticulture, red meats and poultry
Maputo	Rice, horticulture, red meat and poultry

Highest-potential crops for commercial agriculture and agro-processing

Rice

- It is estimated that Mozambique has an area of 900,000 ha of land suitable for rice production, yet only 230,000 ha is under cultivation. It also has the third-highest rice consumption in SADC and imports around 60% of rice consumed. The country thus produces 157,000 tons of rice locally and imports 350,000 tons of rice per year at a cost of US\$ 140 million.
- Rice in Mozambique is produced mostly under rain-fed lowland ecology, where the farmers follow traditional cultivation practices. Among rain-fed lowland areas, Zambézia (57%) is the dominant area, followed by Cabo Delgado (14%), Nampula (10%) and Sofala (9%). Irrigated areas are concentrated in Gaza, where the largest irrigation scheme in the country, the Chokwe irrigation scheme, is located.
- Rice consumption has doubled over the past decade; thus, the level of imports has increased considerably. Increasing population and incomes will drive future demand growth.
- Despite the significant growth potential for rice (very well-suited climate and soil for year-round rice production), domestic production has only grown at the same rate as imports.
- Domestic demand is projected to increase at 7% per year in the medium term. Mozambique expects to reduce rice imports by 20% by 2020. Over the next two years, Mozambique will process 180,000 to 200,000 tons of rice in Chokwe in Gaza, in the south of the country alone, and in the Lower Limpopo, involving a number of players.
- Significant investment is underway, which may dramatically improve current infrastructure and raise rice yields (e.g. Sustainable Irrigation Development Project with US\$ 90 million in investment, and Olam International Limited with US\$ 50 million).

Constraints

- The main constraint is the drying off of paddies at crucial stages in the rice-growing cycle under rain-fed agriculture. It is proof that rain-fed rice farming is no longer a viable extensive option in the country. To improve yield for further production increases, the production mode must shift from extending production to intensification through the introduction of land-saving technologies, such as irrigation development.
- Another is the near absolute lack of motorized traction in the production of rice. An animal traction system with its inefficient and low-scale techniques has hampered growth and productivity in the sector. Mechanization is an absolute must if the country is to catch up with its ever-soaring rice deficit.

Opportunities

- Import substitution opportunity: The country has 350,000 tons of rice a year to stop importing by growing locally. That is about a fresh 500,000 ha of land to be brought under production, and that is without counting the efficiency gains of automation.
- Mechanization opportunity: If Mozambique's rice production is to get anywhere, it has to be literally implanted on a new platform of a mechanized, irrigated model. A lot of agricultural machinery and irrigation systems will have to be deployed before any substantive results can be realized.

The Wanbao Rice Farm case study

- Hubei Gaza Friendship Farm was established in 2007 and managed since 2011 by Wanbao Africa Development Limited (WAADL). This was China's agri-business project. By 2013, China Development Bank had disbursed US\$ 20 million to this project.

- It operates a concession of 20,000 ha for a period of 50 years, and initially planned to invest US\$ 289 million in three to five years, starting from 2012.
- By 2014, Wanbao was only using 7,000 ha of land, 4,000 ha under rice and 1,000 ha under maize. It implemented two production models.
 - Free training for local farmers in Chinese rice technical production. Sixty-five farmers were trained by 2013, and Wanbao would buy the rice and deduct service costs from the farmers.
 - Subcontracting Chinese farms – four Chinese state-owned agri-business companies took up 7,300 ha. Wanbao constructed the entire infrastructure, including irrigation systems, roads improvements and processing factories, and also provided all agricultural inputs and machinery. The farms would pay 50% of the cost in advance and the remainder would be deducted from sales. The farms were obligated to pay back the implements cost in three to five years. This second model seemed to have worked better.
- Unfortunately, in 2013, serious floods submerged the 4,000 ha rice plots in Chicumbane.

Challenges

- Political and land grab claims: The company was accused of displacing 80,000 small-scale farmers; water usage is likely to contribute to drought in the lower Limpopo valley; failure to transfer agricultural technology and knowledge to locals; selling services at unaffordable prices and not respecting local labour laws.
- Dissatisfaction caused lack of transparency on the project by local officials to the local population and prevalence of nepotism. Demonstrations were organized by local activist groups calling for compensation or termination of the project and the land returned.
- Local workers see Chinese managers as rude and authoritarian, and, in turn, Chinese see locals as lazy and irresponsible (disappear after payday and only reappear when broke).

Policy lessons

- To avoid land conflicts, concessions are now being given in formerly state farms during the Marxist-Leninist era.
- To promote transparency and more dialogue with locals and civil society, better information sharing and developing of public policies toward local communities.
- Need for government to invest in agricultural infrastructure if it is to attract more foreign investment.
- The state to help farmers trained in Chinese farming technology to obtain bank credit; otherwise, only Chinese companies shall continue to be subcontracted.

Cassava

- Mozambique is the world's eighth-largest producer of cassava, at an estimated 10 million MT in 2013. Production is very basic, with most farmers growing small volumes for home consumption.
- Cassava is mostly consumed in the form of traditional foods; in the north, most commonly as porridge made from cassava flour, and, in the south, as rale, a fermented and fried meal. Production has been growing at an average of 5% per year over the last 10 years.
- New processing technologies are expanding market opportunities for cassava, the most consumed crop in Mozambique. Substitution opportunities exist for cassava, given its strong cost advantages over other commodities.

- The cost for cassava is roughly half of some related commodities. Example: Up to 25% of wheat used in bread can be substituted with cassava at 55% of the cost.
- Potentially significant market opportunities created by new technology and a mobile processing unit created by the Dutch Agricultural Development & Trading Company (DADTCO). It delivers and installs a mobile machine at the farm level capable of converting cassava roots into cake, effectively curtailing cassava rapid decay, and loss of mass (cassava is 70% water and highly perishable). The cake produced can be stored for up to two years or converted to flour or starch.
- SABMiller's Cervejas de Mozambique partnered with DADTCO to source cassava to replace the expensive imported malt barley in their low-cost beer brand, Impala. By 2014, they had managed to achieve up to 70% import substitution, and this is putting a lot of farmers into cassava production faster than any other phenomenon in the country. SABMiller is poised to invest an additional US\$ 124 million over the next two years to continue to develop its cassava beer (Impala).
- After the 2008 spike in wheat prices, the cost of bread in Mozambique rose by 50%, and, in 2010, it rose a further 17%. The government announced that it could no longer maintain subsidies on imported wheat. Millers quickly spotted an opportunity to replace imported wheat with locally grown cassava by milling it into flour. FAO estimates that, by substituting cassava for flour in bread, Mozambique could save up to US\$ 15 million annually. This is a statistic that producers are fully aware of.
- As a result of these two major structural changes in the use of cassava in the country, production has spiked tremendously. In 2014, it reached 14.7 million tons, from 9.7 million in 2012, a 66% jump in two years.
- Additional uses of cassava are being developed in livestock feed, industrial raw materials and bioethanol.

Constraints

- Smallholders, who account for almost all cassava production, are poorly organized and spread widely across difficult-to-reach rural areas, making aggregation of sufficient volumes on a consistent basis difficult.
- Transport can be especially costly given long north-south travel distances to deliver to markets.

Opportunities

- Commercial farming opportunity: In order to satiate the exploding demand in cassava arising from the accelerating commercialization of new uses for cassava, commercial production of cassava now becomes imperative in Mozambique.
- Processing opportunity: There is an opportunity to off-take cassava cake from farmers and farmers' cooperatives for onward processing and conversion into flour, animal feeds or industrial raw materials.

Soya beans

- Mozambique produced about 50,035 metric tons of soya beans in 2014. This was an increase of 42% over the previous year, driven predominantly by the domestic poultry sector (97% of soya is produced by small-scale farmers).
- Between 2006 and 2013, farm gate prices of soya beans increased by 170%, while yields increased from 450 kg per hectare to 1,100 kg per hectare – and still below yield potential for the region.
- Soy cake forms a considerable cost for the poultry industry and it could become available locally, becoming a key driver of domestic substitution of imported chicken.

- The local poultry sector has been growing in leaps and bounds:

(Tons)	2007	2013
Poultry meat production	6 231	12 460
Poultry feed production	65 657	132 782

- Yet local production does not currently satisfy all local demand. Indeed, in 2010, Mozambique had a soya deficit of 119,000 tons – more than double its annual production. The southern parts of the country – Maputo, Gaza and Inhambane – are satisfied fully from imports of soya from Argentina, India and Malawi.
- Demand for soya beans is increasing due to the development of the poultry and soy oil sectors – poultry is projected to expand at 26% a year for the next decade. The sector still has massive untapped potential. Looked at from a measure of per capita consumption of chicken per year:
 - Mozambique – 1.56 kg/year; South Africa – 31.94kg/year.
- Government is actively encouraging growth of the domestic soya bean industry to substitute imported soy cake, which is a critical and expensive feed component for poultry.
- Importation of high-priced soy cake is driving up prices for domestic poultry, making competition with imported chicken difficult.
 - Leading component of domestic poultry cost is feed (~74%),
 - Local production of soy cake should reduce costs, improving competitiveness of the poultry industry.
- The Southern Africa region continues to record high annual deficits of soya – in 2010, 2.65 million tons of soya were imported (excluding Mozambique). If no major interventions are made, it is projected to still record a deficit of two million tons; Mozambique is estimated to have a deficit of 85,000 tons in 2020.

Constraints

- Mozambique’s soya beans industry is negatively affected by high transport costs, which make up to 17% of post-plantation costs.
- The poultry industry does not contract small-scale farmers in advance, but buys soya beans after harvest from farmers. The main reason is that their produce is very small and they have not been organized into marketing cooperatives that negotiate and secure good prices and terms for their produce. So there is no mechanism of price stabilization through long-term or forward contracts.

Opportunities

- There is a big opportunity for large-scale commercial production of soya under contract with the main poultry players in the country. This will afford selling power from a point of view of scale and the technical expertise of marketing and product merchandising.
- Commercial production of soya can also be profitably deployed to replace imports, which currently exclusively serve the Maputo and Gaza markets.
- There is a further opportunity to refine its oil by-product into edible oil, which will increase alongside production.

Poultry

- Before 2004, the Mozambican poultry sector was virtually non-existent and Mozambique was fully dependent on imports of frozen chicken meat from Brazil through the Middle East. Technoserve, a US non-governmental organization (NGO) mandated to develop agricultural value chains in Latin America and Africa, played the role of facilitator and intermediary to catalyze an industry that grew to US\$ 165 million in 2010 from US\$ 25 million in 2005.
- By 2011, the country was self-sufficient in terms of chicken meat; up to 76% of total demand.
 - Vaulting poultry production growth: 2007 – 6,231 tons; 2013 – 12,460 tons.

This is attributed to increased hatchery capacity and good government support by controlling imports and offering financing.
- However, because of a very high cost of eggs production in the country, an estimated 90% of the eggs consumed are still imported. Local eggs production is still very low indeed:
 - 2012: 121.6 million eggs, representing only 14% of total consumption.
- The Mozambican National Poultry Association (AMA) has implemented a strategic plan (2011–2015), which aimed to boost chicken consumption by almost 26% annually, more than double the rate achieved between 2007 and 2009.
- As a result, production grew by 23% in 2015, fuelled by rising domestic demand and ongoing investments in improved production techniques. Consumption even grew faster at 32%, reflecting improved living standards and an expanding urban population.

Constraints

- The single biggest constraint is the availability or lack thereof of chicken feeds and its steep cost. Feed costs constitute 75% of the total cost of broilers production. Soya cake alone accounts for half of the feed costs. Production of soya beans was almost non-existent in Mozambique, and soy cake has been imported expensively from South America – leading to the poultry industry being less competitive.
- A shortage of breeding and hatchery capacities.

Opportunities

- Significant potential for import substitution makes poultry a strong investment opportunity.
- Demand for poultry has grown meaningfully across Africa:
 - Poultry consumption has more than doubled in more than 10 African countries over the last decade, with a high dependence of imports from Brazil, Asia and the US,
 - Opportunity for local players to supply this demand due to geographic advantages.
- While domestic demand in Mozambique has grown slightly in past, future demand is expected to more than triple in the next 10 years, with consumption predicted to increase from 68,500 tons in 2014 to 130,000 tons in 2020.
- Impact of considerable growth in mining as well as oil and gas sectors on working population will help fuel domestic demand.
- Feed costs correspond to ~74% of total costs – with growth in the domestic soy cake industry, potential for reduced input costs could further drive demand. Technoserve has now shifted its focus to developing the soya bean industry in the country and the results are beginning to be seen and

enjoyed by the local poultry sector. When the interventions achieve critical mass, the momentum of the Mozambican poultry sector will be unstoppable.

Horticulture and fruits

- As a tropical country, Mozambique has high-production potential for a large number of horticulture (fruits and vegetables) such as pineapples and mangoes.
- Favourable agro-ecological conditions and potential of year-round production leads to a comparative advantage in certain fruits, creating huge investment opportunities.
- Counter-seasonal demand with Middle Eastern, Asian and European markets – ideal for export.
- Demand exists for value-added fruit products such as dried fruit, jams and juice.
- Recent entry of significant supermarket buyers such as Shoprite and Massmart/Wal-Mart is leading the shift to consumption of processed or packaged fruit juices and vegetables.
- Availability of large markets in Maputo and South Africa for vegetables such as tomatoes, onions and green peppers. For example, production potential in the Chókwè Irrigation Scheme (south of the country) to supply these markets.

Opportunities

- There are 550,000 hectares of land within the Beira Corridor that is suitable for horticultural production. This could generate as much as US\$ 2.75 billion in annual revenues through both commercial and smallholder (family) production. To date, only 74,000 hectares are currently under production – primarily by smallholders.
- The country has a range of microclimates that could support different crops (e.g. the high humidity in Sofala favours tropical fruit, while the drier Northern Manica is best for vegetables). This means that growers are better able to serve the local formal markets, as significant supermarket buyers such as Shoprite demand diverse selection. Different crops will also encourage the development of a robust agro-processing industry in the Beira Corridor.
- Various investors – Dutch, South African, Zimbabwean and Mozambican – have already established six high-value horticulture farms, producing vegetables (Compania de Tabac de Chuara CTC; Waluru Arqueologia), paprika (Pimenta de Mocambique), roses (Vilmar Roses), bananas (Lonrho Metuchira) and mangos (EAM Fruits). These businesses have the potential to generate US\$ 43 million in annual revenues by 2008 – should they be able to access the finance required to expand.
- Production for export would be focussed on six specific crops (or crop models) that are best suited to the region: paprika, roses, hypericum and summer flowers, vegetables, large fruit estates and fruit farms.

Bananas

- Mozambique's banana industry is well situated to benefit from both its geographical position as well as potential cost advantage. It enjoys very good conditions to grow bananas on a globally competitive commercial basis.
- Currently, all of 85% of domestic production is consumed locally, and only 15% is exported to markets in Easter Europe, the Middle East, South Africa, Zimbabwe and Zambia.
- Mozambique's banana production is very highly competitive at plantation level, with yield of 52 tons per hectare, nearly rivalling the Republic of the Philippines, which is the world's top producer at 56 tons per hectare. Unfortunately, post-plantation costs play a strong role in reducing Mozambique banana competitiveness – these include transport and trade logistics costs.

Constraints to exports

- High transport costs due to poor infrastructure and inefficient ports.
- Increased costs associated with terminals, pre-shipment inspection and scanning.
- Logistics costs associated with the overall business environment (illegal taxes and administrative procedures, etc.).

Opportunities

- Research by Technoserve determined that, in order to reach economies of scale in transporting products to the international markets, the first point of entry into the fresh fruit market should be bananas.
- With its assistance, a commercial farm operator, Matanuska Africa, was given opportunity to irrigate 3,000 ha to supply the Chiquita brand to the export markets. Currently, 1,400 ha is under production, and, in 2014, Dole Fresh Fruits Europe entered into a sales and distribution partnership with Matanuska Africa for the export of its bananas to Europe and the Middle East.
- Technoserve estimates that Mozambique could cultivate more than 30,000 ha of bananas within the next 15 years. It is currently assisting other investors to acquire and develop banana production concessions.
- Demand imbalances have increased at different paces in export markets over the last years, with greatest growth in demand in Europe, where African countries have a competitive export tariff advantage over most of Latin America (at a price of US\$ 3 per box).
- Mozambique's lower farm to port costs than the Philippines, coupled with the Philippines production being diverted to China, has heightened the opportunity in the Middle East, while year-round production and high productivity in Mozambique offer additional export opportunities and higher margins.

Sesame

- Sesame is a highly concentrated oil bearing seed. Its rich flavour makes it a common ingredient in production of vegetable oil and for making bread. White or lighter-coloured sesame seeds are commonly used in Europe, America, West Asia and the Indian subcontinent. Black or darker-coloured sesame seeds are mostly produced and used in China and Southeast Asia.
- African sesame seed production presently contributes more than 70% of the global traded volume, originating predominantly from Nigeria, Ethiopia and Tanzania.
- The international market, particularly Japan, China and the Netherlands, is currently experiencing a rise in demand for sesame. World prices are rising fast; in Mozambique, sesame prices more than doubled between 2011 and 2013.
- There is currently an emerging value chain crop with high demand in the Middle East and Asian markets. The demand for sesame is globally increasing and national production is more than 60,000 metric tons.
- Farmers generally produce sesame in small quantities, which are then aggregated by scouts who work for the main buying companies. Key buyers include Export Trading Group, Indo Africa and Olam. ETG is by far the largest buyer, with up to 65% market share.
- A collaboration project between ETG and Netherlands Development Organization, which started in 2010 is a contract farming scheme in which farmers commit themselves to selling to ETG in return

for service delivery, which includes technical assistance on the production cycle, pesticides and improved sesame variety, post-harvest mechanization and market linkage.

Constraints

- Although Mozambique has high potential for sesame production, yields are really low as a consequence of the absence of service delivery reaching the majority of the farmers. ETG and SNV intervention has only reached about 1.3% of the farmers.
- Lack of pesticide, mechanization and fertilizer use undermines the potential of sesame production and farmers substitute cotton, maize and sugar for sesame.

Opportunities

- With China being the largest consumer of sesame, there is a strong opportunity for Chinese companies with ready markets at home to develop linkages with farmers in Mozambique. A service delivery contractual farming arrangement similar to the ETG-SNV one would be ideal.
- Given this potential, there is a strong private sector opportunity in promoting this crop under an outgrower contract scheme in the northern and central region of Mozambique – interventions in seed improvements, productivity improvements through mechanization of the crop system, and fertilizer use will bring tremendous value to the farmers and create greater value than is currently being seen in the Mozambique sesame value chain.
- This could also be achieved through making strategic and control investments in some of the companies already active in the country in one or a few crucial components within the value chain, and using them as a platform to transform the crop production and marketing systems.

Cotton

- Cotton is the most important agricultural export crop in Mozambique (representing 17% of total agricultural exports). It is estimated that more than 1.5 million people – including 350,000 smallholder farmers – make their living in cotton farming or related activities.
- As an export product, Mozambique's cotton lint has a long history in accessing important international markets, traditionally in Europe, and in Asia more recently. Regardless of low yields, considerable dynamics have taken place in Mozambique's cotton sector, characterized by the entry of new concession companies and investments in geographic areas outside Mozambique's traditional cotton belt of Nampula and Cabo Delgado Provinces.
- Cotton has been a historically strong sector due to excellent agro-ecological conditions and potential for export.
- Mozambique's cotton lint has a long history in accessing important international markets, traditionally in Europe as well as recently in Asia.
- In 2014, 98,000 tons of cotton was produced. The majority of production occurs in the north of the country in Nampula and Cabo Delgado.
- China-Africa Cotton has been planning the first cotton-processing factory in Mozambique since 2014. This would have a capacity to process 30,000 tons of seed cotton and produce 3,000 litres of cooking oil a year.

Constraints

- Yields are much lower compared to other African cotton-producing countries (on average, 40% lower).

- Producer prices fixed by the Cotton Institute of Mozambique (IAM) are relatively low compared to those in other major cotton-producing countries in Africa. Indeed, producers receive lower prices than they would obtain without existing domestic policies. Producer prices increased by only 14% between 2005 and 2009. Export prices increased by 70% in the same period. Producers' prices are disconnected from international markets and, thus, farmers do not benefit from current high international prices.
- The ginning industry is characterized by high costs of processing due to poorly maintained equipment, and poor levels of ginning outputs compared to other countries. This is due to dirty cotton caused by poor picking techniques and the use of mixed seed varieties, which result in inconsistent fibre quality.
- Currently, processing and marketing activities are dominated by three firms that control more than 75% of total production. Thus, processing companies have much more power in the market than farmers.

Opportunities

- Rising international prices have increased the profitability of cotton production, especially due to the high potential for increased levels of productivity.
- Opportunities for ginning of cotton for export of high-quality cotton lint and processing of cotton seed into oil and cake. Fostering competition in the ginning sector would increase ginning capacity and investments aimed at modernizing the industry. This would help increase the quantity and the quality of exported cotton and, thus, raise export prices.
- There is an enormous opportunity for Chinese textile companies to source more cotton lint in Mozambique through investing in ginneries and expanding or establishing outgrower programmes with better terms than exist already. These include interventions as low-lying as paying better producer prices, giving incentives for sorting cotton when picking, and facilitating the use of mechanization, fertilizers and pesticides. These will keep more farmers in cotton production and encourage many more to return to cotton production with better improved yields and better pay per ton of delivered cotton.
- Such a programme would be better pursued in collaboration with non-governmental organizations that are active in the space of agricultural value chain development, e.g. Africa Cotton & Textiles Industries Federation (ACTIF), Alliance for a Green Revolution in Africa (Agra) and Technoserve.

4.2. The case for light manufacturing

From a policy and regulatory perspective, the Government of Mozambique appears to be out to attract industry and industrial manufacturing into the country. Unfortunately, it has not even begun addressing the very fundamental must-haves that form the foundation for industrial incubation. These are power and infrastructure.

The country's energy sector is a quandary. The largest power plants, Cahorra Bassa and Mphanda Nkuwa, were put up by the South African electricity company for total evacuation to South Africa under tight, irrevocable, long-term contracts. As a result, the country lacks industrial-grade power supply, and the little commercial and residential power is peak supply from Electracidade de Mozambique (136 MW) and the 400 MW Cahorra Bassa reserve for domestic use. There are no major power plant developments on the horizon, and the country is expected to continue to remain in the dark for the foreseeable future.

There is also no significant transport infrastructural development pipeline to speak of in the country. Areas of major raw material sources (other than aluminium, iron ore and coal, which have been developed by the multinationals that own and operate them) remain cut off from the major urban centres and sea ports.

From the foregoing, it is hard to see the country through the eyes of any serious industrial potential either of a regional or international nature.

However, and in spite of these same challenges, there is a compelling case for manufacturing around the core agricultural inputs that the country requires to launch its agriculture and agro-processing on a trajectory of excellence within the region – a much more feasible proposition. What this means is that, for the investments in agriculture and agro-processing to become more realizable and to manage risks of costs and externalities, certain crucial investments should of necessity take place around and within the vast countrywide agro-supply chain. Providing crucial and life-infusing backward linkages to Mozambique's agriculture will be the central rationale of its industrial logic.

Fertilizer

- The average rate of fertilizer use in Africa is 8 kg/ha and only 5 kg/ha in Mozambique (FAO, 2012), which implies that productivity cannot be maintained at this rate. Increased fertilizer use is one way of intensifying agricultural production in Mozambique in order to raise production and rural incomes. The current levels of fertilizer adoption are very low (less than 8%) for cereals and horticultural crops; for most crops, no fertilizer is used at all.
- For the year 1999/2000, total national fertilizer consumption was estimated at 18,000 MT, which increased to 20,000 MT and 28,000 MT in 2002/03 and 2005/06 respectively. Estimates from importers put the 2010 imports at 56,400 MT, of which 28,500 MT were purchased by the Mozambique Leaf Tobacco Company (MLTC) for tobacco (51% of total consumption), 23,784 MT were used for sugar cane plantations (42.2%) and 2,225 MT were used for food crops (3.9%).
- The annual fertilizer consumption has increased from 18,000 to 57,000 tons over the last decade, but the potential annual fertilizer demand is 100,000 tons.
- Within the country's Strategic Plan for Agricultural Development (PEDSA) and under appropriate assumptions, fertilizer consumption has to increase from the current 51,600 metric tons per year to about 225,000 metric tons in order to meet official agricultural growth targets of 10% annual growth through increases in both productivity and area under cultivation.
- This increase in fertilizer has mammoth implications for the development of the fertilizer value chain. The port infrastructure and the logistics of moving fertilizer to the hinterland are faced with a number of capacity constraints ranging from handling, storage and movement of cargo.
- Like most Sub-Saharan African countries, Mozambique depends on overseas imports for its fertilizers, because local production is non-existent or limited. There is some local blending by firms that formulate blends for various crops and soils. All fertilizer currently used in Mozambique is imported from China, India and Mauritius and 90% is used on sugar cane and tobacco.
- To achieve PEDSA targets by 2020 requires an increase in output of 2.5 million MT above current production (70% from maize). When all other crops are included, the total incremental output is 4.3 million MT. This will produce nearly 3.5 million MT of maize output. It is relatively difficult to obtain estimates for the rest of the crops due to data limitation.
- For all the other crops, the incremental output of 4.3 million MT according to PEDSA targets accounts for an additional 93,000 nutrient requirements. The nutrient removal that corresponds to the incremental production for targeted crops is 170,000 MT.
- If Mozambique is to succeed as a serious commercial agriculture player, a domestic fertilizer manufacturing capability must be at the core of that agenda. In this respect, to make viable most, if not all of the investments recommended in the agricultural production section, fertilizer facilities are both paramount and imperative. While the potential exists to increase fertilizer use on cash crops such as tobacco and sugar cane, there is a significantly greater opportunity to increase its use on cereals and other food crops, especially wheat, maize and oilseeds, which are currently under-fertilized and would have a greater impact on food security.

Constraints

- Transport logistics are punitively exorbitant – typically 45% of the total logistics costs. Wholesalers and retailers margins are also exceptionally high – to compensate for small operating scale, risks of operations and long reorder lead times.
- Access to finance is limited across the supply chain, including importers, agro-dealers and smallholder farmers. High interest rates (more than 25%) and collateral requirements constrain borrowers from using bank financing. Due to the relatively higher risk in agricultural operations and land tenure constraints, commercial banks have a risk-averse attitude toward agriculture and agribusiness.

Opportunities

- To meet the incremental production necessary to achieve the strategic objectives for the targeted crops in PEDSA, Mozambique needs to increase its fertilizer use by 225,000 MT of products (urea, Diammonium Phosphate and Muriate of Potash). The current fertilizer use levels in Mozambique are extremely low, with most crops having no fertilizer used on them at all.
- PEDSA has prioritized a number of key actions to be taken: Consolidate agricultural research and link with extension, develop a network of agro-dealers to transfer seed and fertilizer technologies, develop product value chains and markets, and encourage public-private partnerships (PPPs) for investments in agriculture.
- To this end, synthetic fertilizer based on natural gas is now a possibility in the province of Inhambane, where abundant commercial reserves of natural gas are being developed for production in the Pande and Temane fields by Sasol, the South African petrochemicals group.
- A local power solution to power the fertilizer plant can be accessed from the same natural gas resource.

Animal feeds

- Poultry is the second pillar of Mozambique’s livestock strategic plan. The national poultry association estimates consumption to grow 26% annually in the current decade, double the rate achieved in 2007–2009 – reflecting improved living standards and an expanding population.
- Due to high input costs, the country continues to import up to 90% of its eggs needs from neighbouring countries.
- The top priority for the expansion of chicken meat production is feasibility of local feed ingredients production as well as better quality control of feeds.
- Local feeds production capacity is very limited and highly expensive. The country virtually relies on imported feeds and feeds ingredients. In 2011, it imported feeds as follows:
 - Concentrates (protein and micronutrients) – 9,400 tons,
 - Premixed feeds – 15,147 tons,
 - Soy cake – 7,543 tons,
 - Calcium phosphate – 845 tons.
 - The local poultry sector has been growing in leaps and bounds:

(Tons)	2007	2013
Poultry meat production	6 231	12 460
Poultry feed production	65 657	132 782

Constraints

- The main constraint or impediment to the development of a robust local animal feeds industry has been the lack of adequate year-round supply of feedstock from local farmers.
- Another one is the lack of a feasible collection, aggregation and delivery system from small-scale farmers scattered across the country.
- Another constraint has been the hitherto absence of a scalable investment case for the growth and production of oilseeds and cotton in the country in the past, whose subsidiary products, oil and cotton cake, are core ingredients for animal food production.

Opportunities

- Anticipated ambitious investments in sesame, cotton and soya beans (see specific opportunities in the agriculture section above) should soon release huge quantities of feeds production ingredients into the local market.
- Solid and vaulting growth of the poultry sector continues to sustainably heighten demand for poultry feeds in the country into the foreseeable future.
- There is an opportunity to substitute the huge imports of feeds into the country through local production, and to ride the anticipated high growth in demand from the soaring poultry and dairy sectors.

Limited agro-processing: Production of concentrate from pineapples, oranges and mangoes

- The country has huge demonstrated potential for the competitive growth of a wide variety of tropical fruits. In fact, the evidence is literally strewn all over the place, as oranges and mangoes grow wild in the countryside.
- During the ripening season, a lot of fruits go to waste, as they rot on the farms and in the wild. Remoteness is a big factor behind this, but also the absence of technologies to process and preserve for later use or for long-distance market delivery.
- The case for fruit concentrate making in rural Mozambique within the districts with highest fruit potential is a no-brainer. This allows for the motivation to collect, transport and deliver otherwise-wasting fruit produce littered all over the countryside. It also allows for deliberate cultivation of fruit trees with alternating ripening seasons – to ensure all-year supply of fruits to the factories.
- The Micaia Foundation is operating a factory to process wild fruits, roots and tubers in Mozambique’s Manica Province, which is the first factory of its kind in Mozambique. Some of the districts of Manica Province have an abundance of wild fruits, tubers and roots. The factory would focus on processing the “madumbe” root, which is considered to be highly nutritious.
- South African company First National Choice built a factory in 2013 for the processing of pineapple produced in Muxungue, in Sofala Province, Mozambique. The pineapple is intended for export to Germany. The company invested in the region of US\$ 6 million in the factory, which has the capacity to process 40 tons of pineapple each day, being turned into 17,000 litres of juice for Germany initially, then the wider European market.

- The Muxungué agricultural region has 3,500 farmers focussed on growing pineapple in an area of 4,150 ha and more than half of the yield is lost due to a lack of facilities to process the fruit and markets into which to sell it.
- Year-round fruit production from areas of competitive advantage, together with the specialized ripening of avocados, is aimed at making Westfalia the preferred supplier to selected retailers in Europe. To this end, Westfalia has acquired 318 ha of land in Mozambique and established a new operation – Westfalia Fruto Mocambique – which will begin almost immediate development of Hass and Carmen-Hass avocado orchards.
- The purchased land is located in the Manica Province of Central Mozambique, renowned as an early fruit-producing area. The new farm will produce branded varieties of avocado significantly earlier than the earliest producing areas in South Africa. The avocados are expected to reach maturity at a time of key shortage in the market (January to April), helping to close the window of supply.
- The energy needs of such facilities are not high – rural factories can now be powered by high-capacity solar plants.
- Demand for reconstituted fruit juices is high and growing in the region, especially in East Africa, and in the insatiable European and Middle Eastern markets.

Constraints

- The main constraint, just as is similar to other agricultural concerns, is collection and aggregation logistics when buying from small-scale farmers growing fruits on their own.
- Year-round supply to keep the factory running is a big challenge when dependent on rain-fed agriculture.

Opportunities

Integrated fruit processing opportunity: To get it right, operators have to identify areas of great potential with particular fruits and contract farmers within the locality to grow fruits for them – with inputs and credit incentives, and establish factories on location to process the fruits and ship out the finished product into the major urban markets within the country or to designate export markets. The three examples cited above have provided the various viable models.

Conclusion and recommendations

This study has looked at the four African countries being piloted for inward investments under the PIGA project. It has found useful insights and arrived at an array of actionable investment recommendations on the basis of fundamental value drivers' analyses looked at against the backdrop of a vastly improving business environment in the region, brought about by the twin forces of public investments in the enablers of business and policy and regulatory reforms in the ease of doing business.

It is clear that the pilot countries have taken two distinct investment profiles: Zambia and Mozambique have emerged as scale agricultural pure plays with high value-adding potential for local markets proposition and growing feasibility for the entire value spectrum of the local agricultural supply chain. Kenya and Ethiopia have, on the other hand, emerged principally as primary agricultural deficit economies with huge reclamation potential through irrigated agriculture, plus they are systematically and deliberately installing massive industrial and manufacturing potential oriented to export competitiveness.

Assessed on the basis of the value drivers outlined in Chapter 4 and applied to opportunities analysed in chapter 5, the following sectors have presented the best investment opportunities in the four African countries:

<p>Kenya: Sugar Dairy Poultry Packaging materials Pharmaceuticals Animal feeds</p>	<p>Ethiopia: Oilseeds Poultry Dairy Leather Textiles Pharmaceuticals Fertilizer Packaging materials</p>
<p>Zambia: Dairy Poultry Animal feeds Wood products</p>	<p>Mozambique: Cassava Soya beans Poultry Sesame Fertilizer Animal feeds</p>

While all opportunities screened and presented in this report are ultimately executable, it will be alignment with new capital, technology, management capacity, markets, or backward and forward integration to global production systems that will accelerate their realization and actualization.

In the same vein, the options and approaches for actualization of these opportunities will vary from opportunity to opportunity and according to the structure and dynamics of sectors. Where good and promising enterprises exist, it would be ideal to make direct equity investments with proportionate board representation and joint management appointment authority. Other options range from Greenfields operations backing seasoned technical operators, convertible warrants, buy-outs backed by robust management contracts and venture capital-type backing of solid entrepreneurial instincts and visions.

There also exists the alternative to work with ITC and other agencies already active on the ground engaged in value chains optimization to incubate, nurture and bring to maturation potential in sectors and enterprises that are constrained by missing links or lack of common organizing platforms, but otherwise present great potential and opportunity when unlocked.

In conclusion, it is important to note that this study does not constitute a call to execute. Further investigations need to be carried out at the corporate level to discover potential targets that present nearly

as fitting and representative a profile as depicted in the study. The advantage this report provides is that of a more structured and better targeted opportunities screening and appraisal at the investment execution stage. It also reduces and narrows down the scope to a preselected, prequalified and presynthesized basket of actionable opportunities.

Addendum: Investment opportunity study for selected African countries - Summary

KENYA – AGRICULTURE

SECTOR SUMMARY	CONSTRAINTS	OPPORTUNITIES
<p>Food grains: Maize, wheat</p> <ul style="list-style-type: none"> - National maize deficit of 10 million bags annually - Constitutes 80% of cereals consumption - Price of maize is much higher than the region - Domestic production of wheat stagnated at 350,000 tons/year - Country importing 60% of wheat consumed from Russia, Ukraine, Canada 	<ul style="list-style-type: none"> - No more arable land for grains cultivation - Middlemen exploit small-scale farmers and artificially hold high local prices - Crop wastage at harvesting, transportation and storage - Uneven distribution and availability across the country 	<ul style="list-style-type: none"> - Viable irrigated agriculture in Galana-Kulalu: 500,000 acres earmarked - Replacing 10 million to 12 million bags of imported maize - Replacing 6 million bags of imported wheat - Efficiencies in redistribution - Scale in milling and market consolidation
<p>Sugar</p> <ul style="list-style-type: none"> - Entirely under small-scale outgrower schemes - Land fragmentation and partitioning threatening production in the western sugar belt - All government-owned sugar factories struggling: old plants, massive debt, shrinking outgrower area and political interferences - Dwindling sugarcane supplies, high cost of local production and chronic shortages - Country imports 25%–40% of sugar consumed from COMESA countries - Higher rate of sugar consumption per capita than the rest of Africa bar South Africa and Swaziland 	<ul style="list-style-type: none"> - 25% long-term structural deficit - Totally exhausted rain-fed production potential - High, unsustainable sugar prices 	<ul style="list-style-type: none"> - Viable irrigated production potential at the Galana/Kulalu Irrigation Scheme: 200,000 acres earmarked - Substitute 200,000 tons of imported sugar - Harness production efficiencies from new cane variety - White refined industrial sugar potential for beverages and pharmaceuticals
<p>Dairy</p> <ul style="list-style-type: none"> - One million dairy farmers; 3.5m cows – largest and best-quality herd on the continent - Mainly organized under the cooperative system, which is currently integrating downstream - National self-sufficiency with surplus for export - 84% of total milk production sold directly, informally, in raw form to consumers 	<ul style="list-style-type: none"> - Wild swings in quantities and quality in line with weather seasons - Colossal gluts and wastage during the wet season - Feedstock constraints during the dry season - Milk productivity still low due to inconsistent feeds supply and quality 	<ul style="list-style-type: none"> - Greater productivity efficiencies wrapped around fully integrated systems with in-house feeds solutions - Preservation and conversion to long-life and powder form for dry season market and regional exports

<p>Fruits processing</p> <ul style="list-style-type: none"> - Growing 12% a year, stimulated by health consciousness and rising incomes - Great weather for tropical fruits cultivation, chiefly grown informally by small-scale farmers - Only 8% fruits are processed, 47% consumed fresh and 40% wasted - Processing and packaging is a growing phenomenon 	<ul style="list-style-type: none"> - Variability in quantities and quality due to climatic factors - Lack of research to formulate production specifications to local climatic conditions - Lack of a system of collection and aggregation 	<ul style="list-style-type: none"> - Better collection and aggregation system for the 40% wasted fruits - Fruits processing into juices and jams - Fruit processing into concentrate and pulp
<p>Poultry</p> <ul style="list-style-type: none"> - 33 million birds, producing 23,000 tons of meat and 1.3 bn eggs annually - Demand for poultry products driven by health consciousness, an expanding fast-food concept and organized retail - More attractive for intensive and urban farming owing to urbanization and pressure on vastly shrinking arable agricultural land 	<ul style="list-style-type: none"> - Chronic shortage of breeding stock and hatchery capacity - Shortage and high cost of poultry feeds - Low biosecurity standards 	<ul style="list-style-type: none"> - Leading protein solution to the bulging, urban, mobile, health-conscious middle class - Fast-foods, airlines supply chain opportunity - Biosafety, quality standards-oriented integrated production
<p>Pigs:</p> <ul style="list-style-type: none"> - 335,000 pigs nationwide; 150,000 under commercial farming - Annual consumption projected to grow by 155% up to 2030 - The whole region is in deep deficit – imports sourced from as far as Brazil, Canada, Germany and Italy - 70% production is by smallholder farmers under free-range system. Not favoured by processors due to quality standards 	<ul style="list-style-type: none"> - Production stagnated due to feeds unavailability – 70% of pigs production costs - Lack of good-quality breeding stock - Pig products: sausages and bacon too expensive 	<ul style="list-style-type: none"> - Integrated contract commercial pig production and processing - Import substitution by local production - Pig feed production
<p>Oil Crops/Edible Oils:</p> <ul style="list-style-type: none"> - Only produce 15% of annual demand - Sector imports for domestic demand and for regional re-exports - Marked consumer shifts from cooking fats to oils - Oils crops are suited to the same soil and climatic conditions as sugar cane 	<ul style="list-style-type: none"> - Lack of arable land for oil crops cultivation - Small-scale production units not competitive against large-scale produced crude imports 	<ul style="list-style-type: none"> - Irrigation potential at Galana/Kulalu – 200,000 acres earmarked for sugar cane - Very high domestic prices justify large investment in processing capacity

KENYA – LIGHT MANUFACTURING

SECTOR SUMMARY	CONSTRAINTS	OPPORTUNITIES
<p>Construction materials and equipment</p> <ul style="list-style-type: none"> - Ongoing major infrastructure projects consuming historic levels of building materials - Chronic housing deficit: 150,000 units in Nairobi alone - 13% growth in 2014 against 4.6% for the economy - Rate of urbanization is 7% against total population growth of 2.7% - Cement consumption in 2014 grew by 22% - Free access to credit by developers and home buyers fuelling growth 	<ul style="list-style-type: none"> - Huge capacity limitations in the sector hinder efforts to close the deficit gap - Poor quality of finished products - High import component of the construction materials 	<ul style="list-style-type: none"> - Low-cost housing materials, technologies and production - Local assembly and marketing of construction equipment and machinery - Local production of a wide cross-section of finishing and partitioning materials
<p>Agricultural machinery</p> <ul style="list-style-type: none"> - High pace of agricultural mechanization observed between 2009 and 2012: 7,036 new tractors imported - One million hectares of land to be put under cultivation in the Galana/Kulalu Scheme - Urban farming pushing demand for fully mechanized or automated production systems - Pressure for yield maximization in the vastly dwindling arable land areas 	<ul style="list-style-type: none"> - Dependence on imported machinery - Limited agricultural finance and insurance 	<ul style="list-style-type: none"> - One million-hectare Galana irrigation requires up to 1,500 tractors - Estimated organic growth at 1,760 tractors a year - A wide range of irrigation and greenhouse equipment; assorted urban farming systems, and implements
<p>Packaging materials</p> <ul style="list-style-type: none"> - Demand for consumer plastics packaging has been growing at 15%–20% annually - Imports of plastic materials growing in tandem - Huge reported wastage in the agricultural value chains due to lack of simple packaging solutions - Urbanization, organized retail and hygiene are expected to drive further demand for packaging materials - Agro-processing value proposition is also seen to drive explosive demand in packaging solutions 	<ul style="list-style-type: none"> - All packaging raw materials have to be imported - Low-quality production methods and technologies 	<ul style="list-style-type: none"> - Use of plastics is expected to triple in five years - Scale, high-technology packaging materials production - Better integrated raw materials supply and distribution opportunity
<p>Leather products</p> <ul style="list-style-type: none"> - US\$ 147 million sector, growing at 18% CAGR for the last decade - Third-largest livestock cattle herd in Africa: 17.5 million cattle; 44.8 million sheep and goats - Wet blue leather (semi-finished) dominates sector; 89% of output - Competitive position eroded by imports of substandard footwear and second-hand shoes 	<ul style="list-style-type: none"> - No quality effluent facilities - High cost and low availability of quality raw hides - Competition from second-hand shoes - Archaic leather production technologies 	<ul style="list-style-type: none"> - Import substitution: 38 million shoes, domestic market; only produce 4 million - US\$ 60 million more export potential from sales of wet blue leather - Handbags and travel-wear for AGOA - Finished leather for China and EU
<p>Pharmaceuticals</p> <ul style="list-style-type: none"> - US\$ 240 million industry; 30% local; 70% imported 	<ul style="list-style-type: none"> - Lack of control of entry of counterfeit and substandard drugs 	<ul style="list-style-type: none"> - US\$ 97 million donor procurement: Upgrades to GMP certification to qualify

<ul style="list-style-type: none"> - Government of Kenya purchases 30% of prescription drugs - Local players mainly generic producers with low-capacity utilization and low production efficiencies - Cannot participate in donor procurement due to low technical standards - Very few are WHO's GMP compliant, which inhibits their chances with donors - Sector supplies 50% of COMESA markets requirements; been growing at 18.3% CAGR 	<ul style="list-style-type: none"> - Lack of or limited GMP certification - Low availability of raw materials locally 	<ul style="list-style-type: none"> - Edge out counterfeits and take up the US\$ 65-US\$ 130 million resulting slack - Local research and formulation to plug gaps in raw materials availability - Pushing further the regional export potential
<p>Animal feeds</p> <ul style="list-style-type: none"> - 3.3 million dairy cows under zero grazing - 21,000 tons of chicken meat and 1.3 bn eggs per year - 335,000 pigs, 45% under commercial farming - Commercial beef fattening and maturation gaining momentum - Urban and intensive farming based on outsourced feeds also gaining currency 	<ul style="list-style-type: none"> - Availability and access to raw materials from smallholder farmers - Seasonability of farming cycles; hence, raw materials supply 	<ul style="list-style-type: none"> - More feedstock expected from the Galana irrigation project - Anticipated investment in oilseeds to produce seed cake - Better integrated collection and aggregation from smallholder farmers

ETHIOPIA – AGRICULTURE

SECTOR SUMMARY	CONSTRAINTS	OPPORTUNITIES
<p>Grain crops: Wheat, barley, maize</p> <ul style="list-style-type: none"> - 18.4 million tons of cereals production a year, accounting for 80% of total cultivated land - Maize accounts for 22% total area covered by cereals crop- grown by eight million farmers - Wheat annual production is 3.2 million tons, but the country still imports 33% of its wheat requirement - Barley, which is malted for beer production, is only produced 35% locally; the rest is imported from as far as Belgium and France - Chronic food deficits and redistribution challenges across the country 	<ul style="list-style-type: none"> - Grains production is undermined by high population density and high soil degradation - Inadequate seed multiplication facilities - Inefficient redistribution of grain crops, creating structural shortages in some parts of the country 	<ul style="list-style-type: none"> - Commercial farming and milling of maize, wheat and barley to substitute imports - Bulk purchase and redistribution of grains - Milling opportunity backed by outgrower arrangements
<p>Horticulture/Flowers:</p> <ul style="list-style-type: none"> - Non-existent a decade ago, Ethiopia’s cut flowers sector is now 2nd largest in the continent - The country provides arguably the best suited climatic conditions for all year round irrigated floriculture - Logistically, being at the horn of Africa it’s a crossroads of both production and markets - Excellent air links and air cargo capacity via Ethiopian Airline - The sector is both labour intensive and export oriented, consistent with the priority areas for governmental support - In this connection, it has been luring investors away from the region and beyond: Kenya, Tanzania, Uganda, Zambia and Ecuador 	<ul style="list-style-type: none"> - Lack of adequate specialized infrastructure: cold storage and cold transport - Challenges in meeting international regulatory regimes for exports 	<ul style="list-style-type: none"> - Exploit current incentives and ride ambitious targets to increase area under cultivation - Market intermediation: new markets opportunities served by contract outgrowers - Supply chain opportunity: irrigation, greenhouses, cold storage and transport, etc.
<p>Oilseeds: Sesame, canola, sunflower</p> <ul style="list-style-type: none"> - World’s largest exporter of Sesame after India and Sudan - 860,000 ha under oilseeds by four million farmers - There is low use of agro-inputs and lack of market-oriented production such as contract farming - Most is sold raw and unprocessed - Refining capacity is limited; only 30% edible oils requirement is produced locally 	<ul style="list-style-type: none"> - Seed marketing chain is long and non-value adding with high transaction costs - Lack of access to packaging services - Despite huge crop potential, country still imports 70% edible oil 	<ul style="list-style-type: none"> - Local processing capacity to replace imported edible oils - Increased production for exports take advantage of steady world price increases - Processing offshoots: seed cake to local animal feeds sector, and soap making
<p>Cotton and textiles</p> <ul style="list-style-type: none"> - Most integrated textile sector on the continent on the back of local cotton content - Annual production beginning to respond to the demands of robust textile and apparel sector - Demand deficit still outstrips local production of lint: 2015 – 8,000 tons deficit; 	<ul style="list-style-type: none"> - Limitations of quality inputs: seeds; fertilizer - Historical ban of exports forced farmers to other crops 	<ul style="list-style-type: none"> - Contract production for AGOA - Best practice platform for Asia, EU markets - Preferential government textile and apparel procurement - Textile production value chain consumables

<p>2016 – 12,000 tons projected</p> <ul style="list-style-type: none"> - Government incentives focussed on integrated investors to grow, gin, spin and process cotton. Committing large tracts of land - Very low cost of power, which is essential for competitiveness. Power makes up 25% of textile producer costs - A very strong candidate for the incentives schemes of the newly established industrial parks. Hawassa Park is chiefly dedicated to textiles 		<ul style="list-style-type: none"> - Enhancement of contract production for branded and fashion lines opportunity
<p>Livestock</p> <ul style="list-style-type: none"> - Underpinned by the largest national herd in Africa: 49.3 million cattle; 25 million sheep; 22 million goats. Accounts for 49% of Ethiopia’s agriculture - High tradition of beef-based proteins ingestion in the country - High rate of urbanization; growing middle class; embrace of modern balanced diet culinary habits - A tradition of rural market systems deliver cattle from far afield and present a modicum of price discovery and transparency 	<ul style="list-style-type: none"> - Lack of a well-coordinated livestock supply chain - Lack of logistical access to untapped areas - Lack of efficient market information delivery mechanism - Lack of linkages between producers and processors 	<ul style="list-style-type: none"> - Integrated abattoirs - Fattening, maturing and trading of cattle according to weather and lifecycles - Actual logistical and market platform solutions to reach untapped areas - Processing, packaging and marketing of beef products
<p>Dairy</p> <ul style="list-style-type: none"> - The country is in a state of long-term net dairy deficit: between 2005 and 2010, it increased from US\$ 5.6 million to US\$ 10.3 million imports a year - Underdeveloped milk marketing system. Less than 7% milk is marketed through formal retail - Commercial dairy is done mainly by cooperatives operating in areas accessible to transport links and markets - Demand for processed dairy products is rising fast: bulging middle class; urbanization 	<ul style="list-style-type: none"> - Lack of market outlets for milk and dairy products - Lack of quality breeds and breeding stock - Shortage of feeds - Inadequate, inefficient milk-processing facilities - Fragmented value chain 	<ul style="list-style-type: none"> - Intensive, mechanized dairy production - Quality breeds development and marketing - Integrated milk collection and processing - Dairy feeds production and distribution - Dairy brands development, marketing and promotion
<p>Poultry</p> <ul style="list-style-type: none"> - 38 million birds; 98% indigenous under subsistence agriculture - Market structure of 42% direct sales to consumers, and 39% through a rudimentary trading system - Emerging urban middle class driving demand growth leading to expansion of poultry production - The emerging concept of fast-foods for an urban population constantly on the move is also adding to positive growth trends - Similarly uplifted by airlines and hospitality industry 	<ul style="list-style-type: none"> - Limited capacity to produce day-old chicks - Huge consumer deficit; filled by imports from as far as Europe and Saudi Arabia - Lacking in specialized slaughter facilities - Biosafety standards deficits 	<ul style="list-style-type: none"> - Hatchery opportunity – process day-old chicks for broiler production - Integrated commercial production of broilers and eggs - Specialized abattoirs and processing - Poultry feeds production

ETHIOPIA – LIGHT MANUFACTURING

SECTOR SUMMARY	CONSTRAINTS	OPPORTUNITIES
<p>Leather and leather products</p> <ul style="list-style-type: none"> - Largest livestock population in Africa: 54 million cattle; 50 million sheep and goats - Annual production of 2.7 million hides, 8.1 million sheep and 7.5 goat skins; largest flock of hair-sheep in the world - Priority area for industrial integration for the Government of Ethiopia - 73% of revenue is exports of finished leather with high potential to be converted to finished products. This is beginning to happen - Huajian Group now makes 6,000 pairs of shoes per day in Addis - UK's Pittards, Taiwan's George Shoes and US-branded Brown shoes are already operating in the country 	<ul style="list-style-type: none"> - Hides and skins defects from poor care and handling - Low processing quality standards enforcement - Uneconomic contract manufacturing arrangement with foreign brand owners 	<ul style="list-style-type: none"> - Finished leather opportunity: Annual deficit of 19 million pieces and organic growth of 24% per year - Import substitution: more competitive leather sector can now locally produce all imported leather goods - Export potential: higher quality products marketed better to Asia and EU
<p>Pharmaceuticals</p> <ul style="list-style-type: none"> - US\$ 400–US\$ 500 million annual sales, and growing at 25% per annum - On the back of improvements in healthcare delivery and introduction of universal social health insurance coverage (30% in 2003 – 89% in 2012) - Public sectors procure 70% of all medicine in the country at a cost of US\$ 310 million (2014) - The local pharma supplied products worth US\$ 44.2 million in 2014, 35%–40% to private sector - The Government of Ethiopia has put in place deliberate measures and incentives to support and promote development of the local pharmaceutical sector and local drugs production 	<ul style="list-style-type: none"> - Limited product diversification. Most essential drugs have to be imported - Limited packaging materials availability - Sector falls short of WHO GMP standards 	<ul style="list-style-type: none"> - Value chain development: local capacity for all essential drugs - Exploits incentives to build capacity for import substitution - Pursue GMP accreditation to lock in donor procurements
<p>Construction materials</p> <ul style="list-style-type: none"> - Fastest-growing sector on the back of GTP I and II flagship infrastructure projects and explosive private real estate - In 2015, a total of US\$ 20 bn worth of construction projects in the pipeline, with national output of US\$ 3.2 bn - Many major private construction projects are ongoing or being started – banks, hotels, industrial parks, textile factories and apartments blocks - Construction has already created four million jobs in the last three years and is expected to contribute 20% of GDP growth in 2016 - Momentum is being boosted by attractive incentives like land for construction and a bouquet of tax incentives 	<ul style="list-style-type: none"> - Public projects negotiated government to government are closed out for private players - All major materials are imported at high cost and forex drain - All machinery is also imported - Financing for private projects remains a challenge: high-cost credit and limited access 	<ul style="list-style-type: none"> - Housing deficit: well-designed procurement, delivery and funding model - Vast local raw materials, cheap power and labour for local manufacture of basic construction materials - Finance-integrated bidding can be more competitive for private real estate projects - Finishing and assembly of hardware materials in the country
<p>Agro-chemicals and fertilizer</p> <ul style="list-style-type: none"> - Ethiopia has 12 million hectares under food grains, which need regular fertilization 	<ul style="list-style-type: none"> - Pricing of fertilizer done at the Ministry of Agriculture without regard to market forces - Punitive transport and logistic 	<ul style="list-style-type: none"> - To achieve the additional 9.6 million tons of food crop requires 612,000 tons of fertilizer – doubling fertilizer use

<ul style="list-style-type: none"> - Country has one of the highest rates of nutrient depletion in Africa - Burdened by high prices of imported fertilizer made worse by long-distance transportation from the port - Imports continue to increase annually, from 370,000 tons in 2002 to 627,000 tons in 2010. Carryover stocks cause uneven imports year on year - Food grains production is expected to increase by 50% in the next five years (GTP II) based on an 8% annual growth rate. This means an additional 9.6 million tons of grains - Yet vast proven reserves in the coal mines at Yayu, Oromia. The Government of Ethiopia has been trying to develop three fertilizer factories without success due to bureaucracy - Now encouraging private sector investor with incentives 	<p>expenses from Djibouti Port over 950 km to Addis – adding 21% to the landed costs</p>	<ul style="list-style-type: none"> - Import substitution – save foreign exchange and avoid punitive transport and distribution costs by processing local proven reserves, on the back of: adequate power supply, ready market of US\$ 150 million sales per year, comfortable organic growth
<p>Agricultural machinery</p> <ul style="list-style-type: none"> - The country has 16 million hectares of land to till every season, and an additional three million hectares are expected to be developed under the GTP II strategic plans - Yet it has one of lowest rates of mechanization in the region: 2.1 tractors for 100 square kilometres of arable land (Kenya – 26.9; Tanzania – 23.9 tractors) - However, recent records are encouraging. In 2008, the country spent US\$ 175 million in agricultural machinery imports; by 2013, it had imported 12,500 tractors - The Government of Ethiopia has also been investing in all-weather rural access roads, making commercial agriculture viable - There is also observed steady growth in agricultural credit, including asset finance or lending against or to finance agricultural machinery 	<ul style="list-style-type: none"> - Imports of complete knock-down kits has been constrained by shortage of foreign exchanges - There is no parts and after-sales service infrastructure 	<ul style="list-style-type: none"> - Immediate opportunity to supply the three million hectares coming under cultivation in the current development plans - Establish parts and after-sales service infrastructure - Assembly and fabrication of simple machinery, tools and implements under import substitutions incentives
<p>Packaging materials</p> <ul style="list-style-type: none"> - Growing trends in formal shopping and consumerism in the country are leading to increased consumption of packaged goods - Agro-processing is also taking off on the back of pressure to extract greater value from basic primary agricultural products - An incipient industrial drive in the country is beginning to put more finished manufactured goods into the market - All these point to explosive demand for packaging materials 	<ul style="list-style-type: none"> - Many agro-processing ventures have stalled or failed to take off due to scarcity or lack of packaging solutions - Imported packaging materials are far too expensive for viable packaging concerns to rely on 	<ul style="list-style-type: none"> - Integrated paper packaging opportunity for agro-processing packaging - Plastics packaging opportunity for industrial packaging
<p>Industrial parks</p> <ul style="list-style-type: none"> - The Government of Ethiopia's Vision 2025 sees manufacturing expanding to 25% of GDP from the current 6% - There are four industrial parks currently under construction, and the government is targeting US\$ 1 bn annual investments in industrial parks over the next decade - Target (priority) areas are: leather, textiles, agro-processing, electronics and 	<ul style="list-style-type: none"> - Reliability of supply of standard quality raw materials from the agricultural sectors - Reliability of global procurement and logistics for imported intermediate goods and components - Skills gaps and how long it will 	<ul style="list-style-type: none"> - Electrical and electronics: driven by youthful consumerism. Mobile phones, TV sets, PA systems, car accessories, lighting systems, lamps and lights, etc. - ICT: US\$ 250 million technology park, EthioICT – more than 12 local and international companies have

<p>ICT</p> <ul style="list-style-type: none"> - Electric rails will serve the hubs that private companies can develop almost rent-free. Standard gauge railways will also connect them with seaports in Djibouti - Developers get a tax holiday of 15 years, duty-free privileges on construction materials and machinery, and amazing concessions on land and connections to utilities - Leading American clothing fashion brands are already on board: Philips Van Heusen, Hennes & Mauritz (H&M), VF Corp, and Italian garment-maker Calzedonia. International retailers Walmart and Carrefour have also shown interest 	<p>take to fill them</p>	<p>already booked spaces, including China's ZTE, Techno Mobile and SINET</p> <ul style="list-style-type: none"> - Textiles (see cotton and textile section) - Leather products (see leather section)
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ZAMBIA – AGRICULTURE

SECTOR SUMMARY	CONSTRAINTS	OPPORTUNITIES
<p>Cotton</p> <ul style="list-style-type: none"> - Among the best agro-ecological conditions for cotton cultivation in the world - Grown by smallholder farmers on outgrower arrangements with major lint makers - Up to 800,000 ha designated for cotton cultivation; only 300,000 ha utilized. The government has earmarked 100,000 ha for cotton under the National Farm Blocks Programme - Average annual lint production is 72,000 tons, local consumption is only 14,500 tons, and seed cotton of 30,000 tons a year - No value-adding to cotton in the country other than separation of fibre from the seed. Lint is compressed and exported overseas 	<ul style="list-style-type: none"> - No incentives to sort cotton into grades during picking - No seed production capacity. Farmers source and plant diverse seed types, resulting in assorted unclassifiable cotton crop - Size of local market constrains value addition in the country 	<ul style="list-style-type: none"> - Backward linkages for Chinese textile firms seeking long-term supply arrangements - More ginning capacity for players with better world markets access - Seed cake opportunity: processing up to 30,000 tons a year of seed into animal feeds and edible oils
<p>Tobacco</p> <ul style="list-style-type: none"> - 36,000 ha under tobacco, yielding 41,000 tons of tobacco leaf a year with average value of US\$ 126 million - Organized as outgrower schemes of farmers mainly by Japan Tobacco International (JTI), which is the main tobacco buyer - Demand to grow more tobacco is increasing as new players enter the market - Roland Imperial Tobacco, the only cigarettes manufacturer in the country, is investing US\$ 20 million in a primary processing plant in the Lusaka Multi-Facility Export Zone (MFEZ) 	<ul style="list-style-type: none"> - Farmers side-selling tobacco instead of delivering to contracting and input financing off-taker 	<ul style="list-style-type: none"> - Suitable for backward linkages and long-term supply system for Chinese tobacco companies - Local and international linkages for inputs supply and credit extension
<p>Oilseeds (sunflower, soya)</p> <ul style="list-style-type: none"> - Demand for edible oils far outstrips supply in the country - Total consumption of 120,493 tons against local production of 40,096 tons, resulting in a national deficit of 80,397 tons a year - However, the country also re-exports into the region – the DRC, Angola about 24,039 tons a year. Thus, total annual imports is about 104,436 tons - Utilizes mainly soya, sunflower and cotton seeds as raw materials, while imports is crude palm oil from the Far East - Current soya demand deficit stands at 24,924 tons a year 	<ul style="list-style-type: none"> - The sector has not been viable purely as an edible oil proposition. It is still cheaper to import crude palm oil - Availability of improved seeds for higher yields is a big challenge 	<ul style="list-style-type: none"> - Put a lot of idle land under oilseed cultivation - Review economics of edible oils manufacture in the country from local oilseeds - Better collection and aggregation system for seed cake for animal feeds industry
<p>Dairy</p> <ul style="list-style-type: none"> - 253 million litres of milk produced a year; only 17.4% passes through formal market channel - Dairy processors facing shortfalls; most operating below 60% capacity - Mainly depend on reconstruction of imported powder to meet the shortfall 	<ul style="list-style-type: none"> - Shortage of purebred cattle in the country. Only 15,000 quality herd - Delivering milk from farms to the processors is a mission 	<ul style="list-style-type: none"> - Fill the huge demand deficit - Collection and supply system to get as much milk to the market as possible - Pedigree breeding of dairy cows
<p>Poultry</p>	<ul style="list-style-type: none"> - Rising and unsustainable cost of feeds, prompting poultry farmers 	<ul style="list-style-type: none"> - Development of parent stock for day-old chicks

<ul style="list-style-type: none"> - From a backyard activity to large-scale integrated in only 10 years. Now makes up 42% of the livestock sector, and by far the fastest-growing sector in agriculture - 3.6 million birds producing 68 million day-old chicks and one billion eggs. Broilers production has leapt from 13 million in 2004 to 73 million in 2014 - Massive growth put down to rising middle class and coming of age of organized retail and arrival of the fast-food phenomenon - Government also banned imports due to biosecurity concerns 	<p style="text-align: center;">to increase prices of chicken products</p> <ul style="list-style-type: none"> - Weak disease monitoring and control capacity - Low downstream processing capacity 	<ul style="list-style-type: none"> - Integrated poultry production with abattoir and processing - Feeds manufacture integrated with edible oils industry
<p>Fruits</p> <ul style="list-style-type: none"> - Several tons of fruits going to waste every year since the collapse of Mwinilunga Pineapple Factory in North-Western Province - Western Province administration plans to set up a citrus fruits-processing plant worth more than US\$ 70 million - A joint venture between Zambia Fresh Pikt and PLC of America gives bigger hope for fruits processing in the country - Fallsway Timbers Group has commenced processing of mangoes and other fruits 	<ul style="list-style-type: none"> - No established system of collection and delivery of fruits to markets - Wild varieties might not be optimal for consumer products 	<ul style="list-style-type: none"> - Fresh packaging of juices and jams for domestic use - Conversion to concentrate for exports and into the region

ZAMBIA – LIGHT MANUFACTURING

SECTOR SUMMARY	CONSTRAINTS	OPPORTUNITIES
<p>Fertilizer</p> <ul style="list-style-type: none"> - Zambia currently consumes 242,000 tons of fertilizer a year. All imported at a cost of US\$ 200 million - Under the Comprehensive Africa Agriculture Development Programme (CAADP), Zambia fertilizer consumption must increase by 248,000 tons to meet agricultural growth targets - The soils for grains and pulses production are exhausted and urgently need replenishing - Infrastructural and logistical constrains of imports delivery through Mozambican ports favour establishment of local fertilizer capability 	<ul style="list-style-type: none"> - Monopoly purchase of all grains by FRA distorts market prices and discourages growing of grains by farmers - Distribution of fertilizer subsidy not efficient and excludes large sections of private sector 	<ul style="list-style-type: none"> - Huge proven deposits of peat, limestone and ash in the Eastern Province - Government incentives to mine and process fertilizer ingredients up to 2.8 million tons - Recent natural gas find in the Lake Tanganyika area and coal in the east are being explored for agro-chemical potential
<p>Animal feeds</p> <ul style="list-style-type: none"> - Animal feeds sector produces 420,000 tons of feeds a year, and growing at an average of 8% a year - Poultry is the largest consumer, accounting for 80% of the feeds consumed, most of which is procured from independent feeds manufacturers - Dairy sector consumes 55,000 tons annually, about 13% of total - Main feedstock is maize and soya grown mainly by subsistence farmers with generally fluctuating output. Maize accounts for 60% of the feed composition - Soya farmers churn out 140,000 tons of soya beans per annum 	<ul style="list-style-type: none"> - Fluctuating maize crop yields can hugely hamper feedstock supply to feed manufacturers - Collection and aggregation of feedstock presents a big logistical challenge 	<ul style="list-style-type: none"> - Supply the explosive, insatiable growth of the poultry sector - Harness and find profitable use for the vast raw material wasting uncollected on farms - Provide diversification options to the incipient oilseeds sector
<p>Wood products</p> <ul style="list-style-type: none"> - Forest cover of 67% of the total land area. One of the largest in Africa and the world - Agro-ecology favours fast-maturing replacement and quality enhancements essential for commercial timber plantations - Huge consumption of timber by construction and furniture industries - All furniture and most timber finishings for construction currently imported mostly from China - These are bulky, low value and an unnecessary spend on foreign exchange 	<ul style="list-style-type: none"> - Potential for over-exploitation and difficulties of policing - The threat of synthetic wood products 	<ul style="list-style-type: none"> - Import substitution – locally processing what is currently being imported - Exports – process into higher value intermediate parts for export into China and Asia
<p>Construction materials</p> <ul style="list-style-type: none"> - Fast-growing population; urban dwellers projected to be majority by 2040. Lusaka's population estimated to double by 2035 - Rising investment prompted a construction boom driven by infrastructure projects and real estate development by private players - Government projects housing deficit of more than three million units by 2030 countrywide 	<ul style="list-style-type: none"> - Cost of housing remains very high due to high capital costs - Use of imported materials due to lack of locally manufactured materials 	<ul style="list-style-type: none"> - A wide variety of aluminium, cement and clay based material products can be produced locally - Develop technologies to harness and utilize vast rock and stone raw materials

<p>Leather products</p> <ul style="list-style-type: none"> - Modest resource base: 2.6 million cattle, two million sheep and goats, 237,000 crocodiles and 44,000 wild animals in private ranches - Tannery utilization has been growing steadily. Four major tanneries with 1,700 hides per day capacity - Fairly high level of integration in the leather value chain – from feedlots, slaughters, tanneries and finished leather - Potential to develop leather value chain into a US\$ 500 million a year sector if all hides are transformed into finished leather products - Attractive incentives, particularly value-added companies based on processing and manufacturing from local hides and skins - Sector is more labour-intensive than capital-intensive. Zambia has one of the lowest labour costs in the leather industry in Sub-Saharan Africa 	<ul style="list-style-type: none"> - Inputs' quality reliability and consistency not always assured - Trade logistics, workers skills and technologies are wanting for such a volumes-based business 	<ul style="list-style-type: none"> - Production and exports of finished leather to Asia, EU and Middle East - Preferential supply of leather products to all public institutions - High regional supply and commercial integration potential under COMESA/SADC protocols
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MOZAMBIQUE – AGRICULTURE

SECTOR SUMMARY	CONSTRAINTS	OPPORTUNITIES
<p>Rice</p> <ul style="list-style-type: none"> - 900,000 ha of land suitable for rice production; only 230,000 ha under cultivation - Third highest rice consumption in SADC; importing 60% of rice consumed - Producing 157,000 tons of rice and importing 350,000 tons at a cost of US\$ 140 million a year - Rice consumption doubled in the past decade, and projected to keep growing at 7% per year in the medium term - Rice irrigation in Chokwe, Gaza Province is expected to replace 20% of imports by 2020 	<ul style="list-style-type: none"> - Lack of or inadequate motorized traction in production of rice. Animal traction hampers growth and productivity - Drying up of padis at crucial stages in the growing cycle for rain-fed cultivation 	<ul style="list-style-type: none"> - Import substitution: 350,000 tons to stop importing and produce locally - Mechanized opportunity: huge efficiency gains to be made through mechanizing rice production in Mozambique
<p>Cassava</p> <ul style="list-style-type: none"> - Eighth largest cassava producer in the world; 10 million tons produced a year - Mainly very basic subsistence production system in place. Been growing historically at 5% annually over the past decade - It has a lower cost and higher substitution rate than other starch staples - New, significant market opportunities have been made possible by new technology and mobile processing unit created by DADTCO, the Dutch agricultural company. This converts cassava into starch cake capable of storage for two years - SAB Miller is now sourcing cassava deep into the countryside for making its Mozambican exclusive cassava-based beer, thus replacing imported malt barley – now at 70% import substitution – and putting more farmers into cassava cultivation than any other observed trend - After the 2003 wheat prices spike bread makers shifted to cassava-based bread, substituting imported wheat and now saving US\$ 15 million annually - Production has, therefore, spiked from 9.7 million tons in 2012 to 14.7 million tons in 2014 - Additional use confirmed in livestock feeds and bioethanol 	<ul style="list-style-type: none"> - Poorly organized and dispersed smallholder producers hard to aggregate - High transport costs given the long north-south distance to markets 	<ul style="list-style-type: none"> - Contract commercial farming and conversion to cake to sell to converters - End user opportunity: convert to flour, cake, starch for beer, industrial raw materials and livestock feeds
<p>Soya beans</p> <ul style="list-style-type: none"> - Produced 50,000 tons in 2014, an increase of 42% over the previous year, driven predominantly by demand from the poultry sector - 97% of soya is produced by smallholder farmers. Farm gate prices have increased 170% between 2006 and 2014 - Soy cake forms a significant cost for the poultry industry, which is experiencing quantum leaps in growth - Annual deficit of 120,000 tons generated by a 26% growth in the poultry sector 	<ul style="list-style-type: none"> - High transport delivery cost from remote areas, making up 17% of post-plantation costs - No contract production with small-scale farmers, thus no incentive of a ready long-term market and pricing predictability 	<ul style="list-style-type: none"> - Contract soya cultivation or integration with poultry farming - Import substitution: replace expensive seed cake imports from Argentina - Edible oil opportunity

<ul style="list-style-type: none"> - Government actively encouraging cultivation of soya to substitute imported soy cake from Argentina - Projected soy cake deficit of 85,000 tons to fill in 2016 alone 		
<p>Poultry</p> <ul style="list-style-type: none"> - Before 2004, Mozambique fully depended on imports of frozen chicken from Brazil through Europe - By 2011, it could meet up to 70% of its chicken meat requirement, and, by 2013, it was producing 12,400 tons of chicken meat from only 6.2 million tons in 2007 - This is attributed to increased hatchery capacity and a ban of imports - However, because of very high cost of animal feeds, up to 90% of eggs consumed are still imported from the region - The national poultry association aims to boost chicken consumption by 26% annually. Indeed, production grew by 23% in 2015, but consumption expanded faster by 32%, reflecting improved living standards and an expanding urban population 	<ul style="list-style-type: none"> - Unavailability of chicken feeds and the steep cost where and when available 	<ul style="list-style-type: none"> - Significant potential for import substitution, especially of eggs, based on future feeds production estimates - Integrated poultry production with a long feeds solution
<p>Horticulture and fruits</p> <ul style="list-style-type: none"> - Tropical climate with high production potential for large-scale horticultural production: vegetables, pineapples and mangoes - Recent entry of significant supermarkets buyers – e.g. Shoprite and Massmart – is leading the shift to consumption of processed, packaged fruits and vegetables - Counter-seasonal demand from the Middle East, Asia and European markets are ideal for year-round exports 	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> - 550,000 ha within the Beira Corridor suitable for horticulture production - Growers better able to serve local formal markets, as supermarkets buyers demand diverse selections
<p>Bananas</p> <ul style="list-style-type: none"> - Currently, 85% of domestic crop is consumed locally and 15% exported to markets in EU, Middle East, South Africa, Zimbabwe and Zambia - Mozambique’s banana crop is very highly competitive, with a yield of 52 tons per hectare, nearly rivalling the best in the world, the Philippines, at 56 tons per hectare - Technoserve estimates that Mozambique could ultimately put more than 300,000 ha under banana cultivation within the next 15 years 	<ul style="list-style-type: none"> - High transport cost due to poor infrastructure - Increased cost associated with terminals, pre-shipment inspection 	<ul style="list-style-type: none"> - To reach economies of scale in transporting to the international markets, first point of entry would be bananas - Exports: Low farm to port costs, coupled with the Philippines crop being diverted to the Middle East
<p>Sesame</p> <ul style="list-style-type: none"> - The world market, particularly Japan, China and the Netherlands, is currently experiencing a rise in demand for sesame - Mozambique’s sesame prices more than doubled between 2011 and 2013. National production is now more than 60,000 tons a year - Farmers produce sesame in small quantities, which are aggregated by scouts who work for the main buying companies. Key buyers are ETG, Indo Africa and Olam – ETG controls 65% of market share 	<ul style="list-style-type: none"> - Despite high potential, yields are really low. A consequence of lack of service delivery reaching the majority of farmers - Lack of pesticides, mechanization and fertilizer undermine optimization 	<ul style="list-style-type: none"> - China-focussed export opportunity: China is by far the largest consumer of sesame. Backward linkages with service delivery contractual arrangements - Outgrower contract schemes – with interventions in seed improvements, productivity through mechanization

<ul style="list-style-type: none"> - Contract farming model is gaining traction, where farmers commit themselves to sell to ETG in return for service delivery, including technical assistance, improved variety and mechanization 		
<p>Cotton</p> <ul style="list-style-type: none"> - Most important agro-export in Mozambique, representing 17% of total agricultural exports; 350,000 farmers engaged in it - New concession companies investing outside the traditional cotton belt of Nampula and Cabo Delgado - In 2014, the country produced 98,000 tons of cotton lint - China has been planning the first cotton-processing factory in Mozambique since 2014 – designed to have processing capacity of 30,000 tons seed cotton, producing 3,000 litres of cooking oil a year 	<ul style="list-style-type: none"> - Yields are much lower compared to other countries - Producer prices set by Cotton Institute of Mozambique are artificially lower than market prices - Ginning process is inefficient and high cost with poor levels of ginning output - Processing and marketing dominated by three firms controlling 75% of production 	<ul style="list-style-type: none"> - Rising international prices have increased the profitability of cotton crop - Backward linkages for Chinese textile companies by investing in ginneries and establish outgrower systems - Processing cotton seed into cooking oil and feeds - Work with cotton value chain developers to optimize value realization

MOZAMBIQUE – LIGHT MANUFACTURING

SECTOR SUMMARY	CONSTRAINTS	OPPORTUNITIES
<p>Fertilizer</p> <ul style="list-style-type: none"> - Mozambique fertilizer use is much lower than Africa's average – 5 kg/ha, against 8 kg/ha - In 2010, Mozambique imported 56,400 tons of fertilizer, of which 51% was purchased by the Mozambique Leaf Tobacco company, 42% was used in the sugar cane plantations and only 4% for food crops - Annual fertilizer consumption has increased from 18,000 tons to 57,000 tons over the last decade. All fertilizer is currently imported from China, India and Mauritius - To achieve the Strategic Plan for Agricultural Development (PEDSA) targets by 2020, an increase in output of 2.5 million tons above current production in maize alone, and 4.3 million tons with all other cereal crops will be necessary - This calls for additional 93,000 tons of fertilizer use. The greatest productivity impact will be seen in utilization of fertilizer on grains and cereals production – maize, wheat and oilseeds 	<ul style="list-style-type: none"> - Transport logistics for imported fertilizer are exorbitant, typically 45% of total logistics costs - Wholesalers' and retailers' margins are very high to compensate for low volumes, long reorder lead times, and mammoth delivery and distribution risks - Limited access to finance for agro-dealers and suppliers 	<ul style="list-style-type: none"> - New 93,000 tons of fertilizer use to meet incremental production under PEDSA - Synthetic fertilizer based on natural gas in Inhambane at the Pande and Temane oilfields operated by Sasol
<p>Animal feeds</p> <ul style="list-style-type: none"> - Poultry is the second pillar of Mozambique's livestock strategic plan. Consumption is projected to grow at 26% in the current decade - Due to high input costs, the country imports 90% of eggs consumed - Priority for the expansion of chicken meat production is feasibility of local feed ingredients and better quality control of feeds - Local feeds production is very limited and expensive. The country now relies on imported feeds and feeds ingredient - Import breakdown in 2011: Premixed feeds – 15,147 tons; concentrates – 9,400 tons; soy cake – 7,543 tons; calcium phosphate – 845 tons 	<ul style="list-style-type: none"> - Lack of adequate year-round supply of local feedstock - Lack of a feasible system of collection and aggregation of grains feedstock from smallholder farmers 	<ul style="list-style-type: none"> - Poultry sector's soaring demand for feeds - Anticipated investments in sesame, cotton and soya beans should release good quantities of seed cake into the feeds industry - Substitute expensive imports with locally made feeds
<p>Fruits processing</p> <ul style="list-style-type: none"> - During the ripening season, a lot of fruits go to waste and rot on the farms or during transportation to markets - Some factories have been established to pick and process abundant wild fruits, tubers and roots in the provinces of Manica and Sofala - South Africa and Germany are also tapping the vast pineapples and avocado potential in Manica, where more than half of yields are lost due to lack of facilities to process the fruits - Demand for reconstituted fruit juices is high and growing in the region, especially Eastern Africa, Europe and the Middle East 	<ul style="list-style-type: none"> - No mechanism for quality control for wild fruits growing without crop husbandry - Delivery logistics and motive non-existent 	<ul style="list-style-type: none"> - Utilize the slack and capacity created by wild fruits and berries - Establish fruit-processing plants based on contract fruit production in Manica and Sofala Provinces

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