Department for International Development

made
MARKET DEVELOPMENT FOR NORTHERN GHANA

Monitor Deloitte.

Developing Agricultural Investment Opportunities in Northern Ghana

Mechanised Agricultural Services

April 2016 – Final

Purpose of This Document

This document outlines the salient features of an investment opportunity for the provision of mechanised agricultural services located in Northern Ghana

Objectives	• To present a greenfield investment opportunity for a business providing mechanised land preparation, planting, harrowing and harvesting services in Northern Ghana outlining: – The business environment in Ghana – The market potential for the provision of mechanised agricultural services – A suitable business model for the provision of mechanised agricultural services – The opportunity's investment requirements and financial projections – Systemic, business model and financial constraints the opportunity is susceptible to and potential mitigations for these constraints
Intended Audience	• Market Development Programme for Northern Ghana (MADE) Team • Regional and international investors who are looking for strategic or financial agribusiness investments in Sub-Saharan Africa (SSA) • Agricultural private sector role players in Ghana
Opportunity Description	• An opportunity exists to start a business providing mechanised land preparation, planting, harrowing and harvesting services catering to approximately 1000 Acres per season for a Ghana Cedi (GHS) 2.6 million (m) investment in land rental, production equipment, vehicles and working capital • Investment can take the form of debt or equity and has the potential to be paid back within four years

Source: Monitor Deloitte Analysis

Contents

Executive Summary (1/2)

Ghana's macro economy lends itself to private sector investment in the North, particularly within the agriculture sector, with notable market potential for mechanisation services

Executive Summary	
Doing Business in Ghana	• Ghana's economy ranks among the top four largest economies in West Africa alongside Nigeria, Cameroon and Cote d'Ivoire and is SSA's 7th largest economy • Favourable macroeconomic conditions and the highest Ease of Doing Business ranking amongst its peers in the Economic Community of West African States (ECOWAS) positions Ghana well as an ideal investment destination in the region • Where investors are able to overcome infrastructural and interest rate constraints, opportunities in Ghana flourish due to the stable operating environment • The agricultural sector remains the largest employer in the economy imbuing it with a significant role in overall economic development; therefore various government policies have been developed to support it
Market Opportunity	• Demand for mechanisation services in Ghana is driven by a desire to close the yield gap prevalent across the entire agricultural sector and improve labour efficiency given existing levels of manual production • A market gap of 23 550 tractors worth approximately United States Dollar (USD) 552m exists in Ghana • A small scale business servicing 1000 acres at a cost of GHS 2.6m has been selected in response to the need for demand generation and the management of equipment utilisation • Provided that existing demand can be captured, strong margins, and the ability to generate a strong first mover competitive advantage makes this opportunity an attractive prospect
Business Model	• Mechanisation services provide the potential for larger yields, increased productive efficiency and functional outsourcing to various farmer segments and aggregators • Customer segments are served through the provision of equipment for farmers to engage in traditional land preparation and harvesting activities • The business engages in four key activities, namely service provision, demand generation, capacity management and maintenance • The provision of land preparation and harvesting fees at a predetermined fee represents the sole revenue stream for this business opportunity; costs are driven by service costs, operating expenses and demand generation costs

Source: Monitor Deloitte Analysis based on sources cited throughout the document

Executive Summary (2/2)

With an internal rate of return (IRR) of 36%, the investment opportunity is likely to generate solid returns provided that the constraints identified can be effectively mitigated

Executive Summary	
Financial Analysis	• A total required investment of GHS 2.6m is expected to generate a net present value (NPV) of GHS 909 753 over the five year period with an IRR of 36% and a payback period of four years • Both revenue and earnings before interest, tax, deprecation and amortisation (EBITDA) show solid growth over the five year period and the cash generated is expected to cover working capital requirements from year one • Net margins are expected to steadily increase over the first five year period offering healthy after tax returns of 44% in year five • Under the existing cost structure the business is able to generate positive net cash flows from year one which contributes to the relatively swift payback period of four years
Constraints and Mitigation	• The perception of mechanisation services as a public good and poor transport infrastructure can be mitigated by targeted demand activities and strategic partnerships • Insufficient utilisation of equipment and the high risk of breakdowns can be mitigated by forming strategic partnerships with irrigation schemes and performing regular maintenance • The limited of availability of spare parts and fuel and the low quality of fuel at isolated customer sites can be mitigated by pre-purchasing spares and transporting fuel to sites • The high cost of local debt and working capital constraints can be mitigated by obtaining alternative funding sources and employing sound financial management techniques

Source: Monitor Deloitte Analysis based on sources quoted throughout the document

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Country Comparative

Ghana's economy ranks among the top four largest economies in West Africa alongside Nigeria, Cameroon and Cote d'Ivoire and is the 7th largest economy in sub-Saharan Africa

Senegal	
GDP*[1]	$ 15 bn**
GDP per capita[1]	$ 1067
ODA[2]% GNI[3]	6.7%
Competitiveness	110/140
SSA Rank (GDP)	16/47

Mali	
GDP[1]	$ 12 bn
GDP per capita[1]	$ 705
ODA[2]% GNI[3]	13.5%
Competitiveness	127/140
SSA Rank (GDP)	25/47

Cote d'Ivoire	
GDP[1]	$ 34 bn
GDP per capita[1]	$ 1545
ODA[2]% GNI[3]	4.2%
Competitiveness	91/140
SSA Rank (GDP)	8/47

Largest Economies in West Africa

Ghana	
GDP[1]	$ 38 bn
GDP per capita[1]	$ 1441
ODA[2]% GNI[3]	2.9%
Competitiveness	119/140
SSA Rank (GDP)	7/47

Cameroon	
GDP[1]	$ 32 bn
GDP per capita[1]	$ 1275
ODA[2]% GNI[3]	2.5%
Competitiveness	114/140
SSA Rank (GDP)	10/47

Burkina Faso	
GDP[1]	$ 12 bn
GDP per capita[1]	$ 713
ODA[2]% GNI[3]	8.7%
Competitiveness	NA
SSA Rank (GDP)	24/47

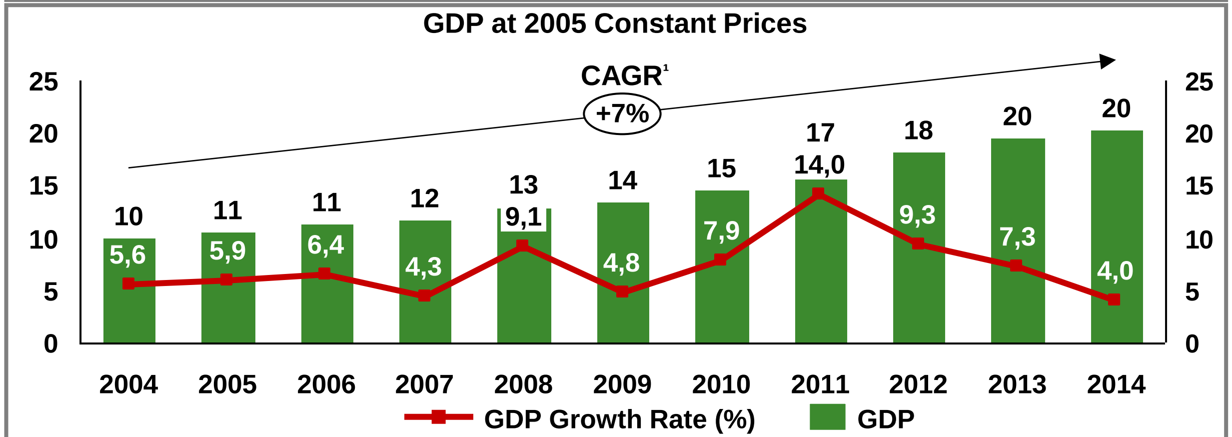
Nigeria	
GDP[1]	$ 568 bn
GDP per capita[1]	$ 3203
ODA[2]% GNI[3]	0.5%
Competitiveness	124/140
SSA Rank (GDP)	1/47

Note: *Gross Domestic Product (GDP); ** billion (bn); [1]GDP and GDP per Capita at current prices (USD dollars), [2]Overseas Development Assistance (ODA), [3]Gross National Income (GNI). Sources: World Economic Forum (WEF) Competitiveness Report 2015; World Bank (WB) Doing Business Report 2015; WB Development Indicators 2015; Monitor Deloitte Analysis

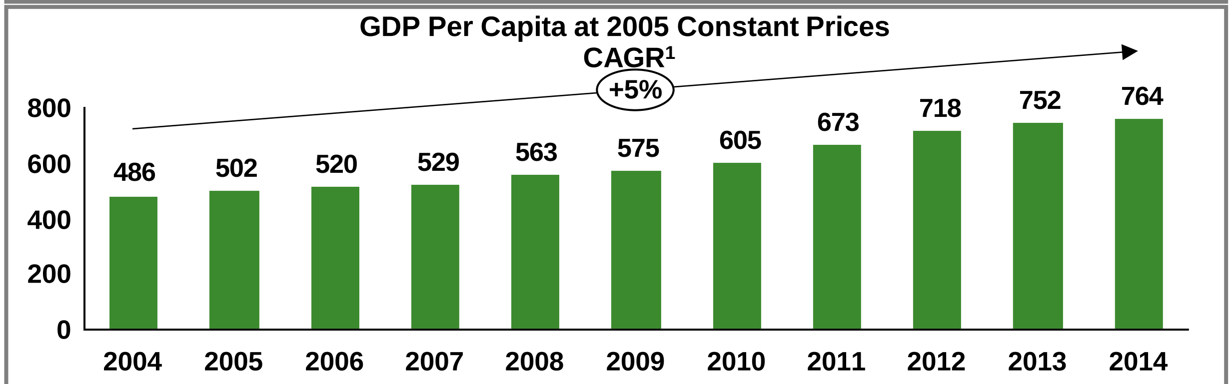
Ghana's Economic Landscape

Ghana's steady GDP growth and rising per capita income has contributed to increased buying power and a shift in consumer preferences towards premium tier goods and services

Ghana GDP (USD[1] Billions) and Growth, 2004-2014



Ghana GDP Per Capita, 2004-2014



Notes

- Ghana has experienced steady 7% growth in GDP over last decade
- Declines in growth rates in recent years can largely be attributed to the impact of the decline in commodity prices, predominantly gold and cocoa
- Nonetheless, incomes have been rising throughout the period providing a burgeoning middle class with newfound buying power
- The increased income levels have led to a change in consumer preferences in favour of premium tier, higher quality goods and services

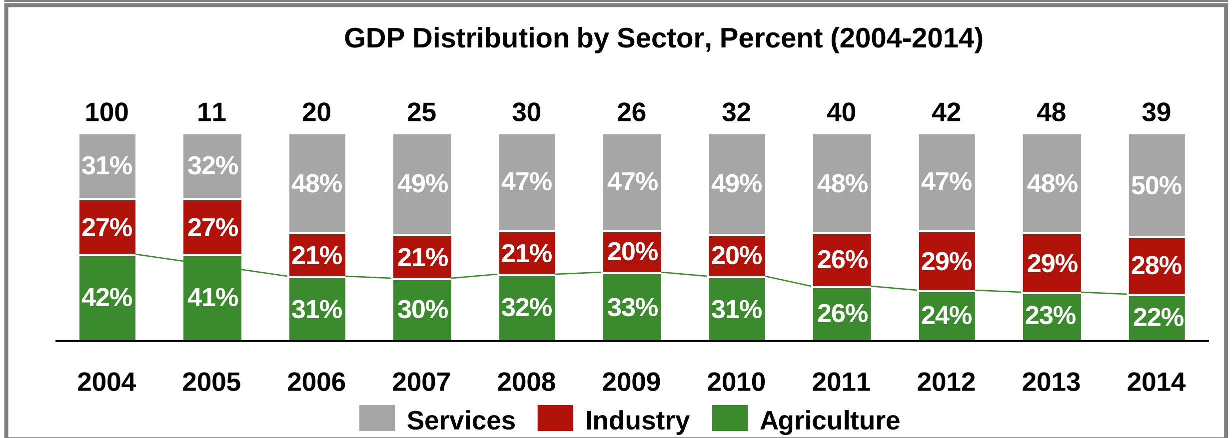
Note: [1]Compound Annual Growth Rate

Sources: Monitor Deloitte Analysis; World Bank Economic Indicators 2016; World Economic Outlook Database; World Bank Forecasts and Analysis, MADE Market Diagnostics, 2014

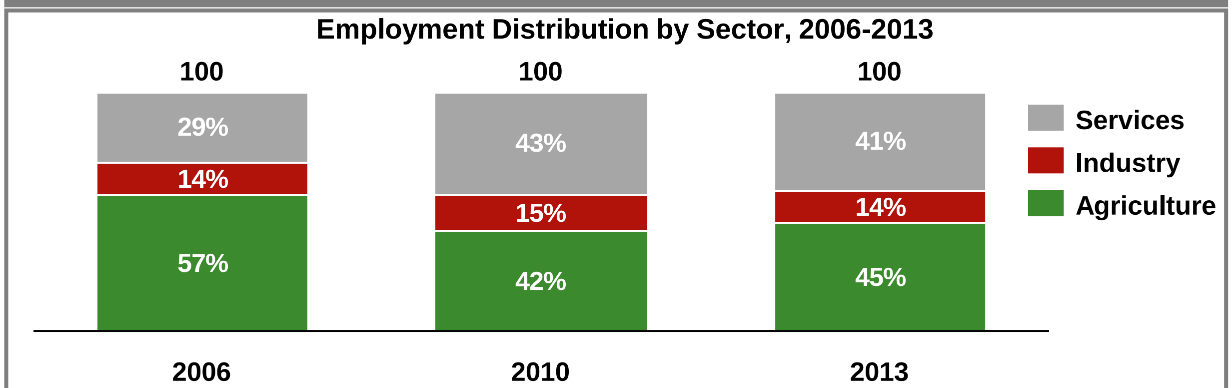
Agricultural Sector

Despite its declining share of GDP, the agricultural sector remains the largest employer in the economy imbuing it with a significant role in overall economic development

GDP Distribution by Sector, 2004-2014



Employment Distribution by Sector, 2006-2013



Notes

- Agriculture's share of GDP has been steadily declining over the period 2004-2014
- Contrary to the 7% growth rate of GDP over the period, the agricultural sector has contracted by 6%, predominantly driven by the economy's structural shift towards a more advanced economy
- Despite this structural shift, the agricultural sector has remained the largest employer
- The sector is characterised by a large amount of smallholder farmers producing on a small to medium scale

Sources: Monitor Deloitte Analysis; World Bank Economic Indicators 2016; World Economic Outlook Database; World Bank Forecasts and Analysis

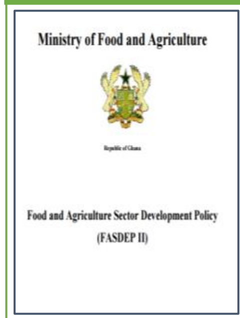
Agriculture Sector Policy Support

In recognition of the importance of agriculture, the Government of Ghana has developed a set of policies intended to foster growth and development in the agricultural sector

Policy Summary

- Despite the agriculture sector's declining contribution to GDP over the past decade, the Government of Ghana (GoG) recognises the sector's role in achieving sustained economic growth and development in the country,
- Various policy objectives and investment incentives exist to foster agricultural led growth, many of which are geared towards attracting private sector investment in the sector

Policy Objectives



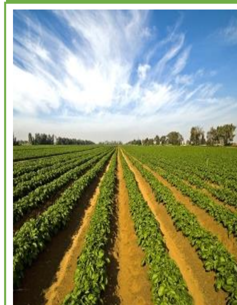
Food and Agriculture Sector Development Policy I and II

- Increasing growth in incomes
- Improving competitiveness of sector and better integrating it into domestic and international markets
- Promoting science and technology in food and agriculture development

Private Sector Development Strategy

- Improving the productivity and efficiency of Ghana's economy and building a thriving private sector
- Increasing rural incomes by 20%, particularly in Northern and central Ghana, through more productive and efficient agriculture

Investment Incentives



Production

- Custom duty exemptions on imports of agricultural plant, machinery and equipment
- 5-10 year tax holidays on cash crop production
- Income tax exemptions for select farming activities and ~90% corporate tax exemptions for farmers outside of Accra

Agro-Processing

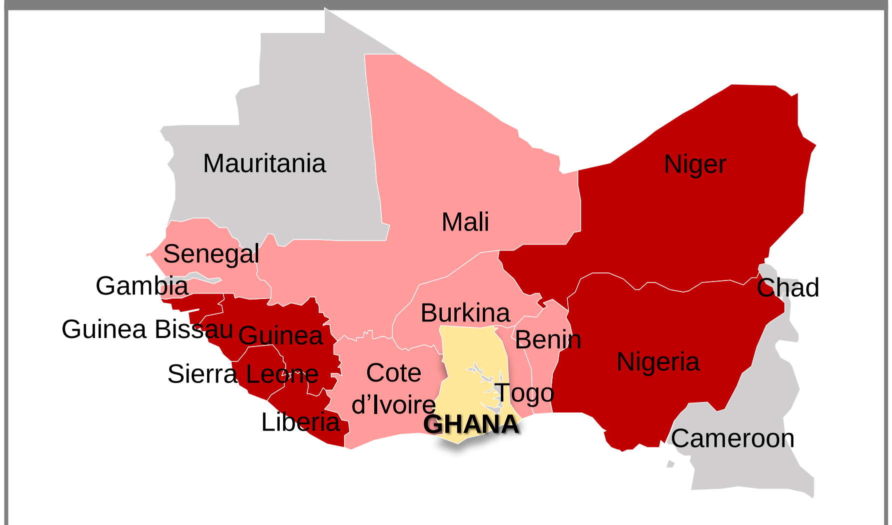
- 5-year tax holiday from the establishment of the business and a 3-year corporate tax freeze
- 50% tax rebates for agro-processing and manufacturing industries located in regional capitals and districts outside of Accra

Sources: Monitor Deloitte Analysis; Government of Ghana; Ghana Investment Promotion Commission

Ease of Doing Business and FDI

Favourable macroeconomic conditions and the highest ease of doing business ranking in ECOWAS positions Ghana well as an ideal investment destination in the region

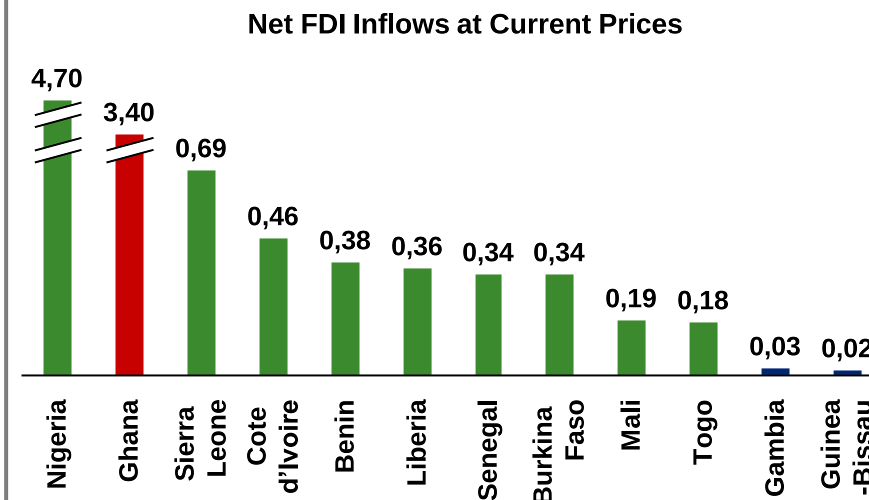
Ease of Doing Business Ranking, 2014



Ranking[1]	0 – 38	39 - 76	77 – 114	115 – 152	153 - 183

- Ranked 114, Ghana has the most favourable Ease of Doing Business score amongst its peers in ECOWAS
- The ranking remains middle tier due to issues concerning contract enforceability, access to electricity and international trade

ECOWAS FDI Net Inflows (USD Billions), 2014



- Stable GDP growth, rising incomes and a good ease of doing business score all contribute to Ghana being the second largest attractor of foreign direct investment (FDI) among ECOWAS member states
- The amount of FDI Ghana is able to attract is particularly significant considering the size of Ghana's economy vis-à-vis that of Nigeria

Notes: [1]183 countries, globally, are ranked according to the relative favourability of their business environments.
Sources: Monitor Deloitte Analysis; World Bank Ease of Doing Business Study, World Bank Development Indicators, 2016

Operating Environment Assessment

Where investors are able to overcome infrastructural and interest rate constraints, opportunities in Ghana flourish due to the overall stable operating environment

Operating Environment Assessment	
Political and Legal	• Ghana is a relatively peaceful and stable country owing to: - A track record of largely free and fair elections - A strong constitutional framework - A history of broad policy continuity
Economic	• The country has a high prime lending rate driven by large budget deficits and a central bank with limited autonomy when it comes to monetary policy setting and implementation • Despite these structural weaknesses, local oil production is likely to reduce the risks of macroeconomic instability (due to reliance of oil imports) and provide a substantial boost to growth over the long term through associated export and fiscal revenues
Social	• With rising incomes, demand for premium and processed food is increasing • If supply does not increase at the same pace, an increase in imports is likely • It is challenging to process food within Ghana due to deficient transport links and power constraints, particularly in rural areas
Technological	• Though agricultural production remains highly labour intensive, GoG realises the need to drive agricultural productivity and growth through mechanised production • To this end the government has established agricultural mechanisation service centres nationally and distributed combined harvesters and tractors to SHFs • Ghana has relatively fast internet connectivity due to its connection to the high speed SEACOM cable
Agricultural Investment Incentives	• Various policy objectives and investment incentives exist to foster growth of the sector and to attract private sector investment to industries in the sector • Incentives include three to ten year tax holiday’s, specific tax exemptions and significant rebates and subsidies on machinery in key product sectors

Sources: Monitor Deloitte Analysis; Economist Intelligence Unit; Business Monitor International

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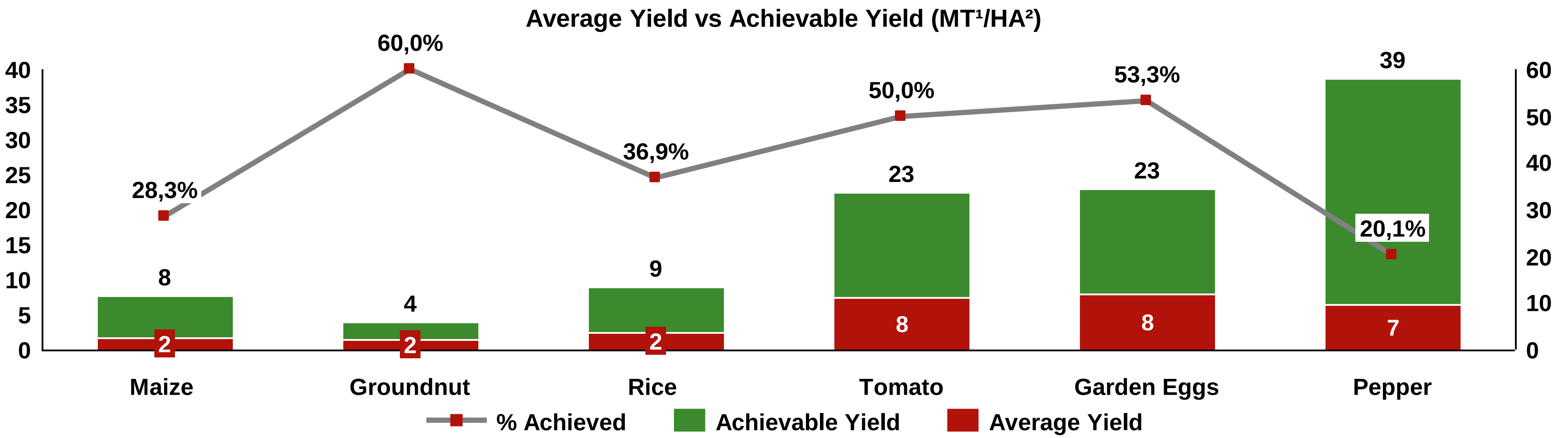
Demand Dynamics

Demand for mechanisation services in Ghana is driven by a desire to close the yield gap prevalent across the entire agricultural sector, and improve labour efficiency

Demand Dynamics



- Demand for mechanisation services is predominantly driven by the desire to increase yields and improve labour efficiency
- Agricultural yields are very low across all product segments
- Yield improvements are achieved through a combination of improved seed use, appropriate agrochemical use and good agronomic practices which include the use of mechanised services
- Due to significant manual production, labour becomes scarce and relatively expensive during the rainy season which increases the costs of production; this represents peak demand for mechanisation services
- The use of mechanisation services increases labour efficiency and reduces the amount of labour required for production

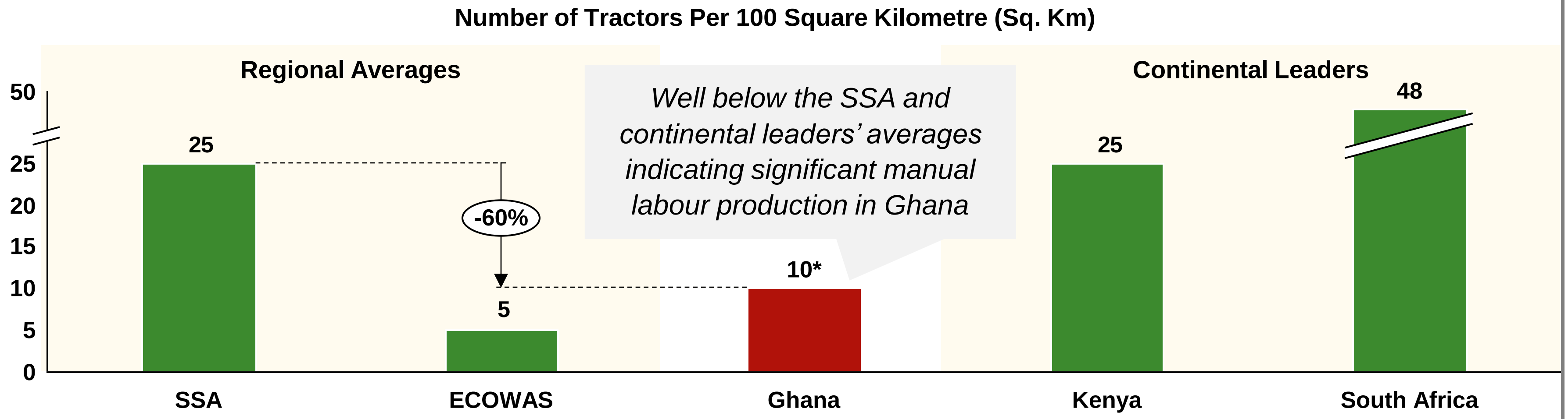
Notes: [1]Metric ton (MT), [2]Hectare (HA)

Sources: Monitor Deloitte Analysis; MADE Market Diagnostics 2014; "Agricultural Mechanisation in Ghana" - IFPRI 2013; "Agribusiness Indicators: Ghana" – World Bank, 2012

Supply Dynamics and Market Gap

In light of these needs, a market gap of 23 550 tractors worth approximately USD 552m exists in Ghana, also considering existing manual production

Supply Dynamics



*"World Bank Agribusiness Indicators: Ghana" report indicates a figure of 10 as of 2010, comparative figures were sourced from 2005 figures in the World Bank database

- The Government of Ghana (GoG) introduced Agricultural Mechanization Services Enterprise Centres (AMSECs) in 2007 aimed at providing subsidised mechanisation services and trained operators to SHF in Ghana
- Due to the moral hazard problem of significant subsidies and consequent view of mechanisation services as a public good, many government issued tractors were not adequately maintained and subsequently became derelict
- Utilising the SSA average as a benchmark for the potential for yield and labour efficiency improvements, Ghana would need to increase its current tractor total of 15 700[1] units by 23 550 units to reach the SSA average at 39 250[2] units
- At a market price of USD 23 475 for a tractor[3], there is a USD 552 m potential tractor supply market gap

Notes: 1157 002 sq. km divided by 100 sq.km multiplied by 10 2157 002 sq. km divided by 100 sq.km multiplied by 25 3 Based on the 2016 price of an MF 290 80hp tractor Sources: Monitor Deloitte Analysis; MADE Market Diagnostics; "Agricultural Mechanisation in Ghana" - IFPRI 2013; "Agribusiness Indicators: Ghana" – World Bank, 2012

Opportunity Scale

A small-scale opportunity servicing 1000 acres at a cost of GHS 2.6m has been selected in response to the need for demand generation and the management of equipment utilisation

Drivers of Scale

Identified Demand

- Market analysis has identified the potential for an additional 23 550 tractors
- Despite the large potential market gap, perceptions of mechanisation services as a public good will require extensive demand generation activities to capture a large share

Economies of Scale

- Every GHS 2.6m invested in land, machinery and equipment has a potential to cultivate approximately 1000 acres of land
- This includes two tractors and attachments, an excavator, two small combined harvesters and two large diesel pumps

Market Structure

- Existing AMSECs operate in one district and have on average five tractors and attachments deployed
- These have however remained idle for a large portions of the year given episodic demand

Complexity

- Servicing many SHFs on small tracts of land (1.5 acre average) increases logistics costs and adds overall complexity
- A complex logistics model would be required for a scale greater than 1000 SHFs

A 2.6m GHS investment servicing 1000 acres of land has therefore been selected for this opportunity to minimise business model complexity, reduce likelihood of underutilisation and provide a platform for growth based on demand generation activities

Sources: Monitor Deloitte Analysis; Stakeholder Interviews 2016

Opportunity Attractiveness

Provided that existing demand can be captured, strong margins, and the ability to generate a strong first mover competitive advantage makes this opportunity an attractive prospect

Opportunity Attractiveness		
Key Criteria	**Rating**	**Rationale**
Overall Market Potential		• The market for mechanisation services displays relatively large market potential, however accessing the market requires targeted demand generation activities to change the perception of mechanised services as a public good
Potential Margins		• The opportunity has the potential to generate healthy margins with gross margins at 67% and net margins at 44%
Potential Competitive Advantage		• Provided that operators are able to adequately develop the market for commercial mechanisation services and that optimal equipment utilisation levels are achieved, new entrants have the ability to generate a strong competitive advantage in the market
Incentives		• No incentives exist for independent private sector provision of mechanisation services as Government provides the service through AMSECs which are put out to tender and run by private individuals
Policy Support		• The Food and Agriculture Sector Development Policy (FASDEP II) aims to promote mechanisation through the establishment of mechanisation service centres that offer subsidises services to SHFs, but these centres have proved to be unsustainable
Barriers to Entry		• The high capital outlay required to purchase machinery is the main barrier to entry. While government-run mechanisation service centres exist, these are seen to be a public good and currently do not meet SHF demand adequately

Sources: Monitor Deloitte Analysis; Stakeholder Interviews 2016; FASDEP II, Ministry of Food and Agriculture (MoFA)

Legend Attractive ... Unattractive

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