



Department
for International
Development



Monitor **Deloitte.**

Developing Agricultural Investment Opportunities in Northern Ghana

Vegetable Aggregator: Tomato and Onion

April 2016 – Final



Purpose of This Document

This document outlines the salient features of an investment opportunity for a tomato and onion production and aggregation business located in Northern Ghana

<p>Objectives</p>	<ul style="list-style-type: none"> ● To present a greenfields investment opportunity for a tomato and onion aggregator in Northern Ghana outlining: <ul style="list-style-type: none"> – The business environment in Ghana – The market potential for tomatoes and onions – A suitable business model for tomato and onion aggregation – 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
<p>Intended Audience</p>	<ul style="list-style-type: none"> ● Market Development 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
<p>Opportunity Description</p>	<ul style="list-style-type: none"> ● An opportunity exists to start a 500 metric ton (MT) tomato and onion aggregator for a Ghana Cedi (GHS) 1.1 million¹ (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

Note:¹Equivalent to United States Dollar (USD) 276 339 at an exchange rate of 3.8 GHS/Cedi

Source: Monitor Deloitte Analysis

- **Executive Summary**

- Doing Business in Ghana
- Market Opportunity
- Business Model
- Financial Analysis
- Constraints and Mitigations
- Appendix

Executive Summary (1/2)

A good business environment in Ghana makes it easier to take advantage of the tomato and onion production and aggregation investment opportunity with its tailored business model

Executive Summary	
Doing Business in Ghana	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • A combined tomato and onion supply gap of 201 511 MT worth approximately USD 110m exists in Ghana based on a growing hospitality industry, increased per capita incomes and changing consumer preferences • Despite the large combined market gap, a conservative scale of 500 MT has been selected given defined current off-taker demand and the need to manage business complexity • Provided that existing demand can be captured, strong margins, policy support and incentives makes this opportunity an attractive prospect
Business Model	<ul style="list-style-type: none"> • The potential business engages in four key activities, namely, input distribution, crop production, out-grower management and traditional aggregation activities • As a trusted business partner, market maker and provider of quality produce, this business could serve various farmer segments, a large aggregator in the South and informal traders • Customer segments can be served through the provision of improved seeds, farming inputs, extension services, aggregation and the sale of crops • Ninety eight percent of revenue is expected to be generated through the sale of crops with the provision of extension services making an additional two percent contribution • Costs in the business will be driven by three major cost categories, namely, production costs, operating expenses and out-grower management costs

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

Executive Summary (2/2)

With an internal rate of return (IRR) of 52%, the investment opportunity is likely to generate solid returns provided that the constraints identified can be effectively mitigated

Executive Summary	
Financial Analysis	<ul style="list-style-type: none"> • A total required investment of GHS 1.1m is expected to generate a net present value (NPV) of 1.2m over the five year period with an IRR of 52% and a payback period of three years • Both headline revenue and earnings before interest, tax, depreciation and amortisation (EBITDA) show strong 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 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 three years
Constraints and Mitigation	<ul style="list-style-type: none"> • Poor agronomic practices and the low adoption of improved seeds can be mitigated by the provision of appropriate training, monitoring and evaluation (M&E) activities and the amendment of contractual terms • The lack of appropriate mechanisation services and poor transport infrastructure can be mitigated by lease arrangements, strategic partnerships and lobby action • Contracting with a large number of smallholder farmers (SHFs) who may be far apart can be mitigated by focusing M&E activities on larger farmers, contracting on a block basis and price adjustments to compensate for distance • The lack of adequate irrigation facilities and the perishable nature of the produce can be mitigated by rainy season production and the forging of strategic partnerships • The high cost of local debt and working capital constraints can be mitigated by obtaining alternative funding sources and employing sound financial management techniques

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Doing Business in Ghana

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



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

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

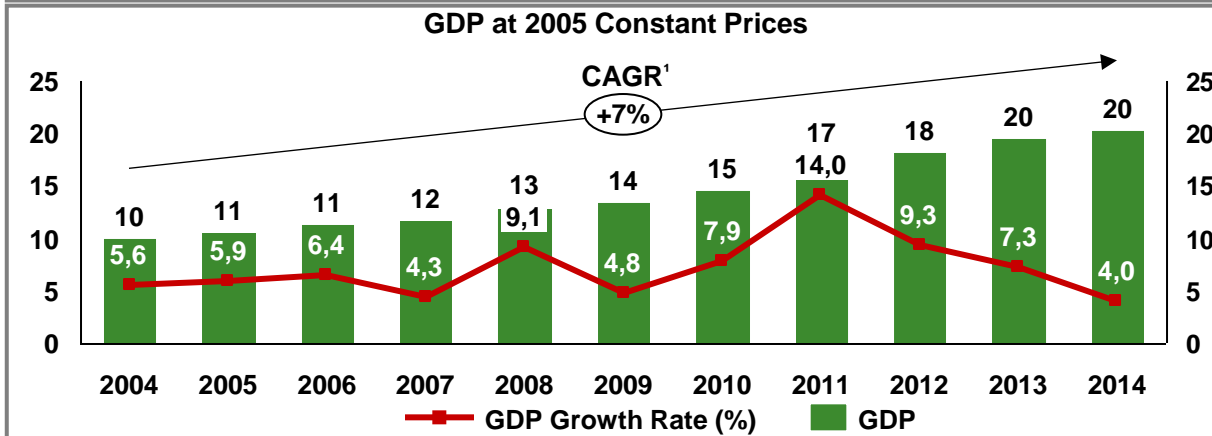
Nigeria	
GDP ¹	\$ 568 bn
GDP per capita ¹	\$ 3203
ODA ² % GNI ³	0.5%
Competitiveness	124/140
SSA Rank (GDP)	1/47

Note: *Gross Domestic Product (GDP); ** billion (bn); ¹GDP and GDP per Capita at current prices (USD dollars), ²Overseas Development Assistance (ODA), ³Gross 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

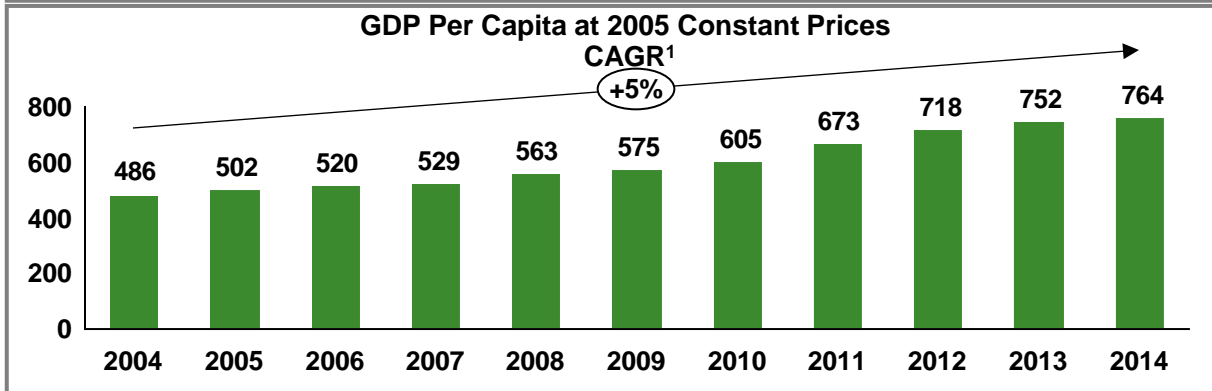
Ghana's Economic Landscape

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 (USD¹ 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

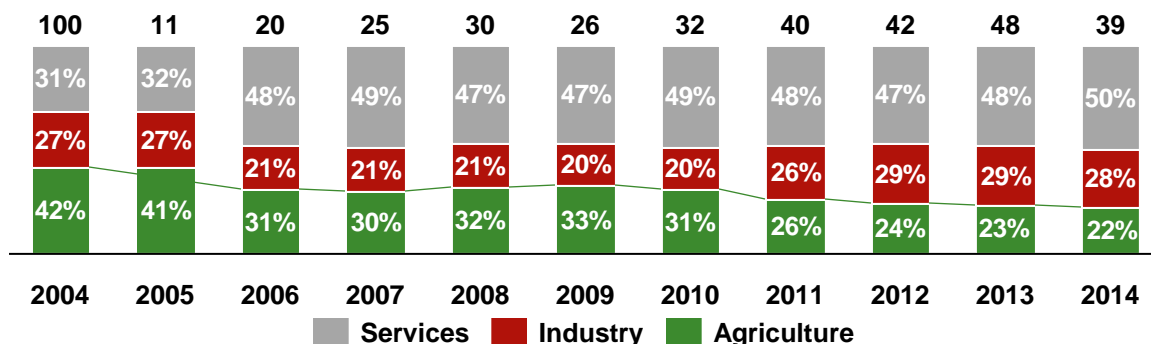
Note: ¹Compound Annual Growth Rate

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

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

GDP Distribution by Sector, Percent (2004-2014)



Employment Distribution by Sector, 2006-2013

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

Doing Business in Ghana

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

Ministry of Food and Agriculture



Republic of Ghana

Food and Agriculture Sector Development Policy
(FASDEP II)

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

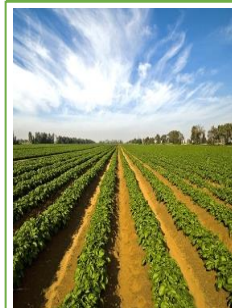
- Improving the productivity and efficiency of Ghana's economy and building a thriving private sector
- Increasing rural incomes by 20%, particularly in Northern and central Ghana, through more productive and efficient agriculture

THE COORDINATED PROGRAMME OF ECONOMIC AND SOCIAL DEVELOPMENT POLICIES 2014-2020



An Agenda for Transformation
PRESENTED BY
H.E. JOHN DRAMANI MANU
PRESIDENT OF THE REPUBLIC OF GHANA
TO THE 4th PARLIAMENT OF THE 4th REPUBLIC
DECEMBER 2014

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



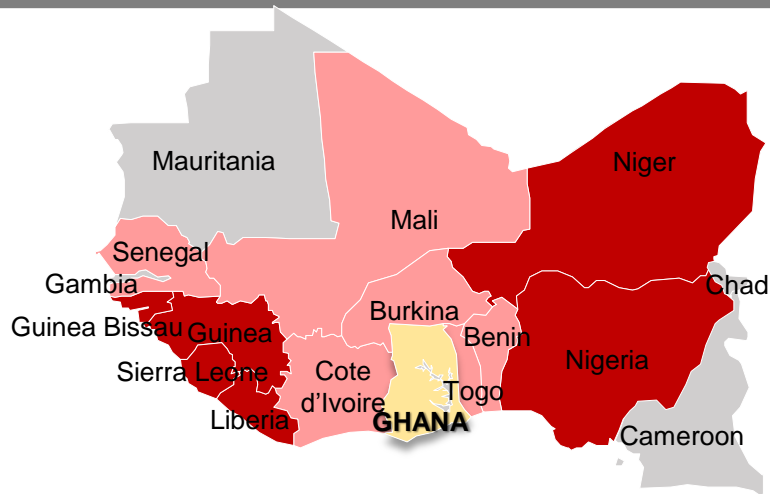
Agro-Processing

- 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

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

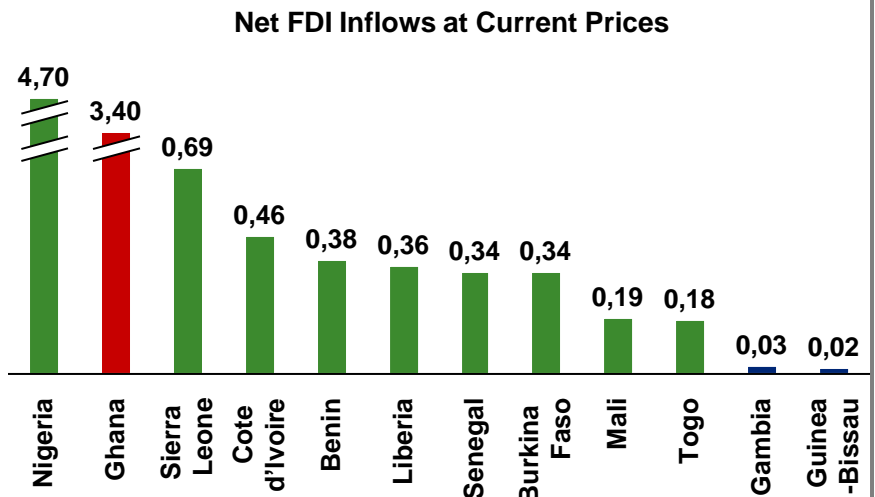
Ease of Doing Business Ranking, 2014



Ranking ¹	0 - 38	39 - 76	77 - 114	115 - 152	153 - 183
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- 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: ¹183 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 	<ul style="list-style-type: none"> • Ghana is a relatively peaceful and stable country owing to: <ul style="list-style-type: none"> - A track record of largely free and fair elections - A strong constitutional framework - A history of broad policy continuity
Economic 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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

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Market Gap - Tomatoes

A tomato supply gap of 145 807 MT worth approximately USD 104m exists in Ghana based on a growing hospitality industry and increased per capita incomes

Market Dynamics



Demand Dynamics

- Tomatoes are either found in or accompany many dishes served in Ghana
- Increasing demand for tomatoes has been driven predominantly by growth in the hospitality industry and increasing per capita incomes
- In recent years consumer preferences have been shifting towards a larger, firmer variety often imported from neighbouring countries
- Total market demand for tomatoes is estimated at 486 025 MT annually, 30% of which is imported, predominantly from Burkina Faso

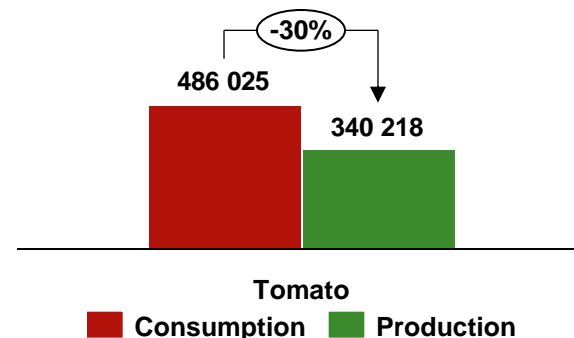


Supply Dynamics

- Total production amounts to 340 218 MT, 55% of which is produced in the 3 Northern regions
- Production is dominated by SHFs producing under irrigation during the dry season
- Total supply potential is however constrained by the limited number of irrigation facilities available
- Furthermore, these facilities are often not well maintained and contribute to the low average tomato yields prevalent in Ghana
- Tomatoes could be feasibly grown in the rainy season however with limited land availability SHFs choose to cultivate staples instead

Market Gap

Tomato Market Gap, Thousand MT (2013)



- Based on the difference between demand and supply, there's a potential tomato supply gap of 145 807 MT
- Import substitution potential would depend on access to adequate irrigation facilities and the ability to increase yields through GAP¹
- Imported varieties can be grown locally and currently sell at a premium to local tomatoes which supports the potential for substitution
- At a price of USD 726² per MT, a potential USD 104m market exists based on the local production of import varieties

Note: ¹Good Agronomic Practices; ² Price provided by GNNTA: GHS 334/120 per kilogram (kg) at 3.83 GHS to the USD

Sources: Monitor Deloitte Analysis; MADE Market Diagnostics, 2014

Market Gap - Onions

An onion supply gap of 55 704 MT worth approximately USD 5.23m exists in Ghana based on a growing hospitality industry and shifting consumer preferences

Market Dynamics



Demand Dynamics

- Similar to tomatoes, onions are found in or accompany many dishes served in Ghana with demand growth at an estimated 11%, driven predominantly by growth in the hospitality industry and increasing per capita incomes
- Recently consumer preferences have shifted towards the imported Galmi variety, yet the more common Bakwu Red variety remains in demand
- Total market demand for onions is estimated at 193 892 MT annually, 29% of which is imported, predominantly from Burkina Faso

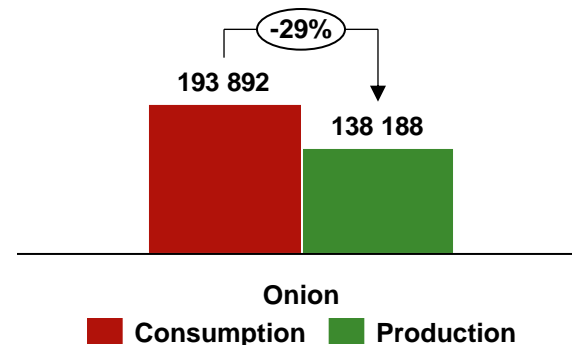


Supply Dynamics

- Total onion production amounts to 193 892 MT, 85% of which is produced in the 3 Northern regions
- The dominant variety grown in the country is Bakwu red; Galmi comprises 57% of imports
- Local producers predominantly produce the Bakwu Red variety because it has a shorter gestation period and requires less land and water
- Some local producers have however opted to produce the preferred variety under irrigation in response to consumer preferences

Market Gap

Onion Market Gap, Thousand MT (2013)



- Based on the difference between demand for both varieties and supply, there's a potential total onion supply gap of 55 704 MT
- Import substitution potential would depend on access to adequate irrigation facilities and the ability to increase yields through GAP
- Production in the North is likely to be cost competitive given the large quantities of dry soil best suited to all types of onion cultivation
- At a price of USD 94 per ton¹ a potential USD 5.23m market exists based on the local production of import varieties

Note: ¹Price observed by Ministry of Food and Agriculture (MoFA) in 2012 Agriculture Report; ²Price provided by vegetable aggregator in Tamale: GHS 90/25kg

Sources: Monitor Deloitte Analysis; MADE Market Diagnostics, 2014

Despite the large combined market gap of 201 511 MT, a conservative scale of 500 MT has been selected given current off-taker demand and the need to manage business complexity

Drivers of Scale



Identified Demand

- A combined 201 511 MT market gap for tomatoes and onions has been identified
- A large aggregator in the South has is actively seeking the supply of a combined 500 MT a year of tomatoes and onions for sale to large retail and hospitality markets



Economies of Scale

- Every GHS 1m invested has the potential to produce 500MT of produce (250 MT of tomatoes and 250MT of onions) on 205 Acres of land
- Average tomato yields are 7.2 MT/Ha, with onion at 11MT/Ha are well below achievable yields
- Targeted yield improvements can therefore increase overall production



Market Structure

- Production is dominated by low volume SHFs on 1-2 acre plots
- Most production occurs in dry season as the North is primarily a staple crop production area
- Obsolete irrigation tools and competing demands on irrigable land limit ability to meet demand



Complexity

- Business model depends on aggregated SHF production
- Given yields of 7.2-11MT/ha, large numbers of SHFs will be needed, inflating SHF monitoring costs
- Further, a larger production scale will require more complex logistics given perishability of products

An investment of GHS 1.1m producing 500 MT has been selected for this opportunity to minimise business complexity and facilitate a focus on yield improvements

Opportunity Attractiveness

Provided that existing demand can be captured, strong margins, policy support and incentives makes this opportunity an attractive prospect

Opportunity Attractiveness		
Key Criteria	Rating	Rationale
Overall Market Potential		<ul style="list-style-type: none"> With high growth, demand outstripping supply and a combined potential market of 201 511 MT and USD 110m for both tomatoes and onions, overall market potential is high provided that increased local production can remain competitive with imports
Potential Margins		<ul style="list-style-type: none"> The opportunity has the potential to generate healthy margins with gross margins at 83% and net margins at 44% in year five
Potential Competitive Advantage		<ul style="list-style-type: none"> Northern Ghana has land and water endowments well suited to the production of both tomatoes and onions however farmers require yield improvements to generate a strong competitive advantage
Incentives		<ul style="list-style-type: none"> There is a five-year tax holiday on cash crop production as well as an additional five year tax holiday for agro-processing companies
Policy Support		<ul style="list-style-type: none"> These products fall under The Food and Agriculture Sector Development Policy (FASDEP II) which provide incentives and other policy support for local producers
Barriers to Entry		<ul style="list-style-type: none"> Lengthy procedure required to get existing irrigation facilities upgraded by the Ghana Irrigation Development Authority; failing which a large capital outlay will be required to do so More complex logistics required to get highly perishable goods to their location on time Need strong network of buyers willing to share costs of transporting goods adequately

Sources: Monitor Deloitte Analysis; Stakeholder Interviews 2016; FASDEP II, MoFA

Legend Attractive Unattractive