

# DFID Market Development (MADE) in Northern Ghana Programme



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# Contents

SECTION 1. Introduction .....	1
SECTION 2. Mapping the Poor and other Actors .....	3
2.1 The Poor .....	3
2.2 Other Actors .....	3
SECTION 3. Market Growth and Segmentation Analysis.....	4
SECTION 4. Value Chain Analysis .....	5
SECTION 5. Analysis of support functions .....	8
5.1 Research .....	8
5.2 Knowledge and Extension.....	9
5.3 Finance.....	9
SECTION 6. Analysis of Policies and Institutions.....	10
SECTION 7. Identification of Systemic Constraints.....	10
SECTION 8. Conclusion .....	11
Annex A: Gender Analysis.....	13
Annex B: Environment and Climate Change Analysis .....	15
Annex C: Political Economy Analysis.....	17
Annex D: List of Recent and Ongoing Related Programmes.....	21

## SECTION 1. INTRODUCTION

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Onion is a high value vegetable crop important to smallholder vegetable farmers, in which Northern Ghana has comparative advantage over the South. The Ghana Living Standards Survey (GLSS 5) estimated that 20,000 households, mainly in the Upper East, were engaged in onion cultivation. Both large and small farmers cultivate onions in the North with commercial farmers renting land from smaller farmers. Onions are currently grown on 5,000 ha. of land, about a quarter of the area under cultivation in Niger, showing that there is plenty of opportunity to increase onion cultivation in the North.

In addition, onion cultivation in Northern Ghana, which is very labour intensive, provides jobs for the youth and women (as hired labour), input dealers, middlemen, carters and transporters and traders who are predominantly women. It has been reported by the Ministry of Food and Agriculture (MoFA) that rural-urban migration is low among onion producing communities because the period of onion production (dry season cultivation) coincides with period of migration from the rural farming communities to southern Ghana in search of jobs.

Although production under rain-fed conditions is increasing<sup>1</sup>, onions are recurrently mostly cultivated in the dry season (more than 75% annual production), acting as a significant opportunity to earn income during the dry season. As a result, dry season onion production provides smallholder onion farmers with income to procure farm inputs for major season staple crops production, buy other staple food to supplement the depleting stock of cereals, pay school fees, health expenses and build and/or maintain household infrastructure. It has been observed from field interviews that onion producers rarely sell livestock for household needs, largely attributable to the income derived from onion production. Onion production, therefore, can provide many benefits to smallholders in Northern Ghana, providing vital income during the dry season, which can be used for consumption smoothing, preserving the store of wealth in livestock, as well as increasing the ability to invest in major season staple crop production. There are current and observable complementarities and synergies of livestock and crop farming integration.

Northern Ghana's comparative advantage over southern Ghana is because of the former's drier climate and sandy, loamy soils. Onions thrive in drier soils and low humidity; they are therefore cropped widely in the irrigated farmlands that surround the irrigable sites around dams and dugouts, and along rivers and valleys. The long dry season (six months) in the savannah belt provides an opportunity for onion to be extensively cultivated as a cash crop among poor households. Addressing a number of factors, including poor yields and low productivity, which currently limit Northern Ghana's comparative advantage in comparison with production, particularly in Niger and Burkina Faso, will enable the development of a strong competitive position in the Ghanaian market.

Currently, the Ghanaian onion market is growing at 11% per annum. This fairly robust market growth suggests that onion production is sustainable into the future, and will continue to deliver good value to the smallholder and poor households engaged in its production. However, local production has not kept pace with the growth of the market, allowing imports from neighbouring countries (mainly Niger) to dominate the market with a share of 57%. Northern Ghana can increase its market share with improved agronomic practices, use of improved varieties, greater access to finance and better storage and marketing arrangements, which should lead also to improved productivity and increased incomes for the smallholder and poor households engaged in onion cultivation.

Table 1 below provides summary-snapshots of the onion market system analysis. This is followed by a more detailed analysis of the themes highlighted in the table.

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<sup>1</sup> ASNAPP-TRIAS-NORTHFIN Onion Value Chain for Bawku Red Variety Findings Report, 2012

Table 1. Onion Market System Analysis<sup>2</sup>

Mapping the poor and other actors	Market Growth and Segmentation Analysis	Value Chain Analysis	Analysis of support functions	Analysis of policies and institutions	Identification of Systemic Constraints
<p><b>General</b></p> <ul style="list-style-type: none"> <li>• 3<sup>rd</sup> most valuable vegetable crop in Northern Ghana with more than 20,000 households involved in production.</li> <li>• Good comparative advantage for Northern Ghana, as onions are mostly produced under dry-season farming around and along water bodies (dams, dugouts, valleys, rivers).</li> <li>• North can develop strong competitive position against imports.</li> </ul> <p><b>The Poor</b></p> <ul style="list-style-type: none"> <li>• Grown by both large and small farmers.</li> <li>• For poorer households, onions are a valuable additional source of income that enables them to purchase staples and inputs for main crop, pay school fees, etc.</li> <li>• Substantial source of incomes for women and</li> </ul>	<p><b>General</b></p> <ul style="list-style-type: none"> <li>• Fast growing market (11%p.a, total volume, total value) driven by increase in fast food restaurants and refined local cuisine (e.g. Asanka locale) and population growth.</li> <li>• Domestic supply falls well short of demand because of fast market growth and failure of domestic supply to keep pace (imports constitute 57% of onion market).</li> <li>• Two key market segments: consumers and caterers. Galmi is capturing most of caterer segment; Bawku red still has loyalty with consumers. Imported Galmi variety with about 57% market share, local Bawku red variety has 32% and local Galmi 11%.</li> <li>• Galmi preferred by caterers due to large bulb</li> </ul>	<p><b>General</b></p> <ul style="list-style-type: none"> <li>• North is domestically competitive, but losing market share to imports because of lower productivity.</li> </ul> <p><b>Productivity</b></p> <ul style="list-style-type: none"> <li>• Low adoption of improved varieties (e.g. Galmi) and poor agronomic and farm management practices result in current low productivity (11 mt/ha yield in north versus 35 mt/ha in Niger).</li> <li>• Domestic production is concentrated on local Bawku red variety, because of shorter gestation period (three months compared to four for local Galmi variety).</li> <li>• Cultivation of shorter maturation Galmi variety opportunity for import substitution.</li> <li>• Inadequate irrigation resources and poor</li> </ul>	<p><b>Research</b></p> <ul style="list-style-type: none"> <li>• Weak partnership between SARI and extension service results in poor dissemination of research</li> <li>• SARI has developed new varieties. Poor partnership between SARI and seed companies results in failure to commercialise new technologies.</li> </ul> <p><b>Knowledge and Extension</b></p> <ul style="list-style-type: none"> <li>• Inadequate Public extension services.</li> <li>• Poor public-private partnership in commercialising good agronomic practices and new varieties.</li> <li>• Little investment in post-harvest management facilities by either public institutions or private sector.</li> </ul>	<p><b>General</b></p> <ul style="list-style-type: none"> <li>• No crop specific policy</li> <li>• Fertilizer subsidy policy supportive of rainy season but needs better targeting to be accessible for dry season farming.</li> <li>• No seed subsidy for crop</li> <li>• Failure of institutions responsible for irrigation to develop adequate irrigation resources and good governance over water resources.</li> <li>• Failure to commercialise innovations by SARI and MoFA.</li> <li>• Failure by sector institutions to respond to market forces and trends.</li> <li>• TRIAS-Ghana (NGO) promoting and marketing, coverage limited to only two districts in Upper East region.</li> </ul>	<p><b>General</b></p> <ul style="list-style-type: none"> <li>• Insufficient supply of public goods (research, extension, irrigation)</li> <li>• Failure of government to encourage public-private partnerships to commercialise research, extension</li> <li>• Market information failures in terms of prices during the season and growth of new market segments.</li> <li>• Market power lies with traders, transporters who earn rents</li> <li>• Limited access to finance for producers, traders and importers across the sector despite high margins.</li> <li>• Coordination failures resulting from small players in the value chain</li> <li>• Importers not investing in domestic supply chain due to high transaction costs of working with many farmers.</li> </ul>

<sup>2</sup> ASNAPP-TRIAS-NORTHFIN Onion Value Chain for Bawku Red Variety Findings Report, 2012, <http://www.asnapp.org.za/>, 2013

## 2 | Onion Market System Analysis

Mapping the poor and other actors	Market Growth and Segmentation Analysis	Value Chain Analysis	Analysis of support functions	Analysis of policies and institutions	Identification of Systemic Constraints
<p>youth engaged in production and trading.</p> <ul style="list-style-type: none"> <li>Onions are a high labour demanding crop, which use family labour, 'group help concept' and hired labour.</li> <li>Youth and women are a dominant source of labour, (thus substantial reduction in rural-urban immigration in onion producing areas in the north).</li> </ul> <p><b>Other Actors</b></p> <ul style="list-style-type: none"> <li>Three major markets in southern Ghana (namely Agboghloshie in Accra, Anloga in Kumasi, and Techiman central)</li> <li>Four importers (Alhaji Sulemana Yirimea Enterprise, Pcofts Limited, Accra Onions Sellers Cooperative Society and Zomal and Sons Limited) dominate onion imports from Niger, B. Faso, Holland.</li> <li>TRIAS –Ghana (NGOs) piloting interventions in Upper East – major growing area</li> </ul>	<p>size though Bawku red has stronger flavour.</p> <ul style="list-style-type: none"> <li>Very high inter-seasonal variation in prices due to Nigerian and domestic crop being harvested at the same time.</li> </ul>	<p>management practices preventing double cropping contribute to low productivity and incomes (No rainy season variety to enable all-year round domestic supply).</p> <p><b>Storage and Finance</b></p> <ul style="list-style-type: none"> <li>Producers forced to sell at harvest due to combination of lack of finance and good storage facilities resulting in reduced income levels of poor farmers.</li> </ul> <p><b>Linkages</b></p> <ul style="list-style-type: none"> <li>Disconnect between importing and domestic supply chain</li> </ul>	<p><b>Finance</b></p> <ul style="list-style-type: none"> <li>Limited availability of finance for producers, traders and other value chain actors.</li> <li>Increased access to finance for large farmers will enable them to provide more credit to producers to increase production and increase purchases for storage.</li> <li>Simple storage solutions and warehouse receipt systems being piloted but not at scale.</li> </ul>		



## SECTION 2. MAPPING THE POOR AND OTHER ACTORS

### 2.1 THE POOR

The poor derive their livelihood from onions mainly from cultivating the crop. Onion cultivation is highly labour intensive, involving the raising of nurseries, land preparation, transplanting, weeding, harvesting, sorting, drying, etc. Thus, though dependent on the size of the farm, family labour is supplemented with labour sharing arrangements and/or hired labour. This offers an opportunity for the poor to also earn some income by hiring out their labour. As a dry season crop, there is very little competition with the onion demand for labour, making it a good fit with the overall cropping pattern and livelihood coping strategies of poor farmers. In the rainy season, 75% of land used for onion cultivation is used to produce staple crops such as maize, millet, groundnuts, cowpeas and rice with the remaining 25% used for vegetables cultivation, including onions<sup>3</sup>. This means this is much greater competition for labour during the rainy season.

Small scale farmers who cultivate onions on less than 0.3 ha as a major source of income around and along water bodies constitute about 85% of the market of the market total. Medium scale farmers, cultivating more than 0.3ha of onions, constitute 15% of the market total; they are typically input service providers, i.e. lead farmers who double as traders and people in formal employment. Currently onion production is concentrated in the dry season (i.e. over 75% of total onion production) and with very little rain-fed production. Unlike in Burkina Faso and Niger, which have a rainy season onion variety that allows farmers to cultivate three times in a year, communities in Ghana mainly cultivate twice in a year depending on suitable land and water availability. As a dry season crop, it serves as an alternative source of income for the poor, allowing them to purchase staple food stuffs and inputs for main season cropping; pay school fees and health bills; construct and maintain housing infrastructure; and purchase small ruminants for rearing, dowry and welfare contributions – for instance weddings and funerals.

Women are primarily involved in the picking and gathering of onion leaves during harvest period, as well as transplanting seedlings. They also earn additional income from the processing and packaging of leaves from the farm. The few women who are involved in onion trading are lead farmers, but are a minority. Men are primarily involved in more intensive manual labour and the application of pesticides and fertilisers.

It has also been reported that rural-urban migration is low among onion producing communities because the period of onion production (dry season cultivation) coincides with period of migration from the rural farming communities to southern Ghana in search of non-existing jobs<sup>4</sup>. The youth and the women that usually migrate to southern Ghana stay back home as result of availability of farm labour opportunities on onion farms to generate income for their immediate needs which is one of the reasons for seasonal migration from north to south.

### 2.2 OTHER ACTORS<sup>5</sup>

**Lead farmers:** Lead onion farmers<sup>6</sup> are actively involved in the onion trade. Farmers sell to the lead farmers/lead entrepreneurs who constitute 90% of the onion trade at the farm gate level.

**Speculators:** The remaining 10% of onion traders at the farm gate level are government workers who do speculative buying. Onion trading is dominant in three markets in southern Ghana (namely Agboghloshie in Accra, Anloga in Kumasi, and Techiman central) with none in the Savannah belt. Onion traders in these major markets are organised into a trade association known as the Progressive Onion Producers and Traders Association. Thus all onions entering the market must

3 Field level interviews with MoFA, 2013

4 Field level interviews with MoFA staff and Onion Farmers

5 ASNAPP-TRIAS-NORTHFIN Onion Value Chain for Bawku Red Variety Findings Report, 2012, ACDEP FAMAR Onion Market and Production Feasibility Analysis for Northern Ghana, 2006

6 These are onion farmers that provide inputs to colleague farmers for in-kind repayment after harvest. They may or may not own some onion fields.

## 4 | Onion Market System Analysis

necessarily pass through designated agents who have established business links with collectors or transporters at production centres for supplies.

**Importers:** Four importing companies (Alhaji Sulemana Yirimea Enterprise, Pcofts Limited, Accra Onions Sellers Cooperative Society and Zomal and Sons Limited) are in the onion supply chain. These entrepreneurs import onions from Niger and Burkina Faso to bridge the excess demand created as a result of the low domestic production. Some of the imported onions are also exported to Nigeria, Cote d'Ivoire and Togo. These importers have no business relations with onion producers in Northern Ghana, and hence make no investment in the onion supply chain in the North.

**SARI:** The Savannah Agriculture Research Institute (SARI) has conducted some varietal trials but these are limited to on-station. Little is done on transferring the findings to farmers for adoption. Potential areas that SARI could research include disease and pest control, rainy season onion varieties and seed production.

## SECTION 3. MARKET GROWTH AND SEGMENTATION ANALYSIS<sup>7</sup>

Onion is consumed widely in every household in Ghana and has a fast growing market; currently growth rate is 11% per annum. The rapid market growth is driven by the establishment of hospitality industries and the increasing population and incomes levels of Ghanaian citizens. However, domestic supply, 63,000mt valued at \$45.5million, falls short of demand, 146,000mt valued at \$105.5million. This gap leads to high imports, 83,038mt valued at over \$60million, from neighbouring countries (Niger and Burkina Faso) who have experienced even stronger growth in their markets.

**Table 2. Global market for onions<sup>8</sup>**

2011	Ghana	Holland	India	Europe <sup>9</sup>		World
Overall export value (US\$)	\$512,000	\$522 million	\$370 million	\$954 million		\$2.9 billion
Price/tn	\$182	\$394	\$333	\$456		\$422
2011	Ghana	Russia	Bangladesh	Malaysia	USA	World
Overall import value (US\$)	\$13.4 million	\$208 million	\$89.6 million	\$191 million	\$294 million	\$3.0 billion
Price/tn	\$173	\$459	\$332	\$422	\$746	\$472

The imported onion is the Galmi variety, which constitutes 68% (i.e. 57% imported and 11% locally supplied) of the onion market in Ghana, the majority of which comes from Niger. The Galmi variety is preferred by consumers because of its large bulb size (which also tends to result in higher yields) and because it is easy to slice, less pungent and less irritating to the eye. In the increasingly important hospitality industry, the Galmi variety is preferred as it lends itself to salad making. However, the Galmi has a longer maturation cycle, and thus requires more water and land (which is particularly valuable in the rainy season) for already constrained smallholders. The Bawku red and other varieties, which constitute 32% of the national onion market, are more pungent, smaller in size and can be irritating to the eyes, hence it is mostly used in condiments, for example in *shito*.

The onion supply gap between July and November is due to both Ghana's inability to produce onions in the rainy season and to store onions produced in the wet season for later sale. This supply gap prevents smallholders from staggering sales of produce in the rainy season to take advantage of the limited availability of onion during the dry season supply gap, and the higher price. Close to 70% of harvested onions are sold immediately after harvest to meet pressing family needs and to avoid losing much of the harvested stock from storage related challenges, resulting in low prices at harvest with no or a very little profit for the farmer. Moreover, although onion prices can fluctuate drastically during the supply gap (350% between high supply periods in April and scarce periods in December), fluctuations often do not affect the farm gate due to high transport costs and a lack of market information on the part of producers.

<sup>7</sup><http://www.asnapp.org.za> -2013, ASNAPP-TRIAS-NORTHFIN Onion Value Chain for Bawku Red Variety Findings Report, 2012

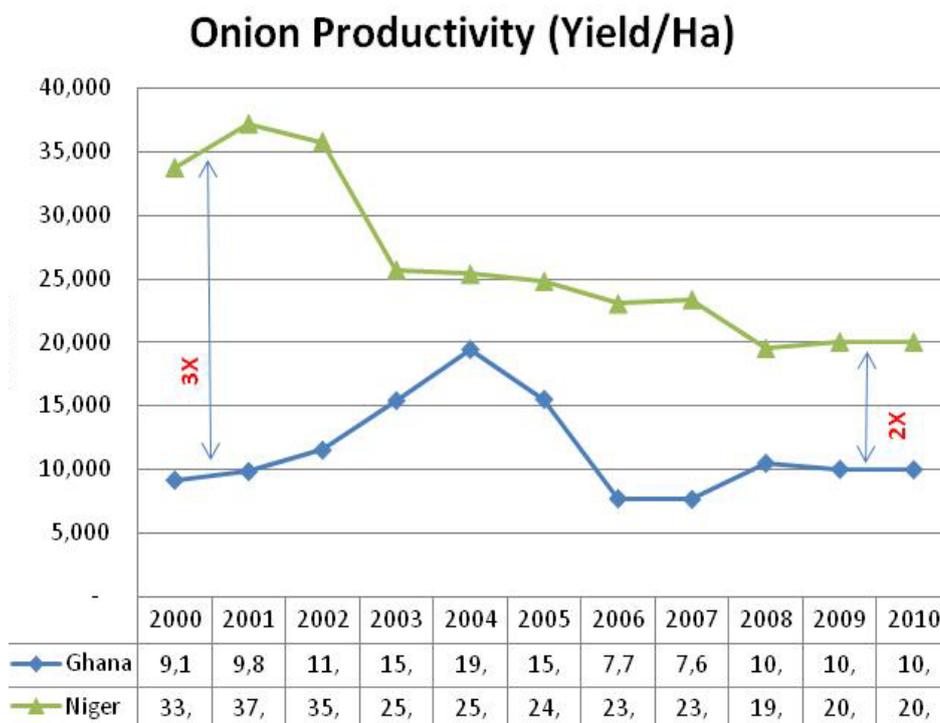
<sup>8</sup> FAOStat Database

<sup>9</sup> The EU12 is listed as the third largest exporter of onions, but trade volume (\$) statistics are not disaggregated.

## SECTION 4. VALUE CHAIN ANALYSIS

Onion production is mainly done in Northern Ghana with the Upper East cultivating about 85% of the total onion production in Ghana. According to the GLSS (2008), over 20,000 households in Savannah belt cultivate onions with an estimated annual value of harvest and sale of Gh¢0.41million and Gh¢0.2million respectively. Farm productivity remains the greatest challenge in the onion market system. This has led to high cost of supply and reduced profit margins. Productivity is generally low (11mt/ha) in Ghana, as compared to Niger (35mt/ha) and Holland (54mt/ha) due partly to very low adoption of improved varieties (e.g. Galmi) and good agronomic and farm management practices, thus creating a supply gap in the sector. Figure 1 indicates a sharp decline in productivity levels for Niger and Ghana from 2002 and 2004 respectively, whilst Table 1 presents a comparison of the benefit-cost ratios for onion production in Ghana and Holland<sup>10</sup>. Productivity declined in both countries as result of leaf spot (*Stemphylium botryosum*) pest (a fungal pest), which affected the onion industry in West Africa. Farmers also doubled onion production in those years but paid little attention to good agronomic practices and this reduced the yield per unit area cultivated.

Figure 1. Onion Productivity in Ghana and Niger



10 ASNAPP-TRIAS-NORTHFAN Onion Value Chain for Bawku Red Variety Findings Report, 2012

**Table 3. Benefit cost ratio of onion produced in Ghana<sup>11</sup>**

	Ghana	Holland
Total Cost of Production	3,018.00	5,722.30
Yield (MT/Ha)	11.00	54.00
Estimated Gross Revenue	4,310.97	11,633.00
Net Profit	1,292.97	5,910.70
Benefit Cost Ratio	1.43 <sup>12</sup>	2.03

Productivity is also lower due to seasonality in North Ghana. While Burkina Faso and Niger grow varieties in three different seasons, Ghanaian seeds cannot tolerate the rainy season. Those who cultivate in both seasons dedicate three-quarters of their land to the second season, starting in December and harvesting in March. More than 70% of labour is used between December and March. Due to labour shortages, farmers engage in a communal labour exchange (Noboa). Labour for weeding land preparation, transplanting and harvesting accounts for around half of production costs.

However, productivity has grown in recent years, 11mt/ha in Ghana, partly due to changes in cultivation practices that have boosted yields. The dominant variety cultivated in Ghana is the Bawku red variety, with less than 3% of farmers cultivating the widely preferred Galmi variety. The Bawku red variety constitutes 15%, 25% and 75% onions found in Accra, Kumasi and Techiman respectively, with the imported Galmi variety taking the other corresponding percentages in the three markets. However, because of consumer preference and the supply gap, Galmi is imported substantially (57% market share) to supplement the local supply (11%). Despite the potential opportunity in import substitution, the local Galmi variety is perceived to be difficult to cultivate as it takes 120 days (4 months) to harvest, which in North Ghana coincides with major season cropping.

Onion prices at harvest are extremely low but begin to appreciate between May – December. Unlike the storage of cereals, the storage of onions is challenging because high temperatures promote rot, and too low temperatures and humid surroundings cause sprouting. The lack of appropriate storage facilities to store onions and stagger sales has affected the profit margins of producers and traders. Most traders and producers do not have either the capital or interest to invest in speculative storage. A few farmers have constructed storage structures (albeit poorly ventilated) for onions, and are able to supply onions throughout the year. Most onion farmers however store onions in their rooms (between 7 to 12 bags) and sleep outside during the peak season, disposing of their onions when the rain sets in, in June, as they have to use their rooms. At the time, price of onion may just have begun to rise from glut. Most farmers are thus deprived of the opportunity to make good profit by selling in high-priced periods that occur in August through to December. Quite a sizeable proportion of farmers sell close to 70% of their produce in the peak harvest season. Table 4 below depicts the estimated gross revenue that could be realised by storing and staggering of sales. From Table 4, producers in Ghana are likely to make additional revenue totalling Gh¢ 11,391,116.00 from onions if sales were staggered<sup>13</sup>.

There are no major storage facilities for onions in Ghana, although TRIAS has piloted some 23-community facilities. The community-based facility is comprised of a mud structure with three layers of shelves and a roof. The structures are built by the community farmers from their own resources before attracting funding from TRIAS for shelves and roofing costing Gh¢10,000. Lead farmers spearhead the construction of the community storage facility. Access to storage is based on a farmer's involvement in the construction of the facility. With these facilities, farmers can now store their produce, increasing their ability to sell onions at a later stage, thus taking advantage of the price appreciation. However, the community barns are also small, suitable for only 10 people. Excess produce is sold at harvest or stored at home.

<sup>11</sup> ASNAPP-TRIAS-NORTHFIN Onion Value Chain for Bawku Red Findings Report- 2012

<sup>12</sup> This figure is expected to be lower as labour cost has not been actually estimated due to the practice of noboa in Ghana

<sup>13</sup> ASNAPP-TRIAS-NORTHFIN Onion Value Chain for Bawku Red Findings Report- 2012

## 7 | Onion Market System Analysis

The community based storage facilities are not used in the rainy season. They could be used to store other crops during the rainy season for a fee. The community based storage facilities also face problems caused by construction errors. The platforms are low, making room for rats and termites. They are also poorly ventilated. Improvements could be made in the design and construction of new community storage facilities.

**Table 4. Sales of onions per month in Ghana<sup>14</sup>**

Average Price/bag (GH¢)	Total Number of Bags (2 <sup>nd</sup> season Pdn)	Percentage Sold/Month	Value (GH¢)	Scenario 1 (Number of Bags Sold)	Percentage Sold/Month	Value (GH¢)
65.99						
40.21	59,712	14%	2,400,893	48,700	12%	1,958,124
39.83	138,590	33%	5,519,532	55,400	13%	2,206,379
41.10	89,190	21%	3,665,544	54,600	13%	2,243,959
67.16	72,905	18%	4,895,949	48,200	12%	3,236,880
90.69	22,222	5%	2,015,240	44,690	11%	4,052,790
93.53	13,949	3%	1,304,683	38,003	9%	3,554,512
127.44	9,370	2%	1,194,067	35,100	8%	4,472,971
150.00	4,450	1%	667,500	33,700	8%	5,055,000
114.59	1,085	0%	124,327	32,500	8%	3,724,095
129.94	4,720	1%	613,312	25,300	6%	3,287,454
175.72						
	<b>419,193</b>	<b>100%</b>	<b>22,401,048</b>	<b>416,193</b>	<b>100%</b>	<b>33,792,164</b>
<b>Additional Income: 11,391,116</b>						

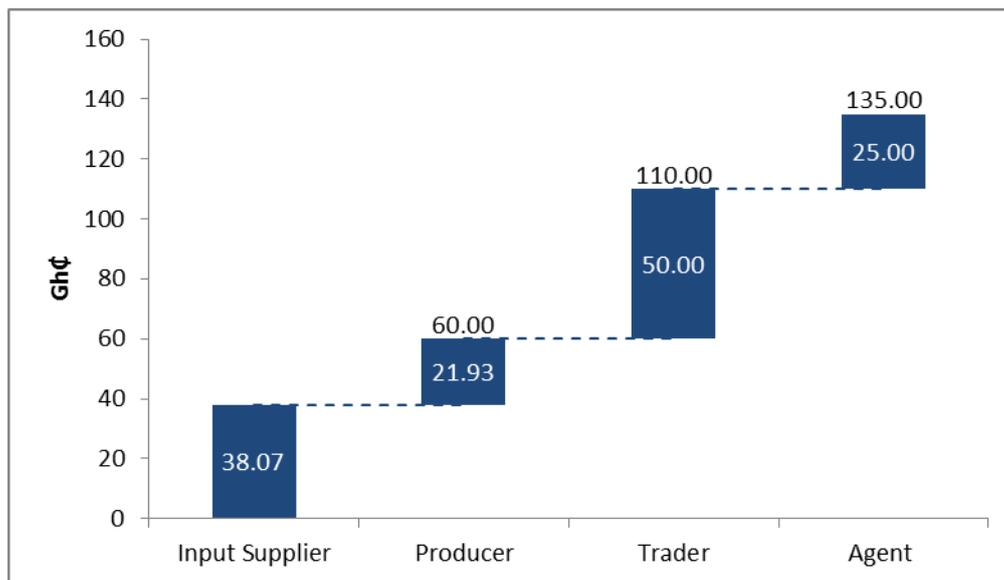
Producers are unable to expand production and crop twice in a year as result of limited availability of water. The few irrigation facilities (dams and dugouts) that exist are poorly managed, causing serious siltation. Beside the irrigation facilities, cultivation along river boundaries and in valleys using hand-dug-wells limits production expansion and production is concentrated in areas where water is available using diesel or petrol pumps. Unlike in Niger and Burkina Faso, which cultivate three times in a year, thanks to a rainy season variety of onion, onion producers in Ghana mainly cultivate onions twice in a year depending on suitable land and availability of water. Introduction of the rainy season and the improved Galmi varieties will enable farmers in Ghana produce and supply onions all year, thus taking advantage of the imports substitution opportunities. Fields for onion production will not be used for other staple crops in the rainy season once income from onion could be used to purchase staple food stuffs as it is more profitable producing onion than such staple crops on same field. Even though the Bawku red variety has a very pungent flavour, it constitutes an essential ingredient in many African sauces and relishes. When consumed in small amounts for their pungency, they are considered as a condiment. Improving the Bawku Red variety (bulb size and yield per hectare) will enable it compete favourably (making it more acceptable to consumers) with other varieties in the onion market.

From value addition perspective, as depicted in Figure 2<sup>15</sup>, there is high value addition (Gh¢50.00) concentration at the trading level with the producer receiving the lowest value added (Gh¢21.93) in the value addition chart. This is due partly to farmers' lack of adequate market information, limited access to finance and poor storage difficulties forcing them to sell immediately after harvest.

<sup>14</sup>ASNAPP-TRIAS-NORTHFAN Onion Value Chain for Bawku Red Findings Report- 2012

<sup>15</sup>Data collated from an Onion Trader in Bawku West District for 2013 marketing

Figure 2. Mapping of Value Added of a bag of onion with production cost per bag of Gh¢38.07<sup>16</sup>



A small number of producers have diversified into activities higher up the value chain, mobilising, aggregating, repackaging, transporting and selling to other farmers and agents in urban market centres. These agents then sell to retailers and market women. When Bawku Red is out of season, Nigerien Galmi is sold on markets.

There is no well-established onion supply chain in the North as southern importers and other major buyers continue to import from neighbouring countries to the neglect of the sector industry in Ghana. Productivity will improve if these entrepreneurs (importers and major buyers) establish an onion supply chain in Savannah belt using contract farming. Investment of these entrepreneurs, coupled with better access to technologies and production resources are critical to upgrade and sustain the onion industry in the North, and enhance the sector's role as a major source of income for onion producing households.

## SECTION 5. ANALYSIS OF SUPPORT FUNCTIONS

### 5.1 RESEARCH

Trials of improved varieties of onions is slow as a result of weak partnership or non-existence of organisations in onion value chain to partner with SARI to develop varieties suitable to the climatic conditions of the Savannah belt, where 85% of the total national onion production is cultivated. This limits trials conducted by SARI to on-station instead of on-farm for the participation and adoption by onion producers. As a result, commercialising results from on-station research or trials becomes a major constraint. The failure of partnership between SARI and input service providers has also compounded the problems in disseminating new technologies including new improved varieties from SARI. This has affected the onion industry and accounts for the continuous seasonal recycling of farmers' own seed which in turn affects yields and quality of produce.

Developing a more disease resistant and higher yielding variety similar to Bawku red is prioritised on many research agendas. Despite their favourable qualities, the gestation period for Galmi is too long for most smallholders to grow, as its season extends into the wet season, which is essential for staple

<sup>16</sup>Source: Own calculations.

crop production for the poor. This prompts most of the poor active in onion cultivation to produce the less risky and less demanding Bawku variety.

SARI has conducted many onion varietal trials concerning good crop agronomic practices and new technologies, but the findings of these trials/innovations are yet to be felt on the field. Even though onion is purely a cash crop and a good source of income for farmers, MoFA has given little attention to it, thus technologies required to enhance production and productivity are not made available and accessible to producers.

TRIAS-Ghana has recently partnered with SARI to conduct trials on how integrated Pest Management (IPM) strategies can be used to manage pest and diseases in onion farming under irrigation; how bulb size can be increased with recommended spacing; and how IPM strategies can be used to cultivate other new varieties of onion in the Guinea Savannah zone of Ghana. However, all the findings have not been adequately disseminated to target beneficiaries – creating a gap between research findings and adoption at the farmer level.

### 5.2 KNOWLEDGE AND EXTENSION

Ideally, the extension agent to farmer ratio is 1:500 but in Northern Ghana, the ratio is between the ranges of 1:1500 to 1:3000<sup>17</sup>. This is woefully inadequate for farmers in Northern Ghana to access extension services. Productivity continues to decline as a result of inadequate public extension services support, coupled with poor public –private partnerships in commercialising good crop agronomic practices and new technologies including new improved varieties, post-harvest and water resource management. There is no synchronisation of extension service delivery by both public and private extension service providers. The public (MoFA) institutions are supposed to coordinate all extension service delivery in the country, but because they lack adequate resources, they are unable to reach out to private service providers leading to uncoordinated extension service delivery in the Ghana. To a limited extent, private extension service providers do exist, for example PAS-GARU, which provides support in creating farmer groups, in-kind and in-cash credit together with MoFA. PAS-GARU is active in Garu and parts of Bawku West and Bawku East, currently working with 1,827 farmers across 11 communities<sup>18</sup>.

### 5.3 FINANCE

Agricultural financing by financial service providers to the onion industry has been limited for some time. Very few farmers and traders have access to business upgrading finance from rural banks, with the majority of farmers and traders relying on other sources of informal credit where credit arrangements are based on agreements to provide inputs for a share to the creditor of the produce at harvest. Onion producers have less access to microfinance than other commodity growers and this is due in part to the lack of big commercial and institutional buyers who can serve as credible markets and guarantee the loan. Onions are mostly sold at harvest due partly to limited availability of finance to invest in storage to respond seasonal supply and price.

Good partnerships of large farmer traders with financial service providers will enable them to increase their access to finance to provide more credit to producers to increase production through strengthening of domestic supply chain, including contract farming. TRIAS has found that, if it can act as a guarantor or referee, it can get the local rural bank to lend more to smaller farmers. It has also started to pilot the idea of simple warehouse receipts (bag in, same bag out) with the rural bank. That idea merits scaling up possibly through larger farmers or communities investing in and operating the warehouse.

<sup>17</sup>MoFA Regional MIS Officer, Northern Region

<sup>18</sup> ASNAPP-TRIAS-NORTHFIN Onion Value Chain for Bawku Red Findings Report- 2012

## SECTION 6. ANALYSIS OF POLICIES AND INSTITUTIONS

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There is no crop specific policy for onions, though vegetables are mentioned under FASDEP and METASIP. Onion producers benefit from the government fertiliser subsidy initiative only during the rainy season farming. The fertilizer subsidy is for the major farming season (4months duration), thus creating an increase in the cost of growing crops in the dry season because farmers have to pay for the full cost of fertilizer after the subsidy period elapses. However, in one district, better targeting of the subsidy, through more rigorous checks on residence, has enabled fertiliser to be available for the dry season as well. This is worth evaluating further and, if it appears to work, piloting in other districts.

As noted above, the research and extension institutions are weak and underfunded. Moreover, government has not encouraged them to establish public-private partnerships to help deliver results. SARI, MoFA and other private organisations (the private sector) have failed to respond with appropriate initiatives to the emergent opportunities in the sector market to boost supply locally.

The few dams and dugouts in the Savannah belt are neither properly developed nor routinely maintained to provide the water needed for dry-season irrigated agriculture. The Ghana Irrigation Development Authority does not routinely maintain these water bodies due partly to little or no strong government support in the sector and partly because water associations do not pay sufficient water charges. Siltation has affected most of these water bodies reducing the available water to support expansion of dry season farms.

Until 2011, there were no programmes in Northern Ghana promoting onion production and marketing. TRIAS-Ghana is currently working in two onions producing districts in the Upper East region, promoting production and productivity and facilitating marketing arrangements in the onion supply chain. About 5,000 producers have been reached with TRIAS interventions in the two districts, leaving over 15,000 farmers unreached by similar programme support on onions. In the Upper East region, TRIAS Ghana has started pilot initiatives towards enhancing onion production, productivity and marketing in the region. Beside TRIAS Ghana, there is no other NGO identified to facilitate any significant value chain arrangements in the onion industry in Northern Ghana.

TRIAS Ghana is however constrained by resources to upscale their intervention into other onion production districts in Northern Ghana, thus limiting their intervention in only two districts. A potential collaboration between MADE and TRIAS is also considered, for example to increase input finance from rural banks, as well as to research how to finance warehouse construction (including rural banks) and examine warehouse receipts schemes.

## SECTION 7. IDENTIFICATION OF SYSTEMIC CONSTRAINTS

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It is clear that farmers' incomes would be substantially higher if problems with productivity and storage were addressed and alternative channels developed. Overall, the onion market system is failing to respond adequately to the huge incentive provided by fast growth in demand and rising prices, depriving the North from benefitting from a huge growth opportunity and large numbers of the poor from supplementing their incomes. The systemic constraints that underlie these symptoms are set out in this section.

Altogether, there is a major undersupply of public goods to counter market failures in the onion market system. Research, extension and irrigation are underfunded and poorly governed. There is no significant public investment in the onion supply chain, as there is in maize and other commodities in Northern Ghana.

Notably, the Government of Ghana and private sector have failed to support research and development, and commercialisation of findings including new varieties, innovations and good crop agronomic practices to target beneficiary farmers who are supposed to be served by these state institutions/organisations (MoFA, SARI etc.). In particular, the bulb size of the Bawku Red variety has been shrinking in recent years, reducing yields significantly. This is a major constraint on the onion

industry as the variety is much more appealing to poor northern farmers for several reasons. These include a shorter maturation period, cheaper seeds, greater market accessibility and resilience to heavy rains. But the supply of improved breeder and foundation seeds is lacking and there are no partnerships with seed companies to commercialise the improved seeds.

The failure to date to develop effective and sustainable information limits access to timely market information for farmers and traders to grow the right varieties, plan the timing of the sale of their crops and to target growing segments of the market. The growing penetration of mobile telephony into the country offers the best potential for expanding access to information. It can also enhance extension delivery.

MoFA extension services are underfunded with a high ratio of farmers to extension agents. But the extension service has yet to develop a working relationship with private sector input suppliers. GIDA is underfunded and yet to come up with a good model for the sustainable development of irrigation in the North. Public-private partnerships in the management of irrigation facilities could improve the availability of water and irrigable land for increased production and productivity to respond to the shortfall in supply. However, the government has failed to encourage public-private partnership in irrigated agricultural commercialisation.

Some of the most important causes of poor returns to farmers stem from failures in the market for finance. Farmers are unable to invest adequately in new seeds, agro-chemical to reduce disease and pesticides due to poor access to finance. And, farmers' sale of onions immediately after harvest is due partly to low investment in good storage practices and the compelling need for cash. Reducing the information failures that make rural banks and MFIs reluctant to lend to farmers to finance the crop would have a major impact on farmers' incomes.

Market power currently lies with the members of the Progressive Onion Producers and Traders Association. They have been able to earn rents based on their access to consumer markets. The importers, who have access to consumer markets, have not developed supply chains in the North because of the higher transaction costs of dealing with large number of suppliers as against a single exporter in Niger. Incentivising them to develop supply chains in the North could help compete away supernormal profits of the existing traders.

The lack of large firms in the chain prevents effective coordination. Failures in coordinating the supply of better seed varieties, agro-chemicals to control pests and diseases, storage facilities for the crop are the most obvious examples of poor coordination. Facilitating the development of supply chains could be accompanied by helping to build platforms that could improve coordination, including linking onion traders to farmer based organisations and sources of seeds and other inputs.

## SECTION 8. CONCLUSION

Onions represent a major opportunity for the North. There is no reason why the North cannot develop a similar sized industry to Niger onions that is worth several hundred million dollars and benefits many more farmers and the poor. The North should be able to compete against Niger to supply all of the needs of the South and export to neighbouring countries such as Cote d'Ivoire.

Realising the opportunity requires breaking out of the current low equilibrium in which the Ghanaian onion market system operates to a higher productivity market responsive system. That calls for addressing the systemic constraints that are the causal factors in keeping the system at its low equilibrium to deliver systemic change. The types of interventions needed are:

1. **Seeds, input package:** Developing an effective partnership to commercialise certified seeds at an affordable cost. Domestic seeds are unavailable and, the market price for imported certified seeds is exorbitant (about 400% higher than local varieties), well out of reach of the average onion smallholders. In the short term, importers could be incentivised to supply low cost imported seeds that they supply to Niger as part of package of inputs including agro-chemicals and fertiliser to develop a market for new varieties. In the longer run, MADE could

facilitate partnerships between SARI and seed companies to commercialise its new varieties using seed growers in the North.

2. ICT platforms for extension advice, market information: One of the several ICT platforms that exist in Ghana could be incentivised to kick start the provision of advice and information for onions and other vegetables with the aim of developing a commercially viable service in the medium term.
3. Finance for crops, storage facilities and warehouse receipts: working with TRIAS and progressive rural banks and MFIs, help to scale up successful pilots to provide crop finance, finance for building storage facilities and warehouse receipts facilities.
4. Crowd in large traders and importers into building supply chains in the North: Facilitate investment by large, progressive traders and importers in building supply chains from the North with the aim of developing business models that provide inputs, transfer knowledge and help with storage and access to finance through warehouse receipts. Such business models would probably work through large farmers and good FBOs.



## Annex A: Gender Analysis

<b>MADE Gender Market Screening Form</b>		
<b>Market name</b>	<b>ONION</b>	<b>Assessment Colour Code</b>
<b>1. Description</b>	<p>Onion is a valuable cash crop cultivated by more than 20,000 households in northern Ghana. Production is labour intensive, much of which is supplied by women and youth. The North has a good comparative advantage for onion and cultivation is mostly done during dry-season farming around and along water bodies. The North has the potential to develop a strong competitive position against imports. Two market segments exist in the sector: imported Galmi variety with 57% market share and local Bawku Red variety with 32% market share. There is a locally produced Galmi with 11% market share. The sector is a fast growing market (11% p.a.). Domestic supply of onion falls short of demand due to low productivity and this is compensated by imports which meet 57% of demand.</p> <p>62% of households in onion are smallholders, with 49% of them poor, for whom onion serves as alternative source of income. It enables them purchase staples and inputs for main season cropping; pay school fees and cover health costs, construct and maintain housing infrastructure, etc.</p>	
<b>2. Gender sensitivity</b> (How gender sensitive is this market?)	Onion serves as a substantial source of income for women engaged in cultivation, labour provision, and trade. About 38% of onion production is done by women and about 80% of the labour for planting and harvesting is also provided by women. Women dominate in onion trade locally which serves as a substantial income source as well.	
<b>3. Contribution to negative gender effects.</b>	Promotion of onion as a high commercial dry season crop could crowd out women cultivators who have access to only small plots of arable land. Realising the high income potential of onion, men as owners of land and managers of water bodies, could take over land or reduce women onion farmers' landholding, particularly those near water bodies. This could reduce women's income and their ability to acquire inputs for staple crops for the major planting season.	
<b>4. Opportunities to adapt to or mitigate these negative effects</b>	Increased number of men using irrigated fields during the dry season could provide greater opportunities for women's labour, which is less constrained than during the major planting season. Increased production and better storage facilities could also provide great trading opportunities for women after the harvest and into the dry season, offering the potential for increased income.	
<b>5. Gender promoting measures</b>	<p>Considering the significant role women play in the onion sector the following promoting measure could be employed:</p> <ul style="list-style-type: none"> <li>• Facilitate women farmers' access to improved seeds, inputs and agronomic practices for improved yields</li> <li>• Facilitate access to good storage facilities for women farmers and</li> </ul>	

	<p>traders to take advantage of seasonal price hikes.</p> <ul style="list-style-type: none"> <li>Promote women's participation in management of water bodies, including dugout wells, dams and rivers for increased access to water for their farms.</li> </ul>						
<b>6. Obligatory gender mitigating measures</b>	<p>MADE's activities in the market should ensure that:</p> <ul style="list-style-type: none"> <li>Women displaced in cultivation have alternative livelihood ventures where they earn income.</li> <li>Interventions in onion trade do not marginalise women traders.</li> </ul>						
<b>7. How will gender promotion measures be monitored?</b>	<p>Yearly assessment by gender specialists with inputs from market development specialist.</p>						
<b>Risk colour coding</b>	<table border="0"> <tr> <td style="background-color: green; width: 30px; height: 15px;"></td> <td>Low</td> <td style="background-color: yellow; width: 30px; height: 15px;"></td> <td>Medium</td> <td style="background-color: red; width: 30px; height: 15px;"></td> <td>High</td> </tr> </table>		Low		Medium		High
	Low		Medium		High		

## ANNEX B: ENVIRONMENT AND CLIMATE CHANGE ANALYSIS

<b>MADE Environment/CC Screening Form</b>			
<b>Intervention/ component name</b>		<b>Onion</b>	
<b>1. Description</b>		<p>Dry season irrigated crops, also grown rain-fed in wet season with some supplementary irrigation. Onion concentrated in Northern and North Easter Region.</p> <p>The component will focus on building strong relationship between research institutions and farmers to promote improve technology for higher yields, provide good post-harvest services and provide access to capital and credit.</p>	<b>Risk</b>
<b>Risk from Climate Change</b>	<b>2. Sensitivity of the intervention to risks from CC</b>	Relatively climate resilient cropping pattern but: Offseason farming (60%) –can be affected by insufficient water and excessive heat; Rainy season farming (40%) -can be affected by flood, poor rains and late start of rains. These crops can provide increased resilience through diversification.	<b>Without adapt.</b>
	<b>3. Opportunities to adapt to these CC risks</b>	<p>Planting early maturing varieties, use of drought resistant varieties, coaching farmers on efficient use of water and water management practices.</p> <p>Research into early maturing and drought resistant varieties – there may be some new market opportunities in seeds and agrochemical inputs.</p>	<b>With Adapt.</b>
<b>CO<sub>2</sub>/GHG emissions</b>	<b>4. Contribution of the intervention to CO<sub>2</sub>/GHG risks</b>	Relatively small. Some limited adverse effects from clearing riverbank land – loss of vegetation and soil carbon.	<b>Without Mit.</b>
	<b>5. Opportunities to mitigate the CO<sub>2</sub>/GHG risks</b>	Closely linked to good riverbank management (see environment below)	<b>With Mit.</b>
<b>Environment risks</b>	<b>1. Risks to the environment from intervention</b>	<p>Clearing of riverbank land for cultivation can create severe risks – with a range of biodiversity, erosion, flooding and siltation outcomes. Extraction of water for irrigation can reduce availability for other users. In larger irrigation schemes poor management and inadequate drainage can lead to salinization.</p> <p>Small risks from increased agrochemical use.</p>	<b>Without Mit.</b>
	<b>7. Opportunities to mitigate the environment risks</b>	Researching and promoting sustainable riverbank cultivation techniques. LEISA (i.e. Low External Input and Sustainable Agriculture). Facilitating farmers' access to pumps can increase distance of cultivation from riverbank, facilitating sustainable management. Promoting efficient use of water.	<b>With Mit.</b>

<b>8. Summary</b>	A relatively climate change resilient crop – but with dependence on access to dry season water. The environmental risks from riverbank cultivation can be managed by improved practice.					
<b>9. Obligatory mitigation or adaptation measures</b>	Any market intervention on these crops which seems likely to lead to an increased area of cultivation will be accompanied by promotion of sustainable cultivation and irrigation techniques.					
<b>10. Overall Risk assessment after mitigation</b>	Low from climate change, high from environmental impact of riverbank cultivation – but this should be able to be mitigated by improved practice.					
<b>11. How will the mitigation/adaptation be monitored?</b>	<p>A random sample of producers will be visited on an annual basis and the sustainability of their practice will be monitored in respect to:</p> <ol style="list-style-type: none"> <li>1. Maintaining anti-erosion vegetation barrier on the riverbank;</li> <li>2. Prevention of soil erosion.</li> <li>3. Prevention of salinisation.</li> <li>4. Safe use of agrochemicals.</li> <li>5. Over-extraction of irrigation water to detriment of other users.</li> <li>6. Continued availability of irrigation water.</li> </ol>					
<b>Risk colour coding</b>		Low		Medium		High
<b>In order to be approved, none of the risk assessments after mitigation/adaptation (Rows 3, 5, 7 or 10) can be red.</b>						

## ANNEX C: POLITICAL ECONOMY ANALYSIS

**MADE Political Economy Market Assessment**

MARKET	ONIONS
<i>Stakeholder mapping</i>	
<p><b>1. Who are the “most influential” stakeholders or stakeholder groups in the market?</b></p>	<p><b>Importers/Distributors/Traders.</b> Four main importers/distributors (Alhaji Sulemena Yirimea Enterprise, Peofits Limited, Accra Onion Sellers Cooperative Society, and Zomal and Sons Limited) dominate the domestic onion market. They import the Galmi variety from supply chains in Niger, Burkina Faso, and Holland. The dominant domestic markets are at Agboghloshie (Accra), Anloga (Kumasi), and Techiman central. Onion traders in these major southern markets are organised into a trade association, the Progressive Onion Producers and Traders Association (“POPTA”), which controls access and supply to these markets and thereby determines market prices.</p> <p>Local production, which is primarily of the Bawku red variety, is undertaken predominantly by smallholder vegetable farmers in Northern Ghana. Unusually, “market queens” do not commonly make trips to Northern producing centres to aggregate, purchase and cart onion supplies. Thus, there is no organised onion market in the Northern producing areas. Local farmer-entrepreneurs purchase and aggregate output from other farmers at the farm gate at harvest and transport them to southern markets to sell to traders.</p> <p>Importers and organised traders appear to have the greatest influence on market dynamics within the value chain. They, however, have little contractual market-assurance arrangements with Northern farmers. In producing districts, some farmers are organised into FBOs at the local level, but these farmer groups command or exercise little market power. Traders and their agents in the southern markets are the biggest gainers in the market as currently organised. Farmers, especially those who must sell at harvest time (due to lack of storage or to meet emergency cash needs), are the biggest losers.</p>
<p><b>2. Is there a presence of legitimate and credible stakeholders?</b></p>	<p>Active FBOs that are organised at the local level generally have legitimacy and credibility with the relevant district assembly or DCE. As the first NGO to intervene in the onion sector in 2011 and help coordinate input support for farmers (with SARI, MOFA and rural banks) as well as support the formation of FBOs, TRIAS has credibility and legitimacy with farmers, FBOs, SARI, MOFA, and rural banks in its areas of operation.</p>
<p><b>3. Is there a national politician or other influential political actor (e.g., national or regional “best farmer”) who has a notable interest in or ‘champions’ the interests of any of the participants in this market?</b></p>	<p>Other than TRIAS and the onion FBOs themselves, there is currently no known ‘champion’ for onion farmer interests at any level. TRIAS believes, however, that emerging “Youth and Development Associations,” which are becoming locally and regionally influential in mobilising voice and civic activism on behalf of development causes in the Northern regions, could be useful allies in championing the interests of local crop growers if they are educated about the economic benefits that local farming communities and districts can derive from supporting farmer-friendly interventions in this area. Because onion</p>



	<p>cultivation is labour intensive, farmers often depend on hired (youth) labour during the dry (onion) season. Thus expanding onion production and markets is also a local youth employment generation project and, thus, aligns the interests of farmers and local youth. Onion farmers in Zebilla in the Bawku West district report that local youth recently blocked the roads running through their town to deny passage to Accra-bound Burkinabe onion trucks, creating a tense security situation that invited the intervention of the authorities. The risk inherent in dealing with these local youth groups is that they are vulnerable to capture or manipulation by politicians and other partisan political interests.</p>
<p><b>4. Are there vested interests that can block, derail or sabotage policy and institutional change?</b></p>	<p>On the input end of the chain, some Bawku area farmers report that local-market seed suppliers allegedly linked to Burkinabe onion interests restrict access to the Galmi seed or sell to Ghanaian farmers “counterfeit” or fake Galmi seeds that do not germinate. The same interests also allegedly dampen Ghanaian farmers’ interest in the Galmi variety by claiming that it has a considerable longer gestation period. The farmers cite this experience as one of the reasons why they have not switched to the Galmi variety. Burkinabe onion interests, who profit from their superior competitive advantage in a market dominated by the Galmi variety, should be understandably concerned about the prospect of Ghanaian onion producers switching from Bawku Red to Galmi. The same farmers also name secure or predictable access to usable land during the dry season as a constraint. To the extent that farmer access to Galmi seeds is left to the unregulated open market, agents representing Burkinabe onion interests could adopt various schemes to discourage or frustrate attempts by Ghanaian farmers, especially smallholder farmers in the border districts, to switch from Bawku Red to Galmi. An intervention designed to assure a credible supply of Galmi seeds would be necessary to pre-empt or overcome this prospect. Additionally, a targeted communication or educational campaign, comparing the pros and cons of Galmi and Bawku Red, could help overcome any lingering doubts or resistance among farmers concerning the Galmi variety.</p> <p>Southern-based traders’ associations, notably the Progressive Onion Producers’ and Farmers Association, could also present a challenge, if they operate in a cartel-like fashion with respect to market access and perceive their interests (initially) to be threatened by an intervention that seeks to boost farmer incomes. However, the traders’ interests may not necessarily be antagonistic to the interest of smallholder farmers. It would be helpful, as a preliminary matter, to understand better the internal structure and operations of the traders’ associations so as to determine the nature of any intervention that seeks to draw them into Ghana MADE.</p>
<p><b>5. Are farmers in the market organized collectively? Is there a representative farmer based organisation?</b></p>	<p>Currently onion farmers are organized into FBOs at the district level, primarily in the districts covered by TRIAS. These FBOs were formed initially with nudging from TRIAS. However, they appear self-sustaining and have their own independently elected executives. It is not clear what direct services or support the FBOs provide their member-farmers, but some FBOs have been able to get their district assembly to respond to specific, episodic needs (e.g., repairing a small dam or dugout used by farmers) and farmer-entrepreneurs (or “lead farmers”) within FBOs often coordinate and undertake the aggregation of the produce of interested farmers for bulk transportation and sale in</p>

	Southern markets. There is support within the onion FBO community for a regional organisation that connects district-level FBOs horizontally and vertically.
<i>Institutional assessment</i>	
<b>6. Are there any policies/regulations/norms in the market that could limit or facilitate MADE's interventions?</b>	There is no coordinated, crop-specific government policy or intervention directed toward onions. However, onion farmers can benefit from certain generic farmer-directed government interventions such as the fertiliser subsidy and MOFA's extension services. However, currently the timing of the fertiliser subsidy, which stops around September just at the start of onion cultivation, means that onion farmers generally do not benefit from this support. Corruption in other in-kind government support, such as smuggling of subsidized fertilisers, is another problem cited by farmers. Routine non-release or delayed release of the nonpayroll budgets of MOFA district offices also deprives farmers of the extension services support of MOFA, as extension officers often do not have fuel and resources to be able to visit and deliver assistance to farmers.
<b>7. Which are the key public sector institutions, agencies and offices (national, regional, or local) relevant to the market?</b>	The key public sector agencies relevant to the onion market are MOFA, SARI, Regional Coordinating Councils (RRCs)/MMDAs, SADA, and the rural banks. MOFA's primary role is in the provision of extension services and administration of the government's fertiliser subsidy programme. SARI is instrumental in the dissemination of new research and technologies relating to seed varieties and other agronomic practices. Neither government agency, however, is adequately resourced to undertake its activities. They often must rely on donor or NGO project-based assistance in order to deliver the necessary support to farmers. RRCs/MMDAs can coordinate and ensure interagency support for farmers at the local level. Farmers mention the provision and maintenance of small dams and dugouts as one area where RRCs and district assemblies could be especially helpful.
<b>8. What platforms or forums are available and accessible to farmers, FBOs and other market participants to engage with policymakers or the policymaking process?</b>	Except for the formal/general public consultative/participatory processes of the MMDA, there is no other forum or platform for onion FBOs or other market participants to each with policymakers.
<b>9. Do traditional authorities and other customary institutions play any role in the market?</b>	As onion is a dry-season but water-dependent crop, some onion farmers must lease suitable land for cultivation. As the commercial value of onion grows, such seasonal tenant farmers, especially the women, are finding it harder to obtain access to useable land. Thus, farmer-landlords and others with customary use rights over onion-suitable land play an important role in this market.
<b>10. Are there capable private market participants in the market?</b>	Through the intervention of TRIAS, certain rural banks currently provide some financial support to farmers.
<i>Summary</i>	
<b>Assessment</b>	The onion market presents a slightly more elevated level of risk for MADE, but the risk is still low (or a low-medium, at worst). The sources of risk are three fold: The supply chain for the rival/market-dominant Burkinabe Galmi variety appears well established or else is not well understood; southern market traders who currently move the import Galmi variety appear well organised and capable of controlling market access for new entrants; and Burkinabe farming interests or their local agents in the growing districts may adopt schemes to frustrate a switch from Bawku red to the Galmi variety. These sources of risks, however, may only delay but not derail MADE interventions. To be properly mitigated or managed, these risks must first be better understood. The political, policy and regulatory

	environment is favourable, even if there is no explicit crop-specific support. The experience, credibility and legitimacy of TRIAS, whose interests are aligned with MADE, is a strong asset to build upon.
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## ANNEX D: LIST OF RECENT AND ONGOING RELATED PROGRAMMES

Full name of project	Market	Organisation	Geographical areas of intervention	Start and end year	General Description
Sahelian Onion Productivity and Market Expansion Program	Onions	UNDP / AFIM	Ghana and Burkina Faso	2012-Present (5 year programme)	<p>\$150,000 UNDP Catalytic fund is transforming lives of Onion farmers in the Rural North of Ghana and the Sanguié Province of Burkina Faso in a cross border initiative known as Sahelian Onion Productivity and Market Expansion Programme (SOPMEP) lead by ASNAPP in collaboration with FEPA/B and TRIAS. The project is providing respite to over 2,500 onion farmers that previously had access to no storage or only expensive storage facilities, and had low productivity due to outdated farming practices.</p> <p>The provision of simple and less expensive family level storage structures comes in handy at a time when onion production is becoming an important economic crop for over 20,000 producers in Ghana and Burkina Faso. The project, in less than a year, has seen phenomenal results with:</p> <ul style="list-style-type: none"> <li>• Bulb sizes doubling with the adoption of Good Agricultural Practices</li> <li>• Increase in farmers' income by over 300% with storage for 2-3 months into the lean season.</li> <li>• About 80 demonstrations storage structures (storage capacity 2.5 - 7 MT) supplied to producers</li> </ul> <p>The adoption of these storage structures will allow onion growers to stagger sales to take advantage of seasonal high prices and generate additional revenue estimated at over \$7.5 million to support their livelihood activities.</p>
Food and Environmental Security Facility (FESF) project	Onions	TRIAS - Ghana	Upper East Region	2011-2013	Implemented Onion value supply chain arrangement project in two districts with funding from the government of Belgium - SOPMEP (Bawku West district) and CIDA through the Ministry of Local Government and Rural Development (Garu Tempene district) - FESF. Key interventions included improved extension services in



Sahelian Onion Productivity and Market Expansion Program (SOPMEP)				2011-2014	production and storage, increase producers access to input and output markets, access to finance, FBO development. Over 4,500 onion producers are reached within the two districts with 50% of beneficiaries been women. Remarkable achievements include improved adoption rate on GAP (30%), increased awareness on storage and better storage facilities, Bulb size improvement, increased access to fertilizer through micro-finance, increased use of improved seed varieties from outside (Galmi from Niger), reduced storage losses, increased shelve life and formation of onion farmers association.
Multi-Year Assistance Project (MYAP)	Onions	Technoserve - Inc	Bawku West District, Bawku Municipality and Garu-Tempene Districts of Upper East Region	2006 - 2009	The project identified the challenges along the value chain and facilitated the design and implementation of strategies to improve upon actors profit level. Intervention strategies used included the facilitation to access to improved inputs such as seed and fertilizer, facilitation of the construction of improved storage facilities and linkages to financial institutions for credit under the inventory credit system. Other services included the facilitation of FBO formation and exchange visits to for farmers to learn from other producer countries like Niger. Demonstration of improved cropping practices to facilitated adoption of best practices.