

RESEARCH REPORT

STUDY REPORT ON INCLUSIVE ACCESS TO GARI MARKET INITIATIVE IN THE EAST GONJA DISTRICT

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Executive Summary

Gari enterprise in Ghana is considered a catalyst for economic transformation and a route out of poverty in rural communities. Small and medium enterprises are potent cartridges for fighting rural poverty and leveraging on processes leading to the achievement of sustainable goals one and two (end poverty in all its forms everywhere, and end hunger and improve nutrition, respectively). However, most of these rural enterprises are often not supported by state agencies. In northern Ghana, for example, over 80% of rural development projects are initiated and supported by NGOs and other benevolent individuals and organizations. In the East Gonja Municipality, Development Frontiers Women Cooperative (DFWC) are the primary producers of gari in the municipality but lack access to institutional bulk buyers within their own municipality. Also, they are unable to access national and international market opportunities due to poor market information. There is no inclusion in the gari market chain, thus amplifying the vulnerability of these primary producers to middlemen and market traders who buy the gari at unnegotiated prices. DFWC women are located in five communities within the East Gonja Municipality; Tachepi, Lamsa, Kakoshi, Kafaba, and Sisipi (TALK2S communities). Employing a qualitative study approach and using multiple data collection tools, this study found empirical evidence of the gari market chain within the East Gonja Municipality including other potential market opportunities. It is important to amplify the voice of the rural poor through advocacy anchored on scientific evidence.

The results showed that the total weekly gari production capacity of DFWC women is 9,558 bags on average. The total institutional monthly gari consumption capacity in the East Gonja Municipality is 30 bags on average; this means that the gari production capacity far exceeds the institutional demand. It was also found that only 20% of the gari produced by DFWC women is sold to wholesalers, the remaining 80% is sold

directly to consumers and retailers. Subsequently, the primary producers of the product (gari) gain marginally while middlemen blossom. Over 90% of the expert (stakeholders) interviewed have no knowledge about the activities of DFWC women in the district. DFWC women seem to run a rural business, limited to the surrounding rural communities. More critically, the gari production process was found to be drudgery, introducing dirt to the final product. The gari processors are also exposed to excessive heat and smoke, which have long-term health effects. The Gari production process in all the communities studied is not standardized and certified to access formal markets. It is therefore, recommended to DFWC women to:

1. Pull their resources together and function as a group in the various communities. This will help build a strong market force to operate as a bulk supplier
2. Urgently seek support for training and capacity building on best practices of gari production. The over-reliance on 'manpower' and rudimentary methodologies contributes significantly to compromising the gari quality and quantity
3. Develop giggles about the business, which can be played in radio stations and local FM stations to create awareness and attract buyers. The information can also be circulated in social media platforms such as WhatsApp, Facebook, TikTok, etc
4. Adopt a diversified operational model; for example, processing other cassava derivatives such as konkonte, and cassava chips. It is also important to add value to the gari produced; this will help improve the nutritive value and shelf life. A diversified business model will broaden the market base and increase the profit margin
5. Establish a centrally located gari processing factory (for example, in Lamsa) to serve as a resource centre for innovative gari processing.

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1.0 Introduction

Gari production in Africa is an impressive business opportunity for the continent, especially in West and Central Africa. Often referred to as the cornerstone for food security in Africa, gari has been one of the most popular and widely consumed foods in Africa (Henry, 2012). The rapid urbanization throughout sub-Saharan Africa and rising population growth have been accompanied by increasing demand for convenience foods. Cassava roots provide an ideal raw material for many of these types of food products since they are easy to process and have a bland flavour. Also, a significant proportion of Africa's population is predominantly poor; gari, therefore, becomes the most affordable and accessible alternative for survival (Henry, 2012). Gari forms a core component of the economic and cultural fabric of many parts of West African countries; for example, in Nigeria, gari has a 'traditional symbolic value' in ceremonies and celebrations. However, in many parts of gari-producing countries in Africa, there are significant inherent challenges with gari marketing. This is often attributed to the fact that the gari market has not been fully formalized in the continent. Gari production is usually carried

out by small-scale farmers and cooperatives, who often face limitations in terms of resources, infrastructure, and access to formal markets (John-Paul, 2013). This makes it challenging for them to comply with the required standards and regulations for formal market participation.

In Ghana, the informal nature of the gari market is deeply rooted in cultural and traditional practices. Informal marketplaces have long been the preferred choice for buying and selling agricultural products, including gari. These informal networks provide flexibility, convenience, and personal connections between producers and consumers. The situation is exacerbated by the inability of the government to provide support and incentives for transitioning to formal markets. Without adequate policies, infrastructure, and financial assistance, it becomes difficult for small-scale producers to navigate the formal market system., therefore, there is an urgent for a comprehensive study on the entire gari market chain and formalization of the gari market in order to improve rural livelihood.

1.1 Problem Statement

Development Frontiers Women Cooperative (DFWC) is the leading producer of gari in the East Gonja Municipality. Located in five communities within the East Gonja Municipality, DFWC women are primary producers of gari in the entire East Gonja Municipality. However, these hard-working women lack access to bulk buyers for their product; they are unable to access institutional bulk buyers for the supply of gari to boarding Schools in the Municipality. The Senior High schools in the East Gonja consume large quantities of bags of gari weekly, but this is not supplied by the people in the district who process it. There seems to be poor market information and linkages,

thus limiting access to private bulk buyers of gari in the district. Though government agencies, NGOs, and private sector entities are working together to improve access to formal markets by encouraging compliance with quality standards, this dream is still far from yielding positive results. The primary processors of gari, who are mostly the rural poor, continue to earn marginal income from their toils. They sell as individuals to middlemen and the public at different unnegotiated prices resulting in low revenues. Advocacy, anchored on scientific evidence is critical in securing the commitment of duty bearers to support inclusive gari markets within the district. It is

important to amplify the voice of these vulnerable women through advocacy anchored on scientific evidence. Highlighting local and institutional gaps in gari processing would support technical recommendations for policy actions.

1.2 Objectives

The objective of this study is to gather scientific evidence on the gari market structure in the East Gonja Municipal District and make recommendations for policy actions. The specific objectives include:

1. To profile the gari production and supply capacity in the TALK₂S communities
2. To map out the available markets for gari and bulk purchase opportunities in the East Gonja Municipal District
3. Investigate the existing contract markets for local bulk supplies to institutions within the district
4. Identify local and institutional capacity gaps for functional local supply chain (5) national or international opportunities for gari market.
5. Identify national or international opportunities for gari market

2.0 Literature Review

2.1 Gari Production and Marketing in Africa

Cassava is one of the most important tropical root crops in Africa. Sub-Saharan Africa exclusively produces over 50% of the world's cassava, and about 75% of the cassava produced is processed into gari (Amelework et al., 2021). Gari constitutes the daily meal for over 150 million people worldwide (Ngoualem & Ndjouenkeu 2023). Despite the fact that Africa is the largest producer of cassava in the world as indicated in figure 1, reports have indicated that Thailand, Brazil, and Indonesia dominate the international trade in cassava. Africa is yet to fully exploit the huge returns from the global cassava trade (Amelework et al., 2021). More interestingly, China, which used to be the biggest buyer of African cassava, consuming over 60% of global cassava, now exports cassava to some parts of Africa.

Generally, gari is the most popular cassava derivative in Africa, especially in West Africa. This is due to its convenience and multiplicity of use. Ghana and Nigeria appear to be the principal producers, consumers, and exporters of gari (Graham, H. (2015). Consumed by about 500 million Africans every day, gari is the second most important source of carbohydrates in Sub-Saharan

Africa, after maize (Adebayo et al., 2012). Often referred to as the “cornerstone for food security”, “the common man’s food”, “rambo of food crops”, etc., gari consumption increased sharply in recent years, particularly in countries such as Nigeria, Ivory Coast, Ghana, Sierra Leone, and Liberia, which are the leading gari-producing countries in the continent (Xio, 2012).

However, it is estimated that gari production is likely to fall short of consumption by 2050 in Africa, attributed to climate change, and this is expected to hamper the ability of African economies to feed the ‘common’ African (Xio, 2012). Due to low investment in the sector, most of the gari produced in Africa is consumed locally. In a study conducted in Nigeria, it was revealed that majority (about 40.7%) of those engaged in gari marketing are retailers; only about 12.7% are wholesalers. In other countries like Mozambique, Cameroon, and Cote d’Ivoire, the gari market is not well developed, hence gari is mostly sold locally to retailers and consumers in the village markets. The situation is not different in Ghana, where the production is dominated by the rural poor and marketed by retailers (Aidoo et al., 2019).

2.2 Gari Production and Marketing in Ghana

In Ghana, cassava is the most important root crop, mostly cultivated in the southern regions and along the transitional belt. According to the Ghana Export Promotion Authority, the estimated total land cultivated for cassava production is 900,000 hectares and over 70% of farmers are engaged in cassava production, contributing about 22% of Agricultural GDP. Ghana ranks among the top five cassava-producing countries in Africa with an annual average production of 16

million metric tons. Bono East Region remains the largest producer of cassava followed by the Eastern Region and Ashanti Region respectively (Aidoo et al., 2012).

Despite the fact that Ghana is one of the top five gari-producing countries in the world, the gari industry in Ghana is dominated by small-scale producers who lack capacity to upscale the business into the international market. These industrious local producers

gain marginally from their sweat as government agencies and organizations pay little attention to the gari market chain (Adebayo et al., 2012). In a study conducted in major gari-producing communities in Mampong and Techiman Municipalities, it was found that the gari market is characterized by several challenges which could potentially threaten the sustainability of the gari value chain, especially in the Mampong municipality (Aidoo et al., 2020). More importantly, the entire gari market chain is left in the hands of the rural poor, who is the primary producer. When Nimoh et al., (2020) conducted a study in the Ashanti region, it was found that, though gari production is relatively profitable in the region, the enterprise is female dominated and they have no formal education. Also, market agents, especially retailers, perceive the product as inferior, thus, unwilling to pay a good price for the product. The gari market structure has not been formalized resulting in little income from gari sales. It has been reported that some gari processors in parts of the southern sector have shut down due to low returns (Buwah, 2012; Cant, 2012).

In the northern parts of Ghana, gari processing is one of the major additional livelihood activities that employ many people especially women groups during the off-farming seasons. However, according to Naiim (2022), there are several internal and external challenges crippling gari processing in the northern sector especially in the West Gonja District; for example, lack of access to market, poor infrastructure, poor record keeping, and lack of access to financial aid are most prominent challenges facing gari

processors. The study concluded that there was an urgent need for the acquisition of affordable loans and modern production equipment to keep the gari industry running. The District Assembly was then implored to make conscious efforts to build the capacity of these rural enterprises and link them up to the national and international market outlets.

In the East Gonja District, non-governmental organizations have provided several interventions such as training on gari processing in order to support and improve their livelihood. These women, called, Development Frontiers Women Association (DFWC), are able to produce gari in larger quantities in the various communities. However, the benefits of these efforts may be elusive due to lack of access to market for the produce. It has been reported that some gari production enterprises folded up after a few years of operation due to market access challenges (Moses & Mohammed, 2022). Women groups who still persist in the business, mainly sell the product as individuals to individual middlemen and the public at different unnegotiated prices resulting in low revenues. Ironically, though these women are the primary processors of gari in the district, they are not able to access institutional bulk buyers for the supply of the product to boarding Schools, Buffer Stocks Company, and School Feeding Programme. Several studies reported that there is absolutely no coordination of the gari market by state institutions in Ghana, so producers operate in spot markets which make them vulnerable to powerful market women (Aidoo et al., 2020).

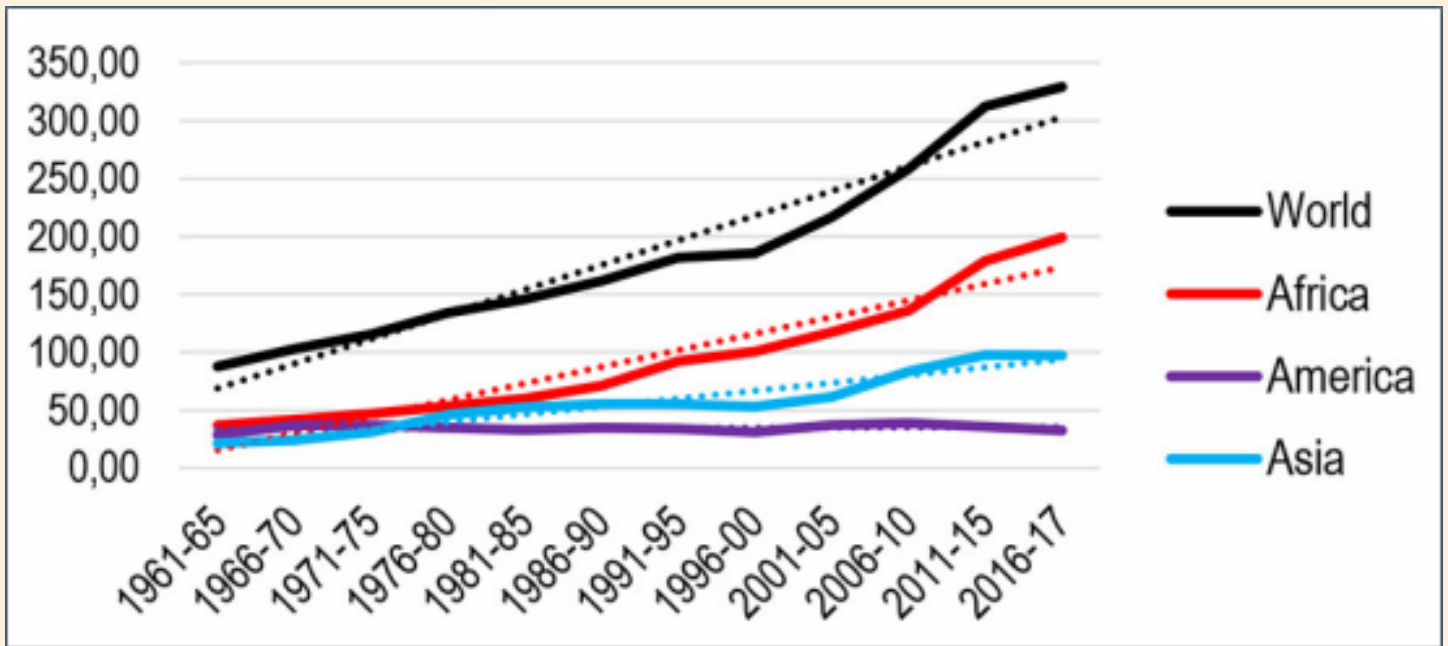


Figure 1: Cassava production trend from 1961-2017. Source: Amelework et al., 2021

2.3 Institutional Bulk Buyers of Food Items in Ghana

The institutional bulk buyers of food items in Ghana are government agencies, such as the Ghana School Feeding Programme (GSFP), and the National Food Buffer Stock Company (NAFCO), as well as private institutions such as large-scale catering companies, hotels, restaurants, and food processing companies. Also, government supplies food items to Training Colleges across the country. However, there has been inconsistent flow of funds for administrators of Teacher-Training Colleges to feed their students; this is further exacerbated by the continuous decline in the Ghana cedi and the skyrocketing inflation rate (Ziblim et al., 2015). In 2022, some food providers to Training Colleges withdrew their services due to huge debt owed by government, compelling the National Conference of Principals of Colleges of Education (PRINCOF) to call on government to allow the teacher-trainees to feed for themselves. Several studies reported critical gaps in government ability to feed students in Training Colleges (Ziblim et al., 2015; George & Jacob, 2015).

For the Ghana School Feeding Programme (GSFP), it was introduced by the government of Ghana to provide children in public primary schools and kindergartens with one hot, nutritious meal per day, using locally-grown foodstuffs (GSFP, 2010). It was initiated in 2005 as a joint effort by the government of Ghana and the World Food Programme (WFP). The GSFP was designed to contribute to poverty reduction and food security and reduce hunger and malnutrition, increase school enrolment, attendance and retention (Adams & Fatawu, 2014). It was estimated that about 80% of the feeding costs would be spent in the local community thus boosting the local economy (Nudzor, 2013). However, the programme is currently engulfed by series of internal challenges crippling its sustainability. Recent studies reported that GSFP is laced with political inclinations and interferences, making it difficult to operate smoothly (Robert & Weaver-Hightower, 2011; Bundy et al., 2012; Issah et al., 2022). Though these caterers are expected to buy the food stuff from the local community to boost the local economy, reports available indicated that

they lack capacity to buy in bulk due to lack of funds (Adams, 2014), thus compromising the quality and quantity food fed to the pupils. Caterers in various parts of the country threatened to lay their tools due to government failure to pay money owed them. Subsequently, some caterers have withdrawn their services.

At the Senior High School, government of Ghana introduced the Free Senior High School (FSHS) policy in 2017, where fees of students at the Senior High School are absorbed by the government. The aim is to bring education to the doorstep of every Ghanaian child irrespective of the economic backgrounds of their parents. The policy was designed to ensure equity, access and equality in the educational sector. As part of the programme, the National Food Buffer Stock Company Limited (NAFCO) has been the state-designated supplier of food to Senior High Schools. NAFCO is a limited liability company wholly owned by the government of Ghana and was incorporated under the Companies Code of Ghana, 1963, Act 179 in 2010 (Dick, 2012). It is a government agency established to ensure food security and stabilization of prices of essential food items in the country. NAFCO operates by purchasing and storing food commodities during periods of surplus and releasing them into the market during periods of scarcity or price hikes. Generally, NAFCO's operates under three main objectives (GoG, 2010):

1. Purchases of food commodities from farmers and aggregators at competitive prices. These commodities are then stored in warehouses across the country.
2. Market Stabilization; during periods of food scarcity or when prices of essential food items increase, NAFCO releases the stored buffer stock into the market. This helps stabilize prices and ensures availability of affordable food items for consumers.

3. Social Intervention Programmes; NAFCO also collaborates with other government agencies to implement social intervention programs such as the Livelihood Empowerment Against Poverty (LEAP) initiative. The FSHS policy falls directly under this objective of NAFCO.

As a leading implementer of GFSHSP, NAFCO employs only licensed buying agents (LBAs) to purchase food stuff for NAFCO warehouses located across the country. These food crops are purchased at the farm gate price, providing farmers access to efficient markets devoid of intermediaries' activities (Abokyi et al., 2021). However, recent reports indicated that such services are only available at political door steps. Just like the GFSHSP, NAFCO is also characterized with some critical challenges largely due to government's indebtedness to the company. Some experts argued that the challenges with food supplies being witnessed at the Senior High Schools are attributed to corruption and fraud that have plagued the National Buffer Food Stock Company. Recently (July 2023), members of the National Food Suppliers Association from different parts of Ghana, besieged the premises of NAFCO to press home their demands for payment of their over two years' arrears for food supplies made to various schools. These suppliers indicated that they are being chased by their creditors from their homes. Government owed them a total amount of GH¢270 million for food supplied to Senior High Schools across the country from 2021 to 2023. While government is making efforts to settle these suppliers, the ministry of Education has introduced the 'Commodity Exchange Commission' that supply 50% of the food requirements to schools while the buffer stock also supplies 50%. The aim is to ensure continuous supply of food to schools since some of the suppliers have withdrawn their services.

2.4 Best Practices in Local Gari Processing

Generally, local gari processors lack sufficient capital to invest in modern automated gari processing machines. However, it is important not to compromise hygienic conditions during gari processing. Traditional gari processing tools are made of metals that rust, thus contaminating the product.

Majority of the gari processors in rural communities do not only introduce dirt into the product but also sacrifice their health on the altar of the business. The following is a summary of best practices and tools for local gari processing; adopted from (James et al., 2012; Adebayo et al., 2012)

Step 1: Peeling and washing the cassava roots



Freshly harvested healthy cassava roots are peeled to remove the outer brown skin and inner thick cream layer and washed to remove stains and dirt. Clean water should be used to avoid contaminated.

Step 2: Grating cassava roots into mash



Traditional cassava graters are usually made from perforated metal sheets; however, these rust quickly, difficult to clean, and are labour intensive. Modern mechanized graters, made of stainless steel are used to produce a high quality cassava mash to meet market demands and standards.

Motorized grater



Woven polythene sacks

Clean woven polythene sacks are used to receive the cassava mash after grating. Traditional processors do not line the sacks, resulting in contamination

The polythene sacks are washed after use, dried and stored in a clean dry place. They are usually washed again before the next use

Step 3: De-watering and fermenting mash into wet cake



Hydraulic press

In the traditional approach, stones or woods are used to squeeze out the cyanide and water from the cassava mash. These methods are slow, unhygienic and are labour intensive

A hydraulic press or screw press is recommended for de-watering. This process is hygienic and has been accepted as a standard in gari processing.

The bags are loaded directly on to the hydraulic press and the jack handle is lifted and pressed repeatedly until no more water comes out of the bag, thus producing a firm wet cake.

Step 4: Sieving wet cake into grits



Stainless steel mesh

Gari is made by sieving the wet cake into small pieces (grits) before roasting. The product should be free from mould, insects, dirt and any other material that could be hazardous to health.

The sieve is usually made of stainless steel to avoid contamination. Depending on the size of the sieve, gari is usually graded/classified by its particle size as follows:

1. **Grade 1** (extra-fine): passes through 0.25 mm to 0.5 mm aperture sieve
2. **Grade 2** (fine): passes through 0.5 mm to 1 mm aperture sieve
3. **Grade 2** (coarse): passes through 1 mm to 1.25 mm aperture sieve
4. **Grade 3** (extra coarse): passes through 1.25 mm to 2.0 mm aperture sieve.

Step 5: Roasting grits into gari



The traditional gari roasting bays expose processors to direct heat, smoke and fumes.

In an improved gari roasting bay, fuel wood is lit through a fireplace on the outside of the factory wall. The processor has no direct contact with the heat

The fire heats the stainless-steel tray sitting on a raised platform above the fireplace inside the factory, providing the heat for the gari

Smoke generated from the fire underneath the tray escapes through a galvanized steel chimney pipe to the top of the roof



Gari roasting bay



For large scale gari processing, an automatic gari roaster is used. Though this is more efficient and reduces labour, it is comparatively more expensive to acquire

Automatic gari roaster



Standard-size sieve



Plastic-lined sack

The gari is then sieved with a standard-size sieve to ensure that gari granules are all of the same size. It is not advisable to use a woven sack without the plastic lining, this is because the gari will absorb moisture and lose its crispiness; it will also become mouldy and unsaleable. All sacks should be lined before receiving gari.

3.0 Methodology

3.1 The Study Area

This study was conducted in the East Gonja Municipal District of the Savannah Region. This district, which is one of the seven districts of the region, is located in the eastern part of the region with Salaga as its capital town (Figure 2). The district shares boundaries with Yendi and Tamale districts to the north, Central Gonja District to the West, Nanumba-North and Nanumba-South Districts to the east, and the Volta and Brong Ahafo Regions to the south. The total land

area of the district is 10,787 sq kilometres, occupying about 15.3% of the landmass. The population of the Municipality according to 2021 population and housing census stands at 117,755 (51% males and 49% females). This study was specifically conducted in five communities within the district: Sisipe, Kakoshi, Dafaba, Lamsa and Tchipei. These are the most prominent gari-processing communities in the district (figure 2).

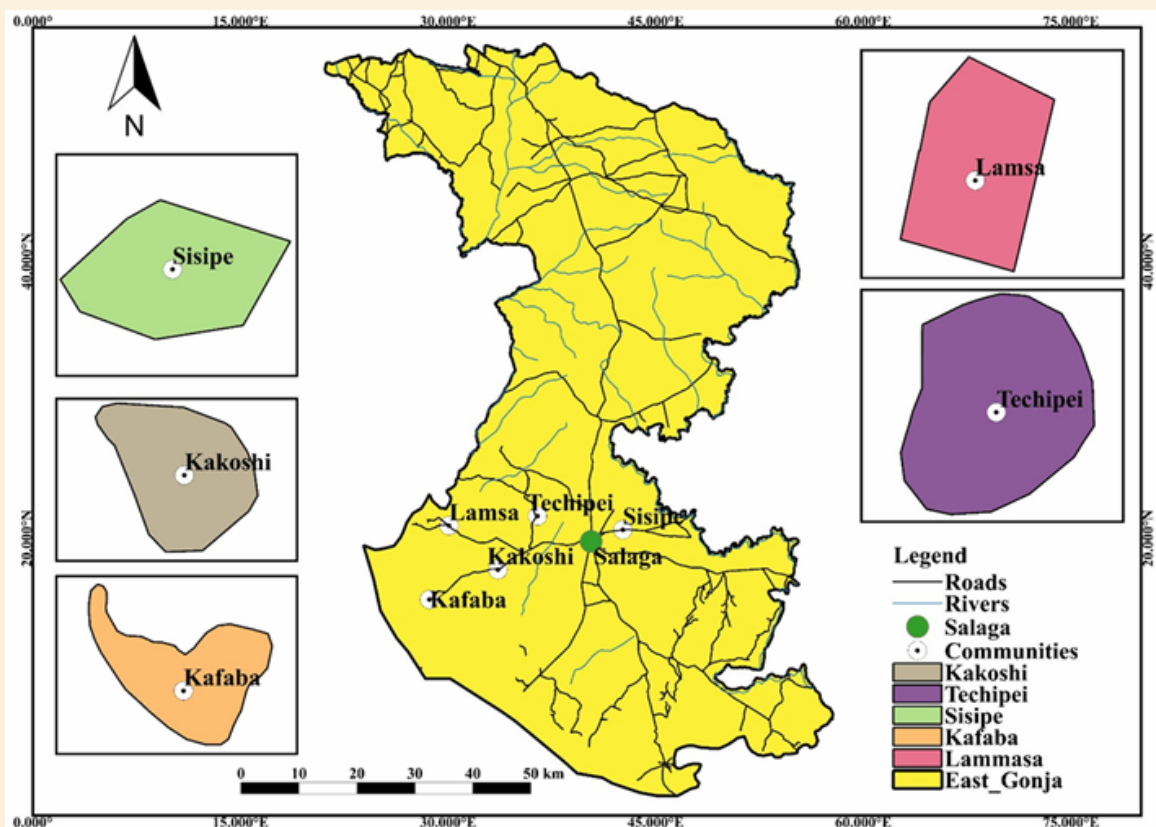


Figure 2: Map Showing the Study Areas within the East Gonja District

3.2 Study Design

Since the study aims at unravelling the market access options available for gari in the East Gonja District, empirical evidence is critical in securing the commitment of duty

bearers to support inclusive gari markets in the district. As captured on the flowchart (figure 5), the study adopted a purely qualitative research approach. This

technique was considered most appropriate as it allowed the researcher to explore the subjective experiences, beliefs and concepts about access to gari market in the district and possible ways of increasing inclusion in the gari market chain.

3.3 Sample Size and Data Collection Tools

The study adopted multiple data collection techniques to gather data and tease out the subjective expressions of participants. In each target community, five (5) leaders of the women groups were purposefully sampled for the interview (*table 1*). The focus group discussion (FGD) was conducted in the five (5) communities within the district sampled for the interview. In all, 5 FGDs were conducted; ie., 1 FGD in each of the five selected communities, making a total sample size of 25 individual participants in the FGDs. Key informant interview is also critical in soliciting relevant information from knowledgeable individuals within the gari value chain. The interview was extended to the East Gonja Municipal District Assembly, particularly the Municipal District Chief Executive, the Municipal District Coordinating Director and the Coordinator for the school feeding programme, and other relevant stakeholders along the gari market chain within the Municipality. The actual field data collection exercise was then carried out in the communities and locations of respondents as captured in *figure 6*. The key informants contacted include the following:

1. The Municipal District Chief Executive
2. The Municipal District Coordinator for the School Feeding Program
3. Officer in charge of the Gender Desk
4. Municipal Director of Agriculture
5. The Headmaster for T. I. Ahmadiyya SHS
6. The Headmaster for Salaga SHS
7. The Principal, Kpembe Nursing & Midwifery Training College (NMTC)
8. Market traders (wholesalers)
9. Cluster of gari sellers in the market (Retailers)
10. The Manager, Buffer stock
11. Chief and Assembly member in each of the five communities

In addition to this, GPS coordinates were taken in order to carve out the communities under study.

Table 1: Population and sample size for FGD

Community	Total number of women (population)	Number of women selected and interviewed (sample size)
Sisipe	90	5
Kakoshi	120	5
Kafaba	120	5
Lamsa	120	5
Tachipei	63	5
Total	513	25

3.4 Inception Meeting

In order to finetune the interview tools for the data collection, it was deemed necessary to hold an inception meeting with DFWC (figure 3). Due to language barrier, it was necessary to engage the services of a translator. Fortunately, the translator engaged, was a Board Member of DFWC, who is a native and well familiar with the people in the study area. The inception meeting was therefore an opportunity for him to acquaint himself with the interview guides in order to facilitate the field work. Questions that were difficult to translate were rephrased. Generally, the interview guides were structured in two parts; part one deals with the FGDs while part two embraces

the key informant interviews. The meeting delved deeply into each part following the five objectives of the study: (i) profiling the gari production and supply capacity in the East Gonja District (ii) highlighting the available markets for gari and bulk purchase opportunities in the district (iii) investigating the existing contract markets for local bulk supplies to institutions (iv) national and international opportunities for gari market and (v) local and institutional capacity gaps for functional local supply chain. Each question was thoroughly criticized and revised where necessary. Some questions were entirely deleted, some restructured and a few new questions were inserted.



Figure 3: Consultant with DFWC team in an inception meeting

3.5 Data Transcription and Analysis

The interviews and discussions were conducted in the widely spoken languages, Gonja, Dagbani or English or a combination, depending on the participant's preference. Data from the key informant interviews and FGDs were triangulated to further nuance the analysis. The interviews were audio recorded with the consent of the interviewees and later translated/transcribed

verbatim into English. The data was then validated and critical discourse analysis deployed to make sense of the narratives and the subjective expressions from respondents in unravelling and improving the gari marketing dynamics in the district. These analyses were carried out using relevant tools such as R, ArcGIS and SPSS.

3.6 Data Validation

A validation workshop was held on 6th June, 2023 in the conference hall of SEND GHANA, Salaga (figure 4). The workshop brought together all stakeholders interviewed at the data collection stage. The Chief of Kafaba and Kakoshi attended the workshop together with their Assembly members. Also, three (3) WFWC members from each of the five communities (Sisipi, Kaoshi, Kafaba, Lamsa, and Tachepei) participated actively in the workshop. The validation was considered necessary to ensure that the transcripts stay close to the live stories that participants shared during the fieldwork. The workshop

allowed engagement with stakeholders and the communities, in a collaborative setting, thus serving as a platform to present and discuss the findings and interpretations of the work in order to promote transparency and credibility. Potential biases and gaps in the research were addressed during the group discussions. This collaborative feedback loop enhances the quality and relevance of the research outcomes, and fosters a sense of ownership and buy-in from the stakeholders, thus paving the way for successful implementation of any proposed interventions resulting from the research.



Figure 4: Participants at the validation workshop

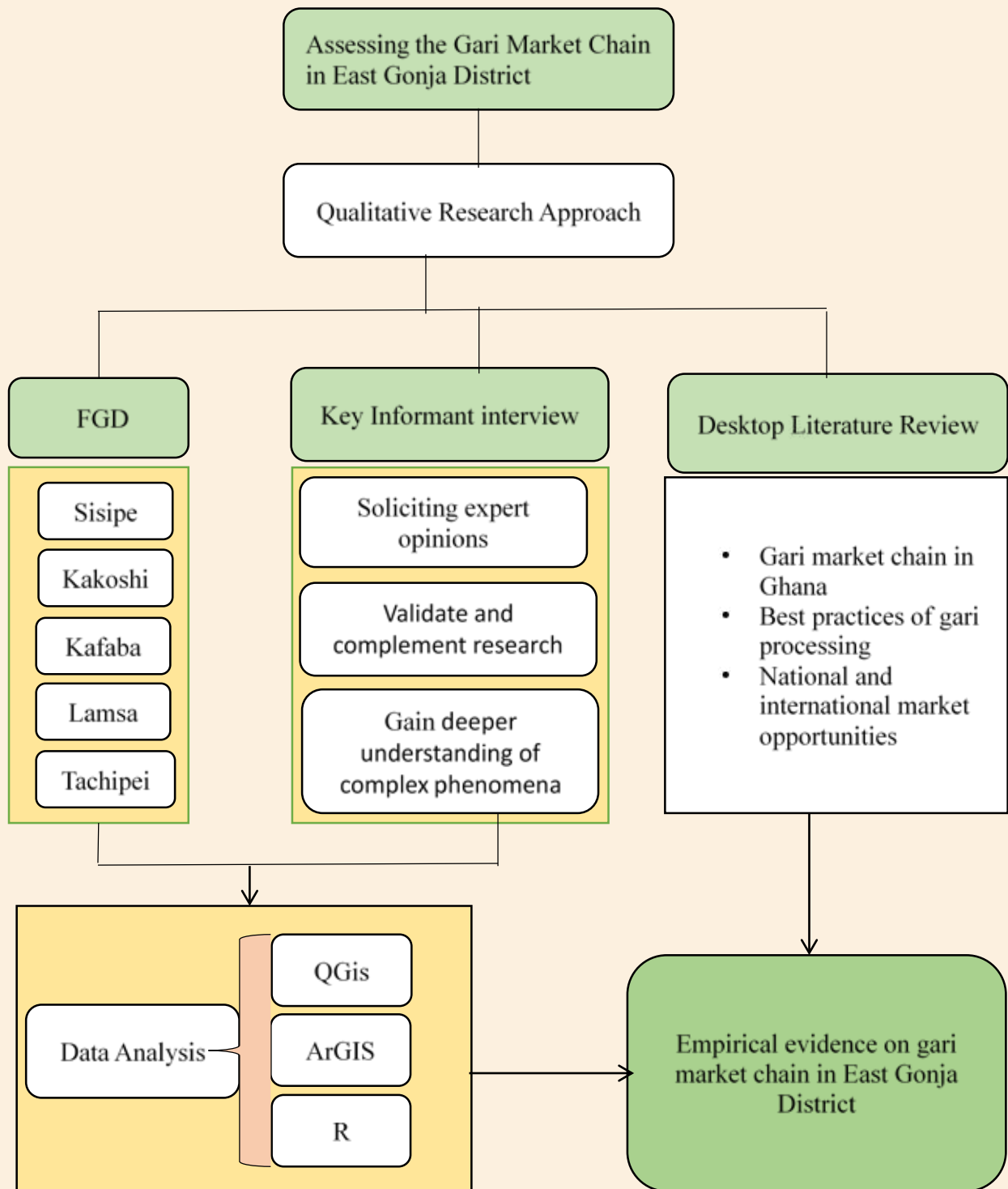


Figure 5: Flowchart of the study

4.0 Results and Discussions

4.1 Basic Information about the Respondents

Table 2 revealed the basic information about the respondents contacted in the various communities. These hard-working women are 513 in number with Tachepei having the least number of 63. They are all married women with ages ranging from 21 to 60 years. They have all been processing gari for past 15 years. "I am now 55 years but my mother was into this gari processing before I

was born", revealed by one of the women at Sisipi. One critical issue observed is the low level of education of these women. The most educated DFWC woman in all the five communities only completed JHS. This explains why it becomes difficult to organize themselves and function as a group in gari processing.

Table 2: Basic information about the respondents

Parameter	Sisipi	Kakoshi	Kafaba	Lamsa	Tachepei
Age range	21 - 40	32 - 60	42 - 60	35 - 50	25 - 47
Level of education	Prim: 1 person JHS: 0 SHS: 0	Prim: 0 JHS: 2 persons SHS: 0	Nil	Nil	Prim: 1 person JHS: 0 SHS: 0
Processing experience	15 years	20 years	20 years	25 years	30 years
Numerical strength	90	120	120	120	63
Dependents (range)	12 - 15	9 - 13	8 - 10	10 - 14	6 - 20
Main source of livelihood	Gari processing	Gari processing	Gari processing	Gari processing	Gari processing



Interaction with the MDCE

Interaction with the MDCD

Interaction with the Coordinator School Feeding Programme

Interview with the Principal, Kembe NMTC

Interview with Gender Officer

Interview with the Director, Agric

Matron, SASS

Matron, T.I. AMAS

Interview with market women

Figure 6: Interview with stakeholders within the gari market chain

4.2 Mapping Gari Production and Supply Capacity in TALK₂S Communities

In assessing the gari production capacity across the five communities, it was revealed that DFWC women produce on average of 1,912 bags of gari weekly in each of the five communities. Collectively, they produce about 9,558 bags as the total weekly production capacity of the cooperative (figure 7). Sisipi with only 93 members produces the highest number of bags weekly followed by Kakoshi, Kafaba and Lamsa. In interacting with the Assembly member for Lamsa, he indicated “Lamsa is the largest

producer of gari in the East Gonja Municipality, you can ask anybody”. Though the data suggest otherwise, it was observed that every household in Lamsa processes gari; it is the main source of livelihood not only for DFWC women but also for the entire community. The heavy dependance on traditional gari-production methods, which involves the use of rudimentary tools, could account for the slower gari production process.

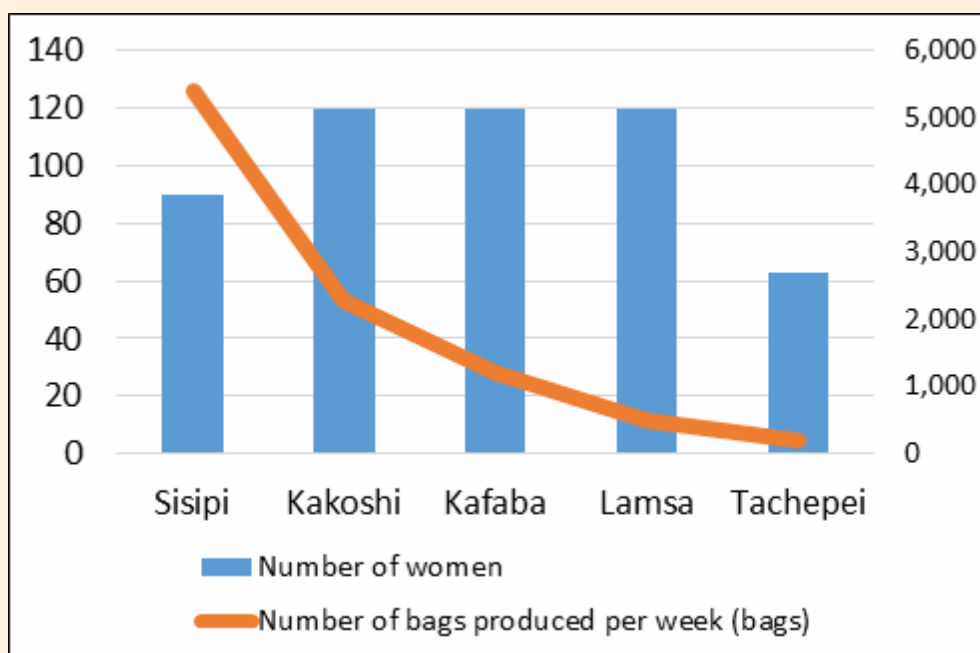


Figure 7: Gari production and supply capacity in TALK2S communities

It was found that, though DFWC women process gari in larger quantities, the cooperative is faced with several constraints limiting the efficiency and progress of their business. These include limited access to credit facilities, high cost of cassava, transportation challenges, lack of access to bulk buyers, and low demand for gari. According to *Naiim (2022)*, the most critical challenges confronting gari processors in West Gonja District are lack of bulk buyers, lack of advanced dewatering and sieving equipment, and lack of financial infrastructure to boost the expansion of the enterprise. This suggests that there are common problems in gari processing in the Savannah Region. Though the severity of these challenges varies slightly from one community to another, 'lack of access to bulk buyers' featured strongly in all the communities as the most critical challenge

(table 3 and figures 9 (a) & (b)). It is important to add that, though the women of Lamsa ranked 'lack of access to bulk buyers' as the second most critical challenge, they indicated "apart these bulk buyers who come from Salaga and Tamale, no one comes here again; but these bulk buyers come at their own space and dictate the price per bag; we have no option than to sell at their given price". One woman remarked "We have a lot of cassava; we have the knowledge to process cassava into gari but we don't have market for our produce; so we labour in vain; we have no one to lead us". In communities like Kafaba and Lamsa, the women purchase cassava farms on credit, uproot the cassava, process them to gari, and sell to repay the cassava farmer. Therefore, any inability to get a quick market poses critical challenges along the gari value chain.

Table 3: Ranking the severity of the most critical constraints in gari processing

Parameter	Sisipei	Kakoshi	Kafaba	Lamsa	Tachepei
Limited access to credit	3	2	2	1	2
High cost of cassava	2	4	3	4	3
High cost of transportation to market centres	2	2	4	3	3
Lack of access to bulk buyers	1	1	1	2	1
Low demand for gari	4	3	4	4	3



Sisipi



Kakoshi



Kafaba



Lamsa



Tachepei



Interaction with the
Chef of Kafaba

Figure 8: Interactions with the DFWC women in the five communities

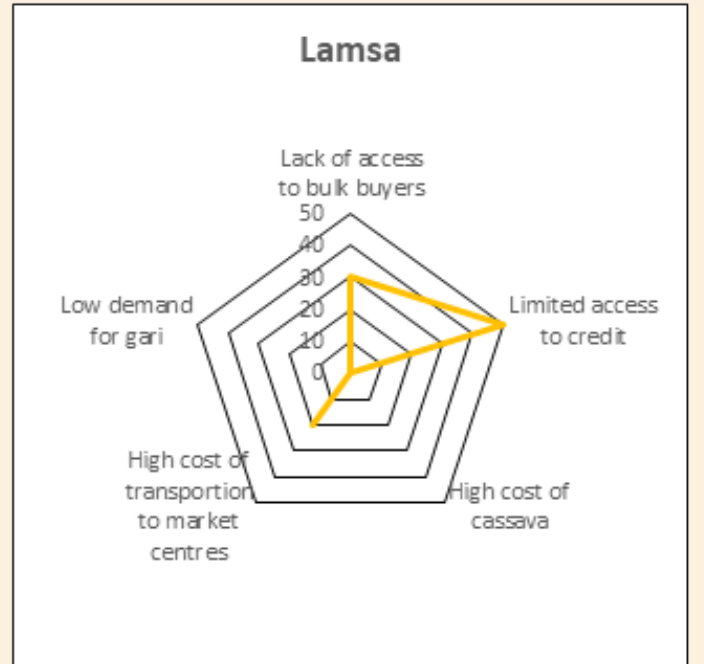
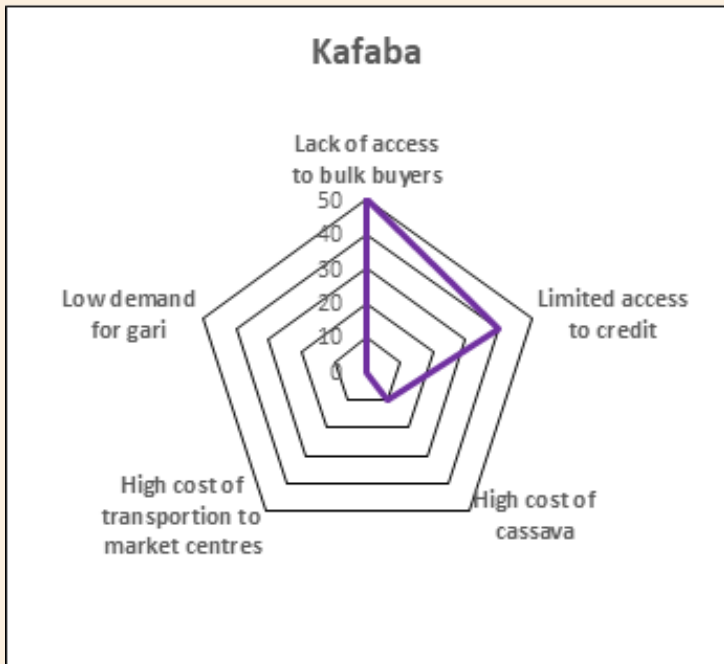
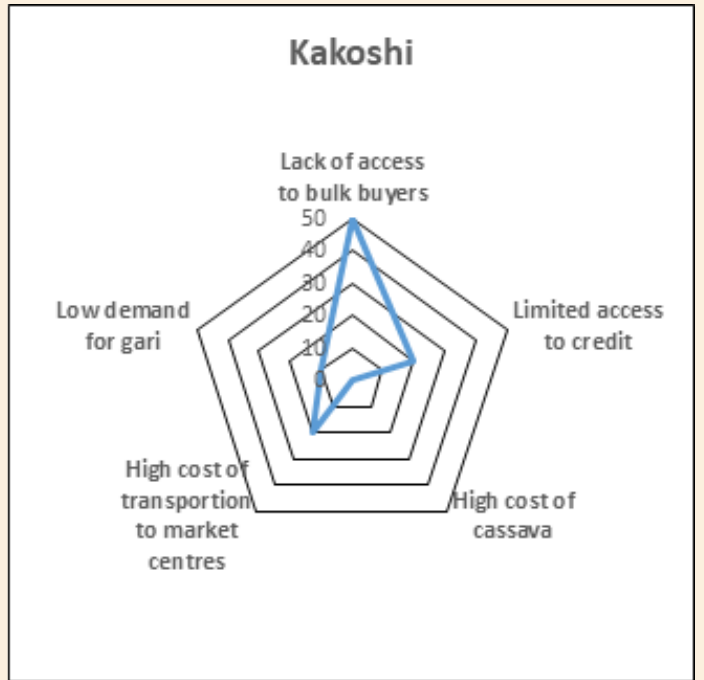
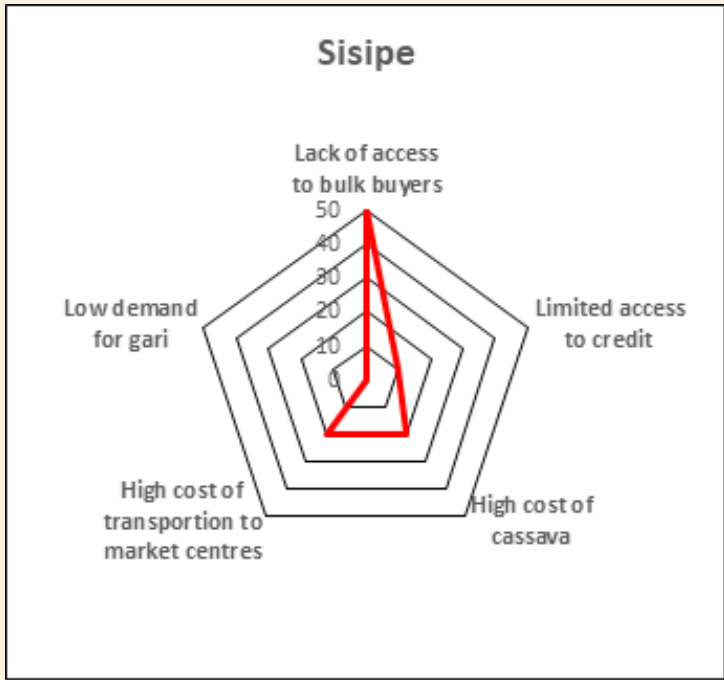


Figure 9(a): Ranking the severity (in percentages) of the constraints faced by DFWC women

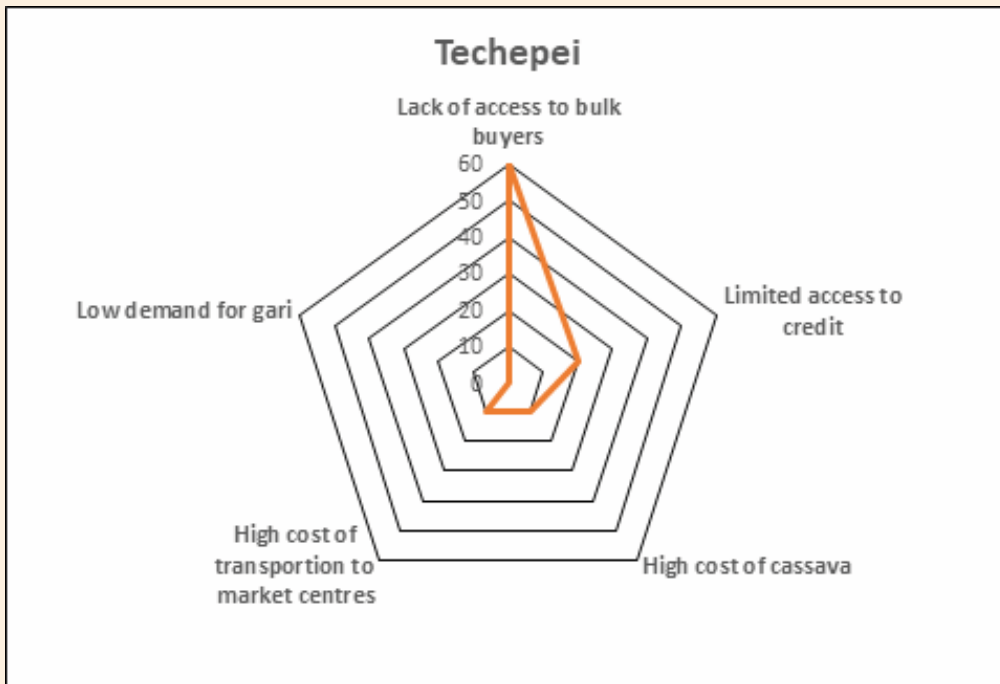


Figure 9 (a) Ranking the severity (in percentages) of the constraints faced by DFWC women

4.3 Available Markets for Gari and Bulk Purchase Opportunities

Generally, gari marketing is a critical challenge in Ghana. The market has not been formalized, hence gari is usually processed and sold at the local level. Individual processors make their own arrangements for national and international transactions; for the example, the Christian Mothers Association (CMA) in Awurwa in the Bono East Region, has one of the largest gari-processing factories in Ghana; however, these women (CMA) made personal arrangement for contract market with gari traders from Burkina Faso, Mali and Niger. CMA women also sell their product to Buffer stock and caterers of the School Feeding Programme. In this study however, DFWC mostly sell their products to retailers as captured in *figures 11 (a) & (b)* and *figure 12*. It can be seen that apart from Lamsa, that sells about 60% of their produce to wholesalers, all the other communities sell more than

half of their produce to retailers. It is also clear that DFWC women have no link to institutional buyers and exporters. What is more worrying is that, over half (52%) of the gari produced is sold to retailers and only 20% is sold to wholesalers (*figure 12*). This means that retailers dominate the gari market chain in the East Gonja Municipality. This is contrary to the initial plan of the GSFP programme, where about 80% of the feeding costs is supposed to be spent in the local community to boost the local economy (Adams, 2014). Also, under the social intervention programmes of NAFCO, agents of the Buffer stock are required to purchase food items directly from the producers at farm gate prices (Abokyi et al., 2021). Retailers dominating the gari market in East Gonja can therefore, be an indication of an institutional failure.



Figure 10: DF WC women from Sisipi (a), Kakoshi (b), Kafaba (c), Lamsa (d), and Tachepei (e) ranking the agents who buy gari from their communities

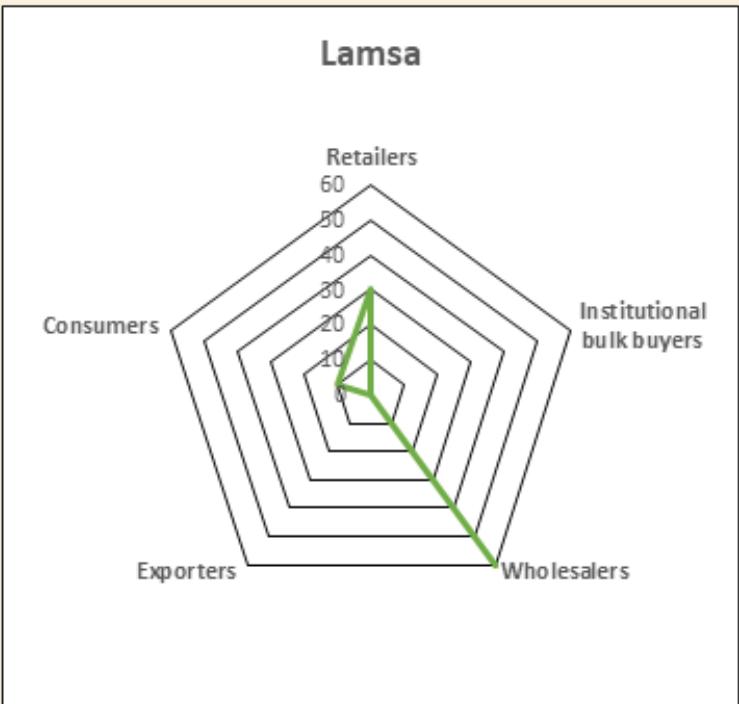
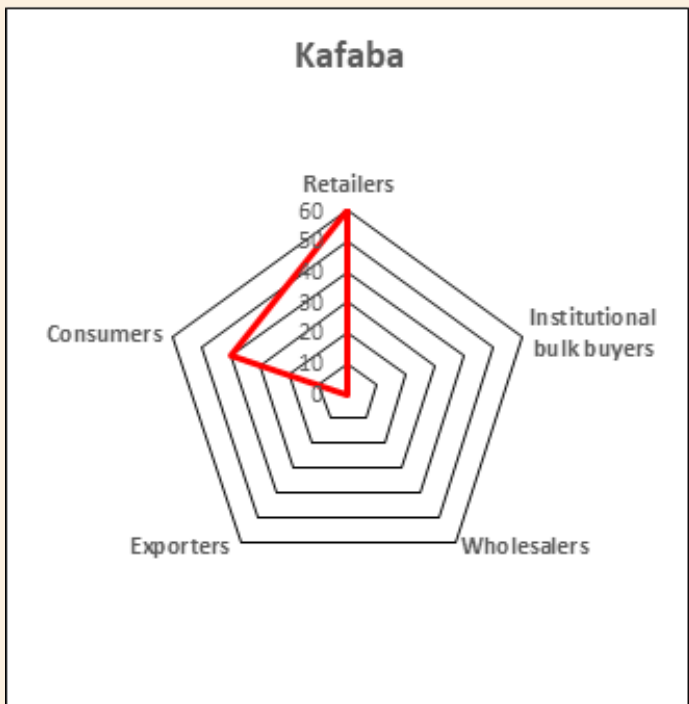
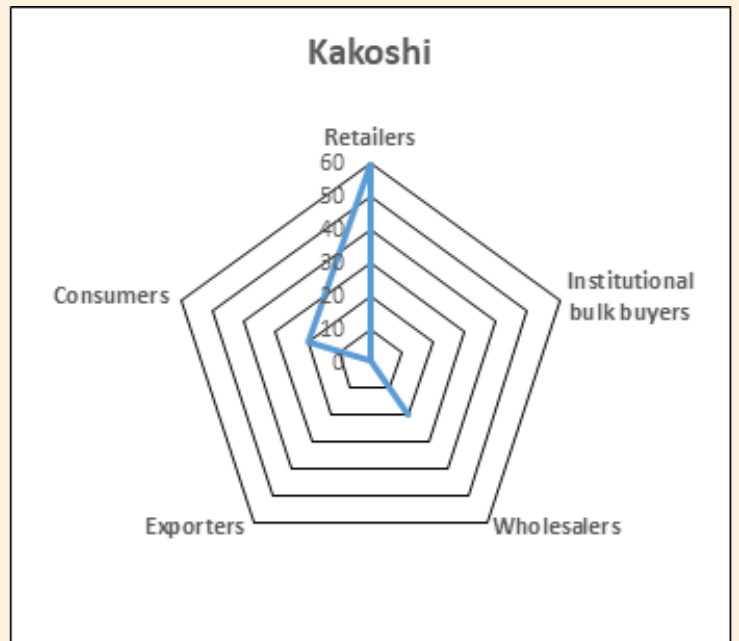
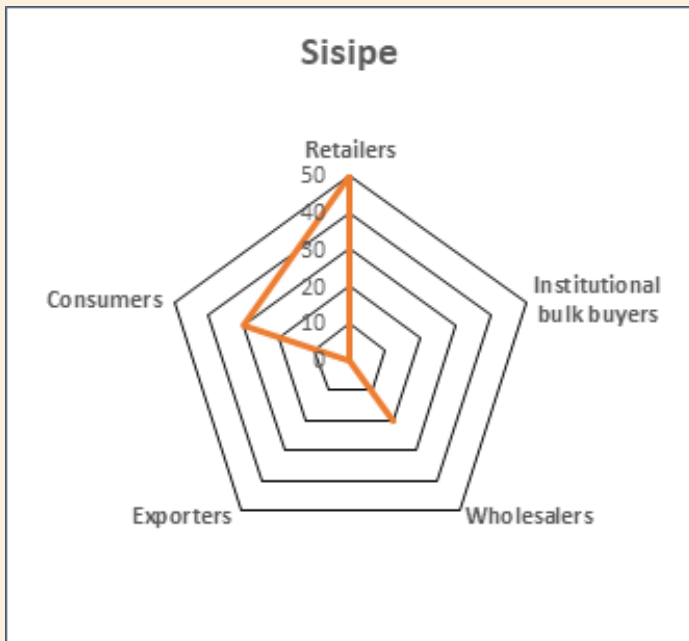


Figure 11: (a) Proportion of gari sold to agents by TALK2S communities

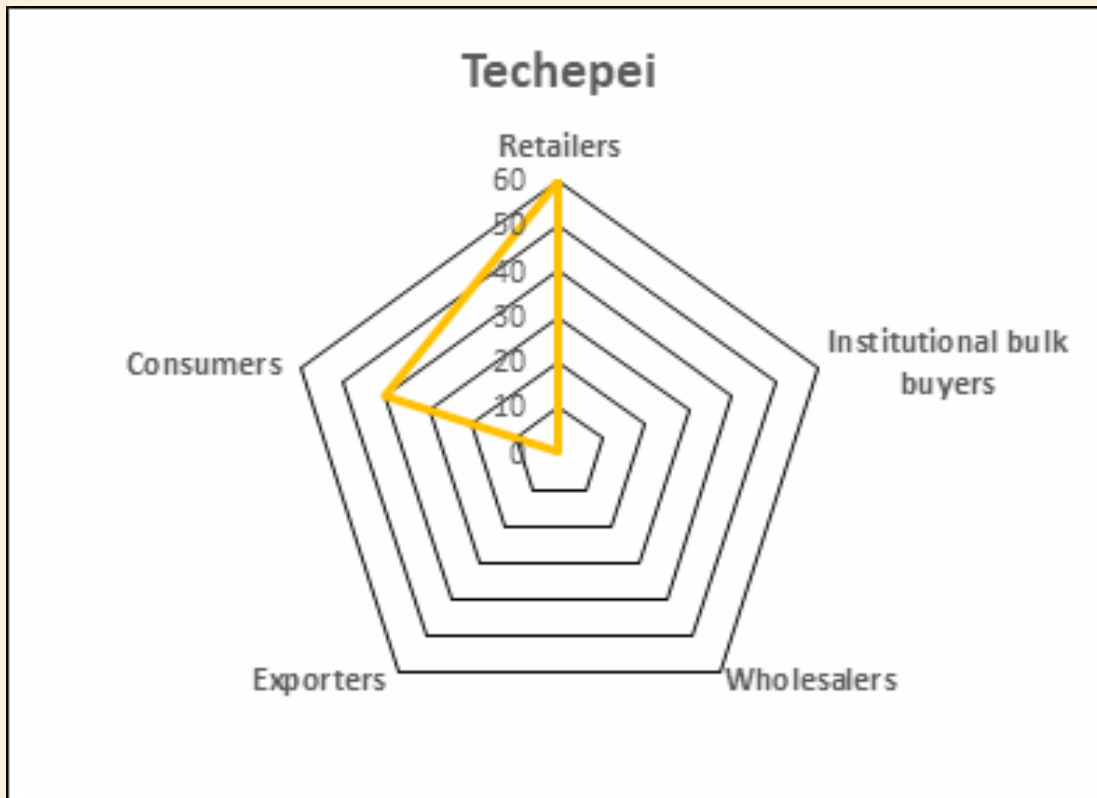


Figure 11 (b) Proportion of gari sold to agents by TALK2S communities

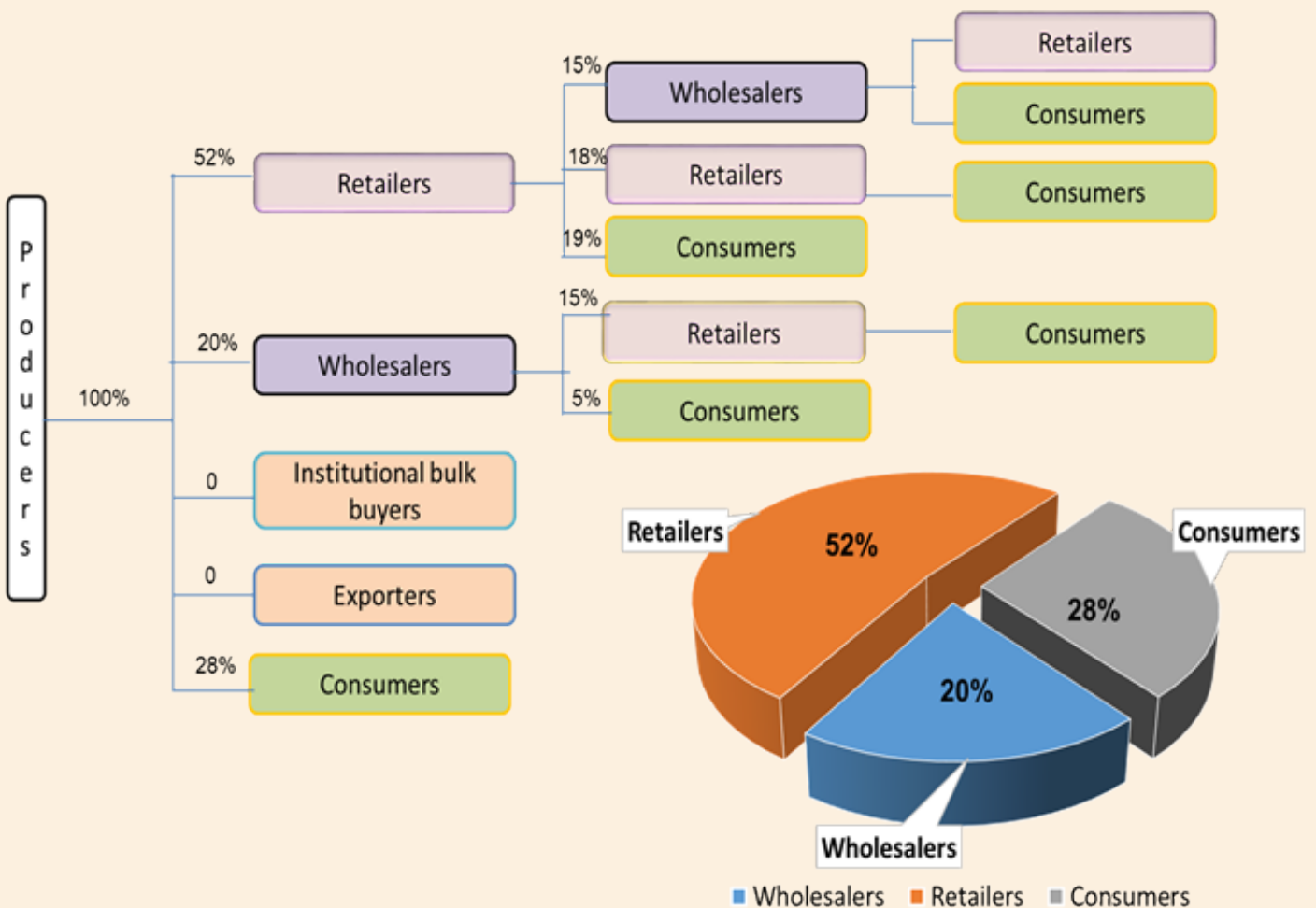


Figure 12 Proportion of gari sold to market agents by DFWC women in the East Gonja Municipal District

4.4 Contract Markets for Local Bulk Supplies to Institutions in the East Gonja District

The East Gonja Municipal District has three institutions that are being fed by the Buffer stock under the Free Senior High School Programme; these schools include: T.I. Ahmadiyya Senior High School (T.I. AMASS), Salaga Senior High School (SASS), and Technology Solution Center. The Buffer stock, which is located in Tamale, supplies 18 different food items to these institutions in every semester based on the enrollment capacity of the school. Agents of Buffer stock are licensed buyers who are given contract to supply one of the 18 food items either to the Buffer stock warehouse or directly to the schools. In East Gonja, Damsa Kori Enterprise supplies food items to Senior High Schools within the municipality. Also, Women Cooperative Group based in Damongo, are

given contract by the Savannah Regional Minister to supply gari to schools in Damango, Bole and Salaga. Interestingly, there is no agent from Salaga or East Gonja, who is on contract to supplying any of the food items to Buffer stock.

Interacting with the Manager of the Buffer stock in Tamale, he indicated that some agents have withdrawn their services due to delays in reimbursement by the government. He further added *“due to the withdrawal of some agents, the Minister for Education has introduced the Commodity Exchange Commission, starting this academic year to supply 50% of the food requirements to schools while the buffer stock also supplies 50%”*. The aim is to ensure continuous supply of food to schools.



Figure 13 Buffer Stock, Tamale

However, this is certainly not sustainable. Currently, the Buffer stock is characterized with critical inherent challenges. According to one of the Matrons interviewed *“we always travel all the way to Tamale to pick the food from the Buffer stock at our cost, very bad; the system is not good but we can't complain”*.

The Municipal Coordinator of the School Feeding Programme stated *“I met one woman; he comes from Yendi but had travel to Salaga to supply foodstuff to T.I. AMASS; just imagine! Meanwhile we equally have capable people in Salaga, who could have purchased these food items in Salaga”*. What is more worrying is that the food supplied by the buffer stock is sometimes, not sufficient to meet to consumption

demand, for example, as capture in figure 14, the weekly gari consumption capacity for SASS (for Form three and Form two) is 3.5 bags, which amounts to 42 bags for this semester; however, the Buffer stock supplied 38 bags of gari to the school for the semester. It was observed that some schools rely on the benevolence of the Municipal Assembly and other organizations for support in feeding the students when food is out of stock.

Institution	Gari Consumption Capacity (in bags)	
	Weekly Average	Monthly Average
SASS	3.5	16
T.I. AMASS	2	8
Kpembe NMTC	1.5	6
TOTAL	7.5	30



Figure 14 Institutional gari consumption capacity in the East Gonja Municipality

It can be established that the gari supply capacity in the East Gonja, far exceeds the institutional demand. DFWC women exclusively produce about 9,558 bags of gari weekly but the total institutional consumption capacity is only 30 bags. This means that relying on only institutional bulk buyers will not solve the problem. There is an urgent need to consider other organizations or individual bulk buyers. According to the Principal of Kpembe NMTC, DFWC can consider the production of other derivatives of cassava, for example, konkonte, which is widely eaten in all boarding institutions. The production of cassava ships and other diversified value-added products can broaden the market base and increase the profit margin. The Principal argued that DFWC women need to be proactive and versatile in looking for market for their products. She encouraged the women to register their business with the Registered General Department and then write officially to her school for consideration as a supply agent. "Also, try to get in touch with Nkachina Nursing Training College, Kpandai and sign contract with them", the Principal advised.

Another institutional bulk buyer of gari in the district is the caterer of the Ghana School Feeding Programme (GSFP). These

caterers are given contracts to cook for pupils at the basic level of education (primary school). However, though pupils across the TALK2S communities are being fed under the School Feeding Programme, the caterers do not buy the food items from these communities. According to the Coordinator of the School Feeding Programme, the Municipal Assembly does not control the purchases of the caterers under the programme. It was generally observed that there has not been any conscious effort from the Municipal Assembly to ensure inclusiveness in the gari market chain. According to the MDCE "we have not really done much in linking these primary producers to bulk markets but we will take it up; if their business is promising, getting a market should not be a challenge". The MDCE further added "So many NGOs are now coming into the district to help in rural development; yesterday, World Vision International came to me, they want to establish a gari factory at Sisipi. I like NGOs because their activities go straight to address the core needs of the people". What is clear is that DFWC is not certified to operate as a contract supplier of gari in the formal market (eg., the Buffer stock company).

4.5 Local & Institutional Capacity Gaps for Functional Local Supply Chain

This study found some significant local capacity gaps hampering the efficiency of a functional supply chain. The most critical ones include the following:

1. DFWC women run a disjointed operational model
2. Hygienic conditions are compromised during gari processing
3. There exist critical infrastructural deficits
4. Leadership crises due to very low level of education

Though DFWC is an association, the women function individually throughout the entire gari value chain. These women come from different economic backgrounds, they have different technical knowledge and they operate under different environmental conditions. They produce different grades of gari but blame it on the cassava variety. They sell as individuals to middlemen through personal arrangement. This makes it difficult for them to operate on contract markets. Interestingly, they cannot even tell the total gari production capacity of the association. This study estimated the total production capacity by summing up their individual

production values. It is important for these women to pull their resources together and operate as a group. This will guarantee the quality and quantity of gari produced for a target market.

One of the most critical capacity gaps is the environmental conditions under which gari is processed. As shown in *figure 15, community (a)*, cassava mash in sacks, sit directly on the bare ground with stones heaped on them in order to squeeze out water and the cyanide in the cassava mash. Sticks erected to support the cassava also served as a dry line and animals play around the scene. In all the study communities, these sacks are often not lined; thus, raising critical hygiene issues. Also, in an event that it rains, what happens to the cassava mash since the sacks are not lined? It takes a number of days for the water and cyanic to drain out from the sacks since the stones are not heavy enough. These delays in dewatering result in a sour taste of the end product (gari). In an interaction with the market women in Salaga market, they indicated that gari from East Gonja often tastes sour. The study observed much improvement as shown in Communities (b) and (c), where the sacks are placed on a raised platform and covered, especially in the community (c).



Community (a)



Community (b)



Community (c)

Figure 15 Hygiene crises in gari processing in the East Gonja Municipality

Another critical local capacity gap identified is the lack of infrastructure for gari processing. There are no shelters for gari roasting in all the communities except this open-shelter found in Lamsa (figure 16). All the communities use the traditional gari roasting bays, which expose processors to direct heat, smoke, and fumes. Previous studies indicated that such practices have serious health hazards (James et al., 2012). Also, in the traditional method of roasting, they are unable to regulate the intensity of the fire, which has direct effect on the end product. DFWC women also lack facilities to store gari while looking for market. This results in some significant losses even before a buyer arrives. One woman remarked “we

have no place to store our gari, so we keep them in our bedrooms until we get market”. At Sisipi, one woman led the team into her bedroom where she packed her gari (figure 16).

Due to the low level of education, the women have serious challenges with leadership. They have no one to organize them to function as a group; as such, they are unable to lobby for bulk buyers for their product. They become content with the little income they get from retailers and consumers. This explains why they operate individually and make individual arrangements for market, thus making it very difficult to operate in the contract market as an association.



Shelter for gari roasting



Gari produced stored in the bedroom

Figure 16 Infrastructural challenges in gari processing in the East Gonja

Access to portable water was observed to be a critical challenge in all the communities. Though this was not part of the objectives of this study, it is worth highlighting since water is critically connected to gari processing. As shown in table 4, the people of Lamsa travel for about 6 km to access water from river for domestic purposes. With the exception of Sisipi that has a borehole, all the other communities either drink from either a dam or river. It is clear that Lamsa and Tachepei are the most vulnerable communities to water-borne diseases. The people of Kakoshi compete with animals for water from a dam.

When these statistics were presented to the MDCE, he remarked “*I have written about 3 proposals for a borehole to be drilled in Lamsa but all failed, Kakoshi used to have a borehole, I guess it has broken down, we will take it up”.* It was later found that the East Gonja Municipal Assembly had made negotiations with Japan Embassy to drill ten (10) boreholes within the Salaga Municipality. Leadership of DFWC are encouraged to take advantage and lobby for boreholes in water-stressed communities like Lamsa and Tachepei.

Table 4 Statistics on access to water in the TALK2S communities

Community	Distance to water source (km)	Type
Sisipi	1.6	Borehole
Kakoshi	1	Dam
Kafaba	0.5	River
Lamsa	6	River
Tachepei	3	Dam/river

Apart from these local capacity gaps, the study also identified some institutional lapses that do not favour inclusive gari market chain in the district; for example, the Municipal Assembly has not made sufficient conscious efforts to link primary producers of gari to bulk buyers. The Coordinator of the School Feeding Programme indicated that the contracts are given to caterers and they (the Assembly) do not control what the caterers buy and where they buy the food stuff. DFWC women, who are the primary producers of gari, are marginalized in the current operational market chain and have become vulnerable to the dictates of middlemen. The absence of institutional bulk buyers within the gari market chain in the district is a clear indication of some critical gaps with the implementation of the Ghana School Feeding Programme (GSFP) in the East Gonja Municipality. This is further confirmed by the complete absence of

NAFCO to buy food items directly from farmers. This is because, one of the primary objectives of the GSFP and NAFCO is to purchase food items directly from local communities in order to boost the local economy (Adams, 2014; Abokyi et al., 2021). There has also been insufficient flow of market information, thus limiting the DFWC from accessing bulk buyers from other individuals or organizations outside the municipality. Interestingly, the activities of DFWC women, as a small-scale enterprise, are not captured in the Annual Action Plan (APP) of the Business Advisory Centre of the Municipal Assembly. Subsequently, there has not been any plan for inclusion and capacity building for these industrious primary producers (fortunately, the Officer in charge of the Gender Desk, who is also a member of the Business Advisory Centre, promised to take this up accordingly).

4.6 National or International Opportunities for Gari Market

From the literature reviewed, and after interacting with experts along the gari value chain in Salaga and Techiman in the Bono East Region, it is clear that the gari market chain is not well coordinated by state agencies, especially in the East Gonja District. Gari processors in various parts of the Bono East and Ashanti regions export gari to Burkina Faso, Mali, and Niger through personal arrangements. They also supply gari in bulk to hotel operators, restaurants, caterers of the Ghana School Feeding Programme, and the Buffer stock company

of Ghana. For example, the Christian Mothers Association (CMA) in Awurwa, sells gari directly to the Buffer stock and caterers of the School Feeding Programme. They (CMA) also card their goods to Kumasi, Accra, and Wa for sale. DFWC can also access these market opportunities if they are able to pull their resources together and operate as group; produce uniform product (same grading) that can compete favourably in the national and international gari market domains. This can be a better option than relying state institutions.

5.0 Conclusion

This study investigated the dynamics of the gari market chain in the East Gonja Municipal District of the Savannah Region. Qualitative research approach was adopted to solicit the subjective expressions from respondents. The results obtained could be used for policy actions in eradicating rural poverty. They could also be used in impactful advocacy anchored on scientific evidence, thus amplifying the voice of the rural poor

and securing the commitment of duty bearers to support inclusive gari market. It is important to support small and medium enterprises, which are typically dominated by individuals who are economically disadvantaged; this is crucial for achieving Sustainable Development Goals one and two. The key findings and recommendations of the study are summarized below.

5.1 Key Findings

1. DFWC produces at least 198 bags of gari per week in each of the 5 communities. Collectively, they produce about 9,558 bags as the total weekly production capacity of the cooperative
2. The Buffer stock supplies 18 different food items to three institutions in the East Gonja Municipal District (Salaga Senior High School, T.I. Ahmadiyya Senior High School and Technology Solution Center); however, there is no contract supplier of any of these 18 food items in the district, that is, none of the suppliers come from Salaga; they operate from Kintampo, Tamale, Damango, and Yendi, and they do not buy the food items from Salaga.
3. The gari supply capacity in the East Gonja far exceeds the institutional demand; DFWC women exclusively produce about 9,558 bags of gari weekly but the total institutional consumption capacity is only 30 bags. This means that relying on only institutional bulk buyers will not solve the problem.
4. The most critical challenge in gari processing in the district, is lack of access to bulk buyers; only 20% of the gari produced is sold to wholesalers, the remaining 80% is sold directly to consumers and retailers. Subsequently, the primary producers of the product (gari) gain marginally while middlemen blossom
5. There are critical local capacity gaps in gari processing across the five communities studied: (1) hygienic conditions are compromised during the gari processing; that is, the gari production procedures introduce dirt to the final product (2) gari processors are exposed to excessive heat and smoke, which have long-term health effects (3) they have leadership crises due to low level of education (4) they are unable to pull their resources together and function as a group.
6. The entire gari processing is usually done 'manually' using rudimentary methods; this compromises the quality and quantity of the product.
7. Over 90% of the expert (stakeholders) interviewed, have no knowledge about the activities of DFWC in the district. The gari processing by DFWC women seems to be a rural business limited to the surrounding rural communities.

5.2 Recommendations

1. For mutual benefits, DFWC women are encouraged to pull their resources together and function as a group in the various communities. This will help build a strong market force to operate as a bulk supplier. It will also enhance uniformity in gari quality and grading
2. It is critical to improve the hygienic conditions under which gari is processed in TALK2S communities, especially in Sisipi. Communities such as Lamsa and Tachepei, and Kakoshi are in critical need of potable water.
3. DFWC should urgently seek support for training and capacity building on best practices of gari production. The over-reliance on 'manpower' and rudimentary methodologies contributes significantly to compromising the gari quality and quantity.
4. There are NGOs in the East Gonja Municipal District (for example; Development Frontiers, World Vision International, SEND GHANA, etc), and some are interested in enhancing the gari value chain within the district; it would be helpful if the MDCE could initiate and lead an inter-organizational dialogue among these NGOs in order to avoid duplication of projects. A planned complementarity of efforts is critical in eradicating rural poverty.
5. It would be helpful to adopt a diversified operational model; for example, processing other cassava derivatives such as konkonte, and cassava chips. It is also important to add value to the gari produced; this will help improve the nutritive value and shelf life. A diversified business model will broaden the market base and increase the profit margin
6. Due to the current challenges that characterized institutional bulk buyers such as Buffer stock, it is not advisable for DFWC delve into that area as an agent. However, the DFWC can strategically position itself to take advantage to the **emergency supply window** of the Buffer stock. Bulk supply of gari and konkonte to Training Colleges can be a reliable venture
7. DFWC women should be supported to establish a **model gari processing factory** in Lamsa to serve as a resource centre for innovative gari processing in the district.
8. DFWC women are the primary producers of gari in the district yet, they are not popular in the district. It is important for DFWC to develop giggles about their business, which can be played in radio stations and local FM stations to create awareness. The information can also be circulated in social media platforms such as WhatsApp, Facebook, etc.
9. Further research is needed to cover the entire gari value chain, beginning from cassava production dynamics, which is the main raw material for gari processing.

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APPENDIX

Appendix 1: A1 Proportion of gari sold to market agents by DFWC women

Description	Quantity Received	Institutional bulk buyers	Wholesalers	Retailers	Consumers
Producers (DFWC)	100%	0	20%	52%	22%
Wholesalers	20%	0	0	15%	5%
Retailers	52%	0	15%	18%	19%

Appendix 2: A2 Ranking the agents who mostly buy gari from TALK2S communities

Parameter	Sisipei	Kakoshi	Kafaba	Lamsa	Tachepei
Retailers	1	1	1	2	1
Institutional bulk buyers	4	3	3	4	3
Wholesalers	3	2	3	1	3
Exporters	4	3	3	4	3
Consumers	2	2	2	3	2

Appendix 3: A3 Ranking the severity (in percentages) of the constraints faced by DFWC women

Constraints	Sisipe	Kakoshi	Kafaba	Lamsa
Lack of access to bulk buyers	50	50	50	30
Limited access to credit	10	20	40	50
High cost of cassava	20	0	10	0
High cost of transportation to market centres	20	20	0	20
Low demand for gari	0	10	0	0
TOTAL	100	100	100	100

Appendix 4: A4 Proportion of gari sold to agents by TALK2S communities

Agent	Sisipe	Kakoshi	Kafaba	Lamsa	Techepei
Retailers	50	60	60	30	60
Institutional bulk buyers	0	0	0	0	0
Wholesalers	20	20	0	60	0
Exporters	0	0	0	0	0
Consumers	30	20	40	10	40
TOTAL	100	100	100	100	100