A March Towards the Industrialization of the Cassava Crop







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A dynamic industry contributing significantly to Liberia's economic development, national peace and stability, as well as the improvement of living

standards of the Liberian people

- Vision of Liberia's Cassava Sector Strategy

Cassava as a major staple in the South East of Liberia

That, cassava is perhaps the most important staple crop in the South East of Liberia leaves very few in doubt. Cassava root finds itself, daily, on the dining table of many households in various forms: the popular *fufu*, *gari*, (including its heroic cousin, the super gari), deepah (also called *deepor* or *depot*), *GB*, Dumb-boy (cassava dumplings) or simply as boiled roots. For those who would dare not consider one of these cassava-based staples, and perhaps will forgivingly opt for rice, cassava leaf soup is easily the preferred accompaniment.

Considered by many as a poor man's crop due to its versatility in varied production conditions, cassava has, and continues to serve the consumptive needs of farming households in the South East of Liberia where about 65% of farmers are engaged in its cultivation. But, is the crop, so loved and yet, not so valued, ready to become an industrial crop in the South East of Liberia?



Figure 1: Fufu is an important cassava staple particularly in the South East of the Country

Cassava as an industrial crop



According to Singh (2009), crops are commonly categorized as food, feed or industrial, based on their use. Rice for example is considered a food crop, while yellow maize grown for the poultry industry may be considered as feed crop. A crop like cotton, is mostly considered as an industrial crop owing to its primary purpose as raw material for large industrial processing with little or no food value.

How a crop is categorized may be spatial, and or temporal, i.e., depending on where it is utilized, and or, at the time of utilization. For instance, cassava in the spatial sense is largely considered a food crop in Liberia, Ghana and Nigeria (West Africa), but is cultivated in Thailand and Vietnam, purely as an industrial crop. Historically, maize oscillates between being a feed crop and serving as food crop for many across the world.

The Oxford English dictionary defines industry as "...economic activity concerned with the processing of raw materials and manufacture of goods in factories...'. Broadly, the production of services also come under the definition of an industry, i.e., the production of goods and services. Therefore, an 'industrial crop' may be defined as raw material that serves as the source of productions of industrial goods the (energy, biochemicals, processed foods) services and (phytoremediation to detoxify soil, biochar to sequester carbon).

Industrial crop does not in any way mean that the final product obtained from processing that crop may not be food. In fact, in most cases industrial crops are mainly processed into food products. For example, 60% of industrial cassava is mainly used in the food industry, as opposed to 33% in animal feed with the resulting 7% in the textile, paper and food fermentation industries (Perez et al., 2017).



The Liberia National Cassava Sector Strategy (NCSS) is an agreed long-term plan of action by the Liberian cassava sector stakeholders and the Government for the development of the nation's cassava sector. The strategy document envisages a significant contribution of the cassava sector to the country's economic development and livelihood improvement. Concretely, this vision is spelt out in six thematic targets as follows:

| Objective I | Create strong Institutions and Coordinate public private partnership (PPP) mechanisms for sector strategy, framework development, policy formulation and alignment. |
|-------------|---|
| Objective 2 | Conduct a detailed sector analysis to enable informed decisions on existing empowerment opportunities and incentives. |
| Objective 3 | Develop and strengthen access to inputs and R&D to insure adequate sustainable production and processing along the value chain |

| Objective 4 | Empower small holder farmer organizations and foster an entrepreneurship mindset. |
|-------------|---|
| Objective 5 | Improve access to finance along the value chain. |
| Objective 6 | Improve access to technology for processing to achieve quality, consistency and quantity. |

Twelve years have passed since the Ministry of Agriculture (MOA), Ministry of Commerce and Industry (MOCI) with technical support from the International Trade Center (ITC) out-doored the National Cassava Sector Strategy under the auspices of the European Union All ACP Agriculture Commodities Programme (AAACP). Amongst the expected results, it is important to outline the following to examine what progress has been made in the context of the South East of Liberia where cassava production is comparatively ubiquitous:



Cassava sector within CASTRAP's Project Landscape of South East Liberia

The Cassava Transformation Project (CASTRAP) conducted a baseline study of the 5 South East counties; Sinoe, Grand Gedeh, River Gee, Maryland and Grand Kru to establish the current status of the cassava sector, map out existing actors, structures and services as part of its entry and implementation strategy. The result of the study was also to guide stakeholders engaged in the development of the cassava sector at the national level to review its approach or even leverage on what has worked so far in the quest to improve the sector.

Examination of Expected result 3: Selection of 5 improved varieties for maximum output

Results from the project baseline study observed that production in the project landscape is characterized by subsistence and smallholding farming, with farm sizes of 1.14 acres on average. Farmers do not have access to improved planting materials, inputs, and information on improved, climate-sensitive farming techniques. Average cost of production is about 40 USD per hectare resulting in yields of approximately 6 MT, compared to national average of 7 MT.



Figure 3: Over 87% of farmers continue to rely on traditional cassava varieties which mainly serve as food.

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The Central Agriculture Research institute (CARI) with support from the International Institute for Tropical Agriculture (IITA) has developed and released an improved, high-yielding, disease-resistance industrial variety called CARICASS I, II and III cassavas. However, farmers are unable to access it. They are simply not available in the South East.

Cassava productivity in the South East and for that matter Liberia (6-7MT/ha) does not compare well with its neighbours including Ghana (15-18MT/ha) and Nigeria (18MT-35MT/ha) according to data from the Food and Agriculture Organization (FAO, 2018). Production costs are low precisely because little is spent in the areas of weed, pest and disease control. Plant preparation is mainly restricted to land clearing and planting methods are at best crude. In some parts of the project landscape some farmers continue the practice of broadcasting the cuttings instead of properly planting them, a practice known to farmers as "God be with you", essentially wishing the cutting luck in survival. **Examination of Expected Result 2**: Producers, processors and distributors would have a better understanding of existing market flows through the results of a detailed cassava market survey and comprehensive value chain analysis of the national and global cassava industry.

Several studies have been conducted to understand the cassava sector in Liberia by a handful of non-governmental organizations including USAID, IITA/WECARD and FAO. However, there is no evidence of a concerted government sponsored study of the cassava sector on production, processing and market that serves as baseline for entry for both investors and existing operators along the cassava value chain.

| Institution/Project | Study | Year | Link |
|---|---|------|--|
| USAID | Liberia Market Study for Selected Agricultural Products. | 2015 | <u>https://tinyurl.com/yckkrej9</u> |
| IITA and West and Central African Council for Agricultural Research and Development (WECARD) | Regional Cassava Value Chains Analysis in West Africa: Case Study of Liberia | 2014 | <u>https://tinyurl.com/339ntjac</u> |
| FAOSTAT | Cassava Production in Liberia | 2014 | <u>https://tinyurl.com/2p95kth</u> <u>4</u> |



Figure 4: Market access is a major constraint to actors operating along the cassava value chain in the South East of Liberia.

As a result, there is very little information on existing structures, actors and channels of operations along the entire cassava value chain. For example, 90% of farmers in the South East during the baseline said that they have not had access to extension services in the past 2 years. In all the project counties, there exist only one agro-input dealer serving Pleebo city and its immediate communities within the Maryland County. The major constraint raised by farmers during the baseline was the lack of access to markets. Market for fresh cassava is weak, resulting in cassava being left on farms even after reaching maturity. Farmers resort to harvesting in piecemeal to meet family food needs, only selling off surpluses when there is a market. It is estimated that 36% of cassava remains unharvested annually due to lack of market. Another 14% is lost after harvesting due to poor processing, storage, and utilization.

Indeed, the National Cassava Development Strategy is essentially anchored on processing of cassava into industrial products including food (gari, fufu paste, fried chips etc.), for the food industry (starch, high quality flour, fructose syrup etc.), animal feed industry and for the paper and wood industries. Emphasis was placed particularly in serving the food industry as it was viewed as the low-hanging fruit, yet, with far-reaching economic and employment benefits in the short-tomedium term. Limited availability or access to machines, absence of storage facilities for finished outputs, absence of processing facilities in some strategic areas and non-conformity to quality and safety standards were identified, and rightly so, as the delimiting factors to meeting this target.

Though, efforts have been made to establish cassava business centers (mini production and processing units) across the 15 counties, they fall significantly short of the numbers and spread of these centers envisaged in the plan. For example, within the 5 CASTRAP counties there is currently no functioning cassava processing center that up-take raw cassava from farmers. Sinoe county benefited from the Smallholder Agricultural Productivity Enhancement and Commercialization Project (SAPEC) with 20MT/day installed capacity cassava flour processing center in 2016.

The center however, really never took off due to logistical and management problems and is currently lying dormant. In River Gee county, Opportunities Industrialization Centers (OIC) Liberia put up a factory in 2015 for an organized cassava farmer group consisting mainly of women to process *gari* and *super gari* (gari infused with protein and vitamin).

That processing center also essentially closed on the exit of the OIC project and has since not been operational. In Maryland, Grand Kru and River Gee counties, the Ministry of Agriculture has set-up technology transfer centers to serve as incubation centers for potential entrepreneurs. These centers however lack equipment to serve this purpose. In Maryland, the only known fully functional private cassava processing center is Agro-Green Inc located in Boniken town near Pleebo City.



Figure 5: Citizens Farms Inc. located in Juarzon in the Sinoe county constructed under the MOA-SAPEC project is currently not operational

CASTRAP conducted a comprehensive assessment of the technology needs of actors operating along the cassava value chain within its project landscape. It was observed that significant number of processors are into the production of gari and fufu. The decision to process these products owe in part to their popularity with consumers but also because most processors, find their production relatively easy, requiring limited equipment and technical know-how. Flour and starch production is severely restricted despite interest expressed by most actors to process them.



Figure 6: typical gari processing equipment



Figure 7: Grated cassava is usually pressed using sticks

The perspective of the author is that, the diagnosis of the National Cassava Development Strategy committee is as valid today as it was 12 years ago. There is still the need for strategic planning at various levels of the value chain. Market information and how it filters down to the actors is still a problem. Perhaps, the most significant challenge remains the low productivity of farmers. Industrial varieties are available but not accessible by many farmers. Extension services to farmers is weak. Lack of financing is pervasive along the entire value chain partly because no strong business case has been made for the value chain at any enterprise level, be it micro, small or medium. The Cassava Transformation Project (CASTRAP) is ambitious, in the sense that it is a trade facilitation project operating from a landscape which, compared to other counties, have weak institutional, financial and technical structures. Nevertheless, the South East has other advantages that remains peculiar to it. Cassava is "everywhere" and can be cultivated all year round across the 5 counties. Unlike in other counties, three of the five counties lie along the coast with a moderately strong boat transport system. Farmers have over the years developed an internal self-help system popularly referred to as the "Kuu". This Kuu system has served in the past as good entry point for the popular VSLAs dotted in communities across the 5 counties. CASTRAP intends to leverage on this system to strengthen farmer groups in functional farmer cooperatives capable of self-initiating and upgrading the cassava value chain. The Project can compliment this effort with business services support.

Perhaps, a true upgrade of the cassava value chain into an industrial crop in the South East lies in focusing on an inclusive business model that builds or supports a "champion" enterprise downstream which is capable off-taking substantial amounts of raw materials from farmers and farmer groups, and is able to create, capture and distribute value along the chain equitably. Only then will the cassava sector will be said to be competitive. The quest to identify such *champion* entrepreneurs is on.



Figure 8: Humble beginnings but a champion in the making – Agro Green Inc located in Boniken near Pleebo city, Maryland processes gari and super gari. The company which employs 10 permanent and 5 casual staff, currently processes approximately 54 MT of gari annually hopes to double production by end of 2022.

Note: The author is the Project manager of the Cassava transformation Project (CASTRAP). This article is entirely expressing the opinion of the author and does not in any way reflect the opinions of the Project or its sponsors.