



What potential could the cashew nut value chain have in West Africa?



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Introduction

Africa, Latin America, and Southeast Asia are all major cashew producers, with India, Vietnam, Brazil, and Indonesia being the top four producers globally. Africa is becoming increasingly important in raw cashew nut production where Nigeria, Tanzania, Mozambique, Côte d'Ivoire, and Guinea Bissau are the largest producers on the continent, while Ghana, Burkina Faso, and Benin are increasing their production year on year. Despite the fact that the worldwide cashew kernel market is steadily growing, it is dominated by a small number of traders.

The goal of efforts to promote cashew value chains in agriculture is to generate added value within a country or region while also improving the competitiveness of locally produced cashew varieties on national and international markets. This report investigates how much these value chains have benefited West African countries, the challenges these faced in developing these value chains, and the opportunities available to expand these value chains so that West African economies can experience exponential growth. It is important to note, that the findings of this report suggest that the opportunities for value chain expansion in West Africa are undercapitalized, with plentiful opportunities for growth.

In 2003, the Government of Ghana (GoG) requested US\$13.32 million from the African Development Bank (AfDB) to fund a six-year Cashew Development Project (CDP) in five regions. The CDP aimed to double the amount of land under cultivation at the time (18,000 hectares) doubling production, and to boost cashew processing at the village level. The CDP aided in the development of the cashew sector by deploying a more integrated and coordinated strategy. According to the African Development Bank 25,593 hectares of land had their water management developed and rehabilitated as a result of this project, while 597 hectares of land were improved, replanted, reforested, and landscaped. In 2021 120,000 tons of Raw Cashew Nuts (RCNS) were produced in Ghana.

The lack of such desperately needed attempts to capitalize on the vast potential in West African cashew production leaves West African countries with a disappointingly low percentage of the total value they could attain by only focusing on two production stages of the value chain. For example, in 2018, the export price of cashew kernels from India to the European Union was nearly 3.5 times greater than the price paid to cashew farmers in Côte d'Ivoire — a 250 percent difference in price. The price of cashew kernels after secondary processing in the EU was around 2.5 times more than when they were exported from India – and about 8.5 times higher than when they left the farm in Côte d'Ivoire.





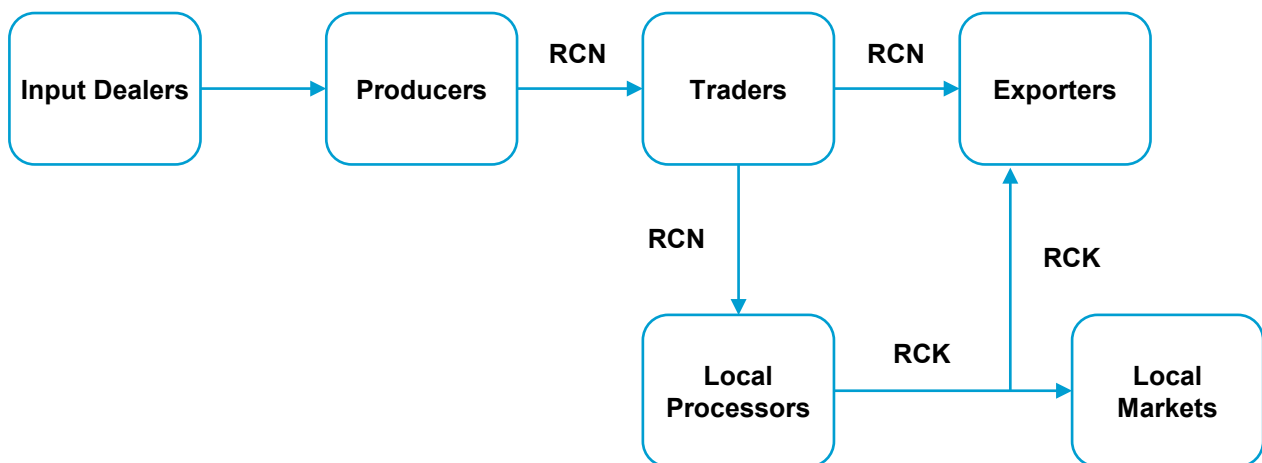
These findings corroborate the findings of numerous other economic analyses of not only cashew nut production in West Africa, but also agricultural production in Africa as a whole. African countries could gain exponentially more revenue by doubling their efforts in the processing and manufacturing of finished goods rather than merely being raw material producers.

The cashew nut processing industry in West Africa has yet to pique the interest of banks and other financial institutions for large-scale investment and low-interest financing. Cashew processors incur average interest rates of 8-12% in Côte d'Ivoire and Benin, and are as high as

30-35% in Ghana, depending on the country and currency. This contrasts with interest rates of 7-8% or lower, which are said to be common in India and Vietnam, and especially with the 1-2% interest rates given to large international buyers by international banks.

While many farmers or their representatives may not be able or willing to expand into cashew kernel processing due to capacity limitations, limited access to finance or unfavourable government policies, this report finds that providing processors with favourable credit terms and appropriate incentives could exponentially increase the GDP of the respective West African countries.

Value Chain Analysis



The value chain of Raw Cashew Nuts (RCN) in West Africa is illustrated in the figure above. There are, however, other stakeholders in the cashew nut value chain between the input dealers and the exporters. The next section explores the specifics of each stakeholder's contribution at each stage.





Major Stakeholders

Input Dealers

The cashew trees are the most important input for cashew plantations and can be either new pure plants or grafted plants. New varieties are being developed by researchers, but in the meantime, nurseries offer tree multiplication and grafting services, which can also be done on-site. Grafting with productive types and leaving enough space between trees are two important factors in obtaining high yield, and these vary greatly between plantations. Chemical inputs are often not used in significant volumes in cashew production in Africa, with frequently no fertilisers used and pesticides used sparingly. Herbicides may be used to control weeds in some cases, but pesticides are too expensive for many farmers.

Producers

Over 80% of production is done by small-scale farmers, who are sometimes organized into cooperatives or producer groups. Most of these farmers rely on hired or family labour, particularly for weeding and harvesting. Cashew is a perennial tree, and requires maintenance,



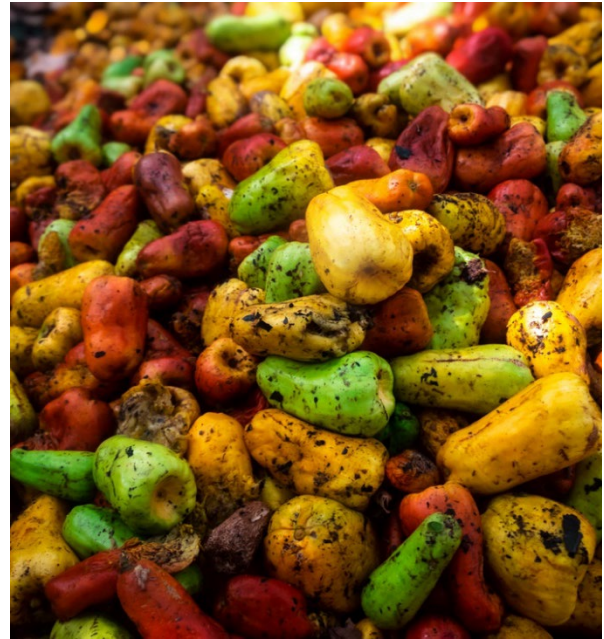
especially weeding and pruning to achieve optimum productivity. To avoid forest fires, weeding is especially crucial. Specialized cashew extension services are still relatively new and scattered across Africa. In Ghana, the Cocoa Research Institute, Ghana (CRIG) has been mandated to lead research in cashew production. Due to this research stations have been developed in Wenchi and Bole where scion banks have been created to produce seedlings that are pest and disease resistant and high yielding. Trees can be planted as part of a cashew plantation or integrated into the farming system. In Africa, cashew is harvested by collecting RCN attached to cashew apples that has fallen to the ground, instead of direct collection from trees. Cashew apples are typically separated from the RCN and left to rot in the field. Ripe cashew apples, can be eaten raw, used in cooking, processed into juice, or fermented into vinegar or an alcoholic beverage. Between February and April, the collection is completed with many members of the community involved in harvesting. Collection typically takes place at least every two to three days to ensure RCN quality. In most cases, the RCN's post-harvest operations and assembly will be handled by the producers themselves. Physical impurities are removed after collection, and the RCN then dried naturally for two to three days. The RCN moisture content, defect ration, and quality (Kernel Outturn Ratio (KOR)) is usually checked on site before purchase by traders



Traders

Kernel quality, as measured by the kernel outturn ratio (KOR), is critical for cashew nut processing efficiency. Buyers are usually in charge of quality control and as a result, quality is rarely an issue in farm-level price negotiations. RCN's humidity rate should be kept between 10% and 60%. In order to maintain aeration, dried RCN should be stored in jute bags, as quality is harmed by synthetic bags, such as plastic fertiliser bags. Primary storage might last anything from a few days to several months, and often happens in insanitary conditions, such as at residences, where humidity and pests can be a concern. Producers want to move RCN swiftly, which means selling product quickly to get cash for consumption and investment, as well as to avoid product deterioration. Small-scale traders and middlemen play an important role in the RCN trade, especially in the export trade, which represents 90% of all RCN trade in West Africa. Different traders and agents operate at local, regional and national level, and they channel the funds for purchase down to producers, provide intermediary storage and aggregate RCN for traders, processors, and exporters. The role of exporters will be discussed as a separate group below. At the start of the cashew buying season, national traders will generally provide funds for the purchase of RCN through regional and local

traders, who travel to the villages to purchase RCN stocks at competitive prices. Some processors and exporters have experimented with pre-financing of producers and cooperatives, but the risk of default on loans is typically considered too high, especially in a volatile price environment. Exporters, for example, paid higher prices in 2017 than the markets could sustain, but RCN prices collapsed in 2018, impacting producers' capacity to repay their loans.



Processors (To Raw Cashew Kernel (RCK))

Only a small percentage (roughly 10%) of locally produced RCN gets processed in Africa itself. Processing consists of two main stages: shelling of the RCN and peeling the cashew kernels. Both processing stages require preparation.

- Shelling requires preliminary calibration of RCN (sorting based on size), then steaming and drying for the hard cashew nutshells to deshelling.
- Peeling requires preliminary steaming and drying to detach the peel from the raw cashew kernel (RCK). Some factories subsequently steam the RCK to clean them and to increase humidity level so as to prevent breakage of kernels in sorting, conditioning, packaging, and distribution.

Sorting and classification for quality is required at multiple stages, for instance, in terms of size, colour, and impurities. Cashew kernels are internationally classified according to 32 different

categories, but individual processing units may reduce this number for practical reasons. The most demanded grade internationally is the White Whole (WW) kernels. A number is subsequently added according to the average number of kernels per pound (e.g., the regularly sized WW320). The kernels are then conditioned with the use of industrial gases (nitrogen and CO₂), packaged in industrial plastic bags of 50 pounds (22.68kg), and sent to clients in cartons.

One 20-foot container is typically made up of 700 cartons, or 15.9 tonnes of cashew kernels. Mechanisation of cashew nut processing leads to a high output of split and broken cashew kernels. Markets for split and broken cashew kernels do exist, especially in Asia, but prices are lower than for whole kernels. The confectionary industry in the USA and Europe uses split and broken cashews, but they are considered rather expensive compared to alternative ingredients. Suppliers to US and European clients therefore have to seek alternative markets for their low cashew kernel grades. Currently, in Benin and Côte d'Ivoire, all processing stages are increasingly being mechanised, yet a varying percentage of nuts and kernels still have to be



handled manually, which is a very time-consuming job but also a valuable source of employment in the region. The majority of the manual labour required is low-skilled but high-precision work, which is mostly done by women (estimated at 80% or more). Men, on the other hand, do much of the heavy lifting, loading, semi-automated mechanical work, and factory management.

In Côte d'Ivoire, certification of processing facilities and products is still relatively uncommon. In Benin, processing unit certification is more generic, and the units are more focused on specialty cashew kernels, such as organic and fair trade. Larger purchasers and consumer brands in particular, demand that processing units and products meet certain certification requirements. The basic African Cashew Alliance

(ACA) certification (the ACA Seal), the often required Hazard Analysis and Critical Control Points (HACCP) plan, and several other standards from the comprehensive International Organization for Standardization (ISO) processing standards are some of the common standards in this industry in West Africa. End-user quality and labelling standards, such as the Association of Food Industries (AFI) standard specification for cashew nut kernels, the British Retail Consortium (BRC) standards, and specific certifications for organic, fair-trade, or vegan goods, are also quite common. Generally, specialised agencies such as SGS, Bureau Veritas, CERES, and Control Union conduct audits of processing units. Control Union, EcoCert, and Biosuisse, for example, provide organic certification, whereas FLO Cert issues fair trade certification.



Exporters

Virtually all cashew in Africa is produced for export markets: approximately 90% of the RCN, and 90% of the locally processed RCK. Brokers, agents, exporters, shipping lines, importers, quality controllers, customs and banks thus form an essential part of the cashew value chains in Africa. Primary destinations for the unprocessed RCN are Vietnam and India.

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Potential benefit from value addition

In 2021, the realised sales revenues from cashews were (African Cashew Alliance, 2022):

| | |
|--|-------------------------------|
| Farm gate price of RCN per kg | US\$ 0.59 to US\$ 0.95 |
| Processing centre price per kg of RCK | US\$ 6.66 to US\$ 7.10 |
| Roasting centre price per kg of roasted kernels | US\$ 10.00 |
| Retail price per kg of roasted and packaged kernels | US\$ 17.00 |

The data in the table above implies that in 2021, a ton of RCN exported from Ghana cost about US\$770 on average, a ton of processed RCK cost about US\$6880, a ton of roasted cashew kernels cost about \$10000, and a ton of roasted and packaged kernels garnered roughly a total US\$17000 in revenue.

Roughly 90% of RCN produced in West Africa is directly exported and more value is added in Europe and North America, where 60% of traded kernels are roasted, salted, packaged, and consumed as a snack or an ingredient. This implies that West African countries are losing the potential benefits that could be reaped from value addition to the raw cashew nuts.

It is evident that the African producers at the bottom of the value chain are earning far less than they would if they added more value to RCN. For example, in 2018, the export price of cashew kernels from India to the European Union was nearly 3.5 times higher than the price paid to cashew farmers in Côte d'Ivoire. The price of cashew kernels after secondary processing in the

EU was around 2.5 times more than when they were exported from India, and about 8.5 times higher than when they left the farm in Côte d'Ivoire.

In 2008, according to a value chain analysis by the African Cashew Initiative, Ghana exported 61,590 tons of cashew nuts valued at \$45.37 million while annual local production was estimated to be 26,454 tons. In 2008, RCN exports contributed to 6.1% of GDP and to 18.2% of agricultural GDP in Ghana. Based on these figures, if half of the raw cashew nuts exported in 2009 had been processed and roasted within Ghana, about \$9,480 per tonne of roasted kernels sold of extra revenue would have been generated within Ghana alone.

According to the United Nations Conference on Trade and Development, world trade in raw cashew nuts more than doubled to 2.1 billion kilograms between 2000 and 2018, and African producers, led by Côte d'Ivoire, accounted for almost two-thirds of the growth.





Current & potential challenges in value addition

- I. Difficulty in accessing farm inputs and good planting materials:** In rural areas, the farm input distribution system is often weak, characterized by a lack of capital, unreliable suppliers, and insufficient infrastructure (feeder road networks, storage facilities). Farmers also lack access to the agrochemicals required to boost cashew farming production.
- II. High incidence of pest infestations:** Devastating effects from sucking pests (*Helopeltis* spp, *Anoplocnemis curvipes*, *Pseudotheraptus devastans*) and stemborers (*Apate telebrans*) lead to secondary infections and eventual losses in yield and quality.
- III. Inadequate extension services:** There is insufficient dissemination of research findings due to inadequate extension services and high farmer- extension worker ratios (~ 1:500).
- IV. High interest rates and lack of working capital:** High interest rates charged by financial institutions on loans and overdrafts

are said to be one of the major factors negatively impacting processing. Also, lack of working capital prevents the expansion of processing companies.

- V. Inconsistent supply of RCN to processing companies:** Although RCN are exported, there is an inadequate supply to meet the needs of existing local processing companies.
- VI. Weak farmer associations:** These associations do not have a strong enough collective voice to promote the interests of their members when it comes to selling RCN. Thus, their members lack the bargaining power needed for negotiations with traders. Many do not function well and suffer from low member commitment, support and participation; high levels of illiteracy; inadequate capitalisation; a low scale of operations; as well as lack of skills or capacity in business management.
- VII. Inadequate transport facilities and frequent fluctuations in the price of fuel** have resulted in high cashew transport costs, skills, internal controls, planning and monitoring capabilities.
- VIII. Lack of an effective marketing information system** for monitoring and analysing global products and market trends, and for relaying the information gathered to stakeholders in the sector.
- IX. Frequent bush fires.**





Production capacity & pricing

RCN and RCK prices in West Africa are mostly determined by supply and demand dynamics. An indicative minimum price is ineffective if it is not enforced and does not adapt to market changes. In Côte d'Ivoire and Benin, the 2017 minimum prices were substantially lower than the real market price, making them politically irrelevant.



Conversely, the 2018 prices were far too high in comparison to what the market could sustain, causing individual producers who were cash-strapped to sell their crops for less than half of the indicative price. In practice, the high indicated minimum price may have blocked or hindered RCN commerce early in the season, because farmers were led to believe that higher prices were being offered by traders and agents.

Organic cashew kernels are rising at double-digit yearly rates in the United States and Europe, according to reports. Organic cashew kernels account for approximately 5% of the total market. Cashew, like other dried fruits and nuts, is well-suited to vegetarian and vegan lifestyles, which are becoming increasingly popular in developed economies' high-value consumer sectors. This means that West African economies can grow exponentially while capitalizing on that growth by focusing on the expansion of processing and roasting facilities, as well as increasing agricultural production. While an increase in RCN output may result in lower market pricing in the short term, an increase in other phases of the RCN value chain, particularly processing and roasting, may be able to compensate for any price variations.

Potential impact of production capacity increment (Export capacity)

- I. Employment opportunities
- II. Increase in export revenue and a resultant growth in GDP
- III. Economic specialisation
- IV. Maximization of agricultural resources in West Africa
- V. Development in infrastructure
- VI. Environmental impact: The shells make up 80% of the RCN, thus when local processing is increased, the effects on the environment due to the use of fossil fuels is reduced.





Environmental Impacts of Production Expansion

Cashew has been found to be a valuable tropical cash and food tree crop that can grow on even marginal lands, it also has the ability to stabilise the soil that it grows on. The additional tree cover provided by cashew plantations helps to relieve the pressure on local vegetation and increases soil fertility. As a result, the effects of drought and desertification are lessened. In addition, the use of cashew shells to fire boilers and ovens during processing reduces the need for cutting down trees for firewood, and hence reduces the pressure on surrounding forests. As with any other tree, cashew trees also act as carbon sinks, which means that they contribute positively to the growing threat of high carbon emissions.

Potential negative environmental impacts include loss of habitat and subsequent decrease in biodiversity as cashews would decrease the land and resources available for other plants and animals in the ecosystem.

Crop loss is also more likely due to increased susceptibility to pests and diseases. This is due to cashews' high susceptibility to parasitic fungus, as well as other pathogens.

It goes without saying that in the case of aggressive monocropping, which is prevalent in West Africa, cashew farms may pose a threat to soil fertility due to soil exhaustion. This is because most cashew trees begin bearing fruit in their third or fourth year and achieve maturity by the seventh year, assuming favourable conditions. Although cashew trees can live for 50 to 60 years, most plants only yield nuts for roughly 15 to 20 years. Intercropping is encouraged before maturity of trees to ensure soil fertility.





List of Acronyms

| | | |
|-------|---|--|
| ACA | - | African Cashew Alliance |
| AfDB | - | African Development Bank |
| AFI | - | Association of Food Industries |
| BRC | - | British Retail Consortium |
| CDP | - | Cashew Development Project |
| CRIG | - | Cocoa Research Institute Ghana |
| EU | - | European Union |
| GDP | - | Gross Domestic Product |
| GoG | - | Government of Ghana |
| HACCP | - | Hazard Analysis Critical Control Point |
| ISO | - | International Organization for Standardization |
| KOR | - | Kernel Outturn Ratio |
| NGO | - | Non-Governmental Organisation |
| RCK | - | Raw Cashew Kernel |
| RCN | - | Raw Cashew Nut |
| USA | - | United States of America |
| USAID | - | United States Agency for International Development |
| WW | - | White Whole |





Conclusion


Increased production and processing in the Sahel regions in West Africa, will reduce unemployment, increase efficiencies and deliver value and growth to local economies. Although production and stable supply of high-quality RCN in Africa is important, processors also need an enabling policy environment to be able to compete on the international kernel market with Vietnam and India. Therefore, policies aimed at the sector should take into account the entire value chain including:

- Increased access to quality seedlings, agricultural extension services and market information.
- Increased training and capacity building for farmers on entrepreneurship and farm management, including harvest and post-harvest practices.

- Research that helps identify agricultural practices and processing technologies that are best suited to the local environmental and economic conditions.
- Improved rural infrastructure, including secondary roads, to better connect cashew farms and processing sites.
- Strengthened technical capacity of cashew processors to meet quality standards in prospective international markets.
- Promotion of the development of cashew by-products and circular economy, particularly for cashew apples, which are normally discarded as waste.

Such policy action and support would ultimately lead to the improvement of livelihoods and generate income for African economies.

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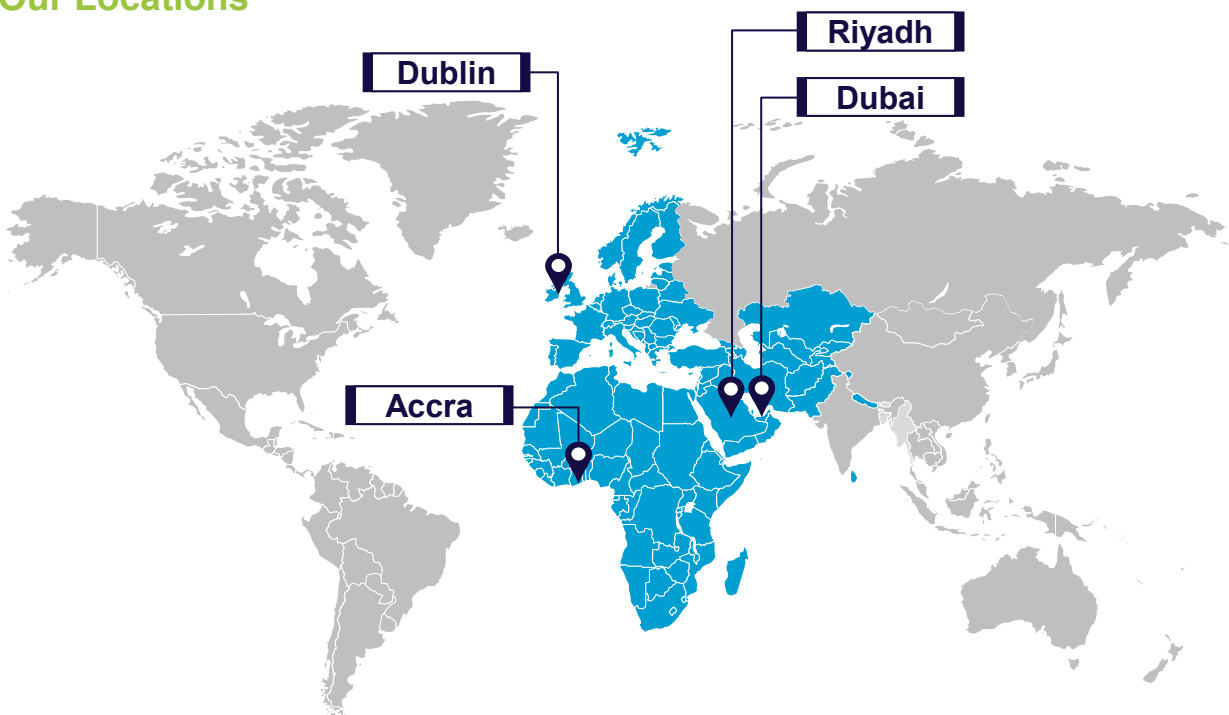
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