European Commission

VCA4D
VALUE CHAIN ANALYSIS FOR DEVELOPMENT

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Cashew value chain analysis in Sierra Leone

Value chain analyses assist in informing policy dialogue and investment operations. They help the understanding of how agricultural development fits within market dynamics. They permit an assessment of the value chains' impact on smallholders and businesses.

The European Commission has developed the methodological framework for analysis. It aims to understand to what extent the value chain allows for inclusive growth and whether it is both socially and environmentally sustainable.

The value chain context

Cashew is one of the emerging cash crops in West Africa. African countries (and notably West African ones) have a favourable climate for cashew production, with over 60% of the world production, followed by Asian countries. Cashew provides four main products: cashew nuts, cashew apples, cashew nut shell liquid and cashew shells. Demand for cashew nuts and derived products varies during the year depending on consumer peaks corresponding with celebrations in different countries. In Sierra Leone, cashew yields are currently low compared to other West African countries (around 150 kg/ha in 2017 while 350-600kg/ha in the region). Most raw cashew nuts (RCN) are exported informally to neighbouring countries, while a few are transformed and consumed locally.

The European Union intervention

The agricultural sector in Sierra Leone accounts for almost half of the country's GDP and is the largest source of employment, engaging more than three-quarters of the population. However, it remains highly vulnerable to financial, economic and environmental shocks. Agriculture and Food Security have been selected as focal sector in the 11th EDF National Indicative Programme of the EU with Sierra Leone, in line with the National Sustainable Agriculture Development Plan (NSADP) 2010-2030. In continuity with the 10th EDF, the EU is sustaining cash crops (cocoa, coffee and cashew) through a ProAct action and the 'Boosting Agriculture and Food Security' project. The projects aim at enhancing productivity and income for smallholders, promote agricultural diversification and exports whilst strengthening food security in the most vulnerable rural areas.

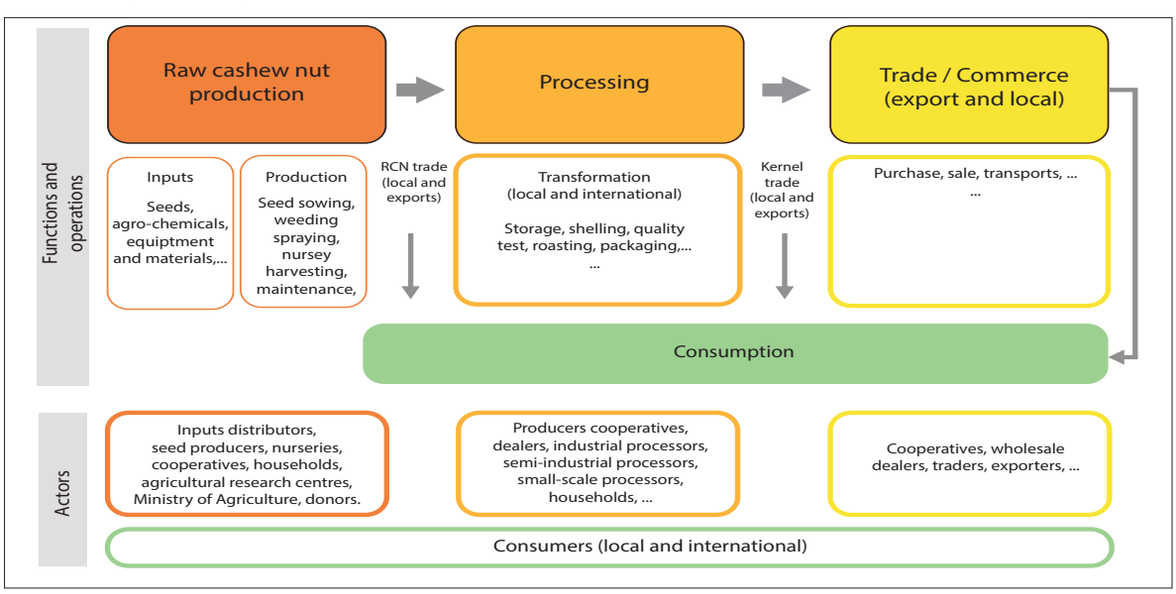

Figure 1 :Mapping of the cashew VC (in Sierra Leone)

Functional analysis

Production, processing and trade

The national production of RCN in Sierra Leone is still embryonic and was estimated at **4,300 t in 2017**. Harvest and collection of cashews are managed at the family level. **There are three types of producers in the country: 'smallholders',** covering 90/95% of the production (with average yields of 150 kg/ha on 2.5 ha), **block farmers** (groups of organised smallholders) and **private plantations** of various sizes with better yields (250 kg/ha on 10 ha on average). The block farming model was initiated by a company (through the support of the EU and COOPI). The workers are a youth group of 25-50 people. A proper procedure is adopted, and a MoU is signed with the land owner and community / youth group. In a 'block farm', workers have a beneficial stake in the profits arising from the sale of cashew. Generally, **local intermediaries** collect from village to village and from production areas to larger storage centres.

The processing of RCN can take different forms: households' processing for self-consumption, with a little quantity sold in community markets; small and medium scale processors that sell cashews to markets; and finally, large-scale industrialized processors. However, **processing in Sierra Leone, both artisanal and industrial, is very limited** because of a lack of processing facilities and market access.

Main channels and flows

RCN are marketed under a multi-channel system depending on the number of intermediaries between the producers and the final consumers (Figure 2). The main channels are: the **informal export channel,** where cashew is exported in the form of RCN to be processed abroad, and then traded to developed countries' markets; and **the local channel** where it is locally processed and traded.

A significant amount of cross-border trade takes place informally between Sierra Leone and **neighbouring countries, as Guinea Conakry**, this country being a regional hub. This is conducted mostly by middlemen/traders who buy products from producers and processors either from distant production areas and/or from seasonal markets close to the border crossing points. Products are usually transported by road on commercial vehicles.

Access to markets

Two markets are available for the cashew VC: **the domestic / regional market in West Africa,** and **the international market** (mainly to Asia). Those markets offer opportunities for carrying out more value adding activities and for growth.

Market access for processed cashew is limited from the outset because **most cashew nuts are still exported in shell for processing elsewhere**. Cashew processing is the key factor in developing international market outlets.

Also access to the international market requires much higher quality and standards. Therefore, this access is structurally limited for Sierra Leone by the **lack of efficient and effective export control processes**. These gaps make it currently complicated for large-scale buyers (who want quality and traceability) to buy in Sierra Leone.

Governance and enabling environment

Sierra Leone suffers from a generalised **weak governance,** that fails to support socio-economic development and sustainable growth. Therefore, obstacles to the development of the cashew VC tend not to be sector specific. Moreover, **the Government has encouraged cashew production for several years,** offering planting material to producers. Investments in processing would be positive for the VC in Sierra Leone, but large investors are blocked by the inherent **country-risks,** such as informal trade and non-transparency in prices. Thus, the current context in the cashew VC favours RCN and kernel exports rather than processing-based (value-adding) investments.

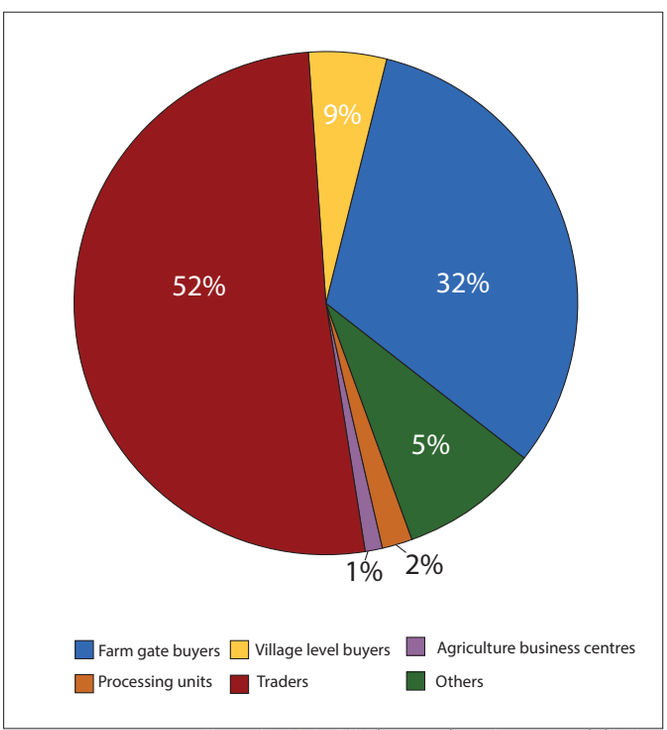

Figure 2 : Main RCN buyers share in surveyed districts

Economic analysis

Profitability of actors

The main actors involved in the VC appear to be profitable. Producers' profits (smallholders € 30-150 by yr; private plantations on average € 250 by yr) are difficult to measure because of a high and variable self-consumption of cashew among smallholders, who are the main producer group. Traders generate the highest individual profits (> €100 by yr). Processors do not appear to make significant profits (€ 20-30 by yr), because this activity is often integrated in farms or villages and mainly artisanal.

Value added and income distribution

The total value added (VA) (direct + indirect) of the cashew VC is estimated at **€5 million.** Farm/village gate traders and smallholders are generating, respectively, 63% and 31% of the direct VA. The contribution of other actors to the direct VA remains small (Figure 3). The main components of the total VA are operating profits (44%) and taxes (27%).

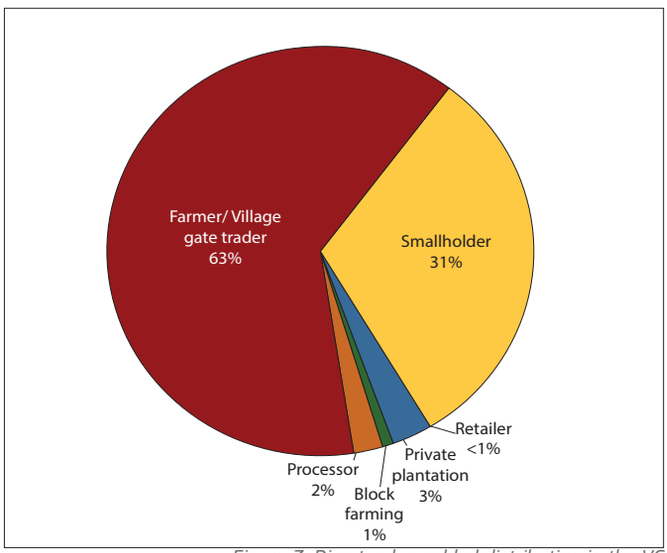

Figure 3: Direct value-added distribution in the VC

The majority of profits is shared between smallholders and farm/village gate traders (57 % and 37% respectively). Processors do not benefit from a high share of the profits as this stage of the VC is not yet well developed in Sierra Leone (Figure 4).

Over **90% of the total salary of the VC,** estimated at €890 000, **is generated by smallholders.**

Effects of the cashew VC within the national economy

The **contribution of the cashew VC to the agricultural GDP is less than 1%,** showing a current low development of the VC.

Nevertheless, the **rate of integration** of the VC within the national economy (total VA/value of production) **is 86%** meaning that the production of € 100 of cashew generates around €86 of incomes for domestic actors inside and outside (suppliers of goods and services) the value chain. The contribution of the cashew VC to the **public funds balance is positive** and estimated at €1.3 million of taxes without subsidies provided by the Government.

This balance is not as high as it could be since the national policy is oriented towards encouraging agricultural production to fight against poverty and to guarantee food security rather than levying taxes on agriculture. Taxes are collected in the VC at the level of traders, retailers and official exporters.

A **trade surplus of €3.3 million** has been estimated, meaning that the balance of trade is positive.

Viability within the global economy

The Domestic Resource Cost Ratio (DRC) is measured at 0.19, meaning that **the cashew VC in Sierra Leone has a comparative advantage** within the international economy. The Nominal Protection Coefficient (NPC) is measured at 0.87, meaning that domestic prices are slightly lower than the international prices. Therefore the incomes of producers could be higher with farm gate prices closer to the international market prices.

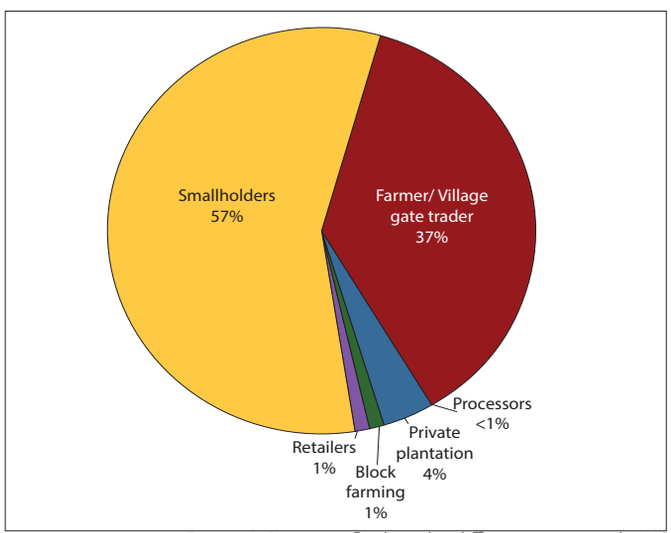

Figure 4: Direct profit share by different actors in the VC

WHAT IS THE CONTRIBUTION OF THE VC TO ECONOMIC GROWTH ?

Growth within the VC is mainly generated by farm/village gates traders (63%). Smallholders and traders have the highest profit shares in the VC. Private plantations, block farming and retailing are not yet very developed. Other actors, such as processors, are generating value added at a small scale because this activity is mainly artisanal and situated in farms or villages. The cashew production in Sierra Leone being embryonic, so are the macroeconomic impacts of the VC on its contribution to growth, public funds, balance of trade, but growth and development potentials are real.

Social Analysis

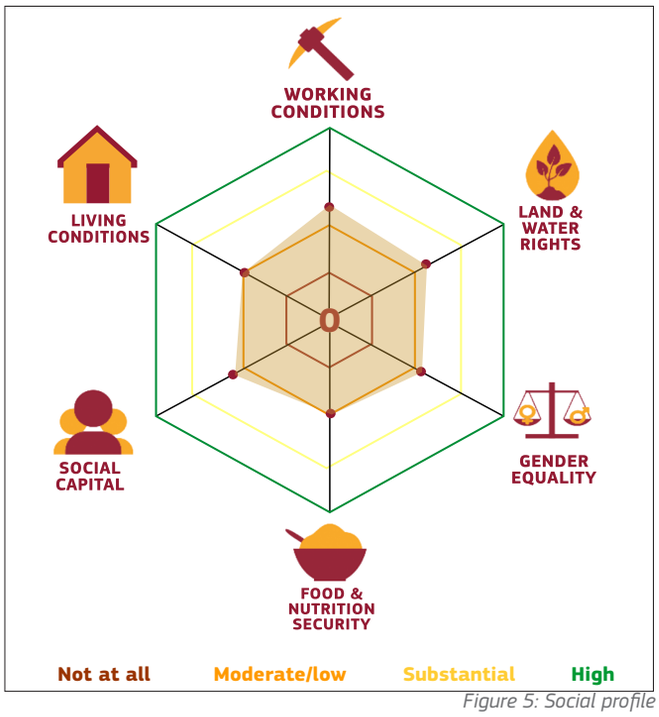

Figure 5: Social profile

IS THIS ECONOMIC GROWTH INCLUSIVE?

The cashew VC is showing signs of exemplary pro-poor and inclusive development but this is currently at a reduced scale. With an average cashew farm of 2.5 ha, a producer can, in many likelihoods, earn annual profits almost equivalent to the living wage in the country (USD 800). Cashew can therefore be a poverty alleviation tool. However, the percentage of the final price at farm gate is estimated at only 30%, showing that income could be higher with farm gate prices closer to the international market prices. Among producers, small ones are those that create more job opportunities (10.000 workers, self-employed and seasonal) followed by plantations (500 fixed and 750 seasonal workers) and block farmers (500 workers, fixed and seasonal).

IS THIS VC SOCIALLY SUSTAINABLE?

The cashew VC carries low social risks and offers many economic opportunities for women (such as cashew apple processing, bee keeping, nursery management) to increase their independent incomes and consequently economic standing and decision-making role within the family and community. The majority of the workers in the VC are at production level. Although incomes are equivalent to the living wage, the absence of well-defined cashew markets and lack of extension services discourages producers to invest in cashew. The block farming model offers attractive job conditions for youth, encouraging participation and offering relatively higher wages. Cashew can be a poverty alleviation tool to fight food insecurity if high quality planting material is provided to producers, and management support and easy access to finance are ensured.

Working Conditions	• Block farms offer more than double of the daily wages than in conventional agriculture. Except in block farms, the majority of work is 'informal', meaning that workers have neither a contract nor any benefits (health, insurance, pension etc.). • The informal nature of employments makes it difficult to implement or monitor compliances to labour standards. Workers' associations or collective bargaining possibilities cannot exist in this set up.
Land and Water Rights	• No violations and non-compliances to the international principles on tenure (VGGT) were observed in the cashew VC. • Conditions are favorable for large-scale investments. However, the iniquitous and inadequate compensation for land-leases, if not reformed, can potentially generate conflicts and confrontations in the VC.
Gender Equality	• Besides their role in harvesting and in other activities of family farming, women are also part of the farm management groups in the block farming model. While men mostly control incomes from cashew farming, women control incomes earned through processing and trade. • Limits in women decision-making are closely linked to economic, social and political context (limited opportunities for earning incomes independently, polygamous relationships, lack of education, lack of land ownership).
Food and Nutrition Security	• Potential to increase the stability of incomes and food security for cashew producers and processors. • Food price fluctuations over the last 5 years put pressure on household economy. • Role in addressing some nutritional deficiencies, as cashew kernel is very rich in fat (46%), proteins (18%) and a good source of calcium, phosphorus and iron.
Social Capital	• There is no well-defined place for cashew markets in districts, nor producers' organisation to negotiate for fair prices. • Producers have very low access to information and agriculture extension services. • Block and semi-block farms, women-centric cashew trading and processing are the most important experiments of social involvement at small scale.
Living Conditions	• Basic health infrastructure in rural areas in Sierra Leone is very limited. • The consequences of unhealthy conditions (unsafe drinking water and unhygienic sanitation) could generate high costs for poor people seeking treatment from primary or secondary health centres. • Organic farming is at the very beginning but seems to have potential in the country, even if labeling is constraining for processors.

Environmental analysis

Three different systems in the cashew VC have been considered: (i) the export system of raw cashew nuts, (ii) the national consumption one based on artisanal processing for regional markets, (iii) the national consumption one based on semi-industrial processing for Freetown mini-markets.

Impacts on resources depletion

Potential impacts on resource depletion come mainly from **fossil fuel consumption**. For the export system based on artisanal processing, crude oil consumption represents 89%. In the national consumption systems, in the one based on artisanal processing, the **production of cashew kernels** is the main contributor to resource depletion; while in the scenario based on semi-industrial processing, **transports** contribute the most.

Impacts on ecosystems quality

The main potential cause of biodiversity loss in the cashew cultivation is **land use**. The national consumption system based on artisanal processing, has the highest potential impacts on ecosystems quality, as contributions derive not only from **land occupation** but also from the **palm oil and charcoal** used during processing for kernel production. In all systems, **cashew cultivation** is the main contributor to the impacts on ecosystem quality. **Potential losses** derive from land occupation, due to a lower richness in species in cashew plantations than in a non-anthropogenic use of land, and 15% from bushland conversion, due to **habitat loss.**

Impacts on human health

All systems have a positive impact on human health. This benefit is due to the **carbon storage potential** related to the establishment of cashew plantations on bushlands. Even if this benefit is subject to high uncertainties, it prevails on other potential impacts on human health.

For national consumption systems, this benefit on human health from carbon storage is reduced by 6% for artisanal processing and by 25% for semi-industrial processing. This reduction is explained by the **fine particulate matter formation** from the production and combustion of fuels, either fuelwood, charcoal or cashew nut shells.

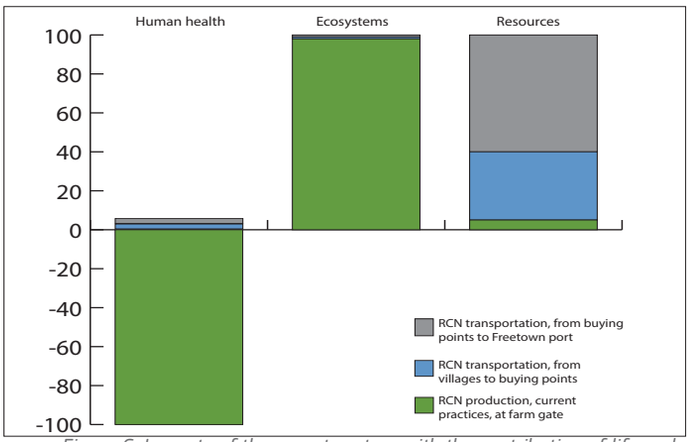

Figure 6: Impacts of the export system with the contribution of life cycle

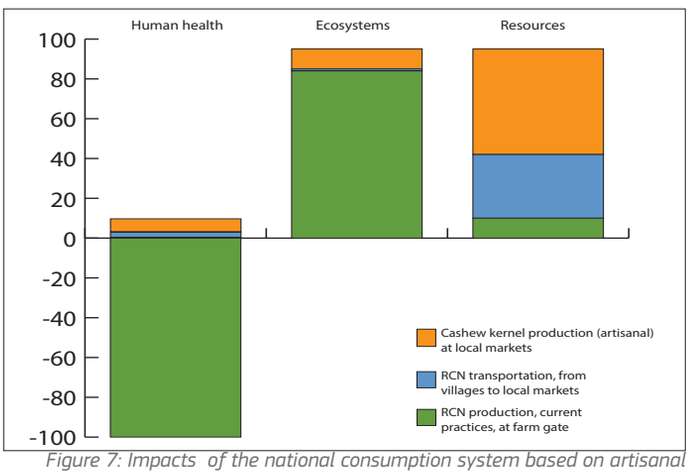

Figure 7: Impacts of the national consumption system based on artisanal processing, with the contribution of life cycle stages

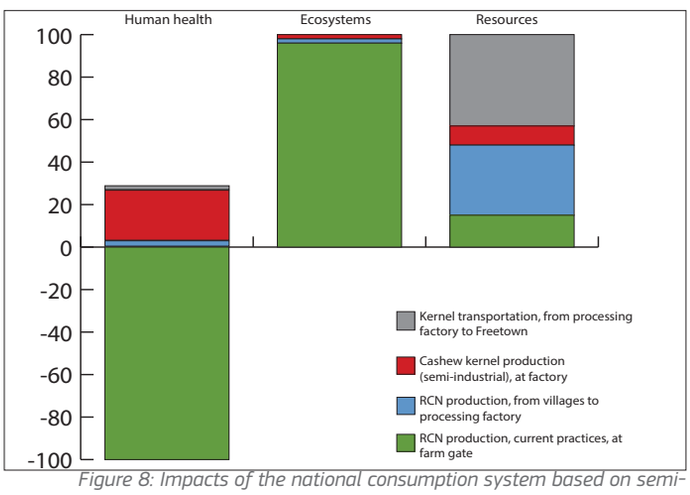

Figure 8: Impacts of the national consumption system based on semi-industrial processing, with the contribution of life cycle stages

IS THE VC ENVIRONMENTALLY SUSTAINABLE?

The potential impacts on resource depletion of the three studied systems come from fossil fuel consumption. Cashew cultivation is the main contributor to the potential damages on ecosystems and biodiversity, due mostly to land occupation for cashew plantations and to habitat losses from bushland conversion. All systems show a benefit for human health, due to the carbon storage potential related to the establishment of cashew plantations on bushlands in the Northern Province of Sierra Leone. At a national level, current potential impacts of cashew VC are marginal compared to other environmental issues such as the impacts of bushfires. From this perspective, currently the cashew VC can be considered environmentally sustainable.

Conclusions

The cashew VC in Sierra Leone is embryonic despite the topographic and climate advantage of the country. Cashew yields are low, and the quality of the RCN needs to be improved. Food crops have been recently at the heart of the national policy to cope with poverty and food insecurity and agricultural production is increasing in the country. However, the country does not currently offer a business enabling environment to favour exports. Growth increase could be achieved with technical and transparency improvement in the VC.

Findings and recommendations

- The VC is viable within the international economy as factors of production are competitive. However, there is **poor technical knowledge and equipment, commercial transport capacity and, warehouses,** which are the main constraints for increasing cashew yields and processing. In this context, being a part of the Competitive Cashew Initiative (ComCashew)[1] could be advantageous.
- **Working conditions are key to improve the inclusiveness in the cashew VC.** Workers at a block farm are those who have better working conditions.
- **Low access to finance and labour** constitutes the main limits of the increase of cashew yields in the country. Agricultural productivity and product quality can remain also low in the absence of strong information and extension services to producers. Moreover, **improper or unregulated marketing structures** may continue to bring the cashew VC down, in terms of its contribution to producers' incomes and economic growth of the country. A need has emerged for streamlining marketing structures.
- **The governance of the cashew VC** is characterized by a very low bargaining power of smallholders. Collective actions and the creation of smallholders' associations can be an important way to cope with this disadvantage.
- If large-scale land investments in the cashew VC become a reality, there is a need to rethink and **revise compensations for land owners** ($12.5/ha by yr). Alternative business model as block farming can provide better returns to land owners.
- Most cashew processing enterprises are run single-handedly by women. **The contribution of women to total family income** in processing families is quite noteworthy. The cashew VC can offer some other economic opportunities (such as cashew apple processing, bee keeping, nursery management) for women.
- **Land use governance** is crucial as the land tenure system can have impacts on food security and growth opportunities and needs to be more effective, transparent, and foremost just and fair. This issue is especially important for smallholders in the cashew VC in terms of land availability.
- **Bushfires are an important environmental issue** in the Northern Province of Sierra Leone and a key threat for cashew plantations and can dramatically increase environmental damages. Actions to reduce the number of bushfires should be taken. Potential positive or negative effects of cashew development on bushfires in the Northern Province of Sierra Leone should also be investigated.
- Moving from extensive to semi-extensive plantations, based on a better use of manure as a fertilizer, can reduce the current environmental impacts of the VC. In this regard, **the use of organic fertilizers should be promoted** in favour of the installation of young cashew trees in order to increase yields and to avoid losses in soil fertility.
- In a nutshell, main concrete recommendations would be: to promote and valorise cashew nuts' co- and sub-products, to find a solution for illegal exports, to define quality standards and provide transparent information on price, to promote local processing (semi-artisanal), to promote blockfarming.

1 ComCashew (2009-2020) implemented by GIZ works in cooperation with public and private sector actors to improve the competitiveness of the cashew sector (improving productivity, quantity and quality, long-term market links, enabling environment) in 6 selected African countries.

Farm owner and workers (youth group) in a cashew Block Farm
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Agrinatura (http://agrinatura-eu.eu) is the European Alliance of Universities and Research Centers involved in agricultural research and capacity building for development.

The information and knowledge produced through the value chain studies are intended to support **the Delegations of the European Union** and their partners in improving policy dialogue, investing in value chains and better understanding the changes linked to their actions. VCA4D uses a systematic methodological framework for analysing value chains in agriculture, livestock, fishery, aquaculture and agroforestry. More information including reports and communication material can be found at: https://europa.eu/capacity4dev/value-chain-analysis-for-development-vca4d-

This document is based on the report "Cashew Value Chain Analysis in Sierra Leone" 2019, by Baudouin Michel (University of Liege), Anthony Benoist (CIRAD), Ravinder Kumar (NRI), Sorie Bangura (independent expert). Only the original report binds the authors.