



## Tropentag 2012, Göttingen, Germany September 19-21, 2012

Conference on International Research on Food Security, Natural Resource  
Management and Rural Development organised by:  
Georg-August Universität Göttingen and University of Kassel-Witzenhausen

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### **From Production to Export Markets: the case of the Cocoa Value Chain in Ghana**

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#### **Introduction**

The chocolate industry is part of a multibillion dollar industry where the constant growing demand has encouraged chocolate manufactures to seek the best ingredients to satisfy the most exquisite demands (Chocosuisse 2011). Nowadays the cocoa industry has grown quickly and many companies offer a wider variety of products, where the main ingredient is this famous seed called cocoa. Therefore, a group of companies have decided to specialize in preparing semi-finished cocoa products (grinders) selling to chocolate, cosmetics, beverage manufacturers and other confectioners to produce finished added value cocoa products. Cargill, Barry Callebaut and ADM are currently the most important grinders in the world. They buy cocoa beans from traders and process them into cocoa liquor and cocoa butter to sell to chocolate manufacturers as well as to other industries (Fold 2001). Cocoa is currently found in developing countries in Africa, Central and South America and Asia. Production is concentrated on small-scale farms, of no more than four hectares, and is the main source of income for many households. Ivory Coast and Ghana are the largest producers in the world with an estimated production of 1370,000 and 675,000 tons respectively. Other main players are Indonesia, Brazil and Ecuador (Oxfam 2008). Cocoa, a major contributor to the Ghanaian economy, has won a reputation for high quality in international markets because of the work of the Board. Since 1984 the Ghana Cocoa Board (COCOBOD) has taken control of the cocoa production and market. With its subdivisions, it is in charge of providing inputs and delivering products to farmers, traders and buyers. Despite COCOBOD's work to keep up premium prices, there is still a problem of low producer price in cocoa farming. This issue has generated concern among many organizations around the world that seek solutions to alleviate poverty and hunger in rural areas, while preserving the cocoa supply in the long run. However, the continual use of traditional agriculture with exhausted soils, combined with lack of inputs and capital, is causing low yields aggravating this problem (Gockowski et al., 2011).

In the agricultural sector, a value chain analysis can help to improve processes and especially help farmers raise their income. According to Bamman (2007), this analysis in agriculture should go beyond the farm level (production) and look into common business relationships and interaction among all the stakeholders.

Cocoa is Ghana's second largest export product where about two million cocoa farmers depend totally on cocoa production as the main source of income. Therefore, the aim of this study was to analyse the cocoa value chain in Ghana, the relationships between stakeholders (COCOBOD,

chocolate manufactures, NGOs, traders, etc) and small-scale cocoa farmers to identify possible benefits and improve the value chain. The study further sought to understand the many steps that farmers have to take until they can deliver high-quality beans reaching the premium price conditions imposed by the international cocoa market. The impact of contracts was studied in order to determine if farmers have any advantages. An overview of how some of the actors are involved in the cocoa value chain is given.

In addition the following hypotheses were taken into consideration:

1. Contract farming has a positive effect on cocoa communities because of the benefits provided to their farms.
2. Stakeholders' action towards paying better prices for cocoa has positive repercussions on cocoa farmers because of the income increasing effect.

## Material and Methods

Two data sets were use for qualitative and quantitative analysis. The qualitative analysis explained the effects of the relationships with the stakeholders and the benefits for farmers. The quantitative analysis on the other hand explained the effect of contract farming and the stakeholders' benefits in income generation. Primary data was collected in Ghana, where two of the main production regions (Brong Ahafo and Western region) were selected. The sampling was divided into two main cocoa districts, Goaso from Brong Ahafo region, and Sefwi Wiaso from the Western region. In each district 10 communities were reached and in each community 15 small-scale farmers were interviewed, reaching a total of 20 communities and 300 small-scale farmers. One selection criterion was that small-scale farmers had no more than four hectares of land. For this reason farmers were asked in advance how big their land was. Farmers and communities were selected as a stratified sample. Survey methods were used to approach small-scale farmers in the cocoa communities with the aid of a questionnaire and local assistant who translated the questions to farmers.

On the other hand, semi-structured interviews with leading firms in Ghana and Switzerland were performed with the objective of gaining an overview of the key stakeholders and their role in the cocoa value chain. A bivariate correlation analysis was used to quantify the strength of the relationship between two variables (Table 1) and determine if the use of contract farming increased the knowledge about the cocoa market amongst cocoa farmers. A Pearson correlation was performed using a significance level of  $r < 0.01$  (two-tailed). Subsequently, Kendall's tau-b<sup>1</sup> was used for non-parametric data to measure the relation between each pair of variables with a significance level of 0.01 (two-tailed).

**Table 1: Variables in relationship between farmers and stakeholders**

Variable	Description	Variable Type
X1. What are the terms of contracting?	Not all farmers work under contract but, if they do, they also need to know the terms of	Ordinal
Y1. I was kept well informed about cocoa market?	contracting and some information on the cocoa market	Scale

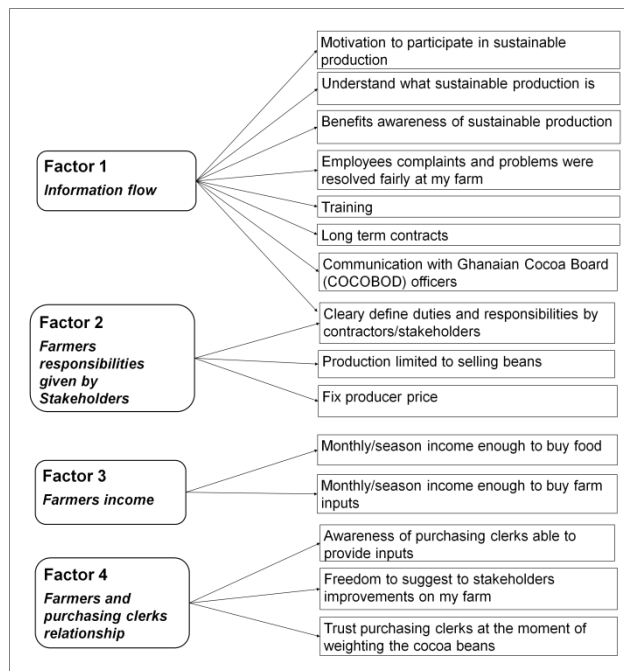
Finally, a factor analysis identified the significant factors and how these influence the responses of farmers about their relations with stakeholders and received benefits. A *Varimax*<sup>2</sup> rotation was used with maximum iteration for a convergence of 30 to have a better understanding of which variables belong to the extracted factors (DeCoster, 1998). It is important to point out that suppressed absolute values  $< 0.4$  were used.

<sup>1</sup> Even though Kendall's tau is used for small data sets, we used it in this analysis for better estimation of the correlation of the population. (Field, 2009)

<sup>2</sup> Varimax rotation is performed to simplify the interpretation of the results, after rotation each factor will cluster only a small amount of variables. (Abdi, 2003)

## Results and Discussion

The analysis of the relationships between farmers and the key stakeholders (nationally and internationally) can improve certain steps in the cocoa value chain. This relationship bring advantages to farmers, giving them long-term security to sell their cocoa beans and to receive training and support, thereby improving productivity and producer prices and ultimately enabling them to enhance their living conditions.



**Figure 1: Relationships and information flow between farmer and stakeholders**

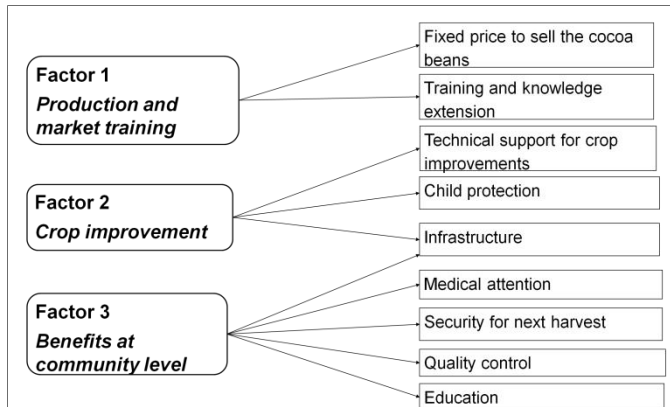
Four principal factors that group the advantages between farmers and stakeholders relationships (Figure 1) were identified. Stakeholders are responsible for creating awareness and training farmers on different cultivation techniques such as sustainability and certification. The communication from farmers to COCOBOD officers and with their employees in farms is important to take advantage of relationships and be able to work with them in the long run, creating trust and partnerships. Regarding training and knowledge extension, Mr. Nii Arku from CSSVD<sup>3</sup> adds that they not only create awareness among farmers of prevention methods, control and new diseases that affect the cocoa, but they also empower farmers to seek income substitution activities in the months when cocoa is not harvested, basically July and August. On the other hand, Mr. Charles Bruce-Tagoe, regional manager for QCC<sup>4</sup> in the Ashanti Region, adds that quality assurance is the key to linking farmers and LBCs<sup>5</sup> with international standards. Therefore workshops are held three times a year where farmers are able to learn about the relevance of post harvest practices to keep good quality of the beans. In addition, Swiss stakeholders also contribute to farmers' training. Felchlin AG and Chocolats Halba are working to have direct contact with farmers through cooperatives/farmer associations in order to train them on how to uphold good quality (fermentation and drying process especially), explaining why this is necessary. Once a year or once every two years, both companies invite a selected group of farmers to visit their offices and the chocolate factories in Switzerland (all expenses paid). There they have the chance to see the whole chocolate process and understand why is so

<sup>3</sup> Cocoa Swollen Shoot Virus Disease Control Unit, Cocobod subsidiary in charge of control and take immediately action against the swollen shoot virus and provide technical support to prevent pest and disease.

<sup>4</sup> Quality Control Company Cocobod subsidiary is responsible for inspecting, grading and sealing the dried beans for local and international markets as well as keeping warehouses free of pests and diseases.

<sup>5</sup> Licensed buying companies are approved traders by Cocobod for the cocoa beans procurement.

important to maintain good quality. In addition, chocolate manufacturers and NGOs are seeking to work direct with farmers to be able to pay higher producer prices and give extension and knowledge services, but there is a minor organization from farmers in cooperatives and/or farmers association making difficult the process to reach them because many communities are located in remote areas.



**Figure 2: Benefits from stakeholders to cocoa farmers and communities**

The success of such relationships is reflected in benefits to cocoa farmers and to the communities (Figure 2) provided by stakeholders to increase their social responsibility and to keep motivating cocoa farmers through higher producer prices. Contract farming on the other hand, has shown very low response (17.33%) in both regions. Regarding to certification (Fair trade, Bio/Organic, Rain Forest Alliance) only the 8.5% of farmers are aware of certification and the 6.8% are using certification on their production. The Licensed Buying Company (LBC) Adwumapa Buyers added that organic cocoa is produced mainly in the Eastern and Volta regions where Yayra Glover (another important LBC) is responsible for organic cocoa procurement. He explained that sustainable cocoa production programs are just starting in Ghana, and as a LBC they face the challenge of encouraging farmers to change their traditional cocoa production to sustainability and gain certifications. The major problem mentioned with certified cocoa is the low productivity, the major reason why farmers preferred not to join certification programs. Adwumapa Buyers are currently working with UTZ, Fair Trade and Rain Forest Alliance certifications.

### **Conclusions and Outlook**

Positive and negative actions from the relationships between stakeholders and farmers were identified. Therefore possible improvements in the value chain can increase producer price and sustainability/certification awareness for cocoa farmers.

Certain steps need to be eliminated to increase competitiveness in international markets, farmers' participation and communication with stakeholders.

Relationships with other stakeholders remain minimal. There is only an arm's length market transaction so farmers and traders are practically unknown to each other. Farmers have no contact with any chocolate manufacturer, except for Felchlin, which works with the LBC Yayra Glover. Farmers have contact only with COCOBOD agents when training and extension services are provided, maybe twice a year. Other stakeholders, such as NGOs and other chocolate manufacturers, are trying to establish direct contact with farmers in order to improve their work and be able to pay higher producer price. However, the total control of Ghanaian cocoa production by COCOBOD has contributed to farmers' isolation from external organizations willing to provide market knowledge to improve farmers' livelihoods. The exponential growth of globalization is sharpening competitiveness and awareness in consumers, making markets more demanding. With improvements in the value chain (involving farmers in sustainable production), Ghana would have greater opportunities, not only in the cocoa industry but also in other economic sectors.

There is evidence that stakeholders understand the relevance of farmers' participation in the cocoa value chain therefore using participatory methods make it possible for business actors and farmers to work together for common benefits.

The positive correlation (0.598\*\*) indicates that farmers working under contract and knowing the terms and conditions are aware of the cocoa market price fluctuation, sustainability and certification than farmers working under own.

Farmers expect fair trade certifications to increase their income where stakeholders are willing to pay higher producer price for certified cocoa beans.

## References

- Abdi H, 2003. Factor rotation in factor analysis. University of Texas Dallas. In: Lewis-Beck M, Bryman A, Futing T (Eds.). *Encyclopaedia of Social Sciences, USA. Research Methods*. Thousand Oaks (CA): Sage. 8p.
- Field A, 2009. *Discovering statistics using SPSS*. Sage Publication Inc. London, UK, 809 pp.
- Bammann H, 2007. Participatory value chain analysis for improved farmer incomes, employment opportunities and food security. *Pacific Economic Bulletin* 22 (3), 113–129.
- Chocosuisse, 2001. *Chocology, the Swiss chocolate industry, past and present, Switzerland*. 64p.
- DeCoster J, 1998. Overview of factor analysis. Department of Psychology University of Alabama, United States of America. <http://www.stat-help.com/notes.html>. 10p.
- Fold N, 2001. Restructuring of the European chocolate industry and its impact on cocoa production in West Africa. *Journal of Economics Geography* 1, 405–420.
- Ghana Cocoa Board (COCOBOD), 2011. *The Cocoa Industry*. Ghana Cocoa Board (COCOBOD), accessed 18.11.2011 <http://www.cocobod.gh>.
- Gockowski J, Afari-Sefa V, Sarpong D, Osei-Asare Y, Dziwornu A, 2011. Increasing income of Ghanaian cocoa farmers: is introduction of fine flavor cocoa viable alternative. *Quarterly Journal of International Agriculture* 2 (50), 175–200.
- Max Felchlin AG, 2012. *Felchlin International, Sustainability, Yayra Glover Project*. <http://www.felchlin.com>, accessed 10.05.2012.
- Oxfam Wereldwinkels, 2008. *Towards a Sustainable Cocoa Chain: Power and possibilities within the cocoa and chocolate sector. Cocoa Report*. Oxfam Wereldwinkels. 15p.