

# **Analysis of collective performance in the Malian shea sector: from fields to markets**

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**Analysis of collective performance in the Malian  
shea sector: from fields to markets**

**Amadou Sidibé**

**Thesis**

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*In memory of my late senior brother Soumaila Sidibé 1960-1993*



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# CHAPTER 1

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## General Introduction

## 1.1. Introduction

The shea tree (*Vitellaria paradoxa* C.F. Gaertn., syn. *Butyrospermum paradoxum*) is a member of the Sapotaceae (Henry *et al.*, 1983). Its distribution area is estimated at 1 million km<sup>2</sup>, stretching from western Senegal to north-western Uganda. Annual rainfall in its distribution area ranges from 500 to 1200 mm (Sallé *et al.*, 1991). Shea grows in the wild. Very few successful attempts to domesticate the tree have been reported. A more promising strategy of semi-domestication appears selective enrichment in cultivated fields. The selection for trees with desirable traits in the fruits and nuts results in the purposeful creation of parklands dominated by shea (APROMA, 1995). The fruits of the shea tree contain an edible pulp that can be used as a snack, especially during the lean season, the period at the beginning of the rainy season when food reserves run low and cereal crops have just been sown. But its main product is the nut. After shelling the nut, the kernel can be processed to provide a fat known as shea butter or *beurre de karité*. Shea butter is an important ingredient of local diets in its area and serves household needs as a vegetable fat, for example in combination with millet as a frying medium or added to porridge, and for moisturisers and soap (Derks and Lusby, 2006).

Shea and its uses were already mentioned by Ibn Batouta since the fourteenth century (Busson, 1965). The traveller Mungo Park was the first to describe shea during a trip in actual Mali in July 1797 (André, 1947). Currently, there are around 20 million shea trees in Mali. The annual production of shea kernels is about 100,000 metric tons. The gathering of shea nuts represents 8.5% of national gross agricultural production (Ministère-du-Développement-Rural, 2001). Over 500,000 people are estimated to work in Mali's shea sector, almost all of whom are rural women collecting, processing and selling kernels or butter. As a picking up product, the collection of shea fruits, the pre-treatment of nuts, the processing of kernels into shea butter and the commercialisation of shea kernels and butter are mainly female activities. The ripening of shea fruits occurs during the labour-intensive rainy season, so women usually store nuts for processing at a later date when their labour time is less constrained. However, inadequate pre-treatment practices and storage facilities reduce the quality of the butter. To some extent division of labour within households allows processing during the rainy season as well.

There is a huge domestic market for shea butter, and more than 90% of it is consumed domestically and traded in local markets. Shea butter enjoyed new perspectives after the European Union allowed 5% of various vegetable fats as cacao butter equivalent in the chocolate industry (Fold, 2000). This industry exerts a strong demand for shea kernels,

operating through extensive agent networks on local markets (Greig, 2006). The actors in this value chain are well coordinated, dominated by a few monopolies, and to a large extent under male control (Fold and Reenberg, 1999). The international cosmetic and pharmaceutical industries provide main stream as well niche markets for ‘improved’ shea butter of low acidity. The chains for ‘improved’ shea butter of low acidity dominated by women are independent of the chain of shea kernels for the chocolate industry. International demand is increasing and in response, the organisation of trade is being stimulated by numerous international development organisations. In a number of cases, market organisation along the value chain has been linked to Fair Trade labels (François *et al.*, 2009). However, this market remains strongly fragmented.

Shea therefore represents the intersection of an indigenously produced and consumed commodity and the modern global agri-food system (Boehlje, 1999, Chalfin, 2004). In this regard, it has been identified as offering strong potential for income diversification for rural women in Mali. Since the 1990s, a renewed interest for farmer organisations translated in the spawning throughout the country of shea development projects centred on women co-operatives. Pursuing pro-women development agendas of the shea value chain, gender equality and sustainable development objectives, these projects capitalise on the growing cosmetic and pharmaceutical international market outlets. Across producing countries, they assist groups of ‘professional’ female shea butter producers in the production of a product that meets the quality standards of the global value chain (Elias and Saussey, 2013). The Malian support strategy by the government and development organisations to the shea sector has therefore a strong focus on building rural women’s organisational capacity to process higher volumes of good-quality shea kernels and butter for high-value export markets.

## **1.2. Performance of the shea sector in Mali**

The quality of shea products in terms of colour and smell is mainly determined by the pre-treatment and processing practices. These practices differ from one region to another and within the same region from one woman to another. Variation in practices makes it difficult to guarantee a consistent quality of marketable shea kernels and butter on local and international markets. The local trading channels of shea products are dominated by networks of traders. Traders buy shea products from individual women at the lowest possible price and do not offer different prices according to different quality. Lack of price differentiation offers no incentive for women to endeavour practices to improve the quality of products. Moreover, the co-operative-centred development projects in Mali did not (yet) translate in a better position

of Malian shea products on the export markets for women to expect better outcomes in terms of returns.

The poor performance at national and international markets of the shea sector resulting from these factors featured highly in the priorities of policy makers. Though the world's second largest producer of shea fruits after Nigeria, Mali's share of international trade is less than 10% (Lusby and Derks, 2006). This prompted the government and development agencies in their support strategies to shift attention towards building rural women organisational capacity to process higher volumes of good-quality shea butter for high-value export markets. For these reasons the shea sector was selected among national priorities for research in the framework of the research programme Convergence of Sciences - Strengthening Innovation Systems (CoS-SIS) in Benin, Ghana and Mali (Hounkonnou *et al.*, 2012).

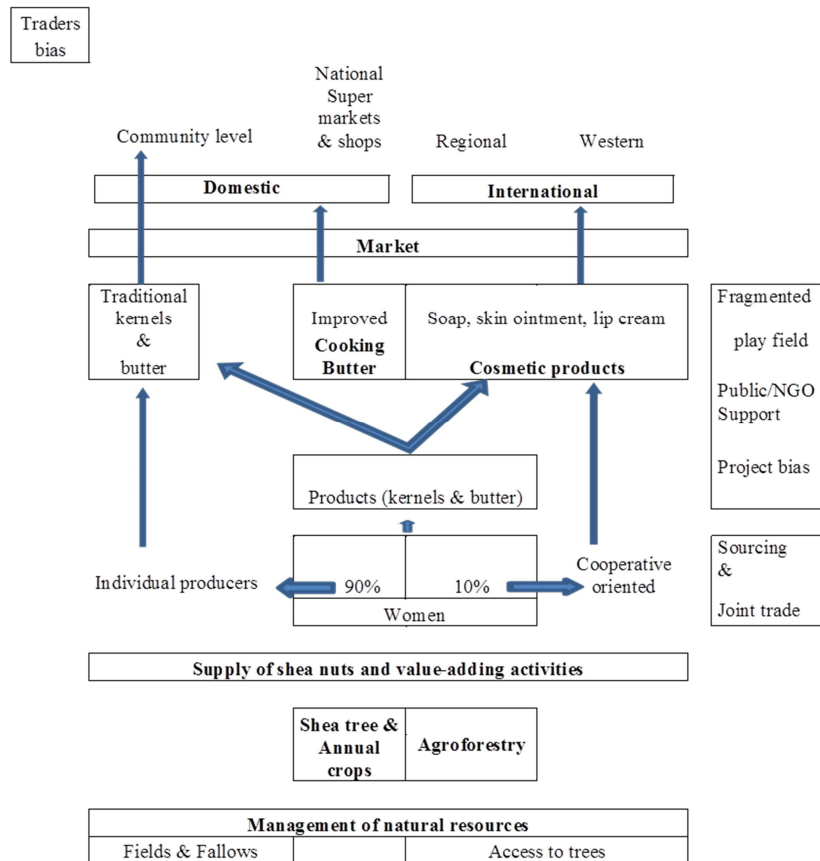
An important feature of the intervention strategies targeting the shea sector has been to organise women in groups. Women are organised in co-operatives with the purpose to upgrade their position in the value chain so that they appropriate a greater share of the returns accruing from the chain (Peppelenbos, 2006). However, despite the supposed benefits from co-operation, membership of women remained low. It was reported that at national level only 1% of rural women were organised in co-operatives (Lusby and Derks, 2006). In seven co-operatives, which I explored at the initial stage of my research, membership was limited to 10%. This limited membership was perceived as problematic by development actors with regard to the objectives of producing high-quality shea products as prerequisite to access high-value export markets and subsequent better returns for women.

The majority of women are excluded from formal participation in the co-operative and consequently from access to public/donor support, linkages to high-value markets, and from adoption of new processing skills (Figure 1.1). Low membership rates raised initial research questions related to mechanisms excluding or including women from an organisation. However, non-members played an important role in supplying the co-operative with kernels. This observation led to a revised research question for the thesis: why and how does the performance of grouped women stay viable in changeable social and natural conditions and generate benefits for those formally excluded from the organisation?

The objective of my research was to understand the social phenomenon of how women cooperate and how practice of co-operation results in developmental outcomes. Initially the focus was on mechanisms of inclusion and exclusion, but the results of the diagnostic study (Chapter 2) necessitated a reorientation in focus. The study shifted towards analysing the performance (Richards, 1993) of co-operatives in terms of making, organising tasks and acting in certain conditions. The empirical focus was on the practices of sourcing, storing,



processing and trading shea products (kernels and butter) as core activities of women co-operatives. I studied the organisational and institutional dimension of the functioning of and the choice-making in one co-operative. These processes are embedded in the materiality of shea nut collection and of aggregating kernels and butter. I therefore also investigated the biology of shea tree fructification.



**Figure 1.1.** The shea chain from field to markets of ‘improved’ butter of low acidity.

### 1.3. Methodological design

To explore the on-going pro-women development strategy in the Malian shea sector (based on women co-operatives arranging access to public/donor support, linking to high-value markets, and adopting new skills), my research was guided by two methodological choices.

The first methodological choice rests on the realist idea that things are emergent rather than predictable. Emergence is defined by situations in which the interaction of different aspects gives rise to new phenomena, which have properties that are irreducible to those of their constituents (Sayer, 2000).

The second choice follows the line of inquiry of technography (Richards, 2001). He considered technography to be basically an eclectic methodology since “no single methodology” will provide insight into, for instance, the socio-technical and the natural entities of women, shea trees supporting organisations and their interactions. Technography is an integrative and realist methodology that seeks to go beyond internalist explanations in which causal relationships are inferred only from bounded configurations of knowledge, skills and techniques on producers’ organisations. With particular interest in the performance of specific tasks, technography helps capturing interactions between society, nature and technology (Jansen and Vellema, 2011).

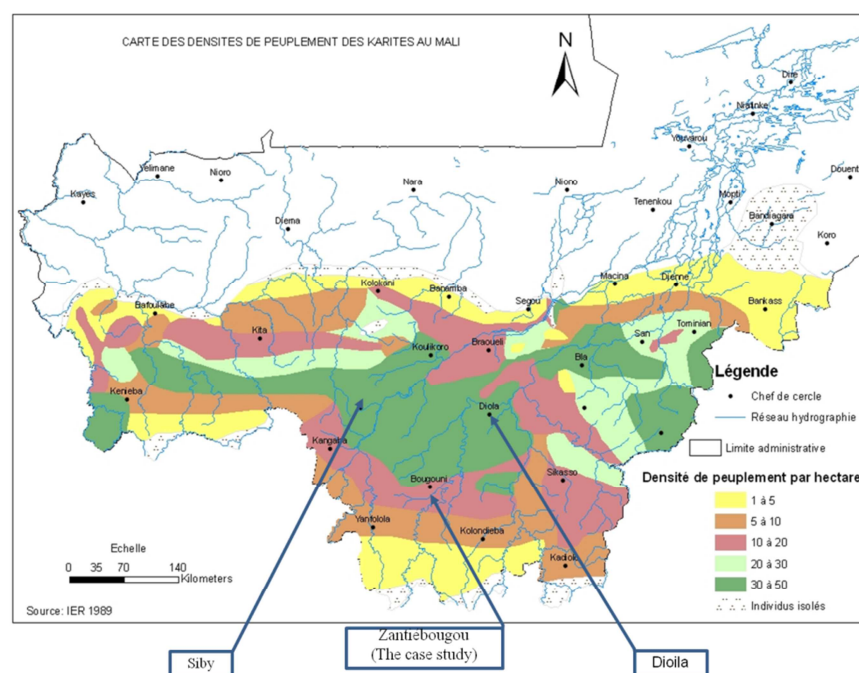
These methodological choices guided the case study strategy applied to COPROKAZAN, la Coopérative des Productrices de Karité de Zantiébougou. More specifically, the empirical focus is on the performance by the co-operative of the socio-technical, institutional and administrative tasks of sourcing and stocking shea kernels, and processing shea butter. Because of limitations of case studies, I adopted it as an intensive, in-depth study of a relatively bounded phenomenon of women co-operation (Yin, 2002, Gerring, 2004). The case study provides a basis for a cross-case analysis that aims to distil cautious and generic causal inferences about the mechanisms of change triggered by women co-operation around sourcing and stocking as core performance (Vellema *et al.*, 2013). COPROKAZAN was selected because it is the first community-based organisation of women that received external support. It has pioneered joint learning and action for adding value and trading shea products and has become relatively independent of the supporting organisations. The co-operative features very prominently in the national and international media. The number of Google hits for this co-operative is higher (1620; accessed August, 2013) than for the three other co-operatives treated in this study (470 hits for la Coopérative des Productrices de Karité de Siby, COOPROKASI; 41 for l’Union Locale des Productrice de Karité, ULPK; and only 1 hit for Siyiriwa (meaning in Bambara the promotion of shea). COPROKAZAN has also played a major role in the revival of the national umbrella inter-organisational network of women involved in shea activities (SIDO: the Bambara name of shea parkland). The president of COPROKAZAN Mah Koné was chosen as the first president of SIDO. Because of context-dependency of the performance of the co-operative, I decided to study three comparable community-based organisations: COOPROKASI (at Siby, 35 km from Bamako), and Siyiriwa and ULPK (both in Dioila, 160 km from Bamako).

Capturing the diversity of outcomes due to different contextual conditions implies that a mechanism cannot unconditionally work in all circumstances and that it needs to be defended by a clear specification of the context (Ton, 2012). The comparative approach aims to

stimulate counterfactual reasoning to specify the context dependency of the configurations around women co-operation that produces the observed outcomes (Vellema *et al.*, 2013). In congruence with the methodology of technography, multiple methods were used to collect quantitative and qualitative data (Pawson and Tilley, 1997). The four empirical chapters describe and explain at different levels the processes in order to answer the main research question of how women cooperate. Participant observations, key informant and focus group interviewing, secondary data collecting, surveys, life histories, and instructive events allowed triangulation of sources of evidence.

#### 1.4. Research locations

Dioila, Siby and Zantiébougou (Figure 1.2) host four of the most important women organisations around the shea value chain. The co-operatives have been selected primarily on the basis of their experiences and the importance of their activities. These sites reflect also the diversity of the on-going strategy of shea value chain development in Mali. They include a range of conditions – e.g. two unions of federated co-operatives in Dioila (ULPK and Siyiriwa) and two co-operatives in Siby (COOPROKASI) and Zantiébougou (COPROKAZAN). They are supported by public funds or by private development agencies. The aim of the design was to capture sufficient variation in the on-going development strategy.

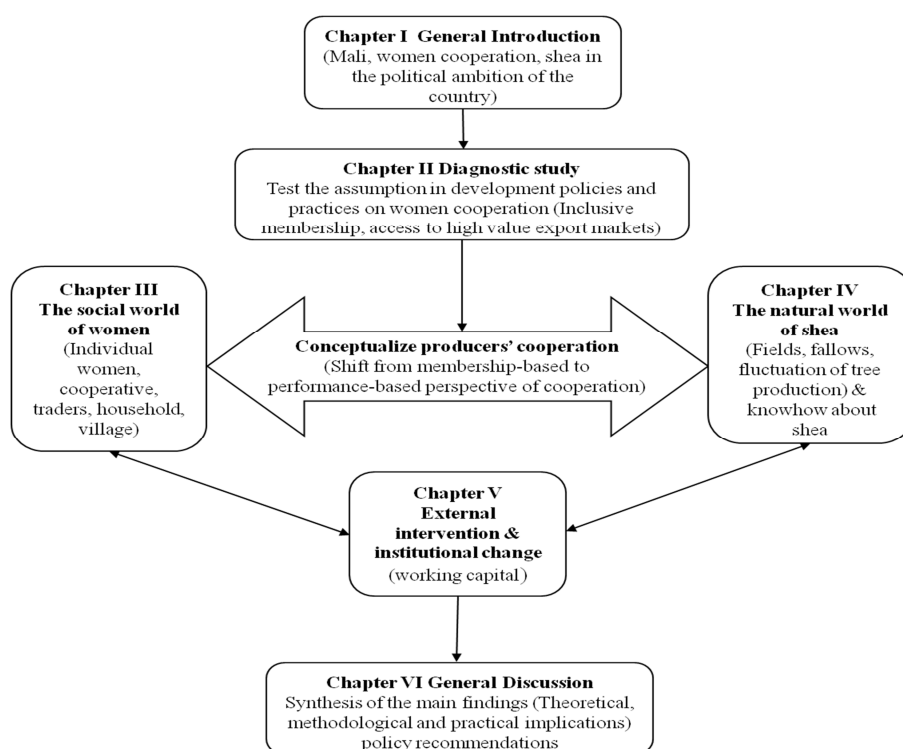


**Figure 1.2.** Research locations in the distribution map of shea in the South of Mali.  
Source IER (1989).

### 1.5. Thesis outline

The thesis investigates the socio-technical system composed of shea tree, women, and the enabling institutional environment of supporting public and private development agencies. It builds around six chapters, including four empirical (2 to 5), a general introduction and a general discussion. The relation between the chapters with their logical sequence is depicted in Figure 1.3.

The General Introduction gives a brief description of what shea is and how it fits in the political ambition of income diversification for rural women in Mali. It presents the state of the art of shea value chain development strategies.



**Figure 1.3.** Thesis outline and relationships between chapters.

Chapter 2 is a diagnostic study of the wider socio-technical system around shea. It consists of a case study of the performance of a community-level co-operative of women (COPROKAZAN, Zantiébougou) that sources shea kernels from women, processes them into butter, adds value to it and then trades the assortment of shea butter with an initial focus on the export market. The objective was to critically analyse the underlying pre-analytical assumption that exclusion of individual women from groups specialised in supplying a single international niche market is the main obstacle to their development. The chapter nuances that assumption and rather shifts attention from exclusion towards performance - the practice-

based capacity of women co-operatives to link their handling of fluctuations in supply to opportunities in a range of markets.

Chapter 3 describes the social reality of members and non-members in which the co-operative is embedded. It combines an in-depth investigation of the intra and inter-household institutional patterns of social differentiation among women in Zantiébougou. It also surveys the three locations on how both non-members and members of co-operatives generate incomes. The chapter opens a discussion about how the co-operative relates to social relations at household level and how this relation explains the ways in which non-members benefit from the collective activities generated by the co-operative.

Chapter 4 investigates the natural reality of the fluctuation in shea fruit production. It combines field observations of tree performance with a detailed investigation of the know-how used by women in collecting fruits. The fluctuation in fruit production triggered responses by the co-operative as well as by women. The chapter suggests that no single cause has been detected for explaining fluctuation. However, fluctuation, as a natural phenomenon, shapes the way women act, individually and collectively, and impacts on how the co-operative organises sourcing of kernels. The chapter ends with the proposal to shift from research exclusively focusing on biological explanations to research that emphasises practices and interactions at the intersection between the biology of trees and the practices of individual women and co-operatives.

Chapter 5 analyses the consequences of a loan of working capital provided to the case study co-operative COPROKAZAN. This loan was brokered by a platform of actors called concertation and innovation group (CIG) created in the framework of the CoS-SIS research programme was provided by a micro-finance organisation. The chapter uses this access to and use of working capital as a natural experiment to investigate the perspectives on what types of institutional arrangements could enable inclusion of a larger number of women in the sourcing of kernels. Traces of new institutional arrangements, specifically the changes within the co-operative and the interaction with other actors such as non-members, traders and micro-finance organisations, provide further justification for the shift in focus from a membership-based to a performance-based theory on women co-operation.

The General Discussion (chapter 6) uses the main findings to substantiate that the co-operative is rather an emergent outcome of performance than an exclusive membership-based organisation. The theoretical implications of my results allow conceptualising women co-operation as a collective performance. This insight translates into methodological and practical implications as well as in policy recommendations with respect to institutionalisation and change perspective in the wider socio-technical and institutional system of shea in Mali.



## CHAPTER 2

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**Innovation processes navigated by women groups in the Malian shea sector: how targeting of international niche markets results in fragmentation and obstructs co-ordination**

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## CHAPTER 2

### **Innovation processes navigated by women groups in the Malian shea sector: how targeting of international niche markets results in fragmentation and obstructs co-ordination**

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#### **Abstract**

The incorporation of women and their associations into international markets and value chains increasingly is proposed as a development pathway in sub-Saharan Africa. The underlying assumption is that exclusion of individual women from groups specialised in supplying a single international niche market is the main obstacle to their development. Intervention under this assumption focuses on linking women's groups to international business and development organisations (NGOs). To validate this pre-analytical choice, we conducted a case study of a community-level co-operative of women in Mali (COPROKAZAN, Zantiébougou) that collects shea kernels from producers and processes them into butter and then trades the shea butter for the export market. The choices made in this co-operative are exemplary for other women Malian co-operatives involved in the making of shea butter. The strategic direction taken by the co-operative results from developmental interventions that encourage exclusive reliance on the links between the women's co-operatives and niche markets in the international cosmetics industry. The case study shifted attention to the capacity of the women's co-operatives to link their handling of fluctuations in supply to opportunities in a range of markets. We found that this in turn opened new opportunities also to a growing number of non-members. We then applied concepts drawn from the research literature on shea in West Africa, market fragmentation, competition, and path dependency to reframe our research focus, to examine how the co-operative in fact navigated this more complex development pathway through coordination at group and sector level. The study concludes that a focus on the provision and use of working capital, a strategic priority identified within the studied co-operative, opens new perspectives on what types of institutional arrangements enable the inclusion of a larger number of women in the sourcing of kernels.

**Keywords:** Co-operatives, development practice, value-adding, path dependency, Mali.



## **2.1. Introduction**

Almost 80% of the Malian population lives in rural areas. Rainfall-dependent agriculture and livestock husbandry are the main sources of income for people working under these risk-prone agro-ecological conditions. Government and development organisations have explored ways to diversify rural incomes: the shea tree (*Vitellaria paradoxa*), a native wild species, has been identified as offering strong potential for income diversification. The collection, processing and commercialisation of shea nuts is almost exclusively under the control of women (Carney and Elias, 2006). The shea sector in Mali falls under the responsibility of the Ministry for Women's Promotion. However, very few successful attempts to domesticate the tree have been reported. A more promising strategy appears to be selective enrichment in cultivated fields, where tree densities can be 3-5 times higher than in fallows, in combination with selection for trees with desirable traits in the fruits and nuts, leading to the purposeful creation of parklands dominated by the shea tree (APROMA, 1995).

The fruits of the tree contain an edible pulp that can be used as a snack, especially during the hungry period, the period at the beginning of the rainy season when food reserves run low and cereal crops have just been sown. However, its main product is the nut. After de-shelling the nut, the kernel can be processed to provide a fat, known as shea butter or *beurre de karité*. Shea butter is an important ingredient in local diets and serves household needs as a vegetable fat, for example in combination with millet as a frying medium or added to porridge, and for moisturizers and soap (Derks and Lusby, 2006). There is a huge domestic market for shea butter, and more than 90% of it is consumed domestically and traded in local markets. Mali's share of international trade is less than 10 per cent (Lusby and Derks, 2006), selling into markets that range from regional trade networks operating throughout West Africa to specialised export trade routes to Europe and North America. For instance, the European chocolate industry, in particular after the European Union allowed various vegetable fats to be used as Cocoa Butter Equivalent (CBE), exerts a strong demand for shea kernels on local markets, operating through extensive agent networks (Greig, 2006). The actors in this value chain are well coordinated, dominated by a few monopolies, and to a large extent under male control (Fold and Reenberg, 1999). The international cosmetic and pharmaceutical industries provide niche markets for 'improved' shea butter of low acidity. International demand is increasing and in response the organisation of trade is being stimulated by numerous international development organisations. In a number of cases market organisation along the value chain has been linked to Fair Trade labels (François *et al.*, 2009). However, this market remains strongly fragmented, a point that is explored in more detail later in this paper.

Mali is the world's second largest producer of shea fruits after Nigeria (Derks and Lusby, 2006). It is estimated that there are around 20 million shea trees in Mali. The annual production of shea kernels is about 100,000 tons, representing only 50% of the production potential (Ministère-du-Développement-Rural, 2001). Shea nut is one of the commodity chains that are receiving priority from government, donor agencies and development organisations, including national and especially international non-government agencies (NGOs). The gathering of the shea nuts alone is estimated to contribute 8.5% to agricultural production (Ministère-du-Développement-Rural, 2001). Currently, over 500,000 people are estimated to work in Mali's shea sector, most of whom are rural women who collect process and sell kernels and butter. The ripening of shea fruits occurs during the labour-intensive rainy season so women usually store the nuts for processing at a later date when their labour-time is less constrained. However, inadequate storage facilities reduce the quality of the shea butter.

The Malian support strategy (by the government and development organisations) to the shea sub-sector has a strong focus on building rural women's organisational capacity to process higher volumes of good quality of shea kernel and butter for high-value export markets. In practice this strategy neglects the development of domestic consumption and local markets (Fold and Reenberg, 1999). Currently, the domestic and international chains are not connected (Derks and Lusby, 2006). The Malian strategy resembles those of other West African countries (Badini *et al.*, 2011a, Badini *et al.*, 2011b) in that it favours the formation of direct linkages between women's groups and niche cosmetics markets by investing in upgrading the groups' capacities to comply with supply contracts and quality control assurance in these markets. The emphasis on global niche markets, driven by externally conceptualised and project-based interventions, creates path dependencies and risks marginalising low-income women whose livelihoods are partly dependent on the collection of shea nuts. It also fails to build on the skills and networks embedded in local trade (Shackleton *et al.*, 2007).

This paper focuses on co-related institutional issues in the development of markets for shea nut, and in the development of capacity, at various levels, to meet the emergent market demand. It is based on a diagnostic study that zooms in on how shea nut co-operatives, mostly with women members, navigate in this situation, evidenced in the choices they have made over time. It first presents the co-operative COPROKAZAN as a case study, in order to reveal its strategic choices with respect to shea nut collection and processing as well as the linkages maintained with supporting agencies. Three comparable cases are examined of similar co-operatives engaged in the making of improved butter for external markets. Next, we briefly report on the relation between COPROKAZAN, support organisations, and the still

underdeveloped sector-based umbrella organisation or *inter-profession* known as SIDO (Shepherd *et al.*, 2009). In the discussion section we build on middle-range theorising about development strategies deployed in the West African shea sector in order to refine our original diagnosis and underlying assumption. We reconsider this assumption and conceptualise the experimental strategy chosen by COPROKAZAN, namely, accessing working capital (*fonds de roulement*) from external institutes in order to scale up its operations, as an endeavour to create more space and influence in the co-operative's navigation of opportunity in the face of supply fluctuations. Our study suggests that capacity of the co-operative to tailor problem-solving to its relationships with its members and non-members in the locality is connected to the development of coordination at higher levels. We conclude that previous choices made in shea nut development policy and practice, particularly the emphasis on single market, export-oriented arrangements, may constrain such capacity development.

## **2.2. Research location and methods**

Data collection took place through 2010 and 2011, mainly at Zantiébougou in the Bougouni prefecture, 187 km from Bamako and also from Sikasso, on the road (RN7) that connects the two cities, and where the co-operative COPROKAZAN is located. The RN7 recently has been much improved, increasing opportunities for trade. The constituency of Zantiébougou encompasses 42 villages and covers 1500 km<sup>2</sup>. According to the 1998 census, the population totals 31,316 inhabitants of whom 51% are female. The population is composed mainly of Bambara and Peuhl ethnic groups. Agriculture, animal husbandry and woodland exploitation are the major economic activities. Agriculture revolves around cereal crops, grown for subsistence, and cotton, grown as the main cash crop. Shea nut is the main source of income for women (CSA/PROMISAN, 1995).

COPROKAZAN was selected because it is the first community-based organisation of women that received external support. It has pioneered joint learning and action for adding value and trading shea products and it has become relatively independent of the supporting organisations. The co-operative features very prominently in the national and international media. The number of Google hits for this co-operative is higher (3000; accessed December, 2011) than for the three other co-operatives treated in this study (less than 600 hits each). COPROKAZAN also has played a major role in the revival of the *inter-profession* (SIDO). COPROKAZAN's president was chosen as the first president of SIDO.

Three comparable community-based organisations, COOPROKASI (at Siby, 35 km from Bamako), Siyiriwa and ULPK (both in Dioila, 160 km from Bamako) were selected purposefully in order to compare and contrast the ways in which access to support and the negotiated relationships with support agencies were arranged.

Data from the support agencies in the five villages (20 in total) were collected through 25 group meetings focussing on the shea nut value chain, involving women shea nut collectors and processors as well as representatives of the support agencies, 28 key informant interviews with co-operative members, professionals working in the sector, and traders, direct observation, and the gathering of secondary data from project documents, reports and literature. The interviews were semi-structured, guided by checklists in order to cover the same issues with each respondent. The interviews focussed on the respondent's experience with and perceptions of the organisation of butter-making and trade activities. Interviews were conducted also with seven former members of the co-operatives, who had chosen to leave the organisation. In addition, over a four month period, all meetings within the co-operatives and between the co-operatives and support agencies, as well as visits by women's groups from shea producing areas not covered by the study, were observed.

## **2.3. Results**

### ***2.3.1. COPROKAZAN Zantiébougou – organisational history and strategic choices***

The organisational history of COPROKAZAN started in one village, Falaba, in 1991. This village was the home of the former president of a national NGO, AMPJ (*Association Malienne Pour la Promotion des Jeunes*). She set up AMPJ between 1991 and 1993 then began to organise women in her home village into groups. From 1994 to 1995, AMPJ helped to strengthen the technical capacity of the women to make improved shea butter, because the pre-treatment of the shea nuts and processing practices affect smell and colour. In March 1995, a team of women from a newly created village group and AMPJ representatives visited a shea project in Burkina Faso, supported by SNV (a Netherlands development organisation) in order to learn more about the recommended practices for improving the quality of butter (AMPJ, 2002). In 1995, the women's group in Falaba started joint trading of shea butter. AMPJ played a role in modifying the terms of trade of the shea products sold by the group. In our interviews, the informants referred to 'lopsided terms of trade' to indicate that the benefits went to the traders rather than to the women who bear the burden of collecting and processing

the nuts. One key informant blamed the traders for opportunistic behaviour, manifest in their unwillingness to remunerate the women according to quality of the butter. It was the traders who set the prices for undifferentiated shea kernels and butter that the women sold at weekly village markets. This respondent recalled that the price in 1992 was 80 CFA (0.12 €) per kg of butter, when butter was sold in Bamako and other cities at 250 CFA (0.38 €) per kg.

AMPJ subsequently provided the women in Falaba with a storehouse, a mill and working capital amounting to 300,000 CFA (457.34 €). The later was used to purchase butter from women members of the village group at 125 CFA (0.19 €) per kg during the harvest season, instead of them selling the butter to traders at a lower price. The group then stored the butter to sell it at a higher price later in the season, at 250 CFA (0.38 €) per kg, during the period of low supply.

The change in the terms of trade released funds at community level and the group was able to make a substantial contribution to the building of a maternity hospital in their village. They also bought a donkey-driven cart and opened an account at a bank with an initial deposit of 500,000 CFA (762.24 €). In 1996, these events encouraged women's groups from a neighbouring village (Sirakoro) also to link to AMPJ and they obtained a working capital 200,000 CFA 304.90 € to replicate the measures taken in Falaba. The network subsequently expanded to four other villages in 1998 and to a total of 15 in 1999. In 2000 the village-based women's groups federated into an apex organisation UGFZ (*l' Union des Groupements Féminins de Zantiébougou*). In this expansion phase all married women in the 15 villages automatically became members of UGFZ. This open membership policy made it difficult to find a way to allocate fairly the working capital for purchasing the members' butter.

AMPJ then succeeded in obtaining financial support from the US-based African Development Fund, which funded further equipment purchase, the development of logistical infrastructure and additional working capital of 5 million F CFA (7622.45 €). The working capital was distributed in portions of 300, 000 CFA (457.34 €) in each of the 15 villages for purchasing butter from the members. However, quality control proved difficult to ensure, according to the key informants. The open membership policy did not give rise to a procedure for giving feedback on quality issues to the individual butter processors. Consequently, the butter traded to Bamako was repeatedly returned for lack of consistency in smell and colour.

In 2004, AMPJ sought assistance from a volunteer working for a Canadian organisation (CCI – Canadian Crossroads International), who was specialized in organisational development, to diagnose how the activities of UGFZ might be improved. The key problem that came to light was related to the way in which women could become members of UGFZ without conditions or qualification. The diagnosis also showed that most of the women felt

alienated from the apex organisation UGFZ. This feeling was linked by the women and the volunteer to the information asymmetry between the central unit of UGFZ and the groups at village level. The diagnoses further indicated that the village-level groups considered the central level to be privileged as far the benefits of UGFZ membership were concerned.

The proposed solution was to modify the organisational structure and transform UGFZ into a co-operative. The co-operative became known as COPROKAZAN that was registered in 2005. COPROKAZAN demanded that new members pay 1000 CFA (1.52 €) as an entry fee and 1800 CFA (2.74 €) as an annual contribution to the working capital of the co-operative. The co-operative started with an elected steering committee of seven members, an elected oversight committee of three members, and a general assembly of 106 members. In 2009, its membership reached 616 members, including 8 men, located in 32 villages in the constituency.

One of the first choices COPROKAZAN made was to concentrate the processing of shea nuts at a centralised unit in the vicinity of the co-operative. This generated full-time and part-time jobs for 140 women. Additionally, 6 men were involved in the milling and the physical tasks of loading and unloading the aggregated kernel. Later on the co-operative added decentralised processing units located in the villages to its operational structure, thus reducing the costs of to the gatherers of the nuts of accessing the processing facilities and thereby allowing more women to earn income. The management of the co-operative also began to realise that it needed to find a way to aggregate enough volume to influence the terms of trade. The management thus opted to scale up the reach of the co-operative to all 42 villages in the constituency of Zantiébougou. This decision had knock-on effects: entry restrictions were imposed on applicants from the already associated villages, and unrestricted entry was allowed for applicants from new villages, so as to spread membership opportunity throughout the constituency. As a member of the steering committee related: ‘As we aim to affect the market of shea products, we do not intend to divide the territory of our constituency by concentrating only in some villages and then leaving the rest of territory to traders’. Another steering committee member further explained: ‘shea productivity fluctuates from year to year but also from one territory to another. Covering the entire constituency is then perceived as a risk management strategy’.

The choices made by the co-operative’s management indicate that ensuring sufficient volume was an important element in its strategy to affect the terms of trade by expanding the spatial coverage of its sourcing practices. Initially, the co-operative employed a clerk with a professional history in sourcing cotton, to take in shea kernels during the weekly markets. The kernels then were stored in the villages until needed for processing. The decentralised storage,

according to our informants, impacted negatively on quality. Consequently, the co-operative decided to centralise the sourcing of kernels and to appoint a co-operative official to control the quality of the kernels at the point of delivery. The clerk was made responsible for weighing and record-keeping at the co-operative building. He subsequently found it difficult to explain the shift to a centralised intake of kernels and related this shift in practice to a lack of trust in him on the part of the management.

In order to secure a continuous supply of good quality kernels the co-operative decided to guarantee that it would purchase kernels that met the standard at a price higher than the price offered by traders. The differential price and the predictability of the price proved attractive also to non-members and encouraged them to meet the quality standard of the co-operative. Although a non-member could sell to the co-operative only by using the membership identity card of a member, the use of the members' identity cards was encouraged by the members, because it increased their own bonuses at the end of the buying season. Non-members are reported to have supplied 60% of aggregated kernels of the co-operative. Our respondents affirmed that the ability to use the co-operative's working capital in support of this price strategy was a vital asset.

Quantitative data support our respondents' historical narratives. Membership rose steadily from 2005 through 2009, except that in 2008 no new members were admitted (Figure 2.1.). The trend in the supply of kernels shows a more erratic pattern (Figure 2.2.). Kernel supply strongly increased in 2008 (when no new members were admitted, but non-members' sales for the first time were allowed through members), and declined in 2009 (when membership strongly increased). Butter production steadily increased over the period 2005-2009 (Figure 2.3.).

Our informants explained these trends in terms of the co-operative's decision to concentrate on butter production to meet the demand of foreign buyers. The co-operative collected from its members some of the kernels on credit and also allowed the members to pay the annual contribution to the capital of the co-operative in kind (i.e. in kernels). Figures 2.1. - 2.3. suggest that the volume of aggregated kernels depend less on the size of the membership as such and more on the inter-play between price, access to processing facilities, and quality. The buying practices of the co-operative in turn were strongly related to the availability of working capital. In 2009 the co-operative encountered cash flow problems and had difficulty in purchasing kernels from non-members because there was insufficient cash available.

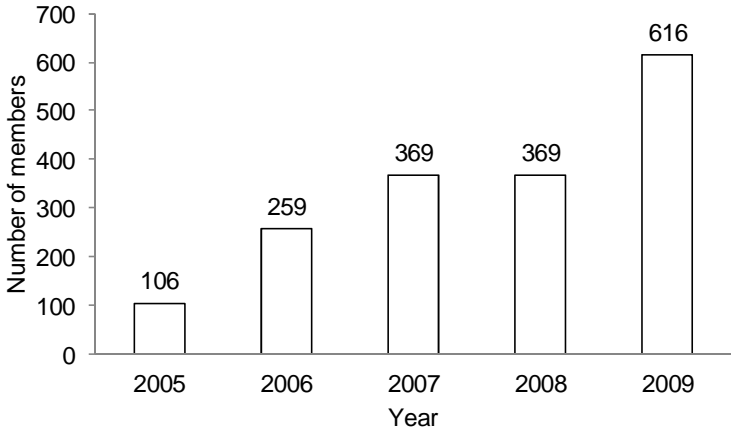


Figure 2.1. Membership of COPROKAZAN, 2005-2009

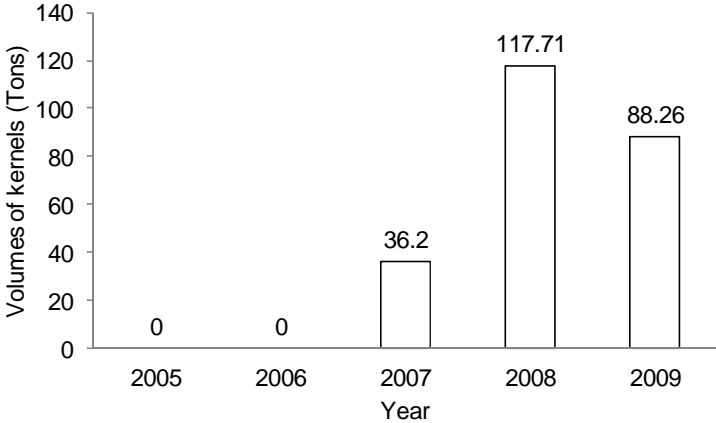


Figure 2.2. Volume of shea nut kernels sourced centrally, 2005-2009.

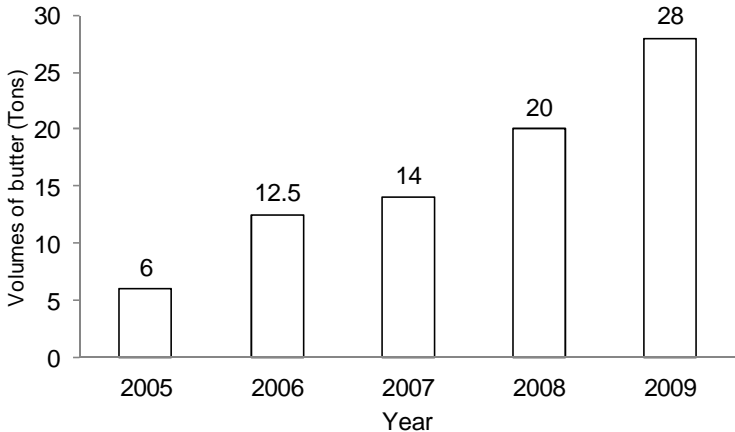


Figure 2.3. Shea butter produced by COPROKAZAN, 2005-2009



### ***2.3.2. The strategic choices made by three other shea co-operatives***

ULPK in Dioila chose to limit the stocking of butter on its own account and to act as broker between the women's groups in as large a number of villages as possible, and buyers of the shea butter. ULPK collected information on the quantity of butter available at co-operatives in the various villages and then arranged a supply contract with a trader before buying from the co-operatives and selling the butter on to the trader. This kept the price to the women below the premium paid by COPROKAZAN and also resulted in prices that fluctuated from contract to contract. ULPK retained 5 per cent of total amount of each contract as remuneration for its efforts and to sustain its activities.

The co-operative Siyiriwa (also in Dioila) chose to purchase kernels from its members but to delay processing until a buyer was found for the butter. This meant that the co-operative used most of its working capital to buy the kernels and had received no new revenue until it processed and sold butter in the market. It strongly relied on project funds for financing personnel and operational costs, largely channelled through a public support project funded by UNIDO and implemented by the Ministry for Women's Promotion.

The co-operative in Siby concentrated on the production of soaps and skin care products, sold to tourists and into niche export markets. The shea co-operative was initiated by the support of an NGO that initially was involved in supporting women's groups producing vegetables and mango fruits. We observed a number of tensions in the relationship between the central units involved in the value-adding activities and in sourcing butter, and the women's groups linked to the shea enterprise. The distribution of income between the central units and the women's groups, together constituted as a network, according to our respondents lacked transparency. Some of the funds received by the co-operative were allocated to and kept by the central units, which created suspicion at other levels.

The various choices made by the four co-operatives included in our study are summarised in Table 2.1., as these relate to the way they source, process and trade kernels. The co-operatives use a combination of members and non-members for sourcing kernels in sufficient volume, a finding that is consistent with those reported in other studies, that indicate that a majority of the women involved in shea nut collection or processing do not belong to formalised organisations (Lusby and Derks, 2006). However, the co-operatives made different choices about what to source, either kernels or butter. The study of COPROKAZAN suggests that the purchase of kernels is more relevant to non-members' interests and that butter requires more intense management (and hence requires stricter rules regarding membership) in order to ensure quality.

**Table 2.1.** Comparison of COPROKAZAN with three other community level organisations

	COPROKAZAN	ULPK	Siyiriwa	COOPROKASI
Organisational form	Co-operative	Federated co-operatives	Federated co-operatives	Co-operative
Number of support agencies	8	6	5	8
Number of villages from which members originate	32	45	28	41
Number of members in 2009	616	1627	2875	1249
Employment at the level of central unit	17 permanent employees at central unit and 123 part-time workers at decentralised units in 6 villages within 15km reach	5 permanent employees (3 clerks of the technical staff and 2 custodians)	5 permanent employees, including mill operator and the technical director, subsidised by project funds	33 permanent employees and 60 women as part-time workers at the central facility
Choices made by the organisation:				
Type of raw material sourced by co-operative	Kernels	Improved butter	Kernels	Improved butter
Organisation of processing				
Centralisation	Continued processing of kernel into butter at the central facility of cooperative	Underway: the processing centre is being built and equipped	Periodic processing of kernel in butter	Continued processing of soap and skin ointment
Decentralisation	Decentralisation of butter production underway: 6 decentralised units created	Butter production decentralised to village-based cooperatives	Kernel is aggregated at the level of village co-operatives	Butter production in villages individually or in groups

The choice to focus on processing activities takes into consideration also the generation of employment. The making of butter generates full-time employment for an exclusive group and part-time employment for a larger group of women, sometimes at a central unit and sometimes in decentralised processing units located in the villages. However, exclusive access to paid labour generates tension. Recognition of the interests of non-employed women appears to be delicate for the co-operatives.

## **2.4. Analysis and discussion**

### ***2.4.1. The direction taken in policy and practice in the Malian shea sector***

The choices made regarding sourcing, processing and trading of shea kernels and butter by the co-operatives indicate that the co-operatives are trying to balance the aggregation of volume and securing a level of quality sufficient to negotiate good remuneration in the market. In addition to this strategic balancing of quantity and quality, the co-operatives are balancing the advantages of centralisation and decentralisation of processing and sourcing.

The choices made on these matters from the start have been inter-twined with the guidance and kinds of support offered by the support agencies. The first women's group in Zantiébougou was formed by AMPJ, whose president originated from Zantiébougou. AMPJ subsequently played a brokerage role between the co-operative and the support agencies (Table 2.2.).

The time line of support projects suggests that NGOs and support projects tend to cluster around already existing successful community organisations and in specific geographical areas. The support agencies in the shea sector also tend to exchange personnel and take over each other's activities. Our key informants in Zantiébougou for instance pointed to a regular exchange of staff between AMPJ and the government-supported *Projet d'Appui au Filières Agricoles* (PAFA). The US-based African Development Fund started to support the co-operatives in 1999. Canadian partners then began to provide similar support, in projects linking the co-operatives to Canadian markets by sending volunteers to assist in organisational development of the value chain. Irrespective of the agency the orientation of their support remained the development of the value chain to meet the international niche market for shea products. At the same time, the support organisations made an effort to associate their work with other successful organisations. Overall, the effect has been a path dependent support strategy that locks women's groups and co-operatives into efforts to gain access to export markets. It was argued by some of our informants that this orientation helps the support agencies to establish and maintain their mandates and legitimacy in their home

countries. At the same time it tends to exclude the women and co-operatives from building the capacity and markets of the domestic value chain.

**Table 2.2.** Linkages of COPROKAZAN to support agencies

Support agency	Sphere of intervention	Time of intervention
AMPJ-Mali	Initial support to collective action and linkage of the co-operative with other support structures	1991-2000
ADF-USA	Infrastructure building, equipment and turnover	1999-2004
CECI-Canada	Study tours abroad, capacity building	Since 2004
CCI-Canada	Sending volunteers, capacity building linking to Canadian markets	Since 2000
SODODEVI -Canada	Organisational capacity building, technical guidance, equipment	2006-2007
IICD-Netherlands	Computer, software, Printer, Digital camera training in NTIC	2006-2009
PAFA-Mali	Management of waste water, linkage with market, fair-trade certification	Since 2010

Note: The national inter-profession SIDO in the shea sector and financial institutions were not listed by respondents as support agencies, although the president of COPROKAZAN at the time of the study was president of SIDO.

In order to analyse this point further we made an inventory of 25 development interventions in the shea sector, in various regions (Bamako, Kayes, Koulikoro, Sikasso, Segou and Mopti), on the basis of the list of actors maintained by FNK (Fédération Nationale du Karité) and Projet karité. Our analysis showed that the majority of the interventions combined investments in processing equipment with building organisational capacity to access international markets as the main way to generate income for members. One worked on the provision of micro-credit; another supported the groups in the making of business plans. Some linked the groups specifically to Fair Trade certification and other trade schemes. PAFA for instance provided Fair Trade certification to a selection of organisations as well as enabled the participation of selected groups in trade shows. Our analysis suggests that the dominant underlying assumption is that provision of improved techniques and resources and the facilitation of international market access impacts positively the incomes and lives of co-operative members. We suggest that because the size of the international niche market is still small (and vulnerable to economic crisis in these markets), and there is competition among

the support agencies for visibility in the development of the shea sector, such path dependency on international trade is risky (François *et al.*, 2009).

One of the main thrusts of the interventions has been to reduce the fragmentation in the shea nut value chain. The CFC (Common Funds for Commodities)-ProKarité project has taken responsibility for implementing a series of coordination measures. The project selected as its partners a number of women's groups in the areas where the main NGOs were active: Zantiébougou, Dioila, Siby Kolondiéba, and San. A primary objective of the project was to establish a regional and international consensus on issues of shea product quality as the basis for enhanced traceability along the supply chain. In addition, the concept of *Points Filière Karité* (PFK – focal points in the shea nut value chain) was introduced, representing the first attempt at coordination among the various actors in the value chain. The PFK were designed to serve as focal points for buyers of quality products and as infrastructural facilities through which shea products of higher quality could find better market opportunities, both nationally and internationally. The initiatives taken by the CFC-ProKarité represent a slow convergence among the diverse interests in building more effective linkages among stakeholders along the value chain (ICRAF, 2004). The project ended in 2006 but was followed-up by the creation in 2007 of an inter-organisational network, SIDO, supported by funds left over from the CFC-ProKarité project. SIDO was given by the network members an explicit mandate to enhance connectivity and coordination among the actors in the shea sector. Lobbying and advocacy were also included in its mandate, primarily to increase the visibility and labelling of shea products from Mali. Our interviews with key informants in the SIDO network indicate that none the less multiple conflicts of interest and obstructions to its operation remain.

The current president of one of the initial PFKs, namely, the co-operative in Zantiébougou, recently was elected president of SIDO. Respondents suggest that her election was related to the influential position of the deceased originator of AMPJ and founder of the co-operative in Zantiébougou, who was also an influential member of the administrative council of the CFC-ProKarité project. Her election to this position tends to confirm that coordination efforts remain anchored in community-based organisations that constitute the core of the established development pathway of the shea sector. The fact that this in turn tends to lock decision-making in the hands of a relatively small group of women may hamper further development of concerted activity and decision-making.

### **2.4.2. Questioning the dominant underlying assumption and consequent strategic choices**

The research for this paper started from the assumption that the exclusion of women from co-operatives serving a remunerative international niche market was the major development problem in the Malian shea sector. The case study of the co-operative in Zantiébougou, brings into question the pre-analytical assumption. The study shows how the co-operative navigates in its given market and institutional environment. We use the metaphor of navigation because the co-operative is shown to be making capacitated, constrained, collective, contested choices but does not choose the choices open to them (Pawson and Tilley, 1997). The choices open to them have been made by the support agencies and they frame the pathway by which the effects of the co-operative are accomplished. The metaphor also allows us to consider the inclusion of women into markets or value chains as a continuous process rather than as a one-time effect (Helmsing and Vellema, 2011, Hospes and Clancy, 2011). Our discussion here links choice making, improvisation and problem solving at local level to the constrained choices resulting from linkages with the rules and routines imposed by the support agencies (Jansen and Vellema, 2011).

The choice to focus on women's groups supplying an international niche market has led to a development strategy based on the replication of micro-pilots under the stimulus of the support agencies. The institutional changes induced by this strategy have been detailed in our findings and reveal that the problems of fragmentation and competition have been caused – or at least exacerbated – by the strategy. We propose here to shift attention to processes and choices that have surfaced in our study that might enable co-operatives to navigate in and manage contingencies related to the market and the material conditions of their performance and that could achieve a level of coordination at national or sector level. In this perspective there is potential for a wider portfolio of choices to be supported and tailored to specific situations and capacities of co-operatives. In particular, we build on (i) the priority given by COPROKAZAN to accessing working capital by linking to an interested finance institute; this created 'space to navigate ' by ensuring a continuous replenishment of the stock of working capital; and (ii), the embryonic coordination processes triggered by ProKarité and the *inter-profession* SIDO.

The first issue, of market choice, has been discussed in the literature on the development of the shea sector in West Africa. Already in 1999 Fold and Reenberg (Fold and Reenberg, 1999) noted the neglect of local shea trade. The local market demands shea nuts and butter the whole year round and this pattern of demand would seem to offer some attractive features if

income generation is the goal. However, the terms of trade are not considered favourable, either by development practitioners, or by the women members of the co-operative. A major reason is that the temporal variation in supply results in low prices during the harvest season. Poor storage facilities during the times when supply is relatively low (and thus higher prices are likely) resulted in produce of poor quality that was rejected by the market in Bamako. Initially, the options of improving storage, and guaranteeing a consistent supply of butter year-round, did feature in the support agencies' interventions. However, the increase in the mutual ties between the co-operatives and development organisations led to a gradual shift in their focus, away from the domestic market and toward building an exclusive relationship with buyers in an international niche market in cosmetics or in Fair Trade (Greig, 2006) that appreciated the specific qualities of shea butter and controlled the value-added.

Quality improvement has been achieved but the size of the international markets the co-operatives can serve remains limited. In terms of traded volume, the market choice has meant that the co-operatives make little impact on alternative market channels which could absorb much larger volumes i.e. their efforts have created a specialised value chain that is isolated from the independent agent networks maintained by local traders in the villages. The one export market for kernels that demands substantially larger volumes, the European chocolate industry (Greig, 2006)), is controlled by a few dominant players who are largely beyond the span of influence of the co-operatives. Shackleton *et al.* (2007) have observed a comparable trend in non-timber forest products, in that the portfolio of development interventions for non-timber forest products emphasises participation in global value chains on the underlying assumption that the greatest potential to impact poor people's lives is found in these global chains. They characterise the linkage with the export market as driven by externally imposed, project-based interventions and contrast such development strategies with a more pragmatic approach building on local markets that evolve autonomously with little external support, and that utilise domestic actors' long-standing skills and knowledge in production, processing and trading to meet local, domestic and regional demand for the products offered. In his discussion of export-oriented enterprise development for non-timber forest products, Cunningham (Cunningham, 2011) emphasises the importance of organisational structures that source across a wide geographic area and arrange reliability of supply. In terms of development strategies this translates into strategic partnerships that seek to level the playing field in terms of who controls the value-added profits along the value chain. In the case of the shea co-operatives this observation raises the question whether the choice for (and the resulting dependence on) a single market channel allows them to exploit their capacity to ensure a reliable supply of butter and kernels at sufficient scale, and to control the profits.

We do not want to argue in favour of a specific type of market channel. Our discussion intends to show the narrowness of the strategic choices pursued by the co-operatives. We further note that the choice for a niche market constrains the capacity of the co-operatives to diversify and act flexibly in a dynamic market environment. They are now in a position that makes it difficult for them to combine their exclusive linkage to their niche markets with a capacity to negotiate the terms of trade in other markets or to tailor the seasonality of supply to year-round demand. We suggest that this position has been defined and consolidated largely by the support agencies. The co-operatives in our study furthermore have become quite dependent on resources provided by the support agencies.

The processes that have steered the choices made in the network of supporting agencies originate in the initial configuration of relationships among the women's groups, co-operatives, NGOs and public agencies in Zantiébougou. Because each support agency tended to build its own identity with and through actors in specific areas and/or co-operatives, the sector for a long time remained fragmented. Kilby explicitly relates the observed fragmentation to the proliferation of donors and NGOs, each seeking to support small projects with specific groups (Kilby, 2011). A sort of 'pack mentality' among these agencies can be seen in the tendency of each to copy what others are doing. Koch *et al.* point to the related tendency of NGOs to cluster in the same areas where other NGOs are operating; this is clearly evident in the areas where the four co-operatives in our study are located (Koch *et al.*, 2009). We further hypothesise that a competitive funding environment encourages NGOs to adopt intervention strategies that create in their home countries visibility for their work, and to initiate projects where the level of attribution is high, such as by working directly with the women's groups involved in making improved shea butter (Burger and Owens, 2010) (Elias, 2006). Sydow similarly has suggested that the types of solutions that dominate project-led interventions lead to rigid routines that restrict alternative or complementary actions by women's groups or sector-based organisations (Sydow, 2009).

It has been argued that an unintended consequence of the emphasis on small projects for which skilled bureaucrats and managers are recruited is that the quality of coordination in a sector declines (Knack and Rahman, 2007). This in turn may serve to sustain organisational fragmentation among local organisations and among actors along a value chain (François *et al.*, 2009). SIDO's weaknesses and lack of decisive impact can be explained by this phenomenon. Edwards and Hulme (Edwards and Hulme, 1992) report discussion among development practitioners to reveal the difficulty that NGOs experience in interacting with actors and organisations at higher-than-local levels (at least in a developing country). Although in the case of shea exclusive relationships have been created with some of the base



organisations and international companies such as The Body Shop or L'Occitane, Edwards' and Hulme's observation generally still stands. Our analysis and discussion suggests that neither Atack's (Atack, 1999) view that NGOs and the state are complementary agents of development, nor Edwards and Hulme's view that the scale effects of localised interventions are dependent on co-operation with the state, sufficiently describe the processes and relationships we have observed in the Malian shea sector.

Another unintended consequence of NGO proliferation and organisational fragmentation has been examined by Platteau and Gaspart (Platteau and Gaspart, 2003) who argue that the dependency of NGOs on community-based organisations makes their interventions vulnerable to capture by local elites. We have shown that the choice of NGOs in the Malian shea sector to focus on a niche market was highly dependent on the performance of those with the capacity to adopt the technical measures needed to meet the quality requirements in the international value chain. We have noted in our case study also that the co-operative in Zantiébougou was started by a member of the local elite who had been employed in the NGO community based in Bamako. Subsequently a small and selective group of community members ruled the choice making processes in the co-operative and employment at the co-operative was open only to a few. This evidence is not strong enough to demonstrate elite capture, although a differentiation between members and non-members is clearly visible. Moreover, the interventions made by the support agencies linked to the co-operatives have depended on a small number of individuals within the larger development community. The pattern of their relationships appears to have discouraged the exploration of other forms of public regulation of the playing field at the level of the shea communities, the value chain, and the sector.

## **2.5. Conclusion**

This paper critically investigates the assumption that it is the exclusion of women from processing and trading opportunities related to international niche markets is the key development problem in the Malian shea sector. The international niche market option is projected as a viable alternative to domestic and other international market channels, where the terms of exchange do not favour women's groups' participation. Our analysis and discussion lead to a reframing of the original assumption, to suggest that the capacity of women's groups to navigate in a dynamic market environment and to make locality relevant choices is constrained by path dependencies on prior strategic choices and measures that have been determined in large part by the support agencies, and by their growing dependence on

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externally provided resources. Our diagnosis shifts attention to the processes relating the micro-level performance of women's groups to meso-level coordination. We conclude that initiatives intended to influence the terms of exchange, and to secure improved performance by the sector as a whole, are not scale neutral. Furthermore, we conclude that the navigation of choice by the women's groups in the situation described, and their capacity to influence the terms of exchange, has strong material and spatial dimensions that are constituted in working capital and the management of stocks and supply fluctuations. In further research we propose to examine COPROKAZAN's choices as a natural experiment in order to further unpack the relation between group performance constituted in their material conditions and processes of coordination in the enabling environment.

## CHAPTER 3

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**Organising women in the context of social differentiation: How a co-operative in the Malian shea value chain accommodates divergent interests**

(In preparation)

## CHAPTER 3

### **Organising women in the context of social differentiation: How a co-operative in the Malian shea value chain accommodates divergent interests**

#### **Abstract**

In general and specifically in the shea sectors in West-Africa, development interventions have adopted a strong focus on organising women around value-adding and income-generating activities. The implication of this approach is that receiving benefits largely depends on membership, and thus is exclusion from the organisation a problem. This paper investigates how inclusion of socially differentiated women is mediated. The paper documents how different strategies used by a case-study co-operative impact differently on women collecting shea fruits. The study shows that the outcomes of collective strategies relate to the way in which observed differentiation of women at intra and inter-household level is accommodated. A comparative statistical analysis between three contexts wherein member-based women organisations operate reveals how the availability of alternative sources of income, outside shea, and the degree to which organisations can make their own strategic choices also determines this accommodation. Investigating whether and how an organisation reproduces patterns of social differentiation gives more insight in how developmental outcomes come about compared to an exclusive focus on membership as a condition for receiving benefits.

**Keywords:** Membership, household organisation, collective action, participation, inclusion

### **3.1. Introduction**

In the last two decades, inclusive pro-women development of the shea value chain has featured highly in the priorities of governments, donor agencies and local NGOs in Mali. Whether self-generated by initiative of their members or stimulated by external resource providers, Community Based Organisations (CBOs) are expected to identify and address issues that individuals alone cannot easily resolve (CFC, 2002). This focus on organising women fits with new roles taken up by NGOs and producer organisations after the reform of fiscal and economic policies enforced in sub-Saharan African countries by the World Bank and the International Monetary Fund in the 1980s. These organisations took on board more responsibilities in agricultural production and marketing programmes (Bingen *et al.*, 2003), which was echoed in policy documents (Chirwa *et al.*, 2005). In Mali, the second rural sector development master plan (*Le Schéma Directeur du Développement Rural*) and the law for agricultural orientation (*La Loi d'Orientation Agricole IOA*) put greater emphasis on producer organisations as channel for development support to smallholders in various agriculture domains. This reorientation towards CBOs is strongly visible in the female-dominated shea sector of Mali. Women co-operation is perceived as an important pillar for the development of the shea value chain (CFC, 2002). Davies (2013) for instance declared that such a collective action can bring transformational change in women's lives.

Besides playing an active role in generating access to markets, CBOs are also expected to build rural women organisational capacity to adopt new skills and to process higher volumes of good-quality of shea kernels and butter for both high-value export and local markets. These strategies build on the assumption of women having 'shared interests', accountability and responsiveness that could be enhanced by the 'participatory' approach. Membership or participation is therefore presumed to be the default position and there is a problem if individuals or groups of individuals are excluded or decide not to participate (Shortall, 2008). To address barriers to the participation of certain women in the co-operatives in Koutiala, Mali, Davies (2013) recommended to develop strategies particularly enabling membership of marginalised women. This may address the risks of elite capture of and rent-seeking in development interventions, as pointed out by Bingen *et al.* (2003) and Platteau and Gaspart (2003). In such situations, membership can be instrumental, 'shallow' or passive membership.

In their study of farmer co-operatives in the cotton sector of Mali, Bingen *et al.* (2003) refer to the way CBO-based development considers producers in general and women specifically as a homogeneous group. They show how intra-village socio-economic disparities among producers resulted in members of those co-operatives to challenge the authority of the

cotton company (CMDT) by boycotting cotton production (Bingen, 1998). By the same token, Scoones (1998) argued that power dynamics, gender roles, social norms, and cultural traditions can constrain the actions and opportunities that bring different family members the greatest benefits. In the same vein, Kabeer (2003: 172) argued that '*institutional bias can constrain people's ability to make strategic choices by ruling out the possibility of certain choices*'.

This paper is therefore interested in how co-operatives engaged with the collection, processing and trading of shea trigger work around processes differentiating women within and outside households. It investigates the implications of the often downplayed differences among women. The empirical section starts from the initial observations that only 10% of women are members in shea co-operatives. A survey in three research locations (Dioila, Siby and Zantiébougou) tested the hypothesis that membership causes and hence explains income differences among women. It compares the income profile of members and non-members with regard to 9 main income-generating activities. In the three sites, member-based co-operatives are active in shea processing, but they differ in how membership relates to collective activities. In the second part of the study, we use the in-depth case study of the co-operative of Zantiébougou to come up with a more refined explanation of income differences among women. It investigates the question how and what explains women being member or not of organisations. It also unravels gendered patterns of differentiation in villages and households in which the co-operative is embedded, which may be reproduced through its performance. However how these patterns are accommodated in practical tasks, i.e. sourcing and stocking kernels, performed by the co-operative also explains how non-members may still benefit from collective action.

### **3.2. Data gathering methods**

Data from surveys are triangulated with narratives and life histories of selected members and non-members, and reports of instructive events observed in the performance of practical tasks by the co-operative. One survey was conducted in the three research locations and quantified patterns of social differentiation among women and the outcome in terms of membership and income. Quantitative data were analysed with the two-sided t-test with unequal variances. Differences were significant at  $P < 0.05$  and marginally significant at  $0.05 < P < 0.10$ . Members' and non-members' revenues generated from nine income-generating activities are analysed. The income-generating activities, labelled from 1 to 9 in tables, include: 1 Cereal crops; 2 Cash crops; 3 Vegetable cultivation; 4 Big ruminants; 5 Small ruminants; 6 Poultry; 7

Shea activities (selling, processing and participating in collective action within co-operatives); 8 Other Non-timber forest products; 9 Other income generating activities (IGAs). Column 10 provides overall average income per year. Twenty members and twenty non-members were sampled in three randomly selected villages in each of the three research locations. In total, 180 members and 180 non-members were surveyed in 9 villages. In parallel, interviews with some women who have stepped out of co-operatives were also conducted to investigate reasons for that choice.

A second survey was conducted exclusively in Zantiébougou, the location of the co-operative COPROKAZAN (*Coopérative des Productrices de Karité de Zantiébougou*). Three villages were randomly selected. In each village, 20 members and 20 non-members of the co-operative (n=120 women) were surveyed. The dependent variable of membership was examined with regard to independent variables such as age, women's status in the household (married or widow), the number of women in the household and their involvement in cooking in the family compound. Alongside with the survey in Zantiébougou, records were kept of instructive events, such as rejection of membership application, hiring team members for centralised processing and the way the co-operative entered new villages. These data were complemented with life histories collected through purposeful sampling of 3 age categories (young, middle-age and elderly women) in a random sample of 3 other villages. Data for the two other research sites also contributed to the analysis.

### **3.3. Characteristics of the sites of three shea co-operatives**

The study selected three co-operatives in different sites for a survey on the sources of income of women, the contribution from shea to rural incomes, and the effect of being a member of co-operative on income. This section characterises the contexts wherein the three co-operatives, in Dioila, Siby and Zantiébougou, operate. It also briefly describes the organisational features of the co-operatives.

Dioila is one of the cotton-producing areas with dominance of Bambara ethnic group. It is an urban area. The city is located 160 km from Bamako including 40 km of a lateritic road from the road to Ségou. It hosts two CBOs called ULPK (*Union Locale des Productrices de Karité*) and Siyiriwa (meaning in Bambara '*promoting shea*'). The surveyed villages are affiliated to Siyiriwa. Several villages of the constituency of Dioila are crossed by the Baoulé, a tributary of the river Niger, which makes vegetable cultivation an attractive income-generating activity. In Dioila, sesame, cowpea, and bean are important cash crops that can be stored to generate income in the periods of need. The three-year monitoring of shea

production in fields and fallows in the three locations reveal a lower production of shea in Dioila compared to the two other sites (Chapter 4). The co-operative's autonomy in terms of decision-making capacities is limited. Siyiriwa is run by the government project (*Projet Karité*) implemented by the Ministry for Women's and Children's Promotion. Decisions are mostly made by administrators also coordinating the project and running 6 similar co-operatives in other constituencies. Siyiriwa buys kernels from members and delays processing until clients show up. Processing teams are then hired from women groups in affiliated villages. Siyiriwa manages a well-equipped and electrified processing facility. The high electricity bills are one of the reasons for the discontinued processing. The co-operative strongly relies on project funds for financing personal and operational costs, largely channelled through a public support project funded by UNIDO (Sidibé *et al.*, 2012, Chapter 2). Siyiriwa products are sold in different shops but mainly in the headquarters of *Projet Karité* in Bamako. Stocks of products are transported to Bamako by project staff.

Siby is an old village populated by the Mandé ethnic group and is located 35 km from Bamako on the road to Guinea-Conakry. It is a touristic site endowed with mountains, waterfalls and centuries-old traditional artefacts attracting foreign visitors. Groundnut is the main cash crop. In Mali, groundnut is known to be culturally attached to Mandé as evidenced by the lyrics of a popular song: '*only Mandé are aware of the value of groundnut*'. COOPROKASI (*Coopérative des Productrices de Karité de Siby*) is supported by a national NGO ACOD (*Association Conseil pour le Développement*) engaged in partnership with Canadian development agencies. The autonomy of COOPROKASI in terms of decision making is limited. The staff of the NGO and the members of COOPROKASI state that the co-operative is not yet mature enough to make autonomous strategic decisions. COOPROKASI buys butter from individual women members. It concentrates on the production of soaps and skin care products, which are sold to tourists and channelled to niche export markets. The products of COOPROKASI are also sold in different shops but mainly in the headquarters of the supporting NGO ACOD in Bamako. The stocks of products are transported to Bamako during sporadic missions of staff in the car owned by the NGO. When needed, processing teams are hired mainly from Siby and adjacent villages to perform these tasks in the central facility. The volumes of sold items as well as the regularity of processing teams are contingent to the influx of visitors. Several women in remote villages around Siby expressed feeling excluded from the centralised processing. They were also vocal about the distribution of bonuses; they never received any amount of the funds managed by the NGO on their behalf. For these reasons the distribution of income between the central unit and women groups together constituted as a network lacks transparency (Sidibé *et al.*, 2012, Chapter 2).



Zantiébougou is also a cotton-producing area composed mainly of Bambara ethnic group. It is located 35 km from the urban city of Bougouni. The village is crossed by the renewed road to Cote d'Ivoire halfway (187 km from each) between Bamako and Sikasso. This road is one of the busiest of the country. It is also used by workers of two gold mines of this region who use to travel between their workplace and Bamako. Gold miners and several travellers stop to buy shea butter at the facility of the co-operative located about 100 m from the roadside. Conventional cotton production in the area is in decline owing to the promotion of organic cotton by MOBIOM (*Mouvement Biologique du Mali*). MOBIOM is also involved in the trade of shea products and competes with the co-operative in sourcing kernels in the area. COPROKAZAN is the first ever organised group of women in the Malian shea sector. It has a relative high degree of autonomy in strategic decision-making with regard to its supporting NGO AMPJ (*Association Malienne pour la Promotion des Jeunes*) and other national and international development partners (Sidibé et al., 2012, Chapter 2), especially compared to the two other co-operatives. It sources kernels from individual women, both members and non-members. Non-members use the ID of women members to benefit from the high price offered by the co-operative to purchase kernels. The bonus for the volume of kernels sold by non-members goes to the member owner of the ID. Members are continuously hired in processing units to produce butter for national and international markets. All members are qualified for that paid job in processing units. The co-operative rented a storehouse and created 5 selling kiosks in Bamako and recruited sellers. The storehouse, from which the kiosks are supplied, is supplied weekly by the van owned by the co-operative.

### **3.4. Findings**

This section first presents survey data on membership and sources of income for the three research sites. In the second part, it examines how income relates to social dynamics outside the boundaries of the co-operative in Zantiébougou.

#### ***3.4.1. Membership of co-operatives and income profiles in three shea co-operatives***

The initial observation during the explorative phase of this research in 7 villages (2009-10) randomly selected in the regions<sup>1</sup> of Koulikoro and Sikasso gave a picture about the membership of women in co-operatives (Table 3.1.). Table 3.1 indicates that only 10% of women above 15 years old are members of co-operatives active in shea. Previous studies have reported an even larger disparity at

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<sup>1</sup> The administrative division of Mali encompasses the district of Bamako the capital city, 8 regions, 46 cercles and 103 wards composed of villages.

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national level: ‘hundreds of thousands of individual women versus thousands of women member of associations and co-operatives’ (Lusby and Derks, 2006). However, 60% of shea kernels processed into butter by COPROKAZAN in Zantiébougou are supplied by non-members. (Sidibé *et al.*, 2012, Chapter 2) This raises questions about how membership, participation in organisations and their returns for women relate, which is examined for the three research sites.

**Table 3.1.** Percentage of women members in relation to the female population above 15 years

	Female population >15 years (1)	Co-operative members (2009-2010) (2)	Percentage (2) in relation to (1)
Bancoumana (ward)	5538	250	5
Siby (ward)	6633	1249	19
Nianguila (village)	168	23	14
Ceylamissiri (village)	526	37	7
Boncoro (village)	187	59	32
Dougoutiguila (village)	329	32	10
Zantiébougou (ward)	9219	700	8
Total	22598	2350	10

Note. Young people below 15 years, who represent almost 50% of the Malian population (*Recensement général de la population et de l’habitat* RGPH, 2009), have been excluded in the estimate of female population.

### Dioila

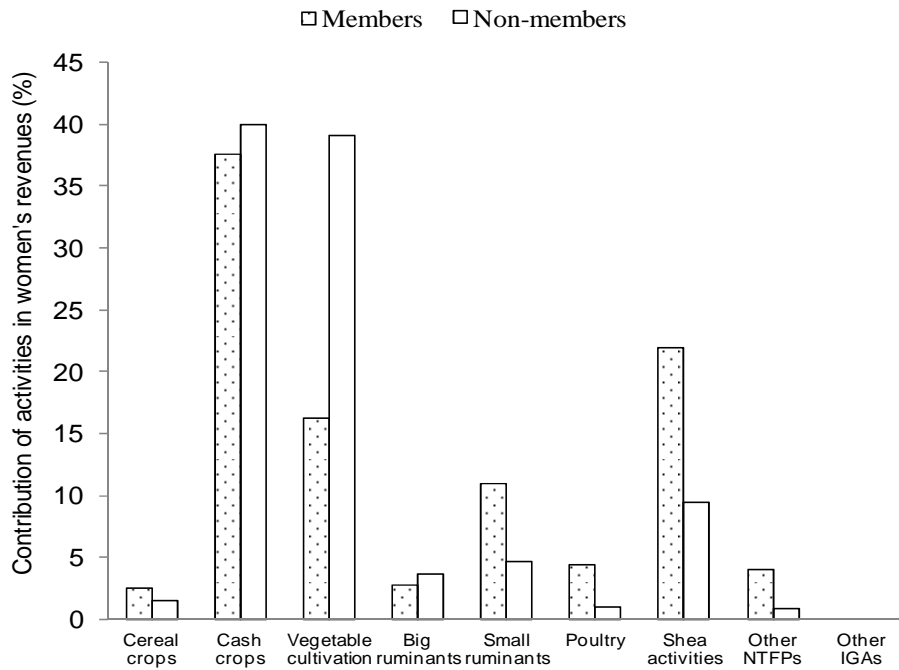
Table 3.2 shows income profiles for Dioila. There was no significant difference in total income generated between members and non-members. Non-members did seem to be somewhat better off than members (total revenues 58,917 and 43,609 FCFA respectively). However, there were large differences within the categories of members and non-members making this difference not significant. Only income generated from shea activities was significantly different between members and non-members. Income generated from poultry was also marginally significantly higher for members.

**Table 3.2.** Average annual income per activity in Dioila (FCFA).

	1	2	3	4	5	6	7	8	9	10
Members	1,063	16,338	7,074	1,167	4,767	1,892	9,560	1,749	0	43,609
Non-members	858	23,564	23,003	2,123	2,708	563	5,564	533	0	58,917
<i>P value</i>	0.82	0.48	0.40	0.70	0.42	0.08 <sup>(*)</sup>	0.04 <sup>*</sup>	0.38	n.a	0.52

(\*) marginally significant (0.05 < P < 0.10); \* significant (0.01 < P < 0.05); n.a. not tested

The largest contribution to income came from cash crops (sesame, cowpea, bean). Cash crops generated 38% of members' revenues against 40% of non-members. For members shea activities came second, generating 22% (and only 9% for non-members). For non-members the second-most important contributor to income was vegetables (39%), which were rather unimportant for members where vegetable cultivation contributed only 16% (Figure 3.1.).



**Figure 3.1.** Fractional contribution of income-generating activities in Dioila

### Siby

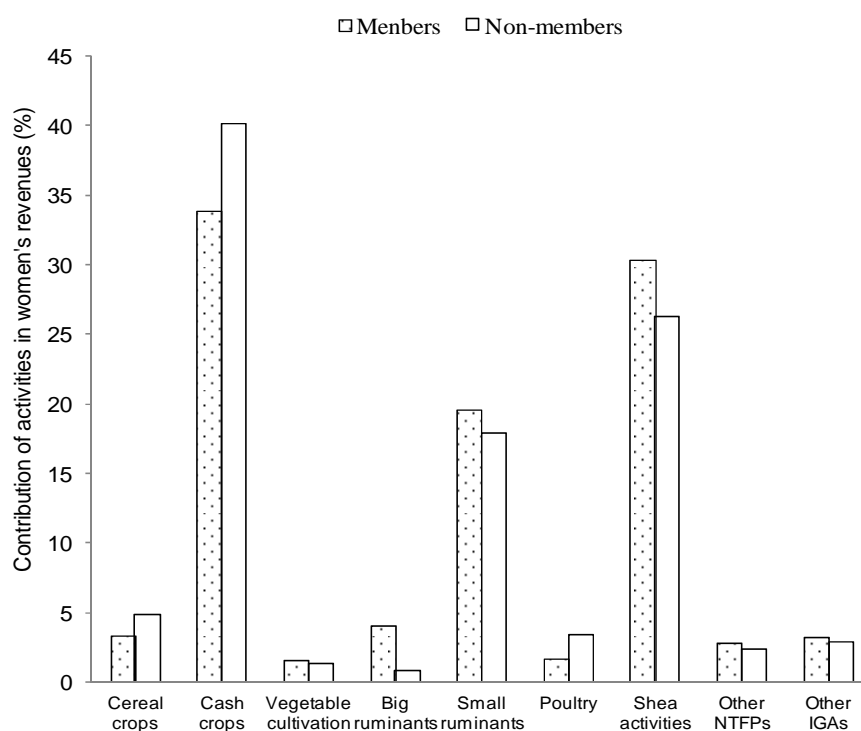
Table 3.3. shows income profile for Siby. Members obtained a significantly higher income than non-members (170,304 and 107,097 respectively). Income of both members and non-members was higher in Siby than in the two other locations. Higher incomes by members were due to income from cash crops (a marginally significant difference). There were no significant differences in income from shea activities between members and non-members. Overall income from cash crops was more important than income from shea activities.

The main contribution to income was through cash crops (35-40%), followed by shea activities (25-30%) and small ruminants (slightly below 20%). Vegetable cultivation was unimportant. Differences in fractional contribution between members and non-members were small (Figure 3.2.).

**Table 3.3.** Average annual income per activity in Siby (FCFA).

	1	2	3	4	5	6	7	8	9	10
Members	5,867	57,503	2,583	6,750	33,178	2,771	51,472	4,723	5,458	170,304
Non-members	5,246	43,013	1,446	847	19,208	3,663	28,160	2,554	3,062	107,097
<i>P</i> value	0.86	0.09 <sup>(*)</sup>	0.36	0.26	0.14	0.62	0.13	0.44	0.38	0.02 <sup>*</sup>

(\*) marginally significant ( $0.05 < P < 0.10$ ); \* significant ( $0.01 < P < 0.05$ ).

**Figure 3.2.** Fractional contribution of income-generating activities in Siby.

### Zantiébougou

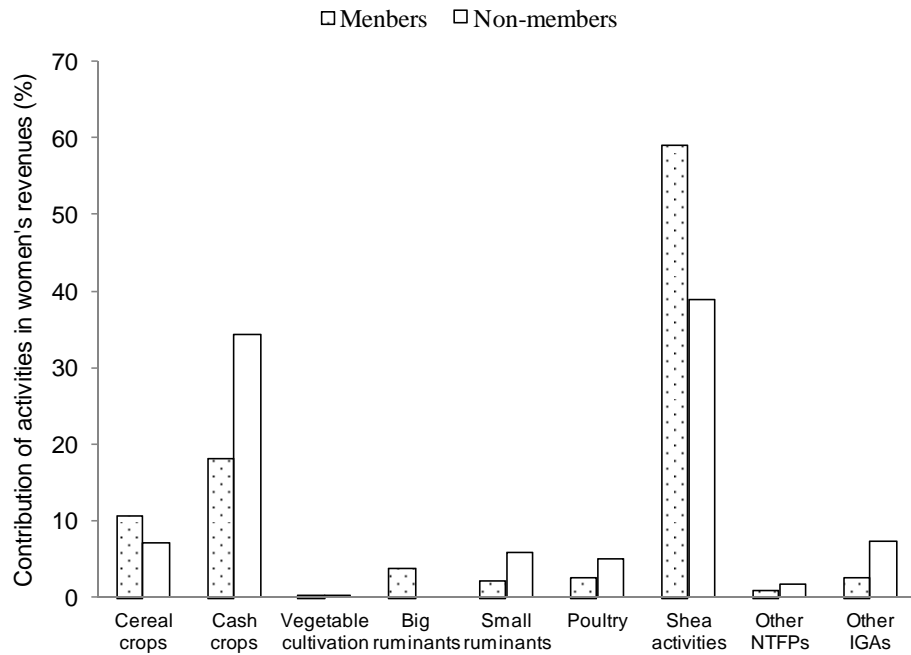
Table 4 shows income profile for Zantiébougou. Income between members and non-members was significant. The largest contribution to income difference (around 70,000 FCFA) was made by income differences between members and non-members from shea activities (around 55,000 FCFA). That difference was also highly significant. Other income sources did not show significant differences between members and non-members.

The main contribution to income (Figure 3.3.) was through shea activities (almost 60% for members, almost 40% for non-members). The fractional contribution through cash crops was higher for non-members (over 30%) than for members (almost 20%).

**Table 3.4.** Average income per activity in Zantiébougou (FCFA).

	1	2	3	4	5	6	7	8	9	10
Members	14,838	24,611	42	5,0839	2,792	3,413	80,118	1,325	3,475	135,692
Non-members	4,682	22,656	25	0	3,892	3,250	25,627	1,150	4,787	66,069
<i>P value</i>	0.14	0.84	0.68	0.32	0.31	0.92	0.002**	0.82	0.78	0.02*

\* significant (0.01 < P < 0.05), \*\* significant (0.001 < P < 0.01).



**Figure 3.3.** Fractional contribution of income-generating activities in Zantiébougou.

### Comparing income profiles in three sites

The different income profiles of women in the three sites and the contrast between Dioila where non-members are somewhat better-off (although the difference was not significant), and both Siby and Zantiébougou where members are significantly better-off, refute a hypothesis that membership per se is the explanatory factor for these income differences of women. Also the observation that in Dioila and Zantiébougou, but not in Siby income from shea activities was significantly higher for members than for non-members indicates that shea activities cannot be used as a general explanation for income membership-related differences. The relative contribution of shea activities to total income (most important in Zantiébougou, distinctly less so in the two other locations) supports our claim that membership is not the primary factor in explaining income and income differences.

In order to further explain the processes leading to the outcomes of membership and the income deriving from it, the following section presents evidence in relation to the case of Zantiébougou. Here, the use by non-members of the membership ID of others in order to also benefit from the high price of kernels raises further questions whether membership is a constrained option or a preference. The situation in Zantiébougou emphasises the need to unravel what explains why what kind of women are members of the co-operative.

### ***3.4.2. Unpacking the relation between membership of the co-operative and arrangements at household level in Zantiébougou***

This section zooms in specifically on one co-operative in Zantiébougou. It describes how the co-operative functioned and shaped its relationship to women, both members and non-members in the villages from which it sourced kernels. And it shifts attention to the position of women in households, which links to the conditions where women can or cannot become a member of the co-operative.

#### ***Functioning of the co-operative***

##### ***Membership and expansion to new villages and entering new villages***

At the beginning of the activities by the NGO AMPJ, the first members in the 15 pioneer villages were selected in an administrative way during village meetings. A union of these 15 groups of Zantiébougou was then created. All married women were systematically considered members. The shift to voluntary-based entry to the co-operative brought about changes. Sensitisation and information-sharing round-trips by the co-operative were organised in villages. These round-trips used to take place at the onset of the rainy season (May-June) prior to the period of abundance of shea nuts (July-August). According to several informants, when the co-operative entered into villages for sensitisation, the first meeting was often held with less busy, elderly women available during that labour-intensive period. Younger married women were occupied with cooking, carrying food to fields and helping their husbands in field preparation for crop cultivation. Elder women, who wanted to, therefore enrolled as first members of the co-operative.

*Rejection of membership applications*

Since the voluntary-based entry, membership to the co-operative has become selective. Depending on the financial status of the co-operative, there were years in which no new members are allowed. When new members were allowed, their number was limited to 5 or 10 per village affiliated to the co-operative. For the sake of geographical coverage of the entire ward, the number was unlimited for new members from villages not yet covered by the co-operative. In 2012, 32 (of 42) villages were affiliated to COPROKAZAN. Interviews with non-members indicate that the co-operative is nowadays attractive to most women. Women whose applications were rejected expressed different views on the reasons for this. The most critical ones, after their application was rejected several times, explicitly referred to the biased selection by old members being guided by their acquaintances with new members. The optimistic ones ascribed rejection of their application to chance. They conjectured that they were not yet lucky enough to be randomly drawn from the list of new candidates for entry to the co-operative.

*The hierarchical selection of members at village level and within the extended family*

The following quote of one of the earlier members illustrates the hierarchical selection of members by the village council at the start of the co-operative:

*My husband is the head of the village. I was selected as one of the first 6 women to participate in the literacy training organised by AMPJ at the very inception of the co-operative. At that time, we were selected by the village council to represent the 6 big compounds that compose our village. I am currently in charge of the training in the village. One man was also designated to go along with us for 'male' tasks (Interview, December, 2012).*

A similar selection process was reported at household level

*The first woman member in our extended family was the second wife of the head of the family (the senior brother of my husband). She was designated by the head of the family because the first wife was sick. Now this is no longer the case. Out of the 20 women in our extended family, 6 are members including 3 involved in cooking and 3 senior women liberated from cooking. (Interview, December, 2012).*

*The influential role of decision-makers on processes of entry to the co-operative*

A young lady was member of the co-operative since two years. She got a permanent job at the central facility. She is in charge of finding new formulas of soap after having worked in this section with a Canadian assistant. She has also become influential in selecting new members in her village. She reports the following:

*In my village all the first members of the co-operative were elderly women. What I am now trying to do since I am in charge of proposing candidates for membership is to give an opportunity to young women of my generation. I therefore propose new members on the basis of what we know about each other. In our village, women are usually involved in other forms of collective action such as group farming or group harvesting. We all know each other. Someone who is likely to sit and observe the rain beating the sun-drying shea nuts of her fellow women unattended for some reasons will not be a good member of the co-operative. I will never send the name of such candidate to the co-operative (Interview, December, 2012).*

By the same token, one of the first six women selected in another village also reported what followed

*Since I am one of the first members in my village, I know what kind of attitude is required from members. Selfish or self-served people are not desirable for the co-operative activities. Knowing that, I used to send to the steering committee the name of women whose level of dedication is established in the village. In addition, the members should not be someone known to like picking a fight. Therefore, I select new candidates on the basis of these criteria. To avoid conflict (we do not want fights.....she laughs), I let those whose applications were rejected know that they were unlucky this year. I invite them to be patient for the coming years (Interview, December, 2012).*

*Hiring women for centralised processing*

One reason that makes the co-operative attractive to women are the paid jobs offered in the centralised processing units. The consistent grievance of women members who were not hired in the processing teams was a source of tension. This led to all members of the co-operative now being qualified for the performance of these tasks. Elderly women seem privileged with



regard to the cash flow attached to that paid job compared to non-members most of whom are young women. When asked by elder women, the co-operative staff rejected the option to delegate tasks in the processing teams to their non-member daughters or daughters in law. Delegating tasks was allowed for trivial works, such as washing and drying kernels. The earned cash in that case was shared between the member and her substitute.

### *Occasional substitution of permanent members in collective tasks*

The intermittent participation in the co-operative's activities in replacement of their mothers or mothers in law (members) facilitated the entry to the co-operative of two ladies from two different villages. The one in the first village defines herself as an exception. She was 20 years old at the time of the interview. She became member even before getting married 3 years ago, when she was 17 years old, in replacement of her mother suffering eye issues. She was promised in marriage to a hunter of the village, now her actual husband. She was accepted because it was known she would stay in the village after her marriage (2 years ago) she rushes to add. The second from another village became a member in 2011. She is 25 years old. She dropped from school in the 6<sup>th</sup> grade and married to a former Malian emigrant. She is one of the trailblazers of her village, 1 km from Zantiébougou. She acts as secretary in different organisations in the village. According to her, she became a member after her 'behaviour' and her 'working hands' were appreciated by decision makers during the times she was coming to take over the tasks of her mother in law. These examples also confirm the complaints by non-members who hold influential women responsible for the biased selection of new candidates for membership.

### *Social embedding of the co-operative's performance*

The above indicates that earning an income as members of the co-operatives links to how the co-operative decides to manage its relationship with women in the villages. This section examines whether this relationship also links to demographic and social dimensions of the division of labour within households and differentiated access to land and trees.

#### *Age*

Average age of women that are members is significantly ( $P < 0.001$ ) higher than that of non-members (43 versus 31 years respectively; Table 5). Women above 35 account for 70% of the

co-operative members, whereas 78% of the interviewed non-members were younger than 35. Davies (2013) also observed in Koutiala, another shea-producing area, that co-operative members were generally elder women. It is also worth mentioning that in order to identify non-members the selected members were asked to identify women more or less their age not being a member of the co-operative. The actual differences in average age between both groups are therefore likely even larger.

The age of 18 is imposed by national law as requirement for membership of co-operatives. The same age is explicitly echoed in bylaws of co-operatives. The exclusion of women is, however, not strictly related to age per se but to customary practices around marriage. Unmarried women are systematically excluded from membership in all studied organisations. Young women at the age of marriage could move to any other place to join their husbands in pursuant to rules of marriage in Mali. Their departure may threaten continuity of the co-operative. Therefore, unmarried women were not considered 'trustworthy' as far as CBOs are concerned. In addition, their mothers are in charge of their basic needs. Therefore they are indirectly involved in shea activities, beside their mothers. Women co-operation is therefore perceived as a prerogative of elder married or widowed women. They are responsible for the clothing, the education fees and the health care of their children but also for preparing the trousseau for their young daughters at the age of marriage. Women are also responsible for the daily charges for the ingredients of the sauce for the family meal.

#### *Number of women in household and membership*

The average number of women in family compounds (5) for members and (2) for non-members (Table 3.5.); the difference is highly significant,  $P < 0.001$ ), suggests that women in big family units with longer free time before their cooking term are more likely to become member than those from small family units. This is also substantiated by some monogamous women in Siby. A lady in that situation ended up by stepping out of the co-operative. A second lady stepped out because she had many children to care for. It proved difficult for them to reconcile the activities of the co-operative with their productive and reproductive tasks within the household. They were receiving negative comments from other members accusing them of being always behind schedule.

**Table 3.5.** Average age of women members and non-members, and number of women in the family compound of COPROKAZAN (n = 60 for both groups).

	Age	Number of women in the family compound
Members		
<i>Min</i>	24	1
<i>Max</i>	67	10
<i>Average</i>	43	5
Non-members		
<i>Min</i>	18	1
<i>Max</i>	57	7
<i>Average</i>	31	2

*Status of women in the household cooking duties in the extended family*

The division of tasks and responsibilities within the households seems to be a major factor influencing the chances for membership. The following quote from a co-operative member sharing her life history also illustrates the labour availability of older widowed women:

*We are 5 women in our family compound. Only one is older than me. The other women are younger. They are my daughter(s)-in-law (wives of my sons and my nephews). So I work for myself. I am not involved in cooking, they cook for me. I got remarried to the junior brother of my husband after his death. My actual husband is far away from here (living in Bamako). So I have more time. In case of contingency, my daughters in law take over my tasks in the processing team (Interview, December, 2012).*

Whether women are widowed or not also affect their status. As unmarried women are systematically excluded, we tested whether members and non-members are different in having their husband alive or not. Of 60 members seven were widowed, whereas only one out of 60 non-members was a widow, while 59 had their husband alive. Due to the relatively small numbers of widows the difference was only marginally significant (P = 0.06; Fisher's exact test). These data support the general perception that widowed women fulfil the labour availability requirement for membership. Elderly women are relieved by their daughter-in-law from the alternation of cooking in the extended family. The involvement in cooking tasks was very different between members and non-members (Table 3.6.; P < 0.001, Fisher's exact test).

For women who do not have sons, they are relieved when other women of their generation reach this stage. They find in the co-operative a place to keep themselves busy explain several young women.

**Table 3.6.** Involvement in cooking.

	Members	Non-members
Involved in cooking	31	57
Non involved in cooking	29	3

Finally, the influence of men is also manifest. Several women members in the three locations faced reluctant husbands when seeking membership. Some husbands changed their mind when their wife brought back to them small presents like sugar, tea, kola nuts, and cigarettes or if women helped them in times of cash shortage. By the same token, several non-members linked non-membership to denial of their husbands' consent. Widowed women are relieved from this constraint in their decision making with regard to membership.

#### *Access to shea trees*

In Mali, women access to shea resources follows different patterns from one area to another. In Siby for instance, the access to shea trees in fields and fallows is based on the first-come first-served. In Dioila villages organise differently women access to shea trees. In Zantiébougou, the access to shea trees in fields and fallows relates to the woman's position in the extended family unit encompassing several households. In the fields, shea trees are exclusively reserved for young married women involved in the planned alternation of cooking in the extended family. These are the young spouses of the head of the extended family, the wives of his junior brothers and sons belonging to the same agriculture production unit (*UPA-Unité de Production Agricole*) and eating together. Alone or with the support of their daughters these women collect shea fruits in the fields during their turn of cooking. The number of days for this duty depends on the size of the family unit. It ranges from one day for the large families to two days for the smaller ones. While off duty, they join the elder women who have access to shea trees only in fallows and unclaimed lands. Women belonging to different kinships collect fruits from different fallows around the village. Each group secures loyalty to its area of collection from one year to another. Each woman enjoys the exclusive right to collect fruits fallen under shea trees occurring in her private field.

In general, young women have therefore access to shea trees not only in their private fields, but in the fields and the fallows of the family unit. Elder women have access to shea trees only in their private fields and fallows. This way of arranging women access to shea trees is far from fortuitous. It allows the access of all women to shea trees but with a certain privilege to young women involved in productive and reproductive tasks within the extended family. They provide themselves the ingredients for the sauce when they are in duty for cooking, which is understandable argued one interviewed elder woman. The arrangement of alternating the collection of fruits in the fields goes hand in hand with the practice of cooking, which is governed by the rules of marriage in a household.

### **3.5. Discussion**

This chapter critically examines the assumption underlying a wide range of development interventions, namely that membership of an organisation is conditional for women to benefit. Some even go beyond direct benefits, and suggest that participating in collective action can empower individual women and contribute to lasting changes in gender relations (Davies, 2013). This focus on organising women is prevalent in the Malian shea sector, wherein interventions that aim for organising women around value-adding, income generating activities have been dominant. The assumption that membership equals benefit is a dominant characteristic of strategies mainstreaming the involvement of women in development endeavours, as put by Eerdewijk and Dubel (2012) in their study of Dutch development agencies strategies. This translates into assessments of development impacts in terms of quantitative outreaches defined as numbers of women beneficiaries or numbers of women organisations supported and strengthened.

The enthusiasm for promoting membership and active participation of women in induced organisations tends to consider women as a homogeneous group. As Roggeband and Verloo (2006) put it, gender mainstreaming is then depicted as a harmonious process. But this picture overlooks the processes that differentiate women and enable the participation of some of them in supported organisations. In her study about rethinking gender and development practice El-Bushra (2000) questioned the way women are treated as a homogeneous category for targeting interventions, because of the differences that may exist between them. Nussbaum (2001) also pointed to the need to put women and development in a deep and rich context for better understanding of issues of inclusion versus exclusion.

Our study found risks of faulty attribution of income differences to membership and to shea activities consequent upon membership. We could have started with choosing a higher,

context-independent aggregation level, by combining the three sites. Combining all data would have shown a significant difference in income between members and non-members (members 116,434, non-members 77,395 FCFA;  $P < 0.01$ ) and related differences in income from shea activities (47,050 versus 19,784;  $P < 0.001$ ). In fact this latter difference accounts for 70% of the total income differences. None of the other sources of income showed significant differences between members and non-members when aggregated over the three villages.

Disaggregated findings, however, make clear that membership to shea co-operatives is not the primary relevant criterion for categorising women. In Siby and Zantiébougou members are better-off, whereas the evidence in Dioila indicates that this trend cannot be generalised. This is in agreement with Bolwig *et al.* (2010) who also argue that exclusion or marginalisation is not necessarily disadvantageous. In Zantiébougou the main explanation for income difference in shea, whereas in Siby the difference is not due to shea but to groundnut as main cash crop. In Dioila, members obtain significantly more income from shea than non-members, but shea itself makes only a small contribution to total income, much less so than cash crops and vegetables (especially among non-members). The opportunity of vegetable cultivation, due to the presence of the Baoulé, indicates different processes. Combined with the low production of shea in Dioila compared to the two other sites (Sidibé *et al.*, Chapter 4), this indicates that if there are other opportunities, shea is not necessarily the preferred option and membership of shea co-operatives not inevitably the most successful strategy.

In Zantiébougou, the revenues from shea activities stand out as the main contributor to women's incomes (members and non-members). The highly significant contribution of shea to members' income raises the question what makes the case of Zantiébougou specific. Is it possible that it is not membership but the socially embedded performance of the co-operative that makes the difference?

One of the initial observations at the co-operative COPROKAZAN in Zantiébougou was the supply by non-members of 60% of the kernels of the co-operative. The socio-technical performance of the tasks secures the right for both non-members and members to benefit from the high price of kernels provided they meet the quality requirements. Vellema *et al.* (2011) noted similar processes in the context of rice farming in Mozambique, where members and non-members enjoyed the same benefit of the co-operative regardless of their affiliation. The significant difference between members and non-members might have to do mainly with the availability of paid jobs; in particular through part-time employment at the centralised processing units. Furthermore, members also benefit through offering their membership ID card to non-members, from the bonuses on the volumes of kernels including those provided

by non-members to the co-operative. The combination of both processes suggests that the income differences between members and non-members in Zantiébougou have less to do with membership as producers supplying agricultural produce and more with opportunities of paid jobs.

Additionally, membership is constituted in relation to household and village institutions. The position of women and their involvement in family cooking constrain or enable membership. The privileged access of non-members to the more productive shea trees in fields, in particular of younger women assigned to cook in a household, is one of the explanations for why the co-operative relied on non-members and why non-members therefore benefitted from the services offered by the co-operative. This suggests that membership is not the determining factor, and that assessments of development interventions targeting the organisations of women better take the social-technical performance of the organisation as entry point. Could we apply this insight also to the two other sites?

The study in Siby indicates that the income difference is not due to shea but mainly to groundnut as the first source of income for all women. The importance of groundnut is also recognised by women who stepped out of the co-operative and who decided to allot their time to maintaining their groundnut plots. They preferred to step out rather than to continue paying entry fees and monthly contributions to the co-operative with no guarantee of return on this investment. Also the co-operative itself installed measures that made receiving benefits less certain. Particularly, visual quality checks by selected elder led to a situation wherein members had no guarantee to sell their butter. In addition, generating income from paid jobs in processing is unfavourable for members living in geographical remote villages from Siby. This also confirms that income differences cannot solely be explained by membership.

In Dioila, the cultivation of cash crops is the main source of income for most women. The urban status of Dioila makes access to shea nuts difficult. The urbanisation leads to the relocation of fields and fallows to remote locations. In addition, productivity of trees is lower compared to the two other research locations (Sidibé *et al.*, Chapter 4). Furthermore, the Baoulé river crosses one of the surveyed villages, which creates conditions favourable to becoming the main supplier of Dioila for fresh vegetables. The threefold difference in income from vegetables by members and non-members, despite being not significant due to huge variation within both groups, indicates benefits for non-members if they engage in vegetable cultivation. These processes in Dioila intersect with the discontinued centralised processing to make the impact of the job opportunity on member incomes less visible. Indeed, the co-operative in Dioila uses its working capital to buy kernels. It receives no new revenue until it

processes and sells butter in the market (Sidibé *et al.*, 2012, Chapter 2). The frustration of several members in villages in this regard was observable during the fieldwork.

The documented processes of selecting new members by one co-operative, during expansion to new villages, reveal a hierarchical way of including members by village councils and influential women in villages. This suggests that the actions of the co-operative intentionally contribute to the exclusion of certain women. The selection of members by the village's council or by heads of family compounds targets women in the hierarchy i.e. wives of the heads of family units. Life histories also substantiate this trend. Elderly women were likely to become member at the onset. When looking at the formalities of membership, young unmarried women are systematically excluded from the co-operative in Zantiébougou: membership is arranged on basis of their marital status and not by reaching the age of 18 as prescribed in public regulation. Also Grigsby (2004) points at the power of tradition and culture in arranging customary tenure in a Bambara-speaking region of Senegal, compared to statute.

However, the case study of the co-operative in Zantiébougou also shows that non-members, in particular the younger married women in households, contributed importantly to the overall volume sourced by the co-operative. This was linked to how, at household level, the younger women responsible for cooking were allowed to collect fruit from the more productive shea trees in the accessible fields. This is in agreement with Kabeer (2003 p.174) who argued that 'the access to resources can very often improve women's active agency, i.e. their ability to make strategic choices when alternative options exist. This suggests that the outreach of development interventions and collective strategies relate to the arrangements and task division within households. Hence, we should not look at membership as a property of individual women, but rather as emergent property of the household, which allows women with access to the most productive trees to contribute to the co-operative without being member themselves.

Evidence substantiates that members are from extended family with an average of 5 women. Women from these families have more chance to become members than family with an average of 2 women. This is also substantiated by the lady in Siby who, as the sole wife of her husband, stepped out after she found it difficult to reconcile household tasks with the co-operative activities. Hence, the co-operative in Zantiébougou had an exclusive membership of especially elder women, but its activities also reached non-members. This shows that for assessing development outcomes of organising women, membership alone does not recognise how collective action is embedded and achieve results in specific social dynamics. This supports the proposal by Scoones (1998) to complement the framework of sustainable



livelihoods by looking into institutional processes that allow the identification of restrictions and opportunities (or ‘gateways’) with regard to membership in organised groups.

The above shows that development interventions targeting specified income generating activities and encourage women to participate in the organisations affiliated with this activity do not recognise the variety of choices women make depending on available alternatives and the precise modes of inclusion. This is in agreement with Wooten (2003) who noted in his study of the relation between gender and commodity production in central Mali that exclusion from the market gardening sector does not imply that women do not undertake independent income-generating activities. The three cases also show that the income profile of women is co-determined by the natural processes of shea production, distances for access to nuts, the availability of alternative sources of income such as groundnut, vegetable cultivation, and the presence of irrigation facilities.

The findings of this study lead to another way of framing how the organisation of women in shea may achieve developmental outcomes. Building on the realist approach to evaluation (Pawson and Tilley, 1997), we can draw a framework of context-mechanism-outcome-configurations that helps to distinguish between contextual processes and the mechanisms attributable to the socially embedded performance of co-operatives (Table 3.7).

**Table 3.7.** Context-mechanism-outcome analytical framework of the performance of co-operatives

<b>Context</b>	<b>Mechanism</b>	<b>Outcome</b>
1. Availability of alternative sources of income	1. Functioning of the cooperative and managerial choices on how to operate	1. Membership 2. Income profile
2. Natural and social environment	2. Relationship non-members and members of the cooperative	
3. Level of autonomy with regard to externally imposed agendas	3. Women position in the household	

A comparative analysis of the three cases with this framework indicates: In Zantiébougou, with limited alternative sources of income and with relative autonomy to engage in mechanisms to stabilise the supply of kernels through the participation of non-members in the sourcing, performance of the co-operative is more relevant than the membership itself. In Siby and Dioila with alternative sources of income but with less autonomy to connect non-members to the performance of the co-operative, again membership may not be relevant.

### 3.6. Conclusion

We conclude that an exclusive focus on exclusion or inclusion of women from collective action or organisations is insufficient to explain income differences and to detect developmental outcomes. In the examined co-operatives in the Malian shea sector, incomes were related to specific types of employment for members only in the field of processing, rather than by being a member supplying fruit, kernels or butter. The issue of exclusion has less to do with membership and more with the exclusion from the co-operative performance of paid activities. Whether women were able to make use of this opportunity depends on how they relate to other women within their households and the resulting division of tasks and responsibilities. Mainly elder women in the household benefitted directly from being a member of and performing paid work at the co-operatives.

The case study of a co-operative sourcing shea fruits shows that whether non-members also benefit depends on the specific responses of an organisation to its social and natural environment. Our study shows that benefits in terms of generated income cannot be unconditionally attributed to membership and generalised from one location to another. Women membership and their income profile are rather determined by the interaction of the socially and materially embedded collective activities with institutionalised arrangements on labour and access to resources within households. Therefore, we consider membership as a combined outcome emerging from both the interaction between the performance and management of a co-operative with a differentiated group of women and the socially embedded arrangements for dividing tasks, responsibilities and access to resources within households.

We conclude that the degree of autonomy of an organisation in strategic decision making also determines how its embedded performance enables non-members to benefit from its organisational resources and capacities. This contrasts with development interventions targeting the inclusion of women in a generically prescribed form of income generating activities. Investigating whether and how an organisation reproduces patterns of social differentiation gives more insight in how developmental outcomes come about and for whom. An exclusive focus on membership or inclusion to organisational forms as the only way to benefit overlooks how the interaction of collective action with socio-technical practices, institutional arrangements and natural conditions mediates the actual processes of inclusion or exclusion.

## CHAPTER 4

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### **The fluctuation of shea fruit production in Mali: using field observations and practices of women for analysing a biophysical phenomenon**

(Submitted with modifications and translated into French to Cahiers Agricultures)

## CHAPTER 4

### **The fluctuation of shea fruit production in Mali: using field observations and practices of women for analysing a biophysical phenomenon**

#### **Abstract**

The fluctuation of shea fruit production affects the strategies and practices of women and co-operatives in the Malian shea sector. Women make decisions in what fields to collect fruits and what trees to target. Co-operatives supplying shea kernels and butter to domestic and international markets cope with unpredictability in volumes; this also affects their capacity to access finance. Hence, finding an explanation for fluctuation has a practical relevance. This paper combines field observations of shea trees production and an investigation of the practices of women collecting fruit to explore whether this creates new insights. The paper reports on field studies in three different agro-climatic areas of Mali testing hypotheses linking agro-climatic conditions, the habitat (fields and fallows) and the girth of shea trees to explain the phenomenon of variability in fruit production. The paper complements this research with a detailed investigation of the know-how of women in one of the research sites, who skilfully select places and trees to collect fruit, and of their responses to fluctuation. The analysis indicates that no single cause explains fluctuation. The discussion takes this insight further and proposes to explore how adaptive responses to fluctuation evolve through the interaction between socially embedded practices and biophysical processes.

**Keywords:** Knowledge, variability, agro-forestry, access to resources, households

#### **4.1. Introduction**

In rural Mali and neighbouring countries of western Africa women derive an important share of their income from collecting fruits of the shea tree (*Vitellaria paradoxa*). The gathering of shea nuts contributes 8.5% of national gross agricultural production of Mali (Ministère-du-Développement-Rural, 2001). Before the introduction of other oleaginous crops such as sesame (from India) and peanut (from America), shea butter was the main vegetable fat used in arid regions of Africa out of the distribution area of oil palm (Bonkougou, 1987). According to Busson (1965), shea and its uses were already mentioned by Ibn Batouta since the fourteenth century. The traveller Mungo Park was the first to describe shea tree during a trip in what now is the country of Mali in July 1797 (André, 1947). The tree is normally left standing when natural vegetation is transformed into agricultural land.

Since centuries, the butter extracted from shea kernels has been used for multiple purposes. Shea is used in cooking oil, but also in traditional medicine, for skin ointment and hair care. As major vegetable fat, shea has become a product for local and regional markets. Shea butter is used by the cosmetic, the confectionery and the agri-food industries. Shea butter enjoyed new perspectives after the decision by the European Union to allow 5% of other vegetable fat as cacao butter equivalent in the chocolate industry created a new demand for it (Fold, 2000). In this regard shea represents the intersection of an indigenously produced and consumed commodity, modern industries and the global agri-food system (Boehlje, 1999, Chalfin, 2004).

The fluctuation of fruit production is an important natural aspect affecting how the tree contributes to rural incomes, market or value chain development. This unpredictability of supply is something women over generations had to respond to. Also more recently established women organisations that aim to expand the markets for shea are confronted with this material dimension of shea. Moreover, providers of financial services and banks are hesitant to invest in shea and the related women organisations due to the uncertainties in production. That unpredictability also resulted in a low level of domestication and the absence of plantations, contrary to many other fruit trees.

In the face of this unpredictability, it is important to understand what causes fluctuation. Most research done so far concentrated on finding correlations between biophysical aspects. The first study investigated the relation between weather and tree characteristics. Hundreds of trees were monitored from 1949 till 1962 (I.R.H.O, 1952). The study indicated a weak correlation between fruit production and rainfall in the season preceding the flowering period (the trees flower in the dry season and fruits develop in 4-6 months in the following rainy

season). Ruysen (1957), however, noted that rainfall in the season preceding flowering of shea did not affect production in the following season. Alternatively, a recent study by Soro *et al.* (2011) indicated an effect of rainfall of the current year on shea production. But Desmarest (1958) had earlier concluded that rainfall in the current season did have no impact on production. That study established a correlation between production and crown shape. Trees with a semi-circular shape had the best production potential, while trees with an elliptical shape showed lower productivity. Ruysen (1957) and Terpend (1982) observed high variability of fruit production between years. Chevalier (1948) found a periodicity of 5 to 10 years between good productions. Other studies observed a periodicity of 3-4 years (Nikiema and Umali, 2007). In other recent research, irregularity and variability of fruit production have also been related to differences between trees, sites and years (Bonkougou, 1987, Yossi and Traoré, 1987, Sallé *et al.*, 1991, Boffa, 2000, Lovett and Haq, 2000, Sanou *et al.*, 2006, Diarrassouba *et al.*, 2009, Ugese *et al.*, 2010, Dodiomon *et al.*, 2011, Soro *et al.*, 2011, Samson *et al.*, 2012, Soro *et al.*, 2012).

All these studies demonstrate that fluctuation is a complex phenomenon for which there is currently no single biological explanation. The aim of this study was to combine the results from field studies, documenting fluctuations of fruit production between site (3 villages), habitat (fields and fallows in the same village), and tree girth, with a careful description of the practices wherein women collecting fruits make decisions with respect to that unpredictability. The study intends to validate the findings from field studies with explanatory aspects visible in the use of knowhow, skills and techniques by these women. This combination of field observations and a study of practices informs a search for multiple causality, which combines the biological and the social. The discussion explores the value of investigating fluctuation as a social-material phenomenon.

## **4.2. Material and methods**

### ***4.2.1. Field observations***

Fruit production (fresh weight) by shea trees has been monitored in fields used for crop production and in fallows during three years (2010 to 2012) in three sites in Mali (Dioila, Siby et Zantiébougou). The three sites host women co-operatives, which were also selected for a comparative study of how these co-operatives perform (Chapter 3). The sites are located in different agro-ecological conditions. The typology by P.I.R.T (1986) locates Dioila et Siby in

the southern-Sudanian zone where annual rainfall ranges from 750 to 1100 mm, and Zantiébougou in the northern Guinean zone with annual rainfall between 1100 to 1400 mm.

In each site 40 trees were selected, making a total of 120 shea trees that were monitored. Two variables were taken into account, viz. habitat (agricultural fields; fallow) and tree girth (30-60 cm; and 60-90 cm at breast height, 130 cm). Of every combination of habitat × size there were ten trees (Table 4.1.). Size was nested within habitat. Trees growing in savannah were not included.

Shea trees in each habitat have been selected with the consent of local communities and the owners of the field or fallow. Each tree was tagged and monitored during three subsequent years (2010, 2011 and 2012). The monitoring consisted of collecting and weighing the fallen fresh fruits on a daily basis through the collection period (June-August).

**Table 4.1.** Selection of trees in each research site

Habitat	Girth		Total trees
	30-60 cm	60-90 cm	
Field	10	10	20
Fallow	10	10	20
Total trees	20	20	40

Data were statistically analysed with the software Stat Box. It consisted of a three-way analysis of variance (site, habitat, girth of tree) per year. We did not include year as a fourth factor. One shea tree in 2010 in the field turned out to be an outlier. It showed much higher productivity than any other tree (223 kg) of fresh fruits. As a consequence the data did not fit the ANOVA assumption of homogeneity of variances, and data transformation did not result in meeting the assumption. A non-parametric test was deemed not useful because we wanted to connect our production data to those on knowhow of individual women and performance of co-operatives. Omitting the tree as outlier was also rejected because such trees are extremely important for the local economy. We therefore replaced productivity data of that tree by those of the second-most productive trees (66kg of fresh fruits). After that replacement, data complied with ANOVA assumptions.

#### ***4.2.2. Practices of women collecting shea fruit***

This study was restricted to one site: Zantiébougou. Through participant observation and interviews during the collection of fruits information was gathered about: (i) the way access to

shea trees and land is arranged, (ii) the way women select trees, and (iii) the skills and knowhow shared among women and over generations. Specifically, the collection practices of three women were documented during their early morning collection of shea fruit in the fallow where they collected since three years. Observations of local knowhow in Zantiébougou were later crosschecked with those from the other sites.

### 4.3. Results

#### 4.3.1. Fruit production per site

The results of the three-way ANOVA are presented in Table 4.2. Site was the major source of variation. Averaged over 3 years the site at Siby was most productive (29.8 kg per tree), whereas the two other sites had a comparable production (Dioila 14.0 kg per tree, Zantiébougou 15.7 kg per tree). However, there were large differences between years. In 2010, Siby was most productive; in 2011 productivity in Siby was similar to that in Dioila, whereas in 2012 Zantiébougou was the most productive site. The least productive site was Dioila (2010 en 2012) and Zantiébougou (2011). Average productivity in these poor years was extremely low (see Table 4.3.).

**Table 4.2.** Results of the 3-way ANOVA for shea fresh fruit production

	df	2010	2011	2012	average
Site	2	25.8 <sup>***</sup>	33.7 <sup>***</sup>	15.5 <sup>***</sup>	23.2 <sup>***</sup>
Habitat	1	10.3 <sup>**</sup>	1.0	4.2 <sup>*</sup>	11.9 <sup>***</sup>
Girth	1	1.1	0.1	3.4	1.9
Site × Habitat	2	0.6	0.7	1.6	1.1
Site × Girth	1	0.4	0.0	2.4	0.1
Habitat × Girth	1	5.7 <sup>*</sup>	2.3	2.5	8.3 <sup>**</sup>
Site × Habitat × Girth	2	1.1	1.2	0.8	0.9

Significance of F-values is indicated as: <sup>\*</sup>: 0.01 < P < 0.05; <sup>\*\*</sup>: 0.001 < P < 0.01; <sup>\*\*\*</sup>: P < 0.001

Ruysen (1957) mentioned that in a good year trees produce > 20 kg fresh fruits, whereas in a bad year they produce < 15 kg. Applying that criterion showed that 2010 was a good year (74 good trees compared with 36 poor trees), whereas 2012 was a poor year (8 good trees, of which seven grew at Zantiébougou, compared to 106 poor trees). Within sites, years were consistently poor (no tree in Zantiébougou in 2011 produced more than 20 kg; the same is valid for trees in Siby and Dioila in 2012 with only one tree producing slightly more than 20



kg). Apparently poor years are synchronised, but good years apply to only some portion of the trees.

The productivity criterion can also be applied to individual trees. No tree had three consecutive years with good production, but 26 trees produced more than 20 kg during two consecutive years. In all, 34 trees produced less than 15 kg in all three years. On the basis of these data no clear periodicity is evident, nor is there synchronous fruiting in the same location. Evidence about an inherent potential is provided by correlations in productivity between years. For both Dioila and Siby the correlations in productivity between the very productive year 2010 and the very poor year 2012 were highly significant ( $r = 0.70$  and  $0.43$  respectively;  $P < 0.01$ ). In Zantiébougou there was a significant correlation in productivity of individual trees between the good year 2010 and the poor year 2011 ( $r = 0.46$ ;  $P < 0.01$ ). Such data suggest an important role for genetic potential rather than general climatic factors.

Habitat was often a major source of variation. Fruit production was higher in agricultural fields than in fallows (although only significant in three out of nine comparisons, due to the large variation between individual trees), suggesting that site productivity (carry-over effects of mineral fertiliser application) is relevant for fruit production (Table 4.3.).

**Table 4.3.** Average fruit production of shea trees (kg fresh weight per tree), 2010-2012

Site	Habitat	2010	2011	2012	average
Dioila	Field	28.2**	24.0	3.6	18.6***
	Fallow	7.1	19.3	2.0	9.5
Siby	Field	64.9	21.9	6.7	31.2
	Fallow	56.2	23.4	5.8	28.4
Zantiébougou	Field	40.2**	4.2**	17.0	20.5**
	Fallow	22.2	0.6	9.8	10.9

Asterisks denote significant differences (\*\*:  $0.001 < P < 0.01$ ; \*\*\*:  $P < 0.001$ ) between field and fallow for a given site in a given year.

The site  $\times$  habitat and site  $\times$  girth interactions were not significant. In all sites in all years larger-sized trees were more productive than smaller-sized trees, but due to the variation within sites this effect was not significant (data not shown).

#### 4.3.2. Knowhow observed in collection practices of women

Collection of fruits in fallows was usually done as a group. When approaching the fallow, women headed to a particular shea tree that she selected on the basis of productivity and to which they referred as the *minen sigui shi* or basket tree. Women reserved this tree for storing

their main basket. The basket tree was considered 'reserved' and even in their absence no other woman collected under that tree without the consent of the one who reserved it. Fruit collection started under nearby trees. Individual women moved from one tree to another and collected fruits in small baskets. Collaboration and exchange of information was visible during collection. From time to time, women gave voice at a distance to prevent others from wasting time by going under trees where another woman had already collected fruits. Doing so, they also guided each other towards trees that have not yet been attended to. To prevent dispute the fruits of one tree were collected by one woman only at one day. However, other women were entitled to collect the fallen fruits after the first one was finished.

Women applied different criteria to judge potential productivity of individual trees: crown shape, properties of flower buds, and petal colour. However, we were unable to relate these properties to our yield data. These criteria were also reflected in the vocabulary women apply for differentiating trees on the basis of peculiar traits. Trees called *daraka shi* were highly appreciated; translated from Bambara the term refers to shea for breakfast. Such trees are characterised by large fruit size and pulp sweetness. Women sold similar fruits to passengers stopping by the check point at Siby. A brief discussion with these women indicated that they all knew where to collect these fruits. Participation of young girls in the collection of fruits guaranteed transmission of such knowledge from one generation to the next one. Women also distinguished individual trees in terms of fruit taste. Fruits with sweet pulp were kept apart to serve as snack for family members. Shea trees called *boroboro shi* were characterised as having a high butter rate despite the small fruit and kernel size. Women also distinguished the potential of trees according to their production in the previous years. This observation fits with correlations between good and poor years for individual trees. Women also labelled individual trees as early or late producers.

Most women collected shea fruits from fallows, fields being reserved for women with cooking tasks (Chapter 3). Often women moved back and forth several times to fallows to collect fruits. Shea trees located in old fallows (fallows of more than ten years old) and in unclaimed lands were less targeted. In Zantiébougou, some competition for access to productive young fallows was observed. Individual women compensated for relative low collection rates in fallows by enlarging their collection area to adjacent unclaimed lands, which increased the distance women walked and hence the time they spent on collecting fruits. On days that fallows yielded less, women spent more time in collecting in savannahs. Whether a woman was able to expand the collection area also depended on whether she could afford to go back and forth through the trajectory. In its endeavour to create consistency in supply, the co-operative compensated in Zantiébougou the scarcity of kernels in 2011 by

extending its geographical coverage for sourcing kernels and targeting areas beyond its traditional villages of influence in order to include more fields and young fallows.

Women mentioned higher density and productivity of trees in fields and younger fallows as reasons for selecting where to collect fruits. This increased density of productive shea trees reflected the ancestral criterion for selecting new fields for cultivation. Interviews with elderly people in Zantiébougou confirmed that they considered areas with a natural high density of shea trees as indication for fertile soils. In Zantiébougou, average density was 24 shea trees per hectare in fields and 45 trees per hectare in fallows. Natural regeneration in fallows resulted in a higher density of younger trees (before the stage at which they produce fruits). When converting fallows to fields many of these are removed so that tree density in fields is regulated. In natural areas, shea tree density is 16 trees per hectare.

#### **4.4. Discussion**

##### *Fluctuation in productivity in relation to site, habitat and tree girth*

On average, shea fruit production was higher in fields than in fallows in Dioila and Zantiébougou, but not in Siby, the most productive site. When looking at individual years, the same pattern emerges, although the difference was only significant in a few cases. Differential productivity suggests that actual production is to some extent affected by soil fertility. Differences between villages could then be related to specific differences in field histories. In Dioila, fields with shea trees were used to grow cotton and maize and both crops received ample (nitrogen) fertiliser. In Zantiébougou, the same tendency may also be explained by a history of three-year maize cultivation with fertiliser application, whereas the fallows had not received any amendments for at least six years. In Siby, the field history revealed two years of groundnut cultivation (2010 and 2011) and a third year of fallowing that field. The fallow studied was over 10 years old. However, the fallow is partly managed through early bush fires, which keep the fallow clean enough for allowing women to still collect fruits. As a consequence of burning the fallow remained more productive. Yield decline compared to fields was around 50% in Dioila and Zantiébougou, but only 10% in Siby. As we did not collect data on fertiliser use in the various sites we cannot yet suggest whether nitrogen or phosphorus limitation of fruit yield is more likely.

Our data, and especially the yield difference in Siby between 2010 (very good year; average yield per tree 60.5 kg) and 2012 (poor year; average yield 6.2 kg) while rainfall amounts in the preceding year (710 mm in 2009, 720 mm in 2011) were almost the same, did not provide evidence that rainfall in the preceding year explains productivity. Similarly in

Zantiébougou the highest rainfall recorded in 2010 (1447 mm) coincided with the lowest fruit production in 2011 (2.4 kg). Our data fit with those by Ruysen (1957), who also observed that rainfall in the season preceding flowering of shea did not affect production in the following season (year) and contradict those of I.R.H.O. (1952). Women also related shea production to rainfall of the period preceding the flowering, which is the year before fruiting.

Our results therefore indicate that, at the current stage of knowledge, the phenomenon of fluctuation of shea production (between years, between sites, and between individual trees in the same year in the same site) cannot be satisfactorily explained. Correlations between productivity in different years at the same site suggest that next to external factors (climate, soil fertility) also genetic factors are important. The lack of a satisfactory single explanation for that fluctuation suggests looking at fluctuation as an emergent outcome which may have to do with genetic, soil fertility and human practices and their interaction.

#### *Explaining fluctuation by linking field experiments and knowhow*

The analysis of field data can be compared with the description of knowhow visible in the collection practices of women. The practices of women confirm from the field study. Women applied selection criteria to individual trees, which suggests that the interaction between tree and agro-ecology matters. Women distinguished the potential of trees according to their production in previous years; this fits with correlations between good and poor years for individual trees.

Women also preferred to collect in fields and younger fallow because they expected fruit production to be higher, although scarcity of fruits sometimes encouraged them to collect elsewhere. The concentration of productive trees in fields and fallows guided women about where to go. Interestingly, fields were reserved for (younger) women who in the household also had a responsibility for cooking (Chapter 3). These women were time-constrained and were allowed access to the higher productive fields when they bring meal to workers.

Interestingly, the knowhow in the observed collection practices also contrasts with the analysis of the field study. The views of women and elder people about the variability of shea tree production are consistent. Except one farmer the majority stated that no tree can abundantly fruit in two consecutive years, but our data show that 26 trees had two consecutive productive years. The women seemed to disagree on whether there is any cyclical behaviour in fruiting. Some argued that there is a two-year pattern of good production whereas others argued for a three-year pattern in which good, intermediate and poor production alternate. Our field data do not confirm such a simple pattern of cyclical fruiting. However, periodicity is

difficult to test in a period of three years. Women applied specific criteria to assess potential productivity of individual trees; these include crown shape, properties of flower buds, and petal colour. We were unable to relate these properties to our yield data.

#### *Linking fluctuation, knowhow and performance*

The unpredictability of production necessitated adaptive responses by individual women and the co-operative. Individual women enlarged the area from which they collect and also entered old unclaimed fallows and natural savannah. Likewise, the co-operative in Zantiébougou expanded its sourcing area by including new members from new villages and buying from non-members, and by engaging traders sourcing from a network in other areas (Chapter 3). Women and the co-operative mainly used available skills and techniques and also improvised their responses to fluctuation due to absence of a clear cause.

Consequently, fluctuation may be conceptualised as an emergent outcome of how people act upon materiality and not as a constraint neutral to human behaviour. This kind of interaction is echoed in several other studies, for instance the history of landscape and special distribution of species; or the role of women in the agro-sylviculture of shea (Fairhead and Leach, 1994, Fairhead and Leach, 1995, Kelly *et al.*, 2004, Carney and Elias, 2006). The study shows that in how women perform and improvise, i.e. how they make decisions, team up and share insights in the practice of collecting in specific conditions, knowhow about how to interact with an unpredictable environment and behaviour of trees becomes visible (cf. Richards, 1993, Jansen and Vellema, 2011). Yet, also the study of the practices of women did not result in a causal explanation of fluctuation; hence, knowhow is different from knowledge per se (Hobart, 1993). Nevertheless, their knowhow allows them to navigate and change their individual performance of collecting fruit and their collective endeavours in sourcing and stocking kernels and making shea butter in trying to accommodate unpredictable shea production.

#### **4.5. Conclusion**

Our study did not succeed in identifying a single cause for fluctuation in shea fruit productivity. The combined analysis of field data and skills and knowhow in collection practices shows that women act upon multiple causes of fluctuation. Whether these different causes combine in similar and regular ways can be doubted on the basis of this study. More likely, different causes, related to both material and natural processes and to human practices, articulate in time and place-specific configurations wherein fluctuation is manifest. Processes

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internal to shea trees result in fluctuating fruit production. However, the empirical manifestation of fluctuation is also affected by agronomic practices in fields or fallows, for example application of fertiliser, selection of trees or early burning. And, fluctuation is mediated in the collection practices of women and their use of skills and know-how and through measures taken by the co-operative to temper the effects of fluctuation for their performance. This line of argument proposes to move away from pure biological research on the performance of the shea trees and its possibilities for improving production through genetics and agronomic management and to look for adaptive responses to fluctuations that become apparent in human practices. If fluctuation is there to stay, intervention strategies aiming at technical fixes for inconsistent volumes may undermine the skills and knowhow of women that allow them to act upon the material conditions of daily life.

## CHAPTER 5

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### **Women, shea and finance: how institutional practices in a Malian co-operative create development impact**

(Revision submitted to International Journal of Agricultural Sustainability)

## CHAPTER 5

### **Women, shea and finance: how institutional practices in a Malian co-operative create development impact**

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#### **Abstract**

Development impacts are often framed in terms of the effects of exogenous inputs, such as finance or technologies, on measurable ultimate outcomes for a specified group of beneficiaries, for example increased income. This approach considers inclusion in a group as a necessary condition for individuals to benefit. The case study of sourcing, processing and trading shea butter and kernels by a Malian women co-operative emphasises intermediate outcomes, specifically early signs of institutional change, for assessing the development impacts of access to finance. The co-operative succeeded to obtain working capital provided by a micro-finance institute. The impact of this arrangement was most visible in how the provision of working capital catalysed emerging institutional practices within the co-operative, particularly in sourcing and stocking, which altered the relations with non-members and traders. Hence, access to finance realised impact through the interaction between the evolving strategies of the co-operative, and the activities of people not directly included in the group-based activity itself.

**Keywords:** Women groups, collective action, value-adding, micro-finance, trade, evaluation methodology.



## 5.1. Introduction

Organising rural women in value-adding enterprises has figured prominently in development practice and policy in Mali, particularly in initiatives by public and non-government organisations (NGOs) aimed to diversify rural incomes in the shea sector. In Mali, adding value to collected shea kernels has been identified as a potential source for income diversification (Ministère-du-Développement-Rural, 2001). The collection, processing and commercialisation of shea nuts are almost exclusively under the control of women (Carney and Elias, 2006). After de-shelling the nut, the kernel can be processed to provide shea butter (*beurre de karité*), which is an important ingredient in local diets by providing vegetable fat (Lusby and Derks, 2006). There is a huge domestic market for shea butter: more than 90% is consumed domestically or traded in local markets. International cosmetic and pharmaceutical industries provide niche markets for ‘improved’ shea butter of low acidity. In addition, there is an increasing demand for shea butter from the international food (e.g., chocolate) industry. National policies and development interventions in Mali encouraged women groups to process higher volumes of good-quality shea kernel and butter for high-value export markets, which is also the case in other West African countries (Badini *et al.*, 2011a, Badini *et al.*, 2011b). Linking women groups to niche markets is particularly stimulated by Fair Trade certification (Greig, 2006, François *et al.*, 2009).

Our case study of a women-based co-operative provides an example of how organised women deviated from this strong orientation towards providing quality butter and kernels to international (niche) markets. The co-operative was able to obtain working capital (*fonds de roulement*) from a micro-finance institute. The co-operative’s use of working capital blurred the distinction between members and non-members. The paper aims to determine how the institutionalisation of new rules and practices within the co-operative affects the institutional arrangements of the co-operative with non-members and traders.

Our analysis adds a new dimension to the literature on organised rural producers and/or women and access to finance. It tries to explain development impact by looking at how finance catalyses the way in which institutional practices inside and outside the boundaries of the organisation combine. This emphasises that the outreach of finance goes beyond membership and it enables appreciating the intermediary outcomes affecting non-members and the terms of trade. We conclude that the provision of finance made a difference by catalysing the articulation of institutional practices within the co-operative with local institutions and social relations. Consequently, finance empowered a wider group of women than originally envisaged as the target group.

The paper starts with a brief review of development-oriented literature on the organisation of (women) producers and access to finance. In the findings, we document managerial and organisational processes within the co-operative and multiple interactions of the co-operative with its environment, i.e. non-members, traders, finance institutes and the agro-ecology of the shea tree. The paper uses the case study to further clarify our proposal to analyse changing institutional practices as intermediate outcomes indicative for how access to finance, brokered at a higher system level, may lead to developmental impacts.

## **5.2. Rural women and access to financial services in Mali**

The arguments supporting access to financial services emphasise inclusion of the hitherto excluded (Bhatt and Tang, 2001). The performance of programmes, such as ACCION's BancoSol in Bolivia, Bank Rakyat Indonesia's (BRI), and the Grameen Bank in Bangladesh, is frequently cited as evidence that micro-finance institutions can sustainably provide small loans to large numbers of poor people. The success stories of such micro-finance programmes have led to efforts to imitate them in several developing countries, including Mali (Bhatt and Tang, 2001). Since 1990, in Mali financial services have become one of the central tools in poverty reduction strategies (Koloma, 2007). One out of every three Malian women is linked to some form of micro-finance (IMF, 2008).

The emphasis on inclusion of intended beneficiaries into organisations, which receive finance and technical inputs, assumes a direct link between such interventions and dependent variables, such as incomes, assets, productivity, and general well-being (Bhatt and Tang, 2001). Impact studies of micro-finance services conducted in Mali (Koloma, 2007) based their assessment exclusively on quantitative surveys comparing the well-being of beneficiaries belonging to an organisation with the benefits for non-members. Bingen *et al.* (2003) used another focus. They used their investigation of co-operatives in the Malian cotton sector to encourage governments and donors to revise their evaluation methods of producers' capacity building by shifting attention from short-term quantitative programme outputs to broader long-term impacts on human capacity. Bhatt and Tang (2001) also proposed to assess the effectiveness of such services as savings and credit by looking at impact from the perspective of institutional plurality and changes in the institutional context.

Murdoch (1998) captured this discussion on impact assessment by distinguishing between the 'institutionist' and the 'welfarist' approach. A stronger institutional perspective may free programme evaluations from the burden of providing proof that finance matters by allowing them to concentrate on the quality of the services and the ensuing institutional dynamics. It

opens up new perspectives for assessment, for example by documenting how organisation-undermining tensions can be resolved by internal rules or by institutional arrangements with external stakeholders (Ton, 2010).

Hulme (2000) compared different ways to assess the impact of financial services, which balance between proving impacts for intended beneficiaries, such as individuals or households, and improving the processes underlying the intervention. Hulme's focus on intermediary impacts fits with the interest in institutional outreach already proposed by Yaron *et al.* (1997). Institutional outreach traces how the choices made by people or organisations in search of credit translate into a widening of the institutional arrangements that support access to credit.

Hounkonnou *et al.* (2012) also emphasised the role of institutional arrangements and challenged the dominant focus on the central role of science-based technology by showing that institutional transformation is an essential condition for rapid productivity increase. Their approach calls attention to the importance of identifying the institutional causes of constraints, by identifying key actors, networks and mechanisms that maintain the constraints, as well as entry points for concerted actions to by-pass or transform the institutional context.

Our study complements this interest in institutional change by showing how emerging institutional practices within organisational routines and boundaries of existing collective practices can become conducive for development. We focus our analysis on the performance of a specific co-operative and its network of processing units. We have an empirical interest in documenting how institutions, i.e. socially constructed norms or rules that constrain and prescribe behaviour (Scott, 1995, Offe, 1996), shape social-technical processes. We consider these as institutional practices, i.e. the purposive actions of individuals and groups to maintain or disrupt existing institutional arrangements, or create new ones (Lawrence *et al.*, 2009). The case study examines whether and how opportunities for institutional change created within the co-operative transcend the boundaries of the co-operative, and are then adopted by other actors, in this case local traders and providers of financial services (Lawrence *et al.*, 2002). This orientation emphasises the co-operative's practices (rather than new institutions, which emerge as out of the blue) in order to explain how working capital brings about change (Burns, 2000).

### **5.3. Research methodology and methods**

The study took place from 2010 until 2012 as part of the action-research programme Convergence of Sciences — Strengthening Innovation Systems (CoS-SIS). The action part of

this research programme created a Concertation and Innovation Group (CIG), which works as a platform that addresses institutional constraints faced by organised women in the Malian shea sub-sector. The CIG *karité* is composed of representatives from the Ministry of Women's and Children's Affairs (*Ministère de la Promotion de la Femme et de l'Enfant*), the chamber of agriculture, the chamber of commerce, NGOs and representatives of co-operatives. The CIG specifically collaborated with the co-operative in Zantiébougou on the issue of working capital. In response to the co-operative's prioritisation of obtaining access to working capital, the CIG explored options with banks and micro-finance organisations, and eventually brokered an arrangement with a micro-finance institute offering a loan to the co-operative.

Central to our case study are processes and events revealing how the co-operative's practices are affected by the provision of working capital. We wanted to learn how that provision influences the practices of the co-operative and how this 'configuration' of capital and practices affects developmental outcomes (Vellema *et al.*, 2013). The paper conceptualises the provision of working capital as a process catalysing, but not exclusively causing, institutional changes emerging in the daily operations of the co-operative. Hence, we present an in-depth case study of a relatively bounded phenomenon (Gerring, 2004), namely collaboration and coordination around the performance of practical tasks, such as sourcing and stock management. The case study was not designed to make net-impact calculations of working capital but rather to enable further theorising about how the interaction of working capital with the practices of a member-based organisation realises institutional outreach and produces development impacts (Rohlfinger, 2012).

For this purpose, Ton *et al.* (2011) separated immediate outcomes (e.g. the spatial expansion of the co-operative and the increased enforcement of rules), intermediate outcomes (e.g. coordination between co-operative and local traders) from ultimate outcomes (e.g. reliable incomes for women active in harvesting and processing). In the evaluation literature (Mayne, 2001), immediate outcomes can be attributed to the tangible outputs from an intervention or the provision of an external input reaching a specific group. Intermediate outcomes are changes or effects resulting from how the intervention combines with other processes active in the context. Searching for intermediate outcomes recognises that choice-making by organisations and its members is always constrained by processes and path-dependencies in a specific context.

The case study used twenty-one formal and sixteen informal interviews with the management of the co-operative, members and non-members. Through participant observation and semi-structured interviews, instructive events were identified revealing

choices made by the steering committee as well as changes in rules and practices within the co-operative. This data collection was complemented with parallel research on the sources of income of members and non-members and of the fluctuation in fruit production of shea trees (Sidibé *et al.*, unpublished data). In combination, these data enable describing changes in how the sourcing and stocking of kernels was done before and after the provision of working capital. These institutional practices are central to our description of how the co-operative dealt internally with processes such cheating, exclusion and sanctioning. They also show how rules and practices beyond the organisational boundaries of the co-operative evolve, particularly in the relations with non-members and traders. Interviews with the four main traders in the area of the co-operative were used to trace modifications in modes of coordination in the trade of shea kernels and butter. The relationship with finance institutes became most apparent in the arrangements made for the provision of working capital, and is further informed by six semi-structured interviews with professionals working in the shea sector and bank staff. With the CIG *Karité*, five meetings were organised to discuss preliminary findings about how working capital impacted on the functioning of the co-operative.

#### **5.4. Findings: the catalysing effect of finance on institutional practices in the co-operative**

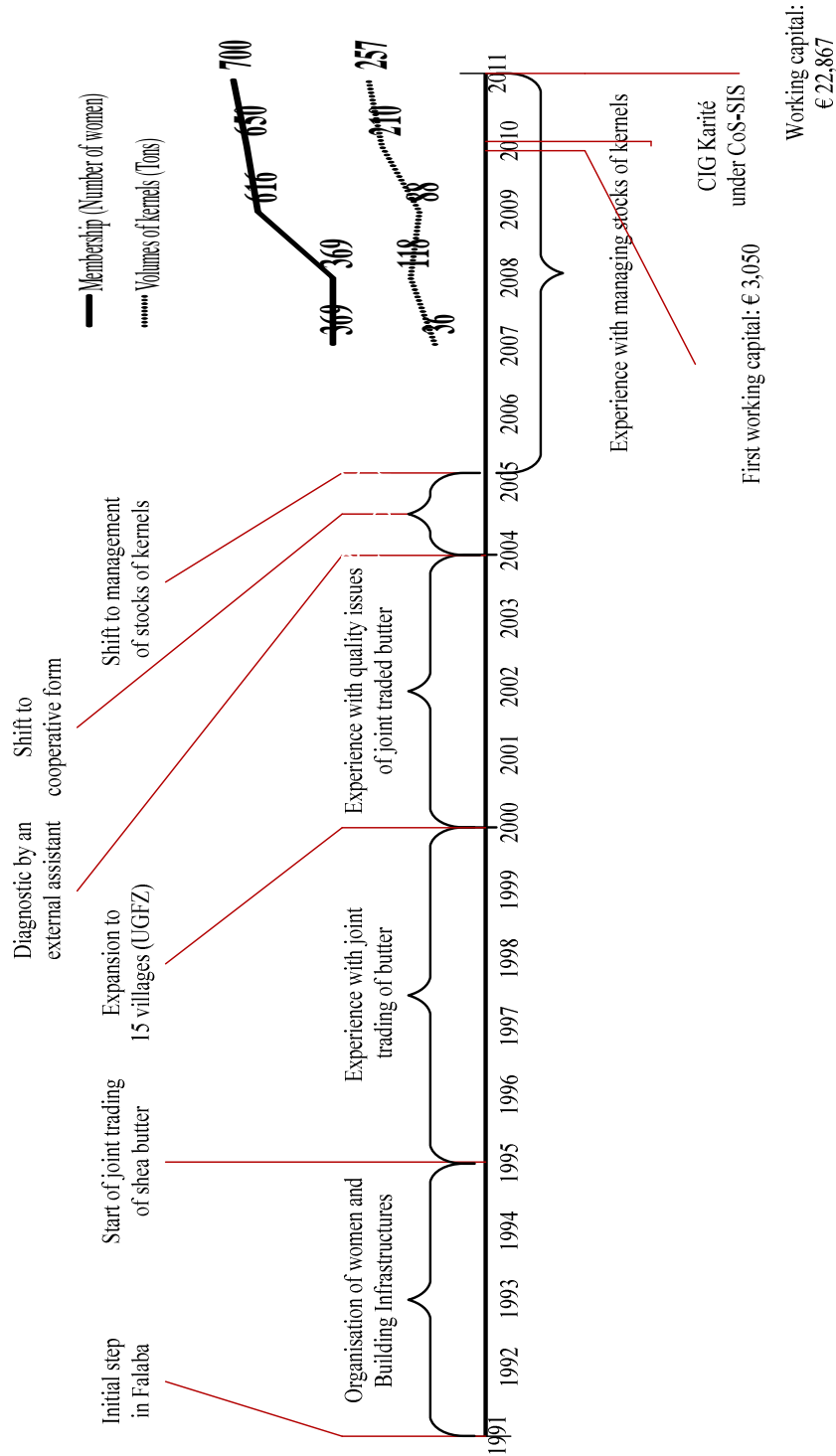
Harvesting shea fruit and processing kernels can be an individual task. Individual women selectively collect shea fruits in fields and fallows. They remove the pulp, which is used as a snack. The nuts go through different pre-treatments practices. Some women keep them in underground pits before they have time to process them. Some use traditional ovens to dry nuts, which often affect smell and colour of kernels. These pre-treatment and processing practices result in butter for own use but that is not suitable for sale by the co-operative. Yet, local traders accept different qualities and find outlets for undifferentiated butter.

The above provides the context wherein the co-operative tried to define its role in collective processing of shea kernels. Initially, the co-operative COPROKAZAN (*La Co-operative des Productrices de Beurre de Karité de Zantiébougou*) started with producing high-quality butter for niche markets. In the beginning, the co-operative tried to install other pre-treatment practices, such as boiling and sun-drying of shea nuts, which lead to kernels that are suitable for making improved butter for lucrative markets. Gradually, the management of the co-operative changed its priorities, and shifted attention from the sourcing and making of high-quality butter to arranging consistency in the sourcing and stocking of kernels, which

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were processed centrally and at a few selected sites. With this shift, the co-operative responded to the unpredictable qualities of butter and the natural fluctuation in productivity of the shea tree. It began to rely on non-members as suppliers of kernels. The co-operative found that reliable access to finance was an important condition for realising this shift and entered into new arrangements with a larger group of women.

The case study starts with describing how the institutional practices of sourcing and stocking kernels have been managed by the co-operative and how they evolved during the period from 1990 until 2012, and particularly after the introduction of working capital (Figure 5.1.). Subsequently, we document incipient changes in the interactions between the co-operative, traders and financial organisations.



**Figure 5.1.** Timeline of the evolving experience of the cooperative COPROKAZAN before working capital

Source: Field notes 2010-2012

### ***5.4.1. Institutional practices in the co-operative: sourcing and stocking kernels and butter***

Since the 1990s, COPROKAZAN has pioneered with finding ways to organise women in the shea sector. It started in 1991 with the technical support of a local NGO, AMPJ (*Association Malienne pour la Promotion des Jeunes*), to organise women for joint making and trading shea butter. During the initial years, the focus was on building the technical and organisational infrastructure. In 1995, other villages in the constituency of Zantiébougou became attracted to the possibility of joint trading. From 1995-2000, this led to a gradual expansion and the creation of a union of 15 village female groups called UGFZ (*Union des Groupements Féminins de Zantiébougou*).

It proved to be difficult to ensure the quality of stocks of butter sourced from individual women. During this period, all married women were entitled to become member and to supply butter. UGFZ experienced several rejections of its supplies of butter by its Bamako market partners. In response, in 2004 the group called upon a Canadian consultant to diagnose the overall functioning of UGFZ with a view to addressing the issue of rejection. He recommended that the Union should become a co-operative. The co-operative COPROKAZAN was created in 2005.

To address the quality issue, the co-operative shifted from joint trading of butter to managing stocks of kernels, which were processed centrally. Its management decided to source kernels from individual women and to centralise most of the processing into butter at the facility of Zantiébougou. Decentralised processing sub-units were created in two other villages. Although the co-operative initially planned to establish processing sub-units in five other villages, this expansion was halted. One reason was that the supporting NGO, which was to provide the processing equipment, faced a shortage of resources (AMPJ, 2002). Another issue was the difficulty to arrange the transport of locally processed butter to the co-operative's premises in Zantiébougou. The small van owned by the co-operative was inappropriate for the bad road to the most remote sub-unit (30 km away).

The sourcing of kernels was mainly managed by a clerk hired by the co-operative. He was responsible for buying kernels from individual women and for controlling product quality. For processing the kernels, three women in the central facility and four in each of the two operating sub-units were hired weekly among the members of the co-operative. The selection of these women was based on duration of membership. This created frustrations among new members for whom the opportunity of a paid job was one of the attractions of membership.



The co-operative's management realised that a focus on processing butter constrained its options to work with more women and to expand its operations. In 2010, the co-operative applied for working capital. It obtained a modest 2 million FCFA (€ 3,050) from the National Bank for Agricultural Development BNDA (*Banque Nationale de Développement Agricole*). The co-operative used this loan to buy a stock of honey with the intention to quickly sell it and to subsequently increase the amount of cash before the main harvest of shea nuts. However, the stock of honey was difficult to sell. Consequently, the co-operative had trouble in replenishing its working capital and failed to buy kernels from local women at the right time. The episode created tensions between the co-operative and women, both members and non-members, who wanted to sell their kernels to the co-operative but had to fall back on traders. To avoid remaining idle for the rest of the year, the co-operative was left with the option to purchase a stock of kernels incidentally found with a local trader. These kernels had a low extraction rate, which translated into substantial losses. Nevertheless, the co-operative was able to pay back the loan.

Both problems were compounded by the repayment conditions of that loan. The repayment started right at the end of the month the loan was provided. This created cash flow problems within the co-operative. This resulted in the decision by the steering committee not to apply for another loan with BNDA. Nevertheless, access to finance remained a high priority and was considered instrumental to its expansion strategy.

In 2011, the co-operative obtained a loan of FCFA 15 million (€ 22,867) from a micro-finance organisation (*Soroyiriwa*), for which the CIG played a brokering role. The co-operative used the title deed to its infrastructure as collateral. The first experience with the loan provided by BNDA stimulated the steering committee's decision to take a chance with a micro-finance organisation. Based on the lessons learned, the steering committee negotiated with the micro-finance organisation a two-month period of grace between the time working capital was made available and the first term of repayment.

The importance of ready cash for sourcing kernels was visible in the methods the co-operative used before the loan to pay the women. The steering committee allowed members to pay entry fees and contributions to capital in kernels. The co-operative purchased kernels on credit from members who could afford to have their payment deferred. However, these practices led to various problems. Suppliers of kernels blamed the cashier for biased management of the deferred payments. On her side, the cashier reported cases of cheating with suppliers attempting to get the same receipt paid twice; such cheating led to a loss for the co-operative of FCFA 300,000 (€ 457). The co-operative monitored extraction rates in order to control whether the processors there were holding back butter. The co-operative accepted

quantities of butter, based on an extraction rate of 26%, well below the theoretically possible rate of 35%.

After receiving the working capital in 2011, the co-operative speeded up the creation of decentralised processing sub-units, which it accompanied by stricter implementation of rules for buying kernels. Three new intake and storage points were created. The number of processing sub-units increased from two to seven of which three served as intake and storage points. In addition to increasing and stabilising the flow of kernels (given the high fluctuation in fruit production), the new sub-units also doubled the number of paid job opportunities. To reduce tensions created by the selection of women for the processing teams, it was agreed to qualify all members for these temporary jobs.

The availability of working capital encouraged the co-operative to start operations in villages remote from the central unit. Its staff and management started to mobilise social networks in order to realise arrangements with these remote villages. This enlarged sphere of influence linked the co-operative to a larger group of non-members who are interested in supplying kernels. Through its decentralisation policies, the co-operative aimed to get closer to the majority of non-members, who could not reach the central facility of Zantiébougou to sell their kernels. These non-members supplied 60% of kernels to the co-operative before working capital. Non-members borrowed membership cards to benefit from the differential price paid to members. Members benefitted because it increased the bonuses for volume delivered and for the co-operative it diversified the sources of kernels.

During expansion of the co-operative's operations, tighter control of the quality of products and services was exerted. The regular rejections of butter supplied to traders in the Bamako market made it clear to that it was not only a consistent supply, but also the quality of the butter that required managerial attention. Experienced women were appointed to check the quality of kernels at the intake points, a task no longer left to the weighing clerks. Checking for quality also involved a new task: transferring kernels from the containers of suppliers to the new sacks the co-operative used for storage. This task enabled the workers hired by the co-operative to observe and evaluate the quality of the kernels near the bottom of the containers. They were instructed by the steering committee to return any off-quality kernels they might encounter. The origin of the repackaged kernels could be traced through the names of the villages, which allowed the co-operative to sanction groups that supplied low-quality kernels.

Informants claimed that the unprecedented amount of working capital meant that the co-operative could no longer afford loose management practices; it required new ones. The use of working capital was subject of internal decisions within the co-operative. Four village-

based processing teams were caught with butter, which was diverted for sale to accomplices. These four villages were suspended for six months, after which they were given a new chance to send processing teams, but with new members. This new chance was a signal that the co-operative did not want to frustrate its own ambition to extend its influence to all 42 villages of the constituency. The co-operative also implemented penalties for low extraction rates.

Before the loan, the co-operative only bought kernels within the constituency of Zantiébougou. The low production of shea trees in Zantiébougou in 2011, combined with the newly available cash, allowed the co-operative to target other areas. The president of the co-operative used her social network for obtaining information about stocks available in new areas. In contrast to 2011, 2012 was characterised by a relative better production of shea trees. It resulted that in 2012, there was no agreement within the co-operative about the expansion of the area of sourcing. The president wanted to deliver the promise she made to her clients in new areas by continuing buying their kernels in 2012. The accountant, more concerned about the transaction fees, disagreed with this choice because the co-operative was able to source enough kernels closer to Zantiébougou. The accountant intended to raise the awareness of the president that she should not make promises on behalf of the co-operative without prior discussion with the steering committee.

These observations suggest that the provision of working capital catalysed (on-going) processes within the co-operative, particularly affecting the manner in which the co-operative enhanced the sourcing of kernels by including non-members and by expanding its spatial coverage. This expansion was accompanied by a set of rules and practices that the co-operative had been working on but that now became more enacted and operationalized. The co-operative developed a specialisation in sourcing quality kernels, which in turn modified its relationship with traders.

#### ***5.4.2. Relations of the co-operative with local traders***

In addition to expanding the area for sourcing kernels, management took the decision to link up with local traders to enlarge the co-operative's access to kernels. The co-operative made efforts to collaborate more intensively with four traders, which had different types of operations in the vicinity.

The most important trader used to be the main supplier of kernels to MOBIOM (*Mouvement Biologique du Mali in Bougouni*). The co-operative bought the stock of the trader after MOBIOM deferred purchase due to cash issues. Afterwards, the trader decided to

sell his kernels to the co-operative. He collaborated with the co-operative on a regular basis based on unwritten agreements. He described his relation with the co-operative as follows:

*When women requested my collaboration I decided to help them. I promised to source for them the volume of kernels they want. I delivered the promise. I supplied to them more than 100 tons of kernels at the same price of 140 FCFA/kg in less than three months. I promised not to change the price during the entire period of collaboration even if wholesalers increase the price on the market (Interview, 2012).*

This trader was involved in several other businesses that made him travel a lot throughout the constituency wherein he was well known and maintained an extensive network.

Another trader was part of the kinship network of the president of the co-operative. Her brother in law became responsible for the sourcing of kernels from a village not yet covered by the co-operative. According to the staff of the co-operative, the president started sourcing kernels in that village during weekly market days. She collected the stock of kernels the trader sourced and deposited cash for sourcing in-between two visits.

The last category of traders sporadically supplied relatively small volumes of kernels to the co-operative when these passed the quality check (weekly average 100 kg). The co-operative sourced these kernels in the market of Zantiébougou. The flow of information about available high-quality kernels was ensured through people visiting the market and reporting back to the co-operative. Traders interact with the co-operative through telephone calls, regular visits to the co-operative for some of them and verbal communications by sending messages through a third person.

All traders operated within the proximity of the co-operative. Hence, the traders were already connected to women supplying kernels to the co-operative. However, there was little coordination or collaboration between them. The larger trader stated:

*Women from my village are also member of the co-operative. Initially the co-operative members and I were even not saying hi to each other. They saw me as competitor. I do not have the same feeling to them. I think that this “factory” (referring to the central unit of the co-operative) belongs to women and they deserve help because we are all proud of what they are achieving. We are all linked by kinship bonds, marriage or we are joking cousins<sup>2</sup>. For this reason when we started to collaborate, for them exceptionally, I*

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<sup>2</sup> Joking cousins or “*cousins à plaisanterie*” is a cultural practice in Mali and other neighboring countries. It consists of a pact between family names or ethnic groups who allow teasing each other but never aggress or cause harm to each other.

*was patient enough to wait sometimes up to two weeks after supplying kernels before they managed to pay me back. I might have made more profit with wholesalers but I was happy with over one million CFA (€ 1500) of profit out of this collaboration because I think I contributed to something women do (Interview, 2012).*

The relevance of such social bonds was also confirmed by both petty traders:

*During the market day people go up and down between the market and the central unit of the co-operative. If we source kernels we think can meet the quality requirement of the co-operative, we just send a sample through someone passing by. We all know each other here. The quality of kernels is then checked before the transaction is concluded (Interview, 2011).*

However, collaboration between the co-operative and traders was contingent on shea three production. The different forms of collaboration were observed mainly in 2011. In that year, production was very low (2.4 kg per tree). In 2012, wherein the production improved (13.4 kg per tree), the co-operative sourced kernels without resorting to traders. This is also confirmed by the larger trader:

*They did not request for collaboration this year because there was no shortage of kernels (interview December, 2012)*

*But shea is an unpredictable tree and I know they will need my help in the times to come (Interview, 2012).*

The trust between the co-operative and the main supplier was however affected when the co-operative rejected his last lot of 17 tons of kernels for quality issues. He angrily reported about this incident:

*They rejected the lot of kernels after I unloaded it on the road side in front of the co-operative. Before loading it to the track, however, they promised in our telephone conversation that they were going to buy it. Yet, they even did not compensate the costs I made for transportation and unloading. That was the end of this first experience. I will not say I am not going to collaborate with them anymore, but we will take measures to prevent this kind of frustrations (Interview, 2012).*

Others traders also began to source kernels for the co-operative, in addition to their existing trading channels. To supply the co-operative, local traders differentiated kernels by quality. High-quality kernels were designated for the co-operative, while the lower quality was sold to wholesalers. Traders accepted the dual trading system that emerged in response to different market outlets. The traders placed more emphasis on kernels of poor quality used for traditional soap making, while the co-operative sourced stocks of kernels suitable for supplying the market with improved butter for cooking and cosmetics. The higher price for quality kernels paid by the co-operative was of interest to the traders. Traders did not yet offer higher prices to women who supplied quality kernels. The traders claimed that they could select quality kernels, but that the co-operative would prefer to carry out quality assessment under its own control.

### ***5.4.3. Relationships with financial service providers***

The new role of the co-operative not only re-shaped its relations with women, both members and non-members, but also led to emerging forms of coordination with traders in the area. More difficult to trace was whether and how the relationship of the co-operative with supporting NGOs and financial organisations altered. Compared to other co-operatives that received support to enter international markets COPROKAZAN seems to have created a certain level of autonomy for making independent strategic choices within the context of local social and material conditions (Sidibé *et al.*, 2012, Chapter 2).

The arrangement with the MFI enabled the co-operative to really make the shift from making butter to sourcing kernels, and to seek opportunities to expand its area of operation. The MFI renewed the arrangement in 2012. In the facilitated agreement between the co-operative and the micro-finance organisation, the CIG assumed the role of buffer in case of tension between the two contracting parties. The interaction with the CIG stimulated the revival of the national umbrella inter-organisational network of women involved in shea activities called SIDO (meaning in Bambara the parkland of shea). The president of the co-operative was chosen as the first president of SIDO. However, the link between the local arrangement and the national network was affected by the political turmoil in Mali. When discussing the possibility of further loans of the same amount in 2012, the micro-finance organisation referred to the political crisis to reject the request by the CIG to replicate the experience with other co-operatives.

Recently, the co-operative explored the possibility of financial services offered by a bank, rather than those of the MFI. However, the unpredictability of the performance of the shea

sector made banks hesitant to invest in it. Strategic sectors with powerful farmers' co-operatives, such as cotton and rice, still receive substantial financial and public support. This contrasts with the fragmented and uncoordinated shea domain, and involvement of banks is further complicated by the fluctuation in shea production.

## **5.5. Discussion**

Our study shows that working capital made a difference because it captured and expanded on existing institutional practices in the co-operative, in particular the sourcing of kernels and butter, management of stocks and negotiations with traders. The provision of finance to the co-operative catalysed an existing process of institutional change and strategic re-orientation. The effect of finance became visible in the reinforcement of emerging institutional practices inside the co-operative, and in the incipient alterations of the co-operative's relations with external stakeholders, such as non-members, traders, and financial service providers. Our study therefore raises questions on the further development of the organised practices by the co-operative. Could it succeed in lasting institutional change?

COPROKAZAN was able to maintain a certain level of strategic freedom in a sector wherein public organisations and NGOs were influential. This makes the co-operative partly exceptional, because its rules and practices were less directed towards serving international niche market in development policy and practice, and partly instructive, because it identifies institutional practices and signals development pathways grounded in the social and technical realities wherein the co-operative navigates.

Our earlier diagnostic study (Sidibé *et al.*, 2012, Chapter 2) showed that the actual practice of the co-operative comprised more dimensions than a membership involved in value-adding activities as making of high-quality shea butter. Members of the co-operative and especially its management and staff had to handle the relationships with non-members and traders in their practices dealing with fluctuating supplies. The activities of the co-operative affected non-members, who are essential for a continuous supply of kernels. Hence, although some women were formally excluded from membership, through their capacity to collect nuts and to supply quality kernels, non-members formed an indelible part of the performance of the co-operative. Moreover, the co-operative's emphasis on sourcing of kernels, rather than making of improved butter, also altered its relationship with different traders. In times of scarcity, the co-operative tried to coordinate with traders to secure the supply of kernels. As a result, traders began to use their own networks for sourcing kernels for the co-operative and they differentiated between qualities supplied to their existing market channels and to the co-

operative. The provision of working capital catalysed the on-going strategic re-orientation of the co-operative's performance and triggered new practices and rules (cf. Vellema *et al.*, 2011). As a result, the institutional practices of the co-operative shifted from endeavours to include women in making high-quality butter to installing mechanisms and arrangement through which the co-operative, as an exclusive group, could obtain sufficient high-quality shea kernels.

While it is too early to make firm statements, we can indicate that continuation of the emerging institutional practices and their embedding in the co-operative's environment will depend on a further differentiation of markets for shea. The expansion of the co-operative (not only directed towards the niche market for export, but also increasingly focusing on the domestic markets for higher-quality kernels and butter for cooking) may increase competition with traditional traders, as market differentiation and demand for quality will otherwise move those traders to a niche market of low-quality soaps. Therefore, it is likely that only to the extent that market differentiation, based on quality differentiation of kernels, will further evolve that a win-win situation for both the co-operative and traders can be maintained. Otherwise, the new organisational practices and rules in the working of the co-operative (its incipient institutionalisation) may be abortive in the face of larger powers that dominate the lucrative markets for shea.

Taking these observations together, we suggest that the provision of working capital not only enforced the unfolding new practices of policing, penalising and sanctioning by the co-operative, but also increasingly formalised them. The provision of working capital was accompanied by a stricter use of rules. This became particularly clear in the practice of kernel quality control. The incident of the suspension of four villages shows that the management style of the co-operative became more rigid after the provision of working capital. In addition, the measures aimed at improving the extraction rate women access to export high value markets and, while potentially penalising low-performing units, are indications of a more rigid management style. In this way, the co-operative moved towards becoming a specialised and exclusive nucleus of which the engagement with women in a network of aligned villages became subject to new rules, which are increasingly recognised and followed by these women, and also traders, as a condition for doing lucrative business.



## **5.6. Conclusion**

The paper contributes to an on-going debate among development policy makers and practitioners on how to understand whether and how finance leads to development effects for specific target groups, in our case women involved in shea. The vast literature on rural finance tends to focus on the financial instrument itself as a causal factor for change. This study suggests that developmental outcomes are unlikely to be solely attributable to the external input, in this case working capital, but emerge in the interaction of that external input with practices grounded in how organisations navigate social and natural conditions.

This membership organisation has sufficient power to change the practices and rules underlying the activities managed by the co-operative. We show increasing specialisation (based on women access to export high value markets and kernel quality) by the co-operative, reflected in its sourcing and stocking practices. The performance of the co-operative and the catalysing effect of finance is illustrative of the role of institutions in reducing uncertainty in human interaction, in this case between co-operative management and members, non-members supplying kernels, and traders. The question remains whether further growth in the organisational performance of the co-operative will enable it to negotiate access to financial or other services on its own.

The unpredictability in the supply of shea kernels, to which the institutional practices in the co-operative essentially responded, still formed a hindrance for micro-finance institutes and banks to offer credit to co-operatives. Brokerage by a multi-stakeholder platform helped the co-operative to gain access to financial services, which supported its on-going practices in the face of supply fluctuations. The study of the outcomes of the brokered arrangement of the co-operative and an MFI revealed how working capital catalysed institutional practice, framed as intermediary outcomes, that can create conditions or contexts for potential longer-term institutional changes, for example in the behaviours of traders or financial institutes. This insight can be further refined by looking at how the emerging institutional practices impact on gender at different levels in the configuration.



## **CHAPTER 6**

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### **General discussion**

## 6.1. Introduction

Beyond promoting technical efficiency and market access, producers' organisations are instrumental for empowering small farmers to upgrade their position in the value chain so that they appropriate a greater share of the returns accruing from the chain (Peppelenbos, 2006). In Mali, this perspective is also echoed in perceptions of policy makers on farmer organisations and more specifically co-operatives (Ribot et al., 1998).

Women and shea constitute one of the sectors in which this perspective and public perceptions about producers' organisations have become visible in Mali. Eloquently labelled by Elias and Carney (2007) the *feminised subsidy from nature*, shea tree fruit is an exclusive item of female labour. Individual women collect shea fruits in fields and fallows and undertake the pre-treatment and processing practices to produce shea butter. After the pulp is used as snack, the shells of the nuts are removed to obtain the kernels. The kernels are processed into shea butter or *beurre de karité*. This importance of shea fruit for women in the rural-production-based developing economy of Mali has attracted pro-women development initiatives.

Community-based organisations of women served as entry point for local and international NGOs, development agencies and the Malian government to achieve the outcomes of pro-women development in the shea sector. It is often taken for granted, for instance in Davies' (2013) study for Oxfam, that active participation in collective action can empower individual women and consequently result in lasting changes in gender relations.

However, the provision of support for infrastructure and capacity-building for women co-operation met with limited success. At national (Mali) level a membership rate of 1% was reported (Lusby and Derks, 2006), whereas in my study membership was limited to 10% (Chapter 3). This low level of organisation of women producers was perceived as problematic by development actors (CFC, 2002). Improving the performance of the Malian shea sector through the production of volumes of high-quality shea products under these circumstances where few women were involved while the large majority remained in conditions that the projects aimed at changing was doubted. Moreover, the projects did not (yet) translate in a better position of Malian shea products on the high-value export markets and Mali retained its small share in international trade.

Low membership rates raised initial research questions related to mechanisms excluding or including women from an organisation (Chapter 2). However, non-members played an important role in supplying the co-operative with kernels. This observation led to a revised research question for the thesis: why and how does the performance of organised women stay

viable under changing social and natural conditions and generate benefits for those formally excluded?

Against this background, my thesis investigated producers' organisations through specifically the example of women co-operation in the shea sector of Mali. I investigated in detail, as case study, the performance of the first women co-operative that received external support in the sector (*La Co-operative des Productrices de Karité de Zantiébougou; COPROKAZAN*).

Through the lens of collective performance and the inclusion/exclusion of women from formal organisations, I investigate COPROKAZAN organises around sourcing, stocking and processing of shea functions, how this relates to material and social conditions in the specific context, and what this implies for understanding how an external input to the organisation leads to development outcomes. I propose to see collective performance as a practice that goes beyond the boundaries of the formal organisation. Hence, women can still make use of an organisation even if they are not a member. This insight requires a more refined understanding of collective performance than merely assuming that only members benefit.

## **6.2. Main findings**

### *Co-operation as emergent outcome of performance*

Emphasis on membership in co-operatives and strategies to enable entry overlooks the performance of tasks the co-operation builds upon. While acknowledging the membership issue, I therefore adopted a task performance perspective to analyse women co-operation around the socio-technical and institutional practices of sourcing and stocking shea kernels for making shea butter. I conclude that rather than focusing on membership and the strategies to enable it, farmer co-operation is much more an emergent outcome of performance of specific tasks like sourcing and stocking shea products.

This insight is illustrated in how the functioning of COPROKAZAN evolved. (Chapter 2). An NGO played a role by starting organising women in one village, providing them with an initial storehouse, mill and working capital for modifying the terms of trade of the shea products. Working capital was used to purchase butter from women members, instead of them selling butter to traders at a lower price. The group then stored butter to sell it at a higher price during the period of low supply. The change in the terms of trade released funds at community level and the group made a substantial contribution to the building of a maternity hospital in their village. They also bought a donkey-driven cart and opened an account at a

bank with an initial deposit. These events attracted women groups from other villages. The network gradually expanded to a total of 15 villages after which women groups federated into an apex organisation UGFZ (*l'Union des Groupements Féminins de Zantiébougou*). All married women in the 15 villages became *de facto* members of UGFZ. However, the expansion and the open membership policy made quality control of individual processors difficult. Consequently, the butter traded to Bamako was repeatedly returned because of poor quality. The proposed solution was to modify the organisational structure and transform UGFZ into a co-operative which became known as COPROKAZAN. One of the first choices COPROKAZAN made was to concentrate on the processing of shea nuts at a centralised unit in the premises of the co-operative to address the issue of quality. Later on, the co-operative added decentralised processing units in the villages. This operational structure aimed at allowing more women to earn income. The management of the co-operative also began to realise that it needed to find a way to aggregate enough volume of kernels to influence the terms of trade.

These data substantiate that the organisational form, structure and functioning of this women group responded to the need to adjust it to the performance of sourcing, stocking high-quality kernels and processing volumes of consistent high-quality shea butter. I conclude therefore that women co-operation, and its specific organisation structure, in the constituency of Zantiébougou proved to be an emergent outcome of performance the tasks of sourcing, stocking shea products (Chapter 2).

### *Co-operative as collective performance*

Performance as a concept leads to a better understanding of how organised women relate to developmental outcomes. I argue that how organised women relate to development outcome is matter of collective performance. My account of collective performance complements Richards (1993) account of performance which is more individual than collective. This insight that the collective approach is useful is substantiated in the following findings:

To secure a continuous sourcing of good-quality kernels the co-operative decided to guarantee that it purchases kernels that met the standard at a price higher than the price offered by traders. The differential price and the predictability of the price proved attractive also to non-members and encouraged them to meet the quality standard of the co-operative (Chapter 2). A non-member could sell to the co-operative by using the membership identity card of a member. The use of the membership identity cards was encouraged by the members,

because it increased their own bonuses at the end of the buying season. Non-members supplied 60% of the collected kernels of the co-operative.

In support to this sourcing practice, access to working capital featured highly in the priorities of the steering committee and the co-operative considered this as a vital asset for sourcing shea products. A loan of working capital was provided by a micro-finance organisation under the brokerage of a platform of actors (Concertation and Innovation Group, CIG) including women from the steering committee of the co-operative, representatives of public and private organisations involved in the support to community-based organisations of women. CIGs are aimed at finding mechanisms for addressing institutional constraints (Hounkonnou et al., 2012). In Chapter 5 I analyse how provision of working capital was used as a natural experiment to unravel the relation between group performance and processes of coordination in the enabling environment.

To obtain this working capital, the co-operative used the title deed to its infrastructure as collateral. The renewal of the same amount of loan in 2012, without the brokerage of the CIG, reflects an incipient form of trust-building relationship between the co-operative and the micro-finance organisation (Chapter 5). Before the loan, the co-operative had been buying kernels only within the constituency of Zantiébougou. The low production of shea trees in Zantiébougou in 2011 (chapter 4) combined with the newly available cash, allowed the co-operative to target other areas. The social network of the president of the co-operative was instrumental for obtaining information and targeting stocks available in new areas for sourcing.

In addition to expanding the area for sourcing kernels, the management took the decision to link up and collaborate with local traders to enlarge the co-operative's access to kernels. Different types of traders sourcing shea products in villages and the weekly market of Zantiébougou also began to sporadically source kernels for the co-operative, in addition to their existing trading channels. Local traders subsequently started to differentiate kernels by quality. High-quality kernels were designated to the co-operative, while the lower quality was sold to the traditional wholesalers. Traders accepted the dual trading system that emerged in response to different market outlets. The traders specialised in channelling kernels of poor quality for traditional soap making, while the co-operative sourced stocks of high-quality kernels for making improved butter for cooking and cosmetics chains. The higher price for quality kernels paid by the co-operative was of interest to traders (Chapter 5).

These accounts of the performance of the co-operative indicate that the role it played not only shaped its relations with members and non-members, but also with local traders in the area as well as with micro-finance organisations. The members of the co-operative are thus

part of an expanding network I conceptualise as collective performance with material tasks of sourcing, stocking and making high-quality shea products.

The question remains, however: how far can this conceptualisation of co-operative as collective performance from the cases study of Zantiébougou, be generalised for example to the two other cases in Dioila and Siby? In other words, how does the context and organisational history affect the way a women organisation performs?

The co-operatives of Dioila and Siby are membership-based. In Dioila the co-operative Siyiriwa buys kernels from members and delays processing until clients show up. Processing teams are then hired from co-operatives in affiliated villages to process butter at the well-equipped central facility. But the high electricity bills are one of the reasons of the discontinued processing. The co-operative strongly relies on project funds for financing personal and operational costs, largely channelled through a public support project funded by UNIDO (Chapter 3). In Siby, COOPROKASI buys butter from individual women members. It concentrates on the production of soaps and skin care products sold to foreigners visiting the touristic sites in the area and to niche export markets. When deemed necessary, processing teams are hired mainly from Siby and adjacent villages to perform these tasks in the central facility. Members in remote villages from Siby felt excluded and also complained about the distribution of bonuses they were entitled to but never received, because these were managed on their behalf by the NGO. For these reasons the distribution of income between the central unit and women members lacked transparency (Chapter 3). In Siby and Dioila the social position of traders is also different. Traders are exclusively rooted in their traditional economic relations with Bamako with no interaction with the co-operatives.

The functioning of the co-operative of Zantiébougou gradually moved from a membership-based organisation with de facto inclusion of all married women to become more performance-based co-operative with limited entry but with permeable boundaries and that encompasses also non-members, traders and micro-finance organisations. I argue that the strategic orientation of the co-operative in Zantiébougou made it more likely that its performance could also accommodate the interests of women with a specific position in households. In Zantiébougou, with limited alternative sources of income and with relative autonomy (Chapter 3) to engage in mechanisms to stabilise the supply of kernels through the participation of non-members in the sourcing, performance of the co-operative is more relevant than the membership itself.

The relevance of defining the co-operative as performance-based rather than membership-based is further substantiated in Chapter 3. Here I show that intra-household institutions such as the involvement of young married women in cooking tasks in the extended family



combined with reproductive tasks effectively prohibits their membership. So are the inter-household institutions such as the designation by the village council of the members of organisational forms at the beginning of the co-operative of Zantiébougou. This designation gave priority to elder women having more time available because they were relieved from the cooking tasks. Interestingly, the village rules mediating access to shea trees in fields and fallows are favourable to young married women who are involved in cooking (Chapter 3). They have exclusive access to shea trees in the fields of the extended family on days when they are on duty for cooking. When off-duty, they also have access to trees in fallows they share with other women not involved in cooking (see also Chapter 4). This access rules explain, in combination with their larger number compared to members, why non-members provide 60% of kernels processed by the co-operative. This also suggests that we should not look at membership as a property of individual women. Membership is rather an emergent property of the household that allows women with access to the most productive trees to contribute to the co-operative without being member themselves.

### **6.3. Theoretical implications of the findings**

The theoretical perspectives about producers' organisations perceived as instruments in poverty reduction and farmers' access to markets, global value chains and technical and financial services are pre-dominantly characterised by the view that emphasises membership. This view results in the question about what explains exclusion and how to address it in order to achieve development outcomes. Membership is considered a necessary condition for public and private supports for producers to gain access to these markets and have some bargaining power (Bernard et al., 2008). Participation is then presumed to be the default position and there is a problem if individuals or groups of individuals do not participate (Shortall, 2008). Efforts are for instance focused to address barriers to the participation of certain women in the co-operatives in Koutiala (Mali) in relation to which Davies (2013) recommended to develop strategies to enable membership of marginalised women.

In this regard, in many developing countries, co-operatives set up within the framework of national policies or specific projects are considered instruments necessary for the implementation of development strategies (Mercoiret et al., 2006). Co-operatives are considered as essential partners by development agencies that rely on them to implement their programmes (Bernard et al., 2008). Efforts focus to strengthen them as a process of institutional reconstruction of markets for farm inputs and outputs (Bijman and Ton, 2008). These roles became more pronounced because of the deregulation introduced by Structural

Adjustment Programmes. Farmer-based organisations were presented as a new instrument for economic and social regulation to replace governmental coordination (Collion and Rondont, 2001, Peacock *et al.*, 2004).

The membership-based perspective of producer co-operatives took then precedence in several theoretical strands. Cook (1995) for instance, summarised the justification for forming co-operative as defensive attitude consisting for members to react collectively to depressed prices or market failures. The international co-operative alliance (ICA, 2013) defined a co-operative as an autonomous association of persons united voluntarily to meet common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise. Co-operatives are therefore pre-dominantly defined as self-centered organisational forms that exist primarily to serve their members (Ortmann and King, 2007). Efforts are therefore focused on internal dynamics to prevent conflicts emerging from property rights over residual claims and decision control caused by user-driven characteristics of co-operatives (Cook, 1995).

Influenced by these theoretical perspectives, one of the contextual features of the development policies and practices in the shea sector is that they build on all kind of assumptions. One of these assumptions is reflected in what Elias and Saussey (2013) called the paradoxes of fair-trade shea butter. They argue that the ‘fairness’ and solidarity assumptions of the fair-trade movement contrast with the low returns butter producers earn for their product. In addition, projected as a panacea, the effort to comply with the quality standards, rules and certificates of these niche markets blind the actors with regard to the possibility for market differentiation for different qualities of shea products qualified for different end-uses (Chapter 5). By the same token, my study questions the assumptions of the membership-based perceptible of women co-operation to achieve developmental outcomes. I contend that the membership-based perspective of women co-operation limits the capacity of women to manoeuvre opportunities and to accommodate social and natural conditions their performance is embedded in (Chapters 3 and 4). In this regard, my study provides development practitioners and policy makers with insight on performance-based perspective of women co-operation for better outcomes of pro-women development of the shea sector in Mali.

Rather than looking at a co-operative from that self-centred and internalist membership-oriented lens, a performance-based perspective suggests that collaboration results from what people do to achieve practical ends, and not primarily from imposed organisational structures. These organisational structures may be enabling to some extent but they may also be constraining for achieving these practical ends.

The performance-based perspective also indicates that people organise around practices and eventually that organisational rules, routines and structures will emerge from these practices. Consequently, understanding collaboration also entails understanding the content of the task, e.g. sourcing, and how people perform this task under time and place-specific material and social conditions (Chapters 3 and 4). Furthermore, the organised women relate to their environment through the performance of the tasks of, initially making butter, and eventually sourcing and stocking kernels. It might not be without theoretical relevance that my thesis reveals that the relation to their social and natural environment changed with the task performed.

Performance also emphasises that individuals or groups improvise and navigate. Hence, a focus on an ideal-typical organisational design moves away from the capacities of individuals and groups expressed in their performance. The performance perspective allowed me to conceptualise the way women co-operatives can achieve development outcomes as collective performance, where their boundaries are permeable to the contribution of other actors beyond only members. The collective performance of sourcing and stocking shea kernels is then situated in and permeable to social reality of members, non-members but also to the natural, biophysical reality of the fluctuation of shea fruit production.

In this regard, I argue that it can be misleading to assume that all co-operatives share some essential characteristics. The findings show that defining co-operatives through membership-based criteria runs the risks of overlooking what actually happens within the specific organisational form that is substantial to its performance. Membership or not is financially different. In some cases members are better-off in some others they are not. In some cases membership constrains the freedom to act and in some cases it enlarges the freedom to manoeuvre. In some cases members become dependent of NGOs and in some others they liberate themselves from NGOs dependency.

The performance-based perspective of co-operatives marks a move away from the initial pre-analytical membership-based perspective. My original research proposal was entitled “Mechanisms of exclusion and inclusion in Malian shea realm: an integrative analysis of performance and collective action”, based on an underlying assumption that exclusion of individual women from groups specialised in supplying a single international niche market is the main obstacle to their development

My newly developed insight shows that moving away from a membership (inclusion/exclusion) perspective opens opportunities to look at how an organisation interacts with specific social relations wherein it performs and, consequently, encourages a search for unexpected developmental outcomes.

#### **6.4. Implications of the findings on development policies and practices**

I derive the following insights from the conceptualisation of producer co-operation as emergent outcome of performance and performance as a concept that leads to a better understanding of how organised women relate to developmental outcomes. I propose two major insights that need to be taken into consideration for development policies and practices in the field of shea and women to produce better outcomes in terms of quality and income for women.

##### *Perception of the effectiveness of development interventions*

Development interventions are often designed to achieve predetermined outcomes within the logics of the programme. The predetermined outcomes are symptomatic of the way the effectiveness of interventions is perceived. The implementation and the way the outcomes are measured are in their turn contingent on this perception of effectiveness. The intervention strategy in the Malian shea sector was designed for women to produce high-quality shea butter with the exclusive focus on the international niche markets and global value chains.

I argue that the ways development organisations and interventionist account for delivering what is planned has to be carefully reconsidered. Development interventions focusing exclusively on building women organisational capacities, neglect the natural dimensions that interact with the social to co-determine women behaviour. This strategy has the consequence to overlook the possibility to navigate other opportunities on the national and regional markets (Chapter 2). In addition, my thesis illustrates that the collective performance of a co-operative in a system in which biophysical, socio-technical and institutional realities enmesh, is guided by trials, failures and improvisation in the face of uncertainties (Chapter 3) rather than design.

Measured in relation to the buzzwords that legitimise development interventions, such as inclusion, poverty alleviation, empowerment, linkage to high-value export markets, etc., the outcome of the collective performance around women co-operatives may be controversial or not necessarily obvious for women. The findings of both Chapter 2 and 3 indicate that the co-operative of Zantiébougou acted as institutional fabric in which trials and failures led to new rules within and outside the co-operative. These new rules and practices had wider implications for the community of members and non-members. The connection with traders and early signs of market differentiation signal traces of institutional change in the socio-technical system, which has the potential to inform the shea value chain of Mali (Chapter 3).

*Expert against lay knowledge bias in development policies and practices*

This thesis argues that the dichotomy between experts (with context-independent knowledge) and recipients of that knowledge (assumed to be ignorant and passive subjects) to be problematic as far pro-women development of shea is concerned.

Researchers of the biology of shea trees are rather confined in labs in research centres and institutes. During two years of field work I met NGOS, development agencies, the World Bank staff, but no researchers from the biological fields. This indicates the need for more convergence between scientific knowledge and local know-how. This convergence as I illustrate in chapter 5 needs to be attended to enhance the collective performance. I propose in chapter 5 to move away from pure biological research on the performance of the shea trees and its possibilities for improving production through genetics and agronomic management and to look for adaptive responses to fluctuations that become apparent in human practices. Such an approach also fits with the original aims of CoS-SIS: Convergence of Sciences, between natural and social sciences, and also between formal science and local know-how (“indigenous knowledge”). In line with Olivier de Sardan (2005) the challenge to resolve is about how to put this convergence into a perspective that explores various types of interactions bringing into play conceptions and practices, strategies and structures, actors and contexts. If fluctuation is there to stay, intervention strategies aiming at technical fixes for inconsistent volumes may undermine the skills and know-how of women that allow them to act upon the material conditions of daily life.

## **6.5. Policy recommendations**

The assumptions of the membership-based perspective of women co-operation to achieve developmental outcomes need to be reconsidered. It limits the capacity of women to manoeuvre opportunities and to accommodate the social and natural conditions in which their performance is embedded in (Chapters 3 and 4). I suggest a more integrative view in socio-technical, material and institutional dimensions at local and higher than local levels for development intervention to produce better outcomes for women. In the light of my findings, I suggest the following insights with regard to the processes of design and the perspective of institutionalisation.

## *Chapter 6*

### *Change in the design process*

The socio-technical, institutional and biophysical system composed of shea tree, women and development practitioners is a complex one. I found that building an intervention strategy on the assumption that women can benefit from the co-operative only when they are member is problematic. This thesis finds untrue that members of co-operatives are always successful as if there are no other strategies beneficial to women. In this regards, in the design process, it is worthwhile to raise questions that relate to intra and inter-household institutions that may enable or constrain membership of women. Then, the next step may consist of reflecting on socio-technical arrangements that may enable non-members to benefit from the public and private supports provided to the co-operatives. The mutual interests for members who allow the use of their membership ID cards by other women for them to benefit from the high price of kernels of the co-operative indicates the possibility to find a balance between the incentives of members and the risk of free riding by non-members.

### *Perspective of institutionalisation*

I argue that the outcomes of development interventions in shea-producing areas are context specific. Therefore, the same development intervention may not necessarily produce the same outcome depending on the social-technical and the natural contexts in which it is implemented. This makes it essential to consider the uniqueness of each case and suggests reconsidering the one-size-fit-all type of development interventions. However, common denominators can still be found between specific cases to inform the wider development process in the shea domain. Several issues cut across the shea distribution area. Despite the geographical and also the relative cultural differences, the divide of women between those who can easily become member and the others whom membership can be limited due to socio-institutional reasons cuts across all the areas. The desynchronised fluctuation of shea fruit production as well as the longstanding co-existence of the network of traders cut across all shea-producing areas. These common threads combined with the collective performance perspective have the following implications on my account of institutionalisation. I recommend that rather than institutionalising the rules on entrance or membership to a co-operative, it is important to institutionalise practices in terms of rules, routines that determine the effectiveness of collective performance around sourcing and stocking shea products.

## **6.6. Suggestions for further research**

My thesis puts collective performance into perspective. However, the different agendas, interests and power relations among women, traders, development agencies and the government may make the contribution of certain stakeholders to the collective performance not straightforward. NGOs and development agencies for instance are more inclined towards visible actions to keep the funding of their activities flowing. They are interested in research results on the fluctuation of shea tree for instance but they have no interest in something with long gestation time before producing tangible outcomes.

Co-operation as an emergent outcome of performance requires insight in both the social and the material dimensions in which performance is situated. Investigating socio-technical and institutional systems requires a methodological approach that combines the social and the material dimension of collective performance. However, the performance perspective, which suggests close observations at local level, may be complemented by additional methodological choices that make the analysis of collective performance much more social and institutional at higher than local levels. In this regard, I see in the methodological perspectives on innovation systems a complementary role in identifying additional processes at higher than local level that can impact on collective performance.

The innovation system approach focuses specifically on the roles and responsibilities, actions and interactions, and institutions that condition behaviours and practices of stakeholders (Spielman et al., 2011). The greater emphasis in the innovation system approach is on the institutional environment that mediates the action of stakeholders in a defined network (Klerkx et al., 2010). In this perspective, mapping and analysing these networks so as to identify the actors and understand the mechanisms that shape the institutions and the constraints and opportunities experienced by smallholders is key to institutional change (Hounkonnou et al., 2012).

The emphasis of the innovation system approach on the higher than local level institutional environment may then complement the performance perspective more embedded in local social and natural conditions. In chapter 5 for instance I indicate how difficult it was to trace whether and how the relationship of the co-operative with supporting NGOs and financial organisations altered. In this regard the performance perspective and the innovation system perspective can be complementary to put weight to the argument that institutional change is unlikely scale neutral.

Finally, I did hardly apply an explicit gender lens when studying interaction between male traders and female members of the co-operative; or between the female members of the co-

operative and micro-finance organisations. It would be important to investigate whether the incipient institutional change also impacts on gender relations between women members of the co-operative, male traders and financial organisations.

### **6.7. Conclusion**

My thesis concludes that how women take part in the collective performance around shea is contingent on how this performance accommodates socio-institutional reality mediating women behaviours. Also, the socio-institutional reality entangles with the natural reality specifically the biophysical dimensions of the fluctuation of shea fruit production and the geographical location of co-operatives to co-determine women potential membership and their choice of alternative strategies for generating income. In this regard, it is of utmost importance to acknowledge and integrate these dimensions into the analysis of the collective performance and its institutional environment. Such integrative analysis is likely to produce better outcomes for women, and beyond, for the communities they belong to. The performance-based perspective of co-operation as emergent outcome of collective performance, rather than the membership-based, allows novel insights on institutionalisation. Rather than institutionalising the rules on entrance or membership to a co-operative, it is worthwhile to institutionalise practices in terms of rules that determine the effectiveness of collective performance around shea products.



## References

- AMPJ, 2002. Expérience de l'AMPJ dans le renforcement des capacités techniques et d'organisation des femmes de Zantiébougou. Dakar, Sénégal.
- André, E., 1947. Le beurre de karité; sa composition chimique-latex, graisse. Oléagineux. (546- 551) et (599-603).
- Aproma, 1995. Etude de la filière karité du Burkina Faso: Volume 1. Rapport principal. Contrat no. 01/DEL/94. Bamako, Mali.
- Badini, Z., Kaboré, M., Mheen-Sluijer, J.V.D. & Vellema, S., 2011a. Historique de la filière karité au Burkina Faso et des services offerts par les partenaires techniques et financiers aux acteurs. VC4PD Research Paper #11. Wageningen: Wageningen University and Research Centre.
- Badini, Z., Kaboré, M., Mheen-Sluijer, J.V.D. & Vellema, S., 2011b. Le marché du karité et ses évolutions: quel positionnement pour le REKAF. VC4PD Research Paper #12. Wageningen: Wageningen University and Research Centre.
- Bernard, T., Collion, M.-H., De Janvry, A., Rondot, P. & Sadoulet, E., 2008. Do village organisations make a difference in African rural development? A study for Senegal and Burkina Faso. *World Development*, 36(11), 2188-2204.
- Bhatt, N. & Tang, S.-Y., 2001. Delivering microfinance in developing countries: controversies and policy perspectives. *Policy Studies Journal*, 29(2), 319-333.
- Bijman, J. & Ton, G., 2008. Producer organisations and value chains. *Capacity.org*.
- Bingen, J., Serrano, A. & Howard, J., 2003. Linking farmers to markets: different approaches to human capital development. *Food Policy*, 28, 405-419.
- Bingen, R.J., 1998. Cotton, democracy and development in Mali. *The Journal of Modern African Studies*, 36(2), 265-285.
- Boehlje, M., 1999. Structural changes in the agricultural industries: how do we measure, analyze and understand them? *American Journal of Agricultural Economics*, 81(5), 1028-1041.
- Boffa, J.-M., 2000. Les parcs agroforestiers en Afrique de l'Ouest: clés de la conservation et d'une gestion durable. *Unasylva*, 51(200), 11-17
- Bolwig, S., Ponte, S., Du Toit, A., Riisgaard, L. & Halberg, N., 2010. Integrating poverty and environmental concerns into value-chain analysis: a conceptual framework. *Development Policy Review*, 28(2), 173-194.
- Bonkougou, E., 1987. Monographie du karité, *Butyrospermum paradoxum* (Gaertn. F) Hepper, espèce agroforestière à usages multiples. Burkina Faso.
- Burns, J., 2000. The dynamics of accounting change: Inter-play between new practices, routines, institutions, power and politics. *Accounting, Auditing & Accountability Journal*, 13(5), 566-596.

## References

- Busson, F., 1965. *Plantes alimentaires de l'Ouest Africain. Etudes botaniques, biologiques et chimiques.* Marseille, France.
- Carney, J. & Elias, M., 2006. Revealing gendered landscapes: indigenous female knowledge and agroforestry of African shea. *Canadian Journal of African Studies*, 40(2), 235-267.
- CFC, 2002. Proceedings of a Workshop held by the Food and Agriculture Organisation of the United Nations, the Common Fund for Commodities and the Centre de Suivi Ecologique. In: CFC, eds. *International workshop on processing and marketing of shea products in Africa*, Dakar, Senegal: CFC, 226.
- Chalfin, B., 2004. *State power, global politics, and the making of an indigenous commodity.* New York & London: Routledge.
- Chirwa, E., Dorward, A., Kachule, R., Kumwenda, I., Kydd, J., Poole, N., Poulton, C. & Stockbridge, S., 2005. *Walking tightropes: Supporting farmer organisations for market access.*
- Collion, M. & Rondont, P., 2001. *Investing in Rural Producer Organisation for Sustainable Agriculture.* Washington DC. World Bank. SASKI (22386).
- Cook, M.L., 1995. The future of U.S. agricultural cooperatives: a neo-institutional approach. *American Journal of Agricultural Economics*, 77(5), 1153-1159.
- Datta, A., 2011. Natural Landscapes and regional constructs of gender: theorising linkages in the Indian context. *Gender, Technology and Development*, 15(3), 345-362.
- Davies, I., 2013. *Women's collective action in the shea sector in Mali.* Baden, Sally ed.: Oxfam International.
- Derks, E. & Lusby, F., 2006. *Mali shea kernel value chain case study.* Washington, DC.
- Diarrassouba, N., Fofana, I.J., Issali, A.E., Bup, N.D. & Sangare, A., 2009. Typology of shea trees (*vitellaria paradoxa*) using qualitative morphological traits in Côte d'Ivoire. *Gene conserve*, 8(33), 752-780.
- Dodiomon, S., Koffi, N. & Kafana, S., 2011. Variability of production out of fruits of Shea trees. *Agriculture and Biology Journal of North America*, 2(2), 239-243.
- Eerdewijk, A.V. & Dubel, I., 2012. Substantive gender mainstreaming and the missing middle: a view from Dutch development agencies. *Gender and Development*, 20(3), 491-504.
- El-Bushra, J., 2000. Rethinking gender and development practice for the twenty-first century. *Gender and Development*, 8(1), 55-62.
- Elias, M. & Carney, J., 2007. African shea butter: A feminized subsidy from nature. *Africa-London-international African Institute*, 77(1), 37-62.
- Elias, M. & Saussey, M., 2013. The gift that keeps on giving': unveiling the paradoxes of fair trade shea butter. *Sociologia Ruralis*, 53(2), 150-179
- Fairhead, J. & Leach, M., 1994. Représentations culturelles africaines et gestion de l'environnement. *Politique Africaine*, 53, 11-24.

- Fairhead, J. & Leach, M., 1995. False Forest history, complicit social analysis: rethinking some West African environmental. *World Development*, 23 (6), 1023-1035.
- Fold, N. & Reenberg, A., 1999. In the shadow of the 'chocolate war': local marketing of shea nut products around Tenkodogo, Burkina Faso. *Geografisk Tidsskrift / Danish Journal of Geography*, Special Issue 2, 113-123.
- Fold, N., 2000. A matter of good taste? Quality and the construction of standards for chocolate products in the European Union. *Cahiers d'économie et sociologie rurales*, 55-56, 91-110.
- François, M., Niculescu, N., Badini, Z. & Diarra, M., 2009. Le beurre de karité au Burkina Faso: entre marché domestique et filières d'exportation. *Cahiers Agricultures*, 18(4), 369-375.
- Gerring, J., 2004. What is a case study and what is it good for? *American Political Science Review*, 98(2), 341- 354.
- Greig, D., 2006. Shea butter: connecting rural Burkinabè women to international markets through fair trade. *Development in Practice*, 16(5), 465-475.
- Grigsby, W.J., 2004. The gendered nature of subsistence and its effect on customary land tenure. *Society & Natural Resources*, 17(3), 207-222.
- Henry, A., Chithra, V. & Nair, N., 1983. *Vitellaria* vs. *Butyrospermum* (Sapotaceae). *Taxon*, 32(2), 282-286.
- Hobart, M., 1993. *An anthropological critique of development: Grow of ignorance*. London & New York: Routledge.
- Hounkonnou, D., Kossou, D., Kuyper, T.W., Leeuwis, C., Nederlof, E.S., Röling, N., Sakyi-Dawson, O., Traoré, M. & Van Huis, A., 2012. An innovation systems approach to institutional change: Smallholder development in West Africa. *Agricultural Systems*, 108, 74-83.
- Hulme, D., 2000. Impact assessment methodologies for microfinance: Theory, Experience and Better Practice. *World Development*, 28 (1), 79-98.
- I.R.H.O, 1952. Karité. In rapport annuel 1952. 136-141
- Ica, 2013. [online]. [Accessed, Access Date 2013].
- IMF, 2008. *Mali: Poverty Reduction Strategy Paper*. Washington, DC: IMF.
- Jansen, K. & Vellema, S., 2011. What is technography? *NJAS-Wageningen Journal of Life Sciences*, 57, 169-177.
- Jansen, K., 2009. Implicit sociology, interdisciplinarity and systems theories in agricultural science. *Sociologia Ruralis*, 49 (2), 172-188.
- Kabeer, N., 2003. *Gender mainstreaming in poverty eradication and the millennium development goals* Ottawa: Commonwealth Secretariat, IDRC & CIDA.

## References

- Kelly, B., Bouvet, J.-M. & Picard, N., 2004. Size class distribution and spatial pattern of *Vitellaria paradoxa* in relation to farmers' practices in Mali. *Agroforestry Systems*, 60, 3-11.
- Koloma, Y., 2007. Microfinance et réduction de la pauvreté en Afrique Subsaharienne : Quels résultats au Mali ? Document de travail, Groupe d'Economie du développement-Lar Efi du Développement. Pessac: Université Montesquieu- Pessac IV.
- Lawrence, T.B., Hardy, C. & Phillips, N., 2002. Institutional effects of interorganisational collaboration: The emergence of proto-institutions. *Academy of Management Journal*, 45(1), 281-290.
- Lawrence, T.B., Suddaby, R. & Leca, B., 2009. Introduction: theorising and studying institutional work. In T.B. Lawrence, R. Suddaby & B. Leca (eds.) *Institutional work: Actors and agency in institutional studies of organisations*. Cambridge, UK: Cambridge University Press, 1-27.
- Lovett, P.N. & Haq, N., 2000. Diversity of the sheanut tree (*Vitellaria paradoxa* C.F. Gaertn.) in Ghana. *Genetic Resources and Crop Evolution*, 47(2), 293-304.
- Lusby, F. & Derks, E., 2006. Shea kernels from Mali: a value chain case study. *Small enterprise development*, 17(2), 36-46.
- Mayne, J., 2001. Addressing attribution through contribution analysis: using performance measures sensibly. *Canadian Journal of Program Evaluation*, 16(1), 1-24.
- Mercoiret, M.-R., Pesche, D. & Bosc, P.M., 2006. Rural producer organisations (RPOs) for Pro-poor Sustainable Development. World Bank. Washington, DC. Processed.
- Ministère-Du-Développement-Rural, 2001. Shéma Directeur du Secteur du Développement Rural (SDDR). Bamako: Ministère du Développement Rural-Cellule de planification et de statistique.
- Morduch, J., 1998. *Development Discussion Papers: The Microfinance Schism*.
- Nussbaum, M.C., 2001. *Women and human development: The capabilities approach (Vol.3)*: Cambridge University Press.
- Offe, C., 1996. Designing institutions in East European transitions. In R.E. Goodin (ed.) *The theory of institutional design*. Cambridge: Cambridge University Press, 199-226.
- P.I.R.T, 1986. Zonage agro-écologique du Mali. Tome 1. Une carte au 1/1000000, Bamako.
- Pawson, R. & Tilley, N., 1997. *Realistic evaluation*. London: Sage.
- Peacock, C., Jowett, A., Dorward, A., Poulton, C. & Urey, I., 2004. *Reaching the Poor, A call to action: investment in smallholder agriculture in sub-Saharan Africa*. FARMAfrica, Harvest Help and Centre for Development and Poverty Reduction. Imperial College.
- Peppelenbos, L., 2006. Farmer organisations and pro-poor market development. eds. *Workshop Rural Producers Organisations for Pro-poor Sustainable Agricultural Development*, Paris.

- Platteau, J.-P. & Gaspart, F., 2003. Disciplining local leaders in community-based development. August, Centre for Research on the Economics of Development (CRED), Namur.
- Ribot, J.C., Lansar, A. & Wing, S.D., 1998. Political-economic analysis of cooperatives reform in Mali: "The state is the best hen". Bamako, Mali.
- Richards, P., 1993. Cultivation: knowledge or performance? In M. Hobart (ed.) *An anthropological critique of development: The growth of ignorance*. London, UK: Routledge, 61-78.
- Richards, P., 2001. Technography: notes on methods, unpublished project document for the Convergence of Sciences Programme, International Research and Education Fund (INREF). Wageningen University.
- Roggeband, C. & Verloo, M., 2006. Evaluating gender impact assessment in the Netherlands (1994-2004): a political process approach. *Policy & Politics*, 34(4), 615-632.
- Rohlfinger, I., 2012. *Case Studies and Causal Inference: an integrative framework*. Basingstoke: Palgrave Macmillan.
- Ruysen, B., 1957. Le Karité au Soudan. *L'Agronomie Tropicale*, 2#3#4, (143-173); (249-306) et (415-440).
- Sallé, G., Boussim, J., Raynal-Roques, A. & Brunck, F., 1991. Karité une richesse potentielle: Perspectives de recherche pour l'amélioration de sa production. *Revue Bois et forêts des tropiques*, 2(228), 11-23.
- Samson, G., Grace, N., John-Bosco-Lamoris, O., Gerald, E., Philip, N. & Peter, V., 2012. Morphological variation among shea tree (*Vitellaria paradoxa* subsp. *nilotica*) 'ethnovarieties' in Uganda. *Genetic Resources and Crop Evolution*, 59, 1883-1898.
- Sanou, H., Picard, N., Lovett, P.N., Dembélé, M., Korbo, A., Diarisso, D. & Bouvet, J.M., 2006. Phenotypic variation of agromorphological traits of the shea tree, *Vitellaria paradoxa* C.F. Gaertn., in Mali. *Genetic Resources and Crop Evolution*, 53, 145-161.
- Sayer, A., 2000. *Realism and social science*: London: Sage.
- Scoones, I., 1998. *Sustainable rural livelihoods: a framework for analysis*: Institute of Development Studies. Brighton.
- Scott, W.R., 1995. *Institutions and organisations* Thousand Oaks, CA: Sage.
- Shortall, S., 2008. Are rural development programmes socially inclusive? Social inclusion, civic engagement, participation, and social capital: Exploring the differences. *Journal of Rural Studies*, 24, 450-457.
- Sidibé, A., Vellema, S., Dembélé, F., Témé, B., Yossi, H., Traoré, M. & Kuyper, T.W., forthcoming. Women, shea and finance: How institutional practices in a Malian cooperative create development impact. (Chapter 5 this thesis)
- Sidibé, A., Vellema, S., Dembélé, F., Traore, M. & Kuyper, T.W., 2012. Innovation processes navigated by women groups in the Malian shea sector: How targeting of

## References

- international niche markets results in fragmentation and obstructs co-ordination. *NJAS - Wageningen Journal of Life Sciences*, 60-63, 29-36. (Chapter 2 this thesis)
- Soro, D., Kassi-N'dja, J. & Traoré, K., 2011. Effect of the temperature and rainfall on shea tree fruit production. *Journal of Agriculture and Biological Sciences*, 2(7), 220-226.
- Terpend, N., 1982. La filière Karité ; produits de cueillette, produit de beauté. *Les dossiers faim et développement*, 90.
- Ton, G., 2010. Resolving the challenges of collective marketing incentive structures that reduce the tensions between members and their group. *ESFIM Policy brief #4*.
- Ton, G., 2012. The mixing of methods: A three-step process for improving rigour in impact evaluations. *Evaluation*, 18(1), 5-25.
- Ton, G., Vellema, S. & deRuyter-deWildt, M., 2011. Development impacts of value chain interventions: how to collect credible evidence and draw valid conclusions in impact evaluations? *Journal on Chain and Network Science*, 11(1), 69-84.
- Ugese, F., Baiyeri, P. & Mbah, B., 2010. Agroecological variation in the fruits and nuts of shea butter tree (*Vitellaria paradoxa* C. F. Gaertn.) in Nigeria. *Agroforestry Systems*, 79(2), 201-211.
- Vellema, S., Beekman, W. & Doorneweert, B., 2011. Buying, ploughing and coordinating: How to make the 2-tier cooperative business model work in the Zambezian rice value chain? *VC4PD Research Paper #9*.
- Vellema, S., Ton, G., De Roo, N. & Van Wijk, J., 2013. Value chains, partnerships and development: Using case studies to refine programme theories. *Evaluation*, 19(3), 304-320.
- Wooten, S., 2003. Women, Men, and Market Gardens: Gender Relations and Income Generation in Rural Mali. *Human Organisation*, 62(2), 166-177.
- Yaron, J., Benjamin, M. & Piprek, G., 1997. Rural finance: issues, design and best practices. Washington, DC: Agriculture and Natural Resources Department, World Bank.
- Yin, R., 2002. Case study research: design and methods, 3rd Edition (*Applied Social Research Methods*, (Vol.5), 3 ed.: SAGE Publications, Inc.
- Yossi, H. & Traoré, M., 1987. Etude bibliographiques sur le karité (*Butyrospermum parkii* (G. DON) Kotschy). Sotuba, Mali.

## Summary

Organising women into groups or co-operatives has been a key pillar of development strategies in the Malian shea sector. Supported by national NGOs, international development agencies and the Malian government women co-operation featured highly in the priority of policy makers as an instrument for pro-women development of the shea sector of Mali. As a result, development projects centred on different organisational forms of women spawned throughout the country. Besides generating benefits for women, these interventions were also assumed to improve the overall performance of the shea sector of Mali, especially by opening new market channels.

This thesis was motivated by the initial observation that only a limited number of women were actually member of the induced organisations and consequently had access to public/donor support supporting linkages to high-value markets and the adoption of new processing skills. Low membership rates raised initial research questions looking for mechanisms excluding or including women from an organisation. However, non-members played an important role in supplying the co-operative with kernels. And, one of the studied co-operatives deviated from the pre-dominant scheme targeting only international niche markets for shea butter. In particular the diagnostic study (Chapter 2) critically reflected on the premises in development policy and practice. It led to a reorientation in focus from explaining development outcomes. The focus changed from being a member of an organisation targeting profitable, international niche markets to an interest in understanding development outcomes from a detailed investigation of how women perform and act upon changeable natural and social circumstances, both collectively and individually. This observation led to a revised research question for the thesis: why and how does the performance of grouped women stay viable in changeable social and natural conditions and generate benefits for those formally excluded from the organisation?

The objective of the research was to understand the social phenomenon of how women cooperate and how practice of co-operation results in developmental outcomes. The thesis adopted an intensive case study around the performance of the co-operative of Zantiébougou. This co-operative pioneered the development strategy based on making improved butter for international niche markets, but gradually moved towards the practice of sourcing and stocking kernels for domestic and international markets. This changed, strategic orientation of the co-operative generated mechanisms affecting how non-members benefitted from collective performance. And it triggered processes that began to modify the terms under

which organised women interacted with traders and gained access to finance. These findings were generated by using a technographic line of inquiry to unravel socio-technical and institutional practices, such as sourcing, stocking shea kernels and processing shea butter. It is through the performance of such collective tasks that the co-operative relates to its social, the natural and the institutional environments. Hence, the study emphasises the practices bringing shea fruits and kernels from fields to markets.

Contrasting the intensive case study in Zantiébougou with three other community-based organisations in Dioila and Siby helped to put in context the observed collective performance in one co-operative. The study examines how the performance of a co-operative is also influenced by the availability of alternative sources of incomes for women and by the level of autonomy co-operatives have towards public authorities and development organisations.

The introductory chapter introduces the shea tree, the performance of the sector as well as its role in the political ambition of income diversification of rural women in Mali. Next, the thesis investigates how women cooperate and navigate changeable conditions in four empirical chapters (2 to 5). The concluding chapter discusses the additional value of the main findings from separate empirical chapters and their theoretical implications. This discussion further translates into methodological and practical implications as well as into policy recommendations for the wider shea sector.

Chapter 2 analyses the pre-analytical assumption of inclusive membership of women in the co-operative of Zantiébougou as condition for women access to export markets and better income. The chapter illustrates the way the co-operative of Zantiébougou moves away from this membership-based development strategy resulting mainly from the path dependency visible in the Malian support strategies to women co-operation. The chapter substantiates how the co-operative of Zantiébougou rather navigates realities and opportunities at the local, national and international levels. The case study nuanced the assumption underlying the membership-based perspective to shift attention to the practice-based capacity of women co-operatives to link their handling of fluctuations in supply to opportunities in a range of markets which in turn also opened new opportunities to a growing number of non-members. This performance of the co-operative is situated at the intersection of the social world of women and the natural world of shea, which are investigated in chapter 3 and 4.

Chapter 3 combines an in-depth investigation of the intra and inter-household patterns of social differentiation among women in Zantiébougou. It surveys in three research locations how women, both non-members and members of co-operative, generate incomes. This chapter investigates the constrained inclusion of the majority of women in organisations or



co-operatives promoted in the shea value chain of Mali. It further describes the operation of a single co-operative and analyses how people become member of it. The institutional patterns of social differentiation among women in villages and households that enable the inclusion of certain categories and the exclusion of the majority are analysed. The analytical question is the way in which the co-operative performs and reproduces these patterns of social differentiation of women. These data are crosschecked with those from three other similar organisational forms in other shea-producing areas. The chapter shows how the performance of women organisations is embedded in social and material contexts that may translate in differentiated outcomes in terms of membership and income for women. The case study of one co-operative point at processes accommodating socially embedded practices arranging both how younger women gain access to fields and trees and how households organise reproductive tasks, in particular cooking. This explains why not all women can become member, but that they still make use of the activities of the co-operative. Moreover, the co-operative of Zantiébougou relied on sourcing from members and non-members to temper the effects of fluctuation and to create a position in the markets for shea kernels and butter.

Chapter 4 investigates the fluctuation of shea fruit production and the way women both individually and collectively use know-how to act upon it. This know-how underpins the practices of sourcing shea kernels, stocking and processing shea butter. The chapter analyses three years of field observations on fluctuation in fruit production in three different agro-climatic areas of Dioila, Siby and Zantiébougou. It relates these field observations to a descriptive account of local responses to this biophysical phenomenon. The chapter tests hypotheses about agro-climatic conditions, habitat and tree girth, but this did not yield a conclusive explanation of the phenomenon. The study argued that fluctuation (in fruit production and in supply) is an emergent outcome of human practices at the intersection between the social and the material. This localised performance of the co-operative of Zantiébougou in handling fluctuation was instrumental for how organised women navigate and coordinate their performance at group and sector level.

Chapter 5 analyses access and use of working capital as a natural experiment to investigate how an external input provided to a co-operative generates or catalyses processes that affect institutional arrangements and the inclusion of a larger number of women in the sourcing of kernels. The instructive intervention used in this chapter is a loan of working capital offered by a micro-finance organisation and brokered by a platform of actors called concertation and innovation group (CIG) created in the frame of the CoS-SIS research programme. Understanding how and why an external intervention like working capital makes a difference

requires an analysis of the way in which it combines with existing practices and interactions of the co-operative with social and natural conditions. This was researched in the collectively arranged practices of sourcing and stocking of shea kernels. The study found traces of new institutional arrangement, specifically the changes within the co-operative and the interaction with other actors such as non-members, traders and micro-finance organisations, which justify the reorientation from a membership-based to a performance-based perspective on women co-operation.

The General Discussion (Chapter 6) builds upon the main findings from the empirical chapters to conclude that co-operation emerges in changeable practices rather than from formal models of an exclusive membership-based organisation. The synthesis of the main findings and the theoretical implications allow conceptualising co-operation among women as collective performance. This insight translates into methodological and practical implications as well as in policy recommendations for working on development in the shea sector in Mali. The thesis recommends that rather than institutionalising the rules of entrance or membership to a co-operative, it is of utmost importance to institutionalise practices in terms of rules that determine the effectiveness of collective performance around sourcing and stocking shea products.

## Résumé

L'organisation des femmes en groupes et coopératives a été l'élément central des stratégies de développement du sous-secteur karité au Mali. Le mouvement coopératif des femmes, comme instrument de développement du sous-secteur karité au bénéfice de celles-ci, s'est taillé une place de choix dans les priorités politiques du pays avec l'appui des ONGs nationales, des agences internationales de développement et du gouvernement du Mali. En conséquence, des projets de développement centrés sur différentes formes d'organisations des femmes ont proliféré à travers le pays. Il était attendu que ces interventions génèrent non seulement des profits pour les femmes, mais qu'elles améliorent la performance d'ensemble du sous-secteur karité du Mali en ouvrant de nouveaux segments de marchés.

La thèse a été motivée par l'observation initiale de l'adhésion limitée à ces organisations induites, avec comme conséquence l'accès d'un nombre restreint de femmes aux fonds publics, aux subventions, aux marchés lucratifs ainsi qu'aux techniques innovantes de transformation. La faible adhésion a suscité la question initiale relative aux mécanismes d'exclusion et d'inclusion des femmes par rapport à une organisation. Cependant, les non-membres jouaient un rôle important dans l'approvisionnement en amandes de la coopérative étudiée. En outre, cette coopérative s'est écartée de la ligne prédominante qui consiste à cibler exclusivement les marchés internationaux spécialisés de beurre de karité. L'étude diagnostique (Chapitre 2) a, en particulier, procédé à une analyse critique des prémisses qui régissent les pratiques et les stratégies de développement dans le sous-secteur. Ce qui a conduit à une réorientation du centre d'intérêt afin d'expliquer les résultats de stratégies de développement. De l'adhésion à une organisation ciblant les marchés niches internationaux, le centre d'intérêt s'est porté sur la compréhension de résultats de stratégies de développement à travers une recherche détaillée sur la façon dont les femmes s'accomplissent individuellement ou collectivement et agissent sur des circonstances naturelles et sociales en perpétuel changement. A la suite de ces observations, la question de recherche reformulée de la thèse est la suivante : Pourquoi et comment est-ce que la performance de femmes regroupées reste viable dans des conditions sociales et naturelles aléatoires tout en générant des profits pour celles officiellement exclues des organisations?

L'objectif de la recherche était de comprendre le phénomène social par lequel les femmes coopèrent et comment dans la pratique cette coopération aboutit à des résultats de développement. La thèse a adopté une étude de cas intensive autour de la performance de la coopérative de Zantiébougou. Cette coopérative a joué le rôle de pionnier dans la stratégie de

développement basée sur la production de beurre amélioré pour les marchés spécialisés internationaux mais s'est graduellement orientée vers la pratique de l'approvisionnement et du stockage des amandes pour les marchés domestiques et internationaux. Cette réorientation stratégique a engendré des mécanismes qui ont affecté la façon dont les non membres tiraient profit de la performance collective. Elle a également mis en branle des processus de changement qui ont commencé à modifier les relations entre les acheteurs et les femmes organisées ainsi que l'accès de celles-ci aux finances. Ces résultats ont été possibles grâce à la méthodologie de recherche appelée "technographie" qui sert à dénouer les pratiques sociotechniques et institutionnelles telle l'approvisionnement, le stockage des amandes et la transformation du beurre de karité. C'est à travers la performance i.e. l'accomplissement de ces tâches collectives que la coopérative communique avec son environnement social, institutionnel et naturel. Ainsi, l'étude met l'accent sur les pratiques qui font passer les fruits et les amandes de karité des champs jusqu'au marché.

Le parallèle avec trois autres organisations communautaires de base à Dioila et Siby, a permis de mettre dans son contexte l'étude intensive du cas de la performance collective au niveau de la coopérative de Zantiébougou. L'étude analyse comment la disponibilité de sources alternatives de revenus pour les femmes ainsi que le niveau d'autonomie des coopératives par rapport aux autorités publiques et aux organisations de développement affectent la performance du groupe.

Le chapitre introduction présente l'arbre karité, la performance du sous-secteur et sa place dans les ambitions politiques de diversification des revenus des femmes rurales au Mali. La thèse examine ensuite à travers les quatre chapitres empiriques (2 à 5) comment les femmes coopèrent et naviguent dans des conditions incertaines. Le chapitre conclusion récapitule la valeur cumulative des résultats saillants obtenus des chapitres empiriques pris individuellement ainsi que les implications théoriques. Les implications pratiques de cette synthèse sont ensuite analysées et traduites en recommandations stratégiques pour le sous-secteur karité dans son ensemble.

Le chapitre 2 examine, à travers la coopérative de Zantiébougou, la prémisse qui pose l'adhésion massive des femmes aux organisations comme condition d'accès aux marchés d'exportation et à de meilleurs revenus. Le chapitre illustre comment la coopérative de Zantiébougou s'est écartée de cette stratégie de développement basée sur l'adhésion massive qui n'est que l'une des manifestations principales des sentiers battus visibles dans les politiques d'appui au mouvement coopératif des femmes au Mali. Le chapitre met en évidence la façon dont la coopérative navigue plutôt au gré des réalités et des opportunités au

niveau local, national et international. L'étude de cas nuance les prémisses régissant la perspective fondée sur l'adhésion sans exclusive. Elle porte l'attention sur les capacités pratiques des coopératives féminines à faire l'équilibre entre la gestion des incertitudes dans l'approvisionnement et les opportunités qu'offrent les différents segments de marché. Ce qui, à son tour, a ouvert de nouvelles perspectives pour un nombre croissant de non membres. Cette performance de la coopérative est à l'intersection de la réalité sociale des femmes et de la réalité naturelle du karité qui ont fait l'objet d'investigation dans les chapitres 3 et 4.

Le chapitre 3 combine une étude approfondie des formes de différenciation intra et interfamiliale à Zantiébougou. Il étudie sur trois sites de recherche comment les coopératrices et les non coopératrices génèrent des revenus. Le chapitre examine l'inclusion limitée de la majorité des femmes dans les organisations ou coopératives qui ont pignon sur rue dans la chaîne de valeur du karité au Mali. Il décrit ensuite les opérations d'une coopérative et analyse comment les gens y deviennent membres. Les formes institutionnelles de différenciation sociale qui favorisent l'inclusion de certaines catégories de femmes et l'exclusion de la majorité sont analysées. La question analytique se rapporte à la façon dont la coopérative reproduit, à travers sa performance, ces formes de différenciation sociale des femmes. Ces données sont recoupées avec celles de trois organisations similaires dans d'autres zones de production du karité. Le chapitre illustre comment la performance des organisations féminines est ancrée dans les contextes sociaux et matériels qui peuvent engendrer des résultats différents en terme d'adhésion aux organisations et de revenus pour les femmes. L'étude de cas d'une coopérative mais en exergue les mécanismes sur lesquels reposent les pratiques sociales qui régissent l'accès des jeunes femmes aux karités dans les champs ainsi que les modes d'organisation familiale des tâches productives en particulier celle qui consiste à faire la cuisine. Ceci explique pourquoi certaines femmes ne peuvent être membre, mais peuvent bénéficier des activités de la coopérative. La coopérative de Zantiébougou s'appuyait sur les membres et les non membres pour son approvisionnement et atténuait ainsi les effets de la fluctuation tout en se positionnant sur les marchés d'amande et de beurre de karité.

Le chapitre 4 étudie la fluctuation de la fructification du karité et la façon dont les femmes utilisent leur savoir-faire individuel et collectif pour y faire face. Ces savoir-faire étayent les pratiques d'approvisionnement et de stockage des amandes et la production du beurre. Le chapitre analyse les résultats de trois années d'observation de la fluctuation de la fructification dans les différentes zones agro-climatiques de Dioila, Siby et Zantiébougou. Il fait le lien entre ces observations de terrain et les explications visibles dans les réponses locales à ce

phénomène biophysique. Le chapitre a testé les hypothèses liées aux conditions agroclimatiques, au milieu et à la circonférence de l'arbre sans parvenir à une explication satisfaisante du phénomène. L'étude soutient que la fluctuation et de l'approvisionnement est une propriété émergente résultant des pratiques humaines qui font l'articulation entre le social et le matériel. Cette performance localisée qui reflète les réponses de la coopérative de Zantiébougou au phénomène de fluctuation était capital dans la façon dont les femmes organisées naviguent et allient la performance du groupe à celle au niveau sectoriel.

Le chapitre 5 considère, comme expérience naturelle, l'accès au fonds de roulement et son utilisation. Il examine comment un appui extérieur accordé à une coopérative engendre ou catalyse des processus qui affectent les arrangements institutionnelles et favorisent la participation d'un nombre important de femmes à l'approvisionnement en amandes. Dans ce chapitre, un fonds de roulement, accordé par une organisation de micro-finance sous le courtage d'une plateforme d'acteurs appelée groupe de concertation et d'innovation (CIG) créée dans le cadre du programme de recherche CoS-SIS, est utilisé comme intervention instructive. Comprendre comment le fonds de roulement en tant que appui extérieur fait la différence, nécessite une analyse de la façon dont il concorde avec les pratiques existantes et les interactions de la coopérative avec les conditions sociales et naturelles. L'organisation collective des pratiques d'approvisionnement et de stockage des amandes a servi de terrain pour cette recherche. L'étude a détecté des traces de nouveaux arrangements institutionnels, particulièrement des changements à l'intérieur de la coopérative ainsi que dans son interaction avec d'autres acteurs tels les non membres, les acheteurs et les organisations de micro-finance. Ceci justifie le passage de la perspective qui fonde le mouvement coopératif des femmes sur l'adhésion massive vers celle basée sur la performance.

La discussion générale (Chapitre 6) synthétise les résultats des chapitres empiriques. Elle conclut que la coopération émane des pratiques qui changent au gré des conditions et des opportunités plutôt que de façon normative selon des modèles basés sur une adhésion massive à une organisation. La synthèse des résultats saillants et leurs implications théoriques permettent de conceptualiser la coopération entre les femmes comme une performance collective. Les implications pratiques de ces conclusions sont exposées et traduites en recommandations pour un meilleur fonctionnement des stratégies de développement du sous-secteur karité au Mali. La thèse recommande qu'au lieu d'institutionnaliser les règles d'adhésion à une coopérative, il est d'une importance capitale d'institutionnaliser les pratiques en guise de règles qui déterminent l'effectivité de la performance collective autour de l'approvisionnement et le stockage des produits karité.

## Samenvatting

Het organiseren van vrouwen in groepen of coöperaties is altijd een zeer belangrijk element geweest van ontwikkelingsstrategieën in de shea sector in Mali. Deze ontwikkeling werd gesteund door nationale en internationale ontwikkelingsorganisaties en de Malinese regering. In hun beleidsagenda's stond samenwerking van vrouwen in groepen hoog op de prioriteitenlijst. Dergelijke organisatievorming werd gezien als een instrument voor een voor vrouwen gunstige ontwikkeling van die sector in Mali. Het gevolg daarvan was dat ontwikkelingsprojecten, die zich richtten op verschillende vormen van organisatie van vrouwen, in het hele land als paddenstoelen uit de grond schoten. Naast dat deze projecten voordelen voor vrouwen zouden opleveren, werd verondersteld dat ze ook positief zouden uitwerken op de totale keten van de shea sector in Mali, vooral doordat nieuwe markten aangeboord zouden kunnen worden.

Het proefschrift werd aanvankelijk gemotiveerd door de waarneming dat slechts een beperkt aantal vrouwen daadwerkelijk lid was van dergelijke organisaties. Daarmee verwerven zij toegang tot steun vanuit de overheid of van particuliere organisaties en maken zij deel uit van strategieën gericht op het verkrijgen van toegang tot aantrekkelijke nieuwe markten en het toepassen van nieuwe vaardigheden bij de bewerking van shea boter. De beperkte groep van vrouwen die lid was van coöperaties riep de onderzoeksvraag op naar de mechanismen die er toe leiden dat vrouwen worden buitengesloten van of toegang hebben tot lidmaatschap. Waarnemingen wezen er echter tegelijkertijd op dat ook niet-leden een belangrijke rol in de coöperaties speelden, vooral middels het leveren van de pit van de vrucht. Bovendien werd waargenomen dat een van de coöperatie niet in het algemene patroon paste dat zulke coöperaties buitenlandse nichemarkten proberen te veroveren. Deze coöperatie richtte zich op meer lokale en regionale, in plaats van internationale, markten voor shea-botter. De diagnostische studie (hoofdstuk 2) presenteert een kritische beschouwing op de bovengenoemde veronderstellingen die praktijken van ontwikkelingsorganisaties sturen. Deze reflectie gaf mijn onderzoek een andere richting. De aandacht verschoof van vragen met betrekking tot lidmaatschap van coöperaties die zich richten op aantrekkelijke, internationale nichemarkten naar vragen die betrekking hebben op het feitelijke functioneren, maken en handelen (*performance*) van de coöperatie. In dit gedetailleerde onderzoek ging het om de vraag hoe vrouwen, individueel en collectief, handelen onder invloed van variabele en veranderende natuurlijke en sociale omstandigheden. De nieuwe onderzoeksvraag werd als

volgt geformuleerd: waardoor en hoe blijft de *performance* van de coöperatie duurzaam onder deze veranderende natuurlijke en sociale omstandigheden en kan zij tegelijkertijd van voordeel zijn voor die vrouwen die geen lid van de coöperatie zijn?

Het doel van het onderzoek was het begrijpen van het sociale verschijnsel hoe vrouwen samenwerken en hoe die praktijk van georganiseerde samenwerking leidt tot de gewenste ontwikkelingsresultaten. Het proefschrift is voor een belangrijk deel gebaseerd op een gedetailleerde studie naar de *performance* van één specifieke coöperatie, COPROKAZAN in Zantiébougou. Deze coöperatie was de eerste met een ontwikkelingsstrategie die bedoeld was om boter van hogere kwaliteit te maken voor internationale nichemarkten. Geleidelijk aan verschoof de focus echter naar praktijken rond het verwerven en opslaan van voldoende hoeveelheden van pitten voor zowel lokale als internationale markten. Deze gewijzigde strategische oriëntatie van de coöperatie zette mechanismen in gang waardoor niet-leden eveneens van de coöperatie konden profiteren. Ze leidde eveneens tot nieuwe processen die van invloed waren op de wijze waarop vrouwelijke leden van de coöperatie in de markt omgingen met mannelijke handelaren, die lokale markten bedienden. Ook slaagde de coöperatie er in toegang te krijgen tot werkkapitaal.

Mijn onderzoeksresultaten zijn verankerd in de technografische methodologie; deze onderzoekbenadering is bedoeld om de interactie tussen het functioneren van de coöperatie en de natuurlijke, sociale en institutionele omgeving te ontrafelen. In deze studie richt de aandacht zich op processen die te maken hebben met het verwerven en opslaan van pitten en het vervaardigen van shea-boter. Het is door middel van het uitvoeren van zulke collectieve taken dat de coöperatie zich verhoudt tot haar natuurlijke, sociale en institutionele omgeving. Vandaar het belang dat deze studie hecht aan de praktijken die de shea-vruchten en –pitten vanaf het verzamelen in het veld tot aan de uiteindelijke markten brengen.

Naast de intensieve case studie maak ik gebruik van een vergelijking met drie andere organisaties in Diola en Siby, in een poging om het belang van collectieve *performance* in een context te plaatsen. Daarbij onderzocht ik de mogelijkheden hoe de *performance* van de coöperatie verband houdt met beschikbare alternatieven om inkomen te verwerven en met de mate van autonomie die een coöperatie heeft ten opzichte van haar binnenlandse en buitenlandse financiers.

Het inleidende hoofdstuk 1 introduceert de shea-boom, beschrijft het functioneren van de shea-sector in Mali en geeft aan welke betekenis shea kan spelen in de politieke ambitie om te komen tot diversificatie van inkomsten van plattelandsvrouwen in Mali. In de volgende vier



empirische hoofdstukken (Hoofdstukken 2 tot en met 5) onderzoek ik de vormen van samenwerking en strategisch handelen onder veranderende omstandigheden. In het slothoofdstuk (hoofdstuk 6) plaats ik de resultaten in context, en reflecteer ik op de belangrijkste theoretische implicaties. In die discussie vertaal ik ook mijn onderzoek naar methodologische en praktische implicaties en beleidsaanbevelingen voor de shea-sector in Mali.

Hoofdstuk 2 analyseert de pre-analytische veronderstelling dat het essentieel is dat vrouwen lid zijn van een coöperatie (zoals in Zantiébougou) om de vruchten te kunnen plukken van toegang tot exportmarkten en daardoor een beter inkomen te verwerven. Het hoofdstuk laat zien hoe de aandacht van de coöperatie verschuift van een focus op lidmaatschap naar een focus op *performance*. De nadruk op lidmaatschap leidt tot pad afhankelijkheid die in laatste instantie de shea-sector beperkt. De nadruk op *performance* maakt het mogelijk om te laten zien hoe de coöperatie strategisch kan handelen bij kansen die zich aandienen in lokale, nationale en internationale markten. De case studie nuanceert daarom het belang van lidmaatschap ten behoeve van aandacht voor *performance*, de op praktische arbeid gebaseerde vermogens op fluctuatie aan de aanbodzijde te koppelen aan de diversiteit van markten. Door dat strategische handelen doen zich ook nieuwe kansen voor aan niet-leden. Ik situeer in dit hoofdstuk *performance* daar waar de sociale wereld van vrouwen en de natuurlijke wereld van de boom elkaar raken. Deze werelden onderzoek ik verder in respectievelijk hoofdstuk 3 en 4.

Hoofdstuk 3 combineert een grondig onderzoek aan de patronen van sociale differentiatie binnen en tussen huishoudens in Zantiébougou. Het verschaft eveneens gegeven over het inkomen dat vrouwen, die al dan geen lid zijn van een coöperatie, verwerven in Dioila, Siby en Zantiébougou. Uitgangspunt zijn de bestaande beperkingen tot lidmaatschap, als gevolg waarvan slechts 10% van de vrouwen lid is van een coöperatie. Meer in detail kijk ik naar de manier waarop vrouwen in Zantiébougou lid kunnen worden van de coöperatie. Daarbij blijkt dat sociale differentiatie, met name binnen een huishouden, lidmaatschap mogelijk maakt dan wel zeer bemoeilijkt of onmogelijk maakt. De onderliggende vraag daarbij is hoe het functioneren van de coöperatie deze patronen van sociale differentiatie bestendigt en reproduceert. Ook deze patronen vergelijk ik met de andere bestudeerde dorpen. Ik laat zien hoe de *performance* van de coöperatie is ingebed in sociale en materiële contexten die zich vertalen in verschillen in kansen op lidmaatschap en kansen om via dit lidmaatschap inkomen te verwerven. De relevante processen hebben betrekking op regels die bepalen tot welke

bomen vrouwen toegang hebben en welke taken vrouwen dienen te vervullen in het huishouden (jonge vrouwen in de reproductieve leeftijd die als taak hebben om voor het koken te zorgen hebben exclusief toegang tot bomen die op de akkers zijn blijven staan, terwijl andere vrouwen alleen toegang hebben tot bomen op braakgrond en in de savanne). Deze differentiatie in taken maakt dat niet alle vrouwen lid kunnen worden (koken kost zoveel tijd dat taken in de coöperatie niet uitgevoerd kunnen worden), hoewel ook niet-leden kunnen profiteren van de coöperatie. Daardoor profiteren ook de leden extra, doordat ze een hoger prijs krijgen voor hun aangeleverde product. Door toe te staan dat ook niet-leden leveren aan de coöperatie slaagt deze er bovendien in de schommelingen in aanbod te dempen, waardoor zij hun marktpositie bij pitten en boter kunnen versterken.

De fluctuatie in productie van vruchten (en dus van pitten) is het onderwerp van hoofdstuk 4. Ik laat zien hoe de praktische kennis en vaardigheid van vrouwen, individueel en collectief, hun de mogelijkheden biedt zich succesvol aan te passen aan deze aantalschommelingen. Op die wijze is dus ook het natuurlijke proces van fluctuatie van vruchtvorming verbonden aan de *performance*. De gegevens van dit hoofdstuk zijn afkomstig van drie jaar veldwerk in drie locaties in drie verschillende agro-ecologische zones (Dioila, Siby, Zantiébougou). Mijn gegevens laten zien dat bestaande verklaringen over fluctuatie in vruchtzetting niet voldoen – noch regenval in huidige seizoen of in het voorgaande jaar voorspelt productie. Ik toon aan dat bomen in akkers productiever zijn dan die op braakveldjes, wat wijst op een waarschijnlijke rol van bodemvruchtbaarheid. De dikte van de boom kon variatie in vruchtzetting ook niet verklaren. Het hoofdstuk koppelt fluctuatie in vruchtzetting aan fluctuatie in aanbod, doordat de laatste ook bepaald wordt door de adaptieve respons van vrouwen. Daardoor wordt ook het begrip fluctuatie geplaatst bij het snijpunt van het natuurlijke en sociale domein, en is zij niet slechts een natuurlijk verschijnsel. De adaptieve respons van vrouwen is een wezenlijk deel van hun strategische handelen.

In hoofdstuk 5 analyseer ik de toegang tot en het gebruik van werkkapitaal. Ik gebruik dit kapitaal als een natuurlijk experiment om te onderzoeken hoe een externe interventie processen in gang zet of katalyseert die uiteindelijk gevolgen hebben voor de institutionele arrangementen rond de shea-boom en die ook leiden tot extra kansen voor een groter aantal vrouwen bij het verwerven van pitten door de coöperatie. Het werkkapitaal werd verschaft door een organisatie op het gebied van microkrediet. Het proces werd gefaciliteerd door een platform van betrokkenen dat bekend staat als een CIG (Concertation and Innovation Group).

Het begrijpen hoe zo'n externe interventie als krediet verschil kan maken vereist een analyse hoe dit krediet samengaat met bestaande praktijken van de coöperatie in het sociale en natuurlijke domein. Mijn studie laat zien hoe dit nieuwe krediet voorzichtige aanwijzingen oplevert voor het ontstaan van nieuwe institutionele arrangementen. Met name gaat het hierbij om veranderingen in de coöperatie (inclusief criteria voor lidmaatschap) en de interactie met externe partijen (niet-leden, handelaren, financiers). Dit hoofdstuk bevestigt de juistheid van de keuze voor een benadering die zich richt op *performance* in plaats van op lidmaatschap.

Het slothoofdstuk (hoofdstuk 6) bevat een overkoepelende discussie van mijn onderzoeksresultaten. Ik concludeer op basis van mijn studie dat samenwerking (en uiteindelijk het succes van coöperaties) niet voortkomt uit processen rond lidmaatschap maar vanuit hun *performance*, de dagelijkse omgang met de boom en zijn producten, en de plaatsen waar die producten worden bewerkt en afgezet. De synthese van de belangrijkste bevindingen en een discussie van de theoretische implicaties maken het mogelijk samenwerking tussen vrouwen te conceptualiseren als collectieve *performance*, terwijl dergelijke samenwerking voorheen eerder vanuit een individualistisch raamwerk werd geïnterpreteerd. Dit inzicht leidt tot methodologische en praktische gevolgen en ook beleidsaanbevelingen die de shea-sector in Mali verder kunnen ontwikkelen. De uiteindelijke aanbeveling van mij proefschrift is dat het er niet om gaat om de lidmaatschapsregels te institutionaliseren, maar dat het gaat om institutionalisering van de praktijken die de collectieve *performance* (verwerven en opslaan van pitten en boter) bepalen.

## What is CoS-SIS?

### *1.1. Definition and Purpose*

Convergence of Sciences-Strengthening Innovation Systems is an action research programme in Benin, Ghana and Mali. It carries out scoping and diagnostic studies, agrarian system analyses and participatory field experiments with innovation platforms at the local, district and national levels. Its purpose is to identify pathways for creating opportunity for smallholder farmers in West Africa. Focusing on the enabling conditions at levels higher than the field and farm, the Programme supports sustainable intensification of smallholder farming for food security.

### *1.2. Partners and Funding*

CoS-SIS is a partnership among the Université d'Abomey-Calavi at Cotonou, Benin; the University of Ghana at Legon, Ghana, and the Institut Polytechnique Rural de Formation et Recherche Appliquée, at Katibougou, Mali; and Wageningen University, and the Royal Tropical Institute in the Netherlands. It is funded to a total of € 4.5 million for six years (end 2008-mid 2014) by Dutch International Cooperation.

### *1.3. History and future*

CoS-SIS is the second phase of CoS. CoS1 (2001-2006) focused on participatory technology development (PTD) in Benin and Ghana. It showed that smallholders can capture only limited benefits from even the best-adapted and appropriate technologies because of their constrained opportunities. Hence CoS1 researchers started to experiment with institutional change (in addition to their agronomic work). Their early results inspired CoS-SIS in that they convincingly demonstrated that institutional change is both important and feasible. CoS-SIS is currently supporting CORAF in implementing its IAR4D strategy with its West African partners.

### *1.4. Personnel*

CoS-SIS employs eight post-doc Research Associates (RAs), recruited part-time from national research organisations and universities, and nine African Ph.D. researchers. Some of the RAs are graduates of the CoS1 programme. The RAs facilitate Concerted action and Innovation Groups (CIGs) (multi-stakeholder platforms composed of key actors in an agricultural domain) at the district and national levels to experiment with institutional change.

The Ph.D. researchers work at community level with groups of local people to analyse constraints and experimentally develop livelihood opportunities. The doctoral research feeds into the deliberations of the CIGs. The work is overseen by National, Regional and International Programme Coordinators, who together form the Programme Management Committee (PMC). Responsibility for each country programme rests with a Programme Management Team (PMT) composed of senior representatives of universities, ministries, R&D organisations, the private sector, NGOs and FBOs. The PMTs and coordinators are proving to be high-level networkers and important advocates of the institutional change initiated by the CIGs and PhDs.

### *1.5. Domains reflect national priorities*

- *Benin*: cotton, oil palm (inter-cropping oil palm and annual crops, and the oil palm seed system) and integrated water management (agro-pastoral dams in the North, and rice production in valley bottoms in the South);
- *Ghana*: palm oil and cocoa (work in the domain of small ruminants ended when the RA was promoted to another location by his home organisation);
- *Mali*: integrated water management, integration of crop and livestock production (both in the Office de Niger), and shea butter (*karité*).

### *1.6. Key activities*

- Identifying key constraints that specific categories of smallholder farmers and processors experience when trying to improve their livelihoods and incomes through productive or value adding activities.
- Identifying and researching the institutional reasons for the constraints at the local and higher system levels.
- Identifying key actors, networks and mechanisms that maintain the constraints, as well as entry points for action to by-pass, or transform the institutional context to overcome them.
- Assembling multi-stakeholder platforms of key actors who can be expected to engage in institutional change in their respective domains.
- Enabling platform actors to experiment with institutional arrangements.
- Institutionalising achievements in university curricula, the programmes of research institutes, government policies, the structure of agricultural industries, and arrangements among enterprises and services and in value chains.
- Researching the processes of change and the work of the CIGs by means of real-time monitoring and a form of modified causal process tracing, based on two declared theories of change (intervention theory focused on internal and external activities and relationships of the CIGs; and power theory, focused on networks that have power to change or maintain institutional contexts linked to each domain).
- Ensuring that the outcomes of the action research are published and disseminated through international scientific media, and shared with local, national, and regional government agencies and political decision makers.



## **About the author**

Amadou Sidibé was born in Bounounko, Mali, on October 21, 1968. He obtained his bachelor and his master of science in Agronomy (phytopathology) at the tropical and subtropical faculty of the State Agrarian University of Krasnodar, Russia, from 1990 to 1995. His career as civil servant for the Malian Ministry of Agriculture started in Banamba in 2001. He was appointed head of Agriculture Sector of Koulikoro in 2005.

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**Amadou Sidibé**  
**Wageningen School of Social Sciences (WASS)**  
**Completed Training and Supervision Plan**



Wageningen School  
of Social Sciences

<b>Name of the course</b>	<b>Department/Institute</b>	<b>Year</b>	<b>ECTS (=28 hrs)</b>
<b>I. General</b>			
CoS SIS course	CoS SIS programme	2009	6.5
<b>II. Research Methods and Techniques and Domain Specific Theories</b>			
The Methods, Techniques and Data Analysis of Field Research (RDS 33306)	WUR	2009	4
Advanced social theory (RSO 32806)	WUR	2009	6
Gender and Natural Resources (IWE 33806)		2010	6
<b>III. Academic Skills</b>			
Competencies for integrated agricultural research	WGS	2009	1
Techniques for Writing and Presenting Scientific Papers	WGS	2010	1.2
Project and time management	WGS	2013	1.5
Voice matters	WGS	2013	0.4
<b>IV. Presentations of research results</b>			
CoS-SIS conferences and workshops			6
<b>V. Other</b>			
PhD Competence Assessment	WGS	2009	0.3
Writing research proposal		2009	4
Supervision of (2) MSc students during the field work in Mali		2010	2
Supervision of (1) MSc students during the field work in Mali		2011	1
Supervision (3) BSc students during the field work		2012	1
<b>TOTAL ECTS</b>			<b>40.9</b>