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A sugar-coated issue

Outcome determinants for collective action in smallholder inclusive business models in a case study of sugarcane cooperatives and outgrowers in Kisumu County, Kenya

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Date: 21st of August 2015

1. Abstract

The sugarcane sector in Western Kenya is significantly less productive than its counterparts in surrounding countries. Researchers mention corruption, mismanagement, and poor institutional arrangements as the main causes for the high costs of production. This study analyses collective action phenomena in the sugarcane growing areas, to distil outcome determinants for collective action success or failure. A business-oriented contract farming scheme in one area is compared to a cooperative-driven union structure in another. Next, the main issues are discussed, indicating the context within which these groups operate. Within this context, a survey identifies structure, conduct, and performance data of cooperatives in the Chemelil area. While some cooperatives conduct their activities in a slightly different manner, the opportunities for variation are small, and the institutional context is not conducive to investment in these groups. Finally, an experimental method is used to illustrate results using Social Network Analysis.

2. Acknowledgements

This research could not have been achieved without the assistance of the University of Utrecht in the Netherlands, and CIFOR in the World Agroforestry Centre in Nairobi, Kenya. George Schoneveld, Annelies Zoomers, CIFOR employees, and Lilian Kidula of the Kenya Sugar Board have made vital contributions to the research design. The field work was carried out in collaboration with the Kenya Sugar Board, Kisumu Sugarbelt Cooperative Union, Chemelil Sugar Company, Chemelil Outgrowers Company, Nzoia Sugar Company, and the board members of Kue, Keyo, New Odiembo, Togo, Ayucha, Ngeny, Apidi, Ponge, Guhora, and Muhuroni Multipurpose. Valuable information was provided by Solidaridad in Nairobi, the ministry of Agriculture, and a large number of bystanders in countless conversations.

On a personal note:

Utrecht University provided an excellent curriculum of development thinking, which forces participants to think critically about development issues they are presented with. This critical stance is vital to any researcher operating in the context of international development and with the cultural nuances of the social sciences. What you see is almost never what you get. I can honestly say that choosing to specialise in this field, within this faculty has changed my personal perspective, even in daily life. While I've always been overly critical (and unfortunately, sceptical at times) and widely interested in a variety of conflicting topics, a new sense of urgency and a feel for idealism has been added to the mix. Special thanks go to Annelies Zoomers, for allowing me to be my own personal guide during this thesis adventure, for emphasising that professional life is about opportunities and not about limitations, and for trying to keep me focused. Also thanks to Guus van Westen, who enthused me about the field of development studies as an undergrad, and introduced me to the captivating body of theoretical dispositions in this field.

At CIFOR in Kenya I was warmly received. It is as sentimentally silly as it is true to say that their offices have been a placeholder home during my first stay outside of Europe. The rest of us can only hope to ever work in an office environment as theirs, which is simultaneously calming and exciting. Of course, special thanks go to George Schoneveld, who was intensively involved during research design. His ability to provide input testifies of an amount of knowledge and intellectual depth that's hard to find. Also, when working with George there will not often be a dull moment, shifting back and forth between humouring and energising conversations with substance. Also thanks go to Ruth Mutinda, always the charm, helpful with everyday requirements, and an excellent kiSwahili teacher.

My fieldwork experience has often felt like a road trip with friends, thanks to the loving character of Kenyans in Western Kenya. Staying at the company club of Chemelil Sugar Company provided me with a safe working environment. The possibility to evaluate my findings at the bar, during heated debate with employees, managers and the MD, about the future of sugarcane farming in the area, has certainly strengthened the research effort. At the Kenya Sugar Board, Lilian Kidula provided me with priceless information, while connecting me to all the important people in the area. As a researcher and policy maker she is a vital asset to the sugarcane sector of Kenya. The union manager Peter was extremely helpful in connecting me to the various sugarcane cooperatives in the area and helping me arrange meetings with them in a timely fashion. All respondents in this project spent their valuable time to contribute to my research, for which I'm grateful. Not in the least I owe the board members of the cooperatives, who were often willing to spend an entire day with me to speak about their issues and successes.

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5. Abbreviations, terminology, and conversions

5.1 List of abbreviations

CIFOR	Center for International Forestry Research
COC	Chemelil Outgrowers Company
CSC	Chemelil Sugar Company
FGD	Focus Group Discussion
ICRAF	International Council for Research in Agroforestry a.k.a. World Agroforestry Centre
IFAD	International Fund for Agricultural Development
FAO	Food and Agriculture Organization of the United Nations
KESREF	Kenya Sugar Research Foundation
KSA	Kenyan Sugar Authority
KSB	Kenya Sugar Board
MSC	Mumias Sugar Company
NSC	Nzoia Sugar Company
SAP	Structural Adjustment Policies
VAT	Value Added Tax
WKSC	West Kenya Sugar Company

5.2 Terminology

Getting program	Acquiring a spot on the upcoming harvesting program of the processing mill
Making noise	The process of pressuring stakeholders by mobilising large numbers of people to start complaining
Chuth ber	The act of bribing transport and harvesting personnel in the sugarcane sector to gain favourable treatment
Eating	Using political power and position for personal gain

5.3 Conversion

Former British colonial rule accounts for the fact that most respondents use the imperial system of measure. This list of conversions can assist readers that adhere to the metric system of measure.

1 acre	0.4 hectares*	
1 hectare	2.5 acres*	
1 yard	0.9 metres*	
1 metre	1.1 yards*	
1 Euro	116.6 Kenyan Shilling (KES)*	(ExchangeRates.org.uk, 1 st of February 2014)
100 KES	0.86 Euros**	(ExchangeRates.org.uk, 1 st of February 2014)

*Values are approximations, rounded off to one decimal place.

**Value is an approximation, rounded off to two decimal places.

6. Introduction and problem statement

"At bottom every man knows well enough that he is a unique being, only once on this earth; and by no extraordinary chance will such a marvellously picturesque piece of diversity in unity as he is, ever be put together a second time."

Friedrich Nietzsche
Untimely Meditations vol. 4 – Schopenhauer as Educator

6.1 Background of research

This Research project will form part of a project between CIFOR, Utrecht University, and Joanneum Research (JR) entitled "Large-scale investments in food, fibre and energy: Sustainable options that work for forests and the poor". This LIFFE Options project comprises three working packages, of which this research will fit into the second one. Within this second working package emphasis lies on the assessment of the outcomes from large-scale land-based investments under differentiated business models. Under the guidance of both CIFOR and the department of International Development Studies at UU, the research will focus on smallholder-inclusive business models in Kenya. Since this research is not directly linked to this project, but is in essence an independent master thesis for obtaining a master's degree in International Development Studies, the focus is not linked to large-scale land-based investments. Conclusions presented in this thesis do however have implications for how researchers deal with small-holder inclusive business models in relation to farmer cooperatives. In this sense the research contributes to the body of knowledge on smallholder business models, by illustrating how smallholders cooperate in the sugarcane value chain of Kenya, through a select number of case studies.

6.2 Introduction of the topic

Within development debate smallholders are currently a hot topic. Relating to poverty the attention towards smallholder farmers cuts both ways. First and foremost, the largest part of poor people in the world are smallholders and for this reason it's exactly these smallholders that should be targeted to achieve poverty reduction. At the same time though, these smallholders are important drivers behind poverty reduction, thanks to their role as food producers. A 2008 survey estimated 500 million smallholder farmers in the world. At the same time 80% of food consumption of Sub-Saharan Africa and Asia was cared for by smallholder farmers (World Bank, 2008). In current academic literature important concepts relating to these smallholders are market access, extension services and cooperation or organisation. This notion closely fits with the main rhetoric of the big actors (e.g. the World Bank, IFAD or FAO). When reading their informative documents one can't fail to notice optimistic attitudes towards the possibilities for smallholders. Attitudes that can be grouped in three main categories: enabling, linking and organising. By intensifying and innovating smallholder farmers they could be enabled (1) to reach higher yields and greater efficiency. Then to make use of these increased yields, smallholders should be linked (2) to both local and global markets and should adhere to the food prices of these markets. Within this topic of linking farmers to markets, market access and pricing strategies are prominent examples of this focus. Then finally, farmers should

organise (3) into bigger groups, to give them more political influence and to upscale both their inputs and outputs. This should make the smallholders a powerful actor within the food chain and, more recently, also in the biofuel chain. It is this rhetoric that creates the idea of smallholders as a sleeping giant. A sleeping giant that is not using its enormous potential and should be awoken to achieve worldwide poverty reduction. This also creates the notion of smallholder farmers as a highly homogenous group.

It is this notion that this research project aims to nuance. Smallholders as a heterogenic group are far more complex than this sleeping giant narrative would like to propose. Because of this heterogeneity and complexity, the outcome determinants will vary between different groups of smallholder farmers. The factors influencing these outcome determinants will be the topic of this study. Since this research will be conducted during a four month fieldwork period by a single research student the scope will be too limited to capture the vast heterogeneity of farmer cooperatives in Kenya. Therefore a narrow geographic and sectorial focus has been decided on: cooperative collective action among sugarcane farmers in Western Kenya.

First the research compares the two main schemes for approaching smallholder inclusion in the sugarcane sector of Western Kenya: business-driven and cooperative-driven outgrower systems. In the business-driven schemes the processor of sugarcane is in charge and controls its producers through tight contracts. In the cooperative-driven scheme on the other hand, the processor deals with farmer cooperatives, creating a significantly different dynamic. The following research questions and sub questions will be central to this empirical thesis:

What are the outcome determinants for collective action and cooperation in a case study of smallholder farmers in outgrower schemes in the sugarcane sector of Bungoma and Kisumu County in Western Kenya?

To guide the research efforts, a number of sub questions were devised. Each of the questions individually deals with an important aspect of the conceptualisation of collective action that will be presented in the conceptual model.

- What distinguishes business-driven and cooperative-driven outgrower schemes?
- What differences exist between varying collective action entities?
- What are the issues that collective action bodies have to deal with?
- What characterises the composition structures of collective action groups?
- What characterises collective action conduct in this area?
- What critical success factors can be observed when comparing collective action entities?

Let results from this research show that even within this specific topic a highly diverse social situation exists, which is often overlooked when data about cooperatives is gathered on a higher level and within a broader scope. Throughout this thesis it will become clear that even within the sugarcane sector of one county within the Western Kenya region, many differences exist in the way in which cooperation between smallholders is organised. Also, empirical data might suggest that researchers should be cautious when communicating stereotypes of the potential success of smallholder cooperation.

6.3 Research approach and conceptual model

A conceptual model was constructed to hypothesise how different observations are related in the case study of sugarcane farming. Studying collective action can be problematic because of the large number of variables involved (Meinzen-Dick, DiGregorio, & McCarthy, 2004). Agrawal (2002) mentions in his research, that besides the large number of variables, the feedback relationships among variables of interests could complicate the matter even more, while both collective action and its object are adaptive and constantly changing (Wilson, 2002). Meinzen-Dick et al. (2004) propose the use of the structure, conduct, and performance framework. This framework was first introduced by Bain within the field of industrial organisation theory (Porter, 1981). Its usefulness lies in the fact that it can help distinguish and formulate the different dimensions of collective action. The framework as adapted for the work of Meinzen-Dick et al. (2004) is illustrated in Figure 1. Determining variables are those factors that influence the way groups or organisations are structured. Examples of determining variables could be historical context or a cultural tendency that favours a certain type of group formation. Group formation is conceptualised as the structure of entities, observed in the group's size or composition for example. The structure of these group entities in turn influences collective action processes, or group conduct. Group conduct can be described by observing institutional factors of group behaviour and rules of conduct. As discussed earlier, collective action is never a goal in itself, so outcomes of collective action are always important to consider. These outcomes influence other dimensions of the framework through feedback loops. This, in short, is how the framework conceptualises collective action institutionalisation.

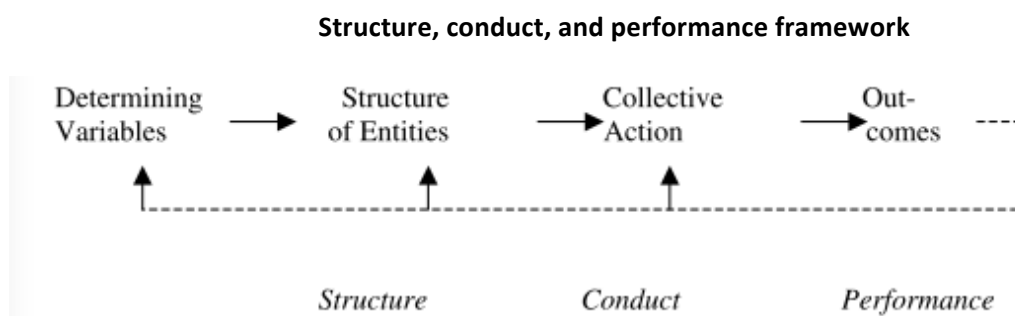


Figure 1 Schematic of structure, conduct, and performance of collective action. (Meinzen-Dick, DiGregorio, & McCarthy, 2004)

Ostrom emphasises that collective action researchers of all disciplines should endeavour to use consistent conceptual modelling, to make it easier for results to be compared between multiple research projects (Poteete & Ostrom, 2004). To achieve this goal, Vincent and Elinor Ostrom formed a collective action workshop. The Workshop in Political Theory and Policy Analysis, commonly known as the Ostrom Workshop, consists of a large number of researchers and scientists in the field, that endeavour to conceptualise collective action within a common framework. The Institutional Analysis and Development (IAD) framework attempts to explain the ways in which institutions operate and change over time. The IAD framework could be interpreted as a more holistic version of the structure, conduct, performance framework, that is specifically adapted for the study of institutional properties and change. The IAD framework has evolved often over time, and has also been adopted in uncountable ways by different researchers. A basic version of the framework, presented by

Ostrom in 2010 is shown in Figure 2. While mainly the IAD framework deals with policy and institutions on a higher level, the model is also used for collective action studies that focus on outcome determinants for group cooperation (Devaux et al., 2009; Gregorio, Science, & Hagedorn, 2008; Pandolfelli & Meinzen-dick, 2007).

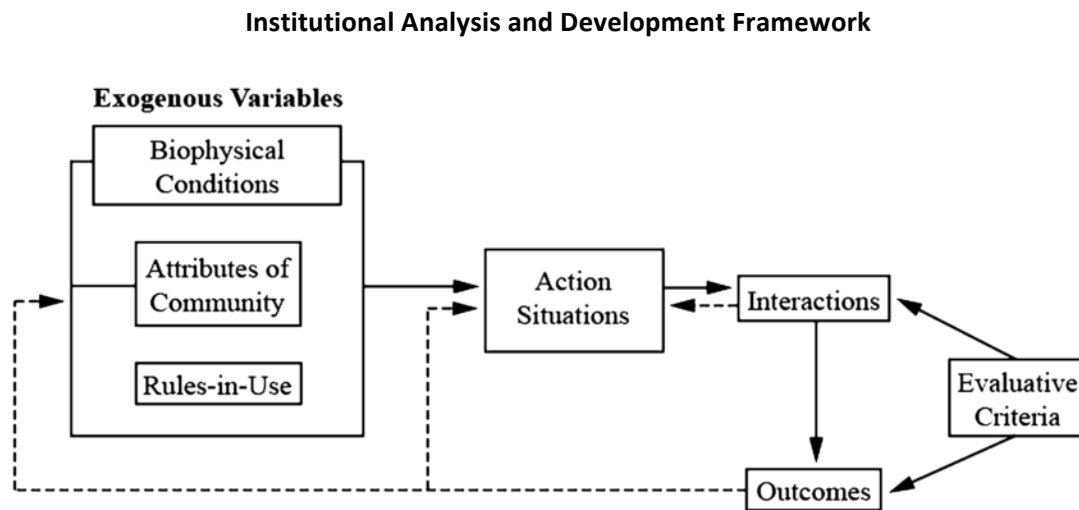


Figure 2 Basic components of the IAD Framework. (Ostrom, 2010, p. 646)

Through time the framework has become quite complex and McGinnis offers an overview of the buildings blocks that form the framework and the many ways in which it is flexible and adaptable (McGinnis, 2011). It will not be in reach of this thesis to present a complete IAD analysis of the sugarcane cooperatives in Western Kenya. The framework will be used to guide methodological decisions nonetheless, because it will help give the research a place in the existing body of knowledge, and make results easier to interpret and compare for other academics. By using a recognisable conceptual language, this research builds on existing academic perceptions of collective action processes.

The IAD framework is based on inputs, that are processed by actors, leading to outcomes that are evaluated, with feedback effects throughout the system (McGinnis, 2011). The inputs include the broader context of the collective action entity, encompassing those aspects of the social, cultural, institutional, and physical environment that form the context of the action situation. In the model these inputs are labelled as exogenous variables. The action situation is often regarded as the black box of collective action behaviour. Here, the inputs are taken into consideration and acted upon by those involved. The way in which inputs translate into behaviour is influenced by a vast number of institutional and structural components. The complex nature of this process is why it is called the black box, since it is very difficult to analyse this process. The original versions of this framework proposed an action arena, consisting of action situations and actors. This distinction was later abandoned, because it was clearer to conceptualise actor positions as rules to the action situation component. The outcome of the action situation is decided by patterns of interactions that evolve over time. When a certain interaction takes place multiple times, a pattern arises that can be institutionalised and then influence the entire system through feedback loops. In this conceptualisation, outcomes are shaped by both the outputs of the action situation and by

exogenous factors. Finally, by evaluating actions, outputs, and outcomes, participants can affect each stage of the process through evaluation and feedback (Mcginnis, 2011).

The action arena is the core component of the framework, in which individuals “observe information, select actions, engage in patterns of interaction, and realize outcomes from their interaction” (Mcginnis, 2011, p. 5). The qualitative approach of this research, in which a single researcher can gain trust and familiarity with respondents for a period of four months, lends itself perfectly for studying this black box of collective action behaviour. Therefore the conceptual model will be based on the IAD framework and the structure, conduct, performance framework in such a way that new insights can be gathered about action situations. The conceptual model as adapted for this purpose can be seen in figure 1.1. Determining variables are assumed to influence action situations, in which group structures and rules of conduct decide how the group acts collectively. These interactions, if repeated numerous times, form patterns of interaction. Through these patterns of interaction, collective actions can achieve certain outcomes, both desired and undesired.

Conceptual model of sugarcane collective action institutions

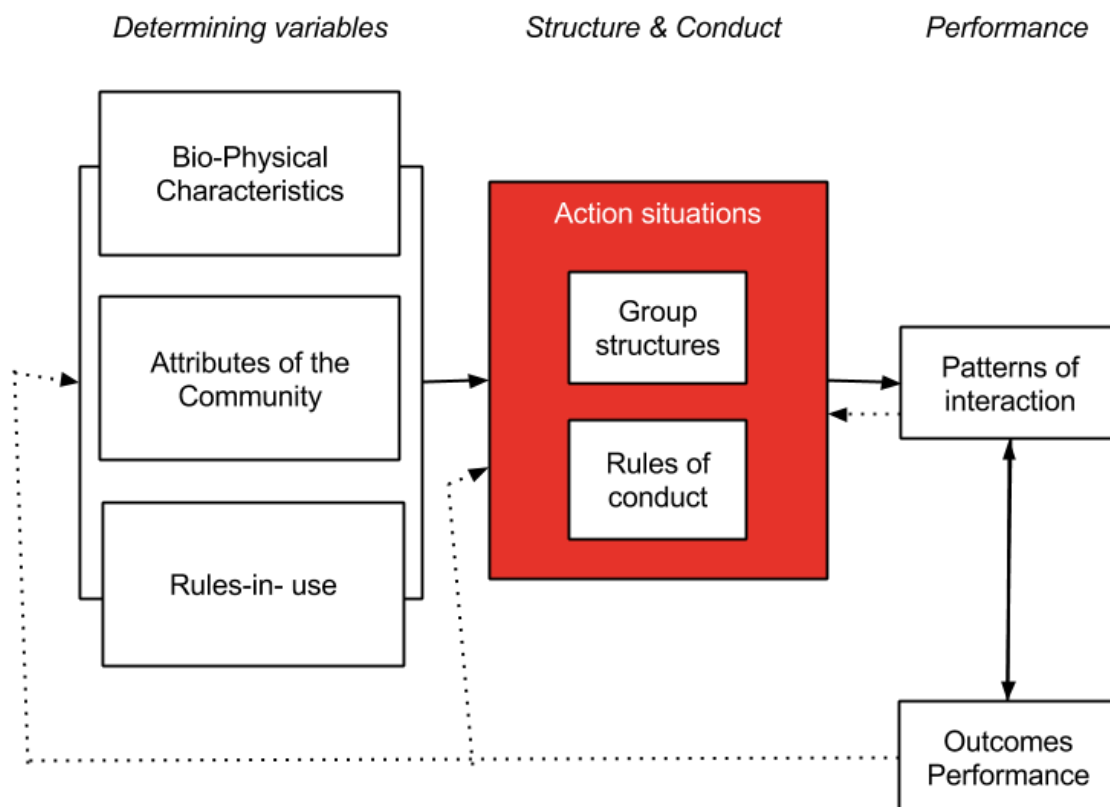


Figure 3 Conceptual model, adapted from IAD framework and structure, conduct, performance framework (Meinzen-Dick et al., 2004; Ostrom, 2010).

Literature study has identified a number of knowledge gaps that arise from the way collective action studies are normally undertaken. There is a lack of inside information from the collective action entities themselves on how they perceive issues and how they deal with them to achieve their goals. It is therefore necessary to apply existing insights on collective action behaviour to in depth case

studies. That will be the goal of this research, in which collective action behaviour in the case study of sugarcane farmers in Western Kenya is qualitatively studied.

7. Theoretical framework

"Men journey together with a view to particular advantage, and by way of providing some particular thing needed for the purpose of life, and similarly the political association seems to have come together originally, and to continue in existence, for the sake of the general advantages it brings."

Aristotle
Nicomachean Ethics, 350 B.C.E.

7.1 Ontological preface

This research project borrows heavily from many different theoretical positions. One could even say that this research is informed by theoretical positions that are different in such a degree that the very core of this research design is highly conflictuous. Many reasons underlie the choice for this hybrid perspective, indecisiveness or risk spreading not being amongst them. At first the researcher's personal position must be made clear. This research project is being undertaken by a master's student, just starting in the realm of international development, who must still come to terms with many of the schools of thought that dominate discussion. Adhering to solely one side of debate this early in the process would lead to single mindedness and would hamper the creative process of research design. While many distinctions have already been made in the process of literature research, an attempt is made to broaden the research scope to encompass institutionalist and collective action perspectives as well as ethnographic, cultural approaches to interpreting social behaviour. The second reason for a multi-theoretical focus, is that the field of international development has many disciplines cross-cutting each other on a variety of topics. And while most theories, and especially ontological and epistemological perspectives, are shared by multiple disciplines, each discipline still has its own assumptions, methodology, and basic preferences for achieving their research goals. Therefore, trying to overcome disciplinary boundaries, should simultaneously encompass accepting the fact that there could be incongruences within the theoretical framework. Theoretical positions can be interpreted as instruments in a toolbox. Different expressions of reality would necessitate the need for different instruments. It is this functional approach to academic research that will be at the basis of this research. Concepts from a variety of political economic perspectives, institutional research, sociological concepts of agency and structure and social learning, social network theories, but especially ideas from collective action literature could be useful to better grasp the complex reality surrounding networks of smallholder sugarcane farmers. It is within this multi-disciplinary rhetoric that the ontological position is grounded.

7.2 Complexity theory

Complexity theory adheres to principles of chaos and order and refutes the idea that reality can be reduced to models and theories. This notion of complexity by itself can be destructive to academic research, because if reality is too complex to conceptualise, why bother at all? Clearly though, operating from a complexity approach would not entail the disability to do research. What it does entail, is the realisation and constant awareness that theorisation and conceptualisation is never a

watertight fit to the situation on the ground. Complexity awareness also calls for abstinence from disciplinary fetishism. Although one particular discipline can give a solid representation of a certain situation, another disciplinary standpoint can oppose this position with an evenly solid representation. Consequently, acknowledging the complexity of the research topic at hand demands a fluent approach.

Sum and Jessop (2013) propose ways of coming to terms with complexity within a Cultural Political Economy (CPE) framework. The authors assume that reality is too complex to ever be grasped fully by theories or models. Instead of using theories and models the authors propose the use of meaning-making and sense-making, through the process of semiosis, to focus on the way actors make meaning and sense of reality through their cultural lens. The term semiosis has first been introduced by Charles Sanders Peirce to describe the process of interpreting signs as referring to objects. The main point of semiosis within the framework of CPE is that communication is key to the phenomena that social scientists analyse. The way to reduce complex reality, and to interpret its characteristics, should not be through modelling or theorising of reality itself, but through the study of communication about reality by the actors involved. For a large part these actors even construct this reality by making meaning and sense of situations. The cultural lens through which this meaning- and sense-making takes place is a core component of the process, which rationally prohibits the deculturalisation of phenomena. The object of study in this research then, is not reality itself, but the way it is interpreted and communicated by actors in the Kenyan sugarcane industry. Purely looking at an actor's interpretation of reality and subsequently communication about this with others, could create a blind spot. There are some phenomena that, because of their very nature, are not observable by anyone involved. For this reason Sum and Jessop (2013) apply semiosis side by side with structuration approaches. This combination will be a main component of this research; empirical data on sense-making by farmers in cooperatives will be tested against the backdrop of information on structural trends and context.

7.3 Institutionalism

Researchers have long been concerned with studying the vehicle through which structural forces on society could be captured. The institutionalist approaches are those that consider institutions to be the structural forces that influence individual behaviour. Douglas North (North, 1989) is one of the earlier authors defining institutions as "the rules of the game". This definition, while hardly academic, most clearly indicates how scientists can conceptualise institutions in an abstract sense. North theorises mostly about constraining institutions, from an economic perspective. According to North, modernisation brings forth a transition from personal exchange to impersonal exchange. Properties of both types of exchanges are summed up in Table 1. In contrast to early personal exchange, new markets and global trade create a situation of impersonal exchange, in which there is a need to measure valued attributes and enforce terms of trade. This need leads to higher transaction costs, especially contained within the need to check and control this new impersonal exchange. Institutionalists argue that political systems are inefficient in dealing with these transaction costs, because their interests lie not in efficient rules and markets, but in protecting powerful interest groups. This situation creates the need for institutions, defined by North as "rules, enforcement characteristics of rules, and norms of behaviour that structure repeated human interaction" (North, 1989, p. 1321). This view builds on earlier Neoclassical economic views that argue that output depends on costs of traditional inputs (e.g. land, labor, capital and entrepreneurship). North adds to this causal relation, the driver behind the existence of institutions,

observing how “output depends on costs of traditional inputs and costs of transacting” (North, 1989, p. 1323).

Table 1 Characteristics of personal and impersonal exchange. (North, 1989)

Personal exchange	Impersonal exchange
Dense social network of interaction	Need to measure valued attributes and enforce terms of trade
Low measured transaction costs	No repeat dealings
No formal contracting	Gains from cheating and opportunism
High production cost (no division of labour)	Needs institutions to keep transaction costs down

North also offers a view on the direction of institutional change, by using an analogy to precedent-based common law, in which past decisions become embedded in a set of rules (i.e. laws). These laws will marginally change with each new case containing new or unforeseen issues. Of institutional change is considered in this light, it is considered to be path dependent on three factors: precedent, new issues, bargaining strength of the parties. The precedent holds the current set of rules for a given situation, that holds true until a new issue comes forward. In this case the involved parties will have to bargain, resulting in new precedent being set, and in doing so marginally changing the current set of rules. North’s interpretation stresses the importance of studying not only the visible rule set of societies, but the way in which bargaining power determines formation of new rules. While North is set on formulating the constraining factors of institutions, Granovetter studies institutions in an enabling capacity. According to Granovetter, enabling institutions should be considered when studying society. Under enabling institutions, he categorises the weak ties between individuals. These ties can bridge social capital and can link different groups. In doing so, these ties enable individual behaviour and in result, economic growth (Granovetter, 1985). Putnam emphasises the attributes of the communities in institutional situations. One of the most important attributes to have a positive impact on institutions is social capital, evidenced by the density of associational networking, levels of trust in society and cohesion of the community (Putnam, 2013). This emphasis on social capital and associational networking in an institutional context, contributes to the perspective of this thesis. Not only structural and institutional factors will be considered, but also the organisation of social capital in the relevant communities.

7.4 Collective action and collective action problems

Collective action studies deal with common goods. Situations in which benefits or risks of individual actions are shared across all members of the relevant group. Because individual actions in these situations have externalities on others, the optimal choice for one individual is often different from that of the group. This incongruence is one of the main characteristics of a collective action problem. (Bandiera, Barankay, & Rasul, 2005) Two different types of collective action problems can be distinguished; collective action problems that arise when individual actions negatively affect others, and those that arise when individual actions positively affect others. When common pool resources are involved, individuals can gain direct personal benefit by exploiting these resources, which in turn negatively affects the group because the common resource pool is reduced. Examples of these collective action problems are the tragedy of the commons, management of forest resources and grazing pastures (Edmonds, 2002). Olson .. Most collective actions problems in this category relate in

some way to exploitation. Other times though, individual actions can benefit the group. While these problems are seemingly less problematic at first sight, they can be detrimental to economic success, because they reduce the incentive for individual action. Commonly referred to as the free rider problem, collective action studies theorise that people are less keen on acting when others benefit without assisting. Examples of this kind of collective action problem are maintenance investments and irrigation systems (Bandiera et al., 2005). In the case of irrigation systems, when one of the users invests time or capital in the maintenance of the system, the other users can benefit from his actions, without assisting him. Therefore the relative cost borne by this one user is very high compared to others. In collective action processes this can lead to a standstill, in which none of the actors are willing to maintain a system.

Important to note is that collective action is not problematic under all circumstances, the process of collective action is not inherently problematic. The reasons for most problems are inadequate information, conflict of interests, or the nature of the goods themselves (Poteete & Ostrom, 2004). It is therefore vital to study those circumstances that make collective action problematic. Factors that have been identified as facilitating for collective action include characteristics of the collective problem (Blomquist & Schlager, 2005), characteristics of the group, institutional arrangements, technology, and the actions of national government (A. Agrawal, 2001; Baland & Platteau, n.d.; Ostrom, 1990). In the following subsections, these facilitating factors will be discussed. First specific group structure characteristics are discussed as evidenced in empirical research, after which institutional characteristics that promote cooperation are summarised.

7.4.1 Group characteristics that promote cooperation

Collective action studies often deal with group characteristics. In collective action literature, three community characteristics are most prominently mentioned, namely socio-ethnic homogeneity, income and asset equality, and community size (Bandiera et al., 2005, p. 6). Many empirical studies have suggested systematic correlation between the ability to cooperate and the homogeneity of a community, specifically relating to ethnicity, religion and social class. (Banerjee, Iyer, & Somanathan, 2005; Banerjee, Mookherjee, Munshi, & Ray, 2001; Dayton-Johnson, 2000; Khwaja, 2009; Miguel & Gugerty, 2005).

Socio-ethnic homogeneity

Socio-ethnic heterogeneity is often a factor associated with political conflict and decreased economic performance. Sub-Saharan Africa is not only considered the poorest region in the world, but also the most ethnically diverse (Easterly & Levine, 1997). It is not wholly unexpected then, that many researchers have tried to find a link between ethnic heterogeneity and economic malfunction. While most of these studies focus on a macro-economic perspective of regions and nations, some empirical data has been gathered on community level collective action in relation to ethnicity and social heterogeneity. Miguel and Gugerty (Miguel & Gugerty, 2005) mention how the impact of ethnic diversity on local collective action is relatively unexplored in empirical research. In an effort to contribute to this knowledge gap, they undertake a microeconomic study on the relationship between ethnic diversity and local funding of primary schools and community water wells in western Kenya. Studying 84 primary schools in the region, the authors found a drop of approximately 20% of mean local school funding per pupil, when changing from complete ethnic homogeneity to average ethnic diversity. A drop in contributions to public fundraising events was the main factor influencing the reduction in school funding. Within the ethnically more diverse communities, public fundraising

events were significantly less effective than in the homogeneous communities. This relationship could still be seen after statistically controlling for socio-economic, geographic, and demographic factors. Similarly, among 667 community water wells in rural western Kenya, ethnic diversity seemed to be associated with poor maintenance of public wells. Areas with average levels of ethnic diversity were 6% less likely to have access to a functioning water well, compared to the completely homogeneous areas. This shows that the link between ethnic diversity and collective action problems holds true outside of the topic of school funding. (Miguel & Gugerty, 2005) Because of the regional focus on western Kenya, these results implicate that ethnic diversity could play a decisive role in the sugarcane cooperatives studied in this thesis. To operationalize ethnic diversity, the channels through which it impacts collective action performance need to be identified. The study by Miguel and Gugerty (Miguel & Gugerty, 2005), mentioned above, works from the assumption that social sanctions are essential for collective action success, since social sanctions are needed to tackle free-rider problems. Through social sanctions, ethnic heterogeneity can then indirectly influence public good contributions. As Miguel and Gugerty (Miguel & Gugerty, 2005) put it: "we make the key assumption that social sanctions are imposed more effectively within ethnic groups than between groups, drawing on recent social capital literature, as well as on a wealth of anthropological evidence from rural Africa on the importance of kinship in governing access to resources. This assumption implies that public good contributions will generally be lower in ethnically diverse areas because of free-riding in the absence of effective community sanctions." Besides through the channel of social sanctions, homogenous communities also perform better in acting collectively because similar tastes and opinions make it easier to reach common ground, enhancing decision-making. Alesina et al (1999) find the same in their studies, homogenous communities are more successful in acting collectively, because they can more easily agree on the characteristics of the common good. If a community is heterogenous it becomes harder to discuss the nature of the common good, obviously making collaboration more difficult. Another way in which heterogeneity can prove to be counterproductive is studied by Alesina and La Ferrara (2002). The researchers empirically test the idea that individuals might dislike working with others that are different from them, and simultaneously may not trust these others. Finally, different groups in heterogeneous communities might disagree on how to share private benefits. If this is the case, disagreement can either prevent benefits from being realised, or can create a situation in which benefits are unequally distributed within the group. A study by Banerjee et al. (2001) empirically investigates how caste and religious heterogeneity can be related to a lack in public goods provision. Based on a survey of 391 Indian districts, the share of villages with schools, public transport and electricity was seen to be significantly lower in the heterogeneous districts. (Bandiera et al., 2005, p. 479) The link between heterogeneity and public service provision is not unambiguous in all cases. The same research (Banerjee et al., 2005) shows an opposite relation between heterogeneity and the availability of water facilities (e.g. wells and hand pumps). The communities among the 391 districts that were more heterogeneous had access to a larger number of water facilities. Bandiera et al. (2005) suggest this finding might indicate differentiation among public goods, in regards to how they are influenced by heterogeneity, or might as well suggest the reluctance among Indians to share water facilities with others outside their caste or religious affiliation. While further research could clarify these kinds of anomalies, these instances show that group characteristics can't be expected to influence group performance directly. These structural factors merely offer guidelines for predicting the success of individual cases, and there will always be conflicting ways in which structural forces influence social behaviour on the ground.

Most empirical studies convey ethnic and social homogeneity as beneficial to collective performance. While this influence can be conceptualised in a number of ways, four distinct channels of influence stand out in empirical research on this subject, of which a few articles were discussed in previous paragraphs. Social heterogeneity could undermine mechanisms that sustain cooperation, such as the ability to use sanctions as enforcement of group policy. (1) Also, actors in a community which is relatively homogeneous mostly have similar views on the nature of the common good, making it easier to cooperate. (2) In addition, in some cases the people that are involved in collective action on the community level may simply dislike working with different ethnicities or social backgrounds. (3). Finally, disagreements may arise on how to share benefits or costs related to a common good, leading to unequal distribution of cessation of activities. (4)

Income and asset inequality

The influence on income and asset inequality on collective action success seems to be less obvious in empirical research than social heterogeneity. Bandiera et al. (2005) mention two channels through which this influence could manifest. First, inequality can lead to the formation of distinct group identities, which in turn increases social heterogeneity. Secondly, asset inequality often means that benefits from collective action processes are not distributed equally. Bandiera et al. mention the example of common irrigation system investment. Large landholders would likely benefit more from investment in irrigation systems, simply because they use more water. For large landholders there's often more at stake when acting collectively. A situation like this would encourage free rider behaviour from the smaller farmers, hindering collective action performance. The influence of asset inequality is far from unambiguous and will depend on the nature of the goods and local conditions for collective action processes. Olson (1965) has for example argued that asset inequality could be beneficial for collective action. If one stakeholder stands to gain a significantly large portion of benefits, he would be willing to bear the full cost of maintaining a public good. Olson's view matches with findings presented by Wade (1988), who studies the importance of local elites in providing public goods in India. Wade's data shows how unequal communities actually perform better in collective action public good provision. In the case of India this is mainly due to the institutional context of the caste system. In this caste system local elites are extremely powerful, while having responsibilities within a community. More geographically relevant data for is collected by La Ferrara (2002). La Ferrara provides evidence of how people with different incomes and possessions do not mingle in a community. Comparing villages in rural Tanzania with relatively equally distributed assets, with village that are unequally composited, she finds that village level inequality reduces the likelihood of people participating in group behaviour. This also counted for groups that shared economic benefits. This would suggest that not only within a caste system, but also in the tribal culture of rural Eastern Africa, asset inequality is an important factor to consider.

The influence of asset inequality is not only determined by the cultural context, but also by the nature of the collective action entity. When large landholders are involved, often rent-seeking situations are found in which these landholders are not willing to contribute. Banerjee et al. (2001) find that this is the case in the Indian sugar cooperatives they studied. The authors propose a theory that explains how increased heterogeneity of landholdings causes increased inefficiency, because large landholders induce a lower input price and lower level of crushing capacity. The large landholders gain most of the benefits from the lowered input prices and use their power position to make first hand use of crushing capacity of the processing plant. This eliminates their motivation for contributing to increased capacity of this plant. Dayton-Johnson (2000) studied water allocation rules

in relation to unequal land allocation in Mexican irrigation societies. The communities that were characterised by unequal distribution of land would often choose water allocation rules that favoured the richest in the community. The author studied the positive influence of redistributions of wealth on the prevalence of cooperation in regard to irrigation system management. While inequality was found to be negatively impacting cooperation, some redistribution that increased inequality would simultaneously increase cooperation. Bardhan (2000) presents empirical data that seems to be contradictory to the contribution of asset equality to collective action success. The more unequal communities tended to choose fairer rules. Banerjee et al. (2001) made an attempt to operationalize the influence of asset inequality in the sugarcane sector of India. In the heavily regulated cooperative structure of Indian sugar cooperatives, each cooperative is governed by a democratically elected board of directors. Large growers mainly occupy this board of directors, while the majority of the share owning members are small farmers (Attwood, 1993). These large growers are able to mobilise a larger group of voters than the smaller farmers, helping them succeed more easily in elections. Also, these large farmers are better equipped to deal with the outside world of politics, because of their wealth, connections and available time to undertake activities outside of farming. Banerjee et al. (2001) argue that these results are not necessarily contradictory, because both equality and collective action are concepts that are very hard to measure validly. In addition, the effect of inequality might be non-linear and can influence the dynamics of group behaviour in a myriad of ways, as evidenced by the different cases that were discussed.

Group size

Group size is difficult to link directly to collective action performance, because of the many ways in which it can be influential. Larger groups have more bargaining power in lobbying, resulting in political influence or better prices for inputs. Buying in bulk is often cheaper than making a number of individual purchases. Also, a larger groups has access to a larger number of assets and possibilities through each of its members. Simultaneously, larger groups have to deal with more issues and requests from its members. And larger groups have bigger risk of internal conflict, due to a larger collection of interests and personal opinions. This suggests that a group should neither be too large, or too small, to be able to perform collectively, which aligns with a literature review by Agrawal and Goyal (2001). They conclude that medium-sized groups are often more successful than small or large groups. Group size is also differentially important based on group activity. The authors study collective good provision with large setup costs. In this case, both small and large groups are at a disadvantage. The small groups will not profit from the collective good setup enough to make investing in the initial costs viable. Large groups do not suffer from this, but they in turn need more effort to exclude noncontributors from the benefits of the common good. Monitoring costs for achieving this goal rise with the commodity size and in turn, with the group size (Arun Agrawal & Goyal, 2001). One of the earlier hypotheses on group size and collective action as made by Olson (1965), who states that smaller groups have a stronger ability to perform collectively. Since then, group size has always been topic of debate. Wade (1988) studied irrigation groups in South India, and found that small size is not a necessary factor to achieve collective action success. Ostrom acknowledges that both large and small group size can be positive, and works from the conviction that the impact of group size is mediated by many other variables (Arun Agrawal & Goyal, 2001; Ostrom, 1997). This is the attitude that is now shared by most collective action researchers. Group size can be thought of as a vehicle through which earlier characteristics influence collective action performance.

7.4.2 Institutional characteristics that promote cooperation

For collective action theory to be useful to the case of collective action in the sugarcane sector of Kenya, it is important to know what group characteristics positively contribute to sustaining community cooperation in the face of collective action problems. Bandiera et al. (2005) propose five institutional features that are beneficial to lasting cooperation on the community level; clear and detailed rules (1), congruence of costs in relation to benefits of each participant (2), effective monitoring systems (3), credible sanctions and public punishment (4), and a forum for resolving conflicts and discussing adaptation when demanded by external factors (5). They've come to these factors through studying both game theory and insights of field studies. Interestingly, when conducting literature research it becomes clear that insights from field studies and experimental evidence from common resource and public good games is remarkably consistent. Bandiera et al. (2005, p. 475) mention for example how the ability to monitor and to communicate is usually found to foster cooperation, both in game theory experiments as in field study results.

Schoneveld (2014) argues for the importance of studying the institutional aspect of developmental change. To further increase this effort, he proposes an emphasis on four factors that are vital for institutional change: incentive, mandate, capacity, accountability.

In this section, a number of institutional factors for successful collective action processes were summed up, creating a rather comprehensive, though not complete, list of possible outcome determinants. To structure the empirical part of this research more clearly, these institutional factors will be grouped in the four categories proposed by Schoneveld. In line with his reasoning, it is assumed that these four pillars depict an accurate conceptualisation of the rules that are constructive to collective action success.

Bandiera et al. (2005), while formulating distinct institutional features, emphasise that it is often too difficult to assess the relative importance of individual features and to measure causal effects of institutions on actual cooperation. Institutional features often appear together, making it unclear to what feature cooperation successes can be attributed, and even the institutional structure itself, containing potential unobservable characteristics, can play a role in cooperation processes.

7.5 Performance

Studies that deal with measuring performance of groups often focus on activities that are relatively easy to quantify. This leads to a biased focus on certain activities, such as marketing or micro-finance (Place et al., 2004). In micro-finance studies, the default rates can be used as a performance measure for group activity. Another performance indicator is group failure, or group collapse. Hambly (2000) has undertaken such a study in Kenya, finding among women's tree planting groups that group collapse was related to inequitable social structures. Agrawal et al. (2001) measure group performance of forest councils in the Kumaon Himalaya in India. They operationalize performance as the ability to raise contributions from resident members. Specifically, they measure three variables: the number of meetings, total protection budget, and per capita contributions. Place et al. (2004) find that quantifying actual group performance is a major limitation in many research efforts. To address this gap, they set out to find ways to measure performance through case studies in Central Kenya. In these case study sites, analyzing performance was not feasible, because of the difficulty quantifying benefits and contributions of individual members. The authors note: "(..) the diversity both from the group and household surveys created numerous problems in terms of generating comparative performance variables and therefore the dataset had much less usefulness for analyzing

analytical relationships” (Place et al., 2004, p. 262). This research project is most probably not equipped to deal with this issue of measuring performance. Also, the topic at hand is not constrained to easily quantifiable indicators. Instead of shifting focus to a more measurable topic, it is important that research into the soft side of collective action is still undertaken. Based on earlier research efforts, this thesis will therefore emphasise descriptive analysis and rich information about collective activities. This limits the ability to study analytical and causal relationships.

7.6 Smallholder farming

Industries that are characterised by smallholder farmers are often plagued with market failures (Birner & Resnick, 2010). The same holds true for Kenya’s sugar industry, which almost exclusively deals with smallholder sugarcane farmers. A smallholder, or small farmer, in this research is defined as a farmer who relies primarily on family labour with modest or only occasional use of hired labour. In most cases this would correspond to farms of 3 to 5 hectares or less (Minot, 2011, p. 1). Furthermore, both landholders and land leasers are considered in this definition. Many of those smallholder farmers in the study area are considered outgrowers of the processor of their raw materials. The term outgrower describes a situation in which a company outsources the growing of its raw materials to farmers. In the sugarcane sector outgrowers are mainly smallholder farmers, who deliver their cane to one or multiple processing mill(s) that produces sugar. Outgrower business models, of which contract farming is an example, are a hot topic in international policy and are among the most debated institutional arrangements for production and marketing of agricultural commodities by smallholders in Sub-Saharan Africa (Oya, 2012). Contract farming is a form of vertical coordination in a market midway between a fully vertically integrated market, where one firm carries out different stages in the market channel, and spot markets, in which supply and demand are coordinated through prices alone (Minot, 2011, p. 1). Because of the large number of relatively small and underequipped farmers, these outgrower schemes are often a viable option for organising markets in Kenya. The intricacies of outgrower schemes and contract farming will be discussed later in this research.

7.7 Concluding

This section has positioned the research within academic debate and literature. Starting from an institutionalist perspective, the issues of cooperatives have been identified within collective action conceptualisation. This will be the relevant framework for this thesis: institutional analysis of the way in which group characteristics and group conduct can influence collective action success. It seems that empirical data is still lacking for many facets within this topic, and that there is a need for first-hand accounts by actual collective action participants, on how they deal with arising issues. As discussed earlier, most research focuses on measurable variables of group characteristics. While these studies are very useful in determining critical success factors, it seems profitable to simultaneously analyse collective action processes from an insider’s perspective. This research will not endeavour to quantify causality of collective action. The following chapter on methodology describes how this research aims to contribute to a lack of situational knowledge, through in depth descriptive analysis of a case study of collective action success and failure.

8. Methodology

"I have no data yet. It is a capital mistake to theorise before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts."

Sir Arthur Conan Doyle
The Adventures of Sherlock Holmes - A scandal in Bohemia

8.1 Introduction to methodology

In the approach to this research project lies an emphasis on methodological justification, based on the conviction that a social sciences student should be highly aware of his positionality within the research context and that it is meaning-making and interpretation of involved actors that are subjective to research, not phenomena as if they were set in stone. In addition, the approach to this research is that of an experiment, combining tried and true methods with less conventional ways of studying collective action. This attitude calls for an extensive discussion of methodology, of the choices that were made, and of the researcher's position within this sphere.

8.2 Iterative approach

The research conducted for this thesis follows an iterative approach, in which the research effort can be divided into two specific phases. In this way the methods used can be contextualised and grounded in the proper setting. First, the relevant issues and actors were identified through qualitative exploratory research. Then, on the basis of information gathered in this first phase a mixed methods approach was undertaken to both quantify and qualify the outcome determinants that drive successful collective action in the sugarcane sector.

The exploratory phase can best be described as a scoping exercise. To study collective action in the sugarcane sector of Western Kenya it can't be sufficient to start designing a research approach based solely on literature research. Collective action as a social process mainly deals with issues and problems that need to be resolved. This stresses the importance of studying collective action within the social context of the problems and issues that society has to deal with. Furthermore, within the field of development studies, where context is dynamic and where previous research should be interpreted according to the personal background of the author and the time in which it was undertaken, there is a need for being aware of researcher bias. The scale of this master's thesis, in which one research student conducts all empirical data collection, could lead to significant interpretation bias. The ontological conviction in this thesis is that all research is steered by the subjectivity of the researchers. This demands a research approach that is both flexible and open to input by local sources. Although subjectivity can't be eliminated altogether, it can be kept to a minimum. Evidently, formulating a conceptual framework and designing a research methodology a priori (i.e. independent of experience) would be counterproductive. The goal of this scoping exercise then, is to start the research project off with a sense of relevancy. Instead of informing the initial design based on information gathered from a combination of academic and digital sources, the research approach and focus was purposely left unclear throughout the initial phases of the actual research.

8.2.1 Literature research

Within the wider LIFFE Options project of CIFOR a literature search has been conducted on specific terms relating to the broader research focus. For the literature research in this thesis, these terms were used and adjusted to reflect the specific focus on collective action. Researchers in the LIFFE Options project combine exposure terms with outcome terms and population terms, a common practice in environmental sciences (LIFFE Draft Review Protocol, 2013). Because literature will be used to inform research design and is not a literature review, a qualitative search approach was chosen in favour of the more comprehensive systematic search (Booth, Papaioannou, & Sutton, 2012). The following search terms were used for gathering initial data and constructing a comprehensive overview of existing knowledge.

Exposure terms for literature research were: contract farm*, outgrower, plantation, subsistence OR small* farm*, tenant farm*, collective action, collect*, institut*.

Outcome terms were conflict*, dispute*, degradat*, impact, food securit*, insecur*, employ*, empower*, welfare, povert*, productiv*, yield, distribut*, equit*, viabilit*, sustain*, inclusive*, social mobilit*, discriminat*, efficien*.

Finally the population terms were smallhold*, small* farmer, land owner, land user, communit*, employ*, outgrow*, tenant farmer, coop*, group*.

By combining exposure terms, outcome terms and population terms in different ways an extensive overview of literature was gathered and analysed to inform most of the decisions that were made in this research.

8.2.2 Stakeholder interviews in Nairobi

The initial phase in Kenya consisted of stakeholder interviews about the sugarcane sector in the entirety of Kenya with a broad snowball sample. At first stakeholders were interviewed in both informal and formal settings in the capital city of Nairobi and in the sugarcane areas around Bungoma and Chemelil, both of which are properly defined further on. Several, often conflicting, points of view were collected during this time by talking to representatives of the stakeholders presented in Table 2. These open ended interviews gave insight in the way the sugarcane sector of Kenya is organised. The first-hand accounts perfectly complement the broad strokes and trends that are presented in policy papers and academic articles. Insider's anecdotes, while biased, created an entry into the system of communication and meaning-making that this research aims to capture.

Table 2 Initial stakeholder interviews

Organisation	Interviewee
Kenya Sugar Board	Three management employees, Nairobi office
Solidaridad	Employee responsible for sugarcane farming
Ministry of Agriculture	Two employees responsible for agriculture in Western Kenya

8.2.3 Exploratory field research in Western Kenya

Based on information gathered in the stakeholder analysis during the initial research phase, two areas were picked for further studying the context for collective action in the sugarcane sector: Bungoma County and Kisumu County, specifically Nyando Subcounty surrounding Awasi.

County location in Kenya

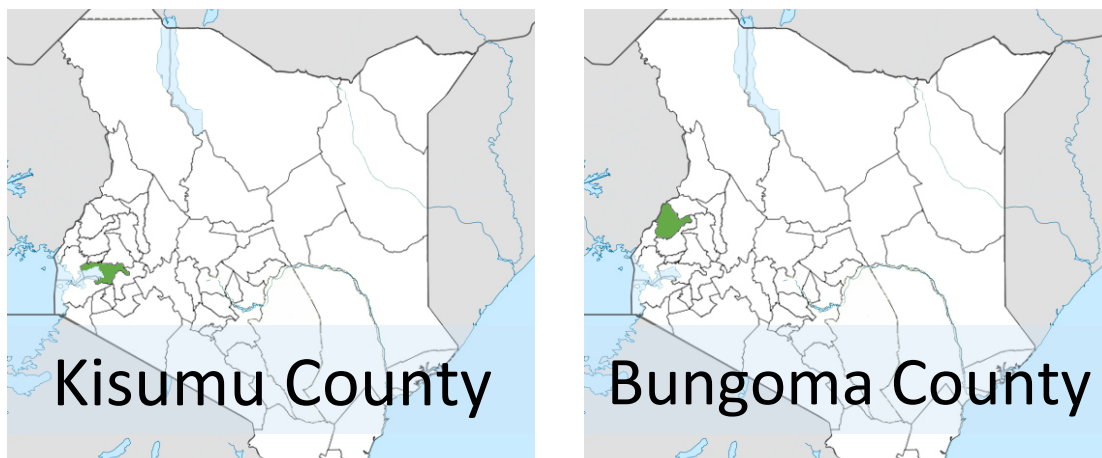


Figure 4 Kisumu and Bungoma County highlighted in green (Wikimedia, 2014).

This geographic focus was based on the apparent differences between sugarcane business models in the two areas. Early stakeholder interviews showed how in Kisumu County, many cooperatives were active, while in Bungoma County, and most other counties in the former Western Province, majority farmers were contracted directly by processing mills. This distinction will be more extensively discussed later in chapter 10. The exploratory field research was carried out during a period of two weeks, in which a number of stakeholders were visited to analyse the differences between the two areas and to gain basic comprehension of the local context. In order to carry out field work within the specified time period, a more specific focus was required within the two geographical areas. For this purpose a focus was chosen on two sugarcane mills, one in each of the areas. The respective mills are Chemelil Sugar Company (CSC) in Kisumu County and Nzoia Sugar Company (NSC) in Bungoma County. **Error! Reference source not found.** shows both areas and Figure 5 shows the mill locations within these provinces. Chapter 11 presents an extensive overview of the characteristics of the two mills and the different contexts in which sugarcane farming takes place. Limitations on the research's representativeness arising from these choices are discussed in section 9.5.

8.2.4 Field Survey

After the exploratory field research phase, a survey was carried out to capture the previously observed collective action processes and to study outcome determinants and critical success factors. From the start of this research process it's been assumed that these outcome determinants would be difficult to quantify. Also, the flexible and independent nature of the research lends itself perfectly to gathering qualitative data from an open minded position. The main goal of the survey then, was to gather qualitative data on how these collective action entities (i.e. farmer cooperatives) deal with the issues that they were confronted with in the last year. While all questions regarded the last year, recall difficulties should be considered. Most farmer cooperatives do not keep extensive records and knowledge is not processed on a year by year basis. When asking farmers about their group (e.g. size

or cane delivered to a certain mill during the last year), the information will most probably not cover the past year exactly. Earlier researchers in Central Kenya found that it was too difficult to find a common unit of time over which activities and attributes could be measured (Place et al., 2004). To minimise the effect of recall bias, respondents were repeatedly asked about the timeframe of the topic at hand. Also, by enquiring about the situation in earlier years, the respondents were reminded of the chronological distinction.

Map of the sample area

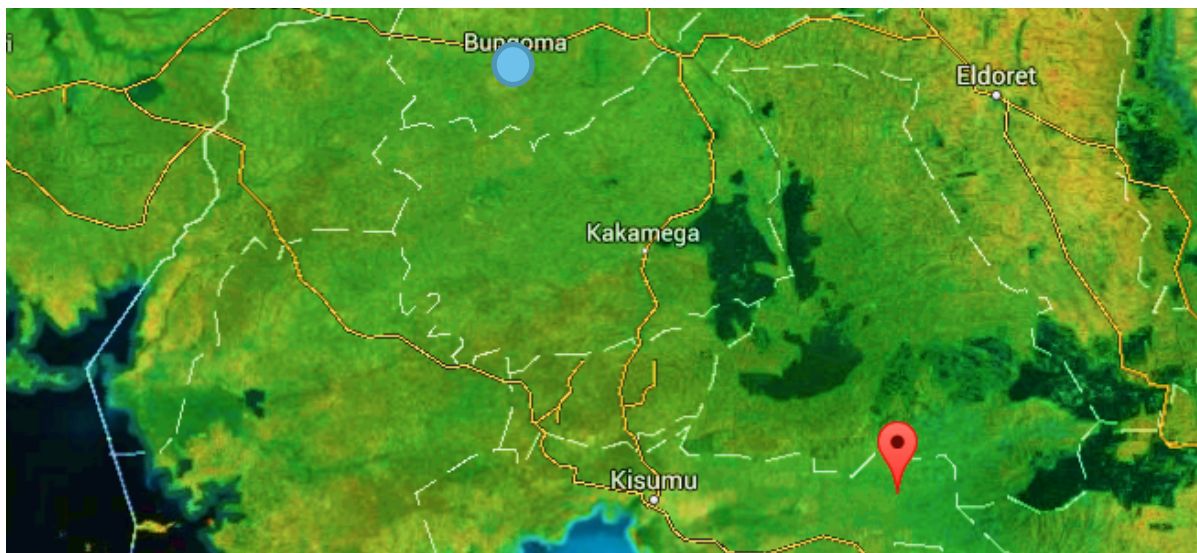


Figure 5 Locations of Nzoia Sugar Company (marked with a blue dot) and Chemelil Sugar Company (marked with a red indicator) in Western Kenya (<http://google.com/maps>, 2014).

Sample

Again, in the limited time frame a very narrow focus had to be chosen. To distil success factors of collective action processes, the area around Chemelil Sugar Company (CSC) was picked for further study, because of its relatively high prevalence of farmer groups. The contract farming scheme of Nzoia Sugar Company (NSC) reduces opportunities for collective action, by transferring a large part of decisions and the responsibility for cane farming to the miller. The CSC scheme, in contrast, relies heavily on the network of cooperative societies in the area, creating a value chain in which responsibility for maintaining and developing sugarcane lies with the cooperative society, a collective action entity, and not with the sugarcane factory.

Since collection action groups are the subjects of this research, primary cooperative societies were sampled for data collection. More specifically, only primary cooperative societies, with sugarcane development as their main occupation, that were actively delivering cane to one of the three mills in the area, were considered. Respondents were purposely sampled, because of the difficulty of contacting board members of cooperatives. Board members of cooperatives are also farmers themselves, and are only in the office at irregular hours. In collaboration with the Kisumu Sugarbelt Cooperative Union, the only active union in the area, ten cooperative societies were picked for the survey and discussion. These ten were picked because of their geographic diversity; each of the ten cooperatives was active in a different area. Because of the insignificant size of the sample population, representativeness is not achievable. The goal of this research is not to formulate statements about the complete population of cooperatives in Western Kenya, but solely to discuss

how these ten specific cooperatives are performing. This could create the entry points needed for further scientific research on a larger scale. To generate sufficient qualitative data from the survey, a request was made to speak with all four board members simultaneously. The survey was then carried out in a fashion that relates most closely to a focus group discussion. Data gathered in the survey therefore does not represent an individual opinion of one of the board members, but the result of extensive discussion among mostly four, or at the least three, board members and the researcher. The researcher attempted to keep involvement bias to a minimum, by playing a facilitating role. Flaws in this approach will be discussed further on in the chapter on limitations.

Survey and operationalisation of variables

In order to gain quantitative and qualitative insight into possible outcome determinants, the factors that can influence collective action behaviour need to be operationalised into variables.

Operationalisation of variables in the survey was based on the three main topics distinguished in the conceptual model: determinant variables (1), group structure and conduct (2), and finally performance (3). For each of these topics, variables were based on the factors that followed from literature research, presented in the theoretical framework. An overview of all survey questions and their variables can be found in appendix 3, on page 80.

Determinant variables

Geographical context is considered to be a structural force that influences the situation of the group and its variables are meant to provide insight into how the particular environment influences group conduct. Following earlier case studies, the survey limits itself to considering a reliable water source, distance from the group to the sugar company and the road conditions. The authors considered in the literature review came to acknowledge that these are important geographical factors influencing agricultural groups.

Group structure and conduct

Among structural characteristics are those that describe group composition and structure. In the survey this subsection contains chapters one through six. Basic info deals with the general information about the group. Of particular importance here is the group size variable, derived from enquiry about the number of active and passive members. The formalization chapter deals with the formal nature of the group. Operationalisation of this chapter was based on a number of earlier case studies, in which both informal and formal groups were considered. Within this research it turned out that all cooperative farmer groups in the research area are forced by law to formalize their by-laws. Furthermore, since all respondents for the survey were primary society cooperations, with the exception of one outgrowers company, this chapter was rendered obsolete during field research. Group history is often vital to understanding the current situation. This chapter of the survey measures motivations for starting the group and help that was offered to the group. It is often important to know who is involved, because groups are not stand-alone entities. These groups can be influenced for political or societal reasons, evidenced by help offered by other stakeholders. The chapter on participation deals with how members participate in the group and with the rules for inclusion or exclusion. In a sense some of these variables also measure group conduct. Part of conduct is the capacity to keep members aligned to the group, to attract new members and to exclude malicious members. Poteete & Ostrom (2004) mention how in collective action studies, variables can often measure a number of different phenomena, and a clear cut division between group characteristics and conduct factors cannot be made. One of the defining characteristics of the

groups studied in this research is the member composition. A number of variables on member composition were distilled from earlier research, discussed in the theoretical part of this thesis. Most variables deal with homogeneity or heterogeneity on a number of topics, but also education and geographical distribution of members is measured. The variables that measure conduct, describe the way in which the group operates and arranges its decision making. Within this subsection yet another distinction is made, signifying accountability, capacity, mandate and incentive. As discussed earlier, these four components are believed to be of importance when studying collective action conduct.

Performance

Performance was difficult to measure, due to the fact that most of the cooperatives interviewed didn't keep records on productivity of their farmers. The initial plan to compare yield and efficiency between the farmers of different groups was therefore impossible within the timeframe. In the research plan there was intent to measure price differences for sugarcane, since literature review emphasised this factor as an indicator for success. In Western Kenya all farmers get the same price for their product and deal directly with the buyer, so the factor of price differences was not useful in this context. Also, financial situations of the groups were sometimes unclear, due to a lack of accurate record keeping. Still, differences were observed in terms of access to resources and general success of members.

Survey introduction

On the topic of development research, Simon (2006) notes the importance of a cover letter and introduction of the topic during interviews. The survey was accompanied by such a cover letter, which was read to respondents at the start of each interview. Providing the research goals and objectives in writing helped to gain trust from respondents, because they knew they were provided the same information as everyone else. A number of authorities throughout the field research phase asked for a copy of the survey for reference. The cover letter provided these authorities with a transparent summary of activities in the area. Academic jargon is used, which might be unclear for the average reader. This was a specific choice, since in its current form the letter most accurately represents the research objective and content for authorities to refer to. All surveys were undertaken personally by the researcher, so there was always an opportunity to explain the concepts in the cover letter to respondents. This explanation helped put the respondents at ease and was vital to gaining trust in the sampled communities.

18th of March, Nairobi, Kenya

To Whom It May Concern,

The aim of this survey, which is part of an academic research project carried out for CIFOR, based in the World Agroforestry Centre in Nairobi, and Utrecht University, based in the Netherlands, is to formulate a typology of farmer groups in the sugarcane sector. This survey will focus on the many characteristics of active groups. Also, there will be ample room to discuss in depth the specific dynamics of your group.

The survey will be conducted around Chemelil Sugar Company in the Nyando region and Nzoia Sugar Company in Bungoma.

Input about your group or organization forms a key part of the research efforts. On the basis of your information, the researchers will try to gain insight into the critical success factors of agricultural

groups. Leave your contact information with the survey conductor if you want to stay informed. The information from this research project might be useful in you daily operations.

The survey should take about 45 minutes to complete. We guarantee complete privacy during the entire research process. The results will be confidential and are processed anonymously.

Thank you in advance for your collaboration. Your help is not only greatly appreciated, but also contributes directly towards a better understanding of the topic.

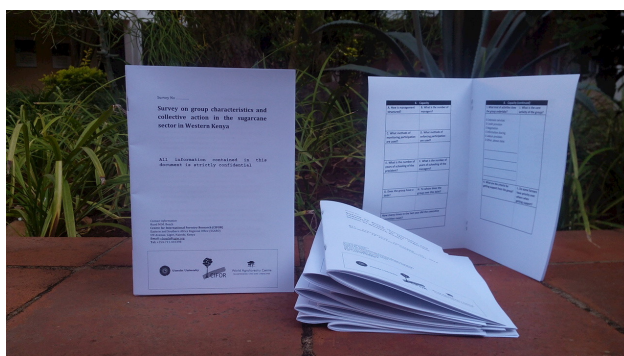
Kind regards

Survey test in the field

Simon (2006) mentions the importance of 'road testing' a prototype of a questionnaire to iron out unanticipated problems and interpretational difficulties. While for large scale questionnaires it is common practice to extensively field test a survey, for smaller scale research project this is not always a possibility. For this research, an initial draft of the survey was tested in the field by completing a small part of the survey with five respondents. Undertaking the complete survey with these respondents was not considered an option, since this would ask them to spend a large amount of time, while not having any direct implications for this research. The morality of asking participants to spend significant time on a survey in general will be discussed in chapter 1.1, but for now it suffices to conclude that it was not deemed correct to require so much time of respondents just for testing the survey. During the survey test, the focus lied on how to conduct the survey in the field. During the testing phase it became clear that a survey session in which the researcher noted the answers and took control of the conversation was highly preferred above a situation in which the respondents worked through the survey on their own terms. Bernard (2006) discusses methodology in anthropological studies, and stresses the importance of exposing respondents to the same stimuli, under the same circumstances. Given the qualitative nature of the survey and the high number of open questions, the researcher was needed to streamline discussion, and to make sure questions were interpreted homogenously among respondents.

Also, two different survey presentation forms were tested, one in which the survey was printed on standard A4 paper and stapled together in the top left corner, and another one in which the survey was printed in the form of a booklet, stapled two times in the middle. The booklet version was preferred by each of the test respondents, because it was found to be less intimidating. One test respondent remarked that the booklet reminded him of a Sunday in church, while the A4 version reminded him of an audit by government officials. For the interview setting he much preferred the former atmosphere to the latter.

Figure 6 Booklet survey



Besides testing the way in which the survey should be undertaken, the contents of the survey were discussed with a number of stakeholders in the sugarcane sector of Kenya. In particular the manager of the Kisumu Sugarcane Cooperative Union and the outgrowers manager of Chemelil Sugar Company provided valuable input into the revision of the survey. During these discussions it became clear that a number of questions were not relevant when interviewing primary cooperative societies, because the answers would be too similar. The cooperative act in Kenya regulates cooperatives in such a way, that most variables dealing with leadership or accountability are the same for all respondents. While these questions still remain relevant for the research results as a whole, it would be counter-productive to spend time on discussing aspects of the cooperatives that are almost certainly the same for all of them. For this reason a decision was made to skip certain sections of the survey during interviews with respondents. Data on these sections was then gathered in general interviews with one of the cooperative societies, the union and the Kenyan Sugar Board, and the answers are assumed to be representative for all primary cooperative societies in the sample.

8.3 Limitations

Every field research project has to deal with limitations. This is especially true for those researchers dealing with the context of a developing country. Infrastructural constraints, language and cultural barriers, political foul play, and weather emergencies are often worst enemies to researchers. In this thesis research the influence of these limitations was minimised as much as possible. Most of the limitations mentioned earlier are well known, and could therefore be prepared for. With very basic knowledge of Swahili conversation, the researcher was able to enter communities and gain rapport relatively easily. The fact that all respondents, and most of the sugarcane farmers, were fluent in English has been critical for the success of the research. No interpreters or field assistants were necessary, and the researcher was able to observe all nuances of a conversation. These nuances are often lost when working with an interpreter, introducing bias to the research methodology. The researcher has been well aware of the dangers of political association in fieldwork. To prevent even the notion of affiliation with political powers or local elites, a varied company was entertained throughout the project. During a period of two months the researcher was accommodated in the company club of one of the sugarcane mills. To prevent respondents from assuming affiliation with the sugarcane mill, all interviews and focus group discussions were held in a location chosen by the respondents themselves. The researcher would always use his own transport and means on field trips and visits to farmers and respondents, refusing offers of transportation or location facilitation. The weather has not harmed this research, since the heavy rains and floods are mostly expected and can be scheduled around. In some cases meetings had to be rescheduled due to sudden heavy rainfall. These precautions could not eliminate limitations or bias in this research though. Some of the major points limiting this research will be discussed in this chapter.

Sample area

Very early in the research process the scope was narrowed down to two sugarcane mills. This decision was vital to achieving the information that is contained within this thesis, but has also significantly hampered its scope. The two sugarcane mills of choice were both parastatal mills (i.e. government owned public companies), which are distinctly different in their way of operating from private company mills. One of these differences is the very reason for this focus: the private mills were much less forthcoming with information than the public mills. In the exploratory phase six mills were approached and a plan was made to compare a private mill with a parastatal mill. Appointments with staff of the private mills were tough and it often took days before an appointment could be made. On the opposite, the public mills were very welcoming and helpful in

providing both information and assistance. The benefit of working with a cooperative mill was judged to outweigh the risk of missing important information about collective action from a private sector perspective. Since the farmer cooperatives were to be researched, and not the mills themselves, this one-sidedness was deemed acceptable. Future researchers that can mobilise more means and contacts should however consider the differences between a private company's and a parastatal's involvement with collective action.

Respondent bias

During the survey, ten cooperatives were sampled in cooperation with the union manager. Obviously this approach is highly vulnerable to manipulation of representation. By deciding which cooperatives were, and were not, visited, the manager had a direct impact on research results. During the selection process this topic was extensively discussed with the union manager and it was agreed that a varied sample would be most beneficial for all parties involved. In collaboration, an attempt was made to select both successful and unsuccessful cooperatives. The survey deals with the last year, but a significant recall bias should be considered. The lack of record keeping means that most data cannot be properly defined by time constraints. Unfortunately this research was not equipped to deal with this issue. Attempts were constantly made to remind respondents of the fact that they should recall the situation of the past year, but it is not unthinkable that some data accidentally represents longer time spans. For this research only the collective action bodies were interviewed. Obviously this leaves a big gap of information. More in depth research is needed in collective action from a smallholder's individual perspective. Also, there are many accounts of corruption among cooperatives, and cooperatives are sometimes willing to slander other cooperative groups. This could lead to the insertion of false information into the research inputs, which can be difficult to filter out. To keep this false input to a minimum, results were often double checked in informal conversation throughout the research process.

No transcriptions

During the test phase of the survey, different focus group settings were tried out and discussed afterwards. It became clear early on, that the presence of a recording device was not helpful in stimulating an open conversation. Respondents were often preoccupied with the recording device and some outright refused discussion when being recorded. More importantly, all respondents seemed to adjust their answers slightly when they were being recorded. Because first-hand accounts of respondents are important to this research, a decision was made not to record any of the conversations. This seriously limits both the extent and validity of this research, since it is harder to check nuances in conversation afterwards. Compared to a research endeavour in which all interviews are carefully transcribed, this research project can then be considered less credible. In an effort to maximise credibility, meticulous note taking accompanied all research phases. Respondents were much less threatened by note taking, than they were by being recorded. Some respondents noted that they weren't familiar with being recorded on tape, and therefore were naturally mistrustful towards the practice. The fact that this project achieves a high depth of information, that could not be achieved when recording all conversations, supports the decision to stick to note keeping only.

Practical limitations

Personal or practical limitations also have a role to play. Especially in the case of small-scale research, undertaken by students, the researcher's health can be vital to the research effort. In this particular

project, the research student was presented with a case of typhoid fever. Fortunately, it wasn't serious enough to do permanent harm, though it was serious enough to force the student to spend a few days in a local hospital. While it is impossible to plan setbacks like these, it is important to allow some extra time in the research design to deal with unexpected situations. In this particular case, the sickness occurred during the last week, so some interviews had to be cancelled indefinitely. Because these final activities were meant to nuance existing data, the main research effort was not harmed too much.

8.4 Ethical considerations

"Always recognize that human individuals are ends, and do not use them as means to your end."

Karl Popper on Kant's philosophy
The Open Society and Its Enemies (1945, p. 102)

Several ethical problems presented themselves throughout the process. First and foremost, one must be aware of the fact that interviewing respondents asks from them a considerable time investment. In the cover letter for the survey, 45 minutes was mentioned for the conversation, but from the first board member interview onward, all conversations took several hours. Expectations of respondents had to be managed, to make sure they knew what they were getting into. Also, if respondents took the time to meet with the researcher, there had to be enough time for them to discuss all things they wanted to bring forward. Many of these interviews were carried out during the planting season, further complicating the situation of respondents skipping a day of work to contribute to this research. To prevent bias, to stay independent, and because of the lack of financial means of this thesis project, no respondents were paid for their services (exempting soda's and snacks for their trouble, which were judged to be less tricky than financial compensation).

It is easy to create false expectations in the field. Many respondents were keenly aware of the fact that foreigners often enquire about their situation before funding a project in their location. A strict decision was made to be open and transparent at all times, and the researcher stressed that it was not within his reach to assist the farmers in any way. On the other hand, the researcher promised to stay mindful of the farmer's issues after the thesis project. The possibility for action research, in which the researcher becomes operationally involved with the respondents, was ruled out early on in research design, because of the short time span of three months, and the fact that the researcher is not able to guarantee any kind of follow-up. Experience in the field showed that the intention to do good and help respondents often leads to raising false expectations and unethical academic practice. The goal of research is often gathering knowledge. Western researchers should therefore be honest and transparent about what they can and can't do, and remain quiet about what they would like to do.

Finally, decisions made in this research projects have led to serious privacy concerns. The researcher collected respondents' mobile phone address books for analysis. Permission was granted by each of the participating respondents before copying the data. The researcher would then be in possession of names and corresponding phone numbers of thousands of people in the research area. These people had never given permission to participate in any research effort. To deal with this, names of these contacts were deleted in the presence of respondents, keeping only the list of phone numbers. Before analysing the data the phone numbers were also transformed into unrecognisable numbers by switching two randomly chosen numbers in all of the phone numbers. Finally, only numbers of 9 digits, excluding the country code, were kept. Since it's common practice to save PIN codes and other highly personal information as contacts in phones, all deviating numbers were thoroughly deleted from the database.

9. Regional thematic framework

"The reality is not a function of the event as event, but of the relationship of that event to past, and future, events."

Robert Penn Warren
All the King's Men (1946)

9.1 Agriculture

African agriculture has long been characterised by slow growth, low factor productivity, and unfavourable terms of trade. To tackle these problems and to promote high and sustainable economic growth, food security and poverty reduction, many macroeconomic, sectoral and institutional reforms have taken place in the East-African region. While these reforms have been successful in certain regards, and while agricultural growth is evidenced throughout the region, the sector's growth has still remained insufficient to adequately address poverty, attain food security, and lead to sustained GDP growth on the continent (Dessy, Ewoudou, & Ouellet, 2006).

As with many sub-Saharan African countries, agriculture in Kenya is the largest contributor to the gross domestic product (GDP). In 2007 the agricultural sector accounted for about 24% of the GDP. In the context of GDP and economic development it is often common practice to focus on cash crops. The main cash crops in Kenya are tea, horticultural products, sugarcane and coffee. Of these cash crops, tea, coffee and sugarcane are grown in the highlands of Western Kenya, which are the most fertile and form Kenya's most productive agricultural region. Alongside the previously mentioned cash crops, farmers mostly grow corn, wheat and pyrethrum. (Wawire, Kipruto, Shiundu, Otieno, & Maina, 2011). Agriculture is the backbone of the Kenyan economy. While the service sector has recently outpaced agriculture, contributing to 60 per cent of the GDP in 2010, the majority of the labour force, around 75 per cent in 2010, is still accounted for by agricultural labour. This underlines the importance of the agricultural sector for job creation and poverty reduction (Salami, Kamara, & Brixiova, AfDB, 2010). This agricultural sector is mainly dominated by smallholder farmers who own the majority of fertile land and produce most of the crop and livestock products (World Bank, 2007). The fact that the agricultural sector is dominated mainly by smallholders accounts for many of the challenges that the sector faces. Smallholder farmers often have to deal with productivity issues due to lack of market access, credit and technology. Besides lacking access to resources, the smallholders are also vulnerable to the volatile prices on the food market, shifting energy prices and the global financial crisis.

These smallholders are a diverse group. When categorised on the basis of farm revenue, one could distinguish smallholders ranging from those producing crops only for family consumption, the so called subsistence farmers, to smallholders earning as much as USD 50,000 a year (Dixon, Tanyeri-Abur, & Wattenbach, 2003). What characterises most of the smallholders though is that decision-making processes and planning are mostly performed by families and households, operating within a network of relations at the community level (Salami, Kamara, & Brixiova, AfDB, 2010). It is because of this composition that the smallholder sector influences the poor so directly. In the 2008 World

Development Report, a section on East-African agriculture stated that GDP growth originating in agriculture is about four times more effective in reducing poverty than GDP growth by other sectors (World Bank, 2007). This underlines the need for research into inclusive business models in the agricultural sector of Eastern Africa, especially research that focuses on the role of smallholders in this sector.

9.2 Sugar sub-sector

Kenya's sugar subsector has gone through a turbulent evolution, and it is important to consider its history when discussing the current state of affairs. The first sugarcane was brought into the country by Indian workers. These Indians worked for the British colonial rule in their effort to establish a railway line between Mombasa, a coastal city in Kenya, and Kampala, the capital city of Uganda. The first sugar production plant, Miwani, was erected in West Kenya by Indians that started to engage in agricultural activities after the railway project had come to an end (Nzoia Sugar Company employee, 21 February, 2014; Wanyande, 2001, p. 124). Sugarcane to Miwani was supplied by large-scale farms that were run under colonial conditions, using forced labour to develop sugarcane. After independence, Kenyan government wanted to boost agricultural output and become self-sufficient in sugar. To achieve this goal, the Swynnerton Plan of 1954 and Sessional Paper No. 10 of 1965 were adopted (Wanyande, 2001). The Swynnerton plan introduced private property rights, in a tenure system that allowed Kenyans to register land and own title deeds. The reasoning behind this plan was based on empowering Kenyans to grow export cash crops, and to break with the past of white settler and Asian dominance in the agricultural sector (Migot-Adhola, 1984). Himbara (1994) proposes the notion of Kenyanisation to describe the political climate of post-independence Kenya. The state stepped in to play an entrepreneurial role and develop a number of sectors. Kenyan capitalists were supposed to step into these sectors later on in the development process. Interestingly, since the Kenyan capitalist class was not yet in place, this meant that the Kenyan government took upon it the dual function of state capitalism, and developing a capitalist class to take over this role. Unfortunately, at this time ethnical tension started to arise. In Kenyan politics, political leaders often favour and represent members of their own ethnic tribe (Wanyande, 2001). After independence, this meant that the Luo, who constitute the largest ethnic tribe in the sugarcane area of West Kenya, felt they were being left out by the president Jomo Kenyatta, who was a Kikuyu. This ethnic tension increased when the then vice-president Oginga Odinga, who was a Luo from West Kenya, left the government, with accusations of unequal allocation of resources between the regions (accounts of numerous respondents, February, 2014). These ethnic distinctions can still be observed today in the sugar industry, and will be discussed later in this thesis. The ethnic tensions did not stop the government from heavily supporting and subsidising the sugar industry. Large pieces of land were acquired and turned into settlement schemes. In these settlement schemes, land was distributed to landless and poor Kenyans. In addition, the government provided subsidies, extension services and credit facilities to these new farmers. Six sugarcane processing mills were set up in West Kenya by 1980, of which five were state owned, to compete with the private mills that were already operated by Indians in the area. In light of this development, the sugar industry in West Kenya was heavily dominated by the state in 1980 (Adam, Collier, & Ndung'u, 2011, p. 218). The selling of sugar was dominated by a trading board, which has long been common practice in African countries after independence. In Kenya a state agency, the Kenya National Trading Company (KNTC), distributed all wholesale and retail commodities in the country. The KNTC had a monopoly on buying sugar from the processing mills, so was able to determine a fixed price. This fixed price eventually lead to a lack

of incentive among farmers for increasing productivity (Wanyande, 2001). This approach of a state monopoly through parastatal (i.e. government owned) marketing boards came under scrutiny during the rule of president Daniel Moi, the second president of Kenya. One of the leading recommendations for future progress followed from the Waruhiu commission, advising Kenyan government to approach the World Bank for development assistance. The parastatals created a crisis in Kenyan economy that could not be solved, because of a lack in financial and technical capacity of the government (Republic of Kenya, 1979, p. 28). The World Bank and IMF proposed reforms that were mainly based on privatisation. These propositions, combined with tied aid conditions by donor countries, lead the Kenyan government to come up with an extensive privatisation plan in 1991, involving 139 parastatals (Himbara, 1994).

During the nineties, international policy was based on the ideology of liberalisation. Liberalisation of markets and privatisation was supposed to enhance economic growth and improve development performance. According to this doctrine, to achieve growth, developing countries needed to remove price controls and open their borders to international trade. Opening borders would not only attract foreign direct investment, but would simultaneously provide opportunities for sharing knowledge (Aseto & Okelo, 1997, p. 26). President Moi was keen to distance his government from the perceived corruption and monopolisation of the state marketing boards, such as the KNTC. By endorsing privatisation processes was able to please voters, but was also forced to leave behind his earlier ideology of protectionism (Aseto & Okelo, 1997). For the sugar sub-sector this would mean the imminent privatisation of a number of parastatal processing mills. The Sugar Sub-sector Restructuring Study (SSRS) proposed privatisation of Mumias, Chemelil and Muhoroni, sale of government shares to the public, hiring of external consultants and the introduction of performance contracts for factory management (Omolo, 2005, p. 3). This privatisation process was paired with market liberalisation policies, opening the market to sugar imports and removing price controls. At the moment Kenyan local producers were not able to compete with international suppliers, leading to a crisis that almost led to the collapse of the sugar industry. Millers could no longer sell their cane, because the market was flooded with relatively cheap sugar imports from abroad.

While in the late nineties the sugar sub-sector was at an all-time low, the Sugar Act of 2001 was enacted to bring new life into the sector. The newly formed Kenya Sugar Board (KSB) was tasked with developing the sugar industry and to formulate new regulations (Omolo, 2005). In this task the KSB would follow the Kenya Sugar Authority (KSA), which had previously failed to achieve similar goals. Since the Sugar Act, several milling companies have been established. While these companies were initially parastatal, some were privatised later on. The political landscape in West Kenya has calmed, especially due to the establishment of multi-party politics in 1992. The new political system has somewhat nuanced the ethnic differences. However, as evidenced by the well documented outbursts of violence after the 2007 elections, ethnic differences and patrimonial relations are still determining factors in Kenyan politics. As Ng'ethe et al. (2004, p. 18) put it: "while the change in government and the recent reform initiatives are very significant, they are unlikely to be sufficient to address the underlying problems of the pernicious role of patronage in politics."

Currently sugarcane is grown in the Western, Nyanza, Rift Valley and Coast provinces. The sugar subsector is an industry that supported over 6 million Kenyans directly or indirectly in 2011, including 260,000 small-scale farmers that were active in sugarcane cultivation. These small-scale farmers provide 90% of the countries raw sugarcane for production, the other 10% being provided by large-

scale farmers or the sugar milling factories themselves, through their nucleus estates (Wawire et al., 2011, p. 8). The sugarcane sector in western Kenya is far from uniform. A number of areas can be distinguished in which both social and economic structures are vastly different. Also, geographic and weather variability change the prospect for sugarcane farming from area to area. Unfortunately the region still has to deal with many inefficiencies and boundaries to effective sugar production. Policies are often inconsistent, and institutional and marketing structures are weak. Even the Sugar Act of 2001 is not able to deal with the poor performance in the sub-sector. One of the main flaws of the Sugar Act is that it gives the government too much control in the management structure of the milling companies and the Kenya Sugar Board (KSB). The farmers and farmers' organisations in turn, do not have sufficient power to control the KSB or the milling companies (Omolo, 2005).

9.3 Sugarcane mills

The Kenyan Sugar Board main office is stationed in Kisumu, the second largest city of Kenya that lies on the shore of Lake Victoria. In an interview with a representative of the Kenyan Sugar Board, the different sugarcane factories in the area were discussed. The Kenyan Sugar Board divides the area into three zones: Western, Nyanza and Coast. Sugarcane production at the coast had ceased to operate some time ago, because of politics and corruption, which left Western and Nyanza as the two main areas of sugarcane production. Interestingly, these areas are considered to be completely different in the way sugarcane farmers are organised. Four sugarcane mills are currently active in the Western area, namely Butali, Nzoia, Mumias and Western Kenya Sugar Company. Mumias stands out as the largest processor of sugarcane. It's operations also vastly differ from the others, because of its early privatisation. This privatisation has created an influx of investment funds that have been used for diversifying mill operations (KSB employee, 6 March 2014). Besides processing sugarcane for the production of raw sugar, the mill now uses bagasse to generate electricity for the Kenyan Power grid. Furthermore, the mill uses its power supply for bottling water, which is being sold under Mumias brand. The other mills have not yet had this opportunity, or will never get this opportunity because of their modest size compared to Mumias (KSB, 2011; Wawire et al., 2011) Most articles found in literature research concerning sugarcane in Western Kenya deal with Mumias. Being the largest processing mill for sugarcane in the country, the company automatically attracts the most foreign attention. Following the academic conviction of contributing knowledge to existing gaps, Mumias was purposely not chosen for further study. In Nyanza in turn, three millers are responsible for most of the processing: Chemelil Sugar Company, Muhoroni Sugar Company, and Kibos. The first two are parastatal, government-run factories and the latter is a private Indian-owned factory.

The sugarcane sector revolves around the millers, operating both privately and publicly. Smallholder farmers growing sugarcane are forced to deal with these millers, to turn their raw produce into sellable processed sugar. Sugarcane deteriorates quickly, so there is no market for farmers outside of the few millers in their specific area. Just as much as the farmers are dependent on the miller this way, the millers are dependent on their farmers for supplying a steady supply of raw sugarcane to keep their machines running at optimal capacity. To deal with the insecurity of fluctuating cane supply, all millers except one employ a nucleus-outgrower scheme. In such a situation the mill owns and operates a nucleus-estate, with the dual purpose of maintaining a steady flow of sugarcane input on the one hand, and experimenting with efficient cane growing methods on the other. West Kenya Sugar Company is the only company without a nucleus-estate, and because of this they are sourcing cane outside of their own region. This so-called cane poaching is detrimental to the planning of the

other factories and is considered by many to be a threat to the sector. Several officials at the KSB have noted the fault in granting this company a license to mill sugar, for which normally a nucleus-estate is a requirement.

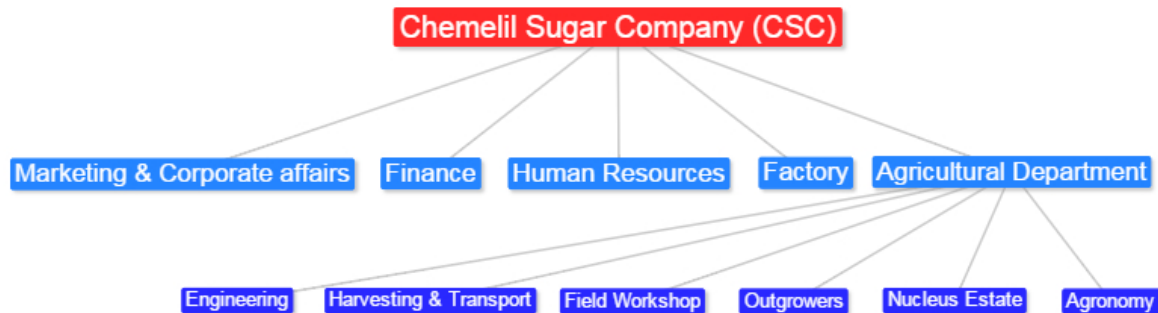


Figure 7 Company tree of Chemelil Sugar Company (CSC).

Organisational structures comprise of a number of departments (e.g. the company tree of Chemelil Sugar Company as seen in figure 6). The agricultural department is responsible for producing the raw materials needed for producing sugar, mainly unburnt, mature sugarcane. Since this research deals with collective action among sugarcane outgrowers, the outgrower department is the most relevant section of the factory. The main goal of the outgrower department is providing farmers with support services, in which it is assisted by the field workshop, harvesting & transport department and the agricultural engineers.

The field workshop is responsible for use and upkeep of all equipment that is used in the field (e.g. tractors and ploughs). While it is not common for the mill to assist the farmer with machinery, in some cases the outgrower department can decide to provide material assistance in collaboration with the field workshop. The harvesting and transport department is responsible for programming the harvest of sugarcane to fit the need for raw material of the processing plant. Obtaining a spot on the harvesting program, or “getting harvest”, is vital in the local politics of sugarcane farming. Finally, the agronomists are occupied with adoptive research, to increase sugarcane growing efficiency and research new cane varieties. While agronomy is highly important for the sugarcane sector as a whole, the outgrowers generally do not deal with the agronomy department, and is therefore less relevant in the context of studying collective action. The outgrowers department is responsible for all sugarcane farmers in the area, with the exception of the nucleus estate, owned and developed by the mill itself. In this capacity, the outgrowers department is an important stakeholder in the collective action situation. The employees of this department are the contacts that connect the mill and the outgrowers. They ensure that important issues that the farmers deal with are picked up by the mill and provide farmers with information about mill schedules and policy changes.

This research was performed in close collaboration with two of the sugarcane mills: Nzoia Sugar Company in Western Kenya and Chemelil Sugar Company in Nyanza. Nzoia employs a business-driven outgrower scheme, with tight contracts for its suppliers, while Chemelil works with cooperatives. The differences between these two approaches, and the advantages and disadvantages of each will be discussed in the next chapter.

10. Business-driven and cooperative-driven outgrower systems

As discussed in the methodology chapter, two areas were considered for sampling in this thesis. Interviews with factory employees, managers of the Kenya Sugar Board and several sugarcane farmers all gave insight in the differences in the way collective action is organized in Bungoma County and Kisumu County. The latter area contains a large number of cooperatives. Farmers there are not contracted by the miller and cooperatives arrange themselves. The three main active millers in this area, Kibos, Chemelil and Muhuroni, get most of their cane delivered through cooperatives or outgrower companies and do not employ contract farming schemes (manager Kenyan Sugar Board, Kisumu, 6 march 2014). For the purpose of this research, this kind of arrangement is considered a cooperative-driven outgrower scheme. In Bungoma County on the other hand, most smallholder farmers are outgrowers in a formal contract farming scheme. In this chapter the general observed differences between these two situations will be discussed.

10.1 Business-driven outgrower scheme

Nzoia Sugar Company (NSC) in Bungoma County was visited several times, and serves as an example of a business-oriented outgrower scheme. NSC is a parastatal sugarcane processing mill. Just like all processing mills in this county (a.o. the privatised Mumias Sugar Company and the Indian owned private West Kenya Sugar Company), NSC maintains formal contracts with its farmers. NSC acquires inputs (e.g. seed cane and fertilizer) for the farmer and provides necessary extension services. They maintain contracts of 3 harvests, which therefore last 5 to 6 years. Because most farmers are not able to plant and develop cane themselves, and because organisations are not strong, NSC ploughs, harrows, farrows and is actively involved in all stages of sugarcane development. Formal and informal organisations outside of the company are too weak to handle this task themselves at this point (Nzoia employees, February 2014; Kenya Sugar Board employees, February 2014). The company has made earlier attempts to step back as main provider of extension services, due to the high costs involved. For this purpose an outgrower company was set up, called Nzoia Outgrowers Company (NOCO). NOCO is currently not active and has collapsed due to bad management, corruption and financial problems (Nzoia employee, Bungoma, 26 february 2014). NOCO was visited as part of this research project, and while a few administrative employees were still occupying the building, it was unclear in what capacity the outgrowers company was operating. All farmers that were interviewed in the Bungoma area accounted that NOCO had been inactive for years, and that all extension services for their sugarcane development was provided by the factories.

One of the Nzoia area managers gave insight into the relation between farmers and the miller in this contract farming scheme (Nzoia area manager, 30 February 2014). An overview of this relationship is presented in the table below. Farmers must meet certain standards before they are allowed to join the contract scheme of the miller. While exemptions are made, farmers with too small or unfertile land will have trouble stepping into sugarcane farming.

Table 3 Stages of mill-smallholder interaction in NSC contract farming scheme. (Interview with Nzoia area manager, Bungoma, 30 february 2014; Factory tour and field visits around Bungoma, February 2014.)

Stages of mill-smallholder interaction in NSC contract farming scheme

Farmer recruitment	<p>Nzoia employees approach farmers during field meetings or Baraza's (i.e. political meetings organised by local chiefs). These Baraza's always deal with sugarcane, because it dictates 90% of economic activity in the area. If a farmer is interested in contracting Nzoia Sugar Company, he is given an ID number and the representative registers his willingness to be contracted.</p> <p>The farmer is then assessed on the basis of these demands:</p> <ol style="list-style-type: none">1. Size of the plot should be 0.2 hectares2. Accessibility must be acceptable3. The plot must be fertile4. Distance to the farmer's plot must be acceptable5. Ownership of the plot is verified6. History of the farmer is checked (debts and earlier dealings with NSC)
Extension services	<p>NSC arranges all extension services that are needed in the development of sugarcane. Examples are advice on disease control, pesticides and general education on good farming practice. The field staff will assist illiterate farmers in all stages of development.</p>
Input provision	<p>The company provides both equipment and materials on credit for their farmers. Materials that are provided are mostly fertilisers, seed cane for planting a new ratoon, and spray against termites or ants. During ploughing, harrowing or farrowing equipment can be loaned from the factory. Also the extension officers help with surveying land to judge if it is suitable for sugarcane farming</p>
Harvesting	<p>NSC keeps records on all sugarcane in the area in the form of a cane census. Based on this census a harvest program is made per ID number. Some of the farmers can harvest or transport themselves, which is slightly cheaper. Most farmers depend on the miller's tractor fleet.</p>
Payment	<p>The company always pays farmers through banks. If the farmer does not have a bank account he gets a cheque. Payment documents are prepared by NSC employees and can be obtained by showing a weighbridge receipt, which is obtained when delivering cane to the weighbridge. The receipt specifies the cane tonnage.</p>

The strict formal contract farming scheme is closely linked to vertical integration, in which different stages in the value chain are controlled by one company. Solidaridad staff in Nairobi noted that contract farming is an interesting scheme, because the farmer-mill relationship is so different from other schemes in Kenya. The scheme is known to reduce farmer cooperation and collective action processes (solidaridad staff, Nairobi, 12 March 2014). During a field day visit in which farmers were educated on a variety of farming related topics, the researcher assisted in teaching new cultivation techniques to farmers. During this field day interesting observations were made on apparent micro-management of farmers. In the contract farming scheme, the farmers are assets to the miller, who is reliant on its producers. This is mainly the case because millers invest heavily in the development of sugarcane, so a failing harvest would mean a significant loss for the miller. One of the field extension officers noted: "we try to sell our farmers energising tea, which allows them to work harder and be in good health. Good healthy farmers grow good healthy cane" (Nzoia field day staffmember, Kakamega, 4 march 2014). The corner stand in which this tea was sold was accompanied by the

slogan ‘stay healthy, with your cane’. This curiously shows just how far millers go in preserving their cane supply.

Outgrower companies are centrally located marketing institutions, that support farmers in developing cane and sell cane to the mill. Most outgrower companies are directly affiliated with a particular sugarcane mill, with mills often founding the company themselves to ensure a steady supply of raw materials. Outgrower companies get their funds from the sugarcane factory, (inter)national projects, KSB, commissions, selling inputs and producing cane. In the case of Nzoia Sugar Company the outgrowers company (i.e. Nzoia Outgrowers Company, or NOCO) is part of the factory, and can hardly be seen as a separate organisation.

10.2 Cooperative-driven outgrower scheme

In Kisumu County the relation between smallholder sugarcane producers and the sugar processing mills is essentially different from the case of NSC’s contract farming scheme. Farmers are not interested in signing contracts with the millers and demand to remain independent to such a degree that they can decide for themselves to whom they sell their cane (Kenyan solidaridad staff, Nairobi, 12 March 2014). Interestingly, this means that every farmer can enter the sugarcane sector and start growing cane. This has led to a large number of very small farmers in the area, an issue that will be discussed later on (manager KSB, 3 March 2014; outgrower manager CSC, March 2014).

Chemelil Sugar Company deals with an area of 20026 hectares, excluding the nucleus estate. The exact area of operation varies, because of farmers stepping in and out of the outgrower scheme, but has been relatively constant over 2013 with 8300 farmers. These farmers are categorized into three main groups: small scale, medium scale, and large scale. No distinction is made between land owners and land leasers in this regard. The small scale farmers are those that own or lease less than 20 hectares, the medium scale farmers own or lease between 20 and 400 hectares and the large scale farmers own or lease more than 400 hectares. Of the 8300 farmers delivering their cane to CSC, 3 are large scale and 114 are medium scale. These farmers, with land size exceeding 20 hectares are considered ‘privates’. What distinguishes these privates from regular outgrowers is that they can sell their cane directly to the sugarcane mill, without the need for a cooperative society or outgrowers company to intervene.

Within the cooperative-driven outgrower system, the factory has to monitor farmers closely (manager outgrowers department CSC, 12 March 2014). The outgrower team forms the direct link between the smallholders and the mill. They are selected from all regions in which the mill is active, to represent the sugarcane factory within their own community. These representatives form the communication channels between the outgrowers and factory management, conveying information to the farmers about loans, factory operations and payment, while at the same time making sure the mill is up to date about all issues farmers have to deal with. Once a week the outgrower team meets in the office of the outgrower manager in the outgrower department building. A number of these meetings were attended in the course of the exploratory research phase.

In a cooperative-driven outgrower scheme there is less support from the miller, because the miller has less security for providing these services. A farmer noted: “Farmers that deliver their cane to Nzoia Sugar Company are contracted by the miller. This contract gives the miller security, the farmers are obliged to deliver their cane to this specific mill. Because of this security, the miller is able to support the farmer in every aspect of sugarcane cultivation. The opposite is true for the Nyanza area.

Here, I am free to sell cane to whatever factory I want, but I also have to arrange for everything myself. That's why Chemelil (Sugar Company) doesn't give out loans, and we have to borrow money either from banks, or from the KSB through the Sugarcane Development Fund (SDF) to support our cooperative societies". (male farmer, Chemelil, 3 may 2014) While the cooperative are supposed to fill this void of a lack of support and extension for smallscale farmers, they often seem to lack the financial capability to do so.

Table 4 Stages of mill-smallholder interaction in COC cooperative-driven outgrower scheme. (Interview with COC outgrower department manager, Chemelil, 30 february 2014)

Stages of mill-smallholder interaction in CSC cooperative-driven outgrower scheme	
Farmer recruitment	The factory is not actively involved in recruiting farmers for sugarcane production. New farmers interested in sugarcane production deal with local cooperatives or the Chemelil Outgrowers Company. The barrier for entry is relatively low, since cooperatives do not work with conditions for entry and service all farmers in their areas.
Extension services	Chemelil field staff organises field days, where farmers can go for up to date information on good agricultural practice. A few of these field days were visited, and attendance was low to very low. At times the number of Chemelil employees was higher than the number of visiting farmers. For other extension services the farmers relies on the cooperative.
Input provision	At the time of research, the company was delivering small amounts of subsidised fertiliser to farmers in light of a government project promoting the use of fertiliser. Employees emphasised this was a temporary thing. As soon as the available subsidised fertiliser ran out, farmers had to go through their cooperative once again.
Harvesting	The sugar companies in cooperative-driven outgrower systems arrange harvesting for the cooperatives. Cooperatives notify the company when they have enough available raw sugarcane. The company also keeps a database of cane maturity in the area, to keep track of the less active or less well-managed cooperatives. When time for harvesting comes, the company makes a harvesting program. The program is based on distance and maturity, but often other factors (e.g. favouritism, corruption) are at play. Transport is then arranged by the company and deducted from the price paid to the cooperatives.
Payment	The company pays the cooperatives, which then transfer money to their farmers. In some cases farmers are paid directly at the factory, when their cooperative has financial problems, but these are exemptions and involve a lot of paperwork for the farmer.

While Chemelil Sugarcane mill has always maintained contracts with outgrower institutions and supply contracts with farmers, these contracts are not as all-encompassing as those in a contract farming scheme (e.g. in a contract scheme, the miller decides on cane variety and fertilizer use). CSC has tried to set up a more rigid contract farming scheme in the past. The scheme was meant to be similar to the contract deals that are being kept in the Western Kenya region, by the likes of Mumias Sugar Company and Nzoia Sugar Company. The most recent effort to establish contract farming was

undertaken in 2010 and 2011. CSC would establish loan fields, by loaning farmers funds directly for developing their cane in return for the right to dictate farming practices. In the period of two years, the mill managed to contract approximately 100 farmers, with a total land size of a 1000 hectares. As evidenced by these numbers, the loan farming plan targeted the larger farmers in the area, owning or leasing about 10 hectares of land. Contracting the smaller scale farmers, those operating 1 or 2 hectares, would not be profitable at this point for CSC. The efforts were cancelled because of financial problems, making it hard to provide loans. These loans were an essential incentive for the farmers to join the contract farming scheme, so without available funding, no more farmers were contracted. Outgrower department staff noted that during these two years, their effort met with heavy resistance from the outgrower institutions. Both COC and the cooperative societies, through their union, advised their farmers not to sign contracts with the miller. The outgrower institutions feared that signing a contract would seriously hurt the position of their farmers, removing their autonomy and bargaining power. Still, both sugarcane farmers and board members of cooperative societies are convinced that contract farming is a bad idea (union manager, Chemelil, 25 March 2014). Employees of the sugarcane mill note that the outgrower institutions are also personally motivated, since contract farming could hurt their positions, when the miller starts to take over their duties and responsibilities (outgrower manager CSC, Chemelil, 4 April 2014). In the current situation, in which the miller has insufficient funds for loaning and the outgrower institutions oppose a contract farming scheme, it seems highly unlikely that more farmers will be contracted directly by the mill. This shows how difficult it can be for a company to move to a business-driven outgrower scheme. Companies often have to deal with existing power structures.

Two outgrower companies are active in the area of operation of CSC. One is Chemelil Outgrowers Company (COC) in Kisumu and the other is Nandi Escapment Outgrowers Company (NEOCO) in Nandi County. At the time of writing NEOCO is inactive, and is no longer capable of performing its duties. Bad management seems to have been the main reason for the demise of this institution. Both Solidaridad employees and Chemelil managers noted that the board of the outgrower company one day closed shop and ran away with all possessions. The former offices were visited in April to gain more information, but no one was around to provide this information. This exemplifies one of the bigger challenges in studying success factors of collective action institutions. Cases of failure are every bit as important and interesting for study as successful cases. The problem in field research is then, that evidence of failed entities is difficult to collect. Especially in the situation of Western Kenya, where record keeping is far from complete, information on institutions that are no longer operational is hard to come by. Stakeholders would often rather forget about failed attempts in the past, making it hard for them to learn about these failures. Also, in a number of cases, failure can be attributed directly to corruption and mismanagement, resulting in shameful situations that are shunned by both insiders and outsiders. This illustrates how in a cooperative-driven outgrower system there is often less strict control on large institutions, and cases of corruption and institutional failure seem to be more common (KSB employee, 6 March 2014).

COC represents a large number of small scale farmers in the area. According to CSC record keepers, of each 15 million KSH that is being paid, approximately 6 million KSH goes to COC. This figure seems to fit with another estimation made by the head of the outgrowers department (Francis Odera), estimating that of 12 million KSH being paid, 4 million goes to the outgrowers company. This suggests the idea that about one third of farmers in the area deliver their sugarcane through the outgrowers company. Unfortunately the KSB, nor the sugarcane mill keep a record on the number of

farmers that deliver to either outgrower companies or cooperative societies. Contrarily to the smaller cooperative societies, COC has access to a significant tractor fleet and sugarcane development machinery. This makes COC more attractive to especially the larger farmers that often do not have their own machinery.

The farmers that do not sell through the outgrowers company sell their cane through cooperative societies. This is also the forum to which they turn for assistance or information on sugarcane farming. Cooperative societies are localized marketing institutions, active in developing and selling sugarcane on the one hand, and representing their members on the other hand. In Kisumu around 55 cooperative societies are actively delivering sugarcane to CSC, in the Nandi area 53. The first cooperatives in this area were started by small farmers, landowners of around five to ten acres, to give these farmers a voice in miller negotiations. The farmers were not satisfied with the way the miller handled extension services and payments, which were often delayed. Because of this, 70 cooperative societies were formed, mostly based on existing clan structures. (union manager, Chemelil, 25 march 2014) It shows how structures for collective action are often layered over existing social and cultural structures that already existed prior to forming the cooperatives. Information on the formation of these first cooperatives is often lacking. Next to the founding certificate, the cooperatives do not keep extensive documentation of the history of their operations. Also on the union level no further information was found on the situation before these cooperatives were founded and on how well they functioned back then. Cooperative societies' main body consists of the farmers. These farmers elect 9 board members, including four executives. Each cooperative society also has recorders, who deliver their records to the Union for bookkeeping and seek authority to harvest from the miller. Cooperative societies do not have the capacity to make payments, so that responsibility has been transferred to the union (union manager, Chemelil, 25 march 2014). Elections are overseen by the subcounty cooperative officer, a government official who is in charge of the cooperative structure in the Muhuroni, Kisumu and Nyando areas. This officer then answers to the county cooperative officer. This political supervision is all part of the former ministry of cooperatives, now called ministry of industrialisation & development.

One of the advantages of the cooperative societies is that they can more easily survive cash flow problems of the sugarcane mill. Whereas the outgrower companies are highly dependent on a steady cash flow for maintaining equipment and paying of loans, the cooperative societies can more easily survive long periods of reduced cash inputs (outgrowers manager Chemelil Sugar Company, Chemelil, 31 march 2014).

Kisumu Sugarbelt Cooperative Union

While some of the primary cooperative societies are non-aligned, most of the societies are associated with one of the unions. The Kisumu Sugarbelt Cooperative Union was formed in 1983 and contains a membership of 80 cooperative societies, spread throughout three surrounding districts: Kisumu subcounty, Muhuroni subcounty, and Nyando subcounty. Sugarcane farming is the core business of all three districts. The cooperative societies pay a fixed membership fee for the union, which in return offers a number of services

- Centralised book keeping system
- Advocacy / negotiation of credit facilities
- Lobbying for, and organising, Kenyan Sugar Board loans

The union only deals with the executives of the cooperative societies. This board of directors consists of four elected executives: the chairman, treasurer, secretary and vice-chairman. The board is elected every three years, a process which is supervised by the ministry of cooperatives under the cooperative act. The four executives of all 80 cooperative societies then vote among themselves to select the board of directors of the Kisumu Sugarcane Cooperative Union. These executives are the policy makers of the union, but are at the same time chairmen of their own cooperative societies. To ensure consistency and objectivity, the union employs a manager for day to day operations.

In the area, three unions have long been active, each maintaining their own area of operation.

1. Luo Land – Kisumu Sugarcane Cooperative Union
2. Settlement Scheme – Muhuroni Cooperative Union
3. Rift Valley region – Nandi Sugarcane Cooperative Union

Kisumu Sugarcane Cooperative Union employs a permanent staff. The permanent staff all possess a college diploma. For this reason administration and bookkeeping are done on the union level, and not by the cooperative societies (manager Kisumu Sugarcane Cooperative Union, Chemelil, 25 march 2014).

- Manager
- Loans officer. Makes sure each society gets his rightful share of KSB loan (SDF).
- Accounts supervisor. Keeps standards for bookkeeping.
- 6 Bookkeepers

The unions make the societies accountable, protecting farmer members from bad management (outgrowers manager Chemelil Sugar Company, Chemelil, 31 march 2014). Simultaneously the union can help societies to lobby with the production mill or the Kenyan Sugar Board (KSB). It is through the union that the KSB distributes its Sugarcane Development Fund (SDF). The union makes sure that these funds are properly distributed and eventually that the loans are being repaid.

Privates

The sugar act lawfully obliges smaller farmers to sell their cane through a cooperative. This regulation aims to prevent a situation in which the factories have to deal with too many small partners. Large-scale farmers are exempt from this rule, and can deliver their cane on a personal basis. Privates can be members of cooperative societies, even though they are able to sell their cane directly. The number one incentive for membership is accessing cheap credit. Sometimes cooperatives have credit available, and the rates for these credits are better than at the banks. For the cooperative, the large-scale farmer provides more securities when taking a loan. The cooperatives are not the only channel for credit that these privates can access. The large scale farmers are allowed to apply for direct credit with the Kenyan Sugar Board (KSB). Because privates buy their own input, they can profit from bulk buying and cheaper input prices. Compared to smaller scale farmers, their costs of production are significantly lower.

11. Main issues for sugarcane collective action groups

"With a library it is easier to hope for serendipity than to look for a precise answer."

Lemony Snicket
When did you see her last? (2013)

Business-driven contract farming schemes can be risky for outgrowers, because they lack control over their own futures in the long term. On the short term though, they seemed to work better than the cooperative-driven systems. The miller is a stakeholder in the productivity of the farmer, and will help the farmer reach higher levels of productivity. Studying cooperation in these contract farming schemes would be academically interesting and useful. In this research however collective action phenomena are the main research objects. To properly carry out this research, an area was therefore chosen in which collective action processes were more obvious and visible. Future research could, and should, delve into collective action constraints as they are imposed by the contract farming schemes in Bungoma County. For describing collective entities and their issues though, the research effort will focus on the cooperative-driven outgrower scheme of Chemelil Sugar Company.

Sugarcane farmer cooperatives are dealing with a myriad of issues at any given time. In the following section the issues that were presented by respondents will be discussed. As discussed earlier, sense and meaning making are often important to consider. Since this qualitative research bases its empirical section on interviews and FGDs, what is presented here are not hard facts, but personal accounts. This is an important perspective, which is too often overlooked in collective action research into the topic of outgrower schemes. To know how farmer cooperatives deal with issues and problems, it is important to know how they perceive them.

11.1 Culture and tribalism

The sugarcane growing area of Western Kenya is mainly occupied by the Luo ethnical group. In Kenya, tribal culture is apparent in all everyday dealings of society, and is therefore vital to the understanding of cultural behaviour. Historically, the Luo were Nilotic fishermen, coming down from the river Nile. One of the fishermen in Kisumu explained: "the Luo are typically fishermen, and long after all fish had disappeared from the Kenyan side of Lake Victoria, many Luo were still looking for fish. Now finally, they have started to pick up farming." It shows how it is often the case that people don't choose a profession that is economically viable, but one that's in line with their cultural heritage. This cultural heritage is mostly a tribal heritage in the case of sugarcane farmers. Therefore the tribal affiliation is an important factor to consider.

The manager of the Kisumu Sugarbelt Cooperative union touched upon the subject of tribal competition in agriculturally active areas. Niangore, part of Kisumu County, is considered Luo Land, but Nandi's are trying to buy this land from the Luo's. This example shows how narratives of land acquisition in the area are framed. The actors of land acquisition are not individuals, but are framed as tribes gaining dominance over others. Political disputes have often led to the reallocation of land. 160 acres of land in the area has been disappropriated for political elites. Another 1600 acres of land

has been reallocated after the election violence. Now only 800 acres is left in this area for approximately 200 Luo and 200 Kalenjin families. After settlement schemes take place, the Luo's fear that nothing is left. The president, Uhuru Kenyatta, does give out title deeds, but mostly they are fake, because it is land that is already owned by others. (Manager of the Kisumu Sugarbelt Cooperative Union, Chemelil Roundabout, 25 March 2014).

The topic of tribal differences in Kenya has often been discussed with respondents during fieldwork. Generalisations can be drawn from these conversations, characterising tribal difference. In general conversation, these tribal differences will often be stigmatised, resulting in caricatures of reality. Still, these stigmas are based on perceptions of those involved, and can hold important truths. As discussed earlier, the Luo and Kikuyu tribes are two of the biggest political bodies in Kenya. According to many respondents, the cultures of the two tribes are so different, that it influences how they perform economically. The Luo emphasise solidarity and a social way of organising a community. Supporting family, and even friends, when they are in need is considered a high priority. A large body of academic articles exists, that conceptualises this kind of behaviour as an investment in social capital, which is discussed further in the theoretical framework. This also entails a low interest in saving money or investing money in capital. One respondent was particularly knowledgeable on the topic of tribal backgrounds, working for the government in Kisumu for 30 years. Currently, the man is retired, and operates a successful small-scale sugarcane farm in the Chemelil area. The man stated: "The problem with the Luo, is that they spend all their money, and they are broke when they need money to invest in sugarcane development". According to him, and other respondents, the Kikuyu are naturally born entrepreneurs. They know when to save and when to invest in their business, resulting in economically sound management. Interestingly, this kind of behaviour is frowned upon by most sugarcane farmers that were interviewed in this research. When asked about Kikuyu success in Kenyan businesses, some respondents argued: "A Kikuyu lives poor, and dies rich. A Luo lives rich, and dies poor. Who would you rather have as a friend?". These cultural backgrounds are at the heart of collective action behaviour in the area. Therefore, the fact that sugarcane farming is mostly done by Luo's, has implications for the amount of investments that are made, and the amount of funding that is available throughout the year. A sugarcane crop cycle takes about 18 months to complete, after which a large sum of money reaches the farmer. If the farmer is careful, this profit should last him through these 18 months, and allow him to plant a new cycle of sugarcane at the very least. Since this is mostly not the case (farmers often lack funding throughout the year), the role of a cooperative society should be to assist farmers throughout this period, to reach the next harvest. But in order to achieve this goal, the cooperatives need capacity, which should come from investment by other farmers.

11.2 Regional economics and COMESA

The Common Market for Eastern and Southern Africa (COMESA) is the economic partnership of Eastern and Southern African countries. It was formed in 1978 and first proposed in 1965, during an optimistic post-independence African political climate, a climate in which pan-African solidarity was still widespread (COMESA, 2014). For most smallholder sugarcane farmers in the cooperatives, COMESA is an incomprehensibly large concept, with which they don't deal regularly. Recently though, the sugarcane farmers have been linked a lot to COMESA developments in the news, and farmers are starting to worry. The biggest problem is the fact that Kenya produces its sugar very inefficiently compared to other countries. (Manager KSB, 6 march 2014; KSB, 2011) If cheaper sugar

from surrounding countries would be imported freely, the Kenyan sugarcane sector would quickly collapse, forcing farmers to uproot their cane and forcing the government to bail out the entire sector. To prevent this from happening, COMESA had safeguards in place after conception, to protect certain sectors that are of vital importance to its member countries. Currently, the Kenyan sugarcane sector is protected by a safeguard imposed by COMESA, and it has been extended time and time again. During this research effort, the COMESA sugarcane safeguard was extended beyond the time that was originally allowed in the COMESA agreement. All parties involved appreciate the importance of a protectionist policy for the Kenyan sugarcane sector, as a bankruptcy sugarcane producers in Western Kenya would impact all other member countries as well. Still, politicians are pushing hard for increased productivity of sugarcane processing, to decrease production costs in the long run. (KSB, 2011) When farmers or factory employees discuss these issues they mostly complain about the unfair advantages of producers in other countries. The managing director of Chemelil Sugar Company mentioned that the country charges 16% VAT on sugar, which is a lot lower in other countries. Also, Kenya lags behind in its provision of subsidised inputs (e.g. herbicides, fertiliser, pesticides). According to the MD, provision of subsidised inputs is one of the main ways in which the government can increase productivity in a sector. (managing director, Chemelil, 9 may 2014) A male farmer noted: "sugarcane farmers are many, so we need to get more attention from COMESA. It seems they have forgotten us, and we in turn have forgotten them. (male farmer, Chemelil, 3 may 2014) Only two cooperatives were actively informing their members about COMESA developments and the consequences for their futures.

11.3 Mill privatization, diversification and competition

In return for the earlier mentioned extension of sugarcane safeguards, COMESA demands liberalisation measures by the Kenyan government in its sugarcane sector. According to COMESA reports the main reason for high production costs are bureaucracy of the millers, corruption, and lack of maintenance over the years. (COMESA, 2015) In line with these views the Kenyan government is rapidly privatising its state-owned parastatal mills. The idea is that investors will enforce increased efficiency. Also, the money brought by the investor will partly be used to help the mills diversify. Mumias is an excellent example of a mill in the process of privatisation. By now the mill uses residue from sugar production to generate electricity and to manufacture bottled water.

According to the MD of CSC, the main problem of the government companies is the fact that they have to deal with too many functions. The objectives of his factory have long been: self sufficiency and creating employment and infrastructural development. In a private company, profit maximalisation is key. Creating employment and infrastructural development are not always goals that make the company work in the most efficient manner. In this sense, the companies serve a public goals that they will no longer be able to fill after privatisation. The public companies have trouble filling this role though. Currently operations are too slow, because every partnership or investment has to be approved by the government. A Nzoia employee underlines this: "West Kenya and Butali are very different to us. We are a parastatal and processes are longer. They are privatised which improves the services". (Nzoia employee, Bungoma, 26 february 2014).

The main thing holding privatisation back is the fact that the law states that farmers must own 51% of shares of the factory after privatisation. Managers of the mills call for an act of parliament to allow investors to own more than 50% of shares. Within the current conditions the investing party will have to take a huge risk, investing a large amount of money without obtaining a controlling number

of shares. The government is hesitant in this matter, politicians are afraid that a foreign investors will take control of the entire sugarcane sector, significantly reducing the economic strength of the country. Managing staff of Nzoia Sugar Company think it's a good idea to have smallholders invest in the mill for themselves, though they should buy it through the intervention of an umbrella organisation. Currently this organisation is not in place. The Cooperative Union around Chemelil had started a savings plan some years ago, to make sure the farmers had enough money saved by the time the mill would be up for sale. But, because it took too long for it to happen, the farmers demanded their money back and the whole effort was rendered useless in the end. (manager Kisumu Sugarbelt Cooperative Union, Chemelil, 25 march 2014)

The biggest problem with privatisation is increased competition. While in many sectors increased competition can be a good thing, in the sugarcane sector it has often led to cane poaching and associated inefficiency. Factories can send trucks to other territories, stealing fresh cane from other millers' areas. On the whole this is not an efficient way of managing the sugarcane processing of the entire area. The MD of Chemelil mentions that factory managers would like to follow the example of Mauritius. After privatisation multiple factories were merged. The country went from 21 to 9 factories in 2000, and in 2014 there are only 4 or 5 factories left. With less companies there is less cane poaching and better planning. Currently this is hard to achieve in Kenya though, since the regulatory environment is not conducive to a concentration of activities. (managing director, Chemelil, 9 may 2014) Recently Kibos was started, and many suspect bribes were paid to achieve the license, since Kibos doesn't have its own nucleus estate farm. Because Kibos can't maintain a steady supply of raw materials on its own account, it has to start poaching cane when supply in their area is low. "Kibos is poaching cane. In the area of Nzoia Sugar Company a similar situation exists, in which the relatively younger private West Kenya Sugar Company poaches cane from surrounding sugarcane mills". (Nzoia area manager, 30 february 2014). The positive effect of competition can be increase of choice for producers to bring their produce to, possibly driving up prices. The problem is that farmers can not easily switch mills, because of infrastructural and distance constraints. Only the farmers that operate on the borders of outgrower zones can decide which mill to deliver to and to use this as a bargaining chip. (Kue manager, Awasi, 2014) Employees of the KSB do recall a time of high competition, of which the results can still be seen: "In 2012 competition among mills was the highest. 4300 KSH per tonne was the sugarcane price. Timely harvest and payment was there. This situation was not sustainable, because the mills grabbed excess cane and were not developing new cane. In the short term this was successful, but now there are cane shortages and maintenance problems". (manager Kenya Sugar Board, February 2014)

11.4 Land ownership and land fragmentation

If there is one trend that helped Europe dramatically increase its agricultural productivity in the past it's been the scale increases. Aggregating land into ever growing farms gave those farmers the benefits of an economy of scale, by being able to buy inputs in bulk and use their assets in a more efficient manner. (LTO, 2012) Currently in the sugarcane sector there are many smallscale farmers, cultivating pieces of land of less than 5 acres. These Kenyan farmers deal with land in a very different way than in the Western European countries. In Kenya land is spiritual, and the individual's relationship to his plot and compound is very intimate. Often Kenyans will pay respects to their ancestors during special occasions by praying to the soil or pouring drinks over the soil. Many Kenyans will therefore not soon distance themselves from their inherited land. Often when a young

person moves to Nairobi to find a job in the city, he or she will keep the land in his or her home area, both for sentimental/spiritual value as for security. If things fail in the city, they can always come back and start farming for personal consumption. Others, often with higher educational backgrounds, stay involved in farming by employing some to look after their farm. Many university graduates move to Kisumu and Homa Bay to look for white collar jobs. And while some of them still remain active in sugarcane farming, these farmers are considered 'telephone farmers'. Telephone farmers are those farmers that develop sugarcane in the area, while living and working somewhere else. Board members find that these members are often not too concerned with the troubles of the cooperative society. Mostly they have a man looking after their field, who they are in close contact with. When the cane is mature they contact the society, through telephone, to arrange for harvest and transport. Often the cooperative is called at a very short notice, making it difficult to deal with these types of members.

In this context, aggregation of land is not soon bound to happen, because it relies on easier acquisition of land. In this sense a trend of land fragmentation can be observed. A trend that is also experienced by many of the respondents, noting that the number of farmers keeps increasing, and the average land size has been decreasing for years. The MD of Chemelil Sugar Company emphasised: "Reduce the number of people involved. Most people do sugarcane farming half of the time. Pull the farmers out of incompetence. We need education on better sugarcane farming. A distinction exists between ancestral land and commercial land. Ethnic groups have moved in the past, in Rift valley for instance (settlement scheme) the people do not have ancestral ties to their land. To arrange these kind of things proper governance is needed. During the last election violence, people with title deeds were flushed out. Title deed rights need to be upheld. We are slowly shifting from customary rights to title deeds." (managing director, Chemelil, 9 May 2014) This clearly shows the intricate ties between perceptions of land ownership and economic values of productivity. To increase productivity in the area, the government and policy makers will have to work with existing perceptions of land, and create a conducive regulatory environment that can tackle the land fragmentation.

Similarly, land is also a symbol of status, which can at times be more important for communities than income maximalisation. A factory employee explained: "People here in Kenya are very attached to their land. They won't sell their land (where would you be buried?). I'll tell you a story of a water pump I made. A man bought a water pump, but only his neighbour had a plot next to the river. So the pump needed to be on the neighbour's compound. To arrange this, they promised the neighbour lifetime free access to the water supply, but he wouldn't agree. Only after realising that having the water pump on his land would give him status in the community, he agreed on our plan. (factory employee, Chemelil, 12 May 2014).

11.5 Sugarcane payment

The first sugarcane farmer encountered in this research project was a taxi driver in Nairobi, named Alex. Alex owns a 10 hectare plot in Western Kenya. Because the mill delayed his payments he does not have the money to invest in planting new sugarcane. Without the new harvest of sugarcane, Alex was not able to support his household and felt forced to move to the capital of Nairobi, where he now works as a taxi driver. In his mind, the biggest problem in the sugarcane sector is that the mills gain the benefits from cultivation of sugarcane, while they are not responsible for economic risks or downfalls. There's no incentive for good management, because if the mills screw up, they simply

stop paying their farmers. The mills own the marketing process, farmers have no place else to take their raw sugarcane, but can not be held responsible when things go wrong. Alex mentions he does not trust the cooperative he is a member of, and wonders if they will ever pay out the interest rates he feels he is owed.

Payment is currently the issue that most directly impacts both farmers and the sugarcane mills. Illegal import of sugar from other countries (e.g. Brazil, Zambia, and Malawi) drives the price down, because production costs for sugar in these countries is significantly lower than that in Kenya. The average productivity per hectare in Kenya is 60 tonnes of raw sugarcane, nearly half as much as Zambia at 113 tonnes and Malawi at 105 tonnes. Also, the production costs of one tonne of sugarcane in Kenya is approximately 500 USD, which is almost twice as much as neighbouring countries Tanzania and Uganda. (KSB manager Kakamega, 5 april 2014)

Negotiation for cane prices is done by the Kenyan Sugar Board and KESGA, both national organisations. The cooperative societies have little to nothing to say in these price negotiations, and most of them are not aware of how these prices are determined. In these negotiations a minimum price for sugarcane is set, after which the millers are free to pay out a premium whenever they see fit. One reason for paying a higher price is to attract more farmers, or for reputation reasons (Chemelil for instance sells sugar to the local market and wants to keep local customers happy). Also political factors are at play, during election times prices sometimes go up temporarily, A local politician can show his electorate that he's able to provide for them by arranging this price change with the miller. (Cooperative union manager, 24 march 2014)

Farmers are being paid by the Kisumu Sugarbelt Cooperative Union through a SACCO. We take money from the banks and the farmers can come to us to get paid. By providing this service, farmers don't have to go to the bank, which saves them a lot of time. The sacco was formed by the Union in 1988. Before this point farmers had to go to the bank to get paid. Now the Sacco has an account with the Kenyan Central Bank, to which the payments are made. The money is then brought to the local area for a transaction fee of 1% by the Sacco. (Nyando District Rural farmers Sacco secretary, 25 march 2014)

Currently, cane is weighed upon entering the factory. Farmers earn money based on the weight of their cane, and not of the quality of their cane. This is different from sugarcane sectors in other countries, where cane payment is decided based on sucrose levels instead of weight. (MD of Chemelil Sugar Company, april 2014) This measure increases the incentive for farmers to produce high quality cane and to choose those seedcane varieties that are most suited for crushing and processing sugarcane juice. Unfortunately the sugarcane factory does not have the finances to afford equipment to start measuring cane sucrose levels. Also, the privatisation plans that are part of liberalisation reforms do not contain demands for this innovation, as they mostly focus on diversification into other areas. Still, after privatisation the companies would likely want to switch to sucrose level testing at the weighbridge as soon as possible, according to the MD.

Currently the payment per tonne from Chemelil (Sugar Company) is 3300 Ksh, from Kibos 3000 Ksh, and from Muhuroni 3200 Ksh. Chemelil doesn't pay promptly at all, while Kibos is a lot more forthcoming with payments. All farmers get the same rate at each mill, except when it concerns burnt cane. Chemelil for instance, pays 2800 Ksh for burnt cane.

11.6 Corruption

Corruption and mismanagement are every day problems in sugarcane growing. Farmer often complain about politicians in the area, noting for example: “All politicians buy their votes, both on the national and the local level of politics. I really do not believe in politics, because only the rich people make laws. And they only make those laws that suit them best personally”. (farmer visiting field day, Chemelil, 25 april 2014)

Farmers can attempt to deal with corruption through collective action. Kue is one of the cooperatives of which the board members were interviewed. The reason for starting the group in 1996 was clear, many farmers were unhappy with their cooperative society. Before 1996, one very big cooperative society for sugarcane farmers was active in this area, Ayucha. Because their area of operation was too big, the attention between sugarcane farmers was unequally divided. The officials (i.e. board members of the society), gave priority to the farmers they knew from their home area. Twenty-five farmers decided that they'd had enough; they would no longer pay their fees, while not getting anything in return. Because farmers are obligated by law to sell their cane through a society or outgrowers company, they felt the need to start a new cooperative. Many farmers in the direct area have since decided to join the cooperative, leading to the current number of 500 members. To the board, this is the ideal size for their cooperation and they are not keen on increasing the size any further. Experience has taught them that the bigger a cooperation becomes, the harder it will be to keep all members on board. In 2002 another group split from Ayucha, inspired by the fact that Kue had successfully become independent from Ayucha. The leaders of this group were not interested in the farmer's positions though, and started to charge a relatively high fee of 60 Ksh. Also, according to Kue board members, the group was known to deduct dubious fees for services that were not delivered. Also, several group members switched to Kue, because of unfair payments (e.g. delayed payments, incomplete payments). One of the female farmers that switched to Kue once came to the chairman with 20,000 Ksh. The chairman informed her that cooperative shares after harvest are deducted before payment is made to the farmer, so a farmer would never have to pay this sum directly to the cooperative. Kue board member: “The mama now knew she had been paying her society double fees. After this became known in the area, all members switched to Kue.” One of the board members told the researcher: “I'm very glad to inform you, they have now failed and do no longer exist”.

Additionally, corruption can lead to cane burning, which is dangerous to people living around the sugarcane fields, bad for the environment, and makes farmers lose a large chunk of their profits. The reason for cutting cane can be quite diverse. Sometimes it's the cane cutters, that decide to burn cane at night either because they want a job (when cane is burnt the farmer is forced to harvest it within a few days or the sucrose in the cane will be gone), or because they already have the job and are afraid of snakebites. Burning the cane scares the snakes and makes the work of harvesting less dangerous for cane cutters. Other times it's farmers burning cane of neighbours, after getting into a fight or just being envious. There were also cases reported of farmers burning their own cane, because they can't get a spot on the harvesting program. When the cane is burnt the factory pays a lower price, but is forced to except the cane to make sure it isn't lost. The manager of the union noted: “Sometimes cane cutters burn cane so they have work. Also some farmers burn their own cane to get program. Burnt cane has to be harvested in 24 hours or it's worthless. This is why millers pay lower prices, to discourage cane burning. “ (Union manager, 25 march 2014) Finally, Some

farmers suspected the factory itself bunt their cane, because they were close to the factory and not yet ready to harvest. If the factory does not have enough cane coming in on a certain day, they need more to keep their machines running and sometimes try to pressure farmers into letting them harvest their cane. During the 2 months the researcher in the area, several fields of sugarcane were burned down.

11.7 Harvesting program and transport

Sugarcane farming revolves around the factory's harvesting program, since farmers want to harvest their cane after 18 months, and every week the harvest is overdue, the quality deteriorates. The problem here is that farmers can't transport themselves, and have to rely on the sugar companies to pick up their harvested cane. When the sugarcane is cut, it will only be suitable for a short time, so until transport is confirmed, the cane stays in the field. Even the farmers that can transport cane themselves have to get a spot on the program to be allowed to deliver to the factory. For them it is easier though, because the persons in charge are less hesitant to give them a spot on the program if they deliver the cane themselves. This kind of private transport is only done by large farmers or by the cooperatives from time to time. Cooperatives often find that there is a lot of trouble involved with private transport, concerning bribes and corruption. The manager in charge of harvesting noted: "Harvesting program is made in general, based on our cane census. Then the harvest & transport manager decides who will be harvested based on capacity of the factory (50.000 tonnes per day). Factors that are considered are rainfall and reachability of the plot." (outgrowers manager, Chemelil, 30 april 2014) Some of the farmers with plots that are hard to reach should be able to get transport as well, but in reality this is different. Some of them transport their cane with carts and bikes to a location that is easier to reach for the transport trucks.

One of the board members stressed that harvesting is increasingly a problem: "The harvesting programming of all factories is corrupt. We have to pay to get programmed. The problem is that there is too much competition to get harvest program. Transport program usually goes to the highest bidder, leading to a fragmented harvesting plan. Because of these bribes, usually too many programs are handed out, leading to lack of available transport means. Also, when the mill is running at full capacity, it is no longer possible to deliver cane. That's why farmers are often very eager to be among the first to be harvested. This competition among farmers drives up the price for transport costs, harvesting costs and bribes". (Board member, Awasi, 2014)

12. Empirical results of cooperative societies

As part of this research a survey was undertaken among ten primary cooperative societies in Kisumu County. In this section, the results of this survey will be discussed, describing group structures, codes of conduct and, where possible, performance factors.

The resulting respondent population, derived from a purposive, stratified sample of farmer cooperatives, is shown in Table 5. The table also indicates averages of basic characteristics of these groups. Because the survey was discussed in the form of a focus group discussion (FGD), the number of individuals that were part of this research is higher than the number of cooperatives that were considered. More information on the context of these FGDs can be found in the methodological section. In addition to the ten cooperatives, one outgrower company was subjected to the same survey and FGD. Since an outgrower company is significantly larger, and operates differently from a cooperative society, this respondent has been separated from the general research population. Because information was gathered on the level of cooperative societies, data is organised in 10 cases (excluding the case of Chemeli Outgrower Company).

Basic characteristics						
	N	Mean	SD	Median	Minimum	Maximum
Year group was formed	10 ^b			1993	1965	1998
Group size	10 ^b	741,9	855,89	415	160	3000
% of active members	10 ^b	61,83	24,36	59	24,6	97,5
Attendance to Annual general meeting	8 ^{ab}	226,25	145,11	185	100	550
Most common plot size	10 ^b	3,9	2,99	3	2	11
% of members owning a vehicle	10 ^b	14,12	18,81	7,5	0	60
% of members needing support	8 ^{ab}	73,13	34,12	92,5	20	100

^a Data unavailable for two groups

^b The case of Chemelil Outgrowers Company was excluded

Table 5 Respondent group basic characteristics.

Note: Boxplots of averages (see appendix 4 for details) show that outliers heavily influence these averages. These averages are therefore just for quick reference, and to give some idea of the respondent population.

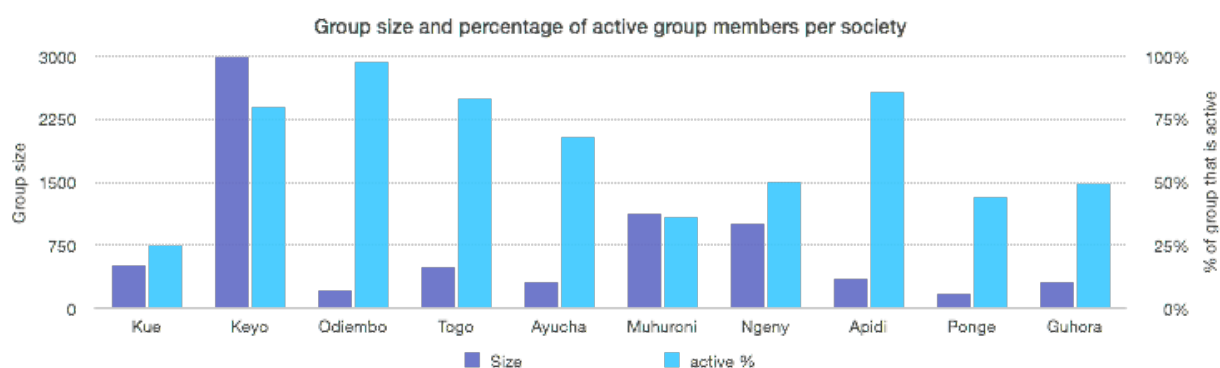
General characteristics of the respondent population of cooperatives were used to form a typology of cooperative societies. Duly note that this typology is the result of qualitative analysis of data, and is therefore a representation of the interpretation of the researcher alone. While attempts were made to quantify these typologies, either through calculating composite scores or through statistically dichotomising variables (see section 9.5 on limitations), these attempts could not reach the level of objectivity that can be expected from academic research. Empirical findings gained from focus group discussions with each of the cooperative societies will now be discussed. Following the conceptual model, first group structures will be discussed, then group conduct, followed by a section on performance.

12.1 Group structure

Previous studies have mostly emphasised on group structures, partly because these are the easiest to measure. In operationalisation a number of variables for quantifying the structure of these cooperative societies were implemented in the survey.

Membership of the cooperatives varies between 160 and 3000 farmers. Respondents were asked about the percentage of their group that is currently active, being that they have delivered sugarcane within the last 18 months. Some cooperatives (Kue, Odiembo, Ayucha) had recorded this information and knew precisely what members were active. Other cooperatives had to make educated guesses.

Figure 8 Group size and activity bar chart



Cooperatives with fewer than 300 active members are referred to as “small”, while Keyo Society with its 2400 members is considered “large”. Cooperatives that don’t belong to either category are considered “medium”.

Furthermore, heterogeneity of the group was considered important. The groups were asked if one tribe was dominant in the group configuration, or that multiple tribal backgrounds were represented. All groups indicated only one tribe was dominant. This concurs with earlier findings showing that the formation of collective action groups follows existing social configurations. Considering gender, four of the groups indicated they were gender-balanced, while seven groups were male-dominated. No groups with a female-dominated nature were found during this research. This both seems to indicate that the sugarcane sector is generally male-dominated and that the researcher had trouble finding female respondents. In Kenyan culture it is easier for men to contact men, then to contact women in relation to research and other formal activities. Besides gender, and ethnic diversity within the group, the groups also contained members with varying educational backgrounds. Respondents were asked for the number of high school graduates in their group and the percentage of members that went to university level.

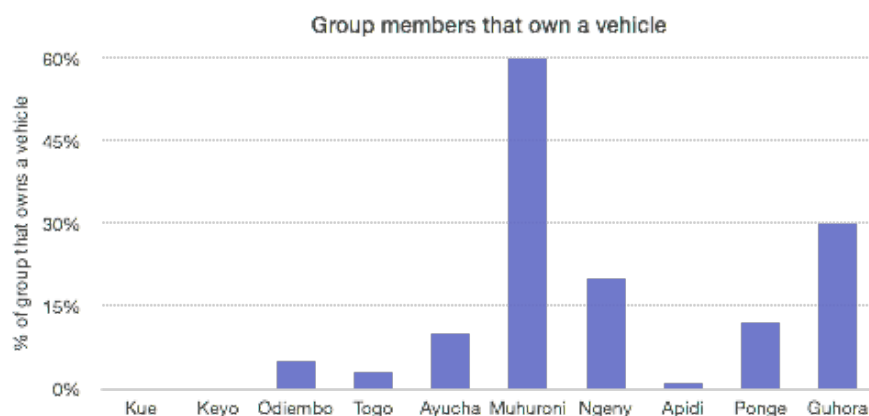
Table 6 Educational background of cooperative societies.

Cooperative	High school graduates	University graduates
Kue	40%	1%
Keyo	40%	0,33%
Odiembo	40%	Missing value ^a
Togo	50%	20%
Ayucha	30%	25%
Muhuroni	Missing value ^a	30%
Ngeny	90%	50%
Apidi	50%	1,5%
Ponge	25%	12,5%
Guhora	75%	Missing value ^a

^a Some groups indicated they were not able to provide this information.

Finally, an attempt was made to quantify income and asset (in)equality. Unfortunately, respondents (i.e. board members of the societies) did not have insight in the incomes of their members. They could indicate the percentage of members that owned a vehicle. A vehicle was considered any means of personal transport other than walking. In this definition, access to public transportation was exempted, because there is no ownership in those cases.

Figure 9 Group members owning a vehicle



12.2 Group conduct

Membership varies a lot, not stable, no obligation to stay with the group. The real members buy shares (but not everyone is able). Also people with loans are real members (they are stuck with the cooperative). If there are no ties, farmers drop out.

12.2.1 Capacity

Members of the cooperative are often not allowed to join other cooperatives. While officially members are allowed to transport their cane through any society they want, board members feel this leads to unwanted abuse of the cooperative system. Members that switch a lot between cooperatives, can easily collect loans from a number of cooperatives and rack up debt with all of them. Kue actively dissuades her members from dealing with other societies, but it is difficult to force farmers to remain loyal to one cooperative. "Some of our farmers sell through other societies,

but we cannot throw them away, because they are still our members. We need active members to convince the non-devoted members to stick to our society". During the Annual General Meeting (AGM), the topic of cooperative society monogamy is often discussed. The main problem is that non-devoted members are not always voting in the long term best interest of the cooperative society, according to the board. Since they can easily switch when things go awry, their main priority is not always to keep the cooperative society afloat, but to gain quickly from its assets. For this reason it's important for cooperatives to protect the boundaries of their membership and keep members closely linked to the cooperative's future.

12.2.2 Incentive

Incentive is an essential problem in the day to day operations of cooperatives. The board members earn a small stipend, while they still need to work their farms. Some of the board members have a strong sense of responsibility and try to make the best of their cooperatives. Others honestly admit that it's too hard for them to achieve goals in the cooperative. For instance, pressuring the sugar company to get on the harvesting program takes a lot of time, energy, and transportation costs. There is often no money available for transportation, so board members are not in the opportunity to visit the company that often. This is one of the reasons why cooperatives that are closer to the mill have less trouble getting their sugarcane harvested.

At the same time there is not much incentive for the members to invest in the cooperative. Cooperatives do not pay out any interest for members owning more than the obligatory number of shares. Only a handful of farmers in the entire area therefore bought additional shares, and those that did indicated they regretted the decision.

12.2.3 Accountability

Next to a lack in incentive, the members mainly indicate trust as a boundary to invest in the cooperative. Many cases of corruption in the past have led to a low degree of trust in cooperative leadership. In the past, board members have often taken money from the cooperative's account, or in some cases all the money that was saved up disappeared over night. The lack of institutional governance for cooperatives in the area lead to a situation in which accountability is low, and the members have nowhere to turn if shady things happen with their money. (Union manager, March, 2014)

12.2.4 Diversification

One of the cooperatives, Muhuroni Multipurpose, is highly involved in dairy farming and is pressuring its members to diversify. For interviews with members, a number of farms were visited that recently started delivering dairy to the cooperative. It is assumed that the board members steered the researcher in such a way, that its most successful members were visited in favour of the less successful ones. Still, general observations and enquiries in the area supported the idea that picking up dairy has worked for most farmers in the cooperative. Here too, it is important to consider the context within which the cooperative operates. First off, in their office they possess fermentation equipment for fermenting the milk, making it possible to sell their product directly. This equipment was sponsored by a foreign NGO (of Swedish or Danish origin, depending on who you speak to) not too long ago. Of course this lies outside of influence of the other cooperatives that might be willing to undertake similar endeavours. Most cooperative lack the capacity, financially or technically, to diversify into other activities.

Some groups in the area collaborate in collectively buying a greenhouse, in which crops can be grown. A number of sugarcane farmers in the area are involved in such greenhouse schemes, while they are relatively far spread. A greenhouse can be an important asset to the livelihood of a smallholder farmer, since it not only enhances crop growth, but also keeps out insects and animals. The greenhouses that were encountered in this research mostly contained tomatoes, and seemed well maintained and operational. A few respondents indicated that thieves in the area were a big problem, since greenhouses would attract them.

For sugarcane cooperative societies, diversification seemed to be the single most effective measure of increasing the livelihoods of its members. The turbulent context in which the sugarcane sector operates, and the stress the national market for sugar is under, create an uncertain future for sugarcane producers. Switching from sugarcane as the main activity to other activities is difficult in the area, because the cultural attachment to sugarcane and the beliefs that sugarcane can earn farmers a lot of money. Also, the infrastructural situation in Western Kenya is most conducive to sugarcane growing, with most agricultural institutions focusing on this cash crop. Still, diversification could complement the main activity of the farmers and provide them with income security in the long run. The only problem is the relatively high initial investment usually encountered, coupled with the fact that most cooperative societies do not have the means to financially assist farmers with this investment.

12.4 Group performance

Earlier chapters in this thesis have dealt with the difficulty of measuring performance of these cooperative societies, both quantitatively and qualitatively. Financial statements were not available, and board members did not keep cooperative level records of the performance of their farmers. Since there was no time in the research approach for interviewing farmers on the performance gains they were getting from the cooperative, another measure was used. While this might be a blunt approach, it does provide at least superficial insight in group performances. The people dealing with these cooperatives on a day-to-day basis are the ones best equipped to make a judgement call on their proceedings. Three parties were asked to grade the performance of the cooperatives on a scale from 1 to 10. First, the board members themselves were asked to grade the performance of their own group relative to others. Then, a ranking was made with the manager of the cooperative society union and the outgrower manager of the sugarcane factory. The latter consulted outgrower assistants for information, since they dealt directly with the cooperative societies. This enquire resulted in the outcomes presented in the following table.

Table 7 Performance scores for the cooperative societies.

Cooperative	Board grade	Union grade	Miller grade	Aggregate score
<i>Kue</i>	7	7	5	6.3
<i>Keyo</i>	6	6	4	5.3
<i>Odiembo</i>	8	8	7	7.6
<i>Togo</i>	6	6	4	5.3
<i>Ayucha</i>	7	6	7	6.7
<i>Muhuroni</i>	8	10	8	8.6
<i>Ngeny</i>	5	6	5	5.3
<i>Apidi</i>	6	6	4	5.3

<i>Ponge</i>	5	6	5	5.3
<i>Guhora</i>	5	5	7	5.6

Essentially, there is not a lot of variety in how the cooperatives perform. With the exemption of Muhuroni, most cooperatives lack the financial capacity and incentive structures to invest in the long term future of the cooperative. Because farmers know this, they are in turn not willing to support the cooperative that they are a part of. For many farmers the cooperative is just a marketing group, their way of selling their produce. And because prices for sugarcane are fixed, there's not a lot the cooperative can do for them. Muhuroni at least tried to assist the farmers in diversifying, which seems to be a viable option for other cooperatives as well. If they could only start saving some small amounts of money, they could take the first step towards creating livelihood security for their members. Doing this would also build trust, as is the case with Muhuroni, where members are now increasingly interested to start investing in the cooperative, increasing their capacity even further.

13. Social Network Analysis of cooperative societies

"By visualizing information, we turn it into a landscape that you can explore with your eyes, a sort of information map. And when you're lost in information, an information map is kind of useful."

David McCandless
TED talk: The beauty of data visualization (Aug 2010)

Earlier in this thesis the foundation has been made for the idea that collective action entities should be studied in a dynamic, not static, fashion. With current research methods, academics can be confined to the limited possibilities for studying complex phenomena. Take for instance the existing literature of cooperatives of smallholder farmers in sub-Saharan Africa. The whole body of literature focuses on the characteristics of these groups (e.g. group size or heterogeneity). This thesis would concur that in order to come to terms with the complexity of a social situation, social interaction should be at the heart of analysing that situation. In other words, it would be constructive to research relationships between and within groups, instead of studying properties of those groups.

13.1 Social Network Analysis

In this regard anthropology encompasses a rich history of relational analysis, resulting in the subject of social network analysis. In social network analysis (SNA) studies, the researchers quantify and qualify relationships between respondents in such a way that a social network graph can be made to illustrate the relational aspects of a group's behaviour. These relationships can be weighed, quantified, or qualified to increase the depth of analysis. Speaking in SNA terms, a person is considered a node within the network, with relationships between nodes quantified as edges. The main problem with this method is the extensive time it takes to register edges and nodes. Researchers use various methods, in which sometimes they require to speak to every node in a closed system (e.g. one village or one group of colleagues), or sometimes just note down everyone that is mentioned as a new node. Several problems arise from this method, mainly concerning recall bias and spelling errors in names.

If only every respondent had a unique ID and would keep track of the persons he or she deals with on a regular basis, reducing the effect of recall bias. Within this thesis an experimental approach is suggested, that could possibly deal with exactly these two issues. In fact, in Western Kenya and even in the majority of the world's countries, most people do possess a unique number, and they do keep track of their regular contacts. This ID number is more often referred to as a mobile phone number, and these respondents use their mobile phones to meticulously save and organise the mobile phone numbers of their contacts. In this study, the researcher set out to capture this source of information and try to take a first step in analysing it for academic purposes. All respondents within the scope of this research possessed a mobile phone. Mostly it concerned a Nokia or Samsung phone without smartphone capabilities. These phones save their contacts on the SIM-card by default, limiting the amount of contacts that can be saved to the phone to 254. By using a Safaricom SIM-card USB reader (i.e. a simple dongle, normally used for backing up contacts to a computer), the researcher managed

to download these contact lists from a number of respondents to his laptop after interviews. In the end 44 respondents were able to share their contact list of approximately 200+ contacts, resulting in a list of 6401 nodes and 7234 edges (i.e. relationships) among them. Since only 44 of those 6401 nodes are actually copied SIM cards, the others have just one or a few relationships (i.e. relationship with owners of one of the SIM cards copied). With this list, a social network graph can be created using open source software for SNA. Here Gephi was used for graphically presenting network density and positionality. The resulting graph can be seen in figure 10. Figure 11 shows the same graph using colour-coding and labels for each of the SIM card owners. Nodes are coloured based on their relative density. Density is the number of other nodes that are connected with a specific node. In a closed system, where all relationships can be quantified, density shows the importance of a node in a network. Here, however, density plainly shows the number of contacts a person has on his or her SIM card. This is in part an indicator of social and communicative prowess, but doesn't indicate importance in the network.

Figure 10 Gephi Social Network Graph of respondents in the Chemelil area.

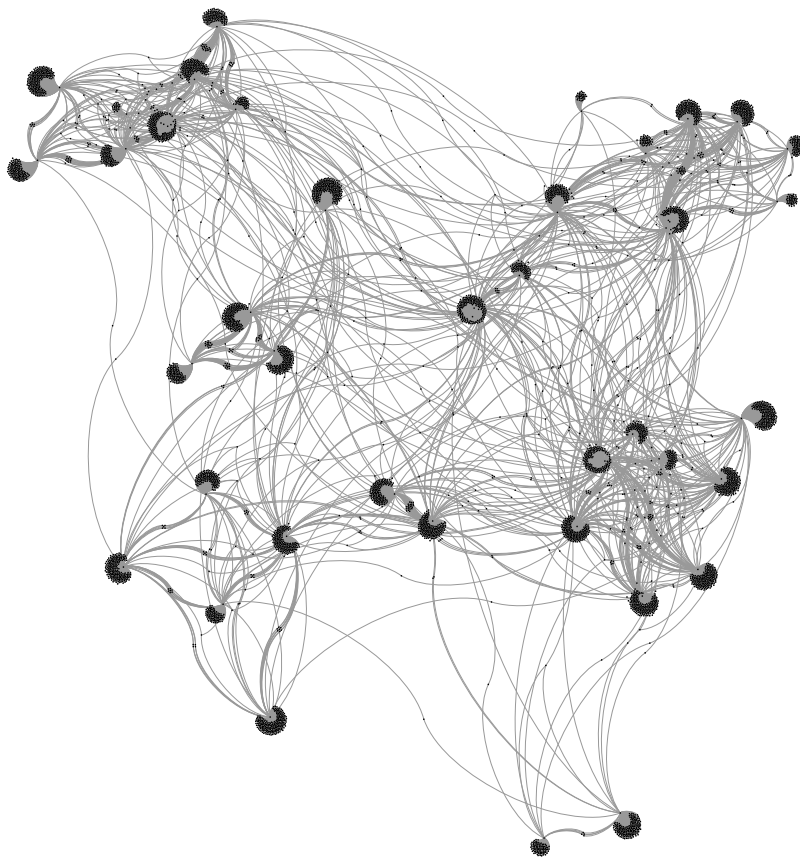
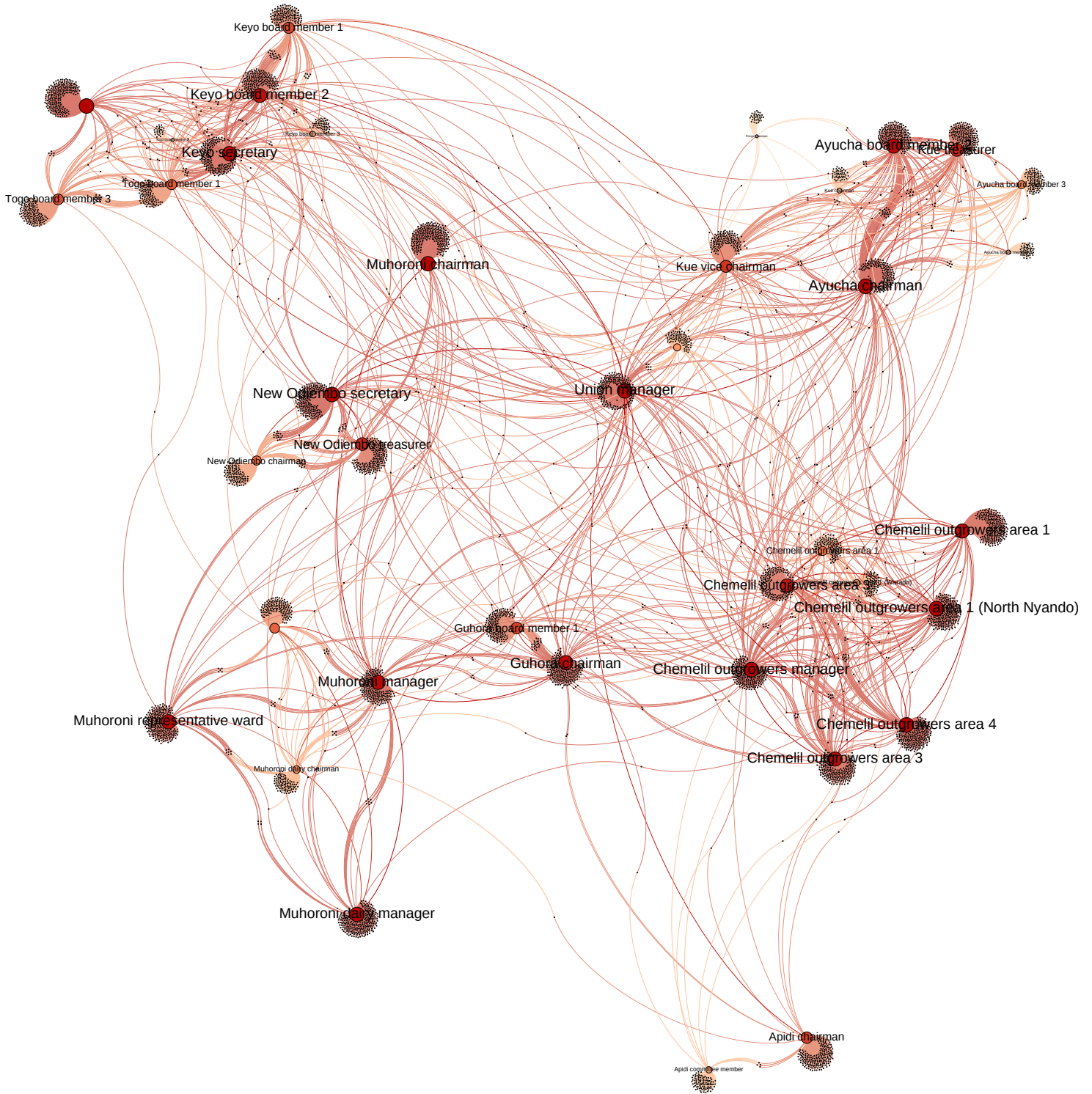


Figure 11 GEPHI Social Network Graph of respondents in the Chemelil area.



The software calculates a position for each of the nodes, using the edges to either pull or push nodes gravitationally, depending on the strength of each node's relationship to other nodes. For example: if one of the nodes shares 6 nodes with one of the other nodes, the two will be pulled relatively close together. Simultaneously, if it takes 6 steps to reach node 1 from node 2 (i.e. you could only draw a line between node 1 and 2 if you connected 5 other nodes in between), those two would be pushed relatively further apart. Exemplifying this effect for this specific research project it would mean the following: respondents that share a higher number of contacts in their mobile phone address books are relatively close together. Also, respondents that would have to go through a number of other people before they could reach a certain contact will be relatively far away from that contact in the graph.

Important to note is that in this case the graph contains thousands of nodes, while only a small number of SIM cards were collected. Analysis should therefore be limited to these nodes. The others only have a few connections, so it's impossible to make any observations about them. The key point in this exercise is analysing the relative 'closeness' of these cooperative board members and factory employees. The other nodes (many of which are farmers) serve as tools to calculate this closeness. The reason all Chemelil employees are close together on the bottom right is not that they have each other's numbers (because that would only be a handful of edges). They are close together because they share a lot of similar contacts in their mobile phone books.

13.2 Network positions in relation to performance

Originally this research set out to correlate network location and network density coming from the SNA to quantified performance factors of each of the cooperatives. This would be a great and unique way of showing whether or not the location in a network has effect on how the collective action entity, in this case the cooperative, would perform. Unfortunately, data on performance by the cooperatives was not extensive enough to perform this kind of analysis. Instead of omitting this experimental part of the research altogether, it still seems useful to present the end result and the challenges in working with farmers in this way. The social sciences are on the brink of a fundamental change, when new methods are presented to analyse so-called big data. Suddenly, scientists are presented with databases containing millions of opinions or interactions. Depending on the approaches they choose, they will be all the wiser or non the wiser. Efforts in this project have shown that it is easy to construct any reality using numbers to suit the narrative that the researcher wants to portray. In a sense, statistics and facts are always just the paint with which to paint a picture of choice. A good researcher stays as close to an unbiased version as he or she possible can. In this case, that meant abstaining from the alluring idea of drawing grand conclusions, linking the SNA graph to soft data on performance by cooperatives.

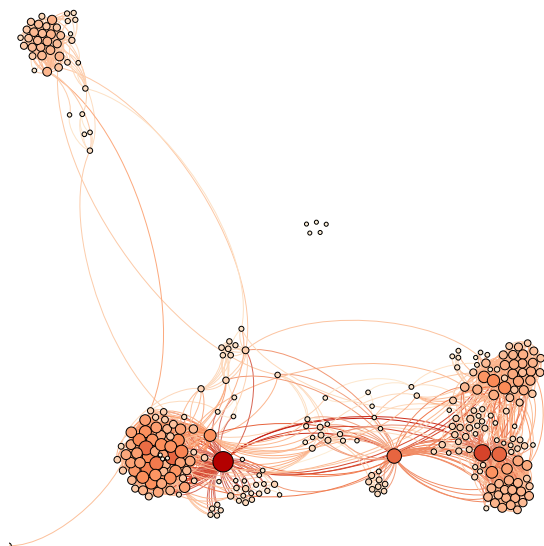
Instead, results will be qualitatively interpreted. The interesting thing about these SNA graphs is that while it is dangerous practice to draw new conclusions from them, they are very useful for illustrating existing conclusions. The figure below shows a SNA graph of the researchers personal network on Facebook. In this type of analysis (i.e. an analysis centring around one person), the main node is often omitted, to prevent this node from taking up a central location and confusing the end result. For the Social Network Analysis a script generated a list of all 300 Facebook connections (i.e. the nodes) and checked for each one if he or she is friends with one of the others on the list (i.e. forming

the edges). For a bystander, a graph like this is not that useful for studying this person's social life. The only conclusion an outsider could draw is that he has four distinct groups he interacts with. Now when the actual situation is combined with the graph, the illustration makes a lot more sense. The illustration can even be used as an information map, that helps the researcher convey a narrative. In this case simply observing the four main groups says a lot about this persons social history. This kind of analysis relies heavily on the use of Facebook. For example, in real life the subject's father would probably play a big role in his network, but because this father is not on Facebook he doesn't play any role whatsoever in this graph. The same counts for the SNA presented in this research. Relying on mobile phone number mapping it can only illustrate communication relationships that take place digitally. It is plausible that some highly important relationships only take place in the real world.

Table 8 Social Network Analysis narrative for figure 12

Node group	Description	Location	Key nodes
<i>Two groups on the right</i>	Family members on the bottom Friends and classmates from high school on top	Growing up and going to school in pretty much the same town, these two groups are relatively close together.	The two big red dots are the person's mother and brother. These two form so-called gatekeepers to the family node group. The red dot connecting the two groups on the right with the big group on the left is the subject's girlfriend.
<i>Bottom left</i>	Friends and classmates from University	Having studied in Utrecht, the friends in this group are relatively far from both family and high school friends. This manifests in the fact that high school friends more closely interact with the subject's family than friends in Utrecht.	The big red dot in front of this Utrecht group is a close friend, and the SNA reveals the significance of this person's presence in the subject's student life.
<i>Top far left</i>	Classmates from an international MSc programma at Utrecht University	Since this group consists mostly of international students, the group is pushed further away from the rest of the illustration, having little connection with others in the network. The group aims to the left (Utrecht side).	No key node manifests itself in this group. In reality this holds true, as there wasn't one person that intensively interacted with family or friends from high school.

Figure 12 Gephi Social Network Analysis of one person's Facebook network



Back to the SNA graph of the sugarcane cooperatives in Western Kenya, the same narrative form can be used for interpretation. Empirical results from traditional methods (e.g. surveys and focus group discussion) can in this way be illustrated with experimental methods. In this way researchers can experiment with data, while staying within the safe boundaries of years of academic methodology and experience.

Analysing the group in this way can identify key persons for interviewing later. This method of using SNA graphs among smallholder farmers, could be used in the early phases of a larger research project to identify which stakeholders would be interesting respondents for interviews. Take for example the Chemelil Outgrowers employee governing area 3. This person takes a central position in the Chemelil employee group, while being pulled towards the cooperatives the most. If the edges are added up, this person has three times as many farmers in his phonebook than the other staff members of the department. Another interesting observation is found in the Chemelil Outgrowers Manager. He is the person in charge of the scope and focus of the outgrowers department of Chemelil Sugar Company. In the SNA graph he has many ties with both Guhora and Ayucha cooperatives.

The union manager is exactly where he was expected to be in the graph: dead centre. This underlines the earlier observation that the union manger is doing a good job in being the central spokesperson dealing with all the cooperatives. More elaborate SNA graphs of union mobile contacts elsewhere could for example show bias, when union representatives favour the contacts of certain parties over others. This could well be explained, when maybe some parties need more attention than others. So again, the SNA graph can't prove or create a new narrative, but it can certainly provide insight into the inner workings of existing narratives of social interaction.

When combining the composition of the SNA graph with the marks given to cooperatives by the union manager and the company employees they seem to coincide slightly, with Odiembo and Muhuroni scoring higher and being close to the center. Still, Guhora is even closer to the center, with a lower score by the other parties. All in all, it is too difficult to draw conclusion from these shallow figures. Also, if there was a link between scoring by the companies employees and proximity to these employees in the SNA it would more likely be because of a judgement bias than an actual performance advantage. If a respondents is close to a board member of a cooperative he would obviously grade that cooperative with a higher mark. Future research should link position in the mobile network to access to resources. If access to resources can be properly quantified and correlated against the degree of access to nodes in the mobile phone address book network, it could prove to academically interesting.

13.3 Limitations

Of course there are a few critical limitations to this method. The main one is that relationships between respondents could only be quantified as "being present in someone mobile phone address book". It would make sense to argue that this is too gravely a simplification of their relationships. The fact of the matter though, is that while this does provide only a small part of the story, it sheds light on an aspect of communication and social interaction that is still relatively unknown. Also, many respondents (i.e. both farmers and mill employees) noted that since a few years they've turned to mobile calling as their main means of communicating with others (various respondents, Western

Kenya, 2014). Another issue is that probably not every respondent would have his or her most important contacts in his or her phone address book. Perhaps a few respondents would know the most important numbers by heart, without needing a digital contact. Only two respondents indicated ever dialling numbers off the top of their heads, to this might not create too much of a bias. Finally, with the haphazard way in which the data was collected, the database skews the information. Of some groups 5 SIM card were copied, while in other groups only 2 were copied. The group with 5 SIM card contact lists therefore has a stronger gravitational pull in the resulting graph, while their position is not necessarily stronger. Also, the graph does not represent a closed system with clear boundaries of who is part of the analysis and who isn't. This makes it very hard to say anything remotely quantitative about the density of this network graph. A new research project focusing purely on SNA could tackle these problems. In this research effort the SNA is only used as an addition to more traditional methods to add graphic insight into qualitative information.

These limitations are possibly severe enough to question the validity of this entire approach. Where is the line between playing with numbers and fancy computer graphs on the one hand, and actually contributing to understanding complex social situations on the other? Of course this approach needs more clarification and a more meticulous way of gathering data. Within the scope of this thesis this was, unfortunately, unachievable. Still, this first foray into new methodological territory has provided some new insights into performance of smallholder cooperatives in the studied area. At the same time, it could feed into future research activities more capable of collecting data from large numbers of farmers, led by researchers with more knowledge of the statistical implications of social network rendering by computer software.

14. Answering the research questions

Now, after empirical observations in the field and qualitative analysis of data, what can be said in regards to the earlier formulated research questions? The research project set forward to gain an empirical understanding of outcome determinants in this specific case study. In this section each of the research sub questions will be concisely answered, based on the data that was presented in the main body of this thesis. Finally, the main research question will be answered for this case study.

- What distinguishes business-driven and cooperative-driven outgrower schemes?

Cooperative-driven outgrower schemes at first glance seem to be preferable to business-driven schemes, because there is more opportunity for the farmers to express their own demands and opinions, and in general the members are looked after more. The problem in Western Kenya the problem though, is that these cooperative lack capacity to actually help there members financially, and they often lack the knowledge to help their members innovate. In the case study presented here, the smallholders that were part of the business-driven outgrower system seemed to have the edge over their counterparts in Kisumu County, because the miller is more capable of providing proper inputs and innovation, such as new seedcane varieties. The miller's incentive to assist the farmer lies with the cane production, making this a risky relationship in the long run. Unlike in a cooperative system, the farmer can not expect support that is not directly related to increasing sugarcane production.

- What types of collective action are relevant for the sugarcane sector?

The sugarcane sector in Kisumu County is heavily reliant on primary cooperative societies of smallholder sugarcane farmers. The large scale farmers are not members of these cooperatives, because they deliver their cane directly to the miller or collaborate with Chemelil Outgrowers Company. Because these cooperatives consist of smallscale farmers, they mostly lack the capacity to support its members. The structure for contributing to the group in the area is detrimental to the development of a strong cooperative movement. Most farmers are not contributing significant funds to their cooperative. The reason seems twofold: farmers are often not able to expend the costs needed to increase the capacity of their society, and there is often a lack of trust in the system and its leaders. Whether this lack of trust is valid is not relevant as far as the perception of farmers is concerned, because the perception itself leads to their unwillingness to contribute. This study has focused on primary cooperative societies, potentially containing a blind side to other collective action groups in the area that might be successful. However, enquiries were made in all interviews about other group activity, and unanimously respondents indicated that they were not involved in collective action groups other than the cooperative society. SACCO's are present, lending money and paying out loans, but they are too small in scope to be able to assist more than a fraction of the farmers in the area.

- What differences exist between varying collective action entities?

Not a lot of variation exists between primary cooperative societies, some are older or bigger than others, but most lack the same institutional strength, conceptualised in accountability, incentive, and capacity issues. Concerning mandate, all societies fall under the same policies (i.e. the cooperative

act) and are all under supervision by government officials, the union, the Kenya Sugar Board, and factory extension agents. Interestingly, the few cooperatives that are involved in diversification, through stimulating economic activity outside of sugarcane farming seem to be more successful than their specialised counterparts. As discussed earlier, measuring performance has been extremely difficult in the area, and future research into performance of sugarcane cooperatives is necessary to quantify the causality between collective action diversification and group performance. Board members who stimulate diversification on a cooperative level are possibly more capable of dealing with other issues of the cooperative as well. So it might just be the leaders, and not the diversification process itself that contributes to better group performance. Interviews with members of said society indicated though, that the society has had considerable success since they picked up dairy farming in addition to sugarcane farming, and was rather unsuccessful before.

- What are the issues that collective action bodies have to deal with?

Cooperatives are subject to a number of external influences on all possible levels of scale. They deal with climatic conditions such as rainfall or soil degradation on a daily basis, so are directly impacted by climate change conditions. Also, they deal with infrastructural problems, with roads being washed away, bridges collapsing or dirt roads being destroyed by tractor tires. These issues need to be resolved on the level of national and even international policy. Certainly not farmers or cooperatives, but not even the sugarcane factories in the area are capable of dealing with infrastructural problems. The Kenya Sugar Board deducts a fee of every harvest (CES) that is used for maintaining the road network in sugarcane areas, but they are underequipped to keep up with infrastructural deterioration. The influx of cheap sugar imports in the country and the uncertain future of the COMESA safeguards are also external influences that can make a serious impact on individual's positions. All actors in the sector are dependent on a steady price for processed sugar. Because productivity for sugar in Kenya is very inefficient when compared to other countries, the sector is not able to compete directly with these markets. A big increase of illegal sugar imports, or lifting the high import taxation on legal imports, would make it next to impossible for sugarcane farmers in Kenya to sell their produce. Government officials, mill employees, and even farmers are discussing the possibility of a sector collapse of the sugarcane sector as a whole. Luckily, since Kenya is a strong economy, it is in the best interest of COMESA to keep the sugar industry going. Too many people are reliant on the sugarcane sector for it to collapse without creating serious trouble for Kenya and its international trade partners.

- What characterises the composition structures of these groups?

The structure of the interviewed cooperative societies was very similar. All groups were generally homogenous, mostly consisting of male sugarcane farmers without a background in higher education. In a few groups half of the members went to high school, and even university for some. The problem is that these university graduates are not that actively involved in the group activities compared to other members, so they contribute less to day to day operations. Asset inequality was not conceived as an issue. Some farmers possessed transport means, that could be shared among members of the group. When it came to land ownership, most members had about the same areas of land, since the bigger farmers were not part of the cooperatives, and if they were they didn't actively participate.

- What characterises collective action conduct in this area?

Conduct is the same for most of the groups, because the lack the capacity to make active changes and decisions. There are slight differences in how they deal with members leaving the group for instance (not allowing them to return on at a later date). But in most cases the board members just have to deal with a situation in which there is no room for investment and so they keep conducting group leadership as it has always been done. The few times that the financial means are there, usually after harvest, the group helps the farmers that need it desperately, or those farmers that pose the least risk of defaulting on a loan. Accountability in cooperatives is low, leading to a lack of trust among members. This lack of trust, combined with the lacklustre financial status, is the reason there is no incentive for farmer members to seriously invest in their cooperative society. This downward spiral seems to have been broken by one of the cooperatives, investing in diversification schemes for dairy production, helping farmers with dairy production. This only happened with the intervention of a foreign aid institution though, so it is an exemption that can hardly be an example for the other cooperatives.

- What critical success factors can be observed when comparing collective action entities

The context for collective action in the sugarcane sector in Kisumu county is not stimulating performance. A lack of trust in leadership creates a lack of willingness to participate in collective action initiatives. The fact that most members do not voluntarily join a cooperative, but are forced to sell their sugarcane through an outgrower institution makes things more complicated. Furthermore, the cooperatives or farmers that are successful, open themselves up to increased outside threats. Owning dairy cows, greenhouses or farming equipment (e.g. a tractor) seriously increases the risk of being robbed. This plays an important part in local decision making on investment, and many decide that the risk is simply too big.

- **What are the outcome determinants for collective action and cooperation in a case study of small-holder farmers in outgrower schemes in the sugarcane sector of Bungoma and Kisumu County in Western Kenya?**

The outcome determinants are more defined by structural limitations than by changes in conduct by the collective actions. Meaning: there is too little opportunity for the cooperative movement to change the situation the sugarcane farmers are currently in. Structural limitations at an institutional level need to be tackled before there can be a vital cooperative-driven outgrower scheme for sugarcane growers in the Kisumu area. Until then, the business-driven outgrower scheme seems to be more viable, because even though the company has less incentive of helping the actual farmers, they do have the means (both financially and information-wise) to make an impact. And while this impact targets sugarcane production exclusively, en passant it helps the farmers growing that sugarcane. The biggest issue here is who will look out for the farmers if their interest and that of the miller get separated in the future.

15. Discussion and implications

Note: As a descriptive case study, this thesis mainly deals with the topic of collective action with a bottoms-up approach, from a local perspective. In this section, a broader viewpoint is chosen, to reflect on the findings in this research from an academic, theoretical perspective. These conclusions can't be fully justified by the research results, and reflect the author's personal position on combining observations with grand theories of development.

Institutional theories often compare society to a game. And like a game, society needs a balanced rulebook to properly guide and channel behaviour. A rulebook, that has been carefully fine-tuned over thousands of years and that is maintained and transferred within the fabric of civilisations and culture. This evolution of institutional rules and conditions created a geographic diversity of societies, with vastly different rule sets. These institutions are what lift humanity from the primal drives and evolutionary urges of an individual to the well-oiled machines that societies all over the globe often form.

When 17th century Europeans first set foot in Eastern Kenya, the colonisers were confronted with a society that played by rules that they could hardly understand, let alone agree with. This was not only a clash of civilisations, but in line with reasoning put forward in this thesis: a clash of rulebooks (i.e. an institutional clash). Seventy-seven years of colonial rule followed, with settlers and oppressors trying to impose their way of handling things, on a society that was significantly different from theirs. Of course, changing the entirety of institutional Kenya was a futile effort, leaving a situation in which some institutions were changed, while others stayed in place. It seems plausible to assume that institutional change needs to come from within, and is impossible to achieve merely by external stimuli, which unfortunately is a topic that cannot be touched upon within the reach of this thesis. In a developmental sense though, a vast number of empirical studies present the result of European involvement in African institutions, and emphasise the conflicts arising from these involvements. One could argue that at times, the rulebooks became unbalanced. If institutions are the “rules of the game”, perhaps the rules in postcolonial Africa no longer fit the game. Within this conceptualization of postcolonial Kenya, an inherent structural institutional flaw should then be observed. This flaw arises from institutional mismatch on all levels of society. Capitalism conflicts with ideas of social capital and family dependence. Hierarchy idealization creates bureaucracy problems in a vast number of sectors. It is not necessarily the case that the institutional model of Western or Kenyan society are flawed. It is the careless fusion of the two, the imbalance in the institutional rulebook, that created a situation in which structure is not properly composed to deal with everyday life in an efficient manner.

Then, returning to the topic of smallholder sugarcane farmers, structural institutional properties of these societies are not inhibiting the most ideal conduct for smallholder cooperation. Path dependency is creating a situation in which the wiggle room for change is limited in such a degree, that the rise of a cooperative moment and a strong civil society is negatively impacted. Theories of change are of great help, as long as they are rooted in realistic possibilities, and the empirical evidence in this research project suggests that these possibilities are limited at best. Lacking a strong institutional base, collective action success can be hard to achieve. Not surprisingly, distilling critical success factors for collective action from such a population is evenly difficult. So where this research

set forth to find evidence for critical success factors for collective action in the sugarcane sector, what it must conclude is that an increased emphasis on structural forces is preferred over interventions on the conduct level of cooperatives. In the introduction of this thesis the opinion on smallholders that has been dominant for a number of years was exemplified. Smallholders are at times seen as sleeping giants that only need to be enabled, linked to markets and organised into bigger groups to reach a hidden potential of productivity bliss. When extrapolating the findings of this case study to the reasoning of such multilateral organisations, it's not hard to come to the conclusion that issues are presented in a rose-tinted manner. An increased focus on structural institutional aspects of smallholder farming is urgently needed, both from policy-maker and academic perspectives, to address the sugar-coated issue of smallholder development.

16. References

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17. Appendices

Appendix 1: List of interview respondents

February:

Nzoia Sugar Company employee, Bungoma, 21 February, 2014

Nzoia Sugar Company employee, Bungoma, 26 february 2014

Nzoia area manager, Bungoma, 30 february 2014

March:

KSB employee, Kisumu, 6 march 2014

Manager Kenyan Sugar Board, Kisumu, 6 march 2014

Nzoia field day staffmember, Kakamega, 4 march 2014

Solidaridad staff, Nairobi, 12 March 2014

Kenyan solidaridad staff, Nairobi, 12 March 2014

Francis Odera, outgrower manager of Chemelil Sugar Company, numerous occasions

Outgrowers manager Chemelil Sugar Company, Chemelil, 31 march 2014

Bob, largescale farmer in Chemelil, numerous occasions

Manager Kisumu Sugarbelt Cooperative Union, Chemelil, 25 march 2014

April:

Manager Kenya Sugar Board, Kakamega, 5 april 2014

Farmer visiting field day, Chemelil, 25 april 2014

May:

Male farmer, Chemelil, 3 may 2014

Managing Director, Chemelil, 9 may 2014

Female farmer, Chemelil, 3 may 2014

Factory employee, Chemelil, 12 May 2014

Representatives from the following cooperative societies:

Kue, Keyo, Odiembo, Togo, Ayucha, Muhuroni, Ngeny, Apidi, Ponge, Guhora

Appendix 2: Operationalisation of survey questions and variables

Determinant variables (survey chapters 1-2 and 12)

1. Basic info	
Survey question	Variable
1a. What is the name of the group?	Nominal
1b. What is the number of members?	Ratio-interval scale
1c. Where is the group office?	Nominal
1d. Where is the group meeting location?	Nominal

2. Geographical context	
Survey question	Variable
2a. How many of the group members have a reliable water source? (Have access to either irrigation or can rely on rainfall)	Interval-ratio scale
2b. What is the distance from the group meeting location to the sugar company?	Ratio-interval scale
2c. Which of the following applies to the road conditions from group meeting location to the sugar company? 0 Good – 2 km or less from a paved road leading to the sugar company 0 Average – gravel road, fairly flat and accessible most of the year 0 Bad – dirt road only, is uneven, difficult to maneuver, and may not be passable during rainy seasons	Ordinal
2d. In which outgrower zone is the group active?	Nominal

Group structure and conduct (survey chapters 3-11)

3. Formalisation	
Survey question	Variable
3a. Which of the following applies to the group? (multiple answers possible) 0 The group has by-laws 0 The group has a bank account 0 The group has a constitution	Nominal
3b. Under which form is the group registered? 0 The group is not registered 0 Primary society cooperation 0 Union 0 SACCO 0 Public company ltd. 0 Private company ltd. 0 Federation 0 Other, please state:	Nominal

4. Group history	
Survey question	Variable
4a. When was the group started?	Nominal
4b. How long did it take before the group was formed?	Nominal
4c. What was the reason for starting the group?	Nominal
4d. Which of the following forms of help were offered at origin? 0 Asset help	Nominal

0 Financial help 0 Management help	
4e. Which of the following forms of help are currently offered? 0 Asset help 0 Financial help 0 Management help	Nominal
4f. Who offered the help mentioned in 4d and 4e?	Nominal

5. Participation	
Survey question	Variable
5a. Can anybody join the group? 0 Yes 0 No – applicants are refused if:	Nominal
5b. Are there any criteria to join the cooperative? 0 No 0 Yes – criteria are:	Nominal
5c. How many people have been refused in the last year?	Interval-ratio scale
5d. How many times last year did general members meet?	Interval-ratio scale
5e. What is the average number of people that attend these meetings?	Interval-ratio scale
5f. Who are the people that attend these meetings?	Nominal

6. Members	
Survey question	Variable
6a. What is the most common plot size of members?	Interval-ratio scale
6b. Is there variation in plot sizes among members?	Nominal
6c. What percentage of members owns a vehicle?	Interval-ratio scale
6d. Do all the members get the same price for their sugarcane?	Nominal
6e. What is the gender distribution of members? 0 Female-only 0 Female-dominated 0 Gender-balanced 0 Male-dominated 0 Male-only	Ordinal
6f. What is the ethnic distribution of members? 0 One tribe dominant 0 Two tribes dominant 0 Three tribes dominant 0 No tribes dominant	Nominal
6g. Which tribes are represented in the group?	Nominal
6h. What is the percentage of members that finished high school?	Interval-ratio scale
6i. What is the most common education background of members?	Nominal
6j. Are there any high educated members in the group? (percentage)	Nominal (Interval-ratio scale)
6k. To what mill do most farmers sell their sugarcane?	Nominal
6l. What other mills are active in the area?	Nominal
6m. How far do most members live from the sugarcane mill?	Interval-ratio scale
6n. Does distance to the mill play a role in joining the group?	Nominal

7. Accountability	
Survey question	Variable
7a. Is there a board of directors?	Dichotomous
7b. How is leadership or board membership selected?	Nominal
7c. Is the board independent?	Nominal
7d. To what extent are the activities regulated by legislation?	Nominal
7e. Does the group have a contractual agreement with its members?	Dichotomous
7f. What are the terms of this contract?	Nominal
7g. Does the group have informal agreements with its members?	Nominal
7h. Do members maintain a contract with a sugar mill?	Dichotomous
7i. What services can be demanded from the group	Nominal
7j. How many conflicts have there been in the group in the last two years?	Interval-ratio scale
7k. How were these conflicts resolved?	Nominal

8. Capacity	
Survey question	Variable
8a. How is management structured?	Nominal
8b. What is the number of managers?	Interval-ratio scale
8c. What methods of monitoring participation are used?	Nominal
8d. What methods of enforcing participation are used?	Nominal
8e. What is the number of years of schooling of the president?	Interval-ratio scale
8f. What is the number of years of schooling of the managers?	Interval-ratio scale
8g. Does the group have a debt?	Dichotomous
8h. To whom does the group owe this debt?	Nominal
8i. What kind of activities does the group undertake? <input type="checkbox"/> Extension services <input type="checkbox"/> Credit provision <input type="checkbox"/> Negotiation <input type="checkbox"/> Information sharing <input type="checkbox"/> Labour provision <input type="checkbox"/> Other, please state: _____	Nominal
8j. What is the core activity of the group?	Nominal
8k. What are the criteria for getting support of the group?	Nominal
8l. Do some farmers have priority over others when getting support?	Nominal
8m. In what stages of sugarcane farming does the group assist members? <input type="checkbox"/> Surveying land <input type="checkbox"/> Ploughing <input type="checkbox"/> Harrowing <input type="checkbox"/> Furrowing <input type="checkbox"/> Seedcane provision <input type="checkbox"/> Maintaining cane <input type="checkbox"/> Harvest <input type="checkbox"/> Transport	Nominal
8n. Are there members that do not ask for support?	Nominal
8o. Why do they not ask for support?	Nominal

9. Incentive

Survey question	Variable
9a. Do members own shares of the group, voluntarily or obligatory? 0 Share are voluntary 0 Shares are obligatory Price of a share is ... KSH	Nominal
9b. Is there a fee for group members? 0 No 0 Yes The fee is ... KSH	Dichotomous / interval-ratio scale
9c. When is the fee being charged? 0 Annually 0 Monthly 0 At harvest 0 Other, please state: _____	Nominal
9d. How do managers get paid? 0 Based on the price obtained for the members 0 Based on sold inputs 0 Fixed 0 Other, please state: _____	Nominal

10. Mandate	
Survey question	Variable
10a. What is the mission of the group?	Nominal
10b. Who defined this mission statement?	Nominal
10c. Who started the group?	Nominal
10d. Does the group have a political affiliation?	Dichotomous
10e. Does the group have a religious affiliation?	Dichotomous
10f. What is the operational boundary of the group?	Interval-ratio scale

11. Issues	
Survey question	Variable
11a. What are the issues that the group dealt with win the last year?	Nominal
11b. How many times has the group successfully dealt with each of the previously mentioned issues?	Interval-ratio scale
11c. With which actors does the group work together to deal with these issues?	Nominal
11d. What other kinds of collaborations does the group have with other groups?	Nominal
11e. Is the group a member of another agricultural or development-oriented group?	Nominal

Performance (survey question 13)

13. Performance	
Survey question	Variable
13a. What is currently the price that members get for a tonne of sugarcane?	Interval-ratio scale
13b. What is currently the price that other farmers in the region get for a tonne of sugarcane?	Interval-ratio scale
13c. What was the price per tonne of sugarcane that members got a year ago?	Interval-ratio scale
13d. Do farmers plant their cane on time? 0 Always 0 Most of the time 0 Sometimes 0 Never	Ordinal
13e. Do farmers use fertiliser? 0 Always 0 Most of the time 0 Sometimes 0 Never	Ordinal
13f. What percentage of farmers can sustain their household with only sugarcane production?	Interval-ratio scale
13g. Is the group equity enough to pay off debts?	Nominal
13h. Is the group financially healthy?	Nominal
13i. Do farmers switch groups often in this region?	Nominal
13j. What percentage of members that used group services last year was new to the group?	Interval-ratio scale
13k. What are the obstacles faced in relation to keeping farmers in the group?	Nominal
13L. What binds members to the group?	Nominal

Appendix 3: Descriptive statistics of the survey population



Figure 13 Boxplot of group size, excluding Chemelil Outgrowers Company (COC).

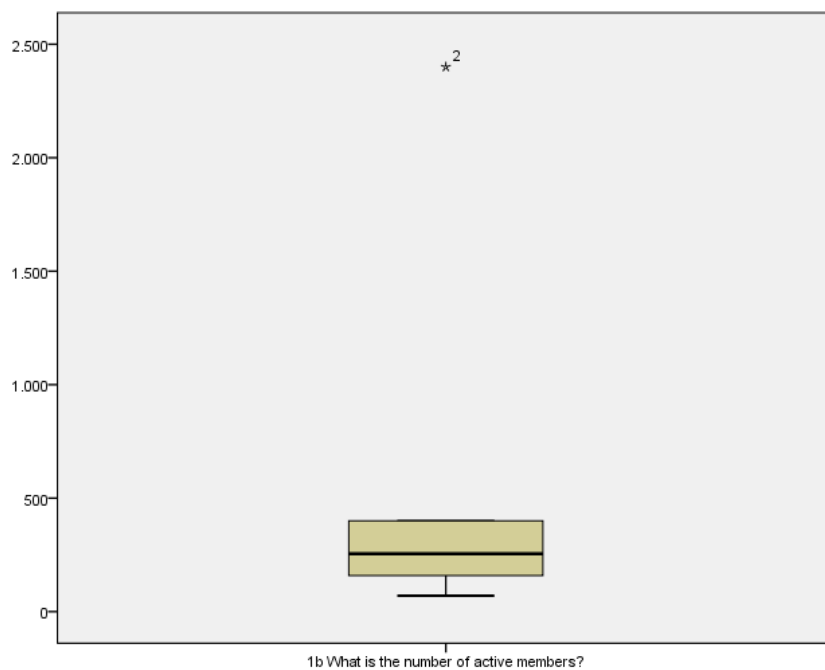


Figure 14 Boxplot of active group size, excluding Chemelil Outgrowers Company (COC).

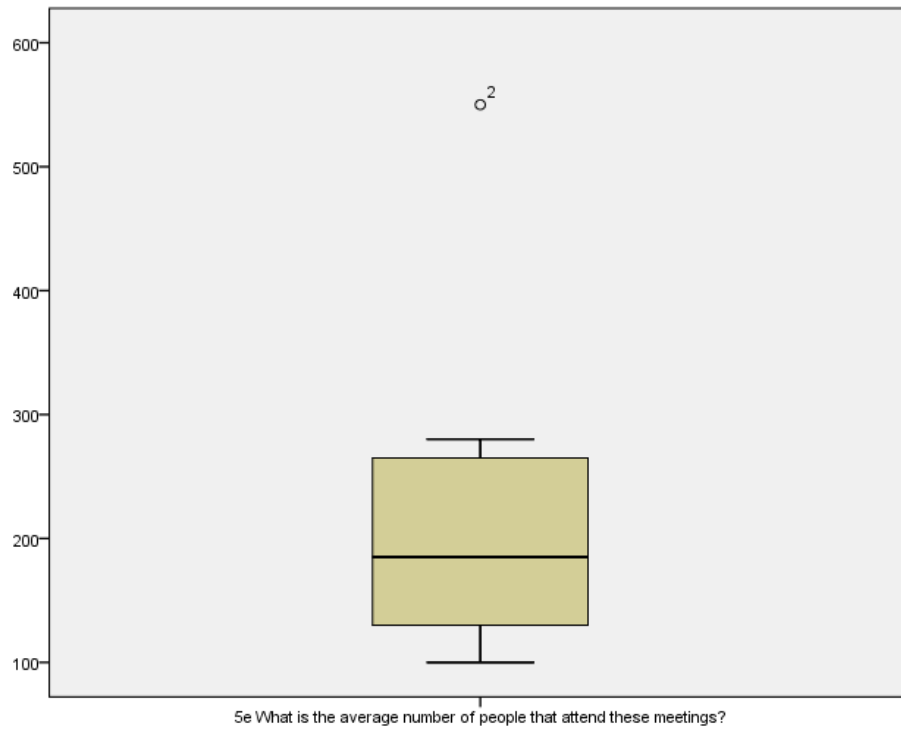


Figure 15 Boxplot of attendance at Annual General Meeting, excluding Chemelil Outgrowers Company (COC).

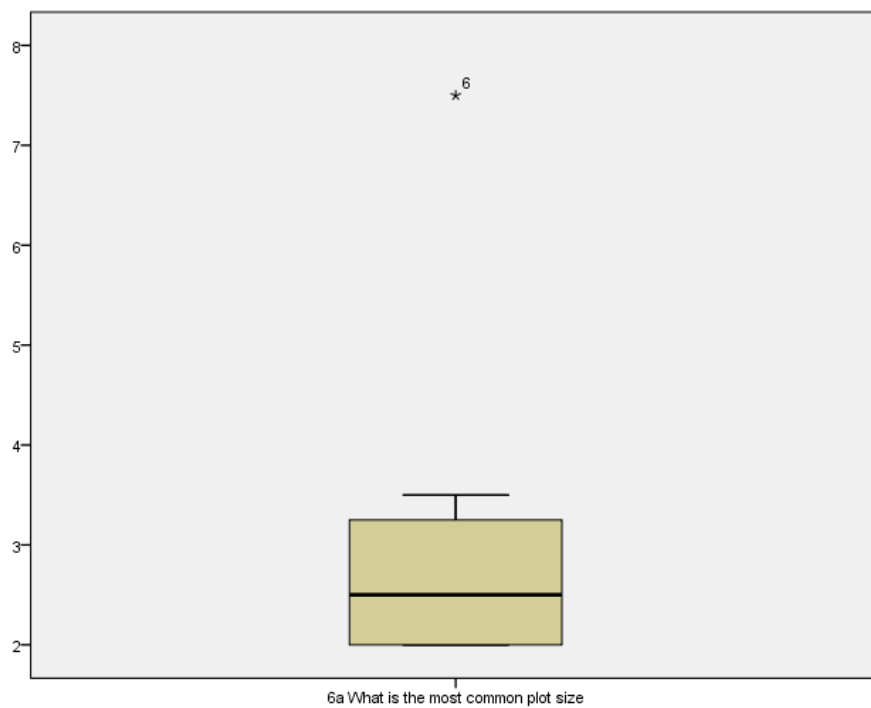


Figure 16 Boxplot most common plot size, excluding Chemelil Outgrowers Company (COC).

Table 9 Number of cases for each of the quantitative variables

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
1b What is the number of members?	10	100,0%	0	0,0%	10	100,0%
Computed: What is the percentage of active members?	10	100,0%	0	0,0%	10	100,0%
4a When was the group started?	10	100,0%	0	0,0%	10	100,0%
5e What is the average number of people that attend these meetings?	8	80,0%	2	20,0%	10	100,0%
6a What is the most common plot size	10	100,0%	0	0,0%	10	100,0%
6c What percentage of members owns a vehicle?	10	100,0%	0	0,0%	10	100,0%
8n What percentage of members needs support from the group?	8	80,0%	2	20,0%	10	100,0%
9a What is the price of a share in KSH?	6	60,0%	4	40,0%	10	100,0%

Table 7 General statistics for each of the quantitative variables

	1b What is the number of members?	Computed: What is the percentage of active members?	4a When was the group started?	5e What is the average number of people that attend these meetings?	6a What is the most common plot size	6c What percentage of members owns a vehicle?	8n What percentage of members needs support from the group?	9a What is the price of a share in KSH?
Mean	741,90	61,8252	1987,70	226,25	3,90	14,120	73,13	371,67
N	10	10	10	8	10	10	8	6
Std. Deviation	855,885	24,36150	11,889	145,105	2,989	18,8128	34,115	487,870
Median	415,00	58,8710	1992,50	185,00	3,00	7,500	92,50	85,00
Minimum	160	24,60	1965	100	2	,0	20	20
Maximum	3000	97,50	1998	550	11	60,0	100	1000